



SAS[®] 9.4 System Options: Reference, Fifth Edition

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SAS® 9.4 System Options: Reference, Fifth Edition

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Syntax Conventions for the SAS Language

Overview of Syntax Conventions for the SAS Language

SAS uses standard conventions in the documentation of syntax for SAS language elements. These conventions enable you to easily identify the components of SAS syntax. The conventions can be divided into these parts:

- syntax components
- style conventions
- special characters
- references to SAS libraries and external files

Syntax Components

The components of the syntax for most language elements include a keyword and arguments. For some language elements, only a keyword is necessary. For other language elements, the keyword is followed by an equal sign (=). The syntax for arguments has multiple forms in order to demonstrate the syntax of multiple arguments, with and without punctuation.

keyword

specifies the name of the SAS language element that you use when you write your program. Keyword is a literal that is usually the first word in the syntax. In a CALL routine, the first two words are keywords.

In these examples of SAS syntax, the keywords are bold:

CHAR (*string, position*)

CALL RANBIN (*seed, n, p, x*);

ALTER (*alter-password*)

BEST *w*.

REMOVE *<data-set-name>*

In this example, the first two words of the CALL routine are the keywords:

CALL RANBIN(*seed, n, p, x*)

The syntax of some SAS statements consists of a single keyword without arguments:

DO;

... SAS code ...

END;

Some system options require that one of two keyword values be specified:

DUPLEX | NODUPLEX

Some procedure statements have multiple keywords throughout the statement syntax:

CREATE *<UNIQUE> INDEX index-name ON table-name (column-1 <,
column-2, ...>)*

argument

specifies a numeric or character constant, variable, or expression. Arguments follow the keyword or an equal sign after the keyword. The arguments are used by SAS to process the language element. Arguments can be required or optional. In the syntax, optional arguments are enclosed in angle brackets (*< >*).

In this example, *string* and *position* follow the keyword CHAR. These arguments are required arguments for the CHAR function:

CHAR (*string, position*)

Each argument has a value. In this example of SAS code, the argument *string* has a value of 'summer', and the argument *position* has a value of 4:

```
x=char('summer', 4);
```

In this example, *string* and *substring* are required arguments, whereas *modifiers* and *startpos* are optional.

FIND(*string, substring <, modifiers> <, startpos>*)

argument(s)

specifies that one argument is required and that multiple arguments are allowed. Separate arguments with a space. Punctuation, such as a comma (,) is not required between arguments.

The MISSING statement is an example of this form of multiple arguments:

MISSING *character(s);*

<LITERAL_ARGUMENT> argument-1 <<LITERAL_ARGUMENT> argument-2 ... >

specifies that one argument is required and that a literal argument can be associated with the argument. You can specify multiple literals and argument

pairs. No punctuation is required between the literal and argument pairs. The ellipsis (...) indicates that additional literals and arguments are allowed.

The BY statement is an example of this argument:

BY <DESCENDING> *variable-1* <<DESCENDING> *variable-2* ...>;

argument-1 <*options*> <*argument-2* <*options*> ...>

specifies that one argument is required and that one or more options can be associated with the argument. You can specify multiple arguments and associated options. No punctuation is required between the argument and the option. The ellipsis (...) indicates that additional arguments with an associated option are allowed.

The FORMAT procedure PICTURE statement is an example of this form of multiple arguments:

PICTURE name <(format-options)>
<value-range-set-1 <(picture-1-options)>
<value-range-set-2 <(picture-2-options)> ...>;

argument-1=value-1 <*argument-2=value-2* ...>

specifies that the argument must be assigned a value and that you can specify multiple arguments. The ellipsis (...) indicates that additional arguments are allowed. No punctuation is required between arguments.

The LABEL statement is an example of this form of multiple arguments:

LABEL *variable-1=label-1* <*variable-2=label-2* ...>;

argument-1 <, *argument-2*, ...>

specifies that one argument is required and that you can specify multiple arguments that are separated by a comma or other punctuation. The ellipsis (...) indicates a continuation of the arguments, separated by a comma. Both forms are used in the SAS documentation.

Here are examples of this form of multiple arguments:

AUTHPROVIDERDOMAIN (*provider-1:domain-1* <, *provider-2:domain-2*, ...>
INTO :*macro-variable-specification-1* <, :*macro-variable-specification-2*, ...>

Note: In most cases, example code in SAS documentation is written in lowercase with a monospace font. You can use uppercase, lowercase, or mixed case in the code that you write.

Style Conventions

The style conventions that are used in documenting SAS syntax include uppercase bold, uppercase, and italic:

UPPERCASE BOLD

identifies SAS keywords such as the names of functions or statements. In this example, the keyword ERROR is written in uppercase bold:

ERROR <message>;

UPPERCASE

identifies arguments that are literals.

In this example of the CMPMODEL= system option, the literals include BOTH, CATALOG, and XML:

CMPMODEL=BOTH | CATALOG | XML |

italic

identifies arguments or values that you supply. Items in italic represent user-supplied values that are either one of the following:

- nonliteral arguments. In this example of the LINK statement, the argument *label* is a user-supplied value and therefore appears in italic:

LINK *label*;

- nonliteral values that are assigned to an argument.

In this example of the FORMAT statement, the argument DEFAULT is assigned the variable *default-format*:

FORMAT *variable(s)* <format > <DEFAULT = *default-format*>;

Special Characters

The syntax of SAS language elements can contain the following special characters:

=

an equal sign identifies a value for a literal in some language elements such as system options.

In this example of the MAPS system option, the equal sign sets the value of MAPS:

MAPS=*location-of-maps*

< >

angle brackets identify optional arguments. A required argument is not enclosed in angle brackets.

In this example of the CAT function, at least one item is required:

CAT (*item-1* <, *item-2*, ...>)

|

a vertical bar indicates that you can choose one value from a group of values. Values that are separated by the vertical bar are mutually exclusive.

In this example of the CPMODEL= system option, you can choose only one of the arguments:

CPMODEL=BOTH | CATALOG | XML

...

an ellipsis indicates that the argument can be repeated. If an argument and the ellipsis are enclosed in angle brackets, then the argument is optional. The repeated argument must contain punctuation if it appears before or after the argument.

In this example of the CAT function, multiple *item* arguments are allowed, and they must be separated by a comma:

CAT (*item-1* <, *item-2*, ...>)

'value' or "value"

indicates that an argument that is enclosed in single or double quotation marks must have a value that is also enclosed in single or double quotation marks.

In this example of the FOOTNOTE statement, the argument *text* is enclosed in quotation marks:

FOOTNOTE <*n*> <*ods-format-options* 'text' | "text">;

;

a semicolon indicates the end of a statement or CALL routine.

In this example, each statement ends with a semicolon:

```
data namegame;
  length color name $8;
  color = 'black';
  name = 'jack';
  game = trim(color) || name;
run;
```

References to SAS Libraries and External Files

Many SAS statements and other language elements refer to SAS libraries and external files. You can choose whether to make the reference through a logical name (a libref or fileref) or use the physical filename enclosed in quotation marks.

If you use a logical name, you typically have a choice of using a SAS statement (LIBNAME or FILENAME) or the operating environment's control language to make the reference. Several methods of referring to SAS libraries and external files are available, and some of these methods depend on your operating environment.

X Syntax Conventions for the SAS Language

In the examples that use external files, SAS documentation uses the italicized phrase *file-specification*. In the examples that use SAS libraries, SAS documentation uses the italicized phrase *SAS-library* enclosed in quotation marks:

```
infile file-specification obs = 100;  
libname libref 'SAS-library';
```

What's New in SAS 9.4 System Options

Overview

This document supports system options for SAS 9.4 and SAS Viya.

A highlighted, abbreviated notation of the SAS version and maintenance release specifies when a feature was added to SAS. For example, SAS 9.4M4 indicates that a feature was added during the fourth maintenance release of SAS 9.4. New SAS Viya 3.4 features are designated using the notation SAS Viya 3.4.

New and enhanced features enable you to do the following:

- specify system options to set the SAS Viya environment
- optimize performance
- specify how to process variables that are not initialized
- enable the preservation of the SAS environment
- process SAS programs by using a time zone other than your local time
- improve the accuracy of floating-point numbers
- encrypt email by using SSL or TLS encryption protocols
- animate SVG files and GIF images
- add a colophon to Universal Printing output
- use the file specified by the SYSIN option in a log name
- use an option to extend the observation count beyond the 32-bit long maximum for an output SAS data file
- increase the number of characters in a Program Editor line and increase the number of rows in the Output window
- list system options that can be saved by the OPTSAVE procedure
- specify whether a DATA step is enabled for parallel processing
- connect to an Azure storage system

These are the new features for SAS Viya 3.5:

- The AZUREAUTHCACHELOC system option specifies the location of a file that contains login information for connecting to an Azure storage system.
- The AZURETENANTID= system option specifies the tenant ID for connecting to an Azure storage system.
- The DEBUGOPT= system option specifies the host and port for debugging languages.

These are the new and enhanced features for SAS 9.4M6:

- SAS can write messages to the SAS log if it is determined that tables and reports might contain accessibility problems. You enable the feature by using the ACCESSIBLECHECK system option.
- To create accessible ODS graphics by default, set the ACCESSIBLEGRAPH system option.
- To create accessible PDF files by default, set the ACCESSIBLEPDF system option.
- To create accessible tables and reports that are generated by the REPORT and TABULATE procedures, as well as the ODS Report Writing Interface, set the ACCESSIBLETABLE system option.
- To limit the number of notes written by a SAS procedure to the SAS log, set the LIMITPROCNOTES system option. The LIMITPROCNOTES system option was added in the September 2023 update for SAS 9.4M6, in the November 2023 update for SAS 9.4M7, and in the December 2023 update for SAS 9.4M8.
- These system options are new and published in other documents:
 - In Hadoop environments, use the HADOOPPLATFORM system option to specify whether you are using MapReduce or Spark. This option is documented in *SAS In-Database Products: User's Guide*.
 - Use the GRIDINSTALLLOC system option to identify the location on the machine cluster where the SAS High-Performance Analytics environment is installed. This option is documented in *SAS Intelligence Platform: Application Server Administration Guide*.
 - Use the GRIDRSHCOMMAND system option to specify the path to the executable file that is used to launch the SAS High-Performance Analytics environment. This option is documented in *SAS Intelligence Platform: Application Server Administration Guide*.
 - Use the PROTLIBS system option to specify the paths that PROC PROTO can use to find and register load modules. This option is documented in *SAS Intelligence Platform: Application Server Administration Guide*.
 - To specify the location of trusted certificate authorities (CAs) found in OpenSSL format, use the SSLCACERTDIR= system option. This option is documented in *Encryption in SAS*.

These are the new and enhanced features for SAS 9.4M5:

- When MSGLEVEL=I and the PROC COPY options IN= and OUT= are set to a CAS engine libref, a message is written to the log that the copy is performing in Cloud Analytic Services.

- Options that allow the K, M, G, or T numeric notation for kilo, meg, giga, or tera can now be specified as KB, MB, GB, or TB.
- The value of the MAPSGFK= system option can be modified using the APPEND= and INSERT= system options.
- The “AUTHINFO= System Option” on page 83 can be used for authentication on SAS/CONNECT spawners, SAS/SHARE servers, and the CAS server.
- For new TLS options, see [Encryption in SAS 9.4](#) or [Encryption in SAS Viya: Data in Motion](#).
- See [SAS Cloud Analytic Services: User’s Guide](#) for the new options to limit the data transferred between the CAS server and SAS, and to specify a multiplier that is used to determine the size of character variables when data sets are transcoded to UTF-8.

These are the new and enhanced features for [SAS 9.4M4](#):

- Use the [SQLGENERATION=](#) system option to specify whether and when SAS procedures generate SQL for in-database processing of source data.

These are the new and enhanced features for [SAS 9.4M3](#):

- The IMLPACKAGEPRIVATE=, IMLPACKAGEPUBLIC=, and IMLPACKAGESYSTEM= system options control the locations of the SAS/IML package collections.
- The UBUFNO=, UBUFSIZE=, and VBUFSIZE= options are included in the PERFORMANCE PROC Options Group. The FONTSLOC= option is included in the ODSPRINT= PROC Options Group.

These are the new and enhanced features for [SAS 9.4M2](#):

- When MSGLEVEL=I, Hadoop MapReduce job information appears in the SAS log
- The OPTIONS procedure displays passwords in the SAS log as 8 Xs, regardless of the actual password length
- The UTILLOC= option accepts a filename as an argument.

These are the new, enhanced, and changed features for [SAS 9.4M1](#):

- The DSACCEL= system option enables you to specify whether a DATA step is enabled for parallel processing in supported environments.
- The OPTMODEL procedure uses the SAS language compiler for nonlinear statistical modeling or optimization.
- The SORTDUP system option has been deprecated. Use PROC SORT with the NODUPKEY option to remove all duplicate observations from a SAS data set.

Performance Improvements

SAS is more efficient in writing output data, especially large amounts of data, when the data is aligned on a page boundary. You can use the `ALIGNSASIOFILES` system option to align output data on a page boundary. For more information, see [“ALIGNSASIOFILES System Option” on page 71](#).

Optimization processes that determine the page size for SAS data sets and utility files have been enhanced. If the optimization processes are not ideal for your SAS session, you can use optimization processes that were in place prior to SAS 9.4. For more information, see [“DATAPAGESIZE= System Option” on page 132](#).

I/O between SAS and RAID devices is improved when you set the page size for a SAS library to be the same size as the RAID stripe. For more information, see [“STRIPESIZE= System Option” on page 330](#).

SAS uses temporary utility files for processing SAS data sets. I/O performance improves when the page size of the utility files is compatible with the page size for the data set. For more information, see [“UBUFSIZE= System Option” on page 371](#) and [“UBUFSIZE= System Option” on page 371](#).

The performance of processing a SAS view is improved by setting the size of the view buffer that holds output observations. For more information, see [“VBUFSIZE= System Option” on page 395](#).

Specify How to Process Variables That Are Not Initialized

In previous releases, SAS wrote a note to the SAS log if a variable was not initialized. Instead of a note, you can specify whether to issue a warning message or an error message to the SAS log when a variable is not initialized. You can also specify not to issue a note. If an error is issued, SAS stops processing the DATA step. For more information, see [“VARINITCHK= System Option” on page 389](#).

Enable the Preservation of the SAS Environment

The Work library data sets and catalogs, and the values of global statements, macro variables, and system options can be preserved between SAS sessions. By setting the PRESENV system option, SAS begins collecting the data that is needed to preserve the SAS environment. Before you close SAS, execute the PRESENV procedure to package the data so that it can be used in another SAS session. For more information, see [“PRESENV System Option” on page 288](#).

Process SAS Programs by Using a Different Time Zone

You can set the SAS environment to process SAS programs by using a time zone other than your local time. When you set a different time zone, that time zone is used to record time in logs and events. Setting a different time zone produces a creation time stamp for data sets and affects the processing of date, time, and datetime functions and formats. For more information, see [“TIMEZONE= System Option” on page 366](#).

Use PROC SORT to Remove Duplicate Observations from a SAS Data Set

The SORTDUP system option has been deprecated. Instead, use PROC SORT with the NODUPKEY option to remove all duplicate observations from a SAS data set. For more information, see [“Eliminate All Duplicate Observations Using NODUPKEY” in *Base SAS Procedures Guide*](#).

Use LIMITPROCNOTES to Control the Quantity of Notes Written by SAS Procedures to the SAS Log

To limit the number of notes written by a SAS procedure to the SAS log, set the [LIMITPROCNOTES](#) system option. The LIMITPROCNOTES system option was added in the September 2023 update for [SAS 9.4M6](#), in the November 2023 update for [SAS 9.4M7](#), and in the December 2023 update for [SAS 9.4M8](#).

Floating-Point Notation

The methodology of processing floating-point numbers can be compatible with releases prior to SAS 9.4, or the methodology can use the IEEE Standard for Floating-Point Arithmetic 754–2008. Using the IEEE standard improves the accuracy of floating-point numbers. Readability of floating-point numbers has also been improved. For more information, see [“DECIMALCONV= System Option” on page 138](#).

Email

When you send email that uses SAS and an SMTP server, you can set the number of seconds to wait for an acknowledgment from the SMTP server. For more information, see [“EMAILACKWAIT= System Option” on page 160](#).

New arguments to the EMAILHOST= system option enhance email security. For more information, see [“EMAILHOST= System Option” on page 164](#).

Add a Colophon to Universal Printing Output

You can add a printer's mark, a colophon, to Universal Printing output. The colophon enables you to add a signature, an identification, or a comment to Universal Printer output files that is not visible when the output is displayed or printed. For more information, see [“COLOPHON= System Option” on page 121](#).

Support for Animating GIF Images and SVG Files

You can animate GIF images and SVG files by using SAS system options. The options enable you to start and stop creating an animation and to specify the amount of time that a frame is held in view, whether the animation is sequential or whether frames are overlaid, and the number of times that an animation loop is repeated. For more information, see these options:

- [ANIMATION= System Option on page 72](#)
- [ANIMDURATION= System Option on page 73](#)
- [ANIMLOOP= System Option on page 75](#)
- [ANIMOVERLAY System Option on page 76](#)
- [SVGAUTOPLAY System Option on page 333](#)
- [SVGFADEIN= System Option on page 335](#)
- [SVGFADEMODE= System Option on page 336](#)
- [SVGFADEOUT= System Option on page 338](#)

Magnify SVG Documents

You can magnify an SVG document by embedding a magnify tool in the document when you create the document. For more information, see [“SVG MAGNIFY BUTTON System Option” on page 341](#).

Enhancements for Extending the Observation Counter

In SAS 9.3, you can use the `EXTENDOBSCOUNTER=` data set option or `LIBNAME=` statement option to extend the observation count beyond the 32-bit long maximum for an output SAS data file in 32-bit operating environments.

In SAS 9.4, you can use the `EXTENDOBSCOUNTER=` system option to extend the observation count for the SAS session. By default, the observation count is extended. For more information, see [“EXTENDOBSCOUNTER= System Option” on page 182](#).

Support for SAS Clinical Standards Toolkit Libraries

You can specify the SAS Clinical Standards Toolkit global standards library by using the `CSTGLOBALLIB=` option. Use the `CSTSAMPLELIB=` options to specify the sample library. For more information, see [“CSTGLOBALLIB= System Option” on page 131](#) and [“CSTSAMPLELIB= System Option” on page 131](#).

Specify Whether a DATA Step Is Enabled for Parallel Processing

Beginning in [SAS 9.4M1](#), the DSACCEL= system option enables you to specify whether a DATA step is enabled for parallel processing in supported environments. SAS enables the DATA step to run, with limitation, in the SAS LASR Analytic Server and Hadoop environments. For more information, see [“DSACCEL= System Option” on page 155](#).

Support for SAS/IML Packages

Beginning with SAS/IML 14.1, three system options control the locations of the SAS/IML package collections: [IMLPACKAGEPRIVATE= on page 210](#), [IMLPACKAGEPUBLIC= on page 211](#), and [IMLPACKAGESYSTEM= on page 212](#).

For more information, see [“Packages”](#) in SAS/IML User’s Guide.

Enhancements to SAS System Options

The following system options have been enhanced:

[APPEND=](#)

Beginning in [SAS 9.4M5](#), you can use the APPEND= system option to append a path to the value of the MAPSGFK system option.

[CMPLIB=](#)

Beginning in [SAS 9.4M1](#), the OPTMODEL procedure can now use the SAS language compiler for nonlinear statistical modeling or optimization.

[CPUCOUNT](#)

The default value is either ACTUAL or 4 for systems that have more than four processors.

[DMSOUTSIZE=](#)

The default and maximum number of rows in an Output window is 2147483647.

EMAILHOST=

You can now specify the PORT= option and either the SSL or TLS encryption protocol options. The PORT= option enables you to specify a port number for the SMTP server. You can use the EMAIL access method with secure SMTP servers by specifying either the SSL or TLS protocols. TLS and SSL encrypt data between the client and the outgoing SMTP Server.

In conjunction with the PORT= and SSL or TLS encryption options, you can now specify the USERID=, PWD=, and AUTH= options for each server.

EMAILAUTHPROTOCOL=

The PLAIN authentication protocol encodes the user ID and password in BASE64 and encodes them as one string.

FONTSLC=

Beginning in SAS 9.4M3, the FONTSLC= option is part of the ODS PRINT PROC Options Group.

INSERT=

Beginning in SAS 9.4M5, you can use the INSERT= system option to add a path to the beginning of the value of the MAPSGFK system option.

LOGPARM

The file specified in the SYSIN option can be used in the log name by using the %P directive. ROLLOVER=*n* is not supported for logs in z/OS data sets.

LRECL

The default value of the LRECL= option is 32767.

MSGLEVEL=

Beginning in SAS 9.4M2, when MSGLEVEL=I, Hadoop MapReduce job information appears in the SAS log.

Beginning in SAS 9.4M5, when MSGLEVEL=I and the PROC COPY options IN= and OUT= are set to a CAS engine libref, a message is written to the log that the copy is performing in Cloud Analytic Services.

MISSING

"00"x is not a valid missing character.

PAPERSIZE=

The LOCALE value specifies to set the PAPERSIZE= option based on the LOCALE= system option. Based on the value of the option, the paper size is set to either LETTER or A4. PAPERSIZE=LOCALE is now the default value.

QUOTELENMAX

Beginning in SAS 9.4M4, the warning message that a string in quotation marks is too long now appears as a note in the SAS log.

SVGTITLE

Beginning in SAS 9.4M4, the SVGTITLE= option is enhanced for accessibility. If one or more TITLE= statements are specified before ODS GRAPHIC procedures that create SVG files, the value of the TITLE statement is added to the value of the SVGTITLE= option.

UBUFNO=

Beginning in SAS 9.4M3, the UBUFNO= option is part of the PERFORMANCE PROC OPTIONS GROUP.

UBUFSIZE=

Beginning in SAS 9.4M3, the UBUFSIZE= option is part of the PERFORMANCE PROC Options Group.

UTILLOC=

Beginning in SAS 9.4M2, the UTILLOC= option accepts a filename as an argument. The file contains a list of directories that SAS can use to select the location for utility files. Allowing SAS to select utility file locations can help balance server I/O workloads.

VBUFSIZE=

Beginning in SAS 9.4M3, the VBUFSIZE= option is part of the PERFORMANCE PROC Options Group.

YEARCUTOFF=

The default value of the YEARCUTOFF value has been changed from 1920 to 1926.

The LOCKDOWN= System Option Documentation for SAS Viya Has Moved

Beginning with SAS Viya 3.4, the documentation for the LOCKDOWN system option has moved to [SAS Viya Administration: Programming Run-Time Servers](#).

The MAPS= System Option Has Moved

Beginning in SAS 9.4M4, the MAPS= system option is now documented in [SAS/GRAPH and Base SAS: Mapping Reference](#).

Enhancements to the *OPTIONS* Procedure

You can specify the LISTOPTSAVE option in the PROC OPTIONS statement to list the options that are saved by the OPTSAVE procedure and the DMOPTSAVE command.

Beginning in [SAS 9.4M2](#), the `OPTIONS` procedure displays passwords in the SAS log as 8 Xs, regardless of the actual password length.

For more information, see [“PROC OPTIONS Statement” on page 412](#).

Documentation Enhancements

Beginning in [SAS 9.4M5](#), this documentation supports system options for SAS 9.4 and SAS Viya. Each system option states where it can be set in SAS 9.4 and SAS Viya. Some system options are not valid in the SAS Viya environment. Here are some examples:

Valid in: SAS 9.4: Configuration file, SAS invocation, `OPTIONS` statement, SAS System Options window
SAS Viya: Configuration file, SAS invocation, `OPTIONS` statement, `SASV9__OPTIONS` environment variable

Valid in: SAS 9.4: Configuration file, SAS invocation, `OPTIONS` statement, SAS System Options window
SAS Viya: Not supported

The documentation for the `TOOLSMENU` and `VIEWMENU` system options is now located in [SAS Companion for Windows](#).

[SAS 9.4M3](#) has these document enhancements:

- The [DLCREATEDIR= system option on page 144](#) clarifies what directory is created when the `LIBNAME=` statement contains multiple components.
- The [PDFSECURITY= system option on page 286](#) explains when values might differ between the Document Security window and the Show Details window of secure PDF documents.
- To support an increasing number of environment variables that you can set in SAS products, a generic [SET= system option on page 313](#) is included in this document. You can use this `SET=` option to access the appropriate syntax for your operating environment.

PART 1

About SAS System Options

Chapter 1

What You Need to Know about SAS System Options **3**

What You Need to Know about SAS System Options

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Definition of System Options

System options are instructions that affect the processing of an entire SAS program or interactive SAS session from the time the option is specified until it is changed. Examples of items that are controlled by SAS system options include the appearance of SAS output, the handling of some files that are used by SAS, the use

of system variables, the processing of observations in SAS data sets, features of SAS initialization, and how SAS interacts with your host operating environment.

System Options for SAS 9.4 and SAS Viya

This publication documents general system options for SAS 9.4 under UNIX, Windows, and z/OS, and for SAS Viya under the supported UNIX operating systems and Windows.

System options that are specific to a SAS product or SAS component are documented in that [product or component publication](#).

All system options can be set in SAS 9.4 and most can be set in SAS Viya.

Each system option specifies where it can be set for SAS 9.4 and SAS Viya, or if it is not supported in SAS Viya.

Here are some examples:

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window
SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9__OPTIONS environment variable

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window
SAS Viya: Not supported

Saving and loading system options settings is not available in SAS Viya.

The SAS System Options window is available only in the SAS windowing environment. This window is not included in SAS Studio or SAS Enterprise Guide.

Other System Option Documentation

Some SAS system options affect only individual SAS components or products. For example, SAS has system options specifically for Cloud Analytic Services and SAS/CONNECT. You can find these system options in the documentation for these components and products. For links to these documents, see [“SAS System Options Documented in Other SAS Publications” on page 45](#).

The Syntax Quick Links [system options](#) in the SAS Programming Help Center lists all SAS system options.

Syntax

Specifying System Options in an OPTIONS Statement

The syntax for specifying system options in an [OPTIONS statement](#) is

```
OPTIONS options;
```

options

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

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

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

Specifying System Options on the Command Line or in a Configuration File

Operating Environment Information: On the command line or in a configuration file, the syntax is specific to your operating environment. For more information, see the SAS documentation for your operating environment: [UNIX](#), [Windows](#), [z/OS](#).

TIP When you specify a system option on the command line or in a configuration file and the option contains spaces, enclose the option value in quotation marks.

Specifying Hexadecimal Values

Hexadecimal values for system option values must begin with a number (0–9) and must be followed by an X. For example, the following OPTIONS statement sets the line size to 160 using a hexadecimal number:

```
options linesize=0a0x;
```

Character assignments for hexadecimal numbers require quotation marks:

```
options formchar='a0'x;
```

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. Your on-site SAS support personnel might have customized configuration files in order to provide a global set of default values that are specific for your site.

Information about creating customized configuration files is provided in the configuration guide for SAS software for your operating environment.

See Also

[“Resetting System Options to the Default or Starting Value” on page 20.](#)

Saving and Loading SAS System Options

SAS 9.4 system options can be saved to either the SAS registry or a SAS data set by using the OPTSAVE procedure or by using the DMOPTSAVE command in the SAS windowing environment. Some system options cannot be saved. You can specify DEFINE in the OPTIONS procedure to determine whether an option can be saved. In the log output, the line that begins with **Optsave:** indicates whether the option can be saved.

```
proc options option=pageno define;  
run;
```

```

1  proc options option=pageno define;
2  run;

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PAGENO=1
Option Definition Information for SAS Option PAGENO
Group= LISTCONTROL
Group Description: Procedure output and display settings
Description: Resets the SAS output page number.
Type: The option value is of type LONG
Range of Values: The minimum is 1 and the maximum is 2147483647
Valid Syntax(any casing): MIN|MAX|n|nK|nM|nG|nT|hexadecimal
Numeric Format: Usage of LOGNUMBERFORMAT impacts the value format
When Can Set: Startup or anytime during the SAS Session
Restricted: Your Site Administrator can restrict modification of this option
Optsave: PROC Optsave or command Dmoptsave will save this option

```

.....

Note: Saving and loading system options is not available in SAS Viya.

.....

For a list of options that can be saved, use the LISTOPTSAVE option:

```

proc options listoptsave;
run;

```

You use the OPTSAVE procedure to save system options to a SAS data set:

```

proc optsave out=mylib.savedSysOpts;
run;

```

For more information about saving options, see [Chapter 7, “OPTSAVE Procedure,” on page 439](#).

To load a set of saved system options, you use either the OPTLOAD procedure or the DMOPTLOAD command:

```

proc optload data=mylib.savedSysOpts;
run;

```

For more information about loading system options, see [“PROC OPTLOAD Statement” on page 434](#).

For information about the DMOPTSAVE command and the DMOPTLOAD command in the SAS windowing environment, see the SAS Help and Documentation Base SAS Help.

Determining Which Settings Are in Effect

To determine which settings are in effect for SAS system options:

OPLIST system option

writes to the SAS log the system options that were specified on the SAS invocation command line. (For more information, see the SAS documentation for your operating environment: [UNIX](#), [Windows](#), [z/OS](#).)

VERBOSE system option

writes to the SAS log the system options that were specified in the configuration file and on the SAS invocation command line. (For more information, see the SAS documentation for your operating environment: [UNIX](#), [Windows](#), [z/OS](#).)

SAS System Options window

lists all system options settings.

Note: The SAS System Options window is available only in the SAS windowing environment. This window is not available in SAS Studio or SAS Enterprise Guide.

OPTIONS procedure

writes system options 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;`

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 options settings, a description of each option, the option type, whether the option is a portable or host option, when the option can be set, and the group to which the option belongs. You can view this table with SAS Explorer, print the table by using the **PRINT** procedure, or you can extract information from the **VOPTION** table by using the **SQL** procedure.

dictionary.options SQL table

accessed with the **SQL** procedure, this table lists the system options that are in effect. For more information, see “[Accessing SAS Information By Using DICTIONARY Tables](#)” in *SAS SQL Procedure User’s Guide*.

Restricted Options

Restricted options are system options whose values are determined by the site administrator and cannot be overridden. The site administrator can create a restricted options table that specifies the option values that are restricted when SAS starts. Any attempt to modify a system option that is listed in the restricted options table results in a message to the SAS log indicating that the system option has been restricted by the site administrator and cannot be updated.

PROC OPTIONS has two options that list restricted options:

| | |
|---------------------|---|
| RESTRICT | lists the options that currently are restricted by your site administrator. |
| LISTRESTRICT | lists the options that can be restricted by your site administrator. |

To determine which system options are restricted by your site administrator, use the RESTRICT option of the OPTIONS procedure. The RESTRICT option displays the option's value, scope, and setting. In the following example, the SAS log shows that only one option, CMPOPT, is restricted:

```
proc options restrict;
run;
```

Example Code 1.1 *Restricted Option Information*

```
1      proc options restrict;
2      run;
      SAS (r) Proprietary Software Release 9.4 TS1M6

Option Value Information For SAS Option CMPOPT
  Value: (NOPRECISE NOEXTRAMATH NOMISSCHECK NOGUARDCHECK NOGENSYMNAMES
NOFUNCDIFFERENCING)
  Scope: SAS Session
  How option value set: Site Administrator Restricted
```

The OPTIONS procedure displays this information for all options that are restricted. If your site administrator has not restricted any options, this message appears in the SAS log:

Your site administrator has not restricted any options.

You can use the OPTIONS procedure option LISTRESTRICT to view the options that your site administrator can restrict. These are not options that are restricted, but can be restricted.

```
proc options listrestrict;
run;
```

Example Code 1.2 Partial Listing of Options That Can Be Restricted

```

13 proc options listrestrict ;
14 run;

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Your Site Administrator can restrict the ability to modify the following Portable Options:

ACCESSIBLECHECK    Detect and log ODS output that is not accessible.
ACCESSIBLEGRAPH    Create accessible ODS graphics by default.
ACCESSIBLEPDF      Create accessible PDF files by default.
ACCESSIBLETABLE    Create accessible tables for enabled procedures, by default.
ANIMATION          Specifies whether to start or stop animation.
ANIMDURATION       Specifies the number of seconds that each animation frame displays.
ANIMLOOP           Specifies the number of iterations that animated images repeat.
ANIMOVERLAY        Specifies that animation frames are overlaid in order to view all frames.
APPLETLOC          Specifies the location of Java applets, which is typically a URL.
ARMAGENT           Specifies an ARM agent (which is an executable module or keyword, such
                  as LOG4SAS) that contains a specific implementation of the ARM API.
ARMLOC             Specifies the location of the ARM log.
ARMSUBSYS          Specifies the SAS ARM subsystems to enable or disable.
AUTOCORRECT        Automatically corrects misspelled procedure names and keywords, and
                  global statement names.
AUTOSAVELOC        Specifies the location of the Program Editor auto-saved file.
AUTOSIGNON         Enables a SAS/CONNECT client to automatically submit the SIGNON command
                  remotely with the RSUBMIT command.
BINDING            Specifies the binding edge type of duplexed printed output.
BUFNO              Specifies the number of buffers for processing SAS data sets.
BUFSIZE            Specifies the size of a buffer page for output SAS data sets.
BYERR              SAS issues an error message and stops processing if the SORT procedure
                  attempts to sort a _NULL_ data set.
BYLINE             Prints the BY line above each BY group.
BYSORTED           Requires observations in one or more data sets to be sorted in
                  alphabetic or numeric order.
CAPS               Converts certain types of input, and all data lines, into uppercase
                  characters.

```

For information, see [Chapter 5, “OPTIONS Procedure,”](#) on page 411.

For more information about system options on Windows, see [“SAS Options under Windows”](#) in *SAS Companion for Windows*. For more information about setting restricted options on Windows as an administrator, see [Chapter 3, “Restricted Options”](#) in *Configuration Guide for SAS 9.4 Foundation for Microsoft Windows*

For more information about system options on UNIX, see [“System Options under UNIX”](#) in *SAS Companion for UNIX Environments*. For more information about setting restricted options on UNIX as an administrator, see [Chapter 2, “Restricted Options”](#) in *Configuration Guide for SAS 9.4 Foundation for UNIX Environments*.

The following table lists the system options that cannot be restricted:

Table 1.1 System Options That Cannot Be Restricted

| Option | All Operating Environments | UNIX | Windows | z/OS |
|-----------------|----------------------------|------|---------|------|
| ALIGNSASIOFILES | | X | X | |
| ALTLOG | X | | | |

| Option | All Operating Environments | UNIX | Windows | z/OS |
|--------------------|----------------------------|------|---------|------|
| ALTPRINT | X | | | |
| APPEND | X | | | |
| ASYNCHIO | | | | X |
| AUTOEXEC | X | | | |
| BOMFILE | X | | | |
| BOTTOMMARGIN | X | | | |
| CASNCHARMULTIPLIER | | X | X | |
| COMDEF | | X | X | |
| CONFIG | X | | | |
| CPUCOUNT | X | | | |
| DATESTYLE | X | | | |
| DBCS | | X | | |
| DFLANG | X | | | |
| DLDMGACTION | X | | | |
| DMR | X | | | |
| DMS | X | | | |
| DMSEXP | X | | | |
| DMSPGMLINESIZE | X | | | |
| ENGINE | X | | | |
| EXPLORER | X | | | |
| FILELOCKWAITMAX | | X | X | |
| INITCMD | X | | | |
| INITSTMT | X | | | |
| INSERT | X | | | |
| JREOPTIONS | | | | X |
| _LAST_ | X | | | |

| Option | All Operating Environments | UNIX | Windows | z/OS |
|----------------|----------------------------|------|---------|------|
| LEFTMARGIN | X | | | |
| LINESIZE | X | | | |
| LOG | X | | | |
| LOGAPPLNAME | X | | | |
| LOGPARM | X | | | |
| MEMCACHE | | | X | |
| MEMLIB | | | X | |
| METAPASS | X | | | |
| METAPROTOCOL | X | | | |
| METAREPOSITORY | X | | | |
| METASERVER | X | | | |
| METAUSER | X | | | |
| MSYMTABMAX | X | | | |
| MVARSIZE | X | | | |
| OBJECTSERVER | X | | | |
| ORIENTATION | X | | | |
| OVP | X | | | |
| PAGESIZE | X | | | |
| PAPERSIZE | X | | | |
| PATH | | | X | |
| PDFPASSWORD | X | | | |
| PRINT | X | | | |
| PRINTERPATH | X | | | |
| PRNGETLIST | | | X | |
| RESOURCESLOC | | | X | |
| RIGHTMARGIN | X | | | |

| Option | All Operating Environments | UNIX | Windows | z/OS |
|------------------|----------------------------|------|---------|------|
| SASCONTROL | | | X | |
| SASFRSCR | X | | | |
| SASUSER | X | | | |
| SGIO | | | X | |
| SOURCE | X | | | |
| SPDEPARALLELREAD | X | | | |
| SQLGENERATION | X | | | |
| SSLPKCS12LOC | | X | | |
| SSLPKSC12PASS | | X | | |
| SSPI | X | | | |
| STARTLIB | X | | | |
| SYSIN | X | | | |
| SYSPRINTFONT | X | | | |
| TERMINAL | X | | | |
| TOOLDEF | | | X | |
| TOPMARGIN | X | | | |
| TRANTAB | X | | | |
| UBUFNO | X | | | |
| UBUFSIZE | X | | | |
| USER | X | | | |

Determining How a SAS System Option Value Was Set

To determine how a system option value was set, use either the `OPTIONS` procedure or the `GETOPTION` function:

- Use the OPTIONS procedure with the VALUE option specified in the OPTIONS statement. The VALUE option displays the specified option's value and scope.
- Use the GETOPTION function as an argument to the %SYSFUNC macro function:

```
%put %sysfunc(getoption(option-name, howset));
```

This example shows how the CENTER system option was set:

```
2 %put %sysfunc(getoption(center,howset));
Shipped Default
```

This example shows how the option value for the system option CENTER was set using the OPTIONS procedure:

```
proc options option=center value;
run;
```

The following partial SAS log shows that the option value for CENTER was the shipped default.

Example Code 1.3 Option Value Information for the System Option CENTER

```
2 proc options option=center value;
3 run;

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Option Value Information for SAS Option CENTER
Option Value: CENTER
Option Scope: Default
How option value set: Shipped Default
```

If a SAS system option is set from a configuration file, SAS displays the name of the configuration file that set the option.

Example Code 1.4 Option Value Information Showing an Option Set by a Configuration File

```
7 proc options option=work value;
8 run;

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Option Value Information For SAS Option WORK
Value: C:\DOCUME-1\sasuser1\LOCALS-1\Temp\SAS Temporary Files\_TD5428_t20111_
Scope: SAS Session
How option value set: Config File
Config file name:
C:\Program Files\SASFoundation\9.4\sasv9.cfg
```

If a SAS system option is modified using the INSERT or APPEND system options, you can use the VALUE option in a PROC OPTIONS statement to show that the value was inserted or appended:

Example Code 1.5 Option Value Information for an Option Modified by the INSERT and APPEND Options

```

24  options insert=(fmtsearch="c:/myformats");
25  options append=(fmtsearch="c:/mysas");
26  proc options option=fmtsearch value;
27  run;

```

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Option Value Information For SAS Option FMTSEARCH
Value: ('C:/MYFORMATS' WORK LIBRARY 'C:/MYSAS')
Scope: DMS Process
How option value set: Options Statement
Value Inserted: 'C:/MYFORMATS'

How option value set: Shipped Default
Value: WORK LIBRARY

How option value set: Options Statement
Value Appended: 'C:/MYSAS'

If no value is assigned to a character system option, SAS assigns the option a value of ' ' (a space between two single quotation marks) and **Option Value** displays a blank space.

Note: The shipped value for some system options differs between SAS and SAS Viya. The value that is displayed is the shipped value for that environment.

Obtaining Descriptive Information about a System Option

You can quickly obtain basic descriptive information about a system option by specifying the DEFINE option in the PROC OPTIONS statement.

The DEFINE option writes the following descriptive information about a system option to the SAS log:

- the value of the option
- a description of the option
- the name and description of each system option group that the option is a part of
- type information, such as whether it is numeric or character, whether to expand a value that is an environment variable, and valid values for the option
- when in the SAS session the option can be set
- if the option can be restricted by the system administrator
- if the OPTSAVE procedure or the DMOPTSAVE command saves the option

For example, the following statements write a message to the SAS log that contains descriptive information about the system option ERRORCHECK:

```
proc options option=errorcheck define;
run;
```

Example Code 1.6 Descriptive Information about the System Option ERRORCHECK

```
ERRORCHECK=NORMAL
Option Definition Information for SAS Option ERRORCHECK
  Group= ERRORHANDLING
  Group Description: Error messages and error conditions settings
  Description: Specifies whether SAS enters syntax-check mode when errors are found in the
                LIBNAME, FILENAME, %INCLUDE, and LOCK statements.
  Type: The option value is of type CHARACTER
  Maximum Number of Characters: 10
  Casing: The option value is retained uppercased
  Quotes: If present during "set", start and end quotes are removed
  Parentheses: The option value does not require enclosure within parentheses. If
              present, the parentheses are retained.
  Expansion: Environment variables, within the option value, are not expanded
  Number of valid values: 2
                Valid value: NORMAL
                Valid value: STRICT
  When Can Set: Startup or anytime during the SAS Session
  Restricted: Your Site Administrator can restrict modification of this option
  Optsave: PROC Optsave or command Dmoptsave will save this option
```

Changing SAS System Options Settings

SAS provides default settings for SAS system options. You can override the default settings of any unrestricted system option in several ways, depending on the function of the system option:

- On the command line or in a configuration file:

You can specify any unrestricted SAS system options setting either on the SAS command line or in a configuration file. If you use the same options settings frequently, it is usually more convenient to specify the options in a configuration file, rather than on the command line. Either method sets your SAS system options during SAS invocation. Many SAS system options settings can be specified only during SAS invocation. Descriptions of the individual options provide details.

- 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, change them in the SAS System Options window, or use the OPTLOAD procedure to load previously saved options from a data set. You can also place an OPTIONS statement in an autoexec file.

By specifying either the INSERT or APPEND option in the OPTIONS statement, you can add a value to certain system options that name libraries or files, such

as the AUTOEXEC option and the FMTSEARCH option. For more information, see [“Changing an Option Value By Using the INSERT and APPEND System Options”](#) on page 17.

- In the OPTLOAD procedure or the DMOPTLOAD command:

You can use the OPTLOAD procedure or the DMOPTLOAD command to read options settings that were specified with the OPTSAVE procedure and saved to a SAS data set.

Note: Loading system options is not available in SAS Viya.

- In a SAS System Options window:

If you are in the SAS windowing environment, type `options` in the toolbar or on the command line to open the SAS System Options window. The SAS System Options window lists the names of the SAS system option groups. You can then expand the groups to see the option names and change their current settings to a new value or to the default value. Alternatively, you can use the Find Option command in the **Options** pop-up menu to go directly to an option. 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.

Note: The SAS System Options window is available only in the SAS windowing environment. It is not available in SAS Enterprise Guide or SAS Studio.

SAS system options can be restricted by a site administrator so that after they are set by the administrator, they cannot be changed by a user. Depending on your operating environment, system options can be restricted globally, by group, or by user. You can use the OPTIONS procedure to determine which options are restricted. For more information, see [Chapter 5, “OPTIONS Procedure,”](#) on page 411 and the SAS documentation for your operating environment. For more information about how to restrict options, see your site administrator.

Changing an Option Value By Using the INSERT and APPEND System Options

You can use the INSERT and APPEND options to modify the values of these options:

| Option | Where the Option Can Be Set |
|----------|--|
| AUTOEXEC | configuration file, SAS invocation |
| CMPLIB | configuration file, SAS invocation, OPTIONS statement, SAS System Options window |

| Option | Where the Option Can Be Set |
|-----------|--|
| FMTSEARCH | OPTIONS statement, SAS System Options window |
| HELPLLOC | configuration file, SAS invocation |
| MAPS | configuration file, SAS invocation, OPTIONS statement, SAS System Options window |
| MAPSGFK | configuration file, SAS invocation |
| MSG | configuration file, SAS invocation |
| SASAUTOS | configuration file, SAS invocation, OPTIONS statement, SAS System Options window |
| SASHELP | configuration file, SAS invocation |
| SASSCRIPT | configuration file, SAS invocation, OPTIONS statement, SAS System Options window |
| SET | configuration file, SAS invocation |

The value of these options is one or more libraries, files, or environment variables. You use the `INSERT` option to insert a value before the current value. You use the `APPEND` option to append a value to the end of the current value. Use the `LISTINSERTAPPEND` option in the `PROC OPTIONS` statement to see a list of options in the SAS log that you can use with the `INSERT` option and the `APPEND` option:


```

1  proc options listinsertappend;
2  run;

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Core options that can utilize INSERT and APPEND

AUTOEXEC          Specifies the location of the SAS AUTOEXEC files.
CMPLIB            Specifies one or more SAS data sets that contain compiler subroutines to
                  include during compilation.
FMTSEARCH          Specifies the order in which format catalogs are searched.
MAPS              Specifies the location of SAS/GRAPH map data sets.

MAPSGFK           Specifies the location of GFK maps
SASAUTOS          Specifies the location of one or more autocall libraries.
SASHELP           Specifies the location of the Sashelp library.
SASSCRIPT         Specifies one or more locations of SAS/CONNECT server sign-on script
                  files.

Host options that can utilize INSERT and APPEND

HELPLLOC          Specifies the location of the text and index files for the facility that
                  is used to view the online SAS Help and Documentation.
MSG               Specifies the path to the library that contains SAS error messages.
SET               Defines a SAS environment variable.

```

Operating Environment Information: The syntax for the INSERT option and the APPEND option is different when you start SAS as compared to using the OPTIONS statement after SAS starts. For the correct syntax to use when SAS starts, see the documentation for your operating environment.

Operating Environment Information: This list of host options that can use INSERT and APPEND can differ for your operating environment. See the documentation for your operating environment.

If you specify the INSERT option or the APPEND option after SAS starts, the syntax requires parentheses and is the same for all operating environments:

```
insert=(system-option-1=argument-1 system-option-n=argument-n)
```

```
append=(system-option-1=argument-1 system-option-n=argument-n)
```

Here are two examples:

```
options insert=(fmtsearch="c:/myformats");
options append=(fmtsearch=("c:/mysasfmt" "u:/mysasfmt2"));
```

For more information, see [“INSERT= System Option” on page 216](#) and [“APPEND= System Option” on page 77](#).

You can use the VALUE option in the PROC OPTIONS statement to display values that have been inserted or appended to an option value:

```

26 proc options option=fmtsearch value;
27 run;

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Option Value Information For SAS Option FMTSEARCH
Value: ('C:/MYFORMATS' WORK LIBRARY 'C:/MYSAS')
Scope: DMS Process
How option value set: Options Statement
Value Inserted: 'C:/MYFORMATS'

How option value set: Shipped Default
Value: WORK LIBRARY

How option value set: Options Statement
Value Appended: 'C:/MYSASFMT' 'U:/MYSASFMT2'

```

SAS inserts or appends values as they are specified in the INSERT and APPEND system options. SAS does not check for duplicate values.

The INSERT and APPEND system options only add values to a system option's value. To delete a value from a system option, set the option to the value that you want.

Resetting System Options to the Default or Starting Value

Reset Options to the Default Value By Using the SAS System Options Window

- 1 From the SAS menu bar, select **Tools** ⇒ **Options** ⇒ **System**.
- 2 Right-click **Options** and select **Find Option**.
- 3 Enter the option name and click **OK**.
- 4 Right-click the option name and select **Set to Default**.

Note: The SAS System Options window is available only in the SAS windowing environment. It is not available in SAS Enterprise Guide or SAS Studio.

Reset Options to the Default or Starting Value By Using the %Put Macro and the GETOPTIONS Function

You can use the SAS System Options window or macro processing and the GETOPTION function together to set a system option to the default value or to the value that was specified when SAS started.

You use the GETOPTION function DEFAULTVALUE option to set a system option to its default value. You use the GETOPTION function STARTUPVALUE option to set a system option to the starting value.

The following code is an example of setting the PAPERSIZE= system option to its default value and to its starting value:

```

/* Check the value of papersize before we change it.      */
/* The initial value is A4 as this value was used when    */
/* SAS started with a locale of Spanish.                  */

    %put %sysfunc(getoption(papersize,keyword));

/* Change the PAPERSIZE value and check the change.      */

    options papersize="600x800 Pixels";

    %put %sysfunc(getoption(papersize,keyword));

/* Change PAPERSIZE back to the default value and check it. */
/* RESULT:  LETTER                                          */

    %let defsize = %sysfunc(getoption(papersize,keyword,defaultvalue)) ;
    options &defsize; run;
    %put %sysfunc(getoption(papersize,keyword));

/* Change the value to the startup value and check it.    */
/* RESULT:  A4                                             */

    %let defsize = %sysfunc(getoption(papersize,keyword,startupvalue)) ;
    options &defsize; run;
    %put %sysfunc(getoption(papersize,keyword));

```

The SAS log displays the following lines:

```

22  /* Check the value of papersize before we change it.    */
23  /* The initial value is A4 as this value was used when  */
24  /* SAS started with a locale of Spanish.                */
25
26  %put %sysfunc(getoption(papersize,keyword));
PAPERSIZE=A4
27
28  /* Change the PAPERSIZE value and check the change.     */
29
30  options papersize="600x800 Pixels";
31
32  %put %sysfunc(getoption(papersize,keyword));
PAPERSIZE=600X800 PIXELS
33
34  /* Change PAPERSIZE back to the default value and check it. */
35  /* RESULT:  LETTER                                     */
36
37  %let defsize = %sysfunc(getoption(papersize,keyword,defaultvalue)) ;
38  options &defsize; run;
39  %put %sysfunc(getoption(papersize,keyword));
PAPERSIZE=LETTER
40
41  /* Change the value to the startup value and check it.   */
42  /* RESULT:  A4                                           */
43
44  %let defsize = %sysfunc(getoption(papersize,keyword,startupvalue)) ;
45  options &defsize; run;
46  %put %sysfunc(getoption(papersize,keyword));
PAPERSIZE=A4

```

For more information, see the [GETOPTION function](#) on page 29.

How Long System Options Settings Are in Effect

When you specify a SAS system options setting, the setting applies to the next step and to all subsequent steps for the duration of the SAS session, or until you reset the system options setting:

```

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 [“OBS= System Option”](#) on page 249 .

Order of Precedence

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

- 1 restricted options table, if it exists
- 2 OPTIONS statement and SAS System Options window
- 3 autoexec file (that contains an OPTIONS statement)
- 4 command-line specification
- 5 configuration file specification
- 6 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.

| Execution Mode Option | SAS Precedence | SAS Viya Precedence |
|--|----------------|---------------------|
| OBJECTSERVER (SAS or SAS Viya) or COMPUTESERVER (SAS Viya) | Highest | Highest |
| DMR | 2nd | Not applicable |
| SYSIN | 3rd | 2nd |
| INITCMD | 4th | 3rd |
| DMS | 4th | Not applicable |
| DMSEXP | 4th | Not applicable |
| EXPLORER | 4th | Not applicable |
| none (default is interactive line mode under UNIX and interactive full screen mode under z/OS) | 5th | 4th |

The order of precedence of SAS execution mode options consists of these 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.

For more information, see the descriptions of the individual options.

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 until their settings are changed. However, a data set option overrides a system option only for the particular data set in the step in which it appears.

In this example, the OBS= system option in the OPTIONS statement specifies that only the first 100 observations are read from any data set within the SAS job. However, the OBS= data set option in the SET statement overrides the system option and specifies that only the first five observations are read from data set TWO. The PROC PRINT step uses the system options 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 re-specified.

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. For

example, the LIBNAME= statement options affect all processing that is performed for a particular library.

PART 2

SAS Functions and Statements That Process SAS System Options

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SAS Functions That Process SAS System Options

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| GETOPTION Function | 29 |

Dictionary

GETOPTION Function

Returns the value of a SAS system or graphics option.

Category: Special

Restriction: This function is not valid on the CAS server.

Syntax

GETOPTION(*option-name* <, *return-value-option*> <*return-value-formatting-options*>)

Required Argument

option-name

is a character constant, variable, or expression that specifies the name of the system option.

Tips Do not put an equal sign after the name. For example, write PAGESIZE= as PAGESIZE.

SAS options that are passwords, such as EMAILPW and METAPASS, return the value xxxxxxxx, and not the actual password.

Return Value Options

DEFAULTVALUE

returns the default option value.

Restriction DEFAULTVALUE is valid only for SAS system options. SAS issues a warning message when the DEFAULTVALUE option is specified and *option-name* is a graphics option.

HOWSCOPE

returns a character string that specifies the scope of an option.

Restriction HOWSCOPE is valid only for SAS system options. SAS issues a warning message when the HOWSCOPE option is specified and *option-name* is a graphics option.

HOWSET

returns a character string that specifies how an option value was set.

Restriction HOWSET is valid only for SAS system options. SAS issues a warning message when the HOWSET option is specified and *option-name* is a graphics option.

STARTUPVALUE

returns the system option value that was used to start SAS either on the command line or in a configuration file.

Restriction STARTUPVALUE is valid only for SAS system options. SAS issues a warning message when the STARTUPVALUE option is specified and *option-name* is a graphics option.

Return Value Formatting Options

CM

reports graphic units of measure in centimeters.

Restriction CM is valid only for graphics options and the following SAS system options: BOTTOMMARGIN, TOPMARGIN, RIGHTMARGIN, and LEFTMARGIN. SAS writes a note to the log when the CM option is specified and *option-name* is not a graphics option or an option that specifies a margin value.

EXPAND

for options that contain environment variables, returns the option value with the value of the environment variable.

Restrictions Variable expansion is valid only in the Windows and UNIX operating environments.

EXPAND is valid only for character system option values. EXPAND is ignored if *option-name* has an option type of Boolean, such as CENTER or NOCENTER, or if the value of the option is numeric.

Note SAS issues a note when EXPAND is specified for Boolean options and for options that have numeric values. SAS issues a warning when EXPAND is specified and the option is a graphics option.

Tip By default, some option values are displayed with expanded variable values. Other options require the EXPAND option in the PROC OPTIONS statement. Use the DEFINE option in the PROC OPTIONS statement to determine whether an option value expands variables by default or if the EXPAND option is required. If the output from PROC OPTIONS DEFINE shows the following information, you must use the EXPAND option to expand variable values:

```
Expansion: Environment variables, within the option value,
           are not expanded
```

KEYEXPAND

for options that contain environment variables, returns the value in the format **option-name=value**.

Restriction KEYEXPAND is valid only for character system option values. SAS issues an error message when the KEYEXPAND option is specified and *option-name* is a graphics option. KEYEXPAND is ignored if *option-name* has an option type of Boolean, such as CENTER or NOCENTER, or if the value of the option is numeric.

KEYWORD

returns option values in a **option-name=value** format that would be suitable for direct use in the SAS OPTIONS or GOPTIONS global statements.

Restrictions KEYWORD is not valid when it is used with the HEXVALUE, EXPAND, KEYEXPAND, or LOGNUMBERFORMAT options. SAS writes a note to the log when the GETOPTION function contains conflicting options.

KEYWORD is valid only for character or numeric system option values. KEYWORD is ignored for system options whose option type is Boolean, such as CENTER or NOCENTER. SAS issues an error message when the KEYWORD option is specified and *option-name* is a graphics option.

Note For a system option with a null value, the GETOPTION function returns a value of '' (single quotation marks with a blank space between them). An example is EMAILID=' '.

HEXVALUE

returns the option value as a hexadecimal value.

Restriction HEXVALUE is valid only for character or numeric system option values. If HEXVALUE is specified for system options whose option type is Boolean, such as CENTER or NOCENTER, or if *option-name* is a graphics option, SAS issues an error message.

IN

reports graphic units of measure in inches.

Restriction IN is valid only for graphics options and the following SAS system options: BOTTOMMARGIN, TOPMARGIN, RIGHTMARGIN, and LEFTMARGIN. SAS writes a note to the log when the IN option is specified and *option-name* is not a graphics option or an option that specifies a margin value.

LOGNUMBERFORMAT

formats SAS system option values using locale-specific punctuation.

Restriction Do not use LOGNUMBERFORMAT if the returned value is used to set an option value by using the OPTIONS statement. The OPTIONS statement does not accept commas in numeric values.

Examples

Example 1: Using GETOPTION to Save and Restore the YEARCUTOFF Option

This example saves the value of the YEARCUTOFF option, processes SAS statements based on the value of the YEARCUTOFF option, and then resets the value to 1940 if it is not already 1940.

```
/* Save the value of the YEARCUTOFF system option */
%let cutoff=%sysfunc(getoption(yearcutoff,keyword));

data ages;
  if getoption('yearcutoff') = '1940' then
    do;
      ...more SAS statements...
    end;
  else do;
    ...more SAS statements...
    /* Reset YEARCUTOFF */
    options &cutoff;
  end;
run;
```

Example 2: Using GETOPTION to Obtain Different Reporting Options

This example defines a macro to illustrate the use of the GETOPTION function to obtain the value of system and graphics options by using different reporting options.

```

%macro showopts;
%put MAPS= %sysfunc(getoption(MAPS));
%put MAPSEXPANDED=%sysfunc(getoption(MAPS, EXPAND));
%put MAPSKEYEXPANDED=%sysfunc(getoption(MAPS, KEYEXPAND));
%put PAGESIZE= %sysfunc(getoption(PAGESIZE));
%put PAGESIZESETBY= %sysfunc(getoption(PAGESIZE, HOWSET));
%put PAGESIZESCOPE= %sysfunc(getoption(PAGESIZE, HOWSCOPE));
%put PS= %sysfunc(getoption(PS));
%put LS= %sysfunc(getoption(LS));
%put PS(keyword form)= %sysfunc(getoption(PS,keyword));
%put LS(keyword form)= %sysfunc(getoption(LS,keyword));
%put HSIZE= %sysfunc(getoption(HSIZE));
%put VSIZE= %sysfunc(getoption(VSIZE));
%put HSIZE(in/keyword form)= %sysfunc(getoption(HSIZE,in,keyword));
%put HSIZE(cm/keyword form)= %sysfunc(getoption(HSIZE,cm,keyword));
%put VSIZE(in/keyword form)= %sysfunc(getoption(VSIZE,in,keyword));
%put HSIZE(cm/keyword form)= %sysfunc(getoption(VSIZE,cm,keyword));
%mend;

options VSIZE=8.5 in HSIZE=11 in;
options PAGESIZE=67;
%showopts

```

The following is the SAS log:

```

MAPS= ("!sasroot\maps-path\en\maps")
MAPSEXPANDED= ("C:\maps-path\en\maps")
MAPSKEYEXPANDED= ("C:\maps-path\en\maps")
PAGESIZE= 67
PAGESIZESETBY= Options Statement
PAGESIZESCOPE= DMS Process
PS= 67
LS= 98
PS(keyword form)= PS=67
LS(keyword form)= LS=98
HSIZE= 11.0000 in
VSIZE= 8.5000 in
HSIZE(in/keyword form)= HSIZE=11.0000 in
HSIZE(cm/keyword form)= HSIZE=27.9400 cm
VSIZE(in/keyword form)= VSIZE=8.5000 in
HSIZE(cm/keyword form)= VSIZE=21.5900 cm

```


SAS Statements That Process SAS System Options

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| OPTIONS Statement | 35 |

Dictionary

OPTIONS Statement

Specifies or changes the value of one or more SAS system options.

| | |
|-----------|--|
| Valid in: | Anywhere |
| Category: | Program Control |
| See: | OPTIONS Statement under z/OS |

Syntax

OPTIONS *options*;

Arguments

option

specifies one or more SAS system options to be changed.

See [SAS System Options: Reference](#)

[System Options Syntax](#) in SAS Help Center

Details

The change that is made by the `OPTIONS` statement remains in effect for the rest of the job, session, SAS process, or until you issue another `OPTIONS` statement to change the options again. You can specify SAS system options through the `OPTIONS` statement, through the `OPTIONS` window, at SAS invocation, and at the initiation of a SAS process.

If you attempt to set an option that is restricted by your site administrator, SAS issues a note that the option is restricted and cannot be changed. For more information, see [“Restricted Options” on page 8](#).

Note: If you want a particular group of options to be in effect for all your SAS jobs or sessions, store an `OPTIONS` statement in an autoexec file or list the system options in a configuration file or `custom_option_set`.

Note: For a system option with a null value, the `GETOPTION` function returns a value of ' ' (single quotation marks with a blank space between them), for example, `EMAILID= ' '`. This `GETOPTION` value can then be used in the `OPTIONS` statement.

An `OPTIONS` statement can appear at any place in a SAS program, except within data lines.

Operating Environment Information: The system options that are available depend on your operating environment. Also, the syntax that is used to specify a system option in the `OPTIONS` statement might be different from the syntax that is used at SAS invocation. For more information, see the SAS documentation for your operating environment.

Comparisons

The `OPTIONS` statement requires you to enter the complete statement including system option name and value, if necessary. The SAS `OPTIONS` window displays the options' names and settings in columns. To change a setting, type over the value that is displayed and press Enter or Return.

Example: Changing the Value of a System Option

This example suppresses the date that is normally written to SAS LISTING output and sets a line size of 72:

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

See Also

[“Definition of System Options” on page 3](#)

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Dictionary of System Options

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SAS System Options Documented in Other SAS Publications

For a complete list of system options, see [System Options Listed Alphabetically](#) in SAS Language Elements by Name, Product, and Category.

Some system options are documented with related subject matter in other SAS publications:

Table 4.1 SAS System Options Documented in Other SAS Publications

| Publication | SAS System |
|--|-------------------|
| SAS Cloud Analytic Services: Language Reference | SAS 9.4, SAS Viya |
| Encryption in SAS | SAS 9.4 |
| Encryption in SAS Viya: Data in Motion | SAS Viya |
| SAS Interface to Application Response Measurement (ARM): Reference | SAS 9.4 |
| SAS Companion for Windows | SAS 9.4, SAS Viya |
| SAS Companion for UNIX Environments | SAS 9.4, SAS Viya |
| SAS Companion for z/OS | SAS 9.4 |
| SAS Data Quality Server: Reference | SAS 9.4, SAS Viya |
| SAS DS2 Language Reference | SAS 9.4, SAS Viya |
| SAS Intelligence Platform: Application Server Administration Guide | SAS 9.4 |
| SAS Language Interfaces to Metadata | SAS 9.4, SAS Viya |
| SAS Logging: Configuration and Programming Reference | SAS 9.4, SAS Viya |
| SAS Macro Language: Reference | SAS 9.4, SAS Viya |
| SAS National Language Support (NLS): Reference Guide | SAS 9.4, SAS Viya |
| SAS Output Delivery System User's Guide | SAS 9.4, SAS Viya |
| SAS Scalable Performance Data Engine: Reference | SAS 9.4, SAS Viya |
| SAS SQL Procedure User's Guide | SAS 9.4, SAS Viya |
| SAS Viya Administration: Programming Run-Time Servers | SAS Viya |
| SAS VSAM Processing for z/OS | SAS 9.4 |
| SAS/ACCESS for Relational Databases: Reference | SAS 9.4, SAS Viya |
| SAS/CONNECT User's Guide | SAS 9.4 |
| SAS/CONNECT for SAS Viya: User's Guide | SAS Viya |

| Publication | SAS System |
|---|-------------------|
| SAS/GRAPH: Reference | SAS 9.4, SAS Viya |
| SAS/GRAPH and Base SAS: Mapping Reference | SAS 9.4, SAS Viya |
| SAS/SHARE User's Guide | SAS 9.4 |

SAS System Options by Category

The system options by category represent the system options that appear in this document. The categories for SAS system options correspond to the SAS system option groups and subgroups:

Table 4.2 SAS System Options by Category

| Category | Description |
|---|--|
| Communications: E-mail | options associated with sending and receiving email using SAS |
| Communications: Networking and Encryption | options related to remote communication, shared settings, and encryption |
| Communications: Metadata | options to configure SAS to use metadata |
| Environment Control: Display | options to set SAS windows and display preferences |
| Environment Control: Error Handling | options associated with error conditions and error messages |
| Environment Control: Files | options to set SAS library and file location preferences |
| Environment Control: Help | options used to configure the SAS Help |
| Environment Control: Initialization and Operation | options that establish the SAS operating environment |
| Environment Control: Language Control | options to set language and translation preferences |

| Category | Description |
|--|--|
| Files: External Files | options that define how to process files that are not created by SAS |
| Files: SAS Files | options that define how to process SAS files |
| Input Control: Data Processing | options for data entry and data processing preferences |
| Input Control: Data Quality | options to configure the SAS Data Quality server |
| Graphics: Driver Settings | options that define devices, graphics, and map preferences |
| Log and Procedure Output Control: SAS Log | options that control the display of messages that are written to the SAS log |
| Log and Procedure Output Control: Procedure Output | options that define procedure output and display preferences |
| Log and Procedure Output Control: SAS Log and Procedure Output | options that control both SAS log and procedure output preferences |
| Log and Procedure Output Control: ODS Printing | options to define preferences for printing to ODS destinations |
| Log and Procedure Output Control: PDF | options to define preferences for PDF files |
| Log and Procedure Output Control: SVG | options to define preferences for SVG files |
| Log and Procedure Output Control: Animation | options to define preferences for Animating SVG files |
| Macro: SAS Macro | options that define SAS macro preferences |
| Sort: Procedure Options | options that define preferences for sorting SAS files |
| System Administration: Installation | options for defining site installation settings |
| System Administration: Memory | options that define computer memory preferences |

| Category | Description |
|---|--|
| System Administration: Performance | options that define performance preferences |
| System Administration: Code Generation | options that define preferences for generating SAS language statements |
| System Administration: Security | options for defining security settings |
| System Administration: SQL | options that define settings for the SQL procedure |
| System Administration: CAS | options that define settings for the running code in the CAS server |
| TK | options that are used in threaded processing |

| Category | Language Elements | Description |
|---|---|--|
| Communications: E-mail | EMAILACKWAIT= System Option (p. 160) | Specifies the number of seconds that SAS waits to receive an acknowledgment from an SMTP server. |
| | EMAILAUTHPROTOCOL= System Option (p. 162) | Specifies the authentication protocol for SMTP email. |
| | EMAILFROM System Option (p. 163) | When sending email by using SMTP, specifies whether the email option FROM is required in either the FILE or FILENAME statement. |
| | EMAILHOST= System Option (p. 164) | Specifies one or more SMTP servers that support email access. |
| | EMAILID= System Option (p. 167) | Identifies an email sender by specifying either a logon ID, an email profile, or an email address. |
| | EMAILPORT System Option (p. 168) | Specifies the port that the SMTP server is attached to. |
| | EMAILPW= System Option (p. 170) | Specifies an email logon password. |
| | EMAILUTCOFFSET= System Option (p. 171) | For email that is sent using the FILENAME statement EMAIL (SMTP) access method, specifies a UTC offset that is used in the Date header field of the email message. |
| Communications: Networking and Encryption | AZURETENANTID= System Option (p. 89) | Specifies the tenant ID for connecting to a Microsoft Azure storage system |
| | HTTPSERVERPORTMAX= System Option (p. 205) | Specifies the highest port number that can be used by the SAS HTTP server for remote browsing. |

| Category | Language Elements | Description |
|-------------------------------------|---|---|
| | HTTPSERVERPORTMIN= System Option (p. 206) | Specifies the lowest port number that can be used by the SAS HTTP server for remote browsing. |
| | SERVICESBASEURL= System Option (p. 312) | Specifies the root URL for calls to SAS Viya services. |
| Environment Control: Display | AUTOSAVELOC= System Option (p. 86) | Specifies the location of the Program Editor autosave file. |
| | CHARCODE System Option (p. 108) | Specifies whether specific keyboard combinations are substituted for special characters that are not on the keyboard. |
| | DMSLOGSIZE= System Option (p. 150) | Specifies the maximum number of rows that the SAS Log window can display. |
| | DMSOUTSIZE= System Option (p. 151) | Specifies the maximum number of rows that the SAS Output window can display. |
| | DMSPGMLINESIZE= System Option (p. 152) | Specifies the maximum number of characters in a Program Editor line. |
| | FONTSLC= System Option (p. 195) | Specifies the location of the fonts that are supplied by SAS; names the default font file location for registering fonts that use the FONTREG procedure. |
| | FORMS= System Option (p. 198) | If forms are used for printing, specifies the default form to use. |
| | SOLUTIONS System Option (p. 315) | Specifies whether the Solutions menu is included in SAS windows. |
| Environment Control: Error Handling | AUTOCORRECT System Option (p. 84) | Specifies whether SAS attempts to automatically correct misspelled procedure names, misspelled procedure keywords, or misspelled global statement names. |
| | BYERR System Option (p. 97) | Specifies whether SAS produces errors when the SORT procedure attempts to process a _NULL_ data set. |
| | CHKPTCLEAN System Option (p. 109) | When SAS is in checkpoint mode or restart mode, specifies whether to erase the contents of the Work library after a batch program executes successfully. |
| | CLEANUP System Option (p. 111) | For an out-of-resource condition, specifies whether to perform an automatic cleanup or a user-specified cleanup. |
| | DKRCOND= System Option (p. 142) | Specifies the level of error detection to report when a variable is missing from an input data set during the processing of a DROP=, KEEP=, or RENAME= data set option. |
| | DKROCOND= System Option (p. 143) | Specifies the level of error detection to report when a variable is missing for an output data set during the processing of a DROP=, KEEP=, or RENAME= data set option. |

| Category | Language Elements | Description |
|----------|---------------------------------------|--|
| | DMSSYNCHK System Option (p. 153) | In the SAS windowing environment, specifies whether to enable syntax check mode for DATA step and PROC step processing. |
| | DSNFERR System Option (p. 156) | When a SAS data set cannot be found, specifies whether SAS issues an error message. |
| | ERRORABEND System Option (p. 174) | Specifies whether SAS responds to errors by terminating. |
| | ERRORBYABEND System Option (p. 175) | Specifies whether SAS ends a program when an error occurs in BY-group processing. |
| | ERRORCHECK= System Option (p. 176) | Specifies whether SAS enters syntax-check mode when errors are found in the LIBNAME, FILENAME, %INCLUDE, and LOCK statements. |
| | ERRORS= System Option (p. 177) | Specifies the maximum number of observations for which SAS issues complete error messages. |
| | FMTERR System Option (p. 187) | When a variable format cannot be found, specifies whether SAS generates an error or continues processing. |
| | LABELCHKPT System Option (p. 224) | Specifies whether checkpoint-restart data for labeled code sections is to be recorded for batch programs. |
| | LABELCHKPTLIB= System Option (p. 226) | Specifies the libref of the library where the checkpoint-restart data is saved for labeled code sections. |
| | LABELRESTART System Option (p. 228) | Specifies whether to execute a batch program by using checkpoint-restart data for data collected at labeled code sections. |
| | QUOTELENMAX System Option (p. 295) | If a quoted string exceeds the maximum length allowed, specifies whether SAS writes a note to the SAS log. |
| | STEPCHKPT System Option (p. 324) | Specifies whether checkpoint-restart data for DATA and PROC steps is to be recorded for a batch program. |
| | STEPCHKPTLIB= System Option (p. 326) | Specifies the libref of the library where checkpoint-restart data for DATA and PROC steps is saved. |
| | STEPRESTART System Option (p. 328) | Specifies whether to execute a batch program by using checkpoint-restart data for DATA and PROC steps. |
| | SYNTAXCHECK System Option (p. 355) | In non-interactive or batch SAS sessions, specifies whether to enable syntax check mode for multiple steps. |
| | VNFERR System Option (p. 397) | Specifies whether SAS issues an error or warning when a BY variable exists in one data set but not another data set when the other data set is _NULL_. This option applies when processing the SET, MERGE, UPDATE, or MODIFY statements. |

| Category | Language Elements | Description |
|-------------------------------------|--|---|
| Environment Control: Files | APPEND= System Option (p. 77) | Appends a value to the existing value of the specified system option. |
| | APPLETLOC= System Option (p. 79) | Specifies the location of Java applets. |
| | FMTSEARCH= System Option (p. 188) | Specifies the order in which format catalogs are searched. |
| | IMLPACKAGEPRIVATE= System Option (p. 210) | Specifies the directory for the private collection of SAS/IML packages. |
| | IMLPACKAGEPUBLIC= System Option (p. 211) | Specifies the directory for the public collection of SAS/IML packages. |
| | IMLPACKAGESYSTEM= System Option (p. 212) | Specifies the directory for packages that are installed as part of SAS/IML. |
| | INSERT= System Option (p. 216) | Inserts the specified value as the first value of the specified system option. |
| | NEWS= System Option (p. 246) | Specifies an external file that contains messages to be written to the SAS log, immediately after the header. |
| | PARM= System Option (p. 269) | Specifies a parameter string that is passed to an external program. |
| | PARMCARDS= System Option (p. 270) | Specifies the file reference to open when SAS encounters the PARMCARDS statement in a procedure. |
| | RSASUSER System Option (p. 301) | Specifies whether to open the Sasuser library for Read access or Read-Write access. |
| | SASHELP= System Option (p. 309) | Specifies the location of the Sashelp library. |
| | SASUSER= System Option (p. 310) | Specifies the SAS library to use as the Sasuser library. |
| | SET System Option (p. 313) | Defines a SAS environment variable. |
| TRAINLOC= System Option (p. 369) | Specifies the URL for SAS online training courses. | |
| USER= System Option (p. 375) | Specifies the default permanent SAS library. | |
| UUIDCOUNT= System Option (p. 379) | Specifies the number of UUIDs to acquire from the UUID Generator Daemon. | |
| UUIDGENHOST= System Option (p. 380) | Identifies the host and port or the LDAP URL that the UUID Generator Daemon runs on. | |

| Category | Language Elements | Description |
|---|--|---|
| | WORK= System Option (p. 402) | Specifies the Work library. |
| | WORKINIT System Option (p. 404) | Specifies whether to initialize the Work library at SAS invocation. |
| | WORKTERM System Option (p. 405) | Specifies whether to erase the Work files when SAS terminates. |
| Environment Control: Help | HELPBROWSER= System Option (p. 199) | Specifies the browser to use for SAS Help and ODS output. |
| | HELPCMD System Option (p. 200) | Specifies whether SAS uses the English version or the translated version of the keyword list for the command-line Help. |
| | HELPHOST System Option (p. 201) | Specifies the name of the computer where the remote browser is to send Help and ODS output. |
| | HELPPORT= System Option (p. 202) | Specifies the port number for the remote browser client. |
| Environment Control: Initialization and Operation | AUTHPROVIDERDOMAIN System Option (p. 80) | Associates a domain suffix with an authentication provider. |
| | CSTGLOBALLIB= System Option (p. 131) | Specifies the location of the SAS Clinical Standards Toolkit global standards library. |
| | CSTSAMPLELIB= System Option (p. 131) | Specifies the location of the SAS Clinical Standards Toolkit sample library. |
| | DMR System Option (p. 146) | Specifies whether to enable SAS to invoke a server session for use with a SAS/CONNECT client. |
| | DMS System Option (p. 147) | Specifies whether to invoke the SAS windowing environment and display the Log, Editor, and Output windows. |
| | DMSEXP System Option (p. 149) | Specifies whether to invoke the SAS windowing environment and display the Explorer, Editor, Log, Output, and Results windows. |
| | EXPLORER System Option (p. 180) | Specifies whether to invoke the SAS windowing environment and display only the Explorer and Program Editor windows. |
| | INITCMD System Option (p. 213) | Specifies an application invocation command and optional SAS windowing environment or text editor commands that SAS executes after processing the AUTOEXEC= file and the INITSTMT option during SAS invocation. |
| | INITSTMT= System Option (p. 215) | Specifies a SAS statement to execute after any statements in the AUTOEXEC= file and before any statements from the SYSIN= file. |

| Category | Language Elements | Description |
|--|---|---|
| | MULTENVAPPL System Option (p. 245) | Specifies whether the fonts that are available in a SAS application font selector window lists only the SAS fonts that are available in all operating environments. |
| | PRESENV System Option (p. 288) | Specifies whether to enable the collecting of data to preserve the SAS environment when the SAS session ends. |
| | PRIMARYPROVIDERDOMAIN= System Option (p. 289) | Specifies the domain name of the primary authentication provider. |
| | TERMINAL System Option (p. 360) | Specifies whether to associate a terminal with a SAS session. |
| | TERMSTMT= System Option (p. 361) | Specifies the SAS statements to execute when SAS terminates. |
| Environment Control: Language Control | DATESTYLE= System Option (p. 135) | Specifies the sequence of month, day, and year when ANYDTE, ANYDTM, or ANYDTIME informat data is ambiguous. |
| | EXTENDBSCOUNTER= System Option (p. 182) | Specifies whether to extend the maximum observation count in a new output SAS data file. |
| | PAPERSIZE= System Option (p. 265) | Specifies the paper size to use for printing. |
| | TIMEZONE= System Option (p. 366) | Specifies the user local time zone. |
| | URLENCODING= System Option (p. 374) | Specifies whether the argument to the URLENCODE function and to the URLDECODE function is interpreted using the SAS session encoding or UTF-8 encoding. |
| Files: External Files | LRECL= System Option (p. 240) | Specifies the default logical record length to use for reading and writing external files. |
| | STARTLIB System Option (p. 323) | Specifies whether SAS assigns user-defined permanent librefs when SAS starts. |
| Files: SAS Files | ALIGNSASIOFILES System Option (p. 71) | Aligns output data on a page boundary to improve performance. |
| | BUFNO= System Option (p. 93) | Specifies the number of buffers to be allocated for processing SAS data sets. |
| | BUFSIZE= System Option (p. 95) | Specifies the permanent buffer size for output SAS data sets. |
| | CATCACHE= System Option (p. 104) | Specifies the number of SAS catalogs to keep open in cache memory. |
| | CBUFNO= System Option (p. 105) | Specifies the number of extra page buffers to allocate for each open SAS catalog. |

| Category | Language Elements | Description |
|----------|--|---|
| | CMPLIB= System Option (p. 113) | Specifies one or more SAS data sets that contain compiler subroutines to include during program compilation. |
| | COMPRESS= System Option (p. 124) | Specifies the type of compression of observations to use for output SAS data sets. |
| | DATAPAGESIZE= System Option (p. 132) | Specifies how SAS determines the optimal buffer size for a SAS data set or utility file. |
| | DATASTMTCHK= System Option (p. 133) | Specifies which SAS statement keywords are prohibited from being specified as a one-level DATA step name to protect against overwriting an input data set. |
| | DKRICOND= System Option (p. 142) | Specifies the level of error detection to report when a variable is missing from an input data set during the processing of a DROP=, KEEP=, or RENAME= data set option. |
| | DKROCOND= System Option (p. 143) | Specifies the level of error detection to report when a variable is missing for an output data set during the processing of a DROP=, KEEP=, or RENAME= data set option. |
| | DLCREATEDIR System Option (p. 144) | Specifies to create a directory for the SAS library that is named in a LIBNAME statement if the directory does not exist. |
| | DLDMGACTION= System Option (p. 145) | Specifies the type of action to take when a SAS data set or a SAS catalog is detected as damaged. |
| | ENGINE= System Option (p. 172) | Specifies the default access method for SAS libraries. |
| | EXTENDOBSCOUNTER= System Option (p. 182) | Specifies whether to extend the maximum observation count in a new output SAS data file. |
| | FILESYNC= System Option (p. 184) | Specifies when operating system buffers that contain contents of permanent SAS files are written to disk. |
| | FIRSTOBS= System Option (p. 185) | Specifies the observation number or external file record that SAS processes first. |
| | IBUFNO= System Option (p. 207) | Specifies an optional number of extra buffers to be allocated for navigating an index file. |
| | IBUFSIZE= System Option (p. 208) | Specifies the buffer size for an index file. |
| | _LAST_= System Option (p. 229) | Specifies the most recently created data set. |
| | MERGENOBY System Option (p. 242) | Specifies the type of message that is issued when MERGE processing occurs without an associated BY statement. |

| Category | Language Elements | Description |
|-----------------------------------|--|---|
| | OBS= System Option (p. 249) | Specifies the observation that is used to determine the last observation to process, or specifies the last record to process. |
| | REPLACE System Option (p. 296) | Specifies whether permanently stored SAS data sets can be replaced. |
| | REUSE= System Option (p. 297) | Specifies whether SAS reuses space when observations are added to a compressed SAS data set. |
| | STRIPESIZE= System Option (p. 330) | Specifies one or more directory and size argument pairs that set the size of SAS data sets and utility files in that directory to the size of an I/O device stripe. |
| | UBUFNO= System Option (p. 370) | Specifies the number of buffers to use for utility files. |
| | UBUFSIZE= System Option (p. 371) | Specifies the buffer size for utility files. |
| | UTILLOC= System Option (p. 376) | Specifies one or more file system locations in which enabled threaded applications can store utility files. |
| | V6CREATEUPDATE= System Option (p. 381) | Specifies the type of message to write to the SAS log when Version 6 data sets are created or updated. |
| | VALIDFMTNAME= System Option (p. 382) | Specifies the maximum size (32 characters or 8 characters) that user-created format and informat names can be before an error or warning is issued. |
| | VALIDMEMNAME= System Option (p. 384) | Specifies the rules for naming SAS data sets, SAS data views, and item stores. |
| | VALIDVARNAME= System Option (p. 387) | Specifies the rules for valid SAS variable names that can be created and processed during a SAS session. |
| | VARINITCHK= System Option (p. 389) | Specifies whether a DATA step stops or continues executing when a variable is not initialized and the type of message to write to the SAS log. |
| | VARLENCHK= System Option (p. 391) | Specifies the type of message to write to the SAS log when the input data set is read using the SET, MERGE, UPDATE, or MODIFY statements. |
| Input Control: Data Processing | BYSORTED System Option (p. 100) | Specifies whether observations in one or more data sets are sorted in alphabetic or numeric order or are grouped in another logical order. |
| | CAPS System Option (p. 101) | Specifies whether to convert certain types of input to uppercase. |
| | CARDIMAGE System Option (p. 103) | Specifies whether SAS processes source and data lines as 80-byte cards. |

| Category | Language Elements | Description |
|---|-------------------------------------|---|
| | DATESTYLE= System Option (p. 135) | Specifies the sequence of month, day, and year when ANYDTDTE, ANYDXTDM, or ANYDXTME informat data is ambiguous. |
| | EVENTDS= System Option (p. 178) | Specifies one or more data sets that define events. |
| | INTERVALDS= System Option (p. 218) | Specifies one or more interval name-value pairs, where the value is a SAS data set that contains user-defined intervals. The intervals can be used as arguments to the INTNX and INTCK functions. |
| | INVALIDDATA= System Option (p. 221) | Specifies the value that SAS assigns to a variable when invalid numeric data is encountered. |
| | S= System Option (p. 302) | 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= System Option (p. 305) | Specifies the length of statements on each line of a source statement from a %INCLUDE statement, an AUTOEXEC= file, or an autocall macro file. |
| | S2V= System Option (p. 308) | Specifies the starting position to begin reading a file that is specified in a %INCLUDE statement, an autoexec file, or an autocall macro file with a variable length record format. |
| | SEQ= System Option (p. 311) | Specifies the length of the numeric portion of the sequence field in input source lines or data lines. |
| | SPOOL System Option (p. 322) | Specifies whether SAS statements are written to a utility data set in the Work library. |
| | VBUFSIZE= System Option (p. 395) | Specifies the size of the view buffer. |
| | YEARCUTOFF= System Option (p. 406) | Specifies the first year of a 100-year span that is used by date informats and functions to read a two-digit year. |
| Log and Procedure Output Control: Animation | ANIMATION= System Option (p. 72) | Specifies whether to start or stop creating animation frames. |
| | ANIMDURATION= System Option (p. 73) | Specifies the amount of time that each frame in the animation is held in view. |
| | ANIMLOOP= System Option (p. 75) | Specifies whether the animation loop is played continuously or is played once, or specifies a specific number of times that the animation loop is repeated. |
| | ANIMOVERLAY System Option (p. 76) | Specifies whether animation frames are overlaid or whether they are played sequentially. |
| | SVGAUTOPLAY System Option (p. 333) | Specifies to automatically start the animation in the web browser. |

| Category | Language Elements | Description |
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| | SVGFADEIN= System Option (p. 335) | Specifies the number of seconds for an SVG frame to fade into view. |
| | SVGFADEMODE= System Option (p. 336) | Specifies whether an SVG frame overlaps the previous frame or whether each frame is played sequentially when a frame is fading in and out. |
| | SVGFADEOUT= System Option (p. 338) | Specifies the number of seconds for an SVG frame to fade out of view. |
| Log and Procedure Output Control: ODS Printing | ACCESSIBLECHECK System Option (p. 66) | Specifies whether to check for common violations of accessibility standards and to write messages to the SAS log if problems are found. |
| | ACCESSIBLEGRAPH System Option (p. 67) | Specifies, by default, to create accessible ODS graphics for the ODS5 destination by enabling the ACCESSIBLE_GRAPH option in the ODS HTML5 statement. |
| | ACCESSIBLEPDF System Option (p. 68) | Specifies, by default, to create accessible graphs in PDF documents by enabling the ACCESSIBLE option in the ODS PDF statement. |
| | ACCESSIBLETABLE System Option (p. 70) | Specifies whether to create accessible tables by default. |
| | BINDING= System Option (p. 90) | Specifies the binding edge for duplexed printed output. |
| | BOTTOMMARGIN= System Option (p. 91) | Specifies the size of the margin at the bottom of a printed page. |
| | COLLATE System Option (p. 120) | Specifies whether to collate multiple copies of printed output. |
| | COLOPHON= System Option (p. 121) | Specifies a text string that is embedded in a graphic file or a PDF that is created by Universal Printers. The text string is not displayed in the rendered graphic or PDF. |
| | COLORPRINTING System Option (p. 123) | Specifies whether to print in color if color printing is supported. |
| | COPIES= System Option (p. 127) | Specifies the number of copies to print. |
| | DEFLATION= System Option (p. 139) | Specifies the level of compression for device drivers that support the Deflate compression algorithm. |
| | DUPLEX System Option (p. 158) | Specifies whether duplex (two-sided) printing is enabled. |
| FONTEMBEDDING System Option (p. 191) | Specifies whether font embedding is enabled in Universal Printer and SAS/GRAPH printing. | |
| FONTPRENDERING= System Option (p. 193) | Specifies whether SAS/GRAPH devices that are based on the SASGDGIF, SASGDTIF, and SASGDIMG modules render | |

| Category | Language Elements | Description |
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| | | fonts by using the operating system or by using the FreeType engine. |
| | FONTSLLOC= System Option (p. 195) | Specifies the location of the fonts that are supplied by SAS; names the default font file location for registering fonts that use the FONTREG procedure. |
| | JPEGQUALITY= System Option (p. 222) | Specifies the JPEG quality factor that determines the ratio of image quality to the level of compression for JPEG files produced by the SAS/GRAPH JPEG device driver. |
| | LEFTMARGIN= System Option (p. 230) | Specifies the print margin for the left side of the page. |
| | ORIENTATION= System Option (p. 256) | Specifies the paper orientation to use when printing to a printer. |
| | PAPERDEST= System Option (p. 264) | Specifies the name of the output bin to receive printed output. |
| | PAPERSIZE= System Option (p. 265) | Specifies the paper size to use for printing. |
| | PAPERSOURCE= System Option (p. 267) | Specifies the name of the paper bin to use for printing. |
| | PAPERTYPE= System Option (p. 268) | Specifies the type of paper to use for printing. |
| | PRINTERPATH= System Option (p. 291) | Specifies the name of a registered printer to use for Universal Printing. |
| | RIGHTMARGIN= System Option (p. 298) | Specifies the print margin for the right side of the page. |
| | TEXTURELOC= System Option (p. 362) | Specifies the location of textures and images that are used by ODS styles. |
| | TOPMARGIN= System Option (p. 368) | Specifies the print margin at the top of the page. |
| | UPRINTCOMPRESSION System Option (p. 373) | Specifies whether to enable the compression of files created by some Universal Printer and SAS/GRAPH devices. |
| Log and Procedure Output Control: PDF | PDFACCESS System Option (p. 271) | Specifies whether PDF documents can be edited. |
| | PDFASSEMBLY System Option (p. 272) | Specifies whether PDF documents can be assembled. |
| | PDFCOMMENT System Option (p. 274) | Specifies whether PDF document comments can be modified. |

| Category | Language Elements | Description |
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| | PDFCONTENT System Option (p. 275) | Specifies whether the contents of a PDF document can be changed. |
| | PDFCOPY System Option (p. 276) | Specifies whether text and graphics from a PDF document can be copied. |
| | PDFFILLIN System Option (p. 278) | Specifies whether PDF forms can be filled in. |
| | PDFPAGELAYOUT= System Option (p. 279) | Specifies the page layout for PDF documents. |
| | PDFPAGEVIEW= System Option (p. 281) | Specifies the page viewing mode for PDF documents. |
| | PDFPASSWORD= System Option (p. 282) | Specifies the password to use to open a PDF document and the password used by a PDF document owner to set document permissions and restrictions. |
| | PDFPRINT= System Option (p. 284) | Specifies the resolution to print PDF documents. |
| | PDFSECURITY= System Option (p. 286) | Specifies the level of encryption for PDF documents. |
| Log and Procedure Output Control: Procedure Output | BYLINE System Option (p. 98) | Specifies whether to print BY lines above each BY group. |
| | CENTER System Option (p. 106) | Specifies whether to center or left-align SAS procedure output. |
| | DATE System Option (p. 134) | Specifies whether to print the date and time that a SAS program started. |
| | DECIMALCONV= System Option (p. 138) | Specifies the binary to decimal conversion and formatting methodology. |
| | DETAILS System Option (p. 140) | Specifies whether to include additional information when files are listed in a SAS library. |
| | DMSOUTSIZE= System Option (p. 151) | Specifies the maximum number of rows that the SAS Output window can display. |
| | DTRESET System Option (p. 157) | Specifies whether to update the date and time in the SAS log and in the procedure output file. |
| | FORMCHAR= System Option (p. 196) | Specifies the default output formatting characters. |
| | FORMDLIM= System Option (p. 197) | Specifies a character to delimit page breaks in SAS output for the LISTING destination. |
| FORMS= System Option (p. 198) | If forms are used for printing, specifies the default form to use. | |

| Category | Language Elements | Description |
|---|---|---|
| | LABEL System Option (p. 223) | Specifies whether SAS procedures can use labels with variables. |
| | LINESIZE= System Option (p. 233) | Specifies the line size for the SAS log and for SAS procedure output. |
| | MISSING= System Option (p. 242) | Specifies the character to print for missing numeric values. |
| | NUMBER System Option (p. 248) | Specifies whether to print the page number in the title line of each page of SAS output. |
| | PAGEBREAKINITIAL System Option (p. 260) | Specifies whether to begin the SAS log and procedure output files for the LISTING destination on a new page. |
| | PAGENO= System Option (p. 261) | Resets the SAS output page number. |
| | PAGESIZE= System Option (p. 262) | Specifies the number of lines that compose a page of the SAS log and SAS output. |
| | PRINTINIT System Option (p. 293) | Specifies whether to initialize the SAS procedure output file for the LISTING destination. |
| | SKIP= System Option (p. 314) | Specifies the number of lines to skip at the top of each page of SAS output for the LISTING destination. |
| | SYSPRINTFONT= System Option (p. 357) | Specifies the default font to use for printing, which can be overridden by explicitly specifying a font and an ODS style. |
| Log and Procedure Output Control: SAS Log | CPUID System Option (p. 130) | Specifies whether the CPU identification number is written to the SAS log. |
| | DATE System Option (p. 134) | Specifies whether to print the date and time that a SAS program started. |
| | DECIMALCONV= System Option (p. 138) | Specifies the binary to decimal conversion and formatting methodology. |
| | DETAILS System Option (p. 140) | Specifies whether to include additional information when files are listed in a SAS library. |
| | DMSLOGSIZE= System Option (p. 150) | Specifies the maximum number of rows that the SAS Log window can display. |
| | DTRESET System Option (p. 157) | Specifies whether to update the date and time in the SAS log and in the procedure output file. |
| | ECHOAUTO System Option (p. 159) | Specifies whether the statements in the AUTOEXEC= file are written to the SAS log as they are executed. |
| | ERRORS= System Option (p. 177) | Specifies the maximum number of observations for which SAS issues complete error messages. |

| Category | Language Elements | Description |
|--|---|---|
| | HOSTINFO LONG System Option (p. 203) | Specifies to print additional operating environment information in the SAS log when SAS starts. |
| | LIMITPROCNOTES= System Option (p. 232) | Limits the number of notes that can be written to the SAS log by a SAS procedure. |
| | LINESIZE= System Option (p. 233) | Specifies the line size for the SAS log and for SAS procedure output. |
| | LOGPARM= System Option (p. 234) | Specifies when SAS log files are opened, closed, and, in conjunction with the LOG= system option, how they are named. |
| | MISSING= System Option (p. 242) | Specifies the character to print for missing numeric values. |
| | MSGLEVEL= System Option (p. 243) | Specifies the level of detail in messages that are written to the SAS log. |
| | NEWS= System Option (p. 246) | Specifies an external file that contains messages to be written to the SAS log, immediately after the header. |
| | NOTES System Option (p. 247) | Specifies whether notes are written to the SAS log. |
| | NUMBER System Option (p. 248) | Specifies whether to print the page number in the title line of each page of SAS output. |
| | OVP System Option (p. 259) | Specifies whether overprinting of error messages to make them bold, is enabled. |
| | PAGEBREAKINITIAL System Option (p. 260) | Specifies whether to begin the SAS log and procedure output files for the LISTING destination on a new page. |
| | PAGESIZE= System Option (p. 262) | Specifies the number of lines that compose a page of the SAS log and SAS output. |
| | PRINTMSGLIST System Option (p. 294) | Specifies whether to print all messages to the SAS log or to print only top-level messages to the SAS log. |
| | SOURCE System Option (p. 320) | Specifies whether SAS writes source statements to the SAS log. |
| | SOURCE2 System Option (p. 321) | Specifies whether SAS writes secondary source statements from included files to the SAS log. |
| Log and Procedure Output Control: SAS Log and Procedure Output | DATE System Option (p. 134) | Specifies whether to print the date and time that a SAS program started. |
| | DECIMALCONV= System Option (p. 138) | Specifies the binary to decimal conversion and formatting methodology. |
| | DETAILS System Option (p. 140) | Specifies whether to include additional information when files are listed in a SAS library. |

| Category | Language Elements | Description |
|---|--|---|
| | DTRESET System Option (p. 157) | Specifies whether to update the date and time in the SAS log and in the procedure output file. |
| | LINESIZE= System Option (p. 233) | Specifies the line size for the SAS log and for SAS procedure output. |
| | MISSING= System Option (p. 242) | Specifies the character to print for missing numeric values. |
| | NUMBER System Option (p. 248) | Specifies whether to print the page number in the title line of each page of SAS output. |
| | PAGEBREAKINITIAL System Option (p. 260) | Specifies whether to begin the SAS log and procedure output files for the LISTING destination on a new page. |
| | PAGESIZE= System Option (p. 262) | Specifies the number of lines that compose a page of the SAS log and SAS output. |
| Log and Procedure Output Control: SVG | ANIMATION= System Option (p. 72) | Specifies whether to start or stop creating animation frames. |
| | ANIMDURATION= System Option (p. 73) | Specifies the amount of time that each frame in the animation is held in view. |
| | ANIMLOOP= System Option (p. 75) | Specifies whether the animation loop is played continuously or is played once, or specifies a specific number of times that the animation loop is repeated. |
| | ANIMOVERLAY System Option (p. 76) | Specifies whether animation frames are overlaid or whether they are played sequentially. |
| | SVGAUTOPLAY System Option (p. 333) | Specifies to automatically start the animation in the web browser. |
| | SVGCONTROLBUTTONS System Option (p. 335) | Specifies whether to display the paging control buttons and an index in a multipage SVG document. |
| | SVGFADEIN= System Option (p. 335) | Specifies the number of seconds for an SVG frame to fade into view. |
| | SVGFADEMODE= System Option (p. 336) | Specifies whether an SVG frame overlaps the previous frame or whether each frame is played sequentially when a frame is fading in and out. |
| | SVGFADEOUT= System Option (p. 338) | Specifies the number of seconds for an SVG frame to fade out of view. |
| | SVGHEIGHT= System Option (p. 339) | Specifies the height of the viewport unless the SVG output is embedded in another SVG output; specifies the value of the height attribute of the outermost <svg> element in the SVG file. |
| SVGMAGNIFYBUTTON System Option (p. 341) | Specifies whether to enable the SVG magnify tool in SVG documents. | |

| Category | Language Elements | Description |
|--|--|--|
| | SVGPRESERVEASPECTRATIO= System Option (p. 342) | Specifies whether to force uniform scaling of SVG output; specifies the preserveAspectRatio attribute on the outermost <svg> element. |
| | SVGTITLE= System Option (p. 346) | Specifies the title in the title bar of the SVG output; specifies the value of the <title> element in the SVG file. |
| | SVGVIEWBOX= System Option (p. 347) | Specifies the coordinates, width, and height that are used to set the viewBox attribute on the outermost <svg> element, which enables SVG output to scale to the viewport. |
| | SVGWIDTH= System Option (p. 349) | Specifies the width of the viewport unless the SVG output is embedded in another SVG output; specifies the value of the width attribute in the outermost <svg> element in the SVG file. |
| | SVGX= System Option (p. 352) | Specifies the x-axis coordinate of one corner of the rectangular region into which an embedded <svg> element is placed; specifies the x attribute in the outermost <svg> element in an SVG file. |
| | SVGY= System Option (p. 353) | Specifies the y-axis coordinate of one corner of the rectangular region into which an embedded <svg> element is placed; specifies the y attribute in the outermost <svg> element in an SVG file. |
| Sort: Procedure Options | SORTEQUALS System Option (p. 316) | Specifies whether observations in the output data set with identical BY variable values are in a particular order. |
| | SORTSIZE= System Option (p. 317) | Specifies the amount of memory that is available to the SORT procedure. |
| | SORTVALIDATE System Option (p. 319) | Specifies whether the SORT procedure verifies if a data set is sorted according to the variables in the BY statement when a user-specified sort order is denoted in the sort indicator. |
| System Administration: CAS Options | AUTHINFO= System Option (p. 83) | Specifies a file where user ID and passwords are kept for authentication. |
| System Administration: Code Generation | CGOPTIMIZE= System Option (p. 107) | Specifies the level of optimization to perform during code compilation. |
| System Administration: Memory | SORTSIZE= System Option (p. 317) | Specifies the amount of memory that is available to the SORT procedure. |
| | SUMSIZE= System Option (p. 332) | Specifies a limit on the amount of memory that is available for data summarization procedures when class variables are active. |
| System Administration: Performance | BUFNO= System Option (p. 93) | Specifies the number of buffers to be allocated for processing SAS data sets. |

| Category | Language Elements | Description |
|---------------------------------|-------------------------------------|---|
| | BUFSIZE= System Option (p. 95) | Specifies the permanent buffer size for output SAS data sets. |
| | CGOPTIMIZE= System Option (p. 107) | Specifies the level of optimization to perform during code compilation. |
| | CMPMODEL= System Option (p. 115) | Specifies the output model type for the MODEL procedure. |
| | CMPOPT= System Option (p. 116) | Specifies the type of code generation optimizations to use in the SAS language compiler. |
| | COMPRESS= System Option (p. 124) | Specifies the type of compression of observations to use for output SAS data sets. |
| | CPUCOUNT= System Option (p. 128) | Specifies the number of processors that the thread-enabled applications should assume are available for concurrent processing. |
| | DEBUGOPT= System Option (p. 137) | Specifies the host and port where debugging SAS languages occurs |
| | DSACCEL= System Option (p. 155) | Specifies whether the DATA step is enabled for parallel processing in supported environments. |
| | SORTSIZE= System Option (p. 317) | Specifies the amount of memory that is available to the SORT procedure. |
| | STRIPESIZE= System Option (p. 330) | Specifies one or more directory and size argument pairs that set the size of SAS data sets and utility files in that directory to the size of an I/O device stripe. |
| | THREADS System Option (p. 363) | Specifies that SAS uses threaded processing if available. |
| | UBUFNO= System Option (p. 370) | Specifies the number of buffers to use for utility files. |
| | UBUFSIZE= System Option (p. 371) | Specifies the buffer size for utility files. |
| | VBUFSIZE= System Option (p. 395) | Specifies the size of the view buffer. |
| System Administration: Security | PDFPASSWORD= System Option (p. 282) | Specifies the password to use to open a PDF document and the password used by a PDF document owner to set document permissions and restrictions. |
| | PDFSECURITY= System Option (p. 286) | Specifies the level of encryption for PDF documents. |
| | RLANG System Option (p. 300) | Specifies whether SAS executes R language statements within SAS/IML. |

| Category | Language Elements | Description |
|------------------------------|--------------------------------------|---|
| System Administration: TK | DATAPAGESIZE= System Option (p. 132) | Specifies how SAS determines the optimal buffer size for a SAS data set or utility file. |
| | STRIPESIZE= System Option (p. 330) | Specifies one or more directory and size argument pairs that set the size of SAS data sets and utility files in that directory to the size of an I/O device stripe. |

Dictionary

ACCESSIBLECHECK System Option

Specifies whether to check for common violations of accessibility standards and to write messages to the SAS log if problems are found.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is NOACCESSIBLECHECK. |
| ODS destination: | Beginning in SAS 9.4M6, accessible tables and graphs are available for the ODS HTML5, ODS PDF, and ODS EPUB destinations. Accessible tables and graphs are not available for the ODS LISTING and the ODS OUTPUT destinations. The level of accessibility for other ODS destinations has not been determined. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

ACCESSIBLECHECK | **NOACCESSIBLECHECK**

Syntax Description

ACCESSIBLECHECK

specifies to write messages to the SAS log if common violations of accessibility standards are found.

NOACCESSIBLECHECK

specifies not to check for common violations of accessibility standards.

Details

Beginning in SAS 9.4M6, SAS has been enhanced to create output that conforms to accessibility standards such as the Web Content Accessibility Guidelines (WCAG) version 2.0. Many aspects of SAS output are accessible by default. However, you must also follow best practices to ensure that your output is accessible. When you enable the ACCESSIBLECHECK system option, SAS detects common violations of accessibility standards and writes messages to the SAS log. An example of a violation is an image that does not have an alternative text description or a table that includes a blank line for a visual effect.

See Also

- [General Recommendations for Creating Accessible Output](#)

System Options:

- [“ACCESSIBLEGRAPH System Option” on page 67](#)
- [“ACCESSIBLEPDF System Option” on page 68](#)
- [“ACCESSIBLETABLE System Option” on page 70](#)

ACCESSIBLEGRAPH System Option

Specifies, by default, to create accessible ODS graphics for the ODS5 destination by enabling the ACCESSIBLE_GRAPH option in the ODS HTML5 statement.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is NOACCESSIBLEGRAPH. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| Tip: | You can override this system option by setting the ACCESSIBLE_GRAPH or NOACCESSIBLE_GRAPH options for the ODS HTML5 statement. |

Syntax

ACCESSIBLEGRAPH | NOACCESSIBLEGRAPH

Syntax Description

ACCESSIBLEGRAPH

specifies to enable the ACCESSIBLE_GRAPH option in the ODS HTML5 statement by default.

Tip When you specify the ACCESSIBLEGRAPH system option, you do not need to set the ACCESSIBLE=YES option in the ODS HTML5 statement.

NOACCESSIBLEGRAPH

specifies not to enable the ACCESSIBLE_GRAPH option in the ODS HTML5 statement by default.

Details

When the ACCESSIBLEGRAPH system option is set, by default accessibility metadata is added to graphs that are created by ODS Graphics for the ODS HTML5 destination. This addition enables users with disabilities such as visual impairments or blindness to view alternative presentations of the graphs using SAS Graphics Accelerator.

This option is available beginning in SAS 9.4M6.

See Also

- [General Recommendations for Creating Accessible Output](#)
- [ODS HTML5 ACCESSIBLE_GRAPH option](#)

System Options:

- [“ACCESSIBLECHECK System Option” on page 66](#)
- [“ACCESSIBLEPDF System Option” on page 68](#)
- [“ACCESSIBLETABLE System Option” on page 70](#)

ACCESSIBLEPDF System Option

Specifies, by default, to create accessible graphs in PDF documents by enabling the ACCESSIBLE option in the ODS PDF statement.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is NOACCESSIBLEPDF. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

ACCESSIBLEPDF | **NOACCESSIBLEPDF**

Syntax Description

ACCESSIBLEPDF

specifies to enable the ACCESSIBLE option in the ODS PDF statement.

Tip When you set the ACCESSIBLEPDF system option, you do not need to set the ACCESSIBLE option in the ODS PDF statement.

NOACCESSIBLEPDF

specifies not to enable the ACCESSIBLE option in the ODS PDF statement.

Details

The ODS PDF ACCESSIBLE option produces PDF files that contain additional metadata that is required by the Web Content Accessibility Guidelines (WCAG) version 2.0 and the PDF Universal Accessibility (PDF/UA) format. Users with disabilities that include visual impairments or blindness need this metadata to read the contents of PDF files.

This option is available beginning in SAS 9.4M6.

See Also

- [General Recommendations for Creating Accessible Output](#)
- [ODS PDF ACCESSIBLE option](#)

System Options:

- [“ACCESSIBLECHECK System Option” on page 66](#)

- “ACCESSIBLEGRAPH System Option” on page 67
- “ACCESSIBLETABLE System Option” on page 70

ACCESSIBLETABLE System Option

Specifies whether to create accessible tables by default.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is NOACCESSIBLETABLE. |
| ODS destination: | Beginning in SAS 9.4M6, accessible tables are available for the ODS HTML5, ODS PDF, and ODS EPUB destinations. Accessible tables are not available for the ODS LISTING and the ODS OUTPUT destinations. The level of accessibility for other ODS destinations has not been determined. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

ACCESSIBLETABLE | **NOACCESSIBLETABLE**

Syntax Description

ACCESSIBLETABLE

specifies to create accessible tables by default.

NOACCESSIBLETABLE

specifies not to create accessible tables by default.

Details

Beginning in SAS 9.4M6, the ACCESSIBLETABLE option alters the layout of some generated tables in order to make the tables accessible, and adds visual captions to tables. An example is the way some row headings are displayed in PROC TABULATE. This option also makes table captions visible on the page. Previously, table captions were visually hidden and available only to screen reader users.

This option applies to tables that are generated by the PRINT, REPORT, and TABULATE procedures as well as the ODS Report Writing Interface.

See Also

- [General Recommendations for Creating Accessible Output](#)

Procedures:

- [“PRINT Procedure” in *Base SAS Procedures Guide*](#)
- [“REPORT Procedure” in *Base SAS Procedures Guide*](#)
- [“TABULATE Procedure” in *Base SAS Procedures Guide*](#)

System Options:

- [“ACCESSIBLECHECK System Option” on page 66](#)
- [“ACCESSIBLEGRAPH System Option” on page 67](#)
- [“ACCESSIBLEPDF System Option” on page 68](#)

ALIGN SASIOFILES System Option

Aligns output data on a page boundary to improve performance.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Defaults: | SAS 9.4: For UNIX and Windows operating environments, the shipped default is ALIGN SASIOFILES. SAS 9.4: For z/OS, the shipped default is NOALIGN SASIOFILES. SAS Viya: The shipped default is ALIGN SASIOFILES. |
| Note: | This option can be restricted on z/OS. It cannot be restricted on SAS 9.4 UNIX and Windows, or on SAS Viya. |

Syntax

ALIGN SASIOFILES | NOALIGN SASIOFILES

Syntax Description

ALIGN SASIOFILES

specifies to align output data on a page boundary.

NOALIGN SASIOFILES

specifies to write output data by using standard SAS practices.

Details

A SAS data set consists of a header that is followed by one or more pages of data. Typically, the header is 1K on Windows and 8K on UNIX and in SAS Viya. The ALIGN SASIOFILES system option forces the header to be the same size as the data pages so that the data pages are aligned to boundaries that allow for more efficient I/O.

Aligning data on a page boundary causes the size of the file to increase, but performance improves because of fewer page accesses.

You can use the BUFSIZE= system option or the BUFSIZE= data set option to set the page size.

See Also

- [“Techniques for Optimizing Memory Usage” in SAS Programmer’s Guide: Essentials](#)

Data Set Options:

- [“BUFSIZE= Data Set Option” in SAS Data Set Options: Reference](#)

System Options:

- [“BUFSIZE= System Option” on page 95](#)

ANIMATION= System Option

Specifies whether to start or stop creating animation frames.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Categories: Log and Procedure Output Control: SVG
Log and Procedure Output Control: Animation

PROC OPTIONS GROUP= SVG
Animation

| | |
|----------|---|
| Alias: | ANIMATE |
| Default: | The shipped default is STOP. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for GIF and SVG animation. |

Syntax

ANIMATION=[START](#) | [STOP](#)

Syntax Description

START

specifies to begin creating animation frames.

STOP

specifies to stop creating animation frames.

Tip Specify ANIMATION=STOP after you have created the frames for your animation file. If ANIMATION=START remains specified, you might unintentionally create an animation file for subsequent procedure statements.

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADEIN= System Option” on page 335](#)
- [“SVGFADEMODE= System Option” on page 336](#)
- [“SVGFADEOUT= System Option” on page 338](#)

ANIMDURATION= System Option

Specifies the amount of time that each frame in the animation is held in view.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Log and Procedure Output Control: SVG Log and Procedure Output Control: Animation |
| PROC OPTIONS GROUP= | SVG Animation |
| Default: | The shipped default is MIN. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for GIF and SVG animation. |

Syntax

ANIMDURATION=*duration* | MIN

Syntax Description

duration

specifies the number of seconds to hold an animation frame in view. The number can be any numeric representation (for example, .01, 5, 6.5).

Defaults 0 for GIF frames

0.1 for SVG frames

MIN

specifies to use the device driver’s default value for the amount of time that each frame is held in view.

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADDEIN= System Option” on page 335](#)
- [“SVGFADDEMODE= System Option” on page 336](#)

- [“SVGFADEOUT= System Option” on page 338](#)

ANIMLOOP= System Option

Specifies whether the animation loop is played continuously or is played once, or specifies a specific number of times that the animation loop is repeated.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:
Not supported

Categories: Log and Procedure Output Control: SVG
Log and Procedure Output Control: Animation

PROC OPTIONS GROUP= SVG
Animation

Default: The shipped default is YES.

Notes: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
The option is valid for GIF and SVG animation.

Syntax

ANIMLOOP=YES | NO | *n*

Syntax Description

YES

specifies that animation loops continuously repeat.

NO

specifies that animation loops complete one loop.

n

specifies the number of times that an animation loop is continuously repeated. The number must be an integer.

Range 0–2147483647

Interaction For SVG documents only, the value 0 enables the animation to loop continuously. When *n* is any value other than 0, the pages of an SVG animation loop *n* times. Instead of using ANIMLOOP=*n*, you can use ANIMLOOP=YES and ANIMLOOP=NO.

Details

Use the NOANIMOVERLAY option for animations that loop continuously so that each page is replaced by the next frame.

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADEIN= System Option” on page 335](#)
- [“SVGFADEMODE= System Option” on page 336](#)
- [“SVGFADEOUT= System Option” on page 338](#)

ANIMOVERLAY System Option

Specifies whether animation frames are overlaid or whether they are played sequentially.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Log and Procedure Output Control: Animation Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | ANIMATION SVG |
| Default: | The shipped default is ANIMOVERLAY. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for GIF and SVG animation. |

Syntax

ANIMOVERLAY | **NOANIMOVERLAY**

Syntax Description

ANIMOVERLAY

specifies that each frame in an animation overlays the previous frame. All frames remain in view for the duration of the animation.

NOANIMOVERLAY

specifies that each frame is played sequentially. When a frame is played, it replaces the previous frame.

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADDEIN= System Option” on page 335](#)
- [“SVGFADDEMODE= System Option” on page 336](#)
- [“SVGFADDEOUT= System Option” on page 338](#)

APPEND= System Option

Appends a value to the existing value of the specified system option.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | For the syntax to use in your operating environment when you start SAS, see the documentation for your operating environment: UNIX Windows z/OS |

Syntax

APPEND=(*system-option-1=argument-1* <*system-option-2=argument-2* ...>)

Syntax Description

system-option

in SAS 9.4, can be AUTOEXEC, CMPLIB, FMTSEARCH, HELPLOC, MAPS, MAPSGFK, MSG, SASAUTOS, SASHELP, SASSCRIPT, or SET.

In SAS Viya, *system-option* can be AUTOEXEC, CMPLIB FMTSEARCH, MSG, SASAUTOS, SASHELP, SASSCRIPT, or SET.

Note Some of these options are available only when SAS starts. These options can be specified in the APPEND= option only when the APPEND= option is specified in a configuration file or a SAS command.

argument

specifies a new value that you want to append to the current value of *system-option*.

argument can be any value that could be specified for *system-option* if *system-option* is set using the OPTIONS statement.

Restriction The arguments for the FMTSEARCH system option apply only to format catalogs. The arguments do not apply to CAS format libraries. For information about the search order for a CAS format library, see the [CAS statement FMTSEARCH= option](#).

Details

If you specify a new value for the AUTOEXEC, CMPLIB, FMTSEARCH, SASHELP, MAPS, MAPSGFK, MSG, SASAUTOS, SASSCRIPT, or SET system options, the new value replaces the value of the option. Instead of replacing the value, you can use the APPEND= system option to append a new value to the current value of the option.

For a list of system options that the APPEND= system option and the INSERT= system option support, including the system options that can be used when SAS starts, submit the following OPTIONS procedure:

```
proc options listinsertappend;  
run;
```

Comparisons

The APPEND= system option adds a new value to the end of the current value of the AUTOEXEC, CMPLIB, FMTSEARCH, HELPLOC, MAPS, MAPSGFK, MSG,

SASAUTOS, SASSCRIPT, or SET system options. The INSERT= system option adds a new value as the first value of one of these system options.

Example

The following table shows the results of adding a value to the end of the FMTSEARCH= option value:

| Current FMTSEARCH= Value | Value of APPEND= System Option | New FMTSEARCH= Value |
|--------------------------|--------------------------------|------------------------|
| (WORK LIBRARY) | (fmtsearch=(abc def)) | (WORK LIBRARY ABC DEF) |

See Also

- [“Changing an Option Value By Using the INSERT and APPEND System Options” on page 17](#)

System Options:

- [“INSERT= System Option” on page 216](#)
- [“INSERT System Option: UNIX” in SAS Companion for UNIX Environments](#)
- [“INSERT: Windows” in SAS Companion for Windows](#)
- [“INSERT= System Option: z/OS” in SAS Companion for z/OS](#)

APPLETLOC= System Option

Specifies the location of Java applets.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

APPLETLOC=*base-URL*

Syntax Description

"base-URL"

specifies the address where the SAS Java applets are located. The maximum address length is 256 characters.

Details

The APPLETLOC= system option specifies the base location (typically a URL) of Java applets. These applets are typically accessed from an intranet server or a local CD-ROM.

Example

Some examples of the *base-URL* are

- *"file://e:\java"*
- *"http://server.abc.com/SAS/applets"*

AUTHPROVIDERDOMAIN System Option

Associates a domain suffix with an authentication provider.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS EXECMODES
GROUP=

Alias: AUTHPD

Note: This option can be restricted by a site administrator. For more information, see ["Restricted Options" on page 8](#).

Syntax

In Windows and z/OS operating environments:

AUTHPROVIDERDOMAIN *provider* : *domain*

AUTHPROVIDERDOMAIN (*provider-1 : domain-1* <, *provider-2 : domain-2*, ...>)

UNIX:

AUTHPROVIDERDOMAIN *(provider-1 : domain-1* <, *provider-2 : domain-2*, ...> \)

Syntax Description

provider

specifies the authentication provider that is associated with a domain. The following are valid values for *provider*:

ADIR

specifies that the authentication provider be a Microsoft Active Directory server that accepts a bind containing user names and passwords for authentication.

HOSTUSER

specifies that user names and passwords be authenticated by using the authentication processing that is provided by the host operating system.

Windows specifics Under the Windows operating environment, assigning the authentication provider using the HOSTUSER domain is the same as assigning the authentication provider using the AUTHSERVER system option. You might want to use the AUTHPROVIDERDOMAIN system option when you specify multiple authentication providers.

LDAP

specifies that the authentication provider use a directory server to specify the bind distinguished name (BINDDN) and a password for authentication.

domain

specifies a site-specific domain name. Quotation marks are required if the domain name contains blanks.

Details

SAS is able to provide authentication of a user through the use of many authentication providers. The AUTHPROVIDERDOMAIN= system option associates a domain suffix with an authentication provider. This association enables the SAS server to choose the authentication provider by the domain name that is presented.

When a domain suffix is not specified or the domain suffix is unknown, authentication is performed on the user ID and password by the host operating system.

Parentheses are required when you specify more than one set of *provider : domain* pairs.

The maximum length for the AUTHPROVIDERDOMAIN option value is 1,024 characters.

To use the Microsoft Active Directory or LDAP authentication providers, these environment variables must be set in the server or spawner start-up script:

- Microsoft Active Directory Server:
 - AD_PORT=*Microsoft Active Directory port number*
 - AD_HOST=*Microsoft Active Directory host name*
- LDAP Server:
 - LDAP_PORT=*LDAP port number*
 - LDAP_BASE=*base distinguished name*
 - LDAP_HOST=*LDAP host_name*
- LDAP Server for users connecting with a user ID instead of a distinguished name (DN):
 - LDAP_PRIV_DN=*privileged DN that is allowed to search for users*
 - LDAP_PRIV_PW=*LDAP_PRIV_DN password*

.....
Note: If the LDAP server allows anonymous binds, then LDAP_PRIV_DN and LDAP_PRIV_PW are not required.

In addition to setting these environment variables, you can set the LDAP_IDATTR environment variable to the name of the person-entry LDAP attribute that stores the user ID if the attribute does not contain the default value of `uid`.

Example

The following examples show you how to specify the AUTHPROVIDERDOMAIN option:

- `-authpd ldap:sas` causes the SAS server to send credentials for users who log on as *anything@sas* to LDAP for authentication.
- `-authpd adir:sas` causes the SAS server to send credentials for users who log on as *anything@sas* to Active Directory for authentication.
- `-authproviderdomain (hostuser:'my domain', ldap:sas)` causes the SAS server to send credentials for users who log on as the following:
 - When a user logs on as *anything@'my domain'*, authentication is provided by the operating system authentication system
 - When a user logs on as *anything@sas*, authentication is provided by LDAP

See Also

System Options:

- ["PRIMARYPROVIDERDOMAIN= System Option" on page 289](#)

AUTHINFO= System Option

Specifies a file where user ID and passwords are kept for authentication.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | System Administration: CAS Options |
| PROC OPTIONS GROUP= | CAS |
| Default: | The shipped default for authorization file is ~/authInfo-file. |

Syntax

AUTHINFO='*authinfo_file_path*';

Syntax Description

authinfo_file_path

specifies the path where an Authinfo file is located. End users can store an encoded password in an Authinfo file. The Authinfo file provides an alternative to including passwords in programs.

Details

The AUTHINFO= system option can be used for user authentication on the SAS/CONNECT spawners, the SAS/SHARE server, and the Cloud Analytics Server (CAS) server.

For more information, see the following AUTHINFO documentation:

- [“Client Authentication Using an Authinfo File”](#) in *Client Authentication Using an Authinfo File*
- [“Non-Metadata Server-based Sign-ons”](#) in *SAS/CONNECT User’s Guide*
- [“Client Authentication Considerations”](#) in *SAS/SHARE User’s Guide*
- CAS Server
 - CAS statement option “AUTHINFO=“authentication-info-file”” in *SAS Cloud Analytic Services: User’s Guide*
 - “AUTHINFO= System Option” in *SAS Cloud Analytic Services: User’s Guide*
 - [SAS Viya Administration: Authentication](#)

Examples

Example 1

Set AUTHINFO= system option. This option overrides the Authinfo file pointed to by the AUTHINFO environment variable.

```
Options AUTHINFO='~/authInfo-file';
```

Example 2

AUTHINFO can also be set as an environment variable. This option overrides the .authinfo file.

```
Options insert=(set=AUTHINFO='~/authInfo-file');
```

AUTOCORRECT System Option

Specifies whether SAS attempts to automatically correct misspelled procedure names, misspelled procedure keywords, or misspelled global statement names.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is AUTOCORRECT. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

AUTOCORRECT | **NOAUTOCORRECT**

Syntax Description

AUTOCORRECT

specifies that SAS attempts to automatically correct misspelled procedure names, misspelled procedure keywords, or misspelled global statement names.

NOAUTOCORRECT

specifies that SAS does not automatically attempt to correct misspelled procedure names, misspelled procedure keywords, or misspelled global statement names.

Details

In previous releases of SAS, SAS always attempted to correct misspellings. The AUTOCORRECT option enables you to turn off autocorrection.

When AUTOCORRECT is set and a procedure name, a procedure keyword, or a global statement name is misspelled in a SAS program, SAS attempts to interpret the misspelling when a program is compiled. If the attempt succeeds, SAS corrects the error, prints a warning message to the log, and continues processing. If the error cannot be corrected, SAS writes an error message to the log.

When NOAUTOCORRECT is set, SAS writes the misspelling notification to the SAS log and ends the program.

Example

The following example shows a misspelled global statement name, a misspelled procedure option name, and a misspelled procedure name.

```
/* AUTOCORRECT is the default value */
options autocorrect;
data numbers;
  input x y z;
  datalines;
14.2  25.2  96.8
10.8  51.6  96.8
33.5  27.4  66.5
run;

optionss obs=1;

proc print ddata=numbers;
run;

options noautocorrect;

proc prints ddata=numbers;
run;
```

```

6  options autocorrect;
7  data numbers;
8      input x y z;
9      datalines;
NOTE: The data set WORK.NUMBERS has 3 observations and 3 variables.
NOTE: DATA statement used (Total process time):
      real time          2.75 seconds
      cpu time           0.64 seconds

13  run;
14
15  options obs=1;
      -----
      14
WARNING 14-169: Assuming the symbol OPTIONS was misspelled as options.

16
17  proc print ddata=numbers;
      -----
      1
WARNING 1-322: Assuming the symbol DATA was misspelled as ddata.

18  run;
NOTE: There were 1 observations read from the data set WORK.NUMBERS.
NOTE: PROCEDURE PRINT used (Total process time):
      real time          3.84 seconds
      cpu time           1.07 seconds

19
20  options noautocorrect;
21
22  proc prints ddata=numbers;
      -----
      181
ERROR 181-322: Procedure name misspelled.

23  run;
NOTE: The SAS System stopped processing this step because of errors.

```

AUTOSAVELOC= System Option

Specifies the location of the Program Editor autosave file.

- Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported
- Category: Environment Control: Display
- PROC OPTIONS GROUP= ENVDISPLAY
- Restriction: The location that is specified by the AUTOSAVELOC= system option is valid only for the Program Editor. This option does not apply to the Enhanced Editor.
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- See: [“AUTOSAVELOC System Option: UNIX” in SAS Companion for UNIX Environments](#)

Syntax

AUTOSAVELOC="*location*"

Syntax Description

location

specifies the pathname of the autosave file. If *location* contains spaces or is specified in an OPTIONS statement, then enclose *location* in quotation marks.

See Also

- "Program Editor Window" in the SAS Help and Documentation
- "Saving Program Editor Files Using Autosave" in *SAS Companion for Windows*

AZUREAUTHCACHELOC System Option

Specifies the location of a file that contains logon information for connecting to a Microsoft Azure storage system

| | |
|-----------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Default: | The option does not have a shipped default, but if a value is not specified, then the user's home directory (\$HOME) is used. |
| Note: | This option can be restricted by a site administrator. For more information, see "Restricted Options" on page 8 . |

Syntax

-AZUREAUTHCACHELOC "*location*"

Syntax Description

location

specifies the path name of a JSON file that contains Microsoft Azure authentication information for a user. This value typically contains non-alphanumeric characters. Therefore, enclosing the value in single or double quotations marks is recommended.

Length The maximum length of the value is 1024 bytes.

Details

The AZUREAUTHCACHELOC system option is used with device-code authentication in Microsoft Azure Data Lake Storage Gen2. The option provides the location of a JSON file that contains authentication information. To use device-code authentication from SAS, you must have access to a storage account in Azure Data Lake Storage Gen2. An on-site administrator can create the storage account and manage access by using the Microsoft Azure portal at portal.azure.com.

For the AZUREAUTHCACHELOC path name, a best practice is to use either '%HOME' or 'pathname/%USER'.

- '\$HOME' equates to the user's operating system \$HOME directory.
- 'pathname/\$USER' refers to a directory that is named for the person's user ID under the specified file system path. The directory must exist already.

On a user's first attempt to access data, the following user interaction is required:

- A file named `.sasadls_userid.json` is created before Azure authentication and authorization. The file is created in the location that is specified by the option. If the option is not set, then the file is created in the user's home directory. This file contains the current authentication state information for the user.
- The first time you access data in Microsoft Azure Data Lake Storage Gen2, an error occurs. A message provides authentication instructions. Here is an example of the message:

```
ERROR: Authorization Pending user-interaction
ERROR: To sign in, use a web browser to open the page
https://microsoft.com/devicelogin and enter the code <CODE> to authenticate.
```

After you log on to the Microsoft web page, a series of windows provide further instruction and result in the required authorization. After the last window is closed, the next attempt to access data succeeds.

- The authentication and authorization process is needed one time only. However, if the authentication JSON file is deleted or user credentials change, then the authentication and authorization process is required again.

Comparisons

This option is valid in the SAS Viya programming environment and does not affect the authorization cache location in SAS Cloud Analytic Services (CAS). The environments maintain separate settings. For CAS, see the following documentation:

- `cas.AZUREAUTHCACHELOC=` configuration file option
- ["Azure Data Lake Storage Data Source" in SAS Cloud Analytic Services: User's Guide](#)

Example

```
-azureauthcacheloc "%HOME"
```

AZURETENANTID= System Option

Specifies the tenant ID for connecting to a Microsoft Azure storage system

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Communications: Networking and Encryption |
| PROC OPTIONS GROUP= | COMMUNICATIONS |
| Requirement: | This option is required if a Microsoft Azure storage system is used. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

AZURETENANTID=*“tenant-id”*

Syntax Description

tenant-id

specifies the tenant ID, which is a GUID, for connecting to Microsoft Azure Data Lake Storage Gen2.

Length The maximum length of the value is 64 bytes.

Restriction If the name includes spaces or non-alphanumeric characters, then enclose the name in single or double quotation marks. Usually this value includes the hyphen (-) character.

Interaction On a user’s first attempt to access data, authentication and authorization must occur. The user’s process is described at [“AZUREAUTHCACHELOC System Option” on page 87](#).

Details

The AZURETENANTID= system option is used with device-code authentication in Microsoft Azure Data Lake Storage Gen2. The option provides the tenant ID for connecting to a storage account. To obtain a tenant ID, contact your on-site

administrator. An administrator can manage access by using the Microsoft Azure portal at portal.azure.com.

Comparisons

This option is valid in the SAS Viya programming environment and does not affect the tenant ID setting in SAS Cloud Analytic Services (CAS). The environments maintain separate settings. For CAS, see the following documentation:

- [cas.AZURETENANTID=](#) configuration file option
- [“AZURETENANTID Session Option”](#) in *SAS Cloud Analytic Services: User's Guide*
- [“Azure Data Lake Storage Data Source”](#) in *SAS Cloud Analytic Services: User's Guide*

Example

```
options azuretenantid="f0a21c5d-4625-54a3-a340-5953273b0f2c";
```

BINDING= System Option

Specifies the binding edge for duplexed printed output.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS
GROUP= ODSPRINT

Default: The shipped default is DEFAULT.

Restriction: This option is ignored if the printer does not support duplex (two-sided) printing.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options”](#) on page 8.

Syntax

BINDING=[DEFAULTEDGE](#) | [LONGEDGE](#) | [SHORTEDGE](#)

Syntax Description

DEFAULT | DEFAULTEDGE

specifies that duplexing is done using the default binding edge.

LONG | LONGEDGE

specifies the long edge as the binding edge for duplexed output.

SHORT | SHORTEdge

specifies the short edge as the binding edge for duplexed output.

Details

The binding edge setting determines how the paper is oriented before output is printed on the second side.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“DUPLEX System Option” on page 158](#)

BOTTOMMARGIN= System Option

Specifies the size of the margin at the bottom of a printed page.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS GROUP= ODSPRINT

Default: The shipped default is 0.000 in.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

BOTTOMMARGIN=*margin-size*<*margin-unit*>

Syntax Description

margin-size

specifies the size of the margin.

Restriction The bottom margin should be small enough so that the top margin plus the bottom margin is less than the height of the paper.

Interaction Changing the value of this option might result in changes to the value of the PAGESIZE= system option.

<*margin-unit*>

specifies the units for margin-size. The margin-unit can be *in* for inches or *cm* for centimeters. <*margin-unit*> is saved as part of the value of the BOTTOMMARGIN system option.

Default inches

Details

All margins have a minimum that is dependent on the printer and the paper size.

Example

```
options bottommargin=10cm;
```

See Also

- [Universal Printing](#)
- [“Understanding ODS Destinations” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“LEFTMARGIN= System Option” on page 230](#)
- [“RIGHTMARGIN= System Option” on page 298](#)
- [“TOPMARGIN= System Option” on page 368](#)

BUFNO= System Option

Specifies the number of buffers to be allocated for processing SAS data sets.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Files: SAS Files System Administration: Performance |
| PROC OPTIONS GROUP= | SASFILES PERFORMANCE |
| Default: | The shipped default is 1. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “BUFNO System Option: UNIX” in SAS Companion for UNIX Environments “BUFNO: Windows” in SAS Companion for Windows |

Syntax

BUFNO=*n* | *nK* | *nM* | *nG* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, and GB notations.

Syntax Description

n* | *nK* | *nM* | *nG

specifies the number of buffers to be allocated in multiples of 1: 1,024 (kilo); 1,048,576 (mega); 1,073,741,824 (giga). For example, a value of 8 specifies 8 buffers, and a value of 3m specifies 3,145,728 buffers.

Tip Use the notation that best fits the memory size of your system.

hexX

specifies the number of buffers as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx specifies 45 buffers.

MIN

sets the minimum number of buffers to 0, which causes SAS to use the minimum optimal value for the operating environment.

MAX

sets the number of buffers to the maximum possible number in your operating environment, up to the largest four-byte, signed integer, which is $2^{31}-1$, or approximately 2 billion.

Details

The number of buffers is not a permanent attribute of the data set; it is valid only for the current SAS session or job.

BUFNO= applies to SAS data sets that are opened for input, output, or update.

Using BUFNO= can improve execution time by limiting the number of input/output operations that are required for a particular SAS data set. However, the improvement in execution time comes at the expense of increased memory consumption.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

You can estimate the number of buffers that you need from the data set page size and the amount of memory in your system. The data set page size can be specified by the BUFSIZE= system option or the BUFSIZE= data set option. If the default is used, SAS uses the minimal optimal page size for the operating environment. You can find the page size for a data set in the output of the CONTENTS procedure. Once you have the data set page size and the amount of memory available, you can estimate the number of buffers that you need. If the number of buffers is too large, SAS might not have enough memory to process the DATA or PROC step. You can change the page size for a data set by re-creating the data set by using the BUFSIZE= data set option.

Operating Environment Information: Under the Windows operating environment, if the SGIO system option is set, the maximum number of bytes that can be processed in an I/O operation is 64MB. Therefore, *number-of-buffers x page-size* <= 64MB.

Comparisons

- You can override the BUFNO= system option by using the BUFNO= data set option.
- To request that SAS allocates the number of buffers based on the number of data set pages and index file pages, use the SASFILE statement.

See Also

Data Set Options:

- [“BUFNO= Data Set Option” in SAS Data Set Options: Reference](#)

Procedures:

- [“CONTENTS Procedure” in Base SAS Procedures Guide](#)

Statements:

- [“SASFILE Statement” in SAS Global Statements: Reference](#)

System Options:

- [“BUFSIZE= System Option” on page 95](#)
- [“UBUFNO= System Option” on page 370](#)
- [“DATAPAGESIZE= System Option” on page 132](#)

BUFSIZE= System Option

Specifies the permanent buffer size for output SAS data sets.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Files: SAS Files System Administration: Performance |
| PROC OPTIONS GROUP= | SASFILES PERFORMANCE |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “BUFSIZE System Option: UNIX” in SAS Companion for UNIX Environments “BUFSIZE: Windows” in SAS Companion for Windows |

Syntax

BUFSIZE=*n* | *n*K | *n*M | *n*G | *n*T | *hex*X | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the buffer size in multiples of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of 8 specifies 8 bytes, and a value of 3m specifies 3,145,728 bytes.

Note: If the system option and the data set option are not set, the default is 0. This causes SAS to use the minimum optimal buffer size for the operating environment. The BUFSIZE= system option is used in either of the following scenarios:

- if the BUFSIZE= data set option is not set
- if the BUFSIZE= data set option is set to zero

Tip Use BUFSIZE=0 in order to reset the buffer size to the default value in your operating environment.

hexX

specifies the buffer size as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dX sets the page size to 45 bytes.

MAX

sets the buffer size to the maximum possible number in your operating environment, up to the largest four-byte, signed integer, which is $2^{31}-1$, or approximately 2 billion bytes.

Details

The buffer size is the amount of data that can be transferred from a single input/output operation to one buffer. The buffer size is a permanent attribute of the data set and is used when the data set is processed.

A larger buffer size can improve execution time by reducing the number of times SAS has to read from or write to the storage medium. However, the improvement in execution time comes at the expense of increased memory consumption.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

To change the buffer size, use a DATA step to copy the data set and either specify a new buffer or use the SAS default.

Note: If you use the COPY procedure to copy a data set to another library that is allocated with a different engine, the specified buffer size of the data set is not retained.

Operating Environment Information: The default value for BUFSIZE= is determined by your operating environment and is set to optimize sequential access. To improve performance for direct (random) access, you should change the value for BUFSIZE=. For the default setting and possible settings for direct access, see the BUFSIZE= system option in the SAS documentation for your operating environment.

The buffer size of the utility files that SAS creates to process data can be set by using the UBUFSIZE= system option.

Comparisons

The BUFSIZE= system option can be overridden by the BUFSIZE= data set option.

The DATAPAGESIZE= system option specifies how SAS determines the optimal buffer size for a SAS data set.

See Also

Data Set Options:

- [“BUFSIZE= Data Set Option” in SAS Data Set Options: Reference](#)

System Options:

- [“ALIGNSASIOFILES System Option” on page 71](#)
- [“BUFNO= System Option” on page 93](#)
- [“DATAPAGESIZE= System Option” on page 132](#)

BYERR System Option

Specifies whether SAS produces errors when the SORT procedure attempts to process a _NULL_ data set.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is BYERR. |

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

BYERR | NOBYERR

Syntax Description

BYERR

specifies that SAS issue an error message and stop processing if the SORT procedure attempts to sort a `_NULL_` data set.

NOBYERR

specifies that SAS ignore the error message and continue processing if the SORT procedure attempts to sort a `_NULL_` data.

Details

The VNFERR system option sets the error flag for a missing variable when a `_NULL_` data set is used. The DSNFERR system option specifies how SAS responds when a SAS data set is not found.

See Also

- [“Grouping Data” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“DSNFERR System Option” on page 156](#)
- [“VNFERR System Option” on page 397](#)

BYLINE System Option

Specifies whether to print BY lines above each BY group.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: Procedure Output

PROC OPTIONS LISTCONTROL
GROUP=

Default: The shipped default is BYLINE.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

BYLINE | **NOBYLINE**

Syntax Description

BYLINE

specifies that BY lines are printed above each BY group.

NOBYLINE

suppresses the automatic printing of BY lines.

Details

Use NOBYLINE to suppress the automatic printing of BY lines in procedure output. You can then use #BYVAL, #BYVAR, or #BYLINE to display BYLINE information in a TITLE statement.

These SAS procedures perform their own BY line processing by displaying output for multiple BY groups on the same page:

- MEANS
- PRINT
- STANDARD
- SUMMARY
- TTEST (in SAS/STAT software).

With these procedures, NOBYLINE causes a page eject between BY groups. For PROC PRINT, the page eject between BY groups has the same effect as specifying the right most BY variable in the PAGEBY statement.

See Also

- [“Grouping Data” in SAS Programmer’s Guide: Essentials](#)

Statements:

- #BYVAL, #BYVAR, and #BYLINE arguments, [“TITLE Statement” in SAS Global Statements: Reference](#)

BYSORTED System Option

Specifies whether observations in one or more data sets are sorted in alphabetic or numeric order or are grouped in another logical order.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS GROUP= INPUTCONTROL

Default: The shipped default is BYSORTED.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

BYSORTED | NOBYSORTED

Syntax Description

BYSORTED

specifies that observations in a data set or data sets are sorted in alphabetic or numeric order.

Requirement When you use the BYSORTED option, observations must be ordered or indexed according to the values of BY variables.

Interaction If both the BYSORTED system option and the NOTSORTED statement option in a BY statement are specified, then the NOTSORTED option in the BY statement takes precedence over the BYSORTED system option.

Tip If BYSORTED is specified, then SAS assumes that the data set is ordered by the BY variable. BYSORTED should be used if the data set is ordered by the BY variable for better performance.

NOBYSORTED

specifies that observations with the same BY value are grouped together but are not necessarily sorted in alphabetic or numeric order.

Note If a procedure ignores the NOTSORTED option in a BY statement, then it ignores the NOBYSORTED system option also.

Tips When the NOBYSORTED option is specified, you do not have to specify NOTSORTED in every BY statement to access the data sets.

NOBYSORTED is useful if you have data that falls into other logical groupings such as chronological order or linguistic order. NOBYSORTED allows BY processing to continue without failure when a data set is not actually sorted in alphabetic or numeric order.

NOBYSORTED is ignored when you run the DATA step on the CAS server.

Details

The requirement for ordering or indexing observations according to the values of BY variables is suspended for BY-group processing when you use the NOBYSORTED option. By default, BY-group processing requires that your data be sorted in alphabetic or numeric order. If your data is grouped in any other way but alphabetic or numeric, then you must use the NOBYSORTED option to allow BY-processing to continue without failure. For more information about BY-group processing, see [“Grouping and Ordering” in SAS Cloud Analytic Services: DATA Step Programming](#)

See Also

- [“Grouping and Ordering” in SAS Cloud Analytic Services: DATA Step Programming](#)

Statements:

- NOTSORTED option, [“NOTSORTED” in SAS DATA Step Statements: Reference](#)

CAPS System Option

Specifies whether to convert certain types of input to uppercase.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS GROUP= INPUTCONTROL

Default: The shipped default is NOCAPS.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CAPS | NOCAPS

Syntax Description

CAPS

specifies that SAS translate lowercase characters to uppercase in these types of input:

- data following CARDS, CARDS4, DATALINES, DATALINES4, and PARMCARDS statements
- text enclosed in single or double quotation marks
- values in VALUE and INVALUE statements in the FORMAT procedure
- titles, footnotes, variable labels, and data set labels
- constant text in macro definitions
- values of macro variables
- parameter values passed to macros.

Note Data read from external files and SAS data sets are not translated to uppercase.

NOCAPS

specifies that lowercase characters that occur in the types of input that are listed above are not translated to uppercase.

Comparisons

The CAPS system option and the CAPS command both specify whether input is converted to uppercase. The CAPS command, which is available in windows that allow text editing, can act as a toggle. The CAPS command converts all text that is entered from the keyboard to uppercase. If either the CAPS system option or the CAPS command is in effect, all applicable input is translated to uppercase.

See Also

Commands:

- “CAPS Command” in SAS Help and Documentation

CARDIMAGE System Option

Specifies whether SAS processes source and data lines as 80-byte cards.

| | |
|------------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Input Control: Data Processing |
| PROC OPTIONS GROUP= | INPUTCONTROL |
| Default: | The shipped default is NOCARDIMAGE. |
| Operating environment: | CARDIMAGE is generally used in the z/OS operating environment; NOCARDIMAGE is used in other operating environments. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | CARDIMAGE System Option under z/OS |

Syntax

CARDIMAGE | **NOCARDIMAGE**

Syntax Description

CARDIMAGE

specifies that SAS source and data lines be processed as if they were punched card images—all exactly 80 bytes long and padded with blanks. That is, column 1 of a line is treated as if it immediately followed column 80 of the previous line. Therefore, *tokens* can be split across lines. (A *token* is a character or series of characters that SAS treats as a discrete word.)

Strings in quotation marks (literal tokens) that begin on one line and end on another are treated as if they contained blanks out to column 80 of the first line. Data lines longer than 80 bytes are split into two or more 80-byte lines. Data lines are not truncated regardless of their length.

NOCARDIMAGE

specifies that SAS source and data lines not be treated as if they were 80-byte card images. When NOCARDIMAGE is in effect, the end of a line is always treated as the end of the last token, except for strings in quotation marks. Strings in quotation marks can be split across lines. Other types of tokens cannot be split across lines under any circumstances. Strings in quotation marks that are split across lines are not padded with blanks.

Example

Consider the following DATA step:

```
data;
    x='A
    B';
run;
```

If CARDIMAGE is in effect, the variable X receives a value that consists of 78 characters: the A, 76 blanks, and the B. If NOCARDIMAGE is in effect, the variable X receives a value that consists of two characters: AB, with no intervening blanks.

CATCACHE= System Option

Specifies the number of SAS catalogs to keep open in cache memory.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “CATCACHE System Option: UNIX” in SAS Companion for UNIX Environments “CATCACHE: Windows” in SAS Companion for Windows “CATCACHE= System Option: z/OS” in SAS Companion for z/OS |

Syntax

CATCACHE=*n* | *hexX* | MIN | MAX

Syntax Description

n

specifies any integer greater than or equal to 0 in terms of bytes. If $n > 0$, SAS places up to that number of open-file descriptors in cache memory instead of closing the catalogs.

hexX

specifies the number of open-file descriptors that are kept in cache memory as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value **2dX** sets the number of catalogs to keep open to 45.

MIN

sets the number of open-file descriptors that are kept in cache memory to 0.

MAX

sets the number of open-file descriptors that are kept in cache memory to the largest, signed, 4-byte integer representable in your operating environment.

Tip The recommended maximum setting for this option is 10.

Details

Use the CATCACHE= system option to tune an application by avoiding the overhead of repeatedly opening and closing the same SAS catalogs.

CAUTION

When using both the CBUFNO= and CATCACHE= options, if one of the option's value is set higher than zero, the other option must be set to zero.

CBUFNO= System Option

Specifies the number of extra page buffers to allocate for each open SAS catalog.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see "Restricted Options" on page 8 . |

Syntax

CBUFNO=*n*

Syntax Description

n

specifies the number of extra page buffers, between 0 and 20.

Details

The CBUFNO= option is similar to the BUFNO= option that is used for SAS data set processing.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

Increasing the value for the CBUFNO= option might result in fewer I/O operations when your application reads very large objects from catalogs. Increasing this value also comes with the normal tradeoff between performance and memory usage. If memory is a serious constraint for your system, you should not increase the value of the CBUFNO= option. Do not increase the value of the CBUFNO= option if you have increased the value of the CATCACHE= option.

CAUTION

When using both the CBUFNO= and CATCACHE= options, if one of the option's value is set higher than zero, the other option must be set to zero.

CENTER System Option

Specifies whether to center or left-align SAS procedure output.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LISTCONTROL |
| Alias: | CENTRE |
| Default: | The shipped default is CENTER. |
| Note: | This option can be restricted by a site administrator. For more information, see "Restricted Options" on page 8 . |

Syntax

CENTER | **NOCENTER**

Syntax Description

CENTER

centers SAS procedure output.

NOCENTER

left aligns SAS procedure output.

CGOPTIMIZE= System Option

Specifies the level of optimization to perform during code compilation.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | System Administration: Performance System Administration: Code Generation |
| PROC OPTIONS GROUP= | PERFORMANCE CODEGEN |
| Alias: | CGOPT |
| Default: | The shipped default is 3. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

CGOPTIMIZE=0 | 1 | 2 | 3

Syntax Description

0

specifies not to perform optimization.

1

specifies to perform stage 1 optimization. Stage 1 optimization removes redundant instructions, missing value checks, and repetitive computations for array subscriptions; detects patterns of instructions and replaces them with more efficient sequences.

2

specifies to perform stage 2 optimization. Stage 2 performs optimizations that pertain to the SAS register.

Interaction Stage 2 optimization for a large DATA step program can result in a significant increase in compilation time and thus overall execution time.

3

specifies to perform full optimization, which is a combination of stages 1 and 2.

See Also

[“Techniques for Optimizing CPU Performance” in SAS Programmer’s Guide: Essentials](#)

CHARCODE System Option

Specifies whether specific keyboard combinations are substituted for special characters that are not on the keyboard.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Display

PROC OPTIONS GROUP= ENVDISPLAY

Default: The shipped default is NOCHARCODE.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CHARCODE | NOCHARCODE

Syntax Description

CHARCODE

allows certain character combinations to be substituted for special characters that might not be on your keyboard.

NOCHARCODE

does not allow substitutions for certain keyboard characters.

Details

If you do not have the following symbols on your keyboard, you can use these character combinations to create the symbols that you need when CHARCODE is active:

| Symbol | Characters |
|-----------------------------|------------|
| back quotation mark (`) | ?: |
| backslash (\) | ?, |
| left brace ({) | ?(?) |
| right brace (}) |) |
| logical not sign (¬ or ^) | ?= |
| left square bracket ([) | ?< |
| right square bracket (]) | ?> |
| underscore (_) | ?- |
| vertical bar () | ?/ |

Example

This statement produces the output [TEST TITLE]:

```
title '?<TEST TITLE?>';
```

CHKPTCLEAN System Option

When SAS is in checkpoint mode or restart mode, specifies whether to erase the contents of the Work library after a batch program executes successfully.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Error Handling

PROC OPTIONS GROUP= ERRORHANDLING

Default: The shipped default is NOCHKPTCLEAN.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CHKPTCLEAN | NOCHKPTCLEAN

Syntax Description

CHKPTCLEAN

specifies that the files in the Work library are to be erased after a batch program successfully executes in checkpoint mode or restart mode.

NOCHKPTCLEAN

specifies that the files in the Work library are not to be erased after a batch program successfully executes in checkpoint mode or restart mode.

Details

Typically, checkpoint mode or restart mode is started with the NOWORKTERM and NOWORKINIT system options set. When these options are set, the Work library is preserved between SAS sessions. You can use the CHKPTCLEAN system option to erase all files from the Work library if you no longer need the files after your batch program successfully runs in checkpoint mode or restart mode.

This option is effective only when the following conditions are met:

- SAS is in either checkpoint mode or restart mode. SAS enters checkpoint mode when the STEPCHKPT option or the LABELCHKPT option is set. SAS enters restart mode when the STEPRESTART option or the LABELRESTART option is set.
- The checkpoint library is Work.
- The program runs successfully in batch mode.

If the program does not run successfully, the files in the Work library are not erased, regardless of whether the CHKPTCLEAN option is set.

Comparisons

The CHKPTCLEAN option erases the contents of the Work library after the successful completion of a batch program only in checkpoint mode or restart mode.

The WORKTERM option erases the contents of the Work library when a SAS session ends.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“LABELCHKPT System Option” on page 224](#)
- [“LABELRESTART System Option” on page 228](#)
- [“STEPCHKPT System Option” on page 324](#)
- [“STEPRESTART System Option” on page 328](#)
- [“WORKTERM System Option” on page 405](#)

CLEANUP System Option

For an out-of-resource condition, specifies whether to perform an automatic cleanup or a user-specified cleanup.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is CLEANUP. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | CLEANUP System Option under UNIX , Windows |

Syntax

CLEANUP | **NOCLEANUP**

Syntax Description

CLEANUP

specifies that during the entire session, SAS attempts to perform automatic, continuous cleanup of resources that are not essential for execution. Nonessential resources include resources that are not visible to the user (for example, cache memory) and resources that are visible to the user (for example, the KEYS windows).

When CLEANUP is in effect and an out-of-resource condition occurs (except for a disk-full condition), a dialog box is not displayed, and no intervention is required by the user. When CLEANUP is in effect and a disk-full condition occurs, the user is prompted to decide how to proceed.

NOCLEANUP

specifies that SAS allow the user to choose how to handle an out-of-resource condition. When NOCLEANUP is in effect and SAS cannot execute because of a lack of resources, SAS automatically attempts to clean up resources that are not visible to the user (for example, cache memory). However, resources that are visible to the user (for example, windows) are not automatically cleaned up. Instead, a dialog box appears that allows the user to choose how to proceed.

Details

This table lists the dialog box choices:

| Dialog Box Choice | Action |
|---|---|
| Free windows | clears all windows not essential for execution. |
| Clear paste buffers | deletes paste buffer contents. |
| Deassign inactive librefs | prompts user for librefs to delete. |
| Delete definitions of all SAS macros and macro variables | deletes all macro definitions and variables. |
| Delete SAS files | allows user to select files to delete. |
| Clear Log window | erases Log window contents. |
| Clear Output window | erases Output window contents. |
| Clear Program Editor window | erases Program Editor window contents. |
| Clear source spooling/DMS recall buffers | erases recall buffers. |
| More items to clean up | displays a list of other resources that can be cleaned up. |
| Clean up everything | cleans up all other options that are shown on the dialog box. This selection applies only to the current cleanup request, not to the entire SAS session. |
| Continuous clean up | performs automatic, continuous cleanup. When Continuous clean up is selected, SAS cleans up as many resources as possible in order to continue execution, and it ceases to display the requester |

| Dialog Box Choice | Action |
|-------------------|--|
| | window. Selecting Continuous clean up has the same effect as specifying CLEANUP. This selection applies to the current cleanup request and to the remainder of the SAS session. |

Some operating environments might also include these choices in the dialog box:

| Dialog Box Choice | Action |
|--------------------------|--|
| Execute X command | enables the user to erase files and perform other cleanup operations. |
| Do nothing | halts the cleanup request and returns to the SAS session. This selection applies only to the current cleanup request, not to the entire SAS session. |

If an out-of-resource condition cannot be resolved, the dialog box continues to display. In that case, see the SAS documentation for your operating environment for instructions on terminating the SAS session. When running in modes other than a windowing environment, the operation of CLEANUP depends on your operating environment. For details, see the SAS documentation for your operating environment.

CMPLIB= System Option

Specifies one or more SAS data sets that contain compiler subroutines to include during program compilation.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Tip: You can use the APPEND or INSERT system options to add additional SAS data sets.

Syntax

CMPLIB=*libref.data-set* | (*libref.data-set(s)* < **_DISPLAYLOC_>**)
| (*libref.data-set-m-libref.data-set-n* < **_DISPLAYLOC_>**)

CMPLIB=**_DISPLAYLOC_**

CMPLIB=**_NO_DISPLAYLOC_**

Syntax Description

libref.data-set

specifies the libref and the data set of the compiler subroutines that are to be included during program compilation. The *libref* and *data-set* must be valid SAS names.

libref.data-set-m – libref.data-set-n

specifies a range of compiler subroutines that are to be included during program compilation. The name of the libref and the data set must be valid SAS names that contain a numeric suffix.

DISPLAYLOC

when using PROC FCMP, specifies to display in the SAS log the data set from where SAS loaded the function.

Requirement When you use **CMPLIB=_DISPLAYLOC_**, you must specify the data set by using the PROC FCMP **INLIB=** option.

_NO_DISPLAYLOC_

when using PROC FCMP, specifies to not display in the SAS log the data set from where SAS loaded the function, and removes any library specifications as **CMPLIB=** option values.

Tip When you specify **CMPLIB=library-specification** without the **_DISPLAYLOC_** option, SAS does not display the data set name in the SAS log.

Details

SAS procedures, DATA steps, and macro programs that perform nonlinear statistical modeling or optimization use a SAS language compiler subsystem that compiles and executes your SAS programs. The compiler subsystem generates machine language code for the computer on which SAS is running. The SAS procedures that use the SAS language compiler are CALIS, FCMP, GA, GENMOD, GLIMMIX, MCMC, MODEL, NLIN, NLMIXED, NLP, OPTMODEL, PHREG, PROC REPORT COMPUTE blocks, QUANTREG, SAS Risk Dimensions procedures, SEVERITY, SIMILARITY, SQL, SURVEYPHREG, and VARMAX.

Note: Starting in [SAS 9.4M1](#), the OPTMODEL procedure uses the SAS language compiler.

Note: These procedures check the compiler subsystem for compiler subroutines. If *libref.data-set* does not contain subroutines, a note is written to the SAS log.

The subroutines that you want to include must already have been compiled. All the subroutines in *libref.data-set* are included.

You can specify a single *libref.data-set*, a list of *libref.data-set* names, or a range of *libref.data-set* names with numeric suffixes. When you specify more than one *libref.data-set* name, separate the names with a space and enclose the names in parentheses.

Example

| Number of Libraries | OPTIONS Statement |
|-----------------------|--|
| One library | <code>options cmlib=sasuser.cml;</code> |
| Two or more libraries | <code>options cmlib=(sasuser.cml sasuser.cmlA sasuser.cml3 _displayloc_);</code> |
| A range of libraries | <code>options cmlib=(sasuser.cml1 - sasuser.cml6 _displayloc_);</code> |

See Also

System Options:

- [“APPEND= System Option” on page 77](#)
- [“INSERT= System Option” on page 216](#)

Procedures:

- [“FCMP Procedure” in *Base SAS Procedures Guide*](#)

CMPMODEL= System Option

Specifies the output model type for the MODEL procedure.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: System Administration: Performance

PROC OPTIONS PERFORMANCE
GROUP=

Default: The shipped default is BOTH.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CMPMODEL=BOTH | CATALOG | XML

Syntax Description

BOTH

specifies that the MODEL procedure create two output types for a model, one as a SAS catalog entry and the other as an XML file.

CATALOG

specifies that the output model type is an entry in a SAS catalog.

XML

specifies that the output model type is an XML file.

See Also

[MODEL Procedure](#)

CMPOPT= System Option

Specifies the type of code generation optimizations to use in the SAS language compiler.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: System Administration: Performance

PROC OPTIONS PERFORMANCE
GROUP=

Default: The shipped default is ALL.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CMPOPT=*optimization-value* | (*optimization-value(s)*) | "*optimization-value(s)*" | ALL | NONE

NOCMPOPT

Syntax Description

optimization-value

specifies the type of optimization that the SAS compiler is to use. These are the valid values:

EXTRAMATH

NOEXTRAMATH

specifies to keep or remove mathematical operations that do not affect the outcome of a statement. When you specify EXTRAMATH, the compiler retains the extra mathematical operations. When you specify NOEXTRAMATH, the extra mathematical operations are removed.

FUNCDIFFERENCING

NOFUNCDIFFERENCING

specifies whether analytic derivatives are computed for user-defined functions. When you specify NOFUNCDIFFERENCING, analytic derivatives are computed for user-defined functions. When you specify FUNCDIFFERENCING, numeric differencing is used to calculate derivatives for user-defined functions. The default is NOFUNCDIFFERENCING.

GUARDCHECK

NOGUARDCHECK

specifies whether to check for array boundary problems. When you specify GUARDCHECK, the compiler checks for array boundary problems. When you specify NOGUARDCHECK, the compiler does not check for array boundary problems.

Interaction NOGUARDCHECK is set when CMPOPT is set to ALL and when CMPOPT is set to NONE.

MISSCHECK

NOMISSCHECK

specifies whether to check for missing values in the data. If the data contains a significant amount of missing data, then you can optimize the compilation by specifying MISSCHECK. If the data rarely contains missing values, then you can optimize the compilation by specifying NOMISSCHECK.

PRECISE

NOPRECISE

specifies to handle exceptions at an operation boundary or at a statement boundary. When you specify PRECISE, exceptions are handled at the operation boundary. When you specify NOPRECISE, exceptions are handled at the statement boundary.

PROFILE
NOPROFILE

specifies to append to the end of the profiling data set the total execution time for each function in a CMP statement.

SHORTCIRCUIT
NOSHORTCIRCUIT

specifies whether to optimize the evaluation of expressions that use multiple logical operators.

Note NOSHORTCIRCUIT is set when an expression includes derivatives and more than one logical tree or ternary operations.

Tip EXTRAMATH, MISSCHECK, PRECISE, FUNCDIFFERENCING, and SHORTCIRCUIT can be specified in any combination when you specify one or more values.

ALL

specifies that the compiler is to optimize the machine language code by using the (NOEXTRAMATH NOMISSCHECK NOPRECISE NOFUNCDIFFERENCING SHORTCIRCUIT) optimization values.

Restriction ALL cannot be specified in combination with any other values.

Note NOGUARDCHECK, NOGENSYMNames, and NOPROFILE are values used only by SAS and cannot be set in this option.

NONE

specifies that the compiler is not set to optimize the machine language code by using the (EXTRAMATH MISSCHECK PRECISE FUNCDIFFERENCING NOSHORTCIRCUIT) optimization values.

Restriction NONE cannot be specified in combination with any other values.

Note NOGUARDCHECK, GENSYMNames, and NOPROFILE are values used only by SAS and cannot be set in this option.

NOCMPOPT

specifies to set the value of CMPOPT to ALL. The compiler is to optimize the machine language code by using the (NOEXTRAMATH NOMISSCHECK NOPRECISE NOFUNCDIFFERENCING SHORTCIRCUIT) optimization values.

Restriction NOCMPOPT cannot be specified in combination with values for the CMPOPT option.

Note NOGUARDCHECK, NOGENSYMNames, and NOPROFILE are values used only by SAS and cannot be set in this option.

Details

SAS procedures that perform non-linear statistical modeling or optimization use a SAS language compiler subsystem that compiles and executes your SAS programs.

The compiler subsystem generates machine language code for the computer on which SAS is running. By specifying values with the CMPOPT option, the machine language code can be optimized for efficient execution. The SAS procedures that use the SAS language compiler are CALIS, FCMP, GA, GENMOD, GLIMMIX, MCMC, MODEL, NLIN, NLMIXED, NLP, PHREG, PROC REPORT COMPUTE blocks, QUANTREG, SAS Risk Dimensions procedures, SEVERITY, SIMILARITY, SQL, SURVEYPHREG, and VARMAX.

To specify multiple optimization values, the values must be enclosed in either parentheses, single quotation marks, or double quotation marks.

If a value is entered more than once, then the last setting is used. For example, if you specify CMPOPT=(PRECISE NOEXTRAMATH NOPRECISE), then the values that are set are NOEXTRAMATH and NOPRECISE. All leading, trailing, and embedded blanks are removed.

When you specify EXTRAMATH or NOEXTRAMATH, here are some of the mathematical operations that are either included or excluded in the machine language code :

| | |
|------------|--|
| $x * 1$ | $x * -1$ |
| $x \div 1$ | $x \div -1$ |
| $x + 0$ | x |
| $x - x$ | $x \div x$ |
| $- -x$ | any operation on two literal constants |

Example

| OPTIONS Statement | Result |
|---|--|
| <code>options cmpopt=(extramath);</code> | (NOPRECISE NOPROFILE EXTRAMATH NOMISSCHECK NOGUARDCHECK NOGENSYMNames SHORTCIRCUIT NOFUNCDIFFERENCING) |
| <code>options cmpopt=(extramath missscheck precise);</code> | (PRECISE NOPROFILE EXTRAMATH MISSCHECK NOGUARDCHECK NOGENSYMNames SHORTCIRCUIT NOFUNCDIFFERENCING) |
| <code>options nocmpopt;</code> | (NOEXTRAMATH NOMISSCHECK NOPRECISE NOGUARDCHECK NOGENSYMNames NOFUNCDIFFERENCING SHORTCIRCUIT NOPROFILE) |

COLLATE System Option

Specifies whether to collate multiple copies of printed output.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is NOCOLLATE. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

COLLATE | **NOCOLLATE**

Syntax Description

COLLATE

specifies to collate multiple copies of printed output.

NOCOLLATE

specifies not to collate multiple copies of printed output.

Details

When you send a print job to the printer and you want multiple copies of multiple pages, the COLLATE option controls how the pages are ordered:

- COLLATE causes the pages to be printed consecutively: 123, 123, 123...
- NOCOLLATE causes the same-numbered pages to be printed together: 111, 222, 333...

Note: You can also control collation with the SAS windowing environment Page Setup window, invoked with the DMPAGESETUP command.

Most SAS system options are initialized with default settings when SAS is invoked. However, the default settings and option values for some SAS system options might vary both by operating environment and by site. For details, see the SAS documentation for your operating environment.

See Also

- [Universal Printing](#)
- [“Understanding ODS Destinations” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“COPIES= System Option” on page 127](#)

COLOPHON= System Option

Specifies a text string that is embedded in a graphic file or a PDF that is created by Universal Printers. The text string is not displayed in the rendered graphic or PDF.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

COLOPHON=*“text-string”*

Syntax Description

text-string

specifies the text that is embedded in a graphic file.

Length up to 4,000 characters.

Requirement The text string must be enclosed in quotation marks.

Interaction Text strings that are longer than the value of the LRECL= option are truncated. The default value of the LRECL= option is 32767. Temporarily increase the value of the LRECL= option for longer text strings.

Details

A colophon is a printer's mark. You can use the COLOPHON= option to add a signature, an identification, or a comment to Universal Printer output files. The text string is not visible in the graphic or PDF when the output file is displayed or printed. You can view the colophon text string by using a text editor or a third-party application.

Example

This example adds the text "Simple Text String" to the output file that is created by the various Universal Printers:

```
ods html close;
ods listing close;
%macro ctext(printer,file,ext);
  %filename(sasprt, &file, &ext);
  options printerpath=("&printer" sasprt)
    colophon="Simple Text String";
ods printer;
title "&printer";
proc print data=sashelp.class;
run;
ods printer close;
%mend;

%ctext(PCL5c, coloph1,pcl);
%ctext(GIF, coloph1,gif);
%ctext(Postscript, coloph1,psl);
%ctext(PDF, coloph1,pdf);
%ctext(PNG, coloph1,png);
%ctext(SVG, coloph1,svg);
%ctext(EMF, coloph1,emf);
%ctext(TIFF,coloph1.tif);
ods listing;
```

Using Notepad, you can see the text string "Simple Text String" in the SVG output file.


```
coloph1.svg - Notepad
File Edit Format View Help
<svg xmlns="http://www.w3.org/2000/svg" xmlns
<!-- Simple Text String -->
<desc></desc>
<defs>
<clipPath id="SVGMain_clipPage1">
<rect x="-1" y="-1" width="801" height="601"
</clipPath>
</defs>
<g id="SVGMain_Page1" clip-path="url(#SVGmai
<rect x="0" y="0" width="800" height="600" s
stroke-linejoin: round; "/>
<rect x="262" y="39" width="37" height="25"
<rect x="300" y="39" width="51" height="25"
<rect x="352" y="39" width="34" height="25"
<rect x="387" y="39" width="37" height="25"
<rect x="425" y="39" width="55" height="25"
<rect x="481" y="39" width="57" height="25"
<rect x="262" y="65" width="37" height="25"
<rect x="262" y="91" width="37" height="25"
<rect x="262" y="117" width="37" height="25"
<rect x="262" y="143" width="37" height="25"
<rect x="262" y="169" width="37" height="25"
```

The text string is not visible in the output file:

SVG

| Obs | Name | Sex | Age | Height | Weight |
|-----|---------|-----|-----|--------|--------|
| 1 | Alfred | M | 14 | 69.0 | 112.5 |
| 2 | Alice | F | 13 | 56.5 | 84.0 |
| 3 | Barbara | F | 13 | 65.3 | 98.0 |
| 4 | Carol | F | 14 | 62.8 | 102.5 |
| 5 | Henry | M | 14 | 63.5 | 102.5 |

COLORPRINTING System Option

Specifies whether to print in color if color printing is supported.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

| | |
|---------------------|---|
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is COLORPRINTING. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

COLORPRINTING | **NOCOLORPRINTING**

Syntax Description

COLORPRINTING

specifies to attempt to print in color.

NOCOLORPRINTING

specifies not to print in color.

Details

Most SAS system options are initialized with default settings when SAS is invoked. However, the default settings and option values for some SAS system options might vary both by operating environment and by site. For details, see the SAS documentation for your operating environment.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

COMPRESS= System Option

Specifies the type of compression of observations to use for output SAS data sets.

| | |
|-----------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
|-----------|---|

| | |
|------------------------|--|
| Categories: | Files: SAS Files System Administration: Performance |
| PROC OPTIONS GROUP= | SASFILES PERFORMANCE |
| Default: | The shipped default is NO. |
| Restrictions: | SAS 9.4: The TAPE engine does not support the COMPRESS= system option. SAS Viya: This option is ignored for data sets that run on the CAS server. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

COMPRESS=NO | YES | CHAR | BINARY

Syntax Description

NO

specifies that the observations in a newly created SAS data set are uncompressed (maintaining fixed-length records).

YES | CHAR

specifies that the observations in a newly created SAS data set are compressed (producing variable-length records) by using RLE (Run Length Encoding). RLE compresses observations by reducing repeated runs of the same character (including blanks) to two-byte or three-byte representations.

Alias ON

Note COMPRESS=CHAR is accepted by Version 7 and later versions.

Tip Use this compression algorithm for character data.

BINARY

specifies that the observations in a newly created SAS data set are compressed (producing variable-length records) by using RDC (Ross Data Compression). RDC combines run-length encoding and sliding-window compression to compress the file by representing repeated byte patterns more efficiently.

Tip This method is highly effective for compressing medium to large (several hundred bytes or larger) blocks of binary data (character and numeric variables). Because the compression function operates on a single record at a time, the record length needs to be several hundred bytes or larger for effective compression.

Details

Compressing a file is a process that reduces the number of bytes required to represent each observation. Advantages of compressing a file include reduced storage requirements for the file and fewer I/O operations necessary to read or write to the data during processing. However, more CPU resources are required to read a compressed file (because of the overhead of uncompressing each observation), and there are situations when the resulting file size might increase rather than decrease.

Use the COMPRESS= system option to compress all output data sets that are created during a SAS session. Use the option only when you are creating SAS data files (member type DATA). You cannot compress SAS views, because they contain no data.

Once a file is compressed, the setting is a permanent attribute of the file, which means that to change the setting, you must re-create the file. That is, to uncompress a file, specify COMPRESS=NO for a DATA step that copies the compressed file.

Note: For the COPY procedure, the default value CLONE uses the compression attribute from the input data set for the output data set. If the engine for the input data set does not support the compression attribute, then PROC COPY uses the current value of the COMPRESS= system option. For more information about CLONE and NOCLONE, see the COPY Statement options, [“DATASETS Procedure” in Base SAS Procedures Guide](#). This interaction does not apply when using SAS/SHARE or SAS/CONNECT.

In general, COMPRESS=CHAR provides good compression when single bytes repeat; COMPRESS=BINARY provides good compression when strings of bytes repeat. However, it is more costly to look for strings of bytes that repeat than to look for single bytes that repeat. For examples, see [“COMPRESS=CHAR” in SAS Data Set Options: Reference](#) and [“COMPRESS=BINARY” in SAS Data Set Options: Reference](#).

Comparisons

The COMPRESS= system option can be overridden by the COMPRESS= option in the LIBNAME statement and the COMPRESS= data set option.

The data set option POINTOBS=YES, which is the default, determines that a compressed data set can be processed with random access (by observation number) rather than sequential access. With random access, you can specify an observation number in the FSEDIT procedure and the POINT= option in the SET and MODIFY statements.

When you create a compressed file, you can also specify REUSE=YES (as a data set option or system option) in order to track and reuse space. With REUSE=YES, new observations are inserted in space freed when other observations are updated or

deleted. When the default REUSE=NO is in effect, new observations are appended to the existing file.

POINTOBS=YES and REUSE=YES are mutually exclusive. That is, they cannot be used together. REUSE=YES takes precedence over POINTOBS=YES. That is, if you set REUSE=YES, SAS automatically sets POINTOBS=NO.

The TAPE engine does not support the COMPRESS= system option, but the engine does support the COMPRESS= data set option.

The XPORT engine does not support compression.

See Also

- [“Compression in SAS” in SAS Programmer’s Guide: Essentials](#)

Data Set Options:

- [“COMPRESS= Data Set Option” in SAS Data Set Options: Reference](#)
- [“POINTOBS= Data Set Option” in SAS Data Set Options: Reference](#)
- [“REUSE= Data Set Option” in SAS Data Set Options: Reference](#)

Statements:

- [“LIBNAME Statement” in SAS Global Statements: Reference](#)

System Options:

- [“REUSE= System Option” on page 297](#)

COPIES= System Option

Specifies the number of copies to print.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS GROUP= ODSPRINT

Default: The shipped default is 1.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

COPIES=*n*

Syntax Description

n
specifies the number of copies.

See Also

- [Universal Printing](#)
- [“Understanding ODS Destinations” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“COLLATE System Option” on page 120](#)

CPUCOUNT= System Option

Specifies the number of processors that the thread-enabled applications should assume are available for concurrent processing.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: System Administration: Performance

PROC OPTIONS
GROUP= PERFORMANCE

Defaults: Under UNIX, Windows, and SAS Viya, if a system has four or more processors, the default value is 4. If a system has fewer than four processors, the default is ACTUAL.

Under z/OS, the default is ACTUAL.

Interaction: If the THREADS system option is set to NOTHEADS, the CPUCOUNT= option has no effect.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CPUCOUNT= 1 - 1024 | ACTUAL

Syntax Description

1-1024

is the number of CPUs that SAS assumes are available for use by thread-enabled applications.

Tips The value is typically set to the actual number of CPUs available to the current process by your configuration.

Setting CPUCOUNT= to a number greater than the actual number of available CPUs might result in reduced overall performance of SAS.

ACTUAL

returns the number of physical processors that are associated with the operating system where SAS is executing. If the operating system is executing in a partition, the value of the CPUCOUNT= option is the number of physical processors that are associated with the operating system in that partition.

Tips This number can be less than the physical number of CPUs if the SAS process has been restricted by system administration tools.

Setting CPUCOUNT= to ACTUAL at any time causes the option to be reset to the number of physical processors that are associated with the operating system at that time. If the operating system is executing in a partition, the value of the CPUCOUNT= option is the number of physical processors that are associated with the operating system in that partition.

If your system supports Simultaneous Multi-Threading (SMT), hyperthreading, or Chip Multi-Threading (CMT), the value of the CPUCOUNT= option represents the number of such threads on the system.

Details

Certain procedures have been modified to take advantage of multiple CPUs by threading the procedure processing. The Base SAS engine also uses threading to create an index. The CPUCOUNT= option provides the information that is needed to make decisions about the allocation of threads.

Changing the value of CPUCOUNT= affects the degree of parallelism each thread-enabled process attempts to achieve. Setting CPUCOUNT= to a number greater than the actual number of available CPUs might result in reduced overall performance of SAS.

Comparisons

When the related system option `THREADS` is in effect, threading is active where it is available. The value of the `CPUCOUNT=` option affects the performance of `THREADS` by suggesting how many system CPUs are available for use by thread-enabled SAS procedures.

See Also

- [Support for Parallel Processing](#)

System Options:

- [“THREADS System Option” on page 363](#)
- [“UTILLOC= System Option” on page 376](#)

CPUID System Option

Specifies whether the CPU identification number is written to the SAS log.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: SAS Log |
| PROC OPTIONS GROUP= | LOGCONTROL |
| Default: | The shipped default is CPUID. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

CPUID | **NOCPUID**

Syntax Description

CPUID

specifies that the CPU identification number is printed at the top of the SAS log after the licensing information.

NOCPUID

specifies that the CPU identification number is not written to the SAS log.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

CSTGLOBALLIB= System Option

Specifies the location of the SAS Clinical Standards Toolkit global standards library.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:
Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS EXECMODES

GROUP=

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CSTGLOBALLIB=*'location'*

Syntax Description

'location'

specifies the directory where the SAS Clinical Standards Toolkit global standards library is located. If the directory contains spaces, enclose the directory in quotation marks.

See Also

System Options:

- [“CSTSAMPLELIB= System Option” on page 131](#)

CSTSAMPLELIB= System Option

Specifies the location of the SAS Clinical Standards Toolkit sample library.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:
Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS EXECMODES

GROUP=

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

CSTSAMPLELIB=*'location'*

Syntax Description

'location'

specifies the directory where the SAS Clinical Standards Toolkit sample library is located. If the directory contains spaces, enclose the directory in quotation marks.

See Also

System Options:

- [“CSTGLOBALLIB= System Option” on page 131](#)

DATAPAGESIZE= System Option

Specifies how SAS determines the optimal buffer size for a SAS data set or utility file.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Categories: Files: SAS Files
System Administration: TK

PROC OPTIONS SASFILES
GROUP= TK

Default: The shipped default is CURRENT.

Applies to: Windows and UNIX file systems

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DATAPAGESIZE=[COMPAT93](#) | [CURRENT](#)

Syntax Description

COMPAT93

specifies that SAS 9.3 optimization processes are used to determine the buffer size for SAS data sets or utility files.

CURRENT

specifies that the optimization processes for the current release of SAS are used to determine the buffer size for SAS data sets or utility files.

Details

When the `BUFSIZE=` or `UBUFSIZE=` system options are set to 0, SAS uses the optimal buffer size for an operating environment. Beginning with SAS 9.4, the optimal buffer size is increased to improve I/O performance. The increase in buffer size might increase the size of the data set or utility file. If the current optimization processes are not ideal for your SAS session, use `DATAPAGESIZE=COMPAT93` for the optimization processes that were used prior to SAS 9.4.

See Also

System Options:

- [“BUFSIZE= System Option” on page 95](#)
- [“UBUFSIZE= System Option” on page 371](#)

DATASTMTCHK= System Option

Specifies which SAS statement keywords are prohibited from being specified as a one-level DATA step name to protect against overwriting an input data set.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is COREKEYWORDS.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DATASTMTCHK=COREKEYWORDS | ALLKEYWORDS | NONE

Syntax Description

COREKEYWORDS

prohibits certain words as one-level SAS data set names in the DATA statement. They can appear as two-level names. The following keywords cannot appear as one-level SAS data set names:

- MERGE
- RETAIN
- SET
- UPDATE.

For example, SET is not acceptable in the DATA statement, but SAVE.SET and WORK.SET are acceptable.

ALLKEYWORDS

prohibits any keyword that can begin a statement in the DATA step (for example, ABORT, ARRAY, INFILE) as a one-level data set name in the DATA statement.

NONE

provides no protection against overwriting SAS data sets.

Details

If you omit a semicolon in the DATA statement, you can overwrite an input data set if the next statement is SET, MERGE, or UPDATE. Different, but significant, problems arise when the next statement is RETAIN. DATASTMTCHK= enables you to protect yourself against overwriting the input data set.

DATE System Option

Specifies whether to print the date and time that a SAS program started.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

| | |
|---------------------|---|
| Categories: | Log and Procedure Output Control: SAS Log and Procedure Output Log and Procedure Output Control: SAS Log Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LOG_LISTCONTROL LISTCONTROL LOGCONTROL |
| Default: | The shipped default is DATE. |
| Interaction: | SAS Studio sets this option to DATE before each code submission. For more information, see “System Options in SAS Studio” in SAS Studio: User’s Guide . |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DATE | NODATE

Syntax Description

DATE

specifies that the date and the time at which the SAS program started are printed at the top of each page of the SAS log and any output that is created by SAS.

Note In an interactive SAS session, the date and time are noted only in the output window.

NODATE

specifies that the date and the time are not printed.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

DATESTYLE= System Option

Specifies the sequence of month, day, and year when ANYDTDTE, ANYDTDTM, or ANYDTTME informat data is ambiguous.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

| | |
|------------------------|--|
| Categories: | Environment Control: Language Control Input Control: Data Processing |
| PROC OPTIONS GROUP= | INPUTCONTROL LANGUAGECONTROL |
| Default: | The default value is determined by the value of the LOCALE= system option. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DATESTYLE= MDY | YMD | DMY | LOCALE

Syntax Description

MDY

specifies that SAS set the order as month, day, year.

YMD

specifies that SAS set the order as year, month, day.

DMY

specifies that SAS set the order as day, month, year.

LOCALE

specifies that SAS set the order based on the value that corresponds to the LOCALE= system option value and is one of the following: MDY | YMD | DMY.

Details

System option DATESTYLE= identifies the order of month, day, and year. The default value is LOCALE. The default LOCALE system option value is English. Therefore, the default DATESTYLE order is MDY.

To get the default settings for each locale option value, see [Locale Values](#).

See Also

Informats:

- [“ANYDTEw.” in SAS Formats and Informats: Reference](#)
- [“ANYDTMw.” in SAS Formats and Informats: Reference](#)
- [“ANYDTTEw.” in SAS Formats and Informats: Reference](#)

System Options:

- [“LOCALE System Option” in SAS National Language Support \(NLS\): Reference Guide](#)

DEBUGOPT= System Option

Specifies the host and port where debugging SAS languages occurs

Valid in: SAS 9.4: Not supported, SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: System Administration: Performance

PROC OPTIONS GROUP= PERFORMANCE

Default: The shipped default is “ ”.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DEBUGOPT=“<DEBUGHOST=*debug-host*><, DEBUGPORT=*debug-port-number*>”

NODEBUGOPT

Syntax Description

DEBUGHOST=*debug-host*

specifies the name of the host where debugging occurs. The maximum number of characters is 1,024.

DEBUGPORT=*debug-port-number*

specifies the port number of the host where debugging occurs.

Details

DEBUGOPT= establishes the connection between the server and the debugger. *debug-host* and *debug-port-number* are automatically generated by the debugger. If you explicitly change servers, restart the debugger and select the values of *debug-host* and *debug-port-number* from the debugger window.

Example

```
options debugopt="debughost=my.computer.com, debugport=3274";
```

See Also

[“CMPOPT= System Option” on page 116](#)

DECIMALCONV= System Option

Specifies the binary to decimal conversion and formatting methodology.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Log and Procedure Output Control: SAS Log and Procedure Output
Log and Procedure Output Control: SAS Log
Log and Procedure Output Control: Procedure Output

PROC OPTIONS GROUP= LOG_LISTCONTROL
LISTCONTROL
LOGCONTROL

Default: The shipped default is COMPATIBLE.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DECIMALCONV=[COMPATIBLE](#) | [STDIEEE](#)

Syntax Description

COMPATIBLE

specifies to convert and format decimal values by using the conversion methodology that is compatible with releases prior to SAS 9.4. Use this option when SAS output might be processed by existing applications that are sensitive to the details of formatting.

Alias COMPAT

z/OS specifics DECIMALCONV=COMPATIBLE is always in effect because z/OS uses the IBM hexadecimal floating-point number representation rather than the IEEE format.

STDIEEE

specifies to convert and format decimal values by using the IEEE Standard for Floating-Point Arithmetic 754-2008. Using the STDIEEE argument improves the

accuracy and readability of floating-point numbers. In some cases, more significant digits can be displayed in the same field width.

Details

Here are some of the specific improvements in decimal conversion and formatting when DECIMALCONV=STDIEEE:

- The BESTw. format might use scientific notation rather than fixed-point notation for fewer than three digits of precision. For example, a field with a width of 7 that was displayed as 0.00027 in previous releases might be displayed as 2.68E-4.
- For very short widths, sometimes the BESTw. format omits the decimal point for scientific-notation output in order to gain one or two significant digits (for example, display 137E7 instead of 1.4E9). Although this formatting can be used when DECIMALCONV= is set to either value, it is used more frequently when DECIMALCONV=STDIEEE.
- Although other formats, including w.d, Ew. and Dw.d might be affected by the DECIMALCONV= setting, the changes are most noticeable when the BESTw. format is used.

See Also

Formats:

- [“BESTw.” in SAS Formats and Informats: Reference](#)

DEFLATION= System Option

Specifies the level of compression for device drivers that support the Deflate compression algorithm.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Alias: | DEFLATE |
| Default: | The shipped default is 6. |
| Requirement: | The UPRINTCOMPRESSION system option must be set in order to compress files. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8. |

Syntax

DEFLATION=*n* | MIN | MAX

Syntax Description

n

specifies the level of compression. The larger the number, the greater the compression. For example, $n=0$ is the minimum compression level (completely uncompressed), and $n=9$ is the maximum compression level.

Range 0–9

MIN

specifies the minimum compression level of 0.

MAX

specifies the maximum compression level of 9.

Details

The DEFLATION= system option controls the level of compression for device drivers that support Deflate, such as PDF and SVG.

The ODS PRINTER statement option, COMPRESS=, takes precedence over the DEFLATION system option.

See Also

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PRINTERPATH= System Option” on page 291](#)
- [“UPRINTCOMPRESSION System Option” on page 373](#)

DETAILS System Option

Specifies whether to include additional information when files are listed in a SAS library.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:

Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Log and Procedure Output Control: SAS Log and Procedure Output
 Log and Procedure Output Control: SAS Log
 Log and Procedure Output Control: Procedure Output

PROC OPTIONS LOG_LISTCONTROL
 GROUP= LISTCONTROL
 LOGCONTROL

Default: The shipped default is NODETAILS.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DETAILS | **NODETAILS**

Syntax Description

DETAILS

includes additional information when some SAS procedures and windows display a listing of files in a SAS library.

NODETAILS

does not include additional information.

Details

The DETAILS specification sets the default display for these components of SAS:

- the CONTENTS procedure
- the DATASETS procedure.

The type and amount of additional information that displays depends on which procedure or window you use.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

DKRCOND= System Option

Specifies the level of error detection to report when a variable is missing from an input data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Files: SAS Files Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING SASFILES |
| Default: | The shipped default is ERROR. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DKRCOND=[ERROR](#) | [WARN](#) | [WARNING](#) | [NOWARN](#) | [NOWARNING](#)

Syntax Description

ERROR

sets the error flag and writes an error message to the SAS log when a variable is missing from an input data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

WARN | WARNING

writes a warning message to the SAS log when a variable is missing from an input data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

NOWARN | NOWARNING

does not write a warning message to the SAS log when a variable is missing from an input data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

Example

In the following statements, if the variable X is not in data set B and DKRCOND=ERROR, SAS sets the error flag to 1 and displays error messages:

```
data a;
  set b(drop=x);
run;
```

See Also

System Options:

- [“DKROCOND= System Option” on page 143](#)

DKROCOND= System Option

Specifies the level of error detection to report when a variable is missing for an output data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Files: SAS Files Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING SASFILES |
| Default: | The shipped default is WARN. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DKROCOND=[ERROR](#) | [WARN](#) | [WARNING](#) | [NOWARN](#) | [NOWARNING](#)

Syntax Description

ERROR

sets the error flag and writes an error message to the SAS log when a variable is missing for an output data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

WARN | WARNING

writes a warning message to the SAS log when a variable is missing for an output data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

NOWARN | NOWARNING

does not write a warning message to the SAS log when a variable is missing for an output data set during the processing of a DROP=, KEEP=, or RENAME= data set option.

Example

In the following statements if the variable X is not in data set A and DKROCOND=ERROR, SAS sets the error flag to 1 and displays error messages:

```
data a;
  drop x;
run;
```

See Also**System Options:**

- [“DKRCOND= System Option” on page 142](#)

DLCREATEDIR System Option

Specifies to create a directory for the SAS library that is named in a LIBNAME statement if the directory does not exist.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Defaults: | Under UNIX, Windows, and SAS Viya, the shipped default is NODLCREATEDIR. Under z/OS, the shipped default is DLCREATEDIR. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “DLCREATEDIR System Option: z/OS” in SAS Companion for z/OS |

Syntax

DLCREATEDIR | NODLCREATEDIR

Syntax Description

DLCREATEDIR

specifies to create a directory for a SAS library that is named in a LIBNAME statement if the directory does not exist.

Restriction If the path specified in the LIBNAME statement contains multiple components, SAS creates only the final component in the path. If any intermediate components of the path do not exist, SAS does not assign the specified path. For example, when the code `libname mytestdir 'c:\mysasprograms\test'` executes, and `c:\mysasprograms` exists, SAS creates the test directory. If `c:\mysasprograms` does not exist, SAS does not create the test directory.

NODLCREATEDIR

specifies not to create a directory for a SAS library that is named in a LIBNAME statement.

Details

SAS issues a note to the log when a directory for a SAS library is created.

See Also

Statements:

- [“LIBNAME Statement” in SAS Global Statements: Reference](#)

DLDMGACTION= System Option

Specifies the type of action to take when a SAS data set or a SAS catalog is detected as damaged.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Defaults: For Windows, UNIX, and SAS Viya, the shipped default is REPAIR for interactive mode and FAIL for batch mode.
For z/OS, the shipped default is PROMPT for interactive mode and REPAIR for batch mode.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DLDMGACTION=FAIL | ABORT | REPAIR | NOINDEX | PROMPT

Syntax Description

FAIL

stops the step and issues an error message to the log immediately.

ABORT

terminates the step and issues an error message to the log, and ends the SAS session.

REPAIR

For data files, automatically repairs and rebuilds indexes and integrity constraints, unless the data file is truncated. You use the REPAIR statement to restore the truncated data file. It issues a warning message to the log. For catalogs, REPAIR automatically deletes catalog entries for which an error occurs during the repair process.

NOINDEX

For data files, automatically repairs the data file without the indexes and integrity constraints, deletes the index file, updates the data file to reflect the disabled indexes and integrity constraints, and limits the data file to be opened only in INPUT mode. A warning is written to the SAS log instructing you to execute the PROC DATASETS REBUILD statement to correct or delete the disabled indexes and integrity constraints.

Restriction NOINDEX does not apply to damaged catalogs or libraries, only data files.

See REBUILD Statement, [“DATASETS Procedure” in Base SAS Procedures Guide](#)

[“Recovering Disabled Indexes and Integrity Constraints” in SAS Language Reference: Concepts](#)

PROMPT

For data sets, displays a dialog box where you can specify either FAIL, ABORT, REPAIR, or NOINDEX. For a damaged catalog or library, PROMPT displays a dialog box where you can specify either FAIL, ABORT, or REPAIR.

DMR System Option

Specifies whether to enable SAS to invoke a server session for use with a SAS/CONNECT client.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Default: | The shipped default is NODMR. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMR | **NODMR**

Syntax Description

DMR

enables you to invoke a remote SAS session in order to connect with a SAS/CONNECT client.

NODMR

disables you from invoking a remote SAS session.

Details

You normally invoke the remote SAS session from a local session by including DMR with the SAS command in a script that contains a TYPE statement. (A *script* is a text file that contains statements to establish or terminate the SAS/CONNECT link between the local and the remote SAS sessions.)

The OBJECTSERVER SAS execution mode invocation option has precedence over the DMR option. DMR overrides all other SAS execution mode invocation options. For information about invocation option precedence, see [“Order of Precedence” on page 23](#).

See Also

DMR information in [SAS/CONNECT User's Guide](#)

DMS System Option

Specifies whether to invoke the SAS windowing environment and display the Log, Editor, and Output windows.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Default: | The shipped default is DMS. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMS | NODMS

Syntax Description

DMS

invokes the SAS windowing environment and displays the Log, an Editor window, and Output windows.

NODMS

invokes an interactive line mode SAS session.

Windows specifics NODMS is not valid in the Windows operating environment.

Details

When you invoke SAS and you are using a configuration file or the command line to control your system option settings, it is possible to create a situation where some system option settings conflict with other system option settings. The following invocation system options, in order, have precedence over the DMS invocation system option:

- 1 OBJECTSERVER.
- 2 DMR
- 3 SYSIN

If you specify DMR while using another invocation option of equal precedence to invoke SAS, SAS uses the last option that is specified. See [“Order of Precedence” on page 23](#) for information about invocation option precedence.

See Also

System Options:

- [“DMR System Option” on page 146](#)
- [“DMSEXP System Option” on page 149](#)
- [“EXPLORER System Option” on page 180](#)

DMSEXP System Option

Specifies whether to invoke the SAS windowing environment and display the Explorer, Editor, Log, Output, and Results windows.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Defaults: | SAS: The shipped default is DMSEXP. SAS Viya: The shipped default is NODMSEXP. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMSEXP | **NODMSEXP**

Syntax Description

DMSEXP

invokes SAS with the Explorer, Editor, Log, Output, and Results windows active.

NODMSEXP

invokes SAS with the Editor, Log, and Output windows active.

Details

In order to set DMSEXP or NODMSEXP, the DMS option must be set. The following SAS execution mode invocation options, in order, have precedence over this option:

- 1 OBJECTSERVER.

- 2 DMR
- 3 SYSIN

If you specify DMSEXP with another execution mode invocation option of equal precedence, SAS uses only the last option listed. See [“Order of Precedence” on page 23](#) for information about invocation option precedence.

See Also

System Options:

- [“DMS System Option” on page 147](#)
- [“DMR System Option” on page 146](#)
- [“EXPLORER System Option” on page 180](#)

DMSLOGSIZE= System Option

Specifies the maximum number of rows that the SAS Log window can display.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Environment Control: Display Log and Procedure Output Control: SAS Log |
| PROC OPTIONS GROUP= | ENVDISPLAY LOGCONTROL |
| Default: | The shipped default is 99999. |
| Restriction: | This option is valid only in the SAS windowing environment. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMSLOGSIZE=*n* | *nK* | *hexX* | MIN | MAX

Note: You can also use the KB syntax notation.

Syntax Description

n* | *nK

specifies the maximum number of rows that can be displayed in the SAS windowing environment Log window in multiples of 1 (*n*) or 1,024 (*nK*). For

example, a value of 800 specifies 800 rows, and a value of 3K specifies 3,072 rows. Valid values range from 500 to 999999.

hexX

specifies the maximum number of rows that can be displayed in the SAS windowing environment Log window as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, `2ffx` specifies 767 rows and `0A00x` specifies 2,560 rows.

MIN

specifies to set the maximum number of rows that can be displayed in the SAS windowing environment Log window to 500.

MAX

specifies to set the maximum number of rows that can be displayed in the SAS windowing environment Log window to 999999.

Details

When the maximum number of rows have been displayed in the Log window, SAS prompts you to either file, print, save, or clear the Log window.

See Also

- [“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“DMSOUTSIZE= System Option” on page 151](#)

DMSOUTSIZE= System Option

Specifies the maximum number of rows that the SAS Output window can display.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Environment Control: Display Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | ENVDISPLAY LISTCONTROL |
| Default: | The shipped default is 2147483647. |
| Restriction: | This option is valid only in the SAS windowing environment. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMSOUTSIZE=*n* | *nK* | *hexX* | MIN | MAX

Note: You can also use the KB syntax notation.

Syntax Description

n* | *nK

specifies the maximum number of rows that can be displayed in the SAS windowing environment Output window in multiples of 1 (*n*) or 1,024 (*nK*). For example, a value of 800 specifies 800 rows, and a value of 3K specifies 3,072 rows.

Range 500–2147483647

hexX

specifies the maximum number of rows that can be displayed in the SAS windowing environment Output window as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, **2ffx** specifies 767 rows and **0A00x** specifies 2,560 rows.

MIN

specifies to set the maximum number of rows that can be displayed in the SAS windowing environment Output window to 500.

MAX

specifies to set the maximum number of rows that can be displayed in the SAS windowing environment Output window to 2147483647.

Details

When the maximum number of rows have been displayed in the Output window, SAS prompts you to either file, print, save, or clear the Output window.

See Also

System Options:

- [“DMSLOGSIZE= System Option” on page 150](#)

DMSPGMLINESIZE= System Option

Specifies the maximum number of characters in a Program Editor line.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Display |
| PROC OPTIONS GROUP= | ENVDISPLAY |
| Default: | The shipped default is 136. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMSPGMLINESIZE= *n*

Syntax Description

n

specifies the maximum number of characters in a Program Editor line.

Range 136–960

DMSSYNCHK System Option

In the SAS windowing environment, specifies whether to enable syntax check mode for DATA step and PROC step processing.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is NODMSSYNCHK. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DMSSYNCHK | NODMSSYNCHK

Syntax Description

DMSSYNCHK

enables syntax check mode for statements that are submitted within the SAS windowing environment.

NODMSSYNCHK

does not enable syntax check mode for statements that are submitted within the SAS windowing environment.

Details

If a syntax or semantic error occurs in a DATA step after the DMSSYNCHK option is set, then SAS enters syntax check mode, which remains in effect from the point where SAS encountered the error to the end of the code that was submitted. After SAS enters syntax mode, all subsequent DATA step statements and PROC step statements are validated.

While in syntax check mode, only limited processing is performed. For a detailed explanation of syntax check mode, see [“Syntax Check Mode” in SAS Language Reference: Concepts](#).

CAUTION

Place the OPTIONS statement that enables DMSSYNCHK before the step for which you want it to take effect. If you place the OPTIONS statement inside a step, then DMSSYNCHK does not take effect until the beginning of the next step.

If NODMSSYNCHK is in effect, SAS processes the remaining steps even if an error occurs in the previous step.

Comparisons

You use the DMSSYNCHK system option to validate syntax in an interactive session by using the SAS windowing environment. You use the SYNTAXCHECK system option to validate syntax in a non-interactive or batch SAS session. You can use the ERRORCHECK= option to specify the syntax check mode for the LIBNAME statement, the FILENAME statement, the %INCLUDE statement, and the LOCK statement in SAS/SHARE.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“ERRORCHECK= System Option” on page 176](#)

- [“SYNTAXCHECK System Option” on page 355](#)

DSACCEL= System Option

Specifies whether the DATA step is enabled for parallel processing in supported environments.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: System Administration: Performance

PROC OPTIONS GROUP= PERFORMANCE

Default: The shipped default is NONE.

Notes: This system option is new starting with SAS 9.4M1. This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DSACCEL=[ANY](#) | [NONE](#)

Syntax Description

ANY

enables the DATA step to execute in supported parallel environments.

NONE

disables the DATA step from executing in supported parallel environments.

Details

DSACCEL=ANY enables the DATA step to run, with limitations, in these environments:

- SAS LASR Analytic Server
- Inside Hadoop using SAS/ACCESS and SAS Embedded Process

You can use the MSGLEVEL= system option to control the message detail that appears in the SAS log for Hadoop MapReduce jobs:

- Specify MSGLEVEL=N to see only notes, warnings, and error messages.
- Specify MSGLEVEL=I to view additional Hadoop MapReduce messages.

See Also

- [SAS LASR Analytic Server: Reference Guide](#)
- [SAS In-Database Products: User's Guide](#)

System options:

- [“DS2ACCEL=” in SAS DS2 Language Reference](#)
- [“MSGLEVEL= System Option” on page 243](#)

DSNFERR System Option

When a SAS data set cannot be found, specifies whether SAS issues an error message.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is DSNFERR. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DSNFERR | **NODSNFERR**

Syntax Description

DSNFERR

specifies that SAS issue an error message and stop processing if a reference is made to a SAS data set that does not exist.

NODSNFERR

specifies that SAS ignore the error message and continue processing if a reference is made to a SAS data set that does not exist. The data set reference is treated as if `_NULL_` had been specified.

Details

- DSNFERR is similar to the BYERR system option, which issues an error message and stops processing if the SORT procedure attempts to sort a _NULL_ data set.
- DSNFERR is similar to the VNFERR system option, which sets the error flag for a missing variable when a _NULL_ data set is used.

See Also

System Options:

- [“BYERR System Option” on page 97](#)
- [“VNFERR System Option” on page 397](#)

DTRESET System Option

Specifies whether to update the date and time in the SAS log and in the procedure output file.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Log and Procedure Output Control: SAS Log and Procedure Output Log and Procedure Output Control: SAS Log Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LOG_LISTCONTROL LISTCONTROL LOGCONTROL |
| Default: | The shipped default is NODTRESET. |
| Interaction: | SAS Studio sets this option to DTRESET before each code submission. For more information, see “System Options in SAS Studio” in SAS Studio: User’s Guide . |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

DTRESET | **NODTRESET**

Syntax Description

DTRESET

specifies that SAS update the date and time in the titles of the SAS log and the procedure output file.

NODTRESET

specifies that SAS not update the date and time in the titles of the SAS log and the procedure output file.

Details

The DTRESET system option updates the date and time in the titles of the SAS log and the procedure output file. This update occurs when the page is being written. The smallest time increment that is reflected is minutes.

The DTRESET option is especially helpful in obtaining a more accurate date and time stamp when you run long SAS jobs.

When you use NODTRESET, SAS displays the date and time that the job originally started.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

DUPLEX System Option

Specifies whether duplex (two-sided) printing is enabled.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS GROUP= ODSPRINT

Default: The shipped default is NODUPLEX.

Restriction: This option is ignored if the printer does not support duplex (two-sided) printing.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

DUPLEX | NODUPLEX

Syntax Description

DUPLEX

specifies that duplex (two-sided) printing is enabled.

Interaction When DUPLEX is selected, the setting of the BINDING= option determines how the paper is oriented before output is printed on the second side.

NODUPLEX

specifies that duplex (two-sided) printing is not enabled.

Details

Note that duplex (two-sided) printing can be used only on printers that support duplex output.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“BINDING= System Option” on page 90](#)

ECHOAUTO System Option

Specifies whether the statements in the AUTOEXEC= file are written to the SAS log as they are executed.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS LOGCONTROL
GROUP=

Default: The shipped default is NOECHOAUTO.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

ECHOAUTO | **NOECHOAUTO**

Syntax Description

ECHOAUTO

specifies that the SAS statements in the AUTOEXEC= file are written to the SAS log as they are executed.

Requirement To print autoexec file statements in the SAS log, the SOURCE system option must be set.

NOECHOAUTO

specifies that SAS statements in the AUTOEXEC= file are not written in the SAS log, even though they are executed.

Details

Regardless of the setting of this option, messages that result from errors in the AUTOEXEC= files are printed in the SAS log.

See Also

- [“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“SOURCE System Option” on page 320](#)

EMAILACKWAIT= System Option

Specifies the number of seconds that SAS waits to receive an acknowledgment from an SMTP server.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Communications: E-mail |
| PROC OPTIONS GROUP= | EMAIL |
| Default: | The shipped default is 30. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

EMAILACKWAIT=*number-of-seconds*

Syntax Description

number-of-seconds

specifies the number of seconds that SAS waits to receive an acknowledgment from an SMTP server.

Range 0–3600

Details

When you send email by using SMTP, the SMTP server returns to SAS an acknowledgment that the email was received by the server. The default time that SAS waits for a response from the server is 30 seconds. Network conditions or possibly the size of an email might cause the email transmission to take longer than 30 seconds. If you receive messages that an email transmission has failed, you can use the EMAILACKWAIT= option to increase the number of seconds that SAS waits for an acknowledgment from the SMTP server.

See Also

- [“The SMTP E-Mail Interface” in SAS Language Reference: Concepts](#)

Statements:

- [“FILENAME Statement: EMAIL \(SMTP\) Access Method” in SAS Global Statements: Reference](#)

System Options:

- [“EMAILHOST= System Option” on page 164](#)

EMAILAUTHPROTOCOL= System Option

Specifies the authentication protocol for SMTP email.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Communications: E-mail |
| PROC OPTIONS GROUP= | EMAIL |
| Default: | The shipped default is NONE. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

EMAILAUTHPROTOCOL=[NONE](#) | [LOGIN](#) | [PLAIN](#)

Syntax Description

NONE

specifies that no authentication protocol is used.

LOGIN

specifies that the LOGIN authentication protocol is used.

Note When you specify LOGIN, you might also need to specify EMAILID and EMAILPW. If you omit EMAILID, SAS looks up your user ID and uses it. If you omit EMAILPW, no password is used.

See For more information about the order of authentication, see [“Sending E-Mail through SMTP” in SAS Language Reference: Concepts](#).

PLAIN

specifies that the PLAIN authentication protocol is used. The PLAIN authentication protocol encodes the user ID and password in BASE64 and encodes them as one string.

Note When you specify PLAIN, you might also need to specify EMAILID and EMAILPW. If you omit EMAILID, SAS looks up your user ID and uses it. If you omit EMAILPW, no password is used.

See [For more information about the order of authentication, see “Sending E-Mail through SMTP” in SAS Language Reference: Concepts.](#)

Details

For the SMTP access method, use this option with the EMAILID=, EMAILPW=, EMAILPORT, and EMAILHOST system options. EMAILID= provides the user name. EMAILPW= provides the password. EMAILPORT specifies the port to which the SMTP server is attached. EMAILHOST specifies the SMTP server that supports email access for your site. EMAILAUTHPROTOCOL= provides the protocol.

See Also

System Options:

- [“EMAILHOST= System Option” on page 164](#)
- [“EMAILID= System Option” on page 167](#)
- [“EMAILPORT System Option” on page 168](#)
- [“EMAILPW= System Option” on page 170](#)

EMAILFROM System Option

When sending email by using SMTP, specifies whether the email option FROM is required in either the FILE or FILENAME statement.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Communications: E-mail

PROC OPTIONS
GROUP= EMAIL

Default: The shipped default is NOEMAILFROM.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8.](#)

Syntax

EMAILFROM | **NOEMAILFROM**

Syntax Description

EMAILFROM

specifies that the FROM email option is required when sending email by using either the FILE or FILENAME statements.

NOEMAILFROM

specifies that the FROM email option is not required when sending email by using either the FILE or FILENAME statements.

See Also

Statements:

- [“FILE” in SAS DATA Step Statements: Reference](#)
- [“FILENAME Statement: EMAIL \(SMTP\) Access Method” in SAS Global Statements: Reference](#)

EMAILHOST= System Option

Specifies one or more SMTP servers that support email access.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Communications: E-mail

PROC OPTIONS GROUP= EMAIL

Default: The shipped default is LOCALHOST.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

EMAILHOST=*server* | (*server*) | "*server*"

EMAILHOST=(*'server-1'* <*options*> <*'server-2'*> <*options*> ...)

Syntax Description

server

specifies one or more Simple Mail Transfer Protocol (SMTP) server domain names for your site.

- Range The maximum number of characters that can be specified for SMTP servers is 1,024.
- Requirement When more than one server name is specified, the list must be enclosed in parentheses and each server name must be enclosed in single or double quotation marks.
- Note The system administrator for your site provides this information.

options

specifies options that are available when you use secure SMTP servers. The following values are valid for *options*.

AUTH=authentication

specifies the authentication protocol. The following values are valid for *auth*.

LOGIN

specifies that the LOGIN authentication protocol is used.

- Note When you specify LOGIN, you might also need to specify USERID and PWD. If you omit USERID, SAS looks up your user ID and uses it. If you omit USERID, no password is used.

PLAIN

specifies that the PLAIN authentication protocol is used. The PLAIN authentication protocol encodes the user ID and password in BASE64 and encodes them as one string.

Alias AUTHPROTOCOL=

- Interaction The value of the AUTH= option takes precedence over the value of the EMAILAUTHPROTOCOL= system option.

PWD=password

specifies an email logon password.

Alias PW= and PASSWORD=

- Interaction The value of the PWD= option takes precedence over the value of the EMAILPW= system option.

PORT=port-number

specifies a port number for the SMTP server.

- Interaction The value of the PORT= option takes precedence over the value of the EMAILPORT= system option.

SSL**STARTTLS**

specifies either the Secure Sockets Layer (SSL) or Transport Layer Security (TLS) protocol.

- Requirement For UNIX and z/OS operating systems, you must also specify the SSLCALISTLOC system option. This system option provides the location of digital certificates for trusted

certification authorities (CA). For Windows, no special command line options are required for digital certificate access.

Note TLS and its predecessor SSL provide communication security over the Internet by preventing eavesdropping and tampering during communication across a network. STARTTLS is an extension to plain text communication protocols that offers a way to upgrade a plain text connection to an encrypted (TLS or SSL) connection instead of using a separate port for encrypted communication.

See [SSLCALISTLOC system option](#)

USERID=*username*

specifies the user name that is used to log on to the server.

Alias ID=

Interaction The value of the USERID= option takes precedence over the value of the EMAILID= system option.

Details

When more than one SMTP server is specified, SAS attempts to connect to email servers in the order in which they are specified. Email is delivered to the first server that SAS connects to. If SAS cannot connect to any of the specified servers, the attempt to deliver email fails and SAS returns an error.

You can use the EMAIL access method with secure SMTP servers by specifying either the SSL or TLS protocols. SSL and TLS encrypt data between the client and the outgoing SMTP server. This does not guarantee an encrypted connection between the client (sender) and the recipient of the message. Message-level encryption and digital signing are currently not supported.

Operating Environment Information: To enable the SMTP interface that SAS provides, you must also specify the EMAILSYS=SMTP system option. For information about EMAILSYS, see the documentation for your operating environment.

Comparisons

For the SMTP access method, use this option with the EMAILID=, EMAILPW=, EMAILPORT, and EMAILAUTHPROTOCOL= system options. EMAILID= provides the user name. EMAILPW= provides the password. EMAILPORT specifies the port to which the SMTP server is attached. EMAILHOST specifies SMTP servers that support email access for your site. EMAILAUTHPROTOCOL= provides the protocol.

See Also

System Options:

- [“EMAILAUTHPROTOCOL= System Option” on page 162](#)
- [“EMAILID= System Option” on page 167](#)
- [“EMAILPORT System Option” on page 168](#)
- [“EMAILPW= System Option” on page 170](#)
- [“SSLCALISTLOC=” in *Encryption in SAS*](#)

EMAILID= System Option

Identifies an email sender by specifying either a logon ID, an email profile, or an email address.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Communications: E-mail

PROC OPTIONS GROUP= EMAIL

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

EMAILID = *logonid* | *profile* | *email-address*

Syntax Description

logonid

specifies the logon ID for the user running SAS.

Note The maximum number of characters is 32,000.

profile

see documentation for your email system to determine the profile name.

email-address

specifies the fully qualified email address of the user running SAS.

Requirements The email address is valid only when SMTP is enabled.

If the value of *email-address* contains a space, you must enclose it in double quotation marks.

Details

The EMAILID= system option specifies the logon ID, profile, or email address to use with your email system.

Comparisons

For the SMTP access method, use this option in conjunction with the EMAILAUTHPROTOCOL=, EMAILPW=, EMAILPORT, and EMAILHOST system options. EMAILID= provides the user name. EMAILPW= provides the password. EMAILPORT specifies the port to which the SMTP server is attached. EMAILHOST specifies the SMTP server that supports email access for your site. EMAILAUTHPROTOCOL= provides the protocol.

See Also

System Options:

- [“EMAILAUTHPROTOCOL= System Option” on page 162](#)
- [“EMAILHOST= System Option” on page 164](#)
- [“EMAILPORT System Option” on page 168](#)
- [“EMAILPW= System Option” on page 170](#)

EMAILPORT System Option

Specifies the port that the SMTP server is attached to.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Communications: E-mail

PROC OPTIONS GROUP= EMAIL

Default: The shipped default is 25.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

EMAILPORT=*port-number*

Syntax Description

port-number

specifies the port number that is used by the SMTP server that you specified on the EMAILHOST option.

Note The system administrator for your site provides this information.

Details

Operating Environment Information: If you use the SMTP protocol that SAS provides, you must also specify the EMAILSYS SMTP system option. For information about EMAILSYS, see the documentation for your operating environment.

Comparisons

For the SMTP access method, use this option in conjunction with the EMAILID=, EMAILAUTHPROTOCOL=, EMAILPW=, and EMAILHOST system options. EMAILID= provides the user name. EMAILPW= provides the password. EMAILPORT specifies the port to which the SMTP server is attached. EMAILHOST specifies the SMTP server that supports email access for your site. EMAILAUTHPROTOCOL= provides the protocol.

See Also

System Options:

- [“EMAILAUTHPROTOCOL= System Option” on page 162](#)
- [“EMAILHOST= System Option” on page 164](#)
- [“EMAILID= System Option” on page 167](#)
- [“EMAILPW= System Option” on page 170](#)

EMAILPW= System Option

Specifies an email logon password.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Communications: E-mail

PROC OPTIONS
GROUP= EMAIL

Notes: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
The OPTIONS procedure displays passwords in the SAS log as 8 Xs, regardless of the actual password length.

Syntax

EMAILPW= *"password"*

Syntax Description

password

specifies the logon password for your logon name.

Restriction If *"password"* contains a space, you must enclose the value in double quotation marks.

Details

You can use encoded email passwords. When a password is encoded with PROC PWENCODE, the output string includes a tag that identifies the string as having been encoded. An example of a tag is {sas001}. The tag indicates the encoding method. Encoding a password enables you to avoid email access authentication with a password in plaintext. Passwords that start with "{sas" trigger an attempt to be decoded. If the decoding succeeds, then that decoded password is used. If the decoding fails, then the password is used as is. For more information, see [“PWENCODE Procedure” in Base SAS Procedures Guide](#).

Windows Specifics: If you do not specify the EMAILID and EMAILPW system options at invocation, or if you are not otherwise logged in to your email system, SAS prompts you for an email ID and a password if the EMAILSYS system option is

set to MAPI or VIM. If the EMAILSYS system option is set to SMTP, SAS does not prompt you for an email ID and a password.

Comparisons

For the SMTP access method, use this option in conjunction with the EMAILID=, EMAILAUTHPROTOCOL=, EMAILPORT, and EMAILHOST system options. EMAILID= provides the user name. EMAILPW= provides the password. EMAILPORT specifies the port to which the SMTP server is attached. EMAILHOST specifies the SMTP server that supports email access for your site. EMAILAUTHPROTOCOL= provides the protocol.

See Also

System Options:

- [“EMAILAUTHPROTOCOL= System Option” on page 162](#)
- [“EMAILHOST= System Option” on page 164](#)
- [“EMAILID= System Option” on page 167](#)
- [“EMAILPORT System Option” on page 168](#)

EMAILUTCOFFSET= System Option

For email that is sent using the FILENAME statement EMAIL (SMTP) access method, specifies a UTC offset that is used in the Date header field of the email message.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Communications: E-mail

PROC OPTIONS GROUP= EMAIL

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

EMAILUTCOFFSET=*“+hhmm” | “-hhmm”*

Syntax Description

`"+hhmm" | "-hhmm"`

specifies the number of hours and minutes that are used as the UTC offset in the Date header field of an email. Use the UTC offset to establish the local time.

Requirement The value of the EMAILUTCOffset= system option must be enclosed in double or single quotation marks.

Details

If your computer time setting is a local time, or if your computer time setting does not account for Daylight Saving Time, you can use the EMAILUTCOffset= system option to set a UTC offset in the Date header field of an SMTP email. If the Date header field contains a UTC offset, the value specified by the EMAILUTCOffset= system option replaces that UTC offset.

Example

This example uses the date of January 1, 2016, one hour, one minute, and one second after midnight:

| OPTIONS Statement | Date: Header |
|--|--------------------------------------|
| <code>options emailutcoffset="+0930";</code> | Date: Sat, 01 Jan2016 01:01:01 +0930 |
| <code>options emailutcoffset="-0600";</code> | Date Sat, 01 Jan2016 01:01:01 -0600 |

See Also

- [“The SMTP E-Mail Interface” in SAS Language Reference: Concepts](#)

Statements:

- [“FILENAME Statement: EMAIL \(SMTP\) Access Method” in SAS Global Statements: Reference](#)

ENGINE= System Option

Specifies the default access method for SAS libraries.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is V9. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “ENGINE= System Option: UNIX” in SAS Companion for UNIX Environments , “ENGINE: Windows” in SAS Companion for Windows , “ENGINE= System Option: z/OS” in SAS Companion for z/OS |

Syntax

ENGINE=*engine-name*

Syntax Description

engine-name

specifies an engine name.

Details

The ENGINE= system option specifies which default engine name is associated with a SAS library. The default engine is used when a SAS library points to an empty directory or a new file. The default engine is also used on directory-based systems, which can store more than one SAS file type within a directory. For example, some operating environments can store SAS files from multiple versions in the same directory.

Operating Environment Information: Valid engine names depend on your operating environment. For details, see the SAS documentation for your operating environment.

See Also

[“SAS Engines” in SAS Programmer’s Guide: Essentials](#)

ERRORABEND System Option

Specifies whether SAS responds to errors by terminating.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Alias: | ERRABEND NOERRABEND |
| Default: | The shipped default is NOERRORABEND. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

ERRORABEND | NOERRORABEND

Syntax Description

ERRORABEND

specifies that SAS terminate for most errors (including syntax errors and file not found errors) that would normally cause it to issue an error message, set OBS=0, and go into syntax-check mode (if syntax checking is enabled). SAS also terminates if an error occurs in any global statement other than the LIBNAME and FILENAME statements.

Tip Use the ERRORABEND system option with SAS production programs, which presumably should not encounter any errors. If errors are encountered and ERRORABEND is in effect, SAS brings the errors to your attention immediately by terminating. ERRORABEND does not affect how SAS handles notes such as invalid data messages.

NOERRORABEND

specifies that SAS handle errors normally, that is, issue an error message, set OBS=0, and go into syntax-check mode (if syntax checking is enabled).

See Also

- [SAS Global Statements: Reference](#)

System Options:

- [“ERRORBYABEND System Option” on page 175](#)
- [“ERRORCHECK= System Option” on page 176](#)

ERRORBYABEND System Option

Specifies whether SAS ends a program when an error occurs in BY-group processing.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is NOERRORBYABEND. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

ERRORBYABEND | **NOERRORBYABEND**

Syntax Description

ERRORBYABEND

specifies that SAS ends a program for BY-group error conditions that would normally cause it to issue an error message.

NOERRORBYABEND

specifies that SAS handle BY-group errors normally, that is, by issuing an error message and continuing processing.

Details

If SAS encounters one or more BY-group errors while ERRORBYABEND is in effect, SAS brings the errors to your attention immediately by ending your program. ERRORBYABEND does not affect how SAS handles notes that are written to the SAS log.

Note: Use the ERRORBYABEND system option with SAS production programs that should be error free.

See Also

System Options:

- [“ERRORABEND System Option” on page 174](#)

ERRORCHECK= System Option

Specifies whether SAS enters syntax-check mode when errors are found in the LIBNAME, FILENAME, %INCLUDE, and LOCK statements.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is NORMAL. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

ERRORCHECK=NORMAL | STRICT

Syntax Description

NORMAL

specifies not to place the SAS program into syntax-check mode when an error occurs in a LIBNAME or FILENAME statement, or in a LOCK statement in SAS/SHARE software. In addition, the program or session does not terminate when a %INCLUDE statement fails due to a non-existent file.

STRICT

specifies to place the SAS program into syntax-check mode when an error occurs in a LIBNAME or FILENAME statement, or in a LOCK statement in SAS/SHARE software. If the ERRORABEND system option is set and an error occurs in either a LIBNAME or FILENAME statement, SAS terminates. In

addition, SAS terminates when a %INCLUDE statement fails due to a non-existent file.

See Also

System Options:

- [“ERRORABEND System Option” on page 174](#)

ERRORS= System Option

Specifies the maximum number of observations for which SAS issues complete error messages.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Environment Control: Error Handling
Log and Procedure Output Control: SAS Log

PROC OPTIONS GROUP= ERRORHANDLING
LOGCONTROL

Default: The shipped default is 20.

Interaction: Engines other than the V9 engine might have a maximum number of observations for which SAS issues complete error messages. For more information, see the documentation for your engine.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

ERRORS=*n* | *nK* | *nM* | *nG* | *nT* | MIN | MAX | *hexX*

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the number of observations for which SAS issues error messages in terms of 1 (*n*); 1,024 (*nK*); 1,048,576 (*nM*); 1,073,741,824 (*nG*); or 1,099,511,627,776 (*nT*). For example, a value of 8 specifies eight observations, and a value of 3M specifies 3,145,728 observations.

MIN

sets the number of observations for which SAS issues error messages to 0.

MAX

sets the maximum number of observations for which SAS issues error messages to the largest signed, 4-byte integer representable in your operating environment.

hexX

specifies the maximum number of observations for which SAS issues error messages as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value **2dx** sets the maximum number of observations for which SAS issues error messages to 45 observations.

Details

If data errors are detected in more than n observations, processing continues, but SAS does not issue error messages for the additional errors.

Note: If you set `ERRORS=0` and an error occurs, or if the maximum number of errors has been reached, a warning message is displayed in the log, which states that the limit set by the `ERRORS` option has been reached.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

EVENTDS= System Option

Specifies one or more data sets that define events.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Input Control: Data Processing

PROC OPTIONS GROUP= INPUTCONTROL

Default: The shipped default is (DEFAULTS).

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

EVENTDS=(<DEFAULTS | NODEFAULTS> *event-data-set(s)*)

Syntax Description

DEFAULTS

specifies to use the SAS predefined holiday events.

NODEFAULTS

specifies not to use default event definitions. The only events that are used are specified by the *event-data-set* list.

event-data-set

specifies the name of a data set that contains event definitions. The data set can be specified as a one-level name, *dataset*, or a two-level name, *libref.dataset*.

Details

A SAS event is used to model any incident that disrupts the normal flow of the process that generated the time series. Examples of commonly used events include natural disasters, retail promotions, strikes, advertising campaigns, policy changes, and data recording errors. You can create your own set of events, or you can use events that are predefined by SAS.

The events that are defined in the *event-data-set* list appear in the Events Repository in SAS Forecast Studio. In SAS High-Performance Forecasting, you can use an event data set as a value for the INEVENT= option in the HPFDIAGNOSE and HPFENGINE procedures. In SAS/ETS, an event data set can be used by the INEVENT= option in the X12 procedure.

When you set the EVENTDS= option, all values that were specified by a previous EVENTDS= option are replaced. A new specification of the option is not appended to the value of the existing value. You can use this option to override the default events or to add or delete event data sets.

To create event data sets, see the HPFEVENTS procedure in the *SAS High-Performance Forecasting User's Guide*.

If the event data set has duplicate event names but different dates associated with the events, use PROC SORT to sort the data set by the event name. Duplicate event names must be grouped before you use the event data set in a SAS program. If the data set is not sorted, SAS sees the event as a duplicate event, replaces the previous event definition, and writes a warning to the SAS log.

Examples

Example 1

By default, the SAS predefined holiday events are valid events as long as NODEFAULTS is not specified in the EVENTDS= option. The valid events that are set using the following EVENTDS= option are the SAS predefined holiday events and the events that are specified in the events.WorldCup data set:

```
options eventds=(events.WorldCup);
```

Example 2

Because NODEFAULTS is specified, after the EVENTDS= option is set, the SAS predefined holiday events are not valid events. The only valid events are the events that are defined in the dubai_holidays data set:

```
options eventds=(nodefaults dubai_holidays);
```

Example 3

Reset the valid events to the predefined list of SAS holiday events:

```
options eventds=(defaults);
```

See Also

- *SAS/ETS User's Guide*
- *SAS Forecast Studio User's Guide*
- *SAS High-Performance Forecasting: User's Guide*

System Options:

- ["INTERVALDS= System Option" on page 218](#)

EXPLORER System Option

Specifies whether to invoke the SAS windowing environment and display only the Explorer and Program Editor windows.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Default: | The shipped default is NOEXPLORER. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

EXPLORER | NOEXPLORER

Syntax Description

EXPLORER

specifies that the SAS session be invoked with only the Explorer and Program Editor windows.

NOEXPLORER

specifies that the SAS session be invoked without the Explorer window.

Details

The following SAS execution mode invocation options, in order, have precedence over this option:

- 1 OBJECTSERVER.
- 2 DMR
- 3 SYSIN

If you specify EXPLORER with another execution mode invocation option of equal precedence, SAS uses only the last option listed. See [“Order of Precedence” on page 23](#) for more information about invocation option precedence.

See Also

System Options:

- [“DMS System Option” on page 147](#)
- [“DMSEXP System Option” on page 149](#)

EXTENDOBSCOUNTER= System Option

Specifies whether to extend the maximum observation count in a new output SAS data file.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Environment Control: Language Control Files: SAS Files |
| PROC OPTIONS GROUP= | LANGUAGECONTROL SASFILES |
| Alias: | EOC= |
| Defaults: | Under UNIX environments, the shipped default is not set. Under Windows and z/OS, the shipped default is YES. |
| Restrictions: | Use with output data files only. Use with the Base engine only. If you copy a file, the extended observation count attribute is not inherited. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

EXTENDOBSCOUNTER=[YES](#) | [NO](#)

Syntax Description

YES

specifies to use the default maximum observation count of $2^{31}-1$ or approximately 9.2 quintillion observations in a newly created SAS data file.

Restriction A SAS data file that has the extended observation count attribute cannot be used by releases prior to SAS 9.3. To remove the extended observation count attribute, the file must be re-created. If you plan to use the file in SAS 9.2 or earlier releases, then set EXTENDOBSCOUNTER=NO when you create the file.

Interaction EXTENDOBSCOUNTER=YES is ignored if the data representation is a 64-bit UNIX operating environment.

NO

is a compatibility setting for a newly created SAS data file, to enable its use in releases prior to SAS 9.3.

Details

The behavior depends on your operating environment:

- Under UNIX environments, by default the EXTENDOBSCOUNTER= option is not set. The extended observation count feature is not necessary under 64-bit UNIX. However, if you specify the OUTREP= option, and the data representation is not a 64-bit UNIX operating environment, then SAS automatically sets EXTENDOBSCOUNTER=YES. SAS adds the extended observation count feature for compatibility with environments other than UNIX where it might be necessary. (Many customers specify OUTREP= when they create a table for use in a different environment. This practice can help you avoid the limitations of CEDA processing.)
- Under Windows and z/OS, by default EXTENDOBSCOUNTER=YES. Files are created with the enhanced file format and the extended observation count attribute.

Note that backward compatibility is an issue only if the file is used in SAS 9.2 or earlier releases:

- Under UNIX, if you specify OUTREP= and plan to use the file in SAS 9.2 or earlier releases, specify EXTENDOBSCOUNTER=NO. If you do not specify OUTREP=, then you do not need to specify EXTENDOBSCOUNTER=NO.
- Under Windows or z/OS, if you plan to use the file in SAS 9.2 or earlier releases, specify EXTENDOBSCOUNTER=NO.

Comparisons

The EXTENDOBSCOUNTER= LIBNAME statement option overrides the EXTENDOBSCOUNTER= system option.

The EXTENDOBSCOUNTER= data set option overrides the EXTENDOBSCOUNTER= LIBNAME statement option and the EXTENDOBSCOUNTER= system option.

See Also

- [“Understanding the Observation Count” in SAS V9 LIBNAME Engine: Reference](#)

Data Set Options:

- [“EXTENDOBSCOUNTER= Data Set Option” in SAS Data Set Options: Reference](#)

Statements:

- [“EXTENDOBSCOUNTER=YES | NO” in SAS Global Statements: Reference](#)

FILESYNC= System Option

Specifies when operating system buffers that contain contents of permanent SAS files are written to disk.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is HOST.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“FILESYNC= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

FILESYNC= [SAS](#) | [CLOSE](#) | [HOST](#) | [SAVE](#)

Syntax Description

SAS

specifies that SAS requests the operating system to force buffered data to be written to disk when it is best for the integrity of the SAS file.

CLOSE

specifies that SAS requests the operating system to force buffered data to be written to disk when the SAS file is closed.

HOST

specifies that the operating system schedules when the buffered data for a SAS file is written to disk.

SAVE

specifies that the buffers are written to disk when the SAS file is saved.

Details

By using the FILESYNC= system option, SAS can tell the operating system when to force data that is temporarily stored in operating system buffers to be written to disk. Only SAS files in a permanent SAS library are affected; files in a temporary library are not affected.

If you specify a value other than the default value of HOST or CLOSE, the following occurs:

- the length of time it takes to run a SAS job increases
- the small chance of losing data in the event of a system failure is further reduced

Consult with your system administrator before you change the value of the FILESYNC= system option to a value other than the default value.

z/OS Specifics: Under z/OS, the FILESYNC= system option affects SAS files only in UNIX file system (UFS) libraries. For more information, see [“FILESYNC= System Option: z/OS” in SAS Companion for z/OS](#).

FIRSTOBS= System Option

Specifies the observation number or external file record that SAS processes first.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is 1. |
| Interaction: | SAS Studio sets FIRSTOBS=1 before each code submission. For more information, see “System Options in SAS Studio” in SAS Studio: User’s Guide . |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

FIRSTOBS=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the number of the first observation or external file record to process, where *n* is an integer. Using one of the letter notations results in multiplying the integer by a specific value. That is, specifying K (kilo) multiplies the integer by 1,024; M (mega) multiplies by 1,048,576; G (giga) multiplies by 1,073,741,824; or T (tera) multiplies by 1,099,511,627,776. For example, a value of 8 specifies the

eight observations or records, and a value of `3m` specifies observation or record 3,145,728.

hexX

specifies the number of the first observation or the external file record to process as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value `2dx` specifies the 45th observation.

MIN

sets the number of the first observation or external file record to process to 1. This is the default.

MAX

sets the number of the first observation to process to the maximum number of observations in the data sets or records in the external file, up to the largest eight-byte, signed integer, which is $2^{63}-1$, or approximately 9.2 quintillion observations.

Details

The `FIRSTOBS=` system option is valid for all steps for the duration of your current SAS session or until you change the setting. To affect any single SAS data set, use the `FIRSTOBS=` data set option.

You can apply `FIRSTOBS=` processing to `WHERE` processing. For details, see [“Data Set and System Options with WHERE Expressions” in SAS Programmer’s Guide: Essentials](#).

Comparisons

- You can override the `FIRSTOBS=` system option by using the `FIRSTOBS=` data set option and by using the `FIRSTOBS=` option as a part of the `INFILE` statement.
- As the `FIRSTOBS=` system option specifies a starting point for processing, the `OBS=` system option specifies an ending point. The two options are often used together to define a range of observations or records to be processed.

Example

If you specify `FIRSTOBS=50`, SAS processes the 50th observation of the data set first.

This option applies to every input data set that is used in a program or a SAS process. In this example, SAS begins reading at the 11th observation in the data sets `OLD`, `A`, and `B`:

```
options firstobs=11;
```



```

data a;
  set old; /* 100 observations */
run;
data b;
  set a;
run;
data c;
  set b;
run;

```

Data set OLD has 100 observations, data set A has 90, B has 80, and C has 70. To avoid decreasing the number of observations in successive data sets, use the `FIRSTOBS=` data set option in the SET statement. You can also reset `FIRSTOBS=1` between a DATA step and a PROC step.

See Also

Data Set Options:

- [“FIRSTOBS= Data Set Option” in SAS Data Set Options: Reference](#)

Statements:

- [“INFILE” in SAS DATA Step Statements: Reference](#)

System Options:

- [“OBS= System Option” on page 249](#)

FMterr System Option

When a variable format cannot be found, specifies whether SAS generates an error or continues processing.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is FMterr. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

FMterr | **NOFMterr**

Syntax Description

FMterr

specifies that when SAS cannot find a specified variable format, it generates an error message and does not allow default substitution to occur.

NOFMterr

replaces missing formats with the *w.* or *\$w.* default format, issues a note, and continues processing.

See Also

System Options:

- [“FMtSEARCH= System Option” on page 188](#)

FMTSEARCH= System Option

Specifies the order in which format catalogs are searched.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Default: | The shipped default is (Work Library). |
| Restriction: | This option applies only to the order in which SAS catalogs are searched. It does not apply to the order in which CAS server format libraries are searched. To manage user formats on the CAS server, see CAS Statement FMTSEARCH= option or CAS Statement LISTFMTSEARCH= option . |
| Requirement: | Catalog specifications must be separated by a space. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| Tip: | You can use the APPEND or INSERT system options to add additional <i>catalog-specification</i> . |

Syntax

FMTSEARCH=(*catalog-specification(s)*)

Syntax Description

catalog-specifications

searches format catalogs in the order listed, until the desired member is found.

The value of *catalog-specification* can be one of the following:

libref</LOCALE>

specifies to search the FORMATS catalog in the storage location that is specified by *libref*. When a *libref* is specified without a catalog, SAS uses FORMATS as the default catalog name.

If you specify /LOCALE, SAS searches for a catalog that is associated with the current SAS locale before it searches the FORMATS catalog. The locale catalog name is based on the POSIX locale name for the current locale. Two catalogs might exist for each POSIX locale name: one catalog for the language and one catalog for the language_country. If your current SAS locale is English_India, the POSIX locale name is en_IN. The two possible locale catalogs are *libref.FORMATS_en* and *libref.FORMATS_en_IN*. SAS searches, in order, these catalogs in *libref*:

- 1 *libref.FORMATS_language_country*
- 2 *libref.FORMATS_language*
- 3 *libref.FORMATS*

Tip You can obtain a POSIX locale value by using the [GETPXLOCALE function](#). You can use the [GETLOCENV function](#) to obtain the current SAS locale. For more information, see [SAS National Language Support \(NLS\): Reference Guide](#).

See For a list of POSIX locale values and their corresponding SAS locale names, see “LOCALE= Values for PAPERSIZE and DFLANG, Options” in [SAS National Language Support \(NLS\): Reference Guide](#).

libref.catalog</LOCALE>

specifies to search for a specific library and catalog.

If you specify /LOCALE, SAS searches *libref.catalog* for a catalog that is associated with the current SAS locale. The locale catalog name is based on the POSIX locale name for the current locale. Two catalogs might exist for each POSIX locale name: one catalog for the language and one catalog for the language_country. If your current SAS locale is English_India, the POSIX locale name is en_IN. The two possible locale catalogs are *libref.catalog_en* and *libref.catalog_en_IN*.

SAS searches, in order, these catalogs in *libref*, if you specify /LOCALE:

- 1 *libref.catalog_language_country*
- 2 *libref.catalog_language*

3 *libref.catalog*

Tip You can obtain a POSIX locale value by using the [GETPXLOCALE function](#). You can use the [GETLOCENV function](#) to obtain the current SAS locale. For more information, see *SAS National Language Support (NLS): Reference Guide*.

See For a list of POSIX locale values and their corresponding SAS locale names, see “[LOCALE= Values for PAPERSIZE and DFLANG, Options](#)” in *SAS National Language Support (NLS): Reference Guide*.

Details

The default value for FMTSEARCH is (WORK LIBRARY). The catalogs Work.Formats and Library.Formats are always searched, regardless of whether they appear in the FMTSEARCH option. The Work.Formats catalog is always searched first unless it appears in the FMTSEARCH option. The Library.Formats catalog is searched second unless it appears in the FMTSEARCH option.

For example, FMTSEARCH=(MYLIB LIBRARY) results in searching these catalogs, in the order Work.Formats, Mylib.Formats, and Library.Formats.

If a catalog appears in the FMTSEARCH= list, the catalog is searched in the order in which it appears in the list. If a catalog in the list does not exist, that particular catalog is ignored and searching continues with no error or warning message given.

Examples

Example 1: Format Catalog Search Order with Default Libraries Searched First

If you specify FMTSEARCH=(ABC DEF.XYZ GHI), SAS searches for requested formats or informats in this order:

- 1 Work.Formats
- 2 Library.Formats
- 3 Abc.Formats
- 4 Def.Xyz
- 5 Ghi.Formats

Example 2: Format Catalog Search Order with Default Libraries Searched Last

If you specify FMTSEARCH=(ABC WORK LIBRARY), SAS searches in this order:

- 1 Abc.Formats
- 2 Work.Formats

3 Library.Formats

Because WORK appears in the FMTSEARCH list, Work.Formats is not automatically searched first.

Example 3: Format Catalog Search Order with POSIX Locale Values

If you specify FMTSEARCH=(ABC/LOCALE) and the current locale is German_Germany, SAS searches in this order:

- 1 Work.Formats
- 2 Library.Formats
- 3 Abc.Formats_de_DE
- 4 Abc.Formats_de
- 5 Abc.Formats

See Also

User-Defined Formats in CAS

- [SAS Cloud Analytic Services: User-Defined Formats](#)
- [User-Defined Format Options](#) under Summary of Optional Arguments for the CAS statement.
-

Procedures:

- ["FORMAT Procedure" in Base SAS Procedures Guide](#)

System Options:

- ["APPEND= System Option" on page 77](#)
- ["INSERT= System Option" on page 216](#)
- ["FMTERR System Option" on page 187](#)

FONTEMBEDDING System Option

Specifies whether font embedding is enabled in Universal Printer and SAS/GRAPH printing.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

| | |
|---------------------|---|
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is FONTEMBEDDING. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

FONTEMBEDDING | **NOFONTEMBEDDING**

Syntax Description

FONTEMBEDDING

specifies to enable font embedding.

NOFONTEMBEDDING

specifies to disable font embedding.

Details

Font embedding is used mainly by Universal Printing. Not all printers support font embedding. To determine whether the printer that you are using supports font embedding, use the QDEVICE procedure. If **Font Embedding** is listed in the SAS log with a value of **Option** or **Always**, the printer supports font embedding. Here is a partial log output from the QDEVICE procedure:

```

369 proc qdevice report=general;
370     printer pdf;
371 run;

      Name: PDF
      Description: Portable Document Format Version 1.4
      Module: SASPPPDF
      Type: Universal Printer
      Registry: SASHELP
      Prototype: PDF Version 1.4
      Default Typeface: Cumberland AMT
      Typeface Alias: Courier
      Font Style: Regular
      Font Weight: Normal
      Font Height: 8 points
      Font Version: Version 1.03
      Maximum Colors: 16777216
      Visual Color: Direct Color
      Color Support: RGBA
      Destination: sasprt.pdf
      I/O Type: DISK
      Data Format: PDF

```

```

...more registry settings...
Compression Method: FLATE
Font Embedding: Option
Animation: Unsupported

```

When FONTEMBEDDING is set, fonts can be embedded, or included, in the output files that are created by the Universal Printer and SAS/GRAPH. Output files with embedded fonts do not rely on fonts being installed on the computer that is used to view or print the output file. File size is increased for vector output for printers such as PDF and PostScript.

When NOFONTEMBEDDING is set, the output files rely on the fonts being installed on the computer that is used to view or print the font. If a font is not found on the computer, the printer or the application that displays the output might perform font substitution. Image output is not affected when NOFONTEMBEDDING is set.

To determine which fonts are substituted for a given printer, use the Print Setup window or the QDEVICE procedure to display the Printer Setup properties. Under **Fonts**, any individual fonts that are listed are recognized by the printer. All other fonts, including those that are available via a link in the SAS Registry, are substituted in the document when the document is created.

See Also

- [SAS/GRAPH: Reference](#)
- [Universal Printing](#)

FONTRENDERING= System Option

Specifies whether SAS/GRAPH devices that are based on the SASGDGIF, SASGDTIF, and SASGDIMG modules render fonts by using the operating system or by using the FreeType engine.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:
Not supported

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS GROUP= ODSPRINT

Default: The shipped default is FREETYPE_POINTS.

Restriction: This option is set to HOST_PIXELS for devices that begin with "Z".

Note: This option can be restricted by a site administrator. For more information, see ["Restricted Options" on page 8](#).

Syntax

FONTRENDERING=HOST_PIXELS | FREETYPE_POINTS

Syntax Description

HOST_PIXELS

specifies that fonts are rendered by the operating system and that font size is requested in pixels.

z/OS specifics On z/OS, HOST_PIXELS is not supported. If HOST_PIXELS is specified, SAS uses FREETYPE_POINTS as the value for this option.

FREETYPE_POINTS

specifies that fonts are rendered by the FreeType engine and that font size is requested in points.

Details

Use the FONTRENDERING= system option to specify how SAS/GRAPH devices that are based on the SASGDGIF, SASGDTIF, and SASGDIMG modules render fonts. When the operating system renders fonts, the font size is requested in pixels. When the FreeType engine renders fonts, the font size is requested in points.

For a list of devices that support the FONTRENDERING= option, submit this code:

```
/* List SAS/GRAPH devices using modules SASGDGIF, SASGDTIF or SASGDIMG
*/
proc qdevice report=general out=Devs;
  device _all_;
  var name module;
run;
quit;

proc sql;
  create table ImagDevs as
  select name, module from Devs where module='SASGDGIF' or
                                     module='SASGDTIF' or
                                     module='SASGDIMG';
quit;

proc print data=ImagDevs label;
  title 'Devices Using SASGDGIF, SASGDTIF or SASGDIMG Modules';
  label name='Device Name';
  label module='Module';
run;
```


Devices Using SASGDGIF, SASGDTIF or SASGDIMG Modules

| Obs | Device Name | Module |
|-----|-------------|----------|
| 1 | ACTIVEX | SASGDGIF |
| 2 | ACTXIMG | SASGDGIF |
| 3 | GIFANIM | SASGDGIF |
| 4 | HTML | SASGDGIF |
| 5 | JAVA | SASGDGIF |
| 6 | JAVAIMG | SASGDGIF |
| 7 | JPEG | SASGDIMG |
| 8 | JPEG300 | SASGDIMG |
| 9 | TIFFB | SASGDTIF |
| 10 | TIFFB300 | SASGDTIF |
| 11 | TIFFP | SASGDTIF |
| 12 | TIFFP300 | SASGDTIF |
| 13 | WEBFRAME | SASGDGIF |
| 14 | ZGIF | SASGDGIF |

See Also

[“Specifying Fonts in SAS/GRAPH Programs” in SAS/GRAPH: Reference](#)

FONTSLC= System Option

Specifies the location of the fonts that are supplied by SAS; names the default font file location for registering fonts that use the FONTREG procedure.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Categories: Environment Control: Display
 Log and Procedure Output Control: ODS Printing

PROC OPTIONS ENVDISPLAY
 GROUP= ODSPRINT

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“FONTSLC System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“FONTSLC: Windows” in SAS Companion for Windows](#)
[“FONTSLC= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

FONTSLLOC=*location*

Syntax Description

location

specifies a path to the location of the SAS fonts that are used during the SAS session.

Requirement *location* must be enclosed in quotation marks.

FORMCHAR= System Option

Specifies the default output formatting characters.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LISTCONTROL |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “FORMCHAR: Windows” in SAS Companion for Windows |

Syntax

FORMCHAR= *'formatting-characters'*

Syntax Description

'formatting-characters'

specifies any string or list of strings of characters up to 64 bytes long. If fewer than 64 bytes are specified, the string is padded with blanks on the right.

Tip For consistent results when you move your document to different computers, issue the following OPTIONS statement before using ODS destinations other than the Listing destination:

```
options formchar="|----|+----+|-\<>*";
```

Details

Formatting characters are used to construct tabular output outlines and dividers for various procedures, such as the `FREQ`, `REPORT`, and `TABULATE` procedures. If you omit formatting characters as an option in the procedure, the default specifications given in the `FORMCHAR=` system option are used. Note that you can also specify a hexadecimal character constant as a formatting character. When you use a hexadecimal constant with this option, SAS interprets the value of the hexadecimal constant as appropriate for your operating system.

Note: To ensure that row and column separators and boxed tabular reports are printed legibly when using the standard forms characters, you must use these resources:

- either the SAS Monospace or the SAS Monospace Bold font
 - a printer that supports TrueType fonts
-

See Also

- For information about how Base SAS procedures use formatting characters, see [Base SAS Procedures Guide](#). For procedures in other products that use formatting characters, see the documentation for that product.
- “The SAS Registry” in [SAS Programmer’s Guide: Essentials](#)

FORMDLIM= System Option

Specifies a character to delimit page breaks in SAS output for the `LISTING` destination.

Valid in: SAS 9.4: Configuration file, SAS invocation, `OPTIONS` statement, SAS System Options window, `SASV9_OPTIONS` environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: Procedure Output

PROC OPTIONS GROUP= `LISTCONTROL`

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

FORMDLIM=*delimiting-character*

Syntax Description

'delimiting-character'

specifies in quotation marks a character written to delimit pages. Normally, the delimit character is null, as in this statement:

```
options formdlim='';
```

Details

When the delimit character is null, a new physical page starts whenever a new page occurs. However, you can conserve paper by allowing multiple pages of output to appear on the same page. For example, this statement writes a line of hyphens (- -) where normally a page break would occur:

```
options formdlim='-';
```

When a new page is to begin, SAS skips a single line, writes a line consisting of the hyphens that are repeated across the page, and skips another single line. There is no skip to the top of a new physical page. Resetting FORMDLIM= to null causes physical pages to be written normally again.

FORMS= System Option

If forms are used for printing, specifies the default form to use.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Categories: Environment Control: Display
Log and Procedure Output Control: Procedure Output

PROC OPTIONS GROUP= ENVDISPLAY
LISTCONTROL

Default: The shipped default is DEFAULT.

Note: This option can be restricted by a site administrator. For more information, see ["Restricted Options" on page 8](#).

Syntax

FORMS=*form-name*

Syntax Description

form-name

specifies the name of the form.

Tip To create a customized form, use the FSFORM command in a windowing environment.

Details

The default form contains settings that control various aspects of interactive windowing output, including printer selection, text body, and margins. The FORMS= system option also customizes output from the PRINT command (when FORM= is omitted) or output from interactive windowing procedures.

HELPBROWSER= System Option

Specifies the browser to use for SAS Help and ODS output.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Help |
| PROC OPTIONS GROUP= | HELP |
| Defaults: | In the Windows 32-bit operating environment, the shipped default is SAS. In the UNIX, z/OS, and Windows 64-bit operating environments, the shipped default is REMOTE. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

HELPBROWSER=REMOTE | SAS

Syntax Description

REMOTE

specifies to use the remote browser for the Help. The location of the remote browser is determined by the HELPHOST and the HELPPORT system options.

SAS

specifies to use the SAS browser for the Help.

See Also

- [“Viewing Output and Help in the SAS Remote Browser” in SAS Companion for UNIX Environments](#)
- [“Viewing Output and Help in the SAS Remote Browser” in SAS Companion for Windows](#)

System Options:

- [“HELPHOST System Option” on page 201](#)
- [“HELPPORT= System Option” on page 202](#)

HELPCMD System Option

Specifies whether SAS uses the English version or the translated version of the keyword list for the command-line Help.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Help |
| PROC OPTIONS GROUP= | HELP |
| Default: | The shipped default is HELPCMD. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

HELPCMD | **NOHELPCMD**

Syntax Description

HELPCMD

specifies that SAS use the English version of the keyword list for the command-line help, although the index continues to be displayed with translated keywords.

NOHELPCMD

specifies that SAS use the translated version of the keyword list for the command-line help, if a translated version exists.

Details

Set NOHELPENCMD if you want the command-line help to locate keywords by using the localized terms. By default, all terms on the command line are read as English.

See Also

System Options:

- [“HELPIINDEX: Windows” in SAS Companion for Windows](#)
- [“HELPIINDEX System Option: UNIX” in SAS Companion for UNIX Environments](#)
- [“HELPLLOC: Windows” in SAS Companion for Windows](#)
- [“HELPLLOC System Option: UNIX” in SAS Companion for UNIX Environments](#)
- [“HELPLLOC= System Option: z/OS” in SAS Companion for z/OS](#)
- [“HELPTOC: Windows” in SAS Companion for Windows](#)
- [“HELPTOC System Option: UNIX” in SAS Companion for UNIX Environments](#)

HELPHOST System Option

Specifies the name of the computer where the remote browser is to send Help and ODS output.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Help

PROC OPTIONS HELP
GROUP=

See: [“HELPHOST System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“HELPHOST: Windows” in SAS Companion for Windows](#)
[“HELPHOST System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

HELPHOST=*“host”*

Syntax Description

"host"

specifies the name of the computer where the remote help is to be displayed. Quotation marks or parentheses are required. The maximum number of characters is 2,048.

Details

Operating Environment Information: If you do not specify the HELPHOST option, the location where SAS displays the Help depends on your operating environment. See the HELPHOST system option in the documentation for your operating environment.

See Also

- [“Using the SAS Remote Browser” in SAS Companion for z/OS](#)
- [“Viewing Output and Help in the SAS Remote Browser” in SAS Companion for UNIX Environments](#)
- [“Viewing Output and Help in the SAS Remote Browser” in SAS Companion for Windows](#)

System Options:

- [“HELPBROWSER= System Option” on page 199](#)
- [“HELPPORT= System Option” on page 202](#)

HELPPORT= System Option

Specifies the port number for the remote browser client.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Help |
| PROC OPTIONS GROUP= | HELP |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

HELPPORT=*port-number*

Syntax Description

port-number

specifies the port number for the SAS Remote Browser Server.

Range 0–65535

Details

When HELPPORT is set to 0, SAS uses the default port number for the remote browser server.

See Also

- [“Using the SAS Remote Browser” in SAS Companion for z/OS](#)
- [“Viewing Output and Help in the SAS Remote Browser” in SAS Companion for UNIX Environments](#)
- [“Viewing Output and Help in the SAS Remote Browser” in SAS Companion for Windows](#)

System Options:

- [“HELPBROWSER= System Option” on page 199](#)
- [“HELPHOST System Option” on page 201](#)

HOSTINFOLONG System Option

Specifies to print additional operating environment information in the SAS log when SAS starts.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS GROUP= LOGCONTROL

Default: The shipped default is HOSTINFOLONG.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

HOSTINFOLONG | **NOHOSTINFOLONG**

Syntax Description

HOSTINFOLONG

specifies to print additional operating environment information in the SAS log when SAS starts.

NOHOSTINFOLONG

specifies to omit additional operating environment information in the SAS log when SAS starts.

Details

In SAS 9.4, when HOSTINFOLONG is specified, SAS writes additional information about the operating environment to the SAS log:

```
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NOTE: SAS (r) Proprietary Software 9.4 (TS1M5 MBCS3170)
      Licensed to SAS Institute Inc., Site 1.
NOTE: This session is executing on the X64_10PRO platform.
```

```
NOTE: Updated analytical products:
```

```
      SAS/STAT 15.1
      SAS/ETS 15.1
      SAS/OR 15.1
      SAS/IML 15.1
      SAS/QC 15.1
```

```
NOTE: Additional host information:
```

```
      X64_10PRO WIN 10.0.14393 Workstation
```

In SAS Viya, when HOSTINFOLONG is specified, SAS writes additional information about the operating environment to the SAS log:

```
NOTE: Copyright (c) 2016 by SAS Institute Inc., Cary, NC, USA.
NOTE: SAS (r) Proprietary Software V.03.02 (TS1M0 MBCS3280)
      Licensed to SAS Institute Inc., Site 1.
NOTE: This session is executing on the Linux 2.6.32-573.el6.x86_64 (LIN X64)
      platform.
```

```
NOTE: Additional host information:
```

```
Linux LIN X64 2.6.32-573.1.el6.x86_64 #1 SMP Wed Feb 1 18:23:37 EDT 2017
x86_64 Red Hat Enterprise Linux Server release 6.7 (Santiago)
```

See Also

- [“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“CPUID System Option” on page 130](#)

HTTPSERVERPORTMAX= System Option

Specifies the highest port number that can be used by the SAS HTTP server for remote browsing.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Communications: Networking and Encryption

PROC OPTIONS GROUP= COMMUNICATIONS

Default: The shipped default is 0.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

HTTPSERVERPORTMAX=*max-port-number*

Syntax Description

max-port-number

specifies the highest port number that can be used by the SAS HTTP server for remote browsing.

Range 0–65535

Details

Use the HTTPSERVERPORTMAX= and HTTPSERVERPORTMIN= system options to specify a range of port values that the remote browser HTTP server can use to dynamically assign a port number when a firewall is configured between SAS and the HTTP server.

See Also

System Options:

- [“HTTPSERVERPORTMIN= System Option” on page 206](#)

HTTPSERVERPORTMIN= System Option

Specifies the lowest port number that can be used by the SAS HTTP server for remote browsing.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Communications: Networking and Encryption |
| PROC OPTIONS GROUP= | COMMUNICATIONS |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

HTTPSERVERPORTMIN=*min-port-number*

Syntax Description

min-port-number

specifies the lowest port number that can be used by the SAS HTTP server for remote browsing.

Range 0–65535

Details

Use the HTTPSERVERPORTMIN and HTTPSERVERPORTMAX system options to specify a range of port values that the remote browser HTTP server can use to dynamically assign a port number when a firewall is configured between SAS and the HTTP server.

See Also

System Options:

- [“HTTPSERVERPORTMAX= System Option” on page 205](#)

IBUFNO= System Option

Specifies an optional number of extra buffers to be allocated for navigating an index file.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

IBUFNO=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the number of extra index buffers to be allocated in multiples of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of 8 specifies eight buffers, and a value of 3k specifies 3,072 buffers.

Restriction Maximum value is 10,000.

hexX

specifies the number of extra index buffers as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx specifies 45 buffers.

MIN

sets the number of extra index buffers to 0.

MAX

sets the maximum number of extra index buffers to 10,000.

Details

An index is an optional SAS file that you can create for a SAS data file in order to provide direct access to specific observations. The index file consists of entries that are organized into hierarchical levels, such as a tree structure, and connected by pointers. When an index is used to process a request, such as for WHERE processing, SAS does a binary search on the index file and positions the index to the first entry that contains a qualified value. SAS uses the value's identifier to directly access the observation that contains the value. SAS requires memory for buffers when an index is actually used. The buffers are not required unless SAS uses the index, but they must be allocated in preparation for the index that is being used.

SAS automatically allocates a minimal number of buffers in order to navigate the index file. Typically, you do not need to specify extra buffers. However, using `IBUFNO=` to specify extra buffers could improve execution time by limiting the number of input/output operations that are required for a particular index file. However, the improvement in execution time comes at the expense of increased memory consumption.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

Note: Whereas too few buffers allocated to the index file decrease performance, over allocation of index buffers creates performance problems as well. Experimentation is the best way to determine the optimal number of index buffers. For example, experiment with `ibufno=3`, then `ibufno=4`, and so on, until you find the least number of buffers that produces satisfactory performance results.

See Also

- [“Indexes in SAS” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“IBUFSIZE= System Option” on page 208](#)

IBUFSIZE= System Option

Specifies the buffer size for an index file.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is 0. |
| Restriction: | Specify a page size before the index file is created. After it is created, you cannot change the page size. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

IBUFSIZE=*n* | *nK* | *hexX* | **MAX**

Note: You can also use the KB syntax notation.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the buffer size to process in multiples of 1 (bytes); 1,024 (kilobytes). For example, a value of 8 specifies 8 bytes, and a value of 3k specifies 3,072 bytes. A value of 0 causes SAS to use the minimum optimal buffer size for the operating environment.

hexX

specifies the buffer size as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dX sets the page size to 45 bytes.

MAX

sets the buffer size for an index file to the maximum possible number. For IBUFSIZE=, the value is 32,767 bytes.

Details

An index is an optional SAS file that you can create for a SAS data file in order to provide direct access to specific observations. The index file consists of entries that are organized into hierarchical levels, such as a tree structure, and connected by pointers. When an index is used to process a request, such as for WHERE processing, SAS does a search on the index file in order to rapidly locate the requested records.

Typically, you do not need to specify an index buffer size. However, the following situations could require a different buffer size:

- The buffer size affects the number of levels in the index. The more buffers there are, the more levels in the index. The more levels, the longer the index search takes. Increasing the buffer size allows more index values to be stored in each buffer, thus reducing the number of buffers (and the number of levels). The number of buffers required for the index varies with the buffer size, the length of the index value, and the values themselves. The main resource that is saved when reducing levels in the index is I/O. If your application is experiencing a lot of I/O in the index file, increasing the buffer size might help. However, you must re-create the index file after increasing the buffer size.
- The index file structure requires a minimum of three index values plus some overhead to be stored on a page. If the length of an index value is very large, you get an error message that the index could not be created because the buffer size is too small to hold three index values. Increasing the buffer size should eliminate the error. The MAX value imposes a limit on the lengths of the variables that can be indexed.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

See Also

- [“Understanding SAS Indexes” in SAS Language Reference: Concepts](#)

System Options:

- [“IBUFNO= System Option” on page 207](#)

IMLPACKAGEPRIVATE= System Option

Specifies the directory for the private collection of SAS/IML packages.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Defaults: Shipped default: none. These values are set in the configuration file:
 Windows: "%FOLDERID_Documents\My SAS Files\IML\Packages"
 UNIX: ~/sas/iml/packages
 z/OS: ~/sas/iml/packages

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

IMLPACKAGEPRIVATE=*directory-path*

Syntax Description

directory-path

specifies the directory where the private collection of SAS/IML packages is stored. Packages in the private collection are available only to the current user. The directory specified by this option should be unique for each user.

Length Up to 1,024 characters

Tip A best practice is to enclose *directory-path* in quotation marks.

Example `-imlpackageprivate="?FOLDERID_Documents\My SAS Files\IML\Packages"`

See Also

- ["Packages"](#) in SAS/IML User's Guide.

System Options:

- ["IMLPACKAGEPUBLIC= System Option"](#) on page 211
- ["IMLPACKAGESYSTEM= System Option"](#) on page 212

IMLPACKAGEPUBLIC= System Option

Specifies the directory for the public collection of SAS/IML packages.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Defaults: Shipped default: none. The following defaults are set in the configuration file:
 Windows: `"?FOLDERID_ProgramData\SAS\IML\Packages"`
 UNIX: `/opt/sas/iml/packages`
 z/OS: `/opt/sas/iml/packages`

Note: This option can be restricted by a site administrator. For more information, see ["Restricted Options"](#) on page 8.

Syntax

IMLPACKAGEPUBLIC=*directory-path*

Syntax Description

directory-path

specifies the directory where the public collection of SAS/IML packages is stored. Packages in the public collection are available to all users of the system. *directory-path* should be accessible by all users.

Length Up to 1,024 characters

Tip A best practice is to enclose *directory-path* in quotation marks.

Example `-imlpackagepublic="c:\IMLPublicPackages"`

See Also

- ["Packages"](#) in SAS/IML User's Guide

System Options:

- ["IMLPACKAGEPRIVATE= System Option"](#) on page 210
- ["IMLPACKAGESYSTEM= System Option"](#) on page 212

IMLPACKAGESYSTEM= System Option

Specifies the directory for packages that are installed as part of SAS/IML.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Files

PROC OPTIONS ENVFILES
GROUP=

Defaults: Shipped default: none. The following defaults are set in the configuration file:
Windows: "!SASROOT\iml\sasmisc\packages"
UNIX: !SASROOT/misc/iml/packages
z/OS: !SASROOT/misc/iml/packages

Note: This option can be restricted by a site administrator. For more information, see ["Restricted Options"](#) on page 8.

Syntax

IMLPACKAGESYSTEM=*directory-path*

Syntax Description

directory-path

specifies the directory where the system collection of SAS/IML packages is stored. Packages in the system collection are installed as part of SAS/IML software and are available to all users of the system.

Length Up to 1,024 characters

Tip A best practice is to enclose *directory-path* in quotation marks.

Example `-imlpackagesystem="!SASROOT\iml\sasmisc\packages"`

See Also

- ["Packages"](#) in SAS/IML User's Guide

System Options:

- ["IMLPACKAGEPRIVATE= System Option"](#) on page 210
- ["IMLPACKAGEPUBLIC= System Option"](#) on page 211

INITCMD System Option

Specifies an application invocation command and optional SAS windowing environment or text editor commands that SAS executes after processing the AUTOEXEC= file and the INITSTMT option during SAS invocation.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS EXECMODES
GROUP=

Note: This option cannot be restricted by a site administrator. For more information, see ["Restricted Options"](#) on page 8.

Syntax

INITCMD "*command-1* <*windowing-command-n*> "

Syntax Description

command-1

specifies any SAS command that invokes an application window. Some valid values are:

| | |
|----------|------------|
| AF | LAB |
| ANALYST | MINER |
| ASSIST | PHCLINICAL |
| DESIGN | PHKINETICS |
| EIS | PROJMAN |
| FORECAST | QUERY |
| GRAPH | RUNEIS |
| HELP | SQC |
| IMAGE | XADX. |

Restriction If you specify FORECAST for *command-1*, you cannot use *windowing-command-n*.

windowing-command-n

specifies a valid windowing command or text editor command. Separate multiple commands with semicolons. These commands are processed in sequence. If you use a windowing command that impacts flow, such as the BYE command, it might delay or prohibit processing.

Restriction Do not use the *windowing-command-n* argument when you enter a command for an application that submits SAS statements or commands during initialization of the application, that is, during autoexec file initialization.

Details

The INITCMD system option suppresses the Log, Output, Program Editor, and Explorer windows when SAS starts so that application window is the first screen that you see. The suppressed windows do not appear, but you can activate them. You can use the ALTLOG option to direct log output for viewing. If windows are initiated by an autoexec file or the INITSTMT option, the window that is displayed by the INITCMD option is displayed last. When you exit an application that is invoked with the INITCMD option, your SAS session ends.

You can use the INITCMD option in a windowing environment only. Otherwise, the option is ignored and a warning message is issued. If *command-1* is not a valid command, the option is ignored and a warning message is issued.

The following SAS execution mode invocation options, in order, have precedence over this option:

- 1 OBJECTSERVER.
- 2 DMR

3 SYSIN

If you specify INITCMD with another execution mode invocation option of equal precedence, SAS uses only the last option listed. See [“Order of Precedence” on page 23](#) for more information about invocation option precedence.

Example

```
INITCMD "AFA c=mylib.myapp.primary.frame dsname=a.b"
INITCMD "ASSIST; FSVIEW SASUSER.CLASS"
```

INITSTMT= System Option

Specifies a SAS statement to execute after any statements in the AUTOEXEC= file and before any statements from the SYSIN= file.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Alias: | IS= |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | INITSTMT= System Option under Windows |

Syntax

INITSTMT=*'statement'*

Syntax Description

'statement'

specifies any SAS statement or statements.

Requirement *statement* must be able to run on a step boundary.

Comparisons

INITSTMT= specifies the SAS statements to be executed at SAS initialization, and the TERMSTMT= system option specifies the SAS statements to be executed at SAS termination.

Example

Here is an example of using this option on UNIX:

```
sas -initstmt '%put you have used the initstmt; data x; x=1;
run;'
```

See Also

System Options:

- [“TERMSTMT= System Option” on page 361](#)

INSERT= System Option

Inserts the specified value as the first value of the specified system option.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: For the syntax to use when you start SAS, see the documentation for your operating environment:

[“INSERT System Option: UNIX” in SAS Companion for UNIX Environments](#)

[“INSERT: Windows” in SAS Companion for Windows](#)

[“INSERT= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

INSERT=(*system-option-1=argument-1* <*system-option-2=argument-2* ...>)

Syntax Description

system-option

in SAS 9.4, can be AUTOEXEC, CMPLIB, FMTSEARCH, HELPLOC, MAPS, MAPSGFK, MSG, SASAUTOS, SASHELP, SASSCRIPT, or SET.

In SAS Viya, can be AUTOEXEC, CMPLIB, FMTSEARCH, MSG, SASAUTOS, SASHELP, SASSCRIPT, or SET.

Note Some of these options are available only when SAS starts. These options can be specified in the INSERT= option only when the INSERT= option is specified in a configuration file or a SAS command.

argument

specifies a new value that you want as the first value of *system-option*.

argument can be any value that could be specified for *system-option* if *system-option* is set using the OPTIONS statement.

Restriction The arguments for the FMTSEARCH system option apply only to format catalogs. The arguments do not apply to CAS format libraries. For information about the search order for a CAS format library, see [CAS Statement FMTSEARCH= option](#).

Details

If you specify a new value for the AUTOEXEC, CMPLIB, FMTSEARCH, HELPLOC, MAPS, MAPSGFK, MSG, SASAUTOS, SASHELP, SASSCRIPT, or SET system options, the new value replaces the value of the option. Instead of replacing the value, you can use the INSERT= system option to add an additional value to the option as the first value of the option.

For a list of system options that the INSERT= system option and the APPEND= system option support, including the system options that can be used when SAS starts, submit the following OPTIONS procedure:

```
proc options listinsertappend;  
run;
```

Comparisons

The INSERT= system option adds a new value to the beginning of the current value of the AUTOEXEC, CMPLIB, FMTSEARCH, HELPLOC, MAPS, MSG, SASAUTOS, SASHELP, SASSCRIPT, or SET system options. The APPEND= system option adds a new value to the end of one of these system options.

Example

The following table shows the results of adding a value to the beginning of the FMTSEARCH= option value:

| Current FMTSEARCH= Value | Value of INSERT= System Option | New FMTSEARCH= Value |
|--------------------------|--------------------------------|------------------------|
| (WORK LIBRARY) | (fmtsearch=(abc def)) | (ABC DEF WORK LIBRARY) |

See Also

- [“Changing an Option Value By Using the INSERT and APPEND System Options” on page 17](#)

System Options:

- [“APPEND= System Option” on page 77](#)
- [“APPEND System Option: UNIX” in SAS Companion for UNIX Environments](#)
- [“APPEND: Windows” in SAS Companion for Windows](#)
- [“APPEND= System Option: z/OS” in SAS Companion for z/OS](#)

CAS Statement Options:

- [CAS Statement FMTSEARCH= option](#)
- [CAS Statement LISTFMTSEARCH= option](#)

INTERVALDS= System Option

Specifies one or more interval name-value pairs, where the value is a SAS data set that contains user-defined intervals. The intervals can be used as arguments to the INTNX and INTCK functions.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS GROUP= INPUTCONTROL

Requirement: The set of interval-value pairs must be enclosed in parentheses.

Note: This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8.

Syntax

INTERVALDS=(*interval-1=libref.dataset-name-1*
<*interval-2=libref.dataset-name-2 ...*>)

Syntax Description

interval

specifies the name of an interval. The value of *interval* is used to represent the set of intervals that is specified in *libref.dataset-name*.

Restriction *interval* cannot be a reserved SAS name.

Requirement When you specify multiple intervals, the interval name must not be the same as another interval.

libref.dataset-name

specifies the libref and the data set name of the file that contains the user-defined intervals.

EXTEND=*interval-type*

specifies an interval that is used to extend the dates for the Begin variable when you use the INTNX function. The following list contains valid values for *interval-type*:

| | | |
|------------|-------------|---------|
| MINUTE | WEEJDAYdddW | R454MON |
| SECOND | TENDAY | R544MON |
| HOUR | SEMIMONTH | R445QTR |
| DAY | MONTH | R454QTR |
| WEEK | QTR | R544QTR |
| WEEKV | SEMIYEAR | R44YR |
| WEEKDAY | YEAR | R454YR |
| WEEKDAYdW | YEARV | R544YR |
| WEEKDAYddW | R445MON | |

For a description of the intervals, see “Intervals Used with Date and Time Functions” in *SAS Language Reference: Concepts* and “Calendar Intervals Used in the Retail Industry” in *SAS Language Reference: Concepts*.

ALIGN=*alignment*

specifies an alignment value to create the extended dates for the Begin variable when you specify the EXTEND= option. The following are valid alignment values:

BEGINNING

specifies that the extended date or time value is aligned to the beginning of the interval.

Alias **B**

MIDDLE

specifies that the extended date or time value is aligned to the midpoint of the interval, which is the average of the beginning and ending alignment values.

Alias **M**

END

specifies that the extended date or time value is aligned to the end of the interval.

Alias **E**

SAME

specifies that the extended date value has the same alignment as the input date value.

Aliases **S**

SAMEDAY

See [SAME Alignment](#)

Details

The INTCK and INTNX functions specify *interval* as the interval name in the function argument list to reference a data set that names user-defined intervals.

The same *libref.dataset-name* can be assigned to different intervals. An error occurs when more than one *interval* of the same name is defined for the INTERVALDS system option.

Example

This example assigns a single data set to an interval on the SAS command line or in a configuration file.

```
-intervals (mycompany=mycompany.storeHours)
```

The next example assigns multiple intervals using the OPTIONS statement. The intervals *subsid1* and *subsid2* are assigned the same libref and data set name.

```
options intervals=(mycompany=mycompany.storeHours
  subsid1=subsid.storeHours subsid2=subsid.storeHours);
```

See Also

- “Custom Time Intervals” in the *SAS/ETS User’s Guide*
- “About Date and Time Intervals” in *SAS Language Reference: Concepts*

Functions:

- “INTCK Function” in *SAS Functions and CALL Routines: Reference*
- “INTNX Function” in *SAS Functions and CALL Routines: Reference*

INVALIDDATA= System Option

Specifies the value that SAS assigns to a variable when invalid numeric data is encountered.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Input Control: Data Processing |
| PROC OPTIONS GROUP= | INPUTCONTROL |
| Default: | The shipped default is a period (.). |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

INVALIDDATA=*character*

Syntax Description

character

specifies the value to be assigned, which can be a letter (A through Z, a through z), a period (.), or an underscore (_).

Details

The INVALIDDATA= system option specifies the value that SAS is to assign to a variable when invalid numeric data is read with an INPUT statement or the INPUT function.

JPEGQUALITY= System Option

Specifies the JPEG quality factor that determines the ratio of image quality to the level of compression for JPEG files produced by the SAS/GRAPH JPEG device driver.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is 75. |
| Notes: | This option is ignored when the DEVICE graphics option is not set to JPEG. This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

JPEGQUALITY=*n* | MIN | MAX

Syntax Description

n

specifies an integer that indicates the JPEG quality factor. The quality of the image increases with larger numbers and decreases with smaller numbers. JPEG files are compressed less for higher-quality images. Therefore, the JPEG file size is greater for higher-quality images. For example, $n=100$ is completely uncompressed and the image quality is highest. When $n=0$, the image is produced at the maximum compression level with the lowest quality.

Range 0–100

MIN

specifies to set the JPEG quality factor to 0, which has the lowest image quality and the greatest file compression.

MAX

specifies to set the JPEG quality factor to 100, which has the highest image quality with no file compression.

Details

The optimal quality value varies for each image. The default value of 75 is a good starting value that you can use to optimize the quality of an image within a compressed file. You can increase or decrease the value until you are satisfied with the image quality. Values between 50 and 95 produce the best quality images.

When the value is 24 or less, some viewers might not be able to display the JPEG file. When you create such a file, SAS writes the following caution to the SAS log:

Caution: quantization tables are too coarse for baseline JPEG.

See Also

[“Using Graphics Devices” in SAS/GRAPH: Reference](#)

LABEL System Option

Specifies whether SAS procedures can use labels with variables.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LISTCONTROL |
| Default: | The shipped default is LABEL. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

LABEL | NOLABEL

Syntax Description

LABEL

specifies that SAS procedures can use labels with variables. The LABEL system option must be in effect before the LABEL option of any procedure can be used.

NOLABEL

specifies that SAS procedures cannot use labels with variables. If NOLABEL is specified, the LABEL option of a procedure is ignored.

Details

A *label* is a string of up to 256 characters that can be written by certain procedures in place of the variable's name.

See Also

Data Set Options:

- [“LABEL= Data Set Option” in SAS Data Set Options: Reference](#)

Statements:

- [“ODS PROCLABEL” in SAS Output Delivery System: User's Guide](#)

LABELCHKPT System Option

Specifies whether checkpoint-restart data for labeled code sections is to be recorded for batch programs.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Error Handling

PROC OPTIONS
GROUP= ERRORHANDLING

Default: The shipped default is NOLABELCHKPT.

Restrictions: The LABELCHKPT system option can be specified only if the STEPCHKPT system option is not specified when SAS starts.

Checkpoint mode is not valid for batch programs that contain the DM statement, which submits commands to SAS. If checkpoint mode is enabled and SAS encounters a DM statement, checkpoint mode is disabled, the checkpoint catalog entry is deleted, and a warning is written to the SAS log.

Requirement: This option can be used only in batch mode.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

LABELCHKPT | **NOLABELCHKPT**

Syntax Description

LABELCHKPT

enables checkpoint mode for labeled code sections, which specifies to record checkpoint-restart data.

NOLABELCHKPT

disables checkpoint mode for labeled code sections, which specifies not to record checkpoint-restart data.

Details

Using the LABELCHKPT system option puts SAS in checkpoint mode for SAS programs that run in batch. Each time a label is encountered, SAS records data in a checkpoint-restart library. If a program terminates without completing, the program can be resubmitted, beginning at the labeled code section that was executing when the program terminated.

To ensure that the checkpoint-restart data is accurate, specify the ERRORCHECK STRICT option and set the ERRORABEND option. By setting these options, SAS terminates for most errors.

SAS can run in checkpoint-restart mode either for labeled code sections or for DATA and PROC steps, but not both.

Comparisons

The LABELCHKPT system option enables checkpoint mode for labeled code sections in batch programs that terminate before completing. Execution resumes at the labeled code section that was executing when the failure occurred.

The STEPCHKPT system option enables checkpoint mode for DATA and PROC steps in batch programs that terminate before completing. Execution resumes with the DATA or PROC step that was executing when the failure occurred.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

Statements:

- [“CHECKPOINT EXECUTE_ALWAYS Statement” in SAS Global Statements: Reference](#)

System Options:

- [“CHKPTCLEAN System Option” on page 109](#)
- [“LABELCHKPTLIB= System Option” on page 226](#)

- [“LABELRESTART System Option” on page 228](#)
- [“STEPCHKPT System Option” on page 324](#)

LABELCHKPTLIB= System Option

Specifies the libref of the library where the checkpoint-restart data is saved for labeled code sections.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is Work. |
| Restriction: | The LABELCHKPTLIB= system option can be specified only if the STEPCHKPT system option is not specified when SAS starts. |
| Requirement: | This option can be used only in batch mode. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

LABELCHKPTLIB=*libref*

Syntax Description

libref

specifies the libref that identifies the library where the checkpoint-restart data is saved.

Requirement The LIBNAME statement that identifies the checkpoint-restart library must use the BASE engine and be the first statement in the batch program.

Details

When the LABELCHKPT system option is specified, checkpoint-restart data for labeled code sections in batch programs is saved in the libref that is specified in the LABELCHKPTLIB= system option. If no libref is specified, SAS uses the Work

library to save checkpoint data. The LIBNAME statement that defines the libref must be the first statement in the batch program.

If the Work library is used to save checkpoint data, the NOWORKTERM and NOWORKINIT system options must be specified. When you set these options, the checkpoint-restart data is available when the batch program is resubmitted. These two options ensure that the Work library is saved when SAS ends and is restored when SAS starts. If the NOWORKTERM option is not specified, the Work library is deleted at the end of the SAS session and the checkpoint-restart data is lost. If the NOWORKINIT option is not specified, a new Work library is created when SAS starts, and again the checkpoint-restart data is lost.

The LABELCHKPTLIB= option must be specified for any SAS session that accesses checkpoint-restart data that is collected at label points and that is not saved to the Work library.

Operating Environment Information: When the Work library resides in a UNIX directory in UNIX or z/OS operating environments and you want to run the CLEANWORK utility, the Work library directory and its contents are deleted when the utility is run after the SAS session ends. When you run SAS in batch mode in the z/OS operating environment, the Work library is usually assigned to a temporary data set that is deleted at the end of the SAS job. To preserve the checkpoint-restart data in these cases, specify a permanent library as the value for the STEPCHKPTLIB option.

Comparisons

When the LABELCKPT system option is set, the library that is specified by the LABELCHKPTLIB system option names the library where the checkpoint-restart data is saved for labeled code sections. When the LABELRESTART system option is set, the library that is specified by the LABELCHKPTLIB system option names the library where the checkpoint-restart data is used to resume execution of labeled code sections.

When the STEPCHKPT system option is set, the library that is specified by the STEPCHKPTLIB system option names the library where the checkpoint-restart data is saved for DATA and PROC steps. When the STEPRESTART system option is set, the library that is specified by the STEPCHKPTLIB system option names the library where the checkpoint-restart data is used to resume execution of DATA and PROC steps.

See Also

- [“Error Processing in SAS” in SAS Programmer's Guide: Essentials](#)

Statements:

- [“CHECKPOINT EXECUTE_ALWAYS Statement” in SAS Global Statements: Reference](#)

System Options:

- “LABELCHKPT System Option” on page 224
- “LABELRESTART System Option” on page 228
- “STEPCHKPT System Option” on page 324
- “WORKINIT System Option” on page 404
- “WORKTERM System Option” on page 405

LABELRESTART System Option

Specifies whether to execute a batch program by using checkpoint-restart data for data collected at labeled code sections.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is NOLABELRESTART. |
| Restriction: | The LABELRESTART system option can be specified only if the STEPCHKPT system option is not specified when SAS starts. |
| Requirement: | This option can be used only in batch mode. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

LABELRESTART | **NOLABELRESTART**

Syntax Description

LABELRESTART

enables restart mode, which specifies to execute the batch program by using the checkpoint-restart data.

NOLABELRESTART

disables restart mode, which specifies not to execute the batch program by using checkpoint-restart data.

Details

You specify the LABELRESTART option when you want to resubmit a batch program that ran in checkpoint mode for labeled code sections and terminated before the batch program completed. When you resubmit the batch program, SAS determines from the checkpoint data the label that was executing when the program terminated. The program resumes executing the batch program at that label.

Comparisons

When you specify the LABELRESTART option, SAS uses the checkpoint-restart data for labeled code sections to resume execution of batch programs.

When you specify the STEPSTART option, SAS uses the checkpoint-restart data for DATA and PROC steps to resume execution of batch programs.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

Statements:

- [“CHECKPOINT EXECUTE_ALWAYS Statement” in SAS Global Statements: Reference](#)

System Options:

- [“CHKPTCLEAN System Option” on page 109](#)
- [“LABELCHKPT System Option” on page 224](#)
- [“LABELCHKPTLIB= System Option” on page 226](#)
- [“STEPCHKPT System Option” on page 324](#)
- [“STEPRESTART System Option” on page 328](#)

LAST = System Option

Specifies the most recently created data set.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS SASFILES
GROUP=

Default: The shipped default is `_NULL_`.

Restriction: `_LAST_` is not allowed with data set options.

Notes: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

NOTE: `_LAST_` is the name of the last data set created in your session. When the `BASE=` data set does not exist and PROC APPEND creates it, PROC APPEND sets `_LAST_` to the name of the `BASE=` data set.

Syntax

`_LAST_=SAS-data-set`

Syntax Description

SAS-data-set

specifies a SAS data set name.

Restriction No data set options are allowed.

Tip Use *libref.membername* or *membername* syntax, not a string that is enclosed in quotation marks, to specify a SAS data set name. You can use quotation marks in the *libref.membername* or *membername* syntax if the *libref* or *member* name is associated with a SAS/ACCESS engine that supports member names with syntax that requires quoting or name literal (n-literal) specification. For more information, see [SAS/ACCESS for Relational Databases: Reference](#).

Details

By default, SAS automatically keeps track of the most recently created SAS data set. Use the `_LAST_` system option to override the default.

LEFTMARGIN= System Option

Specifies the print margin for the left side of the page.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS ODSPRINT
GROUP=

Default: The shipped default is 0.000 in.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

LEFTMARGIN=*margin-size*<*margin-unit*>

Syntax Description

margin-size

specifies the size of the left print margin.

Restriction The left margin should be small enough so that the left margin plus the right margin is less than the width of the paper.

Interaction Changing the value of this option might result in changes to the value of the LINESIZE= system option.

<*margin-unit*>

specifies the units for margin-size. The margin-unit can be *in* for inches or *cm* for centimeters. <*margin-unit*> is saved as part of the value of the LEFTMARGIN system option whether it is specified.

Default inches

Details

All margins have a minimum that is dependent on the printer and the paper size.

See Also

- [Universal Printing](#)
- [“Understanding ODS Destinations” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“BOTTOMMARGIN= System Option” on page 91](#)
- [“LINESIZE= System Option” on page 233](#)
- [“RIGHTMARGIN= System Option” on page 298](#)
- [“TOPMARGIN= System Option” on page 368](#)

LIMITPROCNOTES= System Option

Limits the number of notes that can be written to the SAS log by a SAS procedure.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: SAS Log |
| PROC OPTIONS GROUP= | LOGCONTROL |
| Default: | The shipped default is 2147483647 (MAX). |
| Range: | 100 to 2147483647 |
| Notes: | Support for LIMITPROCNOTES= was added in the September 2023 update for SAS 9.4M6 , in the November 2023 update for SAS 9.4M7 , and in the December 2023 update for SAS 9.4M8 . This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

LIMITPROCNOTES=MIN | MAX | *note-count*

Syntax Description

MIN

sets the number of notes written to the SAS log by a SAS procedure to 100.

MAX

sets the number of notes written to the SAS log by a SAS procedure to 2147483647.

note-count

sets the number of notes written to the SAS log by a SAS procedure. This value must be within the valid range of 100 to 2147483647.

Example If `limitprocnotes=1500` and a procedure generates more than 1500 notes, the following notes are written to the SAS log:

```
NOTE: The procedure generated more than 1500 NOTES.  
A total of ##### NOTES were suppressed.
```

Details

If LIMITPROCNOTES is specified, notes generated by the PROC and all TITLE notes are suppressed. Only notes generated by procedures are included in the count. TITLE notes are not included in the limit set by LIMITPROCNOTES because TITLE notes are not generated by procedures.

See Also

- [“The SAS Log” in SAS Programmer’s Guide: Essentials](#)
- [“MSGLEVEL= System Option” on page 243](#)

LINESIZE= System Option

Specifies the line size for the SAS log and for SAS procedure output.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Log and Procedure Output Control: SAS Log and Procedure Output Log and Procedure Output Control: SAS Log Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LOG_LISTCONTROL LISTCONTROL LOGCONTROL |
| Alias: | LS= |
| Default: | The shipped default is 78. When SAS starts, the value is set based on the execution mode. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “LINESIZE System Option: UNIX” in SAS Companion for UNIX Environments , “LINESIZE: Windows” in SAS Companion for Windows , “LINESIZE= System Option: z/OS” in SAS Companion for z/OS |

Syntax

LINESIZE=*n* | MIN | MAX | hexX

Syntax Description

n

specifies the number of characters in a line.

MIN

sets the number of characters in a line to 64.

MAX

sets the number of characters in a line to 256.

hexX

specifies the number of characters in a line as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value **0FAx** sets the line size of the SAS procedure output to 250.

Details

The `LINESIZE=` system option specifies the line size (printer line width) in characters for the SAS log and the SAS output that are used by the DATA step and procedures. The `LINESIZE=` system option affects the following output:

- the Output window for the ODS LISTING destination
- output produced for an ODS markup destination by a DATA step where the FILE statement destination is PRINT (the FILE PRINT ODS statement is not affected by the `LINESIZE=` system option)
- procedures that produce only characters that cannot be scaled, such as the PLOT procedure, the CALENDAR procedure, the TIMEPLOT procedure, the FORMS procedure, and the CHART procedure

See Also

“The SAS Log” in *SAS Programmer’s Guide: Essentials*

LOGPARM= System Option

Specifies when SAS log files are opened, closed, and, in conjunction with the `LOG=` system option, how they are named.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS GROUP= LOGCONTROL

- Default: The shipped default is WRITE=BUFFERED ROLLOVER=NONE OPEN=REPLACE.
- Restriction: LOGPARM= is valid only in line mode and in batch mode, with one exception. In the windowing environment, you can specify LOGPARM=WRITE=IMMEDIATE to write contents to a file that is specified by the ALTLOG= system option.
- Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- See: [“LOGPARM= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

LOGPARM="<OPEN= APPEND | REPLACE | REPLACEOLD>
 < ROLLOVER= AUTO | NONE | SESSION | n | nK | nM | nG>
 < WRITE= BUFFERED | IMMEDIATE> "

Note: You can also use the KB, MB, and GB notations.

Syntax Description

OPEN=APPEND | REPLACE | REPLACEOLD

when a log file already exists, specifies how the contents of the existing file are treated.

APPEND

appends the log when opening an existing file. If the file does not already exist, a new file is created.

REPLACE

overwrites the current contents when opening an existing file. If the file does not already exist, a new file is created.

REPLACEOLD

replaces files that are more than one day old. If the file does not already exist, a new file is created.

Default REPLACE

z/OS specifics See the SAS documentation for your operating environment for limitations on the use of OPEN=REPLACEOLD.

ROLLOVER=AUTO | NONE | SESSION | n | nK | nM | nG

specifies when or if the SAS log “rolls over”. That is, when the current log is closed and a new one is opened.

AUTO

causes an automatic “rollover” of the log when the directives in the value of the LOG= option change, that is, the current log is closed and a new log file is opened.

Restriction Rollover does not occur more often than once a minute.

Interactions Rollover is triggered by a change in the value of the LOG= option.

The name of the new log file is determined by the value of the LOG= system option. If LOG= does not contain a directive, however, the name would never change, so the log would never roll over, even when ROLLOVER=AUTO.

NONE

specifies that rollover does not occur, even when a change occurs in the name that is specified with the LOG= option.

Interaction If the LOG= value contains any directives, they do not resolve. For example, if Log="#b.log" is specified, the directive "#" does not resolve, and the name of the log file remains "#b.log".

SESSION

at the beginning of each SAS session, opens the log file, resolves directives that are specified in the LOG= system option, and uses its resolved value to name the new log file. During the course of the session, no rollover is performed.

n

nK

nM

nG

causes the log to rollover when the log reaches a specific size, stated in multiples of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); or 1,073,741,824 (gigabytes). When the log reaches the specified size, it is closed and renamed by appending "old" to the log filename, and if it exists, the lock file for a server log. For example, a filename of mylog.log would be renamed mylogold.log. A new log file is opened using the name specified in the LOG= option.

Restriction The minimum log file size is 10K.

Interaction When a rollover occurs because of size and the LOG= value contains directives, the directives do not resolve. For example, if Log="#b.log" is specified, the directive "#" does not resolve, and the name of the log file remains "#b.log".

z/OS specifics ROLLOVER=*n* is not supported for logs in z/OS data sets. ROLLOVER=*n* is supported for logs in UNIX File Systems (UFS).

Note If you use ROLLOVER=*n* to roll over your files, the OPEN= parameter is ignored, and the initial log file is opened with OPEN=APPEND.

See ["Examples: Rolling Over the SAS Log" in SAS Programmer's Guide: Essentials](#)

CAUTION **Old log files can be overwritten.** SAS maintains only one old log file with the same name as the open log file. If rollover occurs more than once, the old log file is overwritten.

Default NONE

See [“LOG System Option: UNIX” in SAS Companion for UNIX Environments](#)

[“LOG: Windows” in SAS Companion for Windows](#)

[“LOG= System Option: z/OS” in SAS Companion for z/OS](#)

WRITE=BUFFERED | IMMEDIATE

specifies when content is written to the SAS log.

BUFFERED

writes content to the SAS log only when a buffer is full in order to increase efficiency.

IMMEDIATE

writes to the SAS log each time that statements are submitted that produce content for the SAS log. SAS does no buffering of log messages.

Interaction This argument is valid in the windowing environment when SAS is started with the ALTLOG= system option. The contents are written to the file that is specified by the ALTLOG= option and to the SAS log.

Default BUFFERED

Windows specifics The buffered log contents are written periodically, using an interval that is specified by SAS.

Details

The LOGPARM= system option controls the opening and closing of SAS log files when SAS is operating in batch mode or in line mode. This option also controls the naming of new log files, in conjunction with the LOG= system option and the use of directives in the value of LOG=.

Using directives in the value of the LOG= system option enables you to control when logs are open and closed and how they are named, based on actual time events, such as time, month, and day of week.

Operating Environment Information: Under the Windows and UNIX operating environments, you can begin directives with either the % symbol or the # symbol, and use both symbols in the same directive. For example, this log specification uses both the % and # symbols: -log=mylog%b#C.log. Under z/OS, begin directives only with the # symbol. For example, this log specification uses only the # symbol: -log=mylog#b#c.log.

The following table contains a list of directives that are valid in LOG= values:

Table 4.3 Directives for Controlling the Name of SAS Log Files

| Directive | Description | Range |
|-----------------------|--|---|
| %a or #a | Locale's abbreviated day of week | Sun–Sat |
| %A or #A | Locale's full day of week | Sunday–Saturday |
| %b or #b | Local's abbreviated month | Jan–Dec |
| %B or #B | Locale's full month | January–December |
| %C or #C | Century number | 00–99 |
| %d or #d | Day of the month | 01–31 |
| %H or #H | Hour | 00–23 |
| %j or #j | Julian day | 001–366 |
| %l or #l ¹ | User name | alphanumeric string that is the name of the user that started SAS |
| %M or #M | Minutes | 00–59 |
| %m or #m | Month number | 01–12 |
| %n or #n | Current system node name (without domain name) | none |
| %p or #p ¹ | Process ID | alphanumeric string that is the SAS session process ID |
| %P or #P | Sysin filename (without the .sas extension) | none |
| %s or #s | Seconds | 00–59 |
| %u or #u | Day of week | 1= Monday–7=Sunday |
| %v or #v ¹ | Unique identifier | alphanumeric string that creates a log filename that does not currently exist |
| %w or #w | Day of week | 0=Sunday–6=Saturday |

| Directive | Description | Range |
|-----------|--|-----------|
| %W or #W | Week number (Monday as first day; all days in new year preceding first Monday are in week 00) | 00–53 |
| %y or #y | Year without century | 00–99 |
| %Y or #Y | Full year | 1970–9999 |
| %% | Percent escape writes a single percent sign in the log filename. | % |
| ## | Pound escape writes a single number sign in the log filename. | # |

¹ Because %v, %l, and %p are not a time-based format, the log filename never changes after it has been generated. Therefore, the log never rolls over. In these situations, specifying ROLLOVER=AUTO is equivalent to specifying ROLLOVER=SESSION.

Operating Environment Information: See [SAS Companion for z/OS](#) for limitations on the length of the log filename under z/OS.

Note: Directives that you specify in the LOG= system option are not the same as the conversion characters that you specify to format logging facility logs. Directives specify a format for a log name. Conversion characters specify a format for log messages. Directives and conversion characters that use the same characters might function differently.

Note: If you start SAS in batch mode or server mode and the LOGCONFIGLOC= option is specified, logging is done by the SAS logging facility. The traditional SAS log option LOGPARM= is ignored. The traditional SAS log option LOG= is honored only when the %S{App.Log} conversion character is specified in the logging configuration file. For more information, see [“The SAS Logging Facility” in SAS Logging: Configuration and Programming Reference](#).

Example

Operating Environment Information: The LOGPARM= system option is executed when SAS is invoked. When you invoke SAS at your site, the form of the syntax is specific to your operating environment. See the SAS documentation for your operating environment for details.

Rolling over the log at a certain time and using directives to name the log according to the time:

If this command is submitted at 9:43 AM, this example creates a log file called test0943.log, and the log rolls over each time the log filename changes. In this example, at 9:44 AM, the test0943.log file is closed, and the test0944.log file is opened.

```
sas -log "test%H%M.log" -logparm "rollover=auto"
```

Preventing log rollover but using directives to name the log:

For a SAS session that begins at 9:34 AM, this example creates a log file named test0934.log, and prevents the log file from rolling over:

```
sas -log "test%H%M.log" -logparm "rollover=session"
```

Preventing log rollover and preventing the resolution of directives:

This example creates a log file named test%H%M.log, ignores the directives, and prevents the log file from rolling over during the session:

```
sas -log "test%H%M.log" -logparm "rollover=none"
```

Creating log files with unique identifiers:

This example uses a unique identifier to create a log file with a unique name:

```
sas -log "test%v.log" -logparm "rollover=session"
```

SAS replaces the directive %v with *process_IDv*, where *process_ID* is a numeric process identifier that is determined by the operating system and *n* is an integer number, starting with 1. The letter v that is between *process_ID* and *n* is always a lowercase letter.

For this example, *process_ID* is 3755. If the file does not already exist, SAS creates a log file with the name test3755v1.log. If test3755v1.log does exist, SAS attempts to create a log file by incrementing *n* by 1, and this process continues until SAS can generate a log file. For example, if the file test3755v1.log exists, SAS attempts to create the file test3755v2.log.

Naming a log file by the user that started SAS:

This example creates a log filename that contains the user name that started the SAS session:

```
sas -log "%1.log" -logparm "rollover=session";
```

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

LRECL= System Option

Specifies the default logical record length to use for reading and writing external files.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:

Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: External Files

PROC OPTIONS
GROUP= EXTFILES

Default: The shipped default is 32767.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

LRECL=*n* | *nK* | *hexX* | MIN | MAX

Note: You can also use the KB syntax notation.

Syntax Description

n

specifies the logical record length in multiples of 1 (bytes) or 1,024 (kilobytes). For example, a value of 32 specifies 32 bytes, and a value of 16k specifies 16,384 bytes.

Default If you are using fixed length records (RECFM=F), the default value for LRECL is 256.

Range 1–32767

Restriction A value of 32K is not valid. It is 1 over the maximum allowed.

hexX

specifies the logical record length as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx sets the logical record length to 45 characters.

MIN

specifies a logical record length of 1.

MAX

specifies a logical record length of 32,767.

Details

The logical record length for reading or writing external files is first determined by the LRECL= option in the access method statement, function, or command that is used to read or write an individual file, or the DDName value in the z/OS operating environment. If the logical record length is not specified by any of these means, SAS uses the value that is specified by the LRECL= system option.

Use a value for the LRECL= system option that is not an arbitrary large value. Large values for this option can result in excessive use of memory, which can degrade performance.

z/OS Specifics: The LRECL= system option does not apply when reading or writing native z/OS files.

MERGENOBY System Option

Specifies the type of message that is issued when MERGE processing occurs without an associated BY statement.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is NOWARN.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

MERGENOBY= [NOWARN](#) | [WARN](#) | [ERROR](#)

Syntax Description

NOWARN

specifies that no warning message is issued.

WARN

specifies that a warning message is issued.

ERROR

specifies that an error message is issued.

MISSING= System Option

Specifies the character to print for missing numeric values.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:

Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

| | |
|---------------------|---|
| Categories: | Log and Procedure Output Control: SAS Log and Procedure Output Log and Procedure Output Control: SAS Log Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LOG_LISTCONTROL LISTCONTROL LOGCONTROL |
| Default: | The shipped default is a period (.). |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

MISSING=<'>*character*<'>

Syntax Description

character

specifies the value to be printed. The value can be any character. Single or double quotation marks are optional.

Restriction '00'x is not a valid value for *character*.

Details

The MISSING= system option does not apply to special missing values such as .A and .Z.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

MSGLEVEL= System Option

Specifies the level of detail in messages that are written to the SAS log.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:

Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS
GROUP= LOGCONTROL

Default: The shipped default is N.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

MSGLEVEL=N | I

Syntax Description

N

specifies to print notes, warnings, CEDA message, and error messages only.

I

specifies to print additional notes that pertain to index usage, merge processing, sort utilities, data type conversion, execution in CAS, and Hadoop MapReduce jobs along with standard notes, warnings, CEDA messages, and error messages.

Notes Starting in SAS 9.4M2, the I argument prints additional information for Hadoop MapReduce jobs.

Starting in SAS 9.4M5, the I argument prints additional information about running a DATA step and PROC COPY on the CAS server, and character conversion from VARCHAR to CHAR.

Details

Some of the conditions under which the MSGLEVEL= system option applies are as follows:

- If MSGLEVEL=I, SAS writes informative messages to the SAS log about index processing. In general, when a WHERE expression is executed for a data set with indexes, the following information appears in the SAS log:
 - if an index is used, a message appears that indicates the name of the index
 - if an index is not used but one exists that could optimize at least one condition in the WHERE expression, messages provide suggestions that describe what you can do to influence SAS to use the index. For example, a message could suggest sorting the data set into index order or to specify more buffers.

- a message displays the IDXWHERE= or IDXNAME= data set option value if the setting can affect index processing.
- If MSGLEVEL=I, SAS writes a warning to the SAS log when a MERGE statement would cause variables to be overwritten.
- If MSGLEVEL=I, SAS writes a message that indicates which sorting product was used.
- If MSGLEVEL=I, SAS writes Hadoop MapReduce job information.
- For informative messages about queries by an application to a SAS/SHARE server, MSGLEVEL=I must be set for the SAS session where the SAS/SHARE server is running. The messages are written to the SAS log for the SAS session that runs the SAS/SHARE server.
- If MSGLEVEL=I and a data set is copied to a SAS library whose engine does not support the VARCHAR data type, SAS writes a message to the SAS log for each variable whose data type was converted from VARCHAR to CHAR.
If MSGLEVEL=N, one message is written to the SAS log to indicate that the data type for multiple variables was changed from VARCHAR to CHAR.
- If MSGLEVEL=I, SAS writes messages to the log about why a DATA step did not run in CAS.
- If MSGLEVEL=I and a COPY occurs on the CAS server, SAS writes an INFO message to the log indicating that the COPY ran in Cloud Analytic Services.

See Also

- [“The SAS Log” in SAS Programmer’s Guide: Essentials](#)
- [SAS Cloud Analytic Services: DATA Step Programming](#)

MULTENVAPPL System Option

Specifies whether the fonts that are available in a SAS application font selector window lists only the SAS fonts that are available in all operating environments.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS EXECMODES
GROUP=

Default: The shipped default is NOMULTENVAPPL.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

MULTENVAPPL | **NOMULTENVAPPL**

Syntax Description

MULTENVAPPL

specifies that an application font selector window lists only the SAS fonts.

NOMULTENVAPPL

specifies that an application font selector window lists only the operating environment fonts.

Details

The MULTENVAPPL system option enables applications that support a font selection window, such as SAS/AF, SAS/FSP, SAS/EIS, or SAS/GIS, to choose a SAS font that is supported in all operating environments. Choosing a SAS font ensures portability of applications across all operating environments.

When NOMULTENVAPPL is in effect, the application font selector window has available only the fonts that are specific to your operating environment. SAS might need to resize operating environment fonts, which could result in text that is difficult to read. If the application is ported to another environment and the font is not available, a font is selected by the operating environment.

NEWS= System Option

Specifies an external file that contains messages to be written to the SAS log, immediately after the header.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Categories: Environment Control: Files
Log and Procedure Output Control: SAS Log

PROC OPTIONS ENVFILES
GROUP= LOGCONTROL

Operating environment: Although the syntax is generally consistent with the command line syntax of your operating environment, it might include additional or alternate punctuation. For details, see the SAS documentation for your operating environment.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“NEWS System Option: UNIX” in SAS Companion for UNIX Environments](#),
[“NEWS: Windows” in SAS Companion for Windows](#)

Syntax

NEWS=*external-file*

Syntax Description

external-file

specifies an external file.

| | |
|-----------------------|--|
| Operating environment | A valid file specification and its syntax are specific to your operating environment. Although the syntax is generally consistent with the command line syntax of your operating environment, it might include additional or alternate punctuation. For details, see the SAS documentation for your operating environment. |
|-----------------------|--|

Details

The NEWS file can contain information for uses, including news items about SAS.

The contents of the NEWS file are written to the SAS log immediately after the SAS header.

See Also

“The SAS Log” in *SAS Programmer’s Guide: Essentials*

NOTES System Option

Specifies whether notes are written to the SAS log.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: SAS Log |
| PROC OPTIONS GROUP= | LOGCONTROL |
| Default: | The shipped default is NOTES. |
| Restriction: | SAS writes up to 100 notes to the SAS log for each DATA step or PROC step. Additional notes are suppressed from the SAS log and deleted. SAS writes a note to the log when 100 notes have been written for the current step. |

Interaction: SAS Studio sets this option to NOTES before and after each code submission. For more information, see [“System Options in SAS Studio” in SAS Studio: User’s Guide](#).

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

NOTES | NONOTES

Syntax Description

NOTES

specifies that SAS write notes to the SAS log.

NONOTES

specifies that SAS not write notes to the SAS log. NONOTES does not suppress error and warning messages.

Details

You must specify NOTES for SAS programs that you send to SAS for problem determination and resolution.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

NUMBER System Option

Specifies whether to print the page number in the title line of each page of SAS output.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Log and Procedure Output Control: SAS Log and Procedure Output
Log and Procedure Output Control: SAS Log
Log and Procedure Output Control: Procedure Output

PROC OPTIONS LOG_LISTCONTROL
GROUP= LISTCONTROL
LOGCONTROL

- Default: The shipped default is NUMBER.
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

NUMBER | NONNUMBER

Syntax Description

NUMBER

specifies that SAS print the page number on the first title line of each page of SAS output.

NONNUMBER

specifies that SAS not print the page number on the first title line of each page of SAS output.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

OBS= System Option

Specifies the observation that is used to determine the last observation to process, or specifies the last record to process.

- Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)
- Category: Files: SAS Files
- PROC OPTIONS GROUP= SASFILES
- Default: The shipped default is $2^{63}-1$, or approximately 9.2 quintillion.
- Interaction: SAS Studio sets OBS=MAX before each code submission. For more information, see [“System Options in SAS Studio” in SAS Studio: User’s Guide](#).
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- See: [“OBS= System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“OBS: Windows” in SAS Companion for Windows](#)

Syntax

OBS=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies a number to indicate when to stop processing, where *n* is an integer. Using one of the letter notations results in multiplying the integer by a specific value. That is, specifying K (kilo) multiplies the integer by 1,024; M (mega) multiplies by 1,048,576; G (giga) multiplies by 1,073,741,824; or T (tera) multiplies by 1,099,511,627,776. For example, a value of 20 specifies 20 observations or records, whereas a value of 3m specifies 3,145,728 observations or records.

hexX

specifies a number to indicate when to stop processing as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the hexadecimal value F8 must be specified as 0F8x in order to specify the decimal equivalent of 248. The value 2dx specifies the decimal equivalent of 45.

MIN

sets the number to 0 to indicate when to stop processing.

Interaction If OBS=0 and the NOREPLACE option is in effect, SAS can still take certain actions because it actually executes each DATA step and PROC step in the program, using no observations. For example, SAS executes procedures, such as CONTENTS and DATASETS, that process libraries or SAS data sets. External files are also opened and closed. Therefore, even if you specify OBS=0, when your program writes to an external file with a PUT statement, an end-of-file mark is written, and any existing data in the file is deleted.

MAX

sets the number to indicate when to stop processing to the maximum number of observations or records, up to the largest eight-byte, signed integer, which is $2^{63}-1$, or approximately 9.2 quintillion.

Details

OBS= tells SAS when to stop processing observations or records. To determine when to stop processing, SAS uses the value for OBS= in a formula that includes the value for OBS= and the value for FIRSTOBS=. The formula is

$$(\text{obs} - \text{firstobs}) + 1 = \text{results}$$

For example, if OBS=10 and FIRSTOBS=1 (which is the default for FIRSTOBS=), the result is 10 observations or records, that is $(10 - 1) + 1 = 10$. If OBS=10 and FIRSTOBS=2, the result is nine observations or records, that is, $(10 - 2) + 1 = 9$.

OBS= is valid for all steps during your current SAS session or until you change the setting.

You can also use OBS= to control analysis of SAS data sets in PROC steps.

If SAS is processing a raw data file, OBS= specifies the last line of data to read. SAS counts a line of input data as one observation, even if the raw data for several SAS data set observations is on a single line.

Comparisons

- An OBS= specification from either a data set option or an INFILE statement option takes precedence over the OBS= system option.
- As the OBS= system option specifies an ending point for processing, the FIRSTOBS= system option specifies a starting point. The two options are often used together to define a range of observations to be processed.

Examples

Example 1: Using OBS= to Specify When to Stop Processing Observations

This example illustrates the result of using OBS= to tell SAS when to stop processing observations. This example creates a SAS data set, executes the OPTIONS statement by specifying FIRSTOBS=2 and OBS=12, and executes the PRINT procedure. The result is 11 observations, that is, $(12 - 2) + 1 = 11$. The result of OBS= in this situation appears to be the observation number that SAS processes last, because the output starts with observation 2, and ends with observation 12, but this result is only a coincidence.

```
data Ages;
  input Name $ Age;
  datalines;
Miguel 53
Brad 27
Willie 69
Marc 50
Sylvia 40
Arun 25
Gary 40
Becky 51
Alma 39
Tom 62
Kris 66
Paul 60
Randy 43
Barbara 52
Virginia 72
run;
```

```
options firstobs=2 obs=12;  
proc print data=Ages;  
run;
```

Output 4.1 PROC PRINT Output Using OBS= and FIRSTOBS=

| Obs | Name | Age |
|-----|--------|-----|
| 2 | Brad | 27 |
| 3 | Willie | 69 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 6 | Arun | 25 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 11 | Kris | 66 |
| 12 | Paul | 60 |

Example 2: Using OBS= with WHERE Processing

This example illustrates the result of using OBS= along with WHERE processing. The example uses the data set that was created in Example 1, which contains 15 observations, and the example assumes a new SAS session with the defaults FIRSTOBS=1 and OBS=MAX.

First, here is the PRINT procedure with a WHERE statement. The subset of the data results in 12 observations:

```
proc print data=Ages;  
  where Age LT 65;  
run;
```

Output 4.2 PROC PRINT Output Using a WHERE Statement

| Obs | Name | Age |
|-----|---------|-----|
| 1 | Miguel | 53 |
| 2 | Brad | 27 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 6 | Arun | 25 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 12 | Paul | 60 |
| 13 | Randy | 43 |
| 14 | Barbara | 52 |

Executing the OPTIONS statement with OBS=10 and the PRINT procedure with the WHERE statement results in 10 observations, that is, $(10 - 1) + 1 = 10$. Note that with WHERE processing, SAS first subsets the data and then SAS applies OBS= to the subset.

```
options obs=10;
proc print data=Ages;
  where Age LT 65;
run;
```

Output 4.3 PROC PRINT Output Using a WHERE Statement and OBS=

| Obs | Name | Age |
|-----|--------|-----|
| 1 | Miguel | 53 |
| 2 | Brad | 27 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 6 | Arun | 25 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 12 | Paul | 60 |

The result of OBS= appears to be how many observations to process, because the output consists of 10 observations, ending with the observation number 12. However, the result is only a coincidence. If you apply FIRSTOBS=2 and OBS=10 to the subset, the result is nine observations, that is, $(10 - 2) + 1 = 9$. OBS= in this

situation is neither the observation number to end with nor how many observations to process; the value is used in the formula to determine when to stop processing.

```
options firstobs=2 obs=10;
proc print data=Ages;
  where Age LT 65;
run;
```

Output 4.4 PROC PRINT Output Using WHERE Statement, OBS=, and FIRSTOBS=

| Obs | Name | Age |
|-----|--------|-----|
| 2 | Brad | 27 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 6 | Arun | 25 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 12 | Paul | 60 |

Example 3: Using OBS= When Observations Are Deleted

This example illustrates the result of using OBS= for a data set that contains deleted observations. The example uses the data set that was created in Example 1, with observation 6 deleted. The example also assumes a new SAS session with the defaults FIRSTOBS=1 and OBS=MAX.

First, here is PROC PRINT output of the modified file:

```
options firstobs=1 obs=max nodate pageno=1;
proc print data=Ages;
run;
```

Output 4.5 PROC PRINT Output Showing Observation 6 Deleted

| Obs | Name | Age |
|-----|----------|-----|
| 1 | Miguel | 53 |
| 2 | Brad | 27 |
| 3 | Willie | 69 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 11 | Kris | 66 |
| 12 | Paul | 60 |
| 13 | Randy | 43 |
| 14 | Barbara | 52 |
| 15 | Virginia | 72 |

Executing the OPTIONS statement with OBS=12, then the PRINT procedure, results in 12 observations, that is, $(12 - 1) + 1 = 12$:

```
options obs=12;
proc print data=Ages;
run;
```

Output 4.6 PROC PRINT Output Using OBS=

| Obs | Name | Age |
|-----|--------|-----|
| 1 | Miguel | 53 |
| 2 | Brad | 27 |
| 3 | Willie | 69 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 11 | Kris | 66 |
| 12 | Paul | 60 |
| 13 | Randy | 43 |

The result of OBS= appears to be how many observations to process, because the output consists of 12 observations, ending with the observation number 13. However, if you apply FIRSTOBS=2 and OBS=12, the result is 11 observations, that is $(12 - 2) + 1 = 11$. OBS= in this situation is neither the observation number to end with nor how many observations to process; the value is used in the formula to determine when to stop processing.

```
options firstobs=2 obs=12;
proc print data=Ages;
run;
```

Output 4.7 PROC PRINT Output Using OBS= and FIRSTOBS=

| Obs | Name | Age |
|-----|--------|-----|
| 2 | Brad | 27 |
| 3 | Willie | 69 |
| 4 | Marc | 50 |
| 5 | Sylvia | 40 |
| 7 | Gary | 40 |
| 8 | Becky | 51 |
| 9 | Alma | 39 |
| 10 | Tom | 62 |
| 11 | Kris | 66 |
| 12 | Paul | 60 |
| 13 | Randy | 43 |

See Also

Data Set Options:

- [“FIRSTOBS= Data Set Option” in SAS Data Set Options: Reference](#)
- [“OBS= Data Set Option” in SAS Data Set Options: Reference](#)
- [“REPLACE= Data Set Option” in SAS Data Set Options: Reference](#)

System Options:

- [“FIRSTOBS= System Option” on page 185](#)

ORIENTATION= System Option

Specifies the paper orientation to use when printing to a printer.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is PORTRAIT. |
| Requirement: | The ORIENTATION= option is valid only for paper sizes that are defined in the SAS Registry. The option is ignored for custom paper sizes. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| Tip: | If the orientation of a PDF document is changed after the PDF destination is opened and before the PDF destination is closed, any setting for margins is taken from the OPTIONS statement in place before the ODS PDF FILE= statement. If no OPTIONS statement is used to explicitly set the margins, the margin settings are retrieved from the SAS registry. |

Syntax

ORIENTATION=[PORTRAIT](#) | [LANDSCAPE](#) | [REVERSEPORTRAIT](#) | [REVERSELANDSCAPE](#)

Syntax Description

PORTRAIT

specifies the paper orientation as portrait.

LANDSCAPE

specifies the paper orientation as landscape.

REVERSEPORTRAIT

specifies the paper orientation as reverse portrait. Use this value to control the top of the page relative to how the paper is inserted into the input paper tray. REVERSEPORTRAIT can be used when you print preprinted or punched forms.

REVERSELANDSCAPE

specifies the paper orientation as reverse landscape. Use this value to control the top of the page relative to how the paper is inserted into the input paper tray. REVERSELANDSCAPE can be used when you print preprinted or punched forms.

Details

Changing the value of this option might result in changes to the values of the portable `LINESIZE=` and `PAGESIZE=` system options.

You can change the orientation between document pages for the following output types:

- the LISTING destination
- the RTF destination
- a Universal Printing printer

Note: Changing the orientation between document pages is supported only for Universal Printing. It is not supported for Windows printing.

Use the OPTIONS statement between the steps that create output to change the page orientation.

Example

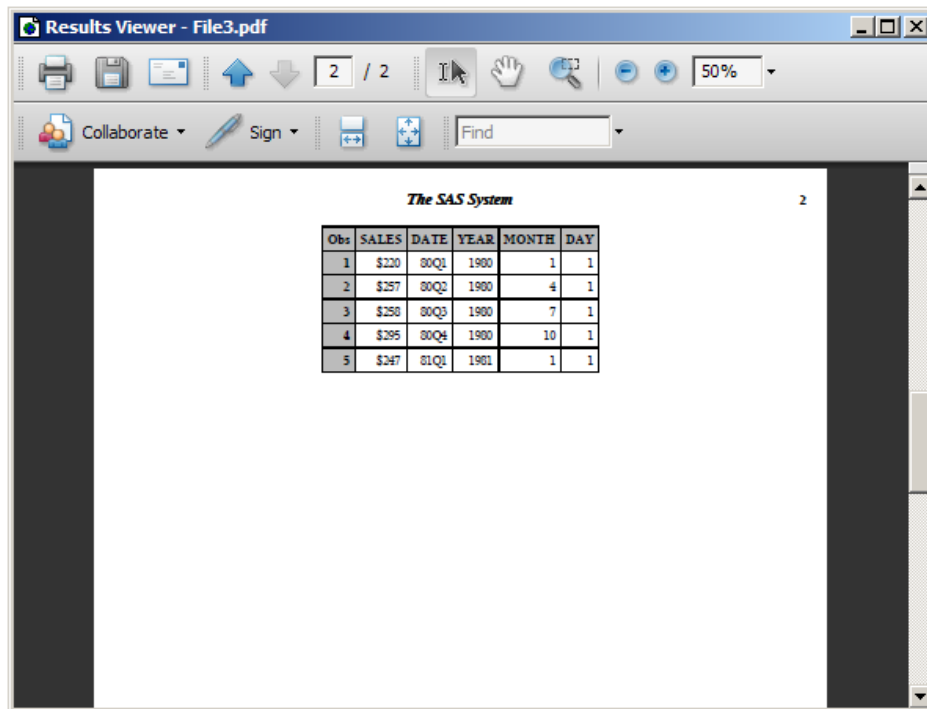
This example creates a PDF file with both portrait and landscape orientations.

```
options orientation=landscape obs=5;
ods pdf file="File3.pdf";
proc print data=sashelp.class;
run;
options orientation=portrait;
proc print data=sashelp.retail; run;
ods pdf close;
```

Here is the output:

Output 4.8 *The First Page of the PDF Has a Landscape Orientation*

| Obs | Name | Sex | Age | Height | Weight |
|-----|---------|-----|-----|--------|--------|
| 1 | Alfred | M | 14 | 69.0 | 112.5 |
| 2 | Alice | F | 13 | 56.5 | 84.0 |
| 3 | Barbara | F | 13 | 65.3 | 90.0 |
| 4 | Carol | F | 14 | 62.8 | 102.5 |
| 5 | Henry | M | 14 | 63.5 | 102.5 |

Output 4.9 The Second Page of the PDF Has a Portrait Orientation

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“LINESIZE= System Option” on page 233](#)
- [“PAGESIZE= System Option” on page 262](#)

OVP System Option

Specifies whether overprinting of error messages to make them bold, is enabled.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS LOGCONTROL
GROUP=

Default: The shipped default is NOOVP.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

OVP | **NOOVP**

Syntax Description

OVP

specifies that overprinting of error messages is enabled.

NOOVP

specifies that overprinting of error messages is disabled.

Details

When OVP is specified, error messages are emphasized when SAS overprints the error message two additional times with overprint characters.

When output is displayed to a monitor, OVP is overridden and is changed to NOOVP.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

PAGEBREAKINITIAL System Option

Specifies whether to begin the SAS log and procedure output files for the LISTING destination on a new page.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Categories: Log and Procedure Output Control: SAS Log and Procedure Output
Log and Procedure Output Control: SAS Log
Log and Procedure Output Control: Procedure Output

PROC OPTIONS LOG_LISTCONTROL
GROUP=

LISTCONTROL
LOGCONTROL

- Default: The shipped default is NOPAGEBREAKINITIAL.
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- See: [“PAGEBREAKINITIAL System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

PAGEBREAKINITIAL | **NOPAGEBREAKINITIAL**

Syntax Description

PAGEBREAKINITIAL

specifies to begin the SAS log and procedure output files on a new page.

NOPAGEBREAKINITIAL

specifies not to begin the SAS log and procedure output files on a new page.

Details

The PAGEBREAKINITIAL option inserts a page break at the start of the SAS log and procedure output files for the LISTING destination.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

PAGE NO= System Option

Resets the SAS output page number.

- Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)
- Category: Log and Procedure Output Control: Procedure Output
- PROC OPTIONS GROUP= LISTCONTROL
- Default: The shipped default is 1.

- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- See: PAGENO= System Option under [Windows](#)

Syntax

PAGENO=*n* | *nK* | *hexX* | MIN | MAX

Note: You can also use the KB syntax notation.

Syntax Description

n* | *nK

specifies the page number in multiples of 1 (*n*); 1,024 (*nK*). For example, a value of 8 sets the page number to 8 and a value of 3k sets the page number to 3,072.

hexX

specifies the page number as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx sets the page number to 45.

MIN

sets the page number to the minimum number, 1.

MAX

specifies the maximum page number as the largest signed, four-byte integer that is representable in your operating environment.

Details

The PAGENO= system option specifies a beginning page number for the next page of output that SAS produces. Use PAGENO= to reset page numbering during a SAS session.

PAGESIZE= System Option

Specifies the number of lines that compose a page of the SAS log and SAS output.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Log and Procedure Output Control: SAS Log and Procedure Output
 Log and Procedure Output Control: SAS Log
 Log and Procedure Output Control: Procedure Output

| | |
|---------------------|---|
| PROC OPTIONS GROUP= | LOG_LISTCONTROL LISTCONTROL LOGCONTROL |
| Alias: | PS= |
| Default: | The shipped default is 21. When SAS starts, the value is set based on the execution mode. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “PAGESIZE= System Option: UNIX” in SAS Companion for UNIX Environments “PAGESIZE: Windows” in SAS Companion for Windows “PAGESIZE= System Option: z/OS” in SAS Companion for z/OS |

Syntax

PAGESIZE=*n* | *nK* | *hexX* | MIN | MAX

Note: You can also use the KB syntax notation.

Syntax Description

n* | *nK

specifies the number of lines that compose a page in terms of lines (*n*) or units of 1,024 lines (*nK*).

hexX

specifies the number of lines that compose a page as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value **2dX** sets the number of lines that compose a page to 45.

MIN

sets the number of lines that compose a page to the minimum setting, 15.

MAX

sets the number of lines that compose a page to the maximum setting, 32,767.

Details

The PAGESIZE= system option affects the following output:

- the Output window for the ODS LISTING destination
- the SAS log in batch and non-interactive modes
- the ODS markup destinations when the PRINT option is used in the FILE statement in a DATA step (the FILE PRINT ODS statement is not affected by the PAGESIZE= system option)

- procedures that produce characters that cannot be scaled, such as the PLOT procedure, the CALENDAR procedure, the TIMEPLOT procedure, the FORMS procedure, and the CHART procedure

See Also

“The SAS Log” in *SAS Programmer’s Guide: Essentials*

PAPERDEST= System Option

Specifies the name of the output bin to receive printed output.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Restrictions: | This option is ignored if the printer does not have multiple output bins. This option is not valid in the Windows operating environment. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PAPERDEST=*printer-bin-name*

Syntax Description

printer-bin-name

specifies the bin to receive printed output.

Restriction Maximum length is 200 characters.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- “PAPERSIZE= System Option” on page 265
- “PAPERSOURCE= System Option” on page 267
- “PAPERTYPE= System Option” on page 268

PAPERSIZE= System Option

Specifies the paper size to use for printing.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Environment Control: Language Control Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | LANGUAGECONTROL ODSPRINT |
| Default: | The default is LETTER or A4, depending on the locale. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

```
PAPERSIZE=LOCALE | paper_size_name
| (width_value<,>height_value)
| ('width_value'<,>'height_value')
| ("width_value"<,>"height_value")
```

Syntax Description

LOCALE

specifies to use the value of the LOCALE= system option to determine the value of the PAPERSIZE= option. Depending on the locale, the PAPERSIZE= option is set to either LETTER or A4.

See [“LOCALE System Option” in SAS National Language Support \(NLS\): Reference Guide](#)

paper_size_name

specifies a predefined paper size.

| | |
|---------|---------------------------------------|
| Default | LETTER or A4, depending on the locale |
|---------|---------------------------------------|

| | |
|--------------|--|
| Restriction | The maximum length is 200 characters. |
| Requirements | When the name of a predefined paper size contains spaces, enclose the name in single or double quotation marks. A space is required between the width and the height values if you do not use either single or double quotation marks for values. |
| Tip | For more information, use the Registry Editor, or use PROC REGISTRY to obtain a list of supported paper sizes. Additional values can be added. |

("width-value", "height-value")

specifies paper width and height as positive floating-point values.

| | |
|-------------|---|
| Default | inches |
| Range | <i>in</i> or <i>cm</i> for width_value, height_value |
| Requirement | If you specify <i>width-value</i> and <i>height-value</i> with spaces between the number and the unit, the values must be enclosed in quotation marks (for example, "5 in" "7 in"). |
| Interaction | When you specify a custom paper size, the ORIENTATION= system option is ignored and the orientation is determined by the width and height values. The orientation is portrait if the paper height is more than the width. The orientation is landscape if the paper width is more than the height. Reverse orientations are not supported for custom paper sizes. |

Details

If you specify a predefined paper size or a custom size that is not supported by your printer, the printer default paper size is used. The printer default paper size is locale dependent and can be changed using the Page Setup dialog box.

Fields that specify values for paper sizes can either be separated by blanks or commas.

Note: Changing the value of this option can result in changes to the values of the portable LINESIZE= and PAGESIZE= system options.

Comparisons

The first OPTIONS statement sets a paper size value that is a paper size name from the SAS Registry. The second OPTIONS statement sets a specific width and height for a paper size.

```
options papersize="480x640 Pixels";
```



```
options papersize=(4.5 7);
```

In the first example, quotation marks are required because there is a space in the name.

In the second example, quotation marks are not required. When no measurement units are specified, SAS writes the following warning to the SAS log:

```
WARNING: Units were not specified on the PAPERSIZE option. Inches will be used.
WARNING: Units were not specified on the PAPERSIZE option. Inches will be used.
```

You can avoid the warning message by adding the unit type, **in** or **cm**, to the value with no space separating the value and the unit type:

```
options papersize=(4.5in 7in);
```

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“ORIENTATION= System Option” on page 256](#)
- [“PAPERDEST= System Option” on page 264](#)
- [“PAPERSOURCE= System Option” on page 267](#)
- [“PAPERTYPE= System Option” on page 268](#)

PAPERSOURCE= System Option

Specifies the name of the paper bin to use for printing.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Restriction: | This option is ignored if the printer does not have multiple input bins. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PAPERSOURCE=*printer-bin-name*

Syntax Description

printer-bin-name

specifies the bin that sends paper to the printer.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PAPERDEST= System Option” on page 264](#)
- [“PAPERSIZE= System Option” on page 265](#)
- [“PAPERTYPE= System Option” on page 268](#)

PAPERTYPE= System Option

Specifies the type of paper to use for printing.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS
GROUP= ODSPRINT

Default: The shipped default is PLAIN.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PAPERTYPE=*paper-type-string*

Syntax Description

paper-type-string

specifies the type of paper. Maximum length is 200.

| | |
|-----------------------|--|
| Default | Values vary by site and operating environment. |
| Range | Values vary by printer, site, and operating environment. |
| Operating environment | For instructions on how to specify the type of paper, see the SAS documentation for your operating environment. There are a number of possible values for this option. |

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PAPERDEST= System Option” on page 264](#)
- [“PAPERSIZE= System Option” on page 265](#)
- [“PAPERSOURCE= System Option” on page 267](#)

PARM= System Option

Specifies a parameter string that is passed to an external program.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PARM=<'>*string*<'>

Syntax Description

string

specifies a character string that contains a parameter.

Example

This statement passes the parameter X=2 to an external program:

```
options parm='x=2';
```

Operating Environment Information: Other methods of passing parameters to external programs depend on your operating environment and on whether you are running in interactive line mode or batch mode. For details, see the SAS documentation for your operating environment.

PARMCARDS= System Option

Specifies the file reference to open when SAS encounters the PARMCARDS statement in a procedure.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Default: The shipped default is FT15F001.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“PARMCARDS= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

PARMCARDS=*file-ref*

Syntax Description

file-ref

specifies the file reference to open.

Details

The PARMCARDS= system option specifies the file reference of a file that SAS opens when it encounters a PARMCARDS (or PARMCARDS4) statement in a procedure.

SAS writes all data lines after the PARMCARDS (or PARMCARDS4) statement to the file until it encounters a delimiter line of either one or four semicolons. The file is then closed and made available to the procedure to read. There is no parsing or macro expansion of the data lines.

PDFACCESS System Option

Specifies whether PDF documents can be edited.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: PDF |
| PROC OPTIONS GROUP= | PDF |
| Default: | The shipped default is PDFACCESS. |
| Requirement: | Adobe Acrobat Reader or Professional 5.0 and later versions |
| Notes: | Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password. This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PDFACCESS | **NOPDFACCESS**

Syntax Description

PDFACCESS

specifies that PDF documents can be edited.

NOPDFACCESS

specifies that PDF documents cannot be edited.

Details

The PDFACCESS option can affect the Document Editing Enabled document property.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

The following table shows how the Document Editing Enabled document property is set when you specify the PDFACCESS option and set the PDFSECURITY= option to HIGH:

| | PDFACCESS PDFSECURITY=HIGH | NOPDFACCESS PDFSECURITY=HIGH |
|--------------------------|-------------------------------|---------------------------------|
| Document Editing Enabled | Allowed | Allowed |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User's Guide](#)

System Options:

- [“PDFSECURITY= System Option” on page 286](#)

PDFASSEMBLY System Option

Specifies whether PDF documents can be assembled.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: PDF

PROC OPTIONS GROUP= PDF

Default: The shipped default is NOPDFASSEMBLY.

Requirement: Adobe Acrobat Reader or Professional 5.0 and later versions

Notes: Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property

values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password.

This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PDFASSEMBLY | NOPDFASSEMBLY

Syntax Description

PDFASSEMBLY

specifies that PDF documents can be assembled.

NOPDFASSEMBLY

specifies that PDF documents cannot be assembled.

Details

When a PDF document is assembled, pages can be rotated, inserted, and deleted, and bookmarks and thumbnail images can be added.

The PDFASSEMBLY option can affect the Document Assembly document property.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

The following table shows how the Document Assembly document property is set when you specify the PDFASSEMBLY option and set the PDFSECURITY= option to HIGH:

| | PDFASSEMBLY | NOPDFASSEMBLY |
|-------------------|-------------------------|-------------------------|
| | PDFSECURITY=HIGH | PDFSECURITY=HIGH |
| Document Assembly | Allowed | Allowed |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFSECURITY= System Option” on page 286](#)

PDFCOMMENT System Option

Specifies whether PDF document comments can be modified.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: PDF |
| PROC OPTIONS GROUP= | PDF |
| Default: | The shipped default is NOPDFCOMMENT. |
| Requirement: | Adobe Acrobat Reader or Professional 5.0 and later versions |
| Notes: | Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password. This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PDFCOMMENT | **NOPDFCOMMENT**

Syntax Description

PDFCOMMENT

specifies that PDF document comments can be modified.

NOPDFCOMMENT

specifies that PDF document comments cannot be modified.

Details

The PDFCOMMENT option can affect the Commenting document property.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

When PDFSECURITY=NONE, the PDFCOMMENT option is enabled and PDF document comments can be modified.

The following table shows how the Commenting document properties are set when you specify the PDFCOMMENT option and set the PDFSECURITY= option to HIGH:

| | PDFCOMMENT PDFSECURITY=HIGH | NOPDFCOMMENT PDFSECURITY=HIGH |
|------------|--------------------------------|----------------------------------|
| Commenting | Allowed | Not Allowed |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User's Guide](#)

System Options:

- [“PDFFILLIN System Option” on page 278](#)
- [“PDFSECURITY= System Option” on page 286](#)

PDFCONTENT System Option

Specifies whether the contents of a PDF document can be changed.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: PDF

PROC OPTIONS GROUP= PDF

Default: The shipped default is NOPDFCONTENT.

Requirement: Adobe Acrobat Reader or Professional 3.0 and later versions

Notes: Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password.

This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PDFCONTENT | **NOPDFCONTENT**

Syntax Description

PDFCONTENT

specifies that the contents of a PDF document can be changed.

NOPDFCONTENT

specifies that the contents of a PDF document cannot be changed.

Details

The PDFCONTENT option can affect the Changing the Document document property.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

The following table shows how the Changing the Document document property is set when you specify the PDFCONTENT option and set the PDFSECURITY= option to HIGH:

| | PDFCONTENT PDFSECURITY=HIGH | NOPDFCONTENT PDFSECURITY=HIGH |
|-----------------------|--|--|
| Changing the Document | Allowed | Not Allowed |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFSECURITY= System Option” on page 286](#)

PDFCOPY System Option

Specifies whether text and graphics from a PDF document can be copied.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:

Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: PDF

PROC OPTIONS PDF
GROUP=

Default: The shipped default is PDFCOPY.

Requirement: Adobe Acrobat Reader or Professional 3.0 and later versions

Notes: Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password.

This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PDFCOPY | **NOPDFCOPY**

Syntax Description

PDFCOPY

specifies that text and graphics from a PDF document can be copied.

NOPDFCOPY

specifies that text and graphics from a PDF document cannot be copied.

Details

The PDFCOPY option can affect the Content Copying document property.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

The following table shows how the Content Copying document property is set when you specify the PDFCOPY option and set the PDFSECURITY= option to HIGH:

| | PDFCOPY | NOPDFCOPY |
|-----------------|-------------------------|-------------------------|
| | PDFSECURITY=HIGH | PDFSECURITY=HIGH |
| Content Copying | Allowed | Not Allowed |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFSECURITY= System Option” on page 286](#)

PDFFILLIN System Option

Specifies whether PDF forms can be filled in.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: PDF |
| PROC OPTIONS GROUP= | PDF |
| Default: | The shipped default is PDFFILLIN. |
| Requirement: | Adobe Acrobat Reader or Professional 5.0 and later versions |
| Notes: | Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password. This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PDFFILLIN | **NOPDFFILLIN**

Syntax Description

PDFFILLIN

specifies that PDF forms can be filled in.

NOPDFFILLIN

specifies that PDF forms cannot be filled in.

Details

The PDFFILLIN option can affect the Form Field Fill-in or Signing document property.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

The Form Field Fill-in or Signing document property is set by the PDFFILLIN option only when PDFSECURITY=HIGH. When PDFSECURITY=HIGH, PDFCOMMENT and PDFFILLIN can be set independently.

The following table shows how the Form Field Fill-in or Signing document property is set when you specify the PDFFILLIN option and set the PDFSECURITY= option to HIGH:

| | PDFFILLIN PDFSECURITY=HIGH | NOPDFFILLIN PDFSECURITY=HIGH |
|-------------------------------|-------------------------------|---------------------------------|
| Form Field Fill-in or Signing | Allowed | Not Allowed |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFCOMMENT System Option” on page 274](#)
- [“PDFSECURITY= System Option” on page 286](#)

PDFPAGELAYOUT= System Option

Specifies the page layout for PDF documents.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: PDF

PROC OPTIONS GROUP= PDF

Default: The shipped default is DEFAULT.

- Requirement: Adobe Acrobat Reader or Professional 5.0 and later versions
- Notes: Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password.
- This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PDFPAGELAYOUT= [DEFAULT](#) | [SINGLEPAGE](#) | [CONTINUOUS](#)
| [FACING](#) | [CONTINUOUSFACING](#)

Syntax Description

DEFAULT

specifies to use the current page layout for Acrobat Reader.

SINGLEPAGE

specifies to display one page at a time in the viewing area.

CONTINUOUS

specifies to display all document pages in the viewing area in a single column.

FACING

specifies to display only two pages in the viewing area, with the even pages on the left and the odd pages on the right.

Requirement: Acrobat Reader 5.0 or later version is required.

CONTINUOUSFACING

specifies to display all pages in the viewing area, two pages side by side. The even pages are displayed on the left, and the odd pages display on the right.

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFPAGEVIEW= System Option” on page 281](#)

PDFPAGEVIEW= System Option

Specifies the page viewing mode for PDF documents.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: PDF |
| PROC OPTIONS GROUP= | PDF |
| Default: | The shipped default is DEFAULT. |
| Requirement: | Adobe Acrobat Reader or Professional 5.0 and later versions |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PDFPAGEVIEW= [DEFAULT](#) | [ACTUAL](#) | [FITPAGE](#) | [FITWIDTH](#) | [FULLSCREEN](#)

Syntax Description

DEFAULT

specifies to use the current page view setting for Acrobat Reader.

ACTUAL

specifies to set the page view setting to 100%.

FITPAGE

specifies to view a page using the full extent of the viewing window, maintaining the height and width aspect ratio.

FITWIDTH

specifies to view a page using the full width of the viewing window. The height of the document is not scaled to fit the page.

FULLSCREEN

specifies to view a page using the full screen. This option disables the table of contents, bookmarks, and all other document access aids, such as accessing a specific page.

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFPAGEVIEW= System Option” on page 281](#)

PDFPASSWORD= System Option

Specifies the password to use to open a PDF document and the password used by a PDF document owner to set document permissions and restrictions.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Log and Procedure Output Control: PDF System Administration: Security |
| PROC OPTIONS GROUP= | PDF SECURITY |
| Alias: | PDFPW |
| Requirement: | Adobe Acrobat Reader or Professional 3.0 and later versions |
| Notes: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The OPTIONS procedure displays passwords in the SAS log as 8 Xs, regardless of the actual password length. |

Syntax

```
PDFPASSWORD=(OPEN=password | OPEN="password"
  < OWNER=password | OWNER="password">)
```

```
PDFPASSWORD=(OWNER=password | OWNER="password"
  < OPEN=password | OPEN="password">)
```

```
PDFPASSWORD=(OPEN=password | OPEN="password")
```

```
PDFPASSWORD=(OWNER=password | OWNER="password")
```


Syntax Description

OPEN="password"

specifies the password to open a PDF document. Enclosing the password in single or double quotation marks is optional.

password

specifies a set of characters, up to 32 characters, that are used to validate that a user has permission to open a PDF document.

Restriction The OPEN password must be different from the OWNER password.

OWNER="password"

specifies the password for the PDF document owner. The OWNER= password is required to set the document permissions and restrictions. Enclosing the password in quotation marks is optional.

password

specifies a set of characters, up to 32 characters, that are used to validate the owner of a PDF document.

Restriction The OWNER password must be different from the OPEN password.

Details

You can set the PDFPASSWORD= option at any time, but it is ignored until the PDFSECURITY= system option is set to HIGH. When the PDFSECURITY= option is set to NONE, passwords for a PDF document are not needed.

The following table explains how passwords are used to open PDF documents and to set the permissions and restrictions using the PDF system options:

| PDFPASSWORD= Option Setting | PDF Document Permissions and Restrictions |
|---|---|
| OPEN= <i>password</i> | A password is required to open the PDF document. No matter what PDF options have been set, no permissions and restrictions have been set because the OWNER= <i>password</i> is not used. |
| OWNER= <i>password</i> | Use only this option to set permissions and restrictions on the PDF document and to not require a password to open the document. The value of the PDF options that are set when you create the PDF are applied to the PDF document. |
| OPEN= <i>password</i> OWNER= <i>password</i> | Use both arguments to require a password to open the PDF document and to set permissions and restrictions on the PDF document. Either password can be used to open the |

PDFPASSWORD=
Option Setting**PDF Document Permissions and Restrictions**

document. The value of the PDF options that are set when you create the PDF are applied to the PDF document.

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFPAGEVIEW= System Option” on page 281](#)
- [“PDFSECURITY= System Option” on page 286](#)

PDFPRINT= System Option

Specifies the resolution to print PDF documents.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: PDF |
| PROC OPTIONS GROUP= | PDF |
| Default: | The shipped default is HRES for Acrobat Reader or Professional 5.0 and later versions. |
| Requirement: | Adobe Acrobat Reader or Professional 3.0 and later versions, depending on PDFPRINT setting |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PDFPRINT=[HRES](#) | [LRES](#) | [NONE](#)

Syntax Description

HRES

specifies to print PDF documents at the highest resolution available on the printer.

Restriction PDFPRINT=HRES can be set only when the PDFSECURITY option is set to HIGH.

Requirement Acrobat Reader or Professional 5.0 and later versions.

LRES

specifies to print PDF documents at a lower resolution for draft-quality documents.

Restriction PDFPRINT=LRES can be set only when the PDFSECURITY option is set to HIGH.

Requirement Acrobat Reader or Professional 5.0 and later versions.

NONE

specifies the PDF documents have no print resolution.

Restriction PDFPRINT=NONE can be set only when the PDFSECURITY option is set to HIGH

Requirement Any version of Acrobat Reader or Professional.

Details

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

When PDFSECURITY= is set to HIGH, the value of the Printing document property is determined by the value of the PDFPRINT= option:

| | PDFPRINT=HRES | PDFPRINT=LRES | PDFPRINT=NONE |
|----------|------------------|--------------------------|------------------|
| | PDFSECURITY=HIGH | PDFSECURITY=HIGH | PDFSECURITY=HIGH |
| Printing | High Resolution | Low Resolution (150 dpi) | None |

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFPAGEVIEW= System Option” on page 281](#)

PDFSECURITY= System Option

Specifies the level of encryption for PDF documents.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Log and Procedure Output Control: PDF System Administration: Security |
| PROC OPTIONS GROUP= | PDF SECURITY |
| Default: | The shipped default is NONE. |
| Restriction: | The PDFSECURITY option is valid for UNIX, Windows, and z/OS operating systems. |
| Requirement: | Adobe Acrobat 9 or later or Adobe Reader 9 and later is required to open an AES encrypted PDF document. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

PDFSECURITY=HIGH | NONE

Syntax Description

HIGH

specifies that SAS encrypts PDF documents using AES 256-bit encryption. AES encryption is used starting with SAS 9.4M8 when hot fixes are applied. For more information, see [SAS Note 70305](#). Prior to [SAS 9.4M8](#), RC4 128-bit encryption was used to encrypt PDF documents.

IMPORTANT A warning might be generated when older encryption algorithms are not available to the operating system.

WARNING: The OpenSSL 3 "legacy" provider could not be loaded.
Certain functions may not work without ciphers from the "legacy" provider.

Requirement When PDFSECURITY=HIGH, Adobe Acrobat 9 or later or Adobe Reader 9 or later is required to open an AES encrypted PDF document.

Interaction At least one password must be set using the PDFPASSWORD= system option when PDFSECURITY=HIGH.

NONE

specifies that no encryption is performed on PDF documents.

The document property values for PDF security are not changed when you set PDFSECURITY=NONE. The results are the same as not specifying the option at all.

Details

The following table shows the default document properties that are set when the PDFSECURITY= option is set to NONE or HIGH. When PDFSECURITY=NONE, there are no restrictions on PDF documents.

| | NONE | HIGH |
|-------------------------------|---------|--------------------------|
| Printing | Allowed | High Resolution |
| Changing the Document | Allowed | Not Allowed |
| Commenting | Allowed | Not Allowed |
| Form Field Fill-in or Signing | Allowed | Allowed |
| Document Assembly | Allowed | Not Allowed |
| Content Copying | Allowed | Allowed |
| Document Editing Enabled | Allowed | Allowed |
| Page Extraction | Allowed | Not Allowed |
| Encryption Level | None | 256-bit AES ¹ |

Note: Document properties might differ between the Documents Security window, the Show Details window, and SAS PDF option values for secure documents. The values might differ if a document password has only an Open password, or if the Open and Owner passwords are the same value. These windows display property values correctly when both Open and Owner have passwords, the passwords are not the same, and the document is opened with the Open password.

1. Prior to SAS 9.4M8, RC4 128-bit encryption is used.

See Also

- [“Securing ODS-Generated PDF Files” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“PDFACCESS System Option” on page 271](#)
- [“PDFASSEMBLY System Option” on page 272](#)
- [“PDFCOMMENT System Option” on page 274](#)
- [“PDFCONTENT System Option” on page 275](#)
- [“PDFCOPY System Option” on page 276](#)
- [“PDFFILLIN System Option” on page 278](#)
- [“PDFPASSWORD= System Option” on page 282](#)
- [“PDFPRINT= System Option” on page 284](#)

PRESENV System Option

Specifies whether to enable the collecting of data to preserve the SAS environment when the SAS session ends.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS
GROUP= EXECMODES

Default: The shipped default is NOPRESENV.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PRESENV | NOPRESENV

Syntax Description

PRESENV

specifies that collecting data for the preservation of the SAS environment is enabled.

NOPRESENV

specifies that collecting data for the preservation of the SAS environment is disabled.

Details

You set the PRESENV option when you want to use PROC PRESENV at the end of a SAS session to preserve the following data:

- the Work library data sets and catalogs
- global statement values
- macro variable values
- system option values

When the PRESENV option is set, SAS begins to collect the data that is needed to preserve the environment. Data is collected until either the NOPRESENV option is set or the SAS session ends. You can enable and disable the collection of data at any time during a SAS session. When NOPRESENV is set, data collection is suspended, not discarded.

See Also

[“Syntax” in Base SAS Procedures Guide](#)

PRIMARYPROVIDERDOMAIN= System Option

Specifies the domain name of the primary authentication provider.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Initialization and Operation

PROC OPTIONS EXECMODES
GROUP=

Alias: PRIMPD=

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PRIMARYPROVIDERDOMAIN=*domain-name*

Syntax Description

domain-name

specifies the name of the domain that authenticates user names.

Requirement If the domain name contains one or more spaces, the domain name must be enclosed in quotation marks.

Details

By default, users who log on to the SAS Metadata Server are authenticated by the operating system that hosts the SAS Metadata Server. You can specify an alternate authentication provider by using the AUTHPROVIDERDOMAIN= system option. User IDs that are verified by an alternate authentication provider must be in the format *user-ID@domain-name* (for example, *user1@sas.com*).

By specifying an authentication provider and a domain name that use the AUTHPROVIDERDOMAIN= and PRIMARYPROVIDERDOMAIN= system options, respectively, you enable users to log on to the SAS Metadata Server by using their usual user ID without using a domain-name suffix on the user ID. For example, by specifying the following system options, users who log on as *user-ID* or *user-ID@mycompany.com* can be verified by the authentication provider that is specified by the AUTHPROVIDERDOMAIN= system option:

```
-authproviderdomain ldap:mycompany
-primaryproviderdomain mycompany.com
```

If you specify the PRIMARYPROVIDERDOMAIN system option without specifying the AUTHPROVIDERDOMAIN system option, authentication is performed by the host provider.

Comparisons

You use the AUTHPROVIDERDOMAIN system option to register and name your Active Directory provider or other LDAP provider. You use the PRIMARYPROVIDERDOMAIN system option to designate the primary authentication provider.

Example

The following examples show the system options that you might use in a configuration file to define a primary authentication provider domain-name:

Active Directory

```
/* Environment variables that describe your Active Directory server */
-set AD_HOST myhost
/* Define authentication provider */
-authpd ADIR:mycompany.com
```



```
-primpd mycompany.com
```

LDAP

```
/* Environment variables that describe your LDAP server */
-set LDAP_HOST myhost
-set LDAP_BASE "ou=emp, o=us"
/* Define authentication provider */
-authpd LDAP:mycompany.com
-primpd mycompany.com
```

See Also

- “Direct LDAP Authentication” in *SAS Intelligence Platform: Security Administration Guide*

System Options:

- “AUTHPROVIDERDOMAIN System Option” on page 80
- “AUTHSERVER: Windows” in *SAS Companion for Windows*

PRINTERPATH= System Option

Specifies the name of a registered printer to use for Universal Printing.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Defaults: | Under UNIX and z/OS, the default is PostScript Level 1. Under Windows, there is no default. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

```
PRINTERPATH=('printer-name' <fileref> )
```

Syntax Description

'printer-name'

must be one of the printers defined in the Registry Editor under **Core** ⇒ **Printing** ⇒ **Printers**

Requirement When the *printer name* contains blanks, you must enclose it in quotation marks.

fileref

is an optional fileref. If a fileref is specified, it must be defined with a FILENAME statement or an external allocation. If a fileref is not specified, the default output destination can specify a printer in the Printer Setup dialog box, which you open by selecting **File** ⇒ **Printer Setup**. Parentheses are required only when a *fileref* is specified.

Details

If the PRINTERPATH= option is not a null string, then Universal Printing is used. If the PRINTERPATH= option does not specify a valid Universal Printing printer, then the default Universal Printer is used.

Comparisons

A related system option SYSPRINT specifies which operating system printer is used for printing. PRINTERPATH= specifies which Universal Printing printer is used for printing.

The operating system printer specified by the SYSPRINT option is used when PRINTERPATH="" (two double quotation marks with no space between them sets a null string).

Example

The following example specifies an output destination that is different from the default:

```
options PRINTERPATH=(corelab out);
filename out 'your_file';
```

Operating Environment Information: In some operating environments, setting the PRINTERPATH= option might not change the setting of the PMENU print button, which might continue to use operating environment printing. See the SAS documentation for your operating environment for more information.

The PRINTERPATH option is used only for ODS PRINTER and when the DEVICE= system option is set to SASPRTC, SASPRTRTG, SASPRTM, or SASPRT. If

DEVICE=WINPRTC, WINPRTG, or WINPRTM, the devices behave respectively as SASPRTC, SASPRTG, or SASPRTM.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

PRINTINIT System Option

Specifies whether to initialize the SAS procedure output file for the LISTING destination.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LISTCONTROL |
| Default: | The shipped default is NOPRINTINIT. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “PRINTINIT System Option: z/OS” in SAS Companion for z/OS |

Syntax

PRINTINIT | **NOPRINTINIT**

Syntax Description

PRINTINIT

specifies to initialize the SAS procedure output file for the LISTING destination and resets the file attributes.

Tip Specifying PRINTINIT causes the SAS procedure output file to be cleared even when output is not generated.

NOPRINTINIT

specifies to preserve the existing procedure output file for the LISTING destination if no new output is generated.

Tip Specifying NOPRINTINIT causes the SAS procedure output file to be overwritten only when new output is generated.

Details

Operating Environment Information: The behavior of the PRINTINIT system option depends on your operating environment. For additional information, see the SAS documentation for your operating environment.

PRINTMSGLIST System Option

Specifies whether to print all messages to the SAS log or to print only top-level messages to the SAS log.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS GROUP= LOGCONTROL

Default: The shipped default is PRINTMSGLIST.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

PRINTMSGLIST | NOPRINTMSGLIST

Syntax Description

PRINTMSGLIST

specifies to print the entire list of messages to the SAS log.

NOPRINTMSGLIST

specifies to print only the top-level message to the SAS log.

Details

For Version 7 and later versions, the return code subsystem allows for lists of return codes. All of the messages in a list are related, in general, to a single error condition, but give different levels of information. This option enables you to see the entire list of messages or just the top-level message.

See Also

[“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

QUOTELENMAX System Option

If a quoted string exceeds the maximum length allowed, specifies whether SAS writes a note to the SAS log.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is QUOTELENMAX. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

QUOTELENMAX | **NOQUOTELENMAX**

Syntax Description

QUOTELENMAX

specifies that SAS write a note to the SAS log about the maximum length for strings in quotation marks.

NOQUOTELENMAX

specifies that SAS does not write a note to the SAS log about the maximum length for strings in quotation marks.

Details

If a string in quotation marks is too long, SAS writes the following note to the SAS log:

```
NOTE: The quoted string currently being processed has become
      more than 262 characters long. You may have unbalanced
      quotation marks.
```

If you are running a program that has long strings in quotation marks, and you do not want to see this note, use the NOQUOTELENMAX system option to turn off the note.

REPLACE System Option

Specifies whether permanently stored SAS data sets can be replaced.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is REPLACE.

Notes: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

When you use the `OUT2=PermanentLibrary _ALL_` option within PROC CONTENTS or PROC DATASETS with the CONTENTS statement, you must also set the REPLACE system option or the REPLACE=YES data set option.

Syntax

REPLACE | NOREPLACE

Syntax Description

REPLACE

specifies that a permanently stored SAS data set can be replaced with another SAS data set.

NOREPLACE

specifies that a permanently stored SAS data set cannot be replaced with another SAS data set, which prevents the accidental replacement of existing SAS data sets.

Details

This option has no effect on data sets in the WORK library, even if you use the WORKTERM= system option to store the WORK library files permanently.

Comparisons

The REPLACE= data set option overrides the REPLACE system option.

See Also

Data Set Options:

- [“PARMCARDS= System Option: z/OS” in SAS Companion for z/OS](#)

System Options:

- [“WORKTERM System Option” on page 405](#)

REUSE= System Option

Specifies whether SAS reuses space when observations are added to a compressed SAS data set.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is NO.

Interaction: The REUSE= data set option overrides the REUSE= system option.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

REUSE=YES | NO

Syntax Description

YES

specifies to track free space and reuses it whenever observations are added to an existing compressed data set.

Interactions REUSE=YES takes precedence over the POINTOBS=YES data set option setting.

When using COMPRESS=YES and REUSE=YES system options settings, observations cannot be addressed by observation number.

NO

specifies not to track free space.

Details

If space is reused, observations that are added to the SAS data set are inserted wherever enough free space exists, instead of at the end of the SAS data set.

Specifying REUSE=NO results in less efficient usage of space if you delete or update many observations in a SAS data set. However, the APPEND procedure, the FSEDIT procedure, and other procedures that add observations to the SAS data set continue to add observations to the end of the data set, as they do for uncompressed SAS data sets.

You cannot change the REUSE= attribute of a compressed SAS data set after it is created. Space is tracked and reused in the compressed SAS data set according to the REUSE= value that was specified when the SAS data set was created, not when you add and delete observations. Even with REUSE=YES, the APPEND procedure adds observations at the end.

See Also

Data Set Options:

- [“COMPRESS= Data Set Option” in SAS Data Set Options: Reference](#)
- [“REUSE= Data Set Option” in SAS Data Set Options: Reference](#)

System Options:

- [“COMPRESS= System Option” on page 124](#)

RIGHTMARGIN= System Option

Specifies the print margin for the right side of the page.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is 0.000 in. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

RIGHTMARGIN=*margin-size*<*margin-unit*>

Syntax Description

margin-size

specifies the size of the margin.

Restriction The right margin should be small enough so that the left margin plus the right margin is less than the width of the paper.

Interaction Changing the value of this option might result in changes to the value of the LINESIZE= system option.

<*margin-unit*>

specifies the units for margin-size. The margin-unit can be *in* for inches or *cm* for centimeters. <*margin-unit*> is saved as part of the value of the RIGHTMARGIN system option.

Default inches

Details

All margins have a minimum that is dependent on the printer and the paper size.

See Also

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- “BOTTOMMARGIN= System Option” on page 91
- “LEFTMARGIN= System Option” on page 230
- “TOPMARGIN= System Option” on page 368

RLANG System Option

Specifies whether SAS executes R language statements within SAS/IML.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | System Administration: Security |
| PROC OPTIONS GROUP= | SECURITY |
| Default: | The shipped default is NORLANG. |
| Notes: | This option does not apply to using the R language on the CAS server. This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

RLANG | **NORLANG**

Syntax Description

RLANG

specifies that SAS can execute R language statements in operating environments that support the R language.

NORLANG

specifies that an attempt to execute R language statements results in an error and the statements do not execute.

Details

If RLANG is specified and the R language is not supported in the operating environment, SAS writes a message to the SAS log. The message indicates that the R language is not supported and asks you to call SAS Technical Support. SAS Technical Support would like to track the operating environments where users would like SAS to execute R language statements, but the R language is not supported.

See Also

[SAS/IML User's Guide](#)

RSASUSER System Option

Specifies whether to open the Sasuser library for Read access or Read-Write access.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Default: | The shipped default is NORSASUSER. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “RSASUSER System Option: UNIX” in SAS Companion for UNIX Environments “RSASUSER: Windows” in SAS Companion for Windows |

Syntax

RSASUSER | **NORSASUSER**

Syntax Description

RSASUSER

opens the SASUSER library in Read-Only mode.

NORSASUSER

opens the SASUSER library in Read-Write mode.

Details

The RSASUSER system option is useful for sites that use a single SASUSER library for all users and want to prevent users from modifying it. However, it is not useful when users use SAS/ASSIST software, because SAS/ASSIST requires writing to the SASUSER library.

Operating Environment Information: For network considerations about using the RSASUSER system option, see the SAS documentation for your operating environment.

S= System Option

Specifies the length of statements on each line of a source statement and the length of data on lines that follow a DATALINES statement.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS GROUP= INPUTCONTROL

Default: The shipped default is 0.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

S=n | nK | nM | nG | nT | hexX | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n | nK | nM | nG | nT

specifies the length of statements and data in terms of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of 8 specifies 8 bytes, and a value of 3m specifies 3,145,728 bytes.

hexX

specifies the length of statements and data as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx sets the length of statements and data to 45.

MIN

sets the length of statements and data to 0.

MAX

sets the length of statements and data to 2,147,483,647.

Details

Input can be from either fixed-length or variable-length records. Both fixed-length and variable-length records can be sequenced or unsequenced. The location of the sequence numbers is determined by whether the file record format is fixed-length or variable-length.

SAS uses the value of S to determine whether to look for sequence numbers in the input, and to determine how to read the input:

| Record Type | Value of S | SAS Looks for Sequence Numbers | How SAS Reads The Input |
|-----------------|--------------|---------------------------------------|---|
| Fixed-length | S>0 or S=MAX | No | The value of S is used as the length of the source or data to be scanned and ignores everything beyond that length on each line. |
| Fixed-length | S=0 or S=MIN | Yes, at the end of the line of input. | <p>SAS inspects the last <i>n</i> columns (where <i>n</i> is the value of the SEQ= system option) of the first sequence field.</p> <p>If those columns contain numbers, they are assumed to be sequence numbers and SAS ignores the last eight columns of each line.</p> <p>If the <i>n</i> columns contain non-digit characters, SAS reads the last eight columns as data columns.</p> |
| Variable-length | S>0 or S=MAX | No | The value of S is used as the starting column of the source or data to be scanned and ignores everything |

| Record Type | Value of S | SAS Looks for Sequence Numbers | How SAS Reads The Input |
|-----------------|--------------|--|---|
| | | | before that length on each line. |
| Variable-length | S=0 or S=MIN | Yes, at the beginning of each line of input. | <p>SAS inspects the last n columns (where n is the value of the SEQ= system option) of the first sequence field.</p> <p>If those columns contain numbers, they are assumed to be sequence numbers and SAS ignores the first eight columns of each line.</p> <p>If the n columns contain non-digit characters, SAS reads the first eight columns as data columns.</p> |

Comparisons

The S= system option operates exactly like the S2= system option except that S2= controls input only from a %INCLUDE statement, an autoexec file, or an autocall macro file.

See Also

System Options:

- [“S2= System Option” on page 305](#)
- [“S2V= System Option” on page 308](#)
- [“SEQ= System Option” on page 311](#)

S2= System Option

Specifies the length of statements on each line of a source statement from a %INCLUDE statement, an AUTOEXEC= file, or an autocall macro file.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS GROUP= INPUTCONTROL

Default: The shipped default is 0.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

S2=S | n | nK | nM | nG | nT | hexX | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

S

uses the current value of the S= system option to compute the record length of text that comes from a %INCLUDE statement, an AUTOEXEC= file, or an autocall macro file.

n | nK | nM | nG | nT

specifies the length of the statements in a file that is specified in a %INCLUDE statement, an autoexec file, or an autocall macro file, in terms of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of 8 specifies 8 bytes, and a value of 3m specifies 3,145,728 bytes.

hexX

specifies the length of statements as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx sets the length of statements to 45.

MIN

sets the length of statements and data to 0.

MAX

sets the length of statements and data to 2,147,483,647.

Details

Input can be from either fixed-length or variable-length records. Both fixed-length and variable-length records can be sequenced or unsequenced. The location of the sequence numbers is determined by whether the file record format is fixed-length or variable-length.

SAS uses the value of S2 to determine whether to look for sequence numbers in the input, and to determine how to read the input:

| Record Type | Value of S2 | SAS Looks for Sequence Numbers | How SAS Reads The Input |
|-----------------|----------------|---------------------------------------|---|
| Fixed-length | S2>0 or S2=MAX | No | The value of S2 is used as the length of the source or data to be scanned and ignores everything beyond that length on each line. |
| Fixed-length | S2=0 or S2=MIN | Yes, at the end of the line of input. | <p>SAS inspects the last <i>n</i> columns (where <i>n</i> is the value of the SEQ= system option) of the first sequence field.</p> <p>If those columns contain numbers, they are assumed to be sequence numbers and SAS ignores the last eight columns of each line.</p> <p>If the <i>n</i> columns contain non-digit characters, SAS reads the last eight columns as data columns.</p> |
| Variable-length | S2>0 or S2=MAX | No | The value of S2 is used as the starting column of the source or data to be scanned and ignores everything |

| Record Type | Value of S2 | SAS Looks for Sequence Numbers | How SAS Reads The Input |
|-----------------|----------------|--|---|
| | | | before that length on each line. |
| Variable-length | S2=0 or S2=MIN | Yes, at the beginning of each line of input. | <p>SAS inspects the last n columns (where n is the value of the SEQ= system option) of the first sequence field.</p> <p>If those columns contain numbers, they are assumed to be sequence numbers and SAS ignores the first eight columns of each line.</p> <p>If the n columns contain non-digit characters, SAS reads the first eight columns as data columns.</p> |

Comparisons

The S2= system option operates exactly like the S= system option except that the S2= option controls input from a %INCLUDE statement, an autoexec file, or an autocall macro file.

The S2= system option reads both fixed-length and variable-length record formats from a file specified in a %INCLUDE statement, an autoexec file, or an autocall macro file. The S2V= system option reads only a variable-length record format from a file specified in a %INCLUDE statement, an autoexec file, or an autocall macro file.

See Also

System Options:

- [“S= System Option” on page 302](#)
- [“S2V= System Option” on page 308](#)

- “SEQ= System Option” on page 311

S2V= System Option

Specifies the starting position to begin reading a file that is specified in a %INCLUDE statement, an autoexec file, or an autocall macro file with a variable length record format.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Input Control: Data Processing |
| PROC OPTIONS GROUP= | INPUTCONTROL |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

S2V=S2 | S | n | nK | nM | nG | nT | MIN | MAX | hexX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

S2

specifies to use the current value of the S2= system option to compute the starting position of the variable-sized record to read from a %INCLUDE statement, an autoexec file, or an autocall macro file. This is the default. The S2= option has a default value of 0.

S

specifies to use the current value of the S= system option to compute the starting position of the variable-sized record to read from a %INCLUDE statement, an autoexec file, or an autocall macro file.

n | nK | nM | nG | nT

specifies the starting position of the variable-length record to read that comes from a %INCLUDE statement, an autoexec file, or an autocall macro file, in terms of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of 8 specifies 8 bytes, and a value of 3m specifies 3,145,728 bytes.

MIN

sets the starting position of the variable-length record to read that comes from a %INCLUDE statement, an autoexec file, or an autocall macro, to 0.

MAX

sets the starting position of the variable-length record to read that comes from a %INCLUDE statement, an autoexec file, or an autocall macro, to 2,147,483,647.

hexX

specifies the starting position of the variable-length record to read that comes from a %INCLUDE statement, an autoexec file, or an autocall macro, as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X.

Details

Both the S2V= system option and the S2= system option specify the starting position for reading variable-sized record input from a %INCLUDE statement, an autoexec file, or an autocall macro file. When values for both options are specified, the value of the S2V= system option takes precedence over the value specified for the S2= system option.

Comparisons

The S2= system option specifies the starting position for reading both fixed-length and variable-length record formats for input from a %INCLUDE statement, an autoexec file, or an autocall macro file. The S2V= system option specifies the starting position for reading only variable-length record formats for input from a %INCLUDE statement, an autoexec file, or an autocall macro file.

See Also

System Options:

- [“S= System Option” on page 302](#)
- [“S2= System Option” on page 305](#)
- [“SEQ= System Option” on page 311](#)

SASHELP= System Option

Specifies the location of the Sashelp library.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Files

PROC OPTIONS ENVFILES
GROUP=

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Tip: You can use the APPEND or INSERT system options to add additional *library-specifications*.

See: [“SASHELP System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“SASHELP: Windows” in SAS Companion for Windows](#)
[“SASHELP= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

SASHELP=*library-specification*

Syntax Description

library-specification

identifies an external library.

Details

The SASHELP= system option is set during the installation process and normally is not changed after installation.

See Also

System Options:

- [“APPEND= System Option” on page 77](#)
- [“INSERT= System Option” on page 216](#)

SASUSER= System Option

Specifies the SAS library to use as the Sasuser library.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Files

PROC OPTIONS ENVFILES
GROUP=

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“SASUSER System Option: UNIX” in SAS Companion for UNIX Environments](#),
[“SASUSER: Windows” in SAS Companion for Windows](#),
[“SASUSER= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

SASUSER=*library-specification*

Syntax Description

library-specification

specifies the libref or the physical name that contains a user’s Profile catalog.

Details

The library and catalog are created automatically by SAS; you do not have to create them explicitly.

SEQ= System Option

Specifies the length of the numeric portion of the sequence field in input source lines or data lines.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS INPUTCONTROL
GROUP=

Default: The shipped default is 8.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SEQ=*n* | *MIN* | *MAX* | *hexX*

Syntax Description

n
specifies the length in terms of bytes.

MIN
sets the minimum length to 1.

MAX
sets the maximum length to 8.

Tip When SEQ=8, all eight characters in the sequence field are assumed to be numeric.

hexX
specifies the length as a hexadecimal. The value must begin with a number (0-9) and must be followed by an X.

Details

Unless the S= or S2= system option specifies otherwise, SAS assumes an eight-character sequence field. However, some editors place some alphabetic information (for example, the filename) in the first several characters. The SEQ= value specifies the number of digits that are right-justified in the eight-character field. For example, if you specify SEQ=5 for the sequence field AAA00010, SAS looks at only the last five characters of the eight-character sequence field and, if the characters are numeric, treats the entire eight-character field as a sequence field.

See Also

System Options:

- [“S= System Option” on page 302](#)
- [“S2= System Option” on page 305](#)

SERVICESBASEURL= System Option

Specifies the root URL for calls to SAS Viya services.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation (Linux only)

Category: Communications: Networking and Encryption

PROC OPTIONS COMMUNICATIONS
GROUP=

Default: The shipped default is None.

- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- Example: "http://myservices.mycompany.com:7980"

Syntax

SERVICESBASEURL=*"your-site-services-URL<:port-number>"*

Syntax Description

"your-site-services-URL<:port-number>"

specifies the root URL that is used to connect to SAS Viya services.

Requirement If your site is not using the default port of 80, you must specify a port number.

Details

You use the SERVICESBASEURL= option to connect to SAS Viya services from SAS or SAS Viya.

SET System Option

Defines a SAS environment variable.

- Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)
- Category: Environment Control: Files
- PROC OPTIONS GROUP= ENVFILES
- Default: The shipped default is None
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).
- See: [“SET System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“SET: Windows” in SAS Companion for Windows](#)
[“SET= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

The syntax is dependent on your operating environment.
See the SET system option for your operating environment.

SETINIT System Option

Specifies whether site license information can be altered.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

PROC OPTIONS INSTALL
GROUP=

Default: The shipped default is NOSETINIT.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SETINIT | **NOSETINIT**

Syntax Description

SETINIT

in a non-windowing environment, specifies that you can change license information by running the SETINIT procedure.

NOSETINIT

specifies not to enable you to alter site license information after installation.

Details

SETINIT is set in the installation process and is not normally changed after installation. The SETINIT option is valid only in a non-windowing SAS session.

SKIP= System Option

Specifies the number of lines to skip at the top of each page of SAS output for the LISTING destination.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LISTCONTROL |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SKIP=*n* | MIN | MAX | hexX

Syntax Description

n

specifies the range of lines to skip from 0 to 20.

MIN

sets the number of lines to skip to 0, so no lines are skipped.

MAX

sets the number of lines to skip to 20.

hex

specifies the number of lines to skip as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, the value **0ax** specifies to skip 10 lines.

Details

The location of the first line is relative to the position established by carriage control or by the forms control buffer on the printer. Most sites define this position so that the first line of a new page begins three or four lines down the form. If this spacing is sufficient, specify SKIP=0 so that additional lines are not skipped.

The SKIP= value does not affect the maximum number of lines printed on each page, which is controlled by the PAGESIZE= system option.

SOLUTIONS System Option

Specifies whether the **Solutions** menu is included in SAS windows.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Display |
| PROC OPTIONS GROUP= | ENVDISPLAY |
| Default: | The shipped default is SOLUTIONS. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SOLUTIONS | **NOSOLUTIONS**

Syntax Description

SOLUTIONS

specifies that the **Solutions** menu is included in SAS windows.

NOSOLUTIONS

specifies that the **Solutions** menu is not included in SAS windows.

SORTEQUALS System Option

Specifies whether observations in the output data set with identical BY variable values are in a particular order.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Sort: Procedure Options |
| PROC OPTIONS GROUP= | SORT |
| Default: | The shipped default is SORTEQUALS. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SORTEQUALS | **NOSORTEQUALS**

Syntax Description

SORTEQUALS

specifies that observations with identical BY variable values are to retain the same relative positions in the output data set as in the input data set.

NOSORTEQUALS

specifies that no resources be used to control the order of observations with identical BY variable values in the output data set.

Interaction To achieve the best sorting performance when using the THREADS= system option, specify THREADS=YES and NOSORTEQUALS.

Tip To save resources, use NOSORTEQUALS when you do not need to maintain a specific order of observations with identical BY variable values.

Comparisons

The SORTEQUALS and NOSORTEQUALS system options set the sorting behavior of PROC SORT for your SAS session. The EQUAL or NOEQUAL option in the PROC SORT statement overrides the setting of the system option for an individual PROC step and specifies the sorting behavior for that PROC step only.

See Also

Procedure Statement Options:

- PROC SORT statement EQUALS option, [“SORT Procedure” in Base SAS Procedures Guide](#)

System Options:

- [“THREADS System Option” on page 363](#)

SORTSIZE= System Option

Specifies the amount of memory that is available to the SORT procedure.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Sort: Procedure Options
System Administration: Memory

System Administration: Performance

PROC OPTIONS MEMORY
 GROUP= PERFORMANCE
 SORT

Default: The shipped default is MAX.

See: [“SORTSIZE System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“SORTSIZE: Windows” in SAS Companion for Windows](#)
[“SORTSIZE= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

SORTSIZE=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the amount of memory in terms of 1 (byte); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of **4000** specifies 4,000 bytes and a value of **2m** specifies 2,097,152 bytes. If *n*=0, the sort utility uses its default. Valid values for SORTSIZE range from 0 to 9,223,372,036,854,775,807.

hexX

specifies the amount of memory as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, **0fffx** specifies 4,095 bytes of memory.

MIN

specifies the minimum amount of memory available.

See Values for MIN vary, depending on your operating environment. For details, see the SAS documentation for your operating environment

MAX

specifies the maximum amount of memory available.

See Values for MAX vary, depending on your operating environment. For details, see the SAS documentation for your operating environment

Details

Generally, the value of the SORTSIZE= system option should be less than the physical memory available to your process. If the SORT procedure needs more memory than you specify, the system creates a temporary utility file.

PERFORMANCE NOTE: Proper specification of SORTSIZE= can improve sort performance by restricting the swapping of memory that is controlled by the operating environment.

See Also

Procedures:

- [“SORT Procedure” in Base SAS Procedures Guide](#)

System Options:

- [“SUMSIZE= System Option” on page 332](#)

SORTVALIDATE System Option

Specifies whether the SORT procedure verifies if a data set is sorted according to the variables in the BY statement when a user-specified sort order is denoted in the sort indicator.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Sort: Procedure Options |
| PROC OPTIONS GROUP= | SORT |
| Default: | The shipped default is NOSORTVALIDATE. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SORTVALIDATE | **NOSORTVALIDATE**

Syntax Description

SORTVALIDATE

specifies that the SORT procedure verifies if the observations in the data set are sorted by the variables specified in the BY statement.

NOSORTVALIDATE

specifies that the SORT procedure is not to verify if the observations in the data set are sorted.

Details

You can use the SORTVALIDATE system option to specify whether the SORT procedure validates that a data set is sorted correctly when the data set sort indicator shows a user-specified sort order. The user can specify a sort order by using the SORTEDBY= data set option in a DATA statement or by using the SORTEDBY= option in the DATASETS procedure MODIFY statement. When the sort indicator is set by a user, SAS cannot be absolutely certain that a data set is sorted according to the variables in the BY statement.

If the SORTVALIDATE system option is set and the data set sort indicator was set by a user, the SORT procedure performs a sequence check on each observation to ensure that the data set is sorted according to the variables in the BY statement. If the data set is not sorted correctly, SAS sorts the data set.

At the end of a successful sequence check or at the end of a sort, the SORT procedure sets the **Validated** sort information to Yes. If a sort is performed, the SORT procedure updates the **Sortedby** sort information to the variables that are specified in the BY statement.

If an output data set is specified, the **Validated** sort information in the output data set is set to Yes. If no sort is necessary, the data set is copied to the output data set.

See Also

- [“Examples: View Descriptor and Sort Information for Data Sets” in SAS Programmer’s Guide: Essentials](#)

Data Set Options:

- [“SORTEDBY= Data Set Option” in SAS Data Set Options: Reference](#)

Procedures:

- [“DATASETS Procedure” in Base SAS Procedures Guide](#)
- [“SORT Procedure” in Base SAS Procedures Guide](#)

SOURCE System Option

Specifies whether SAS writes source statements to the SAS log.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS LOGCONTROL
GROUP=

Default: The shipped default is SOURCE.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SOURCE | **NOSOURCE**

Syntax Description

SOURCE

writes SAS source statements to the SAS log.

Interaction The SOURCE system option does not affect whether statements from a file that are read with %INCLUDE or from an autocall macro are written to the SAS log. To ensure that source from these secondary methods of reading code is written to the log, use the SOURCE2 system option.

Tip Ensure that the SOURCE option is set before you send SAS programs to Technical Support for problem determination and resolution.

NOSOURCE

does not write SAS source statements to the SAS log.

See Also

- [“SOURCE2 System Option” on page 321](#)
- [“The SAS Log” in SAS Programmer’s Guide: Essentials](#)

SOURCE2 System Option

Specifies whether SAS writes secondary source statements from included files to the SAS log.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Log and Procedure Output Control: SAS Log

PROC OPTIONS LOGCONTROL
GROUP=

Default: The shipped default is NOSOURCE2.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SOURCE2 | **NOSOURCE2**

Syntax Description

SOURCE2

writes source statements from files that have been included by %INCLUDE statements or autocall macros to the SAS log.

Tip Ensure that SOURCE2 option is set before you send SAS programs to Technical Support for problem determination and resolution.

NOSOURCE2

does not write secondary source statements to the SAS log.

See Also

- [“SOURCE System Option” on page 320](#)
- [“The SAS Log” in *SAS Programmer’s Guide: Essentials*](#)

SPOOL System Option

Specifies whether SAS statements are written to a utility data set in the Work library.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Input Control: Data Processing

PROC OPTIONS INPUTCONTROL
GROUP=

Default: The shipped default is NOSPOOL.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SPOOL | NOSPOOL

Syntax Description

SPOOL

specifies that SAS write statements to a utility data set in the Work library for later use by a %INCLUDE or %LIST statement, or by the RECALL command, within a windowing environment.

NOSPOOL

specifies that SAS does not write statements to a utility data set. Specifying NOSPOOL accelerates execution time, but you cannot use the %INCLUDE and %LIST statements to resubmit SAS statements that were executed earlier in the session.

Example

Specifying SPOOL is especially helpful in interactive line mode because you can resubmit a line or lines of code by referring to the line numbers. Here is an example of code including line numbers:

```
00001 data test;
00002     input w x y z;
00003     datalines;
00004 411.365 101.945 323.782 512.398
00005 ;
```

If SPOOL is in effect, you can resubmit line number 1 by submitting this statement:

```
%inc 1;
```

You can also resubmit a range of lines by placing a colon (:), or hyphen (-) between the line numbers. For example, these statements resubmit lines 1 through 3 and 4 through 5 of the above example:

```
%inc 1:3;
%inc 4-5;
```

STARTLIB System Option

Specifies whether SAS assigns user-defined permanent librefs when SAS starts.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Files: External Files

PROC OPTIONS EXTFILES
GROUP=

Defaults: The default is STARTLIB for the windowing environment.
 The default is NOSTARTLIB for batch, interactive-line, and noninteractive modes.

Note: This option cannot be restricted by a site administrator. For more information, see
 [“Restricted Options” on page 8.](#)

Syntax

STARTLIB | **NOSTARTLIB**

Syntax Description

STARTLIB

specifies that when SAS starts, SAS assigns user-defined permanent librefs.

NOSTARTLIB

specifies that SAS is not to assign user-defined permanent librefs when SAS starts.

Details

You assign a permanent libref only in the windowing environment by using the New Library window and by selecting the **Enable at startup** check box. SAS stores the permanent libref in the SAS registry. To open the New Library window, right-mouse click **Libraries** in the Explorer window and select **New** . Alternatively, type DMLIBASSIGN in the command box.

In the windowing environment, SAS automatically assigns permanent librefs when SAS starts because STARTLIB is the default.

In all other execution modes (batch, interactive line, and noninteractive), SAS assigns permanent librefs only when you start SAS with the STARTLIB option specified either on the command line or in the configuration file.

STEPCHKPT System Option

Specifies whether checkpoint-restart data for DATA and PROC steps is to be recorded for a batch program.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Error Handling

PROC OPTIONS ERRORHANDLING
GROUP=

Default: The shipped default is NOSTEPCHKPT.

Restriction: The STEPCHKPT system option can be specified only if the LABELCHKPT system option is not specified when SAS starts.

Requirement: This option can be used only in batch mode.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

STEPCHKPT | NOSTEPCHKPT

Syntax Description

STEPCHKPT

enables checkpoint mode, which specifies to record checkpoint-restart data for DATA and PROC steps.

NOSTEPCHKPT

disables checkpoint mode, which specifies not to record checkpoint-restart data. This is the default.

Details

Using the STEPCHKPT system option puts SAS in checkpoint mode for SAS programs that run in batch. Each time a DATA step or PROC step executes, SAS records data in a checkpoint-restart library. If a program terminates without completing, the program can be resubmitted. Execution begins with the step that was executing when the program terminated.

To ensure that the checkpoint-restart data is accurate, when you specify the STEPCHKPT option, also specify the ERRORCHECK STRICT option and set the ERRORABEND option so that SAS terminates for most errors.

Checkpoint mode is not valid for batch programs that contain the DM statement, which submits commands to SAS. If checkpoint mode is enabled and SAS encounters a DM statement, checkpoint mode is disabled and the checkpoint catalog entry is deleted.

Comparisons

The STEPCHKPT system option enables checkpoint mode for DATA and PROC steps in batch programs that terminate before completing. Execution resumes with the DATA or PROC step that was executing when the failure occurred.

The LABELCHKPT system option enables checkpoint mode for labeled code sections in batch programs that terminate before completing. Execution resumes at the labeled code section that was executing when the failure occurred.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

Statements:

- [“CHECKPOINT EXECUTE_ALWAYS Statement” in SAS Global Statements: Reference](#)

System Options:

- [“CHKPTCLEAN System Option” on page 109](#)
- [“ERRORABEND System Option” on page 174](#)
- [“ERRORCHECK= System Option” on page 176](#)
- [“LABELCHKPT System Option” on page 224](#)
- [“STEPCHKPTLIB= System Option” on page 326](#)
- [“STEPRESTART System Option” on page 328](#)

STEPCHKPTLIB= System Option

Specifies the libref of the library where checkpoint-restart data for DATA and PROC steps is saved.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Restriction: | The STEPCHKPTLIB system option can be specified only if the LABELCHKPT system option is not specified when SAS starts. |
| Requirement: | This option can be used only in batch mode. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

STEPCHKPTLIB=*libref*

Syntax Description

libref

specifies the libref that identifies the library where the checkpoint-restart data for DATA and PROC steps is saved.

Default Work

Requirement The LIBNAME statement that identifies the checkpoint-restart library must use the BASE engine and be the first statement in the batch program.

Details

When the STEPCHKPT system option is specified, checkpoint-restart data for batch programs is saved in the libref that is specified in the STEPCHKPTLIB= system option. If no libref is specified, SAS uses the Work library to save checkpoint data. The LIBNAME statement that defines the libref must be the first statement in the batch program.

If the Work library is used to save checkpoint data, the NOWORKTERM and NOWORKINIT system options must be specified so that the checkpoint-restart data is available when the batch program is resubmitted. These two options ensure that the Work library is saved when SAS ends and is restored when SAS starts. If the NOWORKTERM option is not specified, the Work library is deleted at the end of the SAS session and the checkpoint-restart data is lost. If the NOWORKINIT option is not specified, a new Work library is created when SAS starts, and again the checkpoint-restart data is lost.

The STEPCHKPTLIB= option must be specified for any SAS session that accesses checkpoint-restart data that is not saved to the Work library.

Operating Environment Information: When the Work library resides in a UNIX directory in UNIX or z/OS operating environments and you want to run the CLEANWORK utility, the Work library directory and its contents are deleted when the utility is run after the SAS session ends. When you run SAS in batch mode in the z/OS operating environment, the Work library is usually assigned to a temporary data set that is deleted at the end of the SAS job. To preserve the checkpoint-restart data in these cases, specify a permanent library as the value for the STEPCHKPTLIB option.

Comparisons

When the STEPCHKPT system option is set, the library specified by the STEPCHKPTLIB system option names the library where checkpoint-restart data is saved for DATA and PROC steps. When the STEPRESTART system option is set, the library specified by the STEPCHKPTLIB system option names the library where checkpoint-restart data is used to resume execution of DATA and PROC steps.

When the LABELCKPT system option is set, the library specified by the LABELCHKPTLIB system option names the library where checkpoint-restart data is saved for labeled code sections. When the LABELRESTART system option is set, the library specified by the LABELCHKPTLIB system option names the library where checkpoint-restart data is used to resume execution of labeled code sections.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

Statements:

- [“CHECKPOINT EXECUTE_ALWAYS Statement” in SAS Global Statements: Reference](#)

System Options:

- [“LABELCHKPT System Option” on page 224](#)
- [“LABELCHKPTLIB= System Option” on page 226](#)
- [“STEPCHKPT System Option” on page 324](#)
- [“STEPRESTART System Option” on page 328](#)
- [“WORKINIT System Option” on page 404](#)
- [“WORKTERM System Option” on page 405](#)

STEPRESTART System Option

Specifies whether to execute a batch program by using checkpoint-restart data for DATA and PROC steps.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is NOSTEPRESTART. |
| Restriction: | The STEPRESTART system option can be specified only if the LABELCHKPT system option is not specified when SAS starts. |
| Requirement: | This option can be used only in batch mode. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

STEPRESTART | NOSTEPRESTART

Syntax Description

STEPRESTART

enables restart mode, which specifies to execute the batch program by using the checkpoint-restart data for DATA and PROC steps.

NOSTEPRESTART

disables restart mode, which specifies not to execute the batch program using checkpoint-restart data.

Details

You specify the STEPRESTART option when you want to resubmit a batch program that ran in checkpoint mode and terminated before it completed. When you resubmit the batch program, SAS determines from the checkpoint data which DATA step or PROC step was executing when the program terminated, and resumes executing the batch program by using that DATA or PROC step.

Comparisons

When you specify the STEPRESTART option, SAS uses the checkpoint-restart data for DATA and PROC steps to resume execution of batch programs.

When you specify the LABELRESTART option, SAS uses the checkpoint-restart data for labeled code sections to resume execution of batch programs.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

Statements:

- [“CHECKPOINT EXECUTE_ALWAYS Statement” in SAS Global Statements: Reference](#)

System Options:

- [“CHKPTCLEAN System Option” on page 109](#)
- [“LABELCHKPT System Option” on page 224](#)
- [“LABELRESTART System Option” on page 228](#)
- [“STEPCHKPT System Option” on page 324](#)

- [“STEPCHKPTLIB= System Option” on page 326](#)

STRIPESIZE= System Option

Specifies one or more directory and size argument pairs that set the size of SAS data sets and utility files in that directory to the size of an I/O device stripe.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Files: SAS Files System Administration: Performance System Administration: TK |
| PROC OPTIONS GROUP= | SASFILES PERFORMANCE TK |
| Interaction: | If the STRIPESIZE= system option is specified and the REUSE=YES option is also used, then STRIPESIZE= is ignored. If MSGLEVEL=I, a message is displayed in the log: INFO: The STRIPESIZE option value <i>size</i> could not be used as a file page size because it is out of range, or REUSE=YES. A value of 65536 will be used instead. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

STRIPESIZE=(*directory-path-1 size-1* <*directory-path-2 size-2* ...>)

STRIPESIZE=(*directory-path* RESET)

Syntax Description

directory-path

specifies an existing directory where the I/O page size for SAS data sets and utility files that are created in this directory is set to *size*. Subdirectories of *directory-path* inherit the data set or utility file size unless the STRIPESIZE= option has been set for the subdirectory.

Requirements If *directory-path* contains spaces, enclose the directory in quotation marks.

directory-path must be a valid Windows or UNIX File System (UFS) path. Native z/OS data set names are not supported.

UNIX specifics The casing used for *directory-path* must match the casing for the directory under UNIX operating environments.

size

specifies the number of bytes in a RAID (Redundant Array of Independent Disks) stripe, in multiples of 1: 1,024 (kilo); 1,048,576 (mega); 1,073,741,824 (giga). For example, a value of 1024 specifies 1,024 bytes, and a value of 3m specifies 3,145,728 bytes.

Range 1024–2147483648

RESET

specifies to remove the directory from the value of the STRIPESIZE= option.

Details

You can use the STRIPESIZE= option to set the SAS I/O buffer size for a directory to be the size of a RAID stripe. SAS data sets or utility files that are created in the directory have a page size that matches the RAID stripe size. Using this option can improve the performance of individual disks and improve the performance of the SORT procedure.

Setting the STRIPESIZE= option supersedes buffer size option specifications that are set by data set options and procedure options, as well as the BUFSIZE= system option. If the value of *size* is determined to be in error, the page size is determined in this order:

- 1 data set options or procedure options
- 2 the BUFSIZE= system option

If the value of *size* is determined to be in error, the size of utility files is determined by the value of the UBUFSIZE= system option.

If SAS determines that the value of *size* might cause inefficient processing, SAS continues to use the value of *size* to create data sets and utility files, and writes a message to the SAS log.

Each time you set the STRIPESIZE= option, the directory and the size are appended to the current value of the option.

To update the stripe size for a directory that is currently in the STRIPESIZE= value list, set the STRIPESIZE= option by using the directory path and a new stripe size value.

See Also

Data Set Options:

- [“BUFSIZE= Data Set Option” in SAS Data Set Options: Reference](#)
- [“REUSE= Data Set Option” in SAS Data Set Options: Reference](#)

DS2 Table Options

- “REUSE=” in *SAS DS2 Language Reference*

Procedures:

- “SORT Procedure” in *Base SAS Procedures Guide*

System Options:

- “BUFSIZE= System Option” on page 95
- “MSGLEVEL= System Option” on page 243
- “REUSE= System Option” on page 297

SUMSIZE= System Option

Specifies a limit on the amount of memory that is available for data summarization procedures when class variables are active.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | System Administration: Memory |
| PROC OPTIONS GROUP= | MEMORY |
| Default: | The shipped default is 0. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SUMSIZE=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the amount of memory in terms of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). When *n*=0, the default value, the amount of memory is determined by values of the MEMSIZE option and the REALMEMSIZE option. Valid values for SUMSIZE range from 0 to $2^{(n-1)}$ where *n* is the data width in bits (32 or 64) of the operating system.

hexX

specifies the amount of memory as a hexadecimal number. The value must begin with a number (0–9) and must be followed by an X. For example, a value of `0ffffx` specifies 4,095 bytes of memory.

MIN

specifies the minimum amount of memory available.

MAX

specifies the maximum amount of memory available.

Details

The SUMSIZE= system option affects the MEANS, OLAP, REPORT, SUMMARY, SURVEYFREQ, SURVEYLOGISTIC, SURVEYMEANS, and TABULATE procedures.

Proper specification of SUMSIZE= can improve procedure performance by restricting the swapping of memory that is controlled by the operating environment.

Generally, the value of the SUMSIZE= system option should be less than the physical memory available to your process. If the procedure that you are using needs more memory than you specify, the system creates a temporary utility file.

If the value of SUMSIZE is greater than the values of the MEMSIZE option and the REALMEMSIZE option, SAS uses the values of the MEMSIZE option and REALMEMSIZE option.

See Also

System Options:

- [“MEMSIZE System Option: UNIX” in SAS Companion for UNIX Environments](#)
- [“MEMSIZE: Windows” in SAS Companion for Windows](#)
- [“REALMEMSIZE System Option: UNIX” in SAS Companion for UNIX Environments](#)
- [“REALMEMSIZE: Windows” in SAS Companion for Windows](#)
- [“REALMEMSIZE= System Option: z/OS” in SAS Companion for z/OS](#)
- [“SORTSIZE= System Option” on page 317](#)

SVGAUTOPLAY System Option

Specifies to automatically start the animation in the web browser.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Log and Procedure Output Control: Animation Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | ANIMATION SVG |
| Default: | The shipped default is SVGAUTOPLAY. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for only SVG animation. |

Syntax


SVGAUTOPLAY | **NOSVGAUTOPLAY**

Syntax Description

SVGAUTOPLAY

specifies to automatically start the animation in the web page.

NOSVGAUTOPLAY

specifies to display the first frame of the animation in the web page. The animated file is started by clicking .

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGFADDEIN= System Option” on page 335](#)
- [“SVGFADDEMODE= System Option” on page 336](#)
- [“SVGFADDEOUT= System Option” on page 338](#)

SVGCONTROLBUTTONS System Option

Specifies whether to display the paging control buttons and an index in a multipage SVG document.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: SVG

PROC OPTIONS GROUP= SVG

Default: The shipped default is NOSVGCONTROLBUTTONS.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SVGCONTROLBUTTONS | **NOSVGCONTROLBUTTONS**

Syntax Description

SVGCONTROLBUTTONS

specifies to display the paging control buttons in the SVG document.

NOSVGCONTROLBUTTONS

specifies not to display the paging control buttons in the SVG document.

Details

When SVGCONTROLBUTTONS is specified, the size of the SVG is increased to accommodate the script that controls paging in the SVG document.

The SVGView printer sets the option to SVGCONTROLBUTTONS.

SVGFADEIN= System Option

Specifies the number of seconds for an SVG frame to fade into view.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

| | |
|--------------|--|
| Categories: | Log and Procedure Output Control: Animation Log and Procedure Output Control: SVG |
| PROC OPTIONS | ANIMATION |
| GROUP= | SVG |
| Default: | The shipped default is 0. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for only SVG animation. |

Syntax

SVGFADEIN=*n*

Syntax Description

n

specifies the number of seconds for an SVG frame to fade into view. Valid values can be any numeric representation (for example, .01, 5, or 6.5).

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADEMODE= System Option” on page 336](#)
- [“SVGFADEOUT= System Option” on page 338](#)

SVGFADEMODE= System Option

Specifies whether an SVG frame overlaps the previous frame or whether each frame is played sequentially when a frame is fading in and out.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Log and Procedure Output Control: Animation Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | ANIMATION SVG |
| Default: | The shipped default is OVERLAP. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for only SVG animation. |

Syntax

SVGFADEMODE=OVERLAP | SEQUENTIAL

Syntax Description

OVERLAP

specifies that for each SVG frame that is fading in or out of view, the fading of frames overlaps in the same time span.

SEQUENTIAL

specifies that for each SVG frame that is fading in or out of view, the frame fades out after the fade-out is complete. The next frame is a frame that is fading in.

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADEIN= System Option” on page 335](#)
- [“SVGFADEOUT= System Option” on page 338](#)

SVGFADEOUT= System Option

Specifies the number of seconds for an SVG frame to fade out of view.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Categories: | Log and Procedure Output Control: Animation Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | ANIMATION SVG |
| Default: | The shipped default is 0. |
| Notes: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . The option is valid for only SVG animation. |

Syntax

SVGFADEOUT=*n*

Syntax Description

n

specifies the number of seconds for an SVG frame to fade out of view. Valid values can be any numeric representation (for example, .01, 5, or 6.5).

See Also

- [“About Animated GIF Images and SVG Documents” in SAS Language Reference: Concepts](#)

System Options:

- [“ANIMATION= System Option” on page 72](#)
- [“ANIMDURATION= System Option” on page 73](#)
- [“ANIMLOOP= System Option” on page 75](#)
- [“ANIMOVERLAY System Option” on page 76](#)
- [“SVGAUTOPLAY System Option” on page 333](#)
- [“SVGFADEIN= System Option” on page 335](#)

- [“SVGFADEMODE= System Option” on page 336](#)

SVGHEIGHT= System Option

Specifies the height of the viewport unless the SVG output is embedded in another SVG output; specifies the value of the height attribute of the outermost <svg> element in the SVG file.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | SVG |
| Restriction: | The SVGHEIGHT= option sets the height attribute only on the outermost <svg> element. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SVGHEIGHT=*number-of-units**<unit-of-measure>* | "" | "

Syntax Description

number-of-units

specifies the height as a number of *unit-of-measure*.

Requirement *number-of-units* must be a positive integer value.

Interaction If *number-of-units* is a negative number, the SVG document is not rendered by the browser.

unit-of-measure

specifies the unit of measurement, which can be one of the following:

| | |
|----|----------------------------------|
| % | percentage |
| cm | centimeters |
| em | the height of the element's font |
| ex | the height of the letter x |
| in | inches |
| mm | millimeters |
| pc | picas |

pt points

px pixels

Default px

"" | "

specifies to reset the height to the default value of 600 pixels.

Requirement Use two double quotation marks or two single quotation marks with no space between them.

Details

For embedded <svg> elements, the SVGHEIGHT= option specifies the height of the rectangular region into which the <svg> element is placed. The SVG output is scaled to fit the viewBox if SVGHEIGHT="100%".

If the SVGHEIGHT= option is not specified, the height attribute on the <svg> element is not set, which effectively provides full scalability by using a height of 100%.

The value for the SVGHEIGHT= option can be specified using no delimiters, enclosed in single or double quotation marks, or enclosed in parentheses.

Example

The following OPTIONS statement specifies to size the SVG output to portrait letter-sized and to scale the output to 100% of the viewport:

```
options printerpath=svg orientation=portrait svgheight="100%" svgwidth="100%"
        papersize=letter;
```

By using these option values, SAS creates the following <svg> element:

```
<svg> xmlns="http://www.w3.org/2000/svg"
      xmlns:xlink="http://www.w3.org/1999/xlink"
      xml:space="preserve"
      onload='Init(evt)' version="1.1"
      width="100%" height="100%"
      viewBox="-1 -1 817 1057"
</svg>
```

The value of "100%" in the SVGHEIGHT= option specifies to scale the SVG output height to 100% of the viewport, which is based on the value of the PAPERSIZE= option. The paper size is letter in the portrait orientation, which has a height of 11" at 100 dpi.

See Also

- “Creating SVG (Scalable Vector Graphics) Files Using Universal Printing” in *SAS Language Reference: Concepts*
- “The SAS Registry” in *SAS Programmer’s Guide: Essentials*
- “Using SAS System Options” on page 6

System Options:

- “SVGCONTROLBUTTONS System Option” on page 335
- “SVGPRESERVEASPECTRATIO= System Option” on page 342
- “SVGTITLE= System Option” on page 346
- “SVGVIEWBOX= System Option” on page 347
- “SVGWIDTH= System Option” on page 349
- “SVGX= System Option” on page 352
- “SVGY= System Option” on page 353

SVGMAGNIFYBUTTON System Option

Specifies whether to enable the SVG magnify tool in SVG documents.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | SVG |
| Default: | The shipped default is NOSVGMAGNIFYBUTTON. |
| Restriction: | The SVG magnifier tool is not supported for the SVGANIM and SVGT Universal Printers. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SVGMAGNIFYBUTTON | NOSVGMAGNIFYBUTTON

Syntax Description

SVGMAGNIFYBUTTON

specifies to enable the SVG magnify tool in SVG documents.

NOSVGMAGNIFYBUTTON

specifies to disable the SVG magnify tool for all SVG documents.

Details

When SVGMAGNIFYBUTTON is specified, the SVG documents with the magnify tool enabled depends on the SVG Universal Printer that is used to create either a single-page or multi-page document.

There are some restrictions for using the magnify tool:

- The magnify tool is not supported for the SVGT printer and animated SVG documents.
- When you use the SVGnotip printer, no tooltip is displayed to tell you to enable or disable the magnifying glass.
- When the magnify tool is enabled, the magnify tool is turned off on the Index page of a multi-page document.

See Also

[“Including the Magnify Tool in SVG Documents” in SAS Language Reference: Concepts](#)

SVGPRESERVEASPECTRATIO= System Option

Specifies whether to force uniform scaling of SVG output; specifies the preserveAspectRatio attribute on the outermost <svg> element.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: SVG

PROC OPTIONS GROUP= SVG

Restriction: The SVGPRESERVEASPECTRATIO= option sets the preserveAspectRatio attribute only on the outermost <svg> element.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SVGPRESERVEASPECTRATIO=*align* | *meetOrSlice* | NONE | ""

SVGPRESERVEASPECTRATIO="align *meetOrSlice*"

Syntax Description

align

specifies to force uniform scaling by specifying the alignment method to use. The value for *align* can be one of the following:

xMinYMin

specifies to force uniform scaling by using the following alignment:

- Align the <min-x> of the element's viewBox with the smallest X value of the viewport.
- Align the <min-y> of the element's viewBox with the smallest Y value of the viewport.

xMidYMin

specifies to force uniform scaling by using the following alignment:

- Align the midpoint X value of the element's viewBox with the midpoint X value of the viewport.
- Align the <min-y> of the element's viewBox with the smallest Y value of the viewport.

xMaxYMin

specifies to force uniform scaling by using the following alignment:

- Align the <min-x>+<width> of the element's viewBox with the maximum X value of the viewport.
- Align the <min-y> of the element's viewBox with the smallest Y value of the viewport.

xMinYMid

specifies to force uniform scaling by using the following alignment:

- Align the <min-x> of the element's viewBox with the smallest X value of the viewport.
- Align the midpoint Y value of the element's viewBox with the midpoint Y value of the viewport.

xMidYMid

specifies to force uniform scaling by using the following alignment:

- Align the midpoint X value of the element's viewBox with the midpoint X value of the viewport.
- Align the midpoint Y value of the element's viewBox with the midpoint Y value of the viewport. This is the default.

xMaxYMid

specifies to force uniform scaling by using the following alignment:

- Align the `<min-x>+<width>` of the element's `viewBox` with the maximum X value of the viewport.
- Align the midpoint Y value of the element's `viewBox` with the midpoint Y value of the viewport.

xMinYMax

specifies to force uniform scaling by using the following alignment:

- Align the `<min-x>` of the element's `viewBox` with the smallest X value of the viewport.
- Align the `<min-y>+<height>` of the element's `viewBox` with the maximum Y value of the viewport.

xMidYMax

specifies to force uniform scaling by using the following alignment:

- Align the midpoint X value of the element's `viewBox` with the midpoint X value of the viewport.
- Align the `<min-y>+<height>` of the element's `viewBox` with the maximum Y value of the viewport.

xMaxYMax

specifies to force uniform scaling by using the following alignment:

- Align the `<min-x>+<width>` of the element's `viewBox` with the maximum X value of the viewport.
- Align the `<min-y>+<height>` of the element's `viewBox` with the maximum Y value of the viewport.

meetOrSlice

specifies to preserve the aspect ratio and how the `viewBox` is displayed. The following values are valid for *meetOrSlice*:

meet

specifies to scale the SVG graphic as follows:

- preserve the aspect ratio
- make the entire `viewBox` visible within the viewport
- scale up the `viewBox` as much as possible while meeting other criteria

If the aspect ratio of the graphic does not match the viewport, some of the viewport extends beyond the bounds of the `viewBox`.

slice

specifies to scale the SVG graphic as follows:

- preserve the aspect ratio
- cover the entire `viewBox` with the viewport
- scale down the `viewBox` as much as possible while meeting other criteria

If the aspect ratio of the `viewBox` does not match the viewport, some of the `viewBox` extends the bounds of the viewport.

NONE

specifies not to force uniform scaling and to scale the SVG output nonuniformly so that the element's bounding box exactly matches the viewport rectangle.

""

specifies to reset the `preserveAspectRatio` attribute of the `<svg>` element to the default value of `xMidYMid meet`.

Requirement Use two double quotation marks with no space between them.

Details

When the value of the SVGPRESERVEASPECTRATIO= option includes both *align* and *meetOrSlice*, you can delimit the value by using single or double quotation marks or parentheses.

The `preserveAspectRatio` attribute applies only when a value is provided for the `viewBox` on the same `<svg>` element. If the `viewBox` attribute is not provided, the `preserveAspectRatio` attribute is ignored.

Example

The following OPTIONS statements are examples of using the SVGPRESERVEASPECTRATIO= system option:

```
options preserveaspectratio=xMinYMax;
options preserveaspectratio="xMinYMin meet";
options preserveaspectratio=(xMinYMin meet);
options preserveaspectratio="";
```

See Also

- [“Creating SVG \(Scalable Vector Graphics\) Files Using Universal Printing” in SAS Language Reference: Concepts](#)

System Options:

- [“SVGCONTROLBUTTONS System Option” on page 335](#)
- [“SVGHEIGHT= System Option” on page 339](#)
- [“SVGTITLE= System Option” on page 346](#)
- [“SVGVIEWBOX= System Option” on page 347](#)
- [“SVGWIDTH= System Option” on page 349](#)
- [“SVGX= System Option” on page 352](#)
- [“SVGY= System Option” on page 353](#)

SVGTITLE= System Option

Specifies the title in the title bar of the SVG output; specifies the value of the <title> element in the SVG file.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | SVG |
| Requirement: | The value for the SVGTITLE= option must be enclosed in single or double quotation marks, or enclosed in parentheses. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SVGTITLE=*"title" | "" | "*

Syntax Description

"title"

specifies the title of the SVG.

Range 1–256 characters

"" | "

specifies to reset the title to empty.

Requirement Use two double quotation marks or two single quotation marks with no space between them.

Details

Here are the rules for setting the title of an SVG file:

- If the SVGTITLE option is specified, the SVG output title bar and the value of the SVG <title> element are set to the value of the SVGTITLE option.
- If the SVGTITLE option is not specified and the TITLE statement is specified, the value of the SVGTITLE option, the SVG output title bar, and the SVG <title> element are the value of the TITLE statement. If more than one TITLE

statement is specified, the titles are concatenated, separated by a semicolon. The maximum number of characters is 256 characters.

- If the SVGTITLE option and the TITLE statement are not specified, the title bar of the SVG output displays the filename of the SVG output.

See Also

- [“Creating SVG \(Scalable Vector Graphics\) Files Using Universal Printing” in SAS Language Reference: Concepts](#)

System Options:

- [“SVGCONTROLBUTTONS System Option” on page 335](#)
- [“SVGHEIGHT= System Option” on page 339](#)
- [“SVGPRESERVEASPECTRATIO= System Option” on page 342](#)
- [“SVGWIDTH= System Option” on page 349](#)
- [“SVGVIEWBOX= System Option” on page 347](#)
- [“SVGX= System Option” on page 352](#)
- [“SVGY= System Option” on page 353](#)

SVGVIEWBOX= System Option

Specifies the coordinates, width, and height that are used to set the viewBox attribute on the outermost <svg> element, which enables SVG output to scale to the viewport.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: SVG

PROC OPTIONS GROUP= SVG

Restriction: The SVGVIEWBOX= option sets the viewBox attribute only on the outermost <svg> element.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SVGVIEWBOX=*“min-x min-y width height”* | none | "" | "

Syntax Description

min-x

specifies the beginning x coordinate of the `viewBox`, in user units.

Requirement *min-x* can be 0, or a positive or a negative integer value.

min-y

specifies the beginning y coordinate of the `viewBox`, in user units.

Requirement *min-y* can be 0, or a positive or negative integer value.

width

specifies the width of the `viewBox`, in user units.

Requirement *width* must be a positive integer value.

height

specifies the height of the `viewBox`, in user units.

Requirement *height* must be a positive integer value.

none

specifies that no `viewBox` attribute is to be specified on the outermost `<svg>` element, which effectively creates a static SVG document.

"" | "

specifies to reset the width and height of the `viewBox` to the width and height of the paper size for the SVG printer.

Requirement Use two double quotation marks or two single quotation marks with no space between them.

Details

When the `viewBox` attribute is specified, the SVG output is scaled to be rendered in the viewport and the current coordinate system is updated to be the dimensions that are specified by the `viewBox` attribute. If it is not specified, the `viewBox` attribute on the outermost `<svg>` element sets the height and width arguments of the `viewBox` attribute to the paper height and paper width as defined by the `PAPERSIZE=` system option.

The coordinates, width, and height of the `viewBox` attribute should be mapped to the coordinates, width, and height of the viewport, taking into account the values of the `preserveAspectRatio` attribute.

The value for the `SVGVIEWBOX=` option must be enclosed in single or double quotation marks, or enclosed in parentheses.

You can use a negative value for *min-x* and *min-y* to place the SVG document in the output. A negative value of *min-x* shifts the output to the right. A negative value of *min-y* shifts the placement of the output downward.

Example

The following OPTIONS statement specifies to scale the output to a width of 100 user units and a height of 200 user units:

```
options printerpath=svg svgviewbox="0 0 100 200" dev=sasprt;
```

By using these option values, SAS creates the following <svg> element:

```
<svg> xmlns="http://www.w3.org/2000/svg"
      xmlns:xlink="http://www.w3.org/1999/xlink"
      xml:space="preserve"
      onload='Init(evt)' version="1.1"
      viewBox="0 0 100 200"
</svg>
```

See Also

- [“Creating SVG \(Scalable Vector Graphics\) Files Using Universal Printing” in SAS Language Reference: Concepts](#)

System Options:

- [“SVGCONTROLBUTTONS System Option” on page 335](#)
- [“SVGHEIGHT= System Option” on page 339](#)
- [“SVGPRESERVEASPECTRATIO= System Option” on page 342](#)
- [“SVGTITLE= System Option” on page 346](#)
- [“SVGWIDTH= System Option” on page 349](#)
- [“SVGX= System Option” on page 352](#)
- [“SVGY= System Option” on page 353](#)

SVGWIDTH= System Option

Specifies the width of the viewport unless the SVG output is embedded in another SVG output; specifies the value of the width attribute in the outermost <svg> element in the SVG file.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: SVG |
| PROC OPTIONS GROUP= | SVG |
| Restriction: | The SVGWIDTH= option sets the width attribute only on the outermost <svg> element. |

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SVGWIDTH=*number-of-units***<***unit-of-measure***> | "" | "**

Syntax Description

number-of-units

specifies the width as a number of *unit-of-measure*.

Requirement *number-of-units* must be a positive integer value.

Interaction If *number-of-units* is a negative number, the SVG document is not rendered by the browser.

unit-of-measure

specifies the unit of measurement, which can be one of the following:

| | |
|----|----------------------------------|
| % | percentage |
| cm | centimeters |
| em | the height of the element's font |
| ex | the height of the letter x |
| in | inches |
| mm | millimeters |
| pc | picas |
| pt | points |
| px | pixels |

Default px

"" | "

specifies to reset the width to the default value of 800 pixels.

Requirement Use two double quotation marks or two single quotation marks with no space between them.

Details

For embedded `<svg>` elements, the `SVGWIDTH=` option specifies the width of the rectangular region into which the `<svg>` element is placed. The SVG output is scaled to fit the `viewBox` if `SVGWIDTH="100%"`.

If the SVGWIDTH= option is not specified, the width attribute on the <svg> element is not set, which effectively provides full scalability by using a width of 100%.

The value for the SVGWIDTH= option can be specified without delimiters, enclosed in single or double quotation marks, or enclosed in parentheses.

Example

The following OPTIONS statement specifies to size the SVG output to portrait letter-sized and to scale the output to 100% of the viewport:

```
options printerpath=svg orientation=portrait svgheight="100%" svgwidth="100%"
        papersize=letter;
```

By using these option values, SAS creates the following <svg> element:

```
<svg> xmlns="http://www.w3.org/2000/svg"
      xmlns:xlink="http://www.w3.org/1999/xlink"
      xml:space="preserve"
      onload='Init(evt)' version="1.1"
      width="100%" height="100%"
      viewBox="-1 -1 817 1057"
</svg>
```

The value of "100%" in the SVGWIDTH= option specifies to scale the SVG output width to 100% of the viewport, which is based on the value of the PAPERSIZE= option. The paper size is letter in the portrait orientation, which has a width of 8.5" at 96 dpi.

See Also

- [“Creating SVG \(Scalable Vector Graphics\) Files Using Universal Printing” in SAS Language Reference: Concepts](#)
- [“The SAS Registry” in SAS Programmer’s Guide: Essentials](#)
- [“Using SAS System Options” on page 6](#)

System Options:

- [“SVGCONTROLBUTTONS System Option” on page 335](#)
- [“SVGHEIGHT= System Option” on page 339](#)
- [“SVGPRESERVEASPECTRATIO= System Option” on page 342](#)
- [“SVGTITLE= System Option” on page 346](#)
- [“SVGVIEWBOX= System Option” on page 347](#)
- [“SVGX= System Option” on page 352](#)
- [“SVGY= System Option” on page 353](#)

SVGX= System Option

Specifies the x-axis coordinate of one corner of the rectangular region into which an embedded <svg> element is placed; specifies the x attribute in the outermost <svg> element in an SVG file.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: SVG

PROC OPTIONS GROUP= SVG

Restriction: The SVGX= option sets the x attribute only on the outermost <svg> element.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SVGX=*number-of-units**<unit-of-measure>* | "" | "

Syntax Description

number-of-units

specifies the x-axis coordinate as a number of *unit-of-measure*.

unit-of-measure

specifies the unit of measurement, which can be one of the following:

| | |
|----|----------------------------------|
| % | percentage |
| cm | centimeters |
| em | the height of the element's font |
| ex | the height of the letter x |
| in | inches |
| mm | millimeters |
| pc | picas |
| pt | points |
| px | pixels |

Default px

"" | "

specifies to reset the x attribute to 0 on the <svg> element and the x-axis coordinate for embedded SVG to 0.

Requirement Use two double quotation marks or two single quotation marks with no space between them.

Details

If the SVGX= option is not set, the `x` attribute on the `<svg>` element effectively has a value of 0 and no x-axis coordinate is set for embedded SVG output.

The value for the SVGX= option can be specified without delimiters, enclosed in single or double quotation marks, or enclosed in parentheses.

The `x` attribute on the outermost `<svg>` element has no effect on SVG documents that are produced by SAS. You can use the SVGX= system option to specify the x-axis coordinate if the SVG document is processed outside of SAS.

See Also

- [“Creating SVG \(Scalable Vector Graphics\) Files Using Universal Printing” in SAS Language Reference: Concepts](#)

System Options:

- [“SVGCONTROLBUTTONS System Option” on page 335](#)
- [“SVGHEIGHT= System Option” on page 339](#)
- [“SVGPRESERVEASPECTRATIO= System Option” on page 342](#)
- [“SVGTITLE= System Option” on page 346](#)
- [“SVGVIEWBOX= System Option” on page 347](#)
- [“SVGWIDTH= System Option” on page 349](#)
- [“SVGY= System Option” on page 353](#)

SVGY= System Option

Specifies the y-axis coordinate of one corner of the rectangular region into which an embedded `<svg>` element is placed; specifies the `y` attribute in the outermost `<svg>` element in an SVG file.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya:
Not supported

Category: Log and Procedure Output Control: SVG

PROC OPTIONS GROUP= SVG

- Restriction: The SVGY= option sets the *y* attribute only on the outermost `<svg>` element.
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

SVGY=*number-of-units**<unit-of-measure>* | "" | "

Syntax Description

number-of-units

specifies the *y*-axis coordinate as a number of *unit-of-measure*.

unit-of-measure

specifies the unit of measurement, which can be one of the following:

| | |
|---------|----------------------------------|
| % | percentage |
| cm | centimeters |
| em | the height of the element's font |
| ex | the height of the letter x |
| in | inches |
| mm | millimeters |
| pc | picas |
| pt | points |
| px | pixels |
| Default | px |

"" | "

specifies to reset the *y* attribute on the `<svg>` element and the *y*-axis coordinate for embedded SVG output to 0.

Requirement Use two double quotation marks or two single quotation marks with no space between them.

Details

If the SVGY= option is not set, the *y* attribute on the `<svg>` element effectively has a value of 0 and no *y*-axis coordinate is set for embedded SVG output.

The value for the SVGY= option can be specified without delimiters, enclosed in single or double quotation marks, or enclosed in parentheses.

The `y` attribute on the outermost `<svg>` element has no effect on SVG documents that are produced by SAS. You can use the `SVGY=` system option to specify the y-axis coordinate if the SVG document is processed outside of SAS.

See Also

- [“Creating SVG \(Scalable Vector Graphics\) Files Using Universal Printing” in SAS Language Reference: Concepts](#)

System Options:

- [“SVGCONTROLBUTTONS System Option” on page 335](#)
- [“SVGHEIGHT= System Option” on page 339](#)
- [“SVGPRESERVEASPECTRATIO= System Option” on page 342](#)
- [“SVGTITLE= System Option” on page 346](#)
- [“SVGVIEWBOX= System Option” on page 347](#)
- [“SVGWIDTH= System Option” on page 349](#)
- [“SVGX= System Option” on page 352](#)

SYNTAXCHECK System Option

In non-interactive or batch SAS sessions, specifies whether to enable syntax check mode for multiple steps.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Error Handling |
| PROC OPTIONS GROUP= | ERRORHANDLING |
| Default: | The shipped default is SYNTAXCHECK. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

SYNTAXCHECK | NOSYNTAXCHECK

Syntax Description

SYNTAXCHECK

enables syntax check mode for statements that are submitted within a non-interactive or batch SAS session.

NOSYNTAXCHECK

does not enable syntax check mode for statements that are submitted within a non-interactive or batch SAS session.

CAUTION **Setting NOSYNTAXCHECK might cause a loss of data.** Manipulating and deleting data by using untested code might result in a loss of data if your code contains invalid syntax. Be sure to test code completely before placing it in a production environment.

Details

If a syntax or semantic error occurs in a DATA step after the SYNTAXCHECK option is set, then SAS enters syntax check mode, which remains in effect from the point where SAS encountered the error to the end of the code that was submitted. After SAS enters syntax mode, all subsequent DATA step statements and PROC step statements are validated.

While in syntax check mode, only limited processing is performed. For a detailed explanation of syntax check mode, see [“Syntax Check Mode” in SAS Language Reference: Concepts](#).

Place the OPTIONS statement that enables SYNTAXCHECK before the step for which you want it to take effect. If you place the OPTIONS statement inside a step, then SYNTAXCHECK does not take effect until the beginning of the next step.

NOSYNTAXCHECK enables continuous processing of statements regardless of syntax error conditions.

SYNTAXCHECK is ignored in the SAS windowing environment and in SAS line-mode sessions.

Comparisons

You use the SYNTAXCHECK system option to validate syntax in a non-interactive or a batch SAS session. You use the DMSSYNCHK system option to validate syntax in an interactive session by using the SAS windowing environment.

The ERRORCHECK= option can be set to enable or disable syntax check mode for the LIBNAME statement, the FILENAME statement, the %INCLUDE statement, and the LOCK statement in SAS/SHARE. If you specify the NOSYNTAXCHECK option and the ERRORCHECK=STRICT option, then SAS does not enter syntax check mode when an error occurs.

See Also

- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“DMSSYNCHK System Option” on page 153](#)
- [“ERRORCHECK= System Option” on page 176](#)

SYSPRINTFONT= System Option

Specifies the default font to use for printing, which can be overridden by explicitly specifying a font and an ODS style.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Log and Procedure Output Control: Procedure Output |
| PROC OPTIONS GROUP= | LISTCONTROL |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “SYSPRINTFONT: Windows” in SAS Companion for Windows |

Syntax

```
SYSPRINTFONT=("face-name" <weight> <style> <character-set> <point-size> <NAMED "printer-name" | UPRINT="printer-name" | DEFAULT | ALL> )
```

Syntax Description

"face-name"

specifies the name of the font face to use for printing.

Requirements If *face-name* consists of more than one word, you must enclose the value in single or double quotation marks. The quotation marks are stored with the face-name.

When you use the SYSPRINTFONT= option with multiple arguments, you must enclose the arguments in parentheses.

Interaction When you specify UPRINT=*printer-name*, *face-name* must be a valid font for *printer-name*.

weight

specifies the weight of the font, such as BOLD. A list of valid values for your specified printer appears in the SAS: Printer Properties window.

Default NORMAL

style

specifies the style of the font, such as ITALIC. A list of valid values for your specified printer appears in the SAS: Printer Properties window.

Default REGULAR

character-set

specifies the character set to use for printing.

Default If the font does not support the specified character set, the default character set is used. If the default character set is not supported by the font, the font's default character set is used.

Range Valid values are listed in the SAS: Printer Properties window, under the Font tab.

point-size

specifies the point size to use for printing. If you omit this argument, SAS uses the default.

Requirement *Point-size* must be an integer. It must also be placed after the *face-name*, *weight*, *style*, and *character-set* arguments.

NAMED "*printer-name*"

specifies a printer in the Windows operating environment to which these settings apply.

Restriction This argument is valid only for printers in the Windows operating environment. To specify a Universal Printer, use the UPRINT=argument.

Requirements The *printer-name* must exactly match the name shown in the Print Setup dialog box (except that the printer name is not case sensitive).

If the printer is more than one word, the *printer-name* must be enclosed in double quotation marks. The quotation marks are stored with the printer-name.

UPRINT="*printer-name*"

specifies a Universal Printer to which these settings apply.

Restriction This argument is valid only for printers that are listed in the SAS Registry.

Requirements The *printer-name* must match exactly the name shown in the Print Setup dialog box (except that the printer name is not case sensitive).

If the *printer-name* is more than one word, it must be enclosed in single or double quotation marks. The quotation marks are stored with the printer-name.

DEFAULT | ALL

specifies whether the font settings apply to the default printer or to all printers:

DEFAULT

specifies that the font settings apply to the current default printer that is specified by the SYSPRINT= system option.

ALL

specifies that the font settings apply to all installed printers.

Details

The SYSPRINTFONT= system option sets the font to use when printing to the current default printer, to a specified printer or to all printers.

In some cases, you might need to specify the font from a SAS program. In this case, you might want to view the SAS: Printer Properties window for allowable names, styles weights, and sizes for your fonts. For examples of how to apply the SYSPRINTFONT= option in a SAS program, see [“Comparisons” on page 360](#).

If you specified SYSPRINTFONT= with DEFAULT or without a keyword and later use the Print Setup dialog box to change the current default printer, then the font that is used with the current default printer is the font that was specified with SYSPRINTFONT, if the specified font exists on the printer. If the current printer does not support the specified font, the printer’s default font is used.

The following fonts are widely supported:

- Helvetica
- Times
- Courier
- Symbol

By specifying one of these fonts in a SAS program, you can usually avoid returning an error. If that particular font is not supported, a similar-looking font prints in its place.

All Universal printers and many SAS/GRAPH devices use the FreeType engine to render TrueType fonts. For more information, see [SAS Viya Universal Printing](#)

Note: As an alternative to using the SYSPRINTFONT= system option, you can set fonts with the SAS: Printer Properties window, under the **Font** tab. From the drop-down menu select **File** ⇒ **Print Setup** ⇒ **Properties** ⇒ **Font**. Using a dialog box is fast and easy because you choose your font, style, weight, size, and character set from a list of options that your selected printer supports.

Comparisons

Specifying a Font to the Default Printer

This example specifies the 12-point Times font on the default printer:

```
options sysprintfont=("times" 12);
```

Specifying a Font to a Named Windows Printer

This example specifies to use Courier on the printer named HP LaserJet Pro MFP M426fdw. Specify the printer name in the same way that it is specified in the SAS Print Setup dialog box:

```
options sysprintfont= ("courier" named "HP LaserJet Pro MFP M426fdw");
```

Specifying a Font to a Universal Printer, on the SAS command line

This example specifies the Albany AMT font for the PDF Universal Printer::

```
sysprintfont=('courier' 11 uprint='PDF')
```

TERMINAL System Option

Specifies whether to associate a terminal with a SAS session.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Defaults: | SAS 9.4: The shipped default is TERMINAL. SAS Viya: The shipped default is NOTERMINAL. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

TERMINAL | **NOTERMINAL**

Syntax Description

TERMINAL

specifies that a physical display is available for the execution environment.

NOTERMINAL

specifies that a physical display is not available for the execution environment. Dialog boxes are not displayed.

Details

SAS defaults to TERMINAL, but might set the option to NOTERMINAL if SAS determines that the session should run in the background.

The TERMINAL option is typically used with the following execution modes:

- SAS windowing environment mode
- interactive line mode
- noninteractive mode

The NOTERMINAL option is typically used with server execution modes.

TERMSTMT= System Option

Specifies the SAS statements to execute when SAS terminates.

| | |
|------------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Initialization and Operation |
| PROC OPTIONS GROUP= | EXECMODES |
| Operating environment: | In some operating system environments there is a limit to the size of the value for TERMSTMT=. To circumvent this limitation, you can use the %INCLUDE statement. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

TERMSTMT=*'statement(s)'*

Syntax Description

'statement(s)'

is one or more SAS statements.

Length maximum length is 2,048 characters

Details

TERMSTMT= is fully supported in batch mode. In interactive modes, TERMSTMT= is executed only when you submit the ENDSAS statement from an editor window

to terminate the SAS session. Terminating SAS by any other means in interactive mode results in TERMSTMT= not being executed.

An alternate method for specifying TERMSTMT= is to put a %INCLUDE statement at the end of a batch file or to submit a %INCLUDE statement before terminating the SAS session in interactive mode.

Comparisons

TERMSTMT= specifies the SAS statements to be executed at SAS termination, and INITSTMT= specifies the SAS statements to be executed at SAS initialization.

See Also

Statements:

- [“%INCLUDE Statement” in SAS Global Statements: Reference](#)

System Options:

- [“INITSTMT= System Option” on page 215](#)

TEXTURELOC= System Option

Specifies the location of textures and images that are used by ODS styles.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Log and Procedure Output Control: ODS Printing

PROC OPTIONS
GROUP= ODSPRINT

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

TEXTURELOC=*location*

Syntax Description

location

specifies the location of textures and images used by ODS styles. *Location* can refer either to the physical name of the directory or to a URL reference to the directory.

Restriction Only one location is allowed per statement.

Requirements If *location* is not a fileref, then you must enclose the value in quotation marks.

The files in the directory must be in the form of gif, jpeg, or bitmap.

Location must refer to a directory.

See Also

[“Dictionary of ODS Language Statements” in SAS Output Delivery System: User's Guide](#)

THREADS System Option

Specifies that SAS uses threaded processing if available.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: System Administration: Performance

PROC OPTIONS GROUP= PERFORMANCE

Default: The shipped default is THREADS.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

THREADS | NOTHEADS

Syntax Description

THREADS

specifies to use threaded processing for SAS applications that support it.

Interaction If THREADS is specified either as a SAS system option or in PROC SORT and another program has the input SAS data set open for reading, writing, or updating using the SPD engine, then the procedure might fail and write a subsequent message to the SAS log.

NOTHEADS

specifies not to use threaded processing for running SAS applications that support it.

Interaction When you specify NOTHEADS, CPUCOUNT= is ignored unless you specify a procedure option that overrides the NOTHEADS system option.

Details

The THREADS system option enables some legacy SAS processes that are thread-enabled to take advantage of multiple CPUs by threading the processing and I/O operations. Threading the processing and I/O operations achieves a degree of parallelism that generally reduces the real time to completion for a given operation at the possible cost of additional CPU resources. The thread-enabled processes include

- Base SAS engine indexing
- Base SAS procedures: MEANS, REPORT, SORT, SUMMARY, TABULATE, and SQL
- SAS/STAT thread-enabled procedures in Symmetric Multi-Processor (SMP) mode: ADAPTIVEREG, FMM, GLM, GLMSELECT, LOESS, MIXED, QUANTLIFE, QUANTREG, QUANTSELECT, and ROBUSTREG.

For example, in some cases, processing small data sets, SAS might determine to use a single-threaded operation.

Set this option to NOTHEADS to achieve SAS behavior most compatible with releases prior to SAS 9, if you find that threading does not improve performance or if threading might be related to an unexplainable problem. See the specific documentation for each product to determine whether it has functionality that is enabled by the THREADS option.

Some SAS products, solutions, and processing modes use threaded technology without the consideration of the NOTHEADS option:

- SAS products that execute in massively parallel processing (MPP) mode in a distributed computing environment:
 - SAS High-Performance Analytic technologies such as SAS Grid Manager, SAS In-Database, SAS High-Performance Analytics Server, SAS Visual Analytics, SAS High-Performance Risk Management

- SAS High-Performance Analytics procedures (for example, HPSUMMARY, HPREG, HPDS2, and HPLOGISTICS)
 - SAS/OR
 - SAS/ETS
 - SAS Enterprise Miner
 - SAS LASR Analytic Server
 - SAS Data Integration Studio
 - SAS/ACCESS engines read, write, or update data in a DBMS if it is a parallel server.
 - SAS Scalable Performance Data Server
 - SPD Engine threaded reads and indexes, but remains in effect for SAS thread-enabled procedures executing on the SPD Engine
 - DS2 programs
 - SAS Logging Facility
 - SAS servers in the Intelligence Platform
 - SAS Workspace Server
 - SAS Stored Process Server
 - SAS Pooled Workspace Server
 - SAS OLAP Server
 - SAS Metadata Server
 - SAS Object Spawner
- NOTHEADS is ignored except when the Workspace Server, the Pooled Workspace Server, or the Stored Process Server submits code that includes a procedure that checks for the NOTHEADS system option.
- The SAS Intelligence Platform middle tier, which is an infrastructure for web applications
 - SAS MP CONNECT

Comparisons

The system option THREADS determines when threaded processing is in effect. The SAS system option CPUCOUNT= suggests how many system CPUs are available for use by thread-enabled SAS procedures.

See Also

- [“Using Parallel Processing” in SAS Programmer’s Guide: Essentials](#)

System Options:

- “CPUCOUNT= System Option” on page 128
- “UTILLOC= System Option” on page 376

TIMEZONE= System Option

Specifies the user local time zone.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Language Control |
| PROC OPTIONS GROUP= | LANGUAGECONTROL |
| Alias: | TZ=, except in the restricted options configuration file where TIMEZONE= must be used |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

TIMEZONE= *'time-zone-name'* | *'time-zone-ID'*

Syntax Description

time-zone-name

specifies a three- or four-character time zone name. For example, EST is a time zone name for Eastern Time.

Default BLANK, indicating that the SAS server time zone and the client time zone are the same

See For a list of time zone names, see [Appendix 1, “Time Zone Information and Time Zone Names,” on page 449](#).

<->

specifies the time offset from Greenwich, England in the form <->*hh*<:*mm*<:*ss*>>:

- specifies the time zone offset west of Greenwich, England. Time zone offsets east of Greenwich do not require signed notation.

hh specifies an hour by using one or two digits. If you specify an offset, the hour is required.

mm specifies minutes by using one or two digits. Minutes are optional.

ss specifies seconds by using one or two digits. Seconds are optional.

time-zone-ID

specifies a *region/area* value that is defined by SAS. When you specify a time zone ID, the time zone that SAS uses is determined by time zone name and daylight saving time rules.

Note Time zone IDs are compatible with Java time zone names.

See For a list of time zone IDs, see [Appendix 1, “Time Zone Information and Time Zone Names,”](#) on page 449.

Details

You set the TIMEZONE= option to a time zone ID or a time zone name in order for SAS to use a particular time zone. The time zone setting affects the following SAS components:

- times that are recorded by events and logs
- time of data set creation or modification
- DATE() function
- DATETIME() function
- TIME() function
- TODAY() function
- time zone functions TZONEOFF(), TZONEID(), TZONENAME(), TZONES2U(), and TZONEU2S(),
- time zone formats B8601DXw., E8601DXw., B8601LXw., E8601LXw., B8601TXw., E8601TXw., NLDATMZw., NLDATMTZw., and NLDATMWZw.

You set a time zone by specifying a time zone ID or a time zone name. A time zone ID is a region and an area separated by a forward slash (/). For example, America/New_York and Asia/Osaka are time zone IDs.

A time zone name is a three- or four-character name for a time zone. For example, EST is Eastern Time and JST is Japan Time. SAS determines the time by using time zone rules, including daylight saving time rules, before using a time value.

Some time zones names are valid for different locales. For example, CST is Central Standard Time, Cuba Daylight Time, and China Standard Time. SAS uses the value of the LOCALE= system option to determine the region and area to use. If TIMEZONE='CST' and LOCALE='zh_CN', SAS uses the Asia/Beijing time zone. If the time zone name does not exist for the locale, SAS searches all time zones and sets the time zone to the first match that it finds.

When this option is restricted and the value of TIMEZONE= is the default value of BLANK, time zone behavior does not use time zone information.

See Also

[“Specifying Time Zones in SAS” in SAS National Language Support \(NLS\): Reference Guide](#)

TOPMARGIN= System Option

Specifies the print margin at the top of the page.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Default: | The shipped default is 0.000 in. |
| Note: | This option cannot be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

TOPMARGIN=*margin-size*<*margin-unit*>

Syntax Description

margin-size

specifies the size of the margin.

Restriction The bottom margin should be small enough so that the top margin plus the bottom margin is less than the height of the paper.

Interaction Changing the value of this option might result in changes to the value of the PAGESIZE= system option.

<*margin-unit*>

specifies the units for margin-size. The margin-unit can be *in* for inches or *cm* for centimeters. <*margin-unit*> is saved as part of the value of the TOPMARGIN system option.

Default inches

Details

All margins have a minimum that is dependent on the printer and the paper size. The default value of the TOPMARGIN system option is 0.00 in.

See Also

- [Universal Printing](#)

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“BOTTOMMARGIN= System Option” on page 91](#)
- [“LEFTMARGIN= System Option” on page 230](#)
- [“RIGHTMARGIN= System Option” on page 298](#)

TRAINLOC= System Option

Specifies the URL for SAS online training courses.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Files

PROC OPTIONS GROUP= ENVFILES

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

TRAINLOC=*“base-URL”*

Syntax Description

base-URL

specifies the address where the SAS online training courses are located.

Details

The TRAINLOC= system option specifies the base location (typically a URL) of SAS online training courses. These online training courses are typically accessed from an intranet server or a local CD-ROM.

Example

Some examples of the *base-URL* are:

- "file:///e:\onlintut"
- "http://server.abc.com/SAS/sastrain"

UBUFNO= System Option

Specifies the number of buffers to use for utility files.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Files: SAS Files System Administration: Performance |
| PROC OPTIONS GROUP= | SASFILES PERFORMANCE |
| Default: | The shipped default is 0. |
| Note: | This option cannot be restricted by a site administrator. For more information, see "Restricted Options" on page 8 . |

Syntax

UBUFNO=*n* | *nK* | *nM* | *nG* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, and GB notations.

Syntax Description

n* | *nK* | *nM* | *nG

specifies the number of utility file buffers to be allocated in multiples of 1: 1,024 (kilo); 1,048,576 (mega); 1,073,741,824 (giga). For example, a value of 8 specifies 8 buffers, and a value of .003k specifies 3 buffers.

Range 0–20

hexX

specifies the number of utility file buffers as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value `0fx` specifies 15 buffers.

MIN

sets the minimum number of utility file buffers to 0, which causes SAS to use the minimum optimal value for the operating environment.

MAX

sets the number of utility file buffers to 20.

Details

The number of buffers is not a permanent attribute of the utility file and is valid only for the current SAS session or job. The `UBUFNO=` option applies to utility files that are opened for input, output, or update.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

See Also

System Options:

- [“BUFNO= System Option” on page 93](#)
- [“UBUFSIZE= System Option” on page 371](#)

UBUFSIZE= System Option

Specifies the buffer size for utility files.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Categories: Files: SAS Files
System Administration: Performance

PROC OPTIONS GROUP= SASFILES
PERFORMANCE

Default: The shipped default is 0.

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

UBUFSIZE=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | **MIN** | **MAX**

Note: You can also use the KB, MB, GB, and TB syntax notations.

Syntax Description

n* | *nK* | *nM* | *nG* | *nT

specifies the utility file buffer size in multiples of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776 (terabytes). For example, a value of 8 specifies 8 bytes, and a value of 3m specifies 3,145,728 bytes.

hexX

specifies the utility file buffer size as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value 2dx sets the page size to 45 bytes.

MIN

sets the utility file buffer size to 0. A value of 0 specifies that the buffer size is set to the default page size for the operating environment.

MAX

sets the utility buffer size to the maximum possible number in your operating environment, up to the largest four-byte, signed integer, which is $2^{31}-1$, or approximately 2 billion bytes.

Details

The buffer size is the amount of data that can be transferred from a single input/output operation to one buffer. The buffer size is a permanent attribute of the utility file and is used when the data set is processed. The UBUFSIZE= option sets the buffer size for utility files that SAS uses to process data sets.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

See Also

System Options:

- [“BUFSIZE= System Option” on page 95](#)
- [“DATAPAGESIZE= System Option” on page 132](#)

UPRINTCOMPRESSION System Option

Specifies whether to enable the compression of files created by some Universal Printer and SAS/GRAPH devices.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Log and Procedure Output Control: ODS Printing |
| PROC OPTIONS GROUP= | ODSPRINT |
| Alias: | UPC NOUPC |
| Default: | The shipped default is UPRINTCOMPRESSION. |
| Notes: | In SAS Viya, this option is valid only for Universal Printer devices. This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

UPRINTCOMPRESSION | NOUPRINTCOMPRESSION

Syntax Description

UPRINTCOMPRESSION

specifies to enable compression of files created by some Universal Printers and some SAS/GRAPH devices.

NOUPRINTCOMPRESSION

specifies to disable compression of files created by some Universal Printers and some SAS/GRAPH devices.

Details

The following table lists the Universal Printers and the SAS/GRAPH devices that are affected by the UPRINTCOMPRESSION system option:

| Universal Printers | SAS/GRAPH Device Drivers |
|--------------------|--------------------------|
| PCL5, PCL5C, PCL5E | PCL5, PCL5C, PCL5E |

| Universal Printers | SAS/GRAPH Device Drivers |
|--------------------|---------------------------|
| PDF | PDF, PDF/A, PDF/C |
| SVG | SVG |
| PS | SASPRTC, SASPRTG, SASPRTM |

When NOUPRINTCOMPRESSION is set, the DEFLATION= option is ignored.

The ODS PRINTER statement option, COMPRESS=, takes precedence over the UPRINTCOMPRESSION system option.

See Also

Statements:

- [“ODS PRINTER” in SAS Output Delivery System: User’s Guide](#)

System Options:

- [“DEFLATION= System Option” on page 139](#)

URLENCODING= System Option

Specifies whether the argument to the URLENCODE function and to the URLDECODE function is interpreted using the SAS session encoding or UTF-8 encoding.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Language Control

PROC OPTIONS GROUP= LANGUAGECONTROL

Default: The shipped default is SESSION.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

URLENCODING=SESSION | UTF8

Syntax Description

SESSION

specifies that the argument to the URLENCODE function and to the URLDECODE function is interpreted using the SAS session encoding.

Note SAS session encoding uses the URL encoding standard RFC 1738.

Tip SESSION is compatible with previous releases of SAS.

UTF8

specifies that the argument to the URLENCODE function and to the URLDECODE function is interpreted using UTF-8 encoding.

Note UTF-8 encoding uses the URL encoding standard RFC 3986.

See Also

Functions:

- [“URLDECODE Function” in SAS Functions and CALL Routines: Reference](#)
- [“URLENCODE Function” in SAS Functions and CALL Routines: Reference](#)

USER= System Option

Specifies the default permanent SAS library.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Files

PROC OPTIONS
GROUP= ENVFILES

Note: This option cannot be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“USER System Option: UNIX” in SAS Companion for UNIX Environments](#)
[“USER: Windows” in SAS Companion for Windows](#)
[“USER= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

USER=*library-specification*

Syntax Description

library-specification

specifies the libref or physical name of a SAS library.

Details

If this option is specified, you can use one-level names to reference permanent SAS files in SAS statements. However, if USER=WORK is specified, SAS assumes that files referenced with one-level names refer to temporary work files.

UTILLOC= System Option

Specifies one or more file system locations in which enabled threaded applications can store utility files.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is Work.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

See: [“UTILLOC= System Option: z/OS” in SAS Companion for z/OS](#)

Syntax

UTILLOC=*WORK* | *filename* | *location* | (*location-1 location-2 ...*)

Syntax Description

WORK

specifies that SAS creates utility files in the same directory as the Work library.

filename

specifies that SAS selects the utility-file location from a file that contains a list of directories and optional keywords. The directory that SAS chooses is valid as the utility-file location for the current SAS session.

z/OS specifics *filename* is not valid in the z/OS operating environment.

| | |
|------|--|
| Note | This argument is new starting in SAS 9.4M2 . |
| See | “Allowing SAS to Select the Utility-File Location” on page 377 |

location

specifies the location of an existing directory for utility files that are created by applications. Enclose *location* in single or double quotation marks when the location contains spaces.

z/OS specifics On z/OS each *location* is a list of DCB and SMS options to be used when creating utility files.

(location-1 location-2 ...)

specifies a list of existing directories that can be accessed in parallel for utility files that are created by applications. A single utility file cannot span locations. Enclose a location in single or double quotation marks when the location contains spaces. Any location that does not exist is deleted from the value of the UTILLOC= system option.

Requirement When you specify more than one location, you must enclose the list of locations in parentheses.

z/OS specifics On z/OS, each *location* is a list of DCB and SMS options to be used when creating utility files.

Details

The Basics

The UTILLOC option specifies one or more locations for a type of utility file that is introduced as part of the SAS 9 architecture. These utility files are comparable to SAS files with a type of UTILITY, but they are not members of the Work library or any other SAS library. UTILLOC utility files are primarily used by applications that are enabled for multiple threads of execution.

Each location that is specified for the UTILLOC option identifies a single place at which utility files can be created. If multiple locations are specified, then the locations are used on a rotating basis by SAS applications as utility files are required.

For applications that use multiple utility files at the same time, specifying multiple locations that correspond to separate physical I/O devices might improve performance by reducing competition for device resources.

Allowing SAS to Select the Utility-File Location

The *filename* option contains a list of directories that is used to select the utility-file location. You can add one of the following methods to the file to indicate how you want SAS to select the utility-file location:

METHOD=RANDOM

specifies that SAS randomly selects the utility file location from the list of directories. SAS selects one utility-file location per SAS session. This selection enables you to balance the I/O load across multiple hardware systems. Under Windows, the file `c:\sasinfo\utilfiles.txt` might look like this:

```
c:\disk1\sastempfiles
c:\disk2\sastempfiles
c:\disk3\sastempfiles
method=random
```

METHOD=SPACE

specifies that SAS selects the directory that has the most available space. Under UNIX, the file `/sasinfo/utilfiles/` might look like this:

```
/disk1/sastempfiles
/disk2/sastempfiles
/disk3/sastempfiles
method=space
```

If the **METHOD** keyword is not specified, SAS defaults to randomly selecting a directory.

Utility Files and the SORT Procedure

For the SORT procedure, the **UTILLOC=** system option affects the placement of the utility files only if the multi-threaded SAS sort is used. The multi-threaded SAS sort can be invoked when the **THREADS** system option is specified and the value of the **CPUCOUNT=** system option is greater than 1. The multi-threaded SAS sort can also be invoked when you specify the **THREADS** option in the PROC SORT statement. The multi-threaded sort stores all temporary data in a single utility file within one of the locations that are specified by the **UTILLOC=** system option. The size of this utility file is proportional to the amount of data that is read from the input data set. A second utility file of the same size can be created in another of these locations when the amount of data that is read from the input data set is large or the amount of memory that is available to the SORT procedure is small.

See Also

- [“Using Parallel Processing” in SAS Programmer’s Guide: Essentials](#)

Procedures:

- [“SORT Procedure” in Base SAS Procedures Guide](#)

System Options:

- [“CPUCOUNT= System Option” on page 128](#)
- [“THREADS System Option” on page 363](#)

UUIDCOUNT= System Option

Specifies the number of UUIDs to acquire from the UUID Generator Daemon.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Default: | The shipped default is 100. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

UUIDCOUNT=*n* | MIN | MAX

Syntax Description

n

specifies the number of UUIDs to acquire. Zero indicates that the UUID Generator Daemon is not required.

Range 0–1000

MIN | MAX

MIN

specifies that the number of UUIDs to acquire is zero, indicating that the UUID Generator Daemon is not required.

MAX

specifies that 1000 UUIDs at a time should be acquired from the UUID Generator Daemon.

Details

If a SAS application generates a large number of UUIDs, this value can be adjusted at any time during a SAS session to reduce the number of times that the SAS session would have to contact the SAS UUID Generator Daemon.

See Also

- “Universally Unique Identifiers and the Object Spawner” in *SAS Programmer’s Guide: Essentials*

Functions:

- “UUIDGEN Function” in *SAS Functions and CALL Routines: Reference*

System Option;

- “UUIDGENHOST= System Option” on page 380

UUIDGENHOST= System Option

Identifies the host and port or the LDAP URL that the UUID Generator Daemon runs on.

Valid in: SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported

Category: Environment Control: Files

PROC OPTIONS ENVFILES
GROUP=

Note: This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8.

Syntax

UUIDGENHOST=*'host-string'*

Syntax Description

'host-string'

is either of the form *host-name:port* or an LDAP URL. The value must be in one string. Enclose an LDAP URL string in quotation marks.

Details

SAS does not guarantee that all UUIDs are unique. Use the SAS UUID Generator Daemon (UUIDGEN) to ensure unique UUIDs.

Example

- Specifying *host-name:port* as the 'host-string':

```
sas -UIDGENDHOST 'myhost.com:5306'
```

or

```
sas UIDGENDHOST= 'myhost.com:5306'
```

- Specifying an LDAP URL as the 'host-string':

```
"ldap://ldap-host-name/sasSpawner-distinguished-name"
```

- A more detailed example of an LDAP URL as the 'host-string':

```
"ldap://ldaphost/sasSpawnercn=UIDGEND,sascomponent=sasServer, cn=ABC,
o=ABC Inc,c=US"
```

- Specifying your *binddn* and *bind-password*, if your LDAP server is secure:

```
"ldap://ldap-host-name/sasSpawner-distinguished-name????
bindname=binddn,password=bind-password"
```

- An example with a *bindname* value and a *password* value:

```
"ldap://ldaphost/
sasSpawnercn=UIDGEND,sascomponent=sasServer,cn=ABC,o=ABC Inc,c=US
????bindname=cn=me%2co=ABC Inc %2cc=US,
password=itsme"
```

Note: When specifying the values for *bindname* and *password*, you must replace any commas in those values with the string "%2c". In the previous example, the *bindname* value is as follows:

```
cn=me,o=ABC Inc,c=US
```

See Also

Functions:

- "UIDGEN Function" in *SAS Functions and CALL Routines: Reference*

System Options:

- "UIDCOUNT= System Option" on page 379

V6CREATEUPDATE= System Option

Specifies the type of message to write to the SAS log when Version 6 data sets are created or updated.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Not supported |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is NOTE. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

V6CREATEUPDATE=[ERROR](#) | [NOTE](#) | [WARNING](#) | [IGNORE](#)

Syntax Description

ERROR

specifies that an ERROR is written to the SAS log when the V6 engine is used to open a SAS data set for creation or update. The attempt to create or update a SAS data set in Version 6 format fails. Reading Version 6 data sets does not generate an error.

NOTE

specifies that a NOTE is written to the SAS log when the V6 engine is used; all other processing occurs normally.

WARNING

specifies that a WARNING is written to the SAS log when the V6 engine is used; all other processing occurs normally.

IGNORE

disables the V6CREATEUPDATE= system option. Nothing is written to the SAS log when the V6 engine is used.

VALIDFMTNAME= System Option

Specifies the maximum size (32 characters or 8 characters) that user-created format and informat names can be before an error or warning is issued.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |

- Default: The shipped default is LONG.
- Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

VALIDFMTNAME=LONG | FAIL | WARN

Syntax Description

LONG

specifies that format and informat names can be up to 32 alphanumeric characters.

FAIL

specifies that creating a format or informat name that is longer than eight characters results in an error message.

Interaction If you explicitly specify the V7 or V8 Base SAS engine, such as in a LIBNAME statement, then SAS automatically uses the VALIDFMTNAME=FAIL behavior for data sets that are associated with those engines.

Tip Specify this setting for using formats and informats that are valid in both SAS 9 and previous releases of SAS.

WARN

specifies that creating a format or informat name that is longer than eight characters results in a warning message to remind you that the format or informat cannot be used with releases prior to SAS 9.

Details

SAS 9 enables you to define format and informat names up to 32 characters. Previous releases were limited to eight characters. The VALIDFMTNAME= system option applies to format and informat names in both data sets and format catalogs. VALIDFMTNAME= does not control the length of format and informat names. It controls only the length of format and informat names that you associate with variables when you create a SAS data set.

If a SAS data set has a variable with a long format or informat name, which means that a release before SAS 9 cannot read it, then you can remove the long name so that the data set can be accessed by an earlier release. However, in order to retain the format attribute of the variable, an identical format with a short name would have to be applied to the variable.

Note: After you create a format or informat using a name that is longer than eight characters, if you rename it using eight or fewer characters, a release before SAS 9

cannot use the format or informat. You must re-create the format or informat using the shorter name.

See Also

- [“Words and Names” in SAS Programmer’s Guide: Essentials](#)
- [“Cross-Release Compatibility and Migration” in SAS Language Reference: Concepts](#)

Procedures:

- [“FORMAT Procedure” in Base SAS Procedures Guide](#)

VALIDMEMNAME= System Option

Specifies the rules for naming SAS data sets, SAS data views, and item stores.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is COMPATIBLE. |
| Applies to: | Base SAS engine and SPD Engine |
| Restrictions: | The VALIDMEMNAME= option is not supported by the tape engines V9TAPE, V8TAPE, V7TAPE, and V6TAPE. Regardless of the value of VALIDMEMNAME, a member name cannot end in the special character # followed by three digits. This is because it would conflict with the naming conventions for generation data sets. Using such a member name results in an error. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

VALIDMEMNAME=COMPATIBLE | EXTEND

Syntax Description

COMPATIBLE

specifies that a SAS data set name, a SAS data view name, or an item store name must follow these rules:

- The length of the names can be up to 32 characters.
- Names must begin with a letter of the Latin alphabet (A–Z, a–z) or an underscore. Subsequent characters can be letters of the Latin alphabet, numerals, or underscores.
- Names cannot contain blanks or special characters except for the underscore.
- Names can contain mixed-case letters. SAS internally converts the member name to uppercase. Therefore, you cannot use the same member name with a different combination of uppercase and lowercase letters to represent different variables. For example, `customer`, `Customer`, and `CUSTOMER` all represent the same member name. How the name is saved on disk is determined by the operating environment.

Alias COMPAT

EXTEND

specifies that a SAS data set name, a SAS data view name, or an item store name must follow these rules:

- Names can include national characters.
- The name can include special characters, except for the `/ \ * ? " < > | : - .` characters.

Note: The SPD Engine does not allow `'` (the period) anywhere in the member name.

- The name must contain at least one character (letters, numbers, valid special characters, and national characters).
- The length of the name can be up to 32 bytes.
- Null bytes are not allowed.
- Names cannot begin with a blank or a `'` (the period).

Note: The SPD Engine does not allow `$` as the first character of the member name.

- Leading and trailing blanks are deleted when the member is created.
- Names can contain mixed-case letters. SAS internally converts the member name to uppercase. Therefore, you cannot use the same member name with a different combination of uppercase and lowercase letters to represent different variables. For example, `customer`, `Customer`, and `CUSTOMER` all represent the same member name. How the name appears is determined by the operating environment.

| | |
|------------------------|--|
| Requirement | When VALIDMEMNAME=EXTEND, SAS data set names, SAS data view names, and item store names must be written as a SAS name literal if the name includes blank spaces, special characters, or national characters. If you use either the percent sign (%) or the ampersand (&), then you must use single quotation marks in the name literal in order to avoid interaction with the SAS Macro Facility. For more information, see “SAS Words” in SAS Programmer’s Guide: Essentials . |
| Operating environments | <p>For Windows and UNIX operating environments, all Base SAS windows support the extended rules when VALIDMEMNAME=EXTEND is set.</p> <p>For Windows and UNIX operating environments, when you reference a SAS file directly by its physical name, the final embedded period is an extension delimiter. If a physical file reference includes a SAS member name that contains a period, you must add the file extension. For example, if you reference the data set name my.member as a physical file, you would add the file extension sas7bdat to the reference, as shown in this SET statement: set './saslib/my.member.sas7bdat'.</p> |
| z/OS specifics | <p>The windowing environment for Base SAS supports the extended rules in the Editor, Log, and Output windows when VALIDMEMNAME=EXTEND is set. Other SAS windows, such as the VIEWTABLE window, do not support the extended rules.</p> <p>When you reference a SAS file directly by its physical name, the final embedded period is considered to be an extension delimiter only if what follows the period is a valid SAS extension. Otherwise, the period is considered to be part of the member name. For example, in the name my.member, member is considered part of the member name and not a file extension. In the name 'my.member.sas7bdat', the member name is 'my.member' and the file extension is sas7bdat.</p> |
| Tip | The name is displayed in uppercase letters. |
| See | “SAS Names” in SAS Programmer’s Guide: Essentials |
| Examples | <pre>data “August Purchases”n; data ‘Años de empleo’n;</pre> |
| CAUTION | Throughout SAS, using the name literal syntax with SAS member names that exceed the 32-byte limit or that have excessive embedded quotation marks might cause unexpected results. The intent of the VALIDMEMNAME=EXTEND system option is to enable compatibility with other DBMS member naming conventions, such as allowing embedded blanks and national characters. |

Details

When VALIDMEMNAME= EXTEND, valid characters that are allowed in a SAS data set name, SAS data view name, and an item store name are extended to these characters:

- international characters
- characters supported by third-party databases
- characters that are commonly used in a filename

Only the DATA, VIEW, and ITEMSTOR SAS member types support the extension of characters. The other member types, such as CATALOG and PROGRAM, do not support the extended characters. INDEX and AUDIT types that exist only with the associated DATA member support extended characters.

See Also

- [“SAS Names” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“VALIDVARNAME= System Option” on page 387](#)

VALIDVARNAME= System Option

Specifies the rules for valid SAS variable names that can be created and processed during a SAS session.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Files: SAS Files |
| PROC OPTIONS GROUP= | SASFILES |
| Default: | The shipped default is V7. |
| Interaction: | SAS Studio sets VALIDVARNAME= to the Preferences setting before each code submission. For more information, see “System Options in SAS Studio” in SAS Studio: User’s Guide . |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

VALIDVARNAME=V7 | UPCASE | ANY

Syntax Description

V7

specifies that variable names must follow these rules:

- The name can be up to 32 characters.
- The first character must begin with a letter of the Latin alphabet (A - Z, a - z) or the underscore. Subsequent characters can be letters of the Latin alphabet, numerals, or underscores.
- Trailing blanks are ignored. The variable name alignment is left-justified.
- A variable name cannot contain blanks or special characters except for the underscore.
- A variable name can contain mixed-case letters. SAS stores and writes the variable name in the same case that is used in the first reference to the variable. However, when SAS processes a variable name, SAS internally converts it to uppercase. Therefore, you cannot use the same variable name with a different combination of uppercase and lowercase letters to represent different variables. For example, `cat`, `CaT`, and `CAT` all represent the same variable.
- Do not assign variables the names of special SAS automatic variables (such as `_N_` and `_ERROR_`) or variable list names (such as `_NUMERIC_`, `_CHARACTER_`, and `_ALL_`) to variables.

Examples `season='summer';`
`percent_of_profit=percent;`

UPCASE

specifies that the variable name follows the same rules as V7, except that the variable name is uppercase, as in earlier versions of SAS.

ANY

specifies that SAS variable names must follow these rules:

- The name can begin with or contain any characters, including blanks, national characters, special characters, and multi-byte characters.
- The name can be up to 32 bytes in length.
- The name cannot contain any null bytes.
- Leading blanks are preserved, but trailing blanks are ignored.
- The name must contain at least one character. A name with all blanks is not permitted.
- The name can contain mixed-case letters. SAS stores and writes the variable name in the same case that is used in the first reference to the variable. However, when SAS processes a variable name, SAS internally converts it to uppercase. Therefore, you cannot use the same variable name with a

different combination of uppercase and lowercase letters to represent different variables. For example, `cat`, `Cat`, and `CAT` all represent the same variable.

Requirement If you use any characters other than the ones that are valid when the `VALIDVARNAME` system option is set to `V7` (letters of the Latin alphabet, numerals, or underscores), then you must express the variable name as a name literal and you must set `VALIDVARNAME=ANY`. If the name includes either the percent sign (%) or the ampersand (&), then you must use single quotation marks in the name literal in order to avoid interaction with the SAS Macro Facility. See [“SAS Names” in SAS Programmer’s Guide: Essentials](#) and [“Avoiding Errors When Using Name Literals” in SAS Programmer’s Guide: Essentials](#).

See [“Length Rules for Names” in SAS Programmer’s Guide: Essentials](#)

Examples `% of profit'n=percent;`
`'items@warehouse'n=itemnum;`

CAUTION **Throughout SAS, using the name literal syntax with SAS variable names that exceed the 32-byte limit or have excessive embedded quotation marks might cause unexpected results.** The intent of the `VALIDVARNAME=ANY` system option is to enable compatibility with other DBMS variable (column) naming conventions, such as allowing embedded blanks and national characters.

See Also

- [“SAS Names” in SAS Programmer’s Guide: Essentials](#)

System Options:

- [“VALIDMEMNAME= System Option” on page 384](#)

VARINITCHK= System Option

Specifies whether a DATA step stops or continues executing when a variable is not initialized and the type of message to write to the SAS log.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS SASFILES
GROUP=

Default: The shipped default is NOTE.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

VARINITCHK=NONOTE | NOTE | WARN | ERROR

Syntax Description

NONOTE

specifies that the DATA step continues to execute without writing a message to the SAS log when a variable is not initialized.

NOTE

specifies that the DATA step continues to execute and writes a note to the SAS log when a variable is not initialized.

WARN

specifies that the DATA step continues to execute and writes a warning message to the SAS log when a variable is not initialized.

Alias WARNING

ERROR

specifies that the DATA step stops executing and writes an error message to the SAS log when a variable is not initialized.

Details

By default, SAS writes a note to the SAS log if a variable is not initialized. The VARINITCHK= option enables you to stop or continue executing if a variable is not initialized. You can also set the type of message that is written to the SAS log. SAS can issue a note, a warning, an error, or no note at all. When VARINITCHK=ERROR, SAS stops processing and writes an error message to the SAS log. For all other settings of VARINITCHK=, the DATA step continues executing.

Here are some of the contexts where a variable might not be initialized:

- the variable appears on the left side of an assignment operator or the SUM statement
- the variable is a parameter to a CALL routine
- the variable is contained in an array
- the variable can be set by a SET, MERGE, MODIFY, or UPDATE statement
- the variable is specified in an INPUT statement

- the variable is initialized in a RETAIN statement

See Also

- [“What Causes a DATA Step to Stop Executing” in SAS Language Reference: Concepts](#)
- [“Ways to Create Variables” in SAS Programmer’s Guide: Essentials](#)
- [“Error Processing in SAS” in SAS Programmer’s Guide: Essentials](#)

VARLENCHK= System Option

Specifies the type of message to write to the SAS log when the input data set is read using the SET, MERGE, UPDATE, or MODIFY statements.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Files: SAS Files

PROC OPTIONS GROUP= SASFILES

Default: The shipped default is WARN.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

VARLENCHK=[NOWARN](#) | [WARN](#) | [ERROR](#)

Syntax Description

NOWARN

specifies that no warning message is issued when the length of a variable that is being read is larger than the length that is defined for the variable.

WARN

specifies that a warning is issued when the length of a variable that is being read is larger than the length that is defined for the variable.

ERROR

specifies that an error message is issued when the length of a variable that is being read is larger than the length that is defined for the variable.

Details

CAUTION

Data might be truncated if you change the length of a variable. After a variable is defined, the length of a variable can be changed only by a LENGTH statement. If a variable is read by the SET, MERGE, UPDATE, or MODIFY statements and the length of the variable is longer than a variable of the same name, SAS issues a warning message and uses the shorter, original length of the variable. Because SAS uses the shorter length, data might be truncated.

When you intentionally truncate data, perhaps to remove unnecessary blanks from character variables, SAS issues a warning message that might not be useful to you. To make it so that SAS does not issue the warning message or set a nonzero return code, you can set the VARLENCHK= system option to NOWARN. When VARLENCHK=NOWARN, SAS does not issue a warning message and sets the return code to SYSRC=0.

Alternatively, if you set VARLENCHK=ERROR and the length of a variable that is being read is larger than the length that is defined for the variable, SAS issues an error and sets the return code SYSRC=8.

The VARLENCHK= system option does not have any effect on BY variables named in a BY statement that follows a SET, MERGE, or UPDATE statement. The VARLENCHK= option applies only to variables with the same name that have different lengths in two or more data sets. BY variables are excluded by design.

Note: When a BY variable has different lengths in two or more data sets, a separate warning message is produced, which is the correct behavior. `WARNING: Multiple lengths were specified for the BY variable x by input data sets. This may cause unexpected results. To avoid this warning message, you can specify the LENGTH statement prior to the SET, MERGE, or UPDATE statement to set the BY variable to the same length.`

Examples

Example 1: SAS Issues a Warning Message Merging Two Data Sets with Different Variable Lengths

This example merges two data sets, the `sashelp.class` data set and the `exam_schedule` data set. The length of the variable `Name` is set to 8 by the first SET statement, `set sashelp.class;`. The `exam_schedule` data set sets the length of `Name` to 10. When `exam_schedule` is read in the second SET statement, `set exam_schedule key=Name;;`, SAS issues a warning message because the length of `Name` in the `exam_schedule` data set is longer than the length of `Name` in the `sashelp.class` data set, and data might have been truncated.

```
/* Create the exam_schedule data set. */
data exam_schedule(index=(Name));
  input Name : $10. Exam_Date : mmdyy10.;
```

```
format Exam_Date mmddyy10.;
datalines;
Carol      06/09/2016
Hui        06/09/2016
Janet      06/09/2016
Geoffrey   06/09/2016
John       06/09/2016
Joyce      06/09/2016
Helga      06/09/2016
Mary       06/09/2016
Roberto    06/09/2016
Ronald     06/09/2016
Barbara    06/10/2016
Louise     06/10/2016
Alfred     06/11/2016
Alice      06/11/2016
Henri      06/11/2016
James      06/11/2016
Philip     06/11/2016
Tomas      06/11/2016
William    06/11/2016
;
run

/* Merge the data sets sashelp.class and exam_schedule */
data exams;
  set sashelp.class;
  set exam_schedule key=Name;
run;
```

The following SAS log shows the warning message:

Output 4.10 *The Warning Message in the SAS Log*

```

34 ods listing;
35 /* Create the exam_schedule data set. */
36 data exam_schedule(index=(Name));
37   input Name : $10. Exam_Date : mmddyy10.;
38   format Exam_Date mmddyy10.;
39   datalines;

NOTE: The data set WORK.EXAM_SCHEDULE has 19 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time          0.09 seconds
      cpu time           0.00 seconds

59 ;
60 run;
61
62 /* Merge the data sets sashelp.class and exam_schedule */
63 data exams;
64   set sashelp.class;
65   set exam_schedule key=Name;
66   run;

WARNING: Multiple lengths were specified for the variable Name by input data
set(s). This may cause truncation of data.
Name=Henry Sex=M Age=14 Height=63.5 Weight=102.5 Exam_Date=06/09/2016 _ERROR_=1
_IORC_=1230015 _N_=5
Name=Jane Sex=F Age=12 Height=59.8 Weight=84.5 Exam_Date=06/11/2016 _ERROR_=1
_IORC_=1230015 _N_=7
Name=Jeffrey Sex=M Age=13 Height=62.5 Weight=84 Exam_Date=06/09/2016 _ERROR_=1
_IORC_=1230015 _N_=9
Name=Judy Sex=F Age=14 Height=64.3 Weight=90 Exam_Date=06/09/2016 _ERROR_=1
_IORC_=1230015 _N_=12
Name=Robert Sex=M Age=12 Height=64.8 Weight=128 Exam_Date=06/11/2016 _ERROR_=1
_IORC_=1230015 _N_=16
Name=Thomas Sex=M Age=11 Height=57.5 Weight=85 Exam_Date=06/09/2016 _ERROR_=1
_IORC_=1230015 _N_=18
NOTE: There were 19 observations read from the data set SASHELP.CLASS.
NOTE: The data set WORK.EXAMS has 19 observations and 6 variables.

```

Example 2: Turn Off the Warning Message and Use the LENGTH Statement to Match Variable Lengths

In order to merge the two data sets, `sashelp.class` and `exam_schedule`, you can examine the values of `Name` in `exam_schedule`. You can see that there are no values that are greater than 8 and that you can change the length of `Name` without losing data.

To change the length of the variable `Name`, you use a `LENGTH=` statement in a `DATA` step before the `set exam_schedule;` statement. If the value of `VARLENCHK` is `WARN` (the default), SAS issues the warning message that the value of `Name` is truncated when it is read from `work.exam_schedule`. Because you know that data is not lost, you might want to turn the warning message off:

```

options varlencchk=nowarn;
data exam_schedule(index=(Name));
  length Name $ 8;
  set exam_schedule;
run;

```


Here is the SAS log output:

```

67  options varlenchk=nowarn;
68  data exam_schedule(index=(Name));
69      length Name $ 8;
70      set exam_schedule;
71  run;

NOTE: There were 19 observations read from the data set WORK.EXAM_SCHEDULE.
NOTE: The data set WORK.EXAM_SCHEDULE has 19 observations and 2 variables.

```

See Also

“Looking at Sources of Common Problems” in *SAS Language Reference: Concepts*

VBUFSIZE= System Option

Specifies the size of the view buffer.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Categories: | Input Control: Data Processing System Administration: Performance |
| PROC OPTIONS GROUP= | INPUTCONTROL PERFORMANCE |
| Default: | The shipped default is 65536. |
| Restriction: | The VBUFSIZE= system option does not apply to SQL views. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

VBUFSIZE=*n* | *nK* | *nM* | *nG* | *nT* | *hexX* | MIN | MAX

Note: You can also use the KB, MB, GB, and TB syntax notations.

Required Arguments

n* | *nK* | *nM* | *nG* | *nT

specifies the size of the view buffer in multiples of 1 (bytes); 1,024 (kilobytes); 1,048,576 (megabytes); 1,073,741,824 (gigabytes); or 1,099,511,627,776

(terabytes). For example, a value of `8` specifies 8 bytes, and a value of `3m` specifies 3,145,728 bytes.

hexX

specifies the size of the view buffer as a hexadecimal value. The value must begin with a number (0–9) and must be followed by an X. For example, the value `0ffffeX` specifies a buffer size of 65,534 bytes.

MIN

sets the minimum number of buffers to 0.

MAX

sets the view buffer size to $2^{63}-1$, or approximately 9.2 quintillion bytes.

Note If you set `VBUFSIZE=MAX` and your system does not have enough memory, SAS stops processing the view.

Details

The view buffer is a segment of memory that is allocated to hold output observations that are generated for a view. The size of the buffer determines how much data can be held in memory at one time.

The view buffer is shared between the request that opens the view (for example, a SAS procedure) and the view itself. Two computer tasks coordinate between requesting data and generating and returning the data as follows:

- When a request task (such as a PRINT procedure) requests data, task switching occurs from the request task to the view task in order to execute the view and generate the observations. The view fills the view buffer with as many observations as possible.
- When the view buffer is full, task switching occurs from the view task back to the request task in order to return the requested data. The observations are cleared from the view buffer.

The optimal value for buffer system options is dependent on your operating environment. Experiment with various buffers sizes to determine the optimal value for these system options.

The size of the view buffer and the size of an observation determine how many observations can be held in the buffer. To determine the observation length, use PROC CONTENTS for the view. The number of observations then determines how many times the computer must switch between the request task and the view task. The larger the view buffer is, the less task switching is needed to process a view, which can speed up execution time.

To improve efficiency, first determine how many observations fit into the default buffer size. Then, set the view buffer so that it can hold more generated observations.

If `OBSBUF=` is set for a view, SAS uses the value of `OBSBUF=` and not the value of `VBUFSIZE=` to determine the size of the view buffer.

The view buffer is released when the view completes execution.

Comparisons

The VBUFSIZE= system option enables you to specify the size of the view buffer based on a number of bytes. The number of observations that can be read into the view buffer at one time is the value of VBUFSIZE= divided by the length of the observation. VBUFSIZE= is a system option and is set for the length of a SAS session.

The OBSBUF= data set option sets the view buffer size based on a specified number of observations that can be read into the view buffer at one time. The size of the view buffer is determined by the value of OBSBUF= multiplied by the length of the observation. OBSBUF= is a data set option and is set for the length of processing a view.

See Also

Data Set Options:

- [“OBSBUF= Data Set Option” in SAS Data Set Options: Reference](#)

VNFERR System Option

Specifies whether SAS issues an error or warning when a BY variable exists in one data set but not another data set when the other data set is _NULL_. This option applies when processing the SET, MERGE, UPDATE, or MODIFY statements.

Valid in: SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only)

Category: Environment Control: Error Handling

PROC OPTIONS GROUP= ERRORHANDLING

Default: The shipped default is VNFERR.

Note: This option can be restricted by a site administrator. For more information, see [“Restricted Options” on page 8](#).

Syntax

VNFERR | **NOVNFERR**

Syntax Description

VNFERR

specifies that SAS issue an error when a BY variable exists in one data set but not in another data set when the other data set is `_NULL_`. This option applies when processing the SET, MERGE, UPDATE, or MODIFY statements. When the error occurs, SAS enters into syntax-check mode.

NOVNFERR

specifies that SAS issue a warning when a BY variable exists in one data set but not in another data set when the other data set is `_NULL_`. This option applies when processing the SET, MERGE, UPDATE, or MODIFY statements. When the warning occurs, SAS does not enter into syntax-check mode.

Details

VNF stands for variable not found.

This option is useful when macro variables store data set names and these macro variables are used by the SET, MERGE, UPDATE, or MODIFY statements. If you set NOVNFERR and one of these statements contains a macro variable with a value `_NULL_`, SAS issues a warning instead of an error and processing continues.

z/OS Specifics: Under z/OS, SAS issues an error or a warning when the data set that is specified by DDNAME points to a DUMMY library.

Comparisons

- VNFERR is similar to the BYERR system option, which issues an error and enters into syntax-check mode if the SORT procedure attempts to sort a `_NULL_` data set.
- VNFERR is similar to the DSNFERR system option, which issues an error when a SAS data set is not found.

Examples

Example 1

This example shows the results of setting the VNFERR option and the NOVNFERR option:

```
/* treat variable not found on _NULL_ SAS data set as an error */  
  
/* turn option off - should not get an error */  
options novnferr; run;
```

```
data a;
  x = 1;
  y = 2;
run;

data b;
  x = 2;
  y = 3;
run;

data _null_;
  y = 2;
run;

/* option is off - should not get an error */
data result;
  merge a b _null_;
  by x;
run;

/* turn option on - should get an error */
options vnferr; run;

data result2;
  merge a b _null_;
  by x;
run;
```

Example Code 4.1 The SAS Log with Output for the VMFERR and NOVNFERR Options

```
66  /* treat variable not found on _NULL_ SAS data set as an error */
67
68  /* turn option off - should not get an error */
69  options novnferr; run;
70
71  data a;
72      x = 1;
73      y = 2;
74  run;

NOTE: The data set WORK.A has 1 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time          0.01 seconds
      cpu time           0.00 seconds

75
76  data b;
77      x = 2;
78      y = 3;
79  run;

NOTE: The data set WORK.B has 1 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

80
81  data _null;
82      y = 2;
83  run;

NOTE: The data set WORK._NULL has 1 observations and 1 variables.
NOTE: DATA statement used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

84
85  /* option is off - should not get an error */
86  data result;
87      merge a b _null_;
88      by x;
89  run;
```

```

WARNING: BY variable x is not on input data set WORK._null_.
NOTE: There were 1 observations read from the data set WORK.A.
NOTE: There were 1 observations read from the data set WORK.B.
NOTE: The data set WORK.RESULT has 2 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

90
91  /* turn option on - should get an error                */
92  options vnferr; run;
93
94  data result2;
95    merge a b _null_;
96    by x;
97  run;

ERROR: BY variable x is not on input data set WORK._null_.
NOTE: The SAS System stopped processing this step because of errors.
WARNING: The data set WORK.RESULT2 may be incomplete.  When this step was stopped
there were 0 observations and 2
      variables.

```

Example 2

In this example, the data set, Result, reads from three data sets by using the SET statement. The SET statement values are all macro variables. One of these macro variables, &dataset3, has a value of _NULL_. SAS issues a warning message when it reads &dataset3; and completes the DATA step without an error.

```

options novnferr;

data a;
  x = 1;
  y = 2;
run;
data b;
  x = 2;
  y = 3;
run;

%let dataset1=a;
%let dataset2=b;
%let dataset3=_null_;

data result;
  set &dataset1 &dataset2 &dataset3;
  by x;
run;

```

Example Code 4.2 The SAS Log Showing a Warning Message for a NULL Value

```

15  options novnferr;
16
17  data a;
18      x = 1;
19      y = 2;
20  run;

NOTE: The data set WORK.A has 1 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time          0.01 seconds
      cpu time           0.01 seconds

21  data b;
22      x = 2;
23      y = 3;
24  run;

NOTE: The data set WORK.B has 1 observations and 2 variables.
NOTE: DATA statement used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

25
26  %let dataset1=a;
27  %let dataset2=b;
28  %let dataset3=_null_;
29
30  data result;
31      set &dataset1 &dataset2 &dataset3;
32      by x;
33  run;

WARNING: BY variable x is not on input data set WORK._null_.
NOTE: There were 1 observations read from the data set WORK.A.
NOTE: There were 1 observations read from the data set WORK.B.

```

See Also

- [“Syntax Check Mode” in SAS Language Reference: Concepts](#)

System Options:

- [“BYERR System Option” on page 97](#)
- [“DSNFERR System Option” on page 156](#)

WORK= System Option

Specifies the Work library.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Default: | The shipped default is Work. |
| Note: | This option can be restricted by a site administrator on UNIX. It cannot be restricted by a site administrator on Windows or z/OS. For more information, see “Restricted Options” on page 8 . |
| See: | “WORK System Option: UNIX” in SAS Companion for UNIX Environments “WORK: Windows” in SAS Companion for Windows “WORK= System Option: z/OS” in SAS Companion for z/OS |

Syntax

WORK=*library-specification*

Syntax Description

library-specification

specifies the libref or physical name of the storage space where all data sets with one-level names are stored. This library must exist.

| | |
|-----------------------|---|
| Operating environment | A valid library specification and its syntax are specific to your operating environment. 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. |
|-----------------------|---|

Details

This library is deleted at the end of your SAS session by default. To prevent the files from being deleted, specify the NOWORKTERM system option.

See Also

System Options:

- [“WORKTERM System Option” on page 405](#)

WORKINIT System Option

Specifies whether to initialize the Work library at SAS invocation.

| | |
|---------------------|--|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Default: | The shipped default is WORKINIT. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |
| See: | “WORKINIT System Option: UNIX” in SAS Companion for UNIX Environments |

Syntax

WORKINIT | **NOWORKINIT**

Syntax Description

WORKINIT

erases files that exist from a previous SAS session in an existing Work library at SAS invocation.

NOWORKINIT

does not erase files from the Work library at SAS invocation.

Details

The WORKINIT system option initializes the Work data library and erases all files from a previous SAS session at SAS invocation. The WORKTERM system option controls whether SAS erases Work files at the end of a SAS session.

UNIX Specifics: WORKINIT has behavior and functions specific to the UNIX operating environment. For details, see the SAS documentation for the UNIX operating environment.

See Also

System Options:

- [“WORKTERM System Option” on page 405](#)

WORKTERM System Option

Specifies whether to erase the Work files when SAS terminates.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Environment Control: Files |
| PROC OPTIONS GROUP= | ENVFILES |
| Default: | The shipped default is WORKTERM. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

WORKTERM | **NOWORKTERM**

Syntax Description

WORKTERM

erases the Work files at the termination of a SAS session.

NOWORKTERM

does not erase the Work files.

Details

Although NOWORKTERM prevents the Work data sets from being deleted, it has no effect on initialization of the Work library by SAS. SAS normally initializes the Work library at the start of each session, which effectively destroys any pre-existing information.

Comparisons

Use the NOWORKINIT system option to prevent SAS from erasing existing Work files on invocation. Use the NOWORKTERM system option to prevent SAS from erasing existing Work files on termination.

See Also

System Options:

- [“WORKINIT System Option” on page 404](#)

YEARCUTOFF= System Option

Specifies the first year of a 100-year span that is used by date informats and functions to read a two-digit year.

| | |
|---------------------|---|
| Valid in: | SAS 9.4: Configuration file, SAS invocation, OPTIONS statement, SAS System Options window, SASV9_OPTIONS environment variable (UNIX only), SAS Viya: Configuration file, SAS invocation, OPTIONS statement, SASV9_OPTIONS environment variable (Linux only) |
| Category: | Input Control: Data Processing |
| PROC OPTIONS GROUP= | INPUTCONTROL |
| Default: | The shipped default is 1940. |
| Note: | This option can be restricted by a site administrator. For more information, see “Restricted Options” on page 8 . |

Syntax

YEARCUTOFF=*nnnn* | *nnnnn*

Syntax Description

nnnn* | *nnnnn

specifies the first year of the 100-year span.

Range 1582–19900

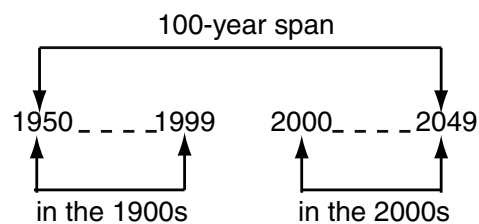
Details

The YEARCUTOFF= value is the default that is used by various date and datetime informats and functions.

If the default value of *nnnn* (1940) is in effect, the 100-year span begins with 1940 and ends with 2039. Therefore, any informat or function that uses a two-digit year value that ranges from 40 to 99 assumes a prefix of 19. For example, the value 92 refers to the year 1992.

The value that you specify in YEARCUTOFF= can result in a range of years that span two centuries. For example, if you specify YEARCUTOFF=1950, any two-digit value between 50 and 99 inclusive refers to the first half of the 100-year span, which is in the 1900s. Any two-digit value between 00 and 49, inclusive, refers to the second half of the 100-year span, which is in the 2000s. The following figure illustrates the relationship between the 100-year span and the two centuries if YEARCUTOFF=1950.

Figure 4.1 A 100-Year Span with Values in Two Centuries



Note: YEARCUTOFF= has no effect on existing SAS dates or dates that are read from input data that include a four-digit year, except years with leading zeros. For example, 0076 with yearcutoff=1990 indicates 2076.

See Also

[“The Year 2000” in SAS Language Reference: Concepts](#)

PART 4

SAS Procedures That Process SAS System Options

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OPTIONS Procedure

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Overview: OPTIONS Procedure

What Does the OPTIONS Procedure Do?

The OPTIONS procedure lists the current settings of SAS system options in the SAS log.

SAS system options control how SAS formats output, handles files, processes data sets, interacts with the operating environment, and does other tasks that are not specific to a single SAS program or data set. You use the OPTIONS procedure to obtain information about an option or a group of options. Here is some of the information that the OPTIONS procedure provides:

- the current value of an option and how it was set
- a description of an option
- valid syntax for the option, valid option values, and the range of values
- where you can set the system option
- if the option can be restricted by your site administrator
- if the option has been restricted
- system options that belong to a system option group
- system options that are specific for an operating environment
- if an option value has been modified by the INSERT or APPEND system options
- system options that can be saved by the OPTSAVE procedure or the DMOPTSAVE command (not valid in SAS Viya)

For additional information about SAS system options, see [SAS System Options: Reference](#).

Syntax: OPTIONS Procedure

Note: SAS system options are documented in several publications. You can access all system options from “[SAS System Options Documented in Other SAS Publications](#)”.

See: “[OPTIONS Procedure: UNIX](#)” in *SAS Companion for UNIX Environments*
 “[OPTIONS Procedure: Windows](#)” in *SAS Companion for Windows*
 “[OPTIONS Procedure Statement: z/OS](#)” in *SAS Companion for z/OS*

PROC OPTIONS <options>;

| Statement | Task | Example |
|--------------|--|----------------------------|
| PROC OPTIONS | List the current system option settings to the SAS Log | Ex. 1, Ex. 2, Ex. 3, Ex. 4 |

PROC OPTIONS Statement

Lists the current settings of SAS system options in the SAS log.

Examples:

“Example 1: Producing the Short Form of the Options Listing” on page 428

“Example 2: Displaying the Setting of a Single Option” on page 429

“Example 3: Displaying Expanded Path Environment Variables” on page 430

“Example 4: List the Options That Can Be Specified by the INSERT and APPEND Options” on page 431

Syntax

PROC OPTIONS <*options*>;

Summary of Optional Arguments

LISTGROUPS

lists the system option groups as well as a description of each group.

Choose the format of the listing

DEFINE

displays the short description of the option, the option group, and the option type.

EXPAND

when displaying a character option, replaces an environment variable in the option value with the value of the environment variable. EXPAND is ignored if the option is a Boolean option, such as CENTER or NOCENTER, or if the value of the option is numeric.

HEXVALUE

displays system option character values as hexadecimal values.

LOGNUMBERFORMAT

displays numeric system option values using locale-specific punctuation.

LONG

lists each system option on a separate line with a description.

NOEXPAND

when displaying a path, displays the path using environment variable(s) and not the value of the environment variable(s). This is the default.

NOLOGNUMBERFORMAT

displays numeric system option values without using punctuation, such as a comma or a period. This is the default.

SHORT

specifies to display a compressed listing of options without descriptions.

VALUE

displays the option's value and scope, as well as how the value was set.

Restrict the number of options displayed

GROUP=*group-name*

GROUP=(*group-name-1* ... *group-name-n*)

displays the options in one or more groups specified by *group-name*.

HOST

displays only host options.

LISTINSERTAPPEND

lists the system options whose value can be modified by the INSERT and APPEND system options.

LISTOPTSAVE

lists the system options that can be saved with PROC OPTSAVE or the DMOPTSAVE command.

LISTRESTRICT

lists the system options that can be restricted by your site administrator.

NOHOST

displays only portable options.

OPTION=option-name**OPTION=(option-name-1 ... option-name-n)**

displays information about one or more system options.

RESTRICT

displays system options that the site administrator has restricted from being updated.

Optional Arguments

DEFINE

displays the short description of the option, the option group, and the option type. SAS displays information about when the option can be set, whether an option can be restricted, the valid values for the option, and whether the OPTSAVE procedure will save the option.

Restriction Saving and loading system options is not valid in SAS Viya. Information about whether the option can be saved or loaded is displayed only for SAS 9.4.

Interaction This option is ignored when SHORT is specified.

Example [“Example 2: Displaying the Setting of a Single Option” on page 429](#)

EXPAND

when displaying a character option, replaces an environment variable in the option value with the value of the environment variable. EXPAND is ignored if the option is a Boolean option, such as CENTER or NOCENTER, or if the value of the option is numeric.

Restriction Variable expansion is valid only in the Windows and UNIX operating environments.

Tip By default, some option values are displayed with expanded variables. Other options require the EXPAND option in the PROC OPTIONS statement. Use the DEFINE option in the PROC OPTIONS statement to determine whether an option value expands variables by default or if the EXPAND option is required. If the output from PROC OPTIONS DEFINE shows the following information, you must use the EXPAND option to expand variable values:

Expansion: Environment variables, within the option value,

are not expanded

See [“NOEXPAND” on page 416](#) option to view paths that display the environment variable

Example [“Example 3: Displaying Expanded Path Environment Variables” on page 430](#)

GROUP=group-name

GROUP=(group-name-1 ... group-name-n)

displays the options in one or more groups specified by *group-name*.

Requirement When you specify more than one group, enclose the group names in parenthesis and separate the group names by a space.

See [“Display Information about System Option Groups” on page 421](#)

HEXVALUE

displays system option character values as hexadecimal values.

HOST

displays only host options.

See [“NOHOST” on page 416](#) option to display only portable options.

LISTINSERTAPPEND

lists the system options whose value can be modified by the INSERT and APPEND system options. The INSERT option specifies a value that is inserted as the first value of a system option value list. The APPEND option specifies a value that is appended as the last value of a system option value list. Use the LISTINERTAPPEND option to display which system options can have values inserted at the beginning or appended at the end of their value lists.

See [“INSERT= System Option” on page 216](#)

[“APPEND= System Option” on page 77](#)

Example [“Example 4: List the Options That Can Be Specified by the INSERT and APPEND Options” on page 431](#)

LISTGROUPS

lists the system option groups as well as a description of each group.

See [“Display Information about System Option Groups” on page 421](#)

LISTOPTSAVE

lists the system options that can be saved with PROC OPTSAVE or the DMOPTSAVE command.

Restriction This option is not valid in SAS Viya. PROC OPTSAVE and the DMOPTSAVE command are not valid in SAS Viya.

LISTRESTRICT

lists the system options that can be restricted by your site administrator.

See [“RESTRICT” on page 417](#) option to list options that have been restricted by the site administrator

LONG

lists each system option on a separate line with a description. This is the default. Alternatively, you can create a compressed listing without descriptions.

See [“SHORT” on page 417](#) option to produce a compressed listing without descriptions

Example [“Example 1: Producing the Short Form of the Options Listing” on page 428](#)

LOGNUMBERFORMAT

displays numeric system option values using locale-specific punctuation.

See [“NOLOGNUMBERFORMAT” on page 416](#) option to display numeric option values without using commas

Example [“Example 2: Displaying the Setting of a Single Option” on page 429](#)

NOEXPAND

when displaying a path, displays the path using environment variable(s) and not the value of the environment variable(s). This is the default.

See [“EXPAND” on page 414](#) option to display a path by expanding the value of environment variables

NOHOST

displays only portable options.

Alias PORTABLE or PORT

See [“HOST” on page 415](#) option to display only host options

NOLOGNUMBERFORMAT

displays numeric system option values without using punctuation, such as a comma or a period. This is the default.

See [“LOGNUMBERFORMAT” on page 416](#) option to display numeric system options using commas

OPTION=*option-name*

OPTION=(*option-name-1 ... option-name-n*)

displays a short description and the value (if any) of the option specified by *option-name*. DEFINE and VALUE options provide additional information about the option.

option-name

specifies the option to use as input to the procedure.

Requirement If a SAS system option uses an equal sign, such as PAGESIZE=, do not include the equal sign when specifying the option to OPTION=.

Example [“Example 2: Displaying the Setting of a Single Option” on page 429](#)

RESTRICT

displays the system options that have been set by your site administrator in a restricted options configuration file. These options cannot be changed by the user. For each option that is restricted, the RESTRICT option displays the option's value, scope, and how it was set.

If your site administrator has not restricted any options, then the following message appears in the SAS log:

```
Your Site Administrator has not restricted any SAS options.
```

See ["LISTRESTRICT" on page 415](#) option to list options that can be restricted by the site administrator

SHORT

specifies to display a compressed listing of options without descriptions.

See ["LONG" on page 416](#) option to create a listing with descriptions of the options.

VALUE

displays the option's value and scope, as well as how the value was set. If the value was set using a configuration file, the SAS log displays the name of the configuration file. If the option was set using the INSERT or APPEND system options, the SAS log displays the value that was inserted or appended.

Interactions This option has no effect when SHORT is specified.

When the option is in the Threaded Kernel (TK) system options group, the value of **How option value set** is displayed as **Internal**

Note SAS options that are passwords, such as EMAILPW and METAPASS, return the value xxxxxxxx and not the actual password.

Example ["Example 2: Displaying the Setting of a Single Option" on page 429](#)

Usage: OPTIONS Procedure

Display a List of System Options

The log that results from running PROC OPTIONS can show the system options for the options that are available for all operating environment and those that are specific to a single operating environment. Options that are available for all

operating environments are referred to as portable options. Options that are specific to a single operating environment are referred to as host options.

The following example shows a partial log that displays the settings of portable options.

```
proc options;
run;
```

Example Code 5.1 The SAS Log Showing a Partial Listing of SAS System Options

```
Portable Options:

NOACCESSIBLECHECK Do not detect and log ODS output that is not accessible.
NOACCESSIBLEGRAPH Do not create accessible ODS graphics by default.
NOACCESSIBLEPDF Do not create accessible PDF files by default.
NOACCESSIBLETABLE Do not create accessible tables for enabled procedures, by default.

ANIMATION=STOP Specifies whether to start or stop animation.
ANIMDURATION=MIN Specifies the number of seconds that each animation frame displays.
ANIMLOOP=YES Specifies the number of iterations that animated images repeat.
ANIMOVERLAY Specifies that animation frames are overlaid in order to view all frames.
APPEND= Specifies an option=value pair to insert the value at the end of the existing
option value.
APPLETLOC=site-specific-path Specifies the location of Java applets, which is typically a URL.
ARMAGENT= Specifies an ARM agent (which is an executable module or keyword, such as
LOG4SAS) that contains a specific implementation of the ARM API.
ARMLOC=ARMLOG.LOG Specifies the location of the ARM log.
ARMSUBSYS=(ARM_NONE) Specifies the SAS ARM subsystems to enable or disable.
AUTOCORRECT Automatically corrects misspelled procedure names and keywords, and global
statement names.
```

The log displays both portable and host options when you submit `proc options;`.

To view only host options, use this version of the OPTIONS procedure:

```
proc options host;
run;
```


Example Code 5.2 The SAS Log Showing a Partial List of Host Options

```

Host Options:

ACCESSIBILITY=STANDARD
                Specifies whether accessibility features are enabled in the Customize Tool
                dialog box and in some Properties dialog boxes.
ALIGNSASIOFILES Aligns SAS files on a page boundary for improved performance.
ALTLOG=         Specifies the location for a copy of the SAS log when SAS is running in batch
                mode.
ALTPRINT=      Specifies the location for a copy of the SAS procedure output when SAS is
                running in batch mode.
AUTHPROVIDERDOMAIN=
                Specifies the authentication provider that is associated with a domain.
AUTHSERVER=    Specifies the domain server that finds and authenticates secure server logins.
AWSCONTROL=(SYSTEMMENU MINMAX TITLE)
                Specifies whether the main SAS window includes a title bar, a system control
                menu, and minimize and maximize buttons.
AWSDEF=(0 0 79 80)
                Specifies the location and dimensions of the main SAS window when SAS
                initializes.
AWSMENU       Displays the menu bar in the main SAS window.

```

Display Information about One or More Options

To view the setting of one or more particular options, you can use the `OPTION=` and `DEFINE` options in the `PROC OPTIONS` statement. The following example shows a log that `PROC OPTIONS` produces for a single SAS system option.

```

proc options option=errorcheck define;
run;

```

Example Code 5.3 The Setting of a Single SAS System Option

```

5  proc options option=errorcheck define;
6  run;

SAS (r) Proprietary Software Release 9.4 TS1M6

ERRORCHECK=NORMAL
Option Definition Information for SAS Option ERRORCHECK
Group= ERRORHANDLING
Group Description: Error messages and error conditions settings
Description: Specifies whether SAS enters syntax-check mode when errors are found in the
              LIBNAME, FILENAME, %INCLUDE, and LOCK statements.
Type: The option value is of type CHARACTER
Maximum Number of Characters: 10
Casing: The option value is retained uppercased
Quotes: If present during "set", start and end quotes are removed
Parentheses: The option value does not require enclosure within parentheses. If
             present, the parentheses are retained.
Expansion: Environment variables, within the option value, are not expanded
Number of valid values: 2
          Valid value: NORMAL
          Valid value: STRICT
When Can Set: Startup or anytime during the SAS Session
Restricted: Your Site Administrator can restrict modification of this option
Optsave: PROC Optsave or command Dmoptsave will save this option

```

To view the settings for more than one option, enclose the options in parentheses and separate the options with a space:

```

proc options option=(pdfsecurity pdfpassword) define;
run;

```

Example Code 5.4 The Settings of Two SAS System Options

```

7  proc options option=(pdfsecurity pdfpassword) define;
8  run;

SAS (r) Proprietary Software Release 9.4 TS1M6

PDFSECURITY=NONE
Option Definition Information for SAS Option PDFSECURITY
Group= PDF
Group Description: PDF settings
Group= SECURITY
Group Description: Security settings
Description: Specifies the level of encryption to use for PDF documents.
Type: The option value is of type CHARACTER
Maximum Number of Characters: 4
Casing: The option value is retained uppercased
Quotes: If present during "set", start and end quotes are removed
Parentheses: The option value does not require enclosure within parentheses. If
             present, the parentheses are retained.
Expansion: Environment variables, within the option value, are not expanded
Number of valid values: 3
          Valid value: HIGH
          Valid value: LOW
          Valid value: NONE
When Can Set: Startup or anytime during the SAS Session
Restricted: Your Site Administrator can restrict modification of this option
Optsave: PROC Optsave or command Dmoptsave will save this option

```

```

PDFPASSWORD=xxxxxxx
Option Definition Information for SAS Option PDFPASSWORD
  Group= PDF
  Group Description: PDF settings
  Group= SECURITY
  Group Description: Security settings
  Description: Specifies the password to use to open a PDF document and the password used by a
                PDF document owner.
  Type: The option value is of type CHARACTER
  Maximum Number of Characters: 2048
  Casing: The option value is retained with original casing
  Quotes: If present during "set", start and end quotes are removed
  Parentheses: The option value must be enclosed within parentheses. The parentheses are
                retained.
  Expansion: Environment variables, within the option value, are not expanded
  Number of valid values: 2
    Valid value: OPEN
    Valid value: OWNER
  When Can Set: Startup or anytime during the SAS Session
  Restricted: Your Site Administrator cannot restrict modification of this option
  Optsave: PROC Optsave or command Dmoptsave will not save this option

```

Display Information about System Option Groups

Each SAS system option belongs to one or more groups, which are based on functionality, such as error handling or sorting. You can display a list of system-option groups and the system options that belong to one or more of the groups.

Use the LISTGROUPS option to display a list of system-option groups.

```

proc options listgroups;
run;

```

Example Code 5.5 List of SAS System Option Groups

```
26 proc options listgroups;
27 run;

SAS (r) Proprietary Software Release 9.4 TS1M6

Option Groups
GROUP=ADABAS          ADABAS
GROUP=ANIMATION       Animation
GROUP=CAS             CAS Options
GROUP=CODEGEN         Code generation
GROUP=COMMUNICATIONS Networking and encryption
GROUP=DATACOM         Datacom
GROUP=DATAQUALITY     Data Quality
GROUP=DB2             DB2
GROUP=EMAIL           E-mail
GROUP=ENVDISPLAY      Display
```

| | |
|-----------------------|------------------------------|
| GROUP=ENVFILES | Files |
| GROUP=ERRORHANDLING | Error handling |
| GROUP=EXECMODES | Initialization and operation |
| GROUP=EXTFILES | External files |
| GROUP=GRAPHICS | Driver settings |
| GROUP=HELP | Help |
| GROUP=IDMS | IDMS |
| GROUP=IMS | IMS |
| GROUP=INPUTCONTROL | Data Processing |
| GROUP=INSTALL | Installation |
| GROUP=ISPF | ISPF |
| GROUP=LANGUAGECONTROL | Language control |
| GROUP=LISTCONTROL | Procedure output |
| GROUP=LOGCONTROL | SAS log |
| GROUP=LOG_LISTCONTROL | SAS log and procedure output |
| GROUP=MACRO | SAS macro |
| GROUP=MEMORY | Memory |
| GROUP=META | Metadata |
| GROUP=ODSPRINT | ODS Printing |
| GROUP=PDF | PDF |
| GROUP=PERFORMANCE | Performance |
| GROUP=REXX | REXX |
| GROUP=SASFILES | SAS Files |
| GROUP=SECURITY | Security |
| GROUP=SMF | SMF |
| GROUP=SORT | Procedure options |
| GROUP=SQL | SQL |
| GROUP=SVG | SVG |
| GROUP=TK | TK |

Use the GROUP= option to display system options that belong to a particular group. You can specify one or more groups.

```
proc options group=(svg graphics);
run;
```

Example Code 5.6 Sample Output Using the GROUP= Option

```

5  proc options group=(svg graphics);
6  run;

SAS (r) Proprietary Software Release 9.4 TS1M6

Group=SVG
ANIMATION=STOP      Specifies whether to start or stop animation.
ANIMDURATION=MIN   Specifies the number of seconds that each animation frame displays.
ANIMLOOP=YES       Specifies the number of iterations that animated images repeat.
ANIMOVERLAY        Specifies that animation frames are overlaid in order to view all frames.
SVGAUTOPLAY        Starts animation when the page is loaded in the browser.
NOSVGCONTROLBUTTONS
                   Does not display the paging control buttons and an index in a multipage SVG
                   document.
SVGFADEIN=0        Specifies the number of seconds for the fade-in effect for a graph.
SVGFADEMODE=OVERLAP
                   Specifies whether to use sequential frames or to overlap frames for the
                   fade-in effect of a graph.
SVGFADEOUT=0       Specifies the number of seconds for a graph to fade out of view.
SVGHEIGHT=         Specifies the height of the viewport. Specifies the value of the height
                   attribute of the outermost SVG element.
NOSVGMAGNIFYBUTTON
                   Disables the SVG magnifier tool.
SVGPRESERVEASPECTRATIO=
                   Specifies whether to force uniform scaling of SVG output. Specifies the
                   preserveAspectRatio attribute on the outermost SVG element.
SVGTITLE=          Specifies the text in the title bar of the SVG output. Specifies the value of
                   the TITLE element in the SVG file.
SVGVIEWBOX=        Specifies the coordinates, width, and height that are used to set the viewBox
                   attribute on the outermost SVG element.
SVGWIDTH=          Specifies the width of the viewport. Specifies the value of the width
                   attribute of the outermost SVG element.
SVGX=              Specifies the x-axis coordinate of one corner of the rectangular region for
                   an embedded SVG element. Specifies the x attribute in the outermost SVG
                   element.
SVGY=              Specifies the y-axis coordinate of one corner of the rectangular region for
                   an embedded SVG element. Specifies the y attribute in the outermost SVG
                   element.

Group=GRAPHICS
DEVICE=            Specifies the device driver to which SAS/GRAPH sends procedure output.
GSTYLE             Uses ODS styles to generate graphs that are stored as GRSEG catalog entries.
GWINDOW           Displays SAS/GRAPH output in the GRAPH window.
MAPS= ("!sasroot\path-to-maps")
                   Specifies the location of SAS/GRAPH map data sets.
MAPSGFK= (        "!sasroot\path-to-maps" )
                   Specifies the location of GfK maps.
MAPSSAS= (        "!sasroot\path-to-maps" )
                   Specifies the location of SAS map data sets.
FONTALIAS=        Assigns a Windows font to one of the SAS fonts.

```

You can use the following group names as values for the GROUP= option to list the system options in a group:

| | | |
|----------------|-----------------|-------------|
| ANIMATION | GRAPHICS | META |
| CAS | HELP | ODSPRINT |
| COMMUNICATIONS | INPUTCONTROL | PDF |
| DATAQUALITY | INSTALL | PERFORMANCE |
| EMAIL | LANGUAGECONTROL | SASFILES |

| | | |
|---------------|-----------------|----------|
| ENVDISPLAY | LISTCONTROL | SECURITY |
| ENVFILES | LOGCONTROL | SORT |
| ERRORHANDLING | LOG_LISTCONTROL | SQL |
| EXECMODES | MACRO | SVG |
| EXTFILES | MEMORY | TK |

You can use the following groups to list operating environment–specific values that might be available when you use the GROUP= option with PROC OPTIONS.

| | | |
|---------|--------|------|
| ADABAS | IDMS | REXX |
| CODEGEN | IMS | SMF |
| DATAKOM | ISPF | |
| DB2 | ORACLE | |

Operating Environment Information: Refer to the SAS documentation for your operating environment for more information about these host-specific options.

Display Restricted Options

Your site administrator can restrict some system options so that your SAS session conforms to options that are set for your site. Restricted options can be modified only by your site administrator. The OPTIONS procedure provides two options that display information about restricted options. The RESTRICT option lists the system options that your site administrator has restricted. The LISTRESTRICT option lists the options that can be restricted by your site administrator. For a listing of options that cannot be restricted, see [Table 1.1 on page 10](#).

The following SAS logs shows the output when the RESTRICT option is specified and partial output when the LISTRESTRICT option is specified.

Example Code 5.7 *A List of Options That Have Been Restricted by the Site Administrator*

```

1  proc options restrict;
2  run;
   SAS (r) Proprietary Software Release 9.4 TS1M6

Option Value Information For SAS Option CMPOPT
  Option Value: (NOEXTRAMATH NOMISSCHECK NOPRECISE NOGUARDCHECK
NOGENSYMNAMES NOFUNCDIFFERENCING)
  Option Scope: SAS Session
  How option value set: Site Administrator Restricted

```

Example Code 5.8 A Partial Log That Lists Options That Can Be Restricted

```

13 proc options listrestrict;
14 run;

SAS (r) Proprietary Software Release 9.4 TS1M6

Your Site Administrator can restrict the ability to modify the following Portable Options:

ACCESSIBLECHECK    Detect and log ODS output that is not accessible.
ACCESSIBLEGRAPH    Create accessible ODS graphics by default.
ACCESSIBLEPDF      Create accessible PDF files by default.
ACCESSIBLETABLE    Create accessible tables for enabled procedures, by default.
ANIMATION          Specifies whether to start or stop animation.
ANIMDURATION       Specifies the number of seconds that each animation frame displays.
ANIMLOOP           Specifies the number of iterations that animated images repeat.
ANIMOVERLAY        Specifies that animation frames are overlaid in order to view all frames.
APPLETLOC          Specifies the location of Java applets, which is typically a URL.
ARMAGENT           Specifies an ARM agent (which is an executable module or keyword, such
                  as LOG4SAS) that contains a specific implementation of the ARM API.
ARMLOC             Specifies the location of the ARM log.
ARMSUBSYS          Specifies the SAS ARM subsystems to enable or disable.
AUTOCORRECT        Automatically corrects misspelled procedure names and keywords, and
                  global statement names.
AUTOSAVELOC        Specifies the location of the Program Editor auto-saved file.

```

Display Options That Can Be Saved

Many system options can be saved by using PROC OPTSAVE or the DMOPTSAVE command. The options can later be restored by using PROC OPTLOAD or the DMOPTLOAD command. You can list the system options that can be saved and later restored by using the LISTOPTSAVE option on PROC OPTIONS.

.....

Note: PROC OPTSAVE does not save these types of system options:

- SAS invocation options
 - SAS environment variable options
 - SAS system options that include passwords
 - SAS system options that are read-only and cannot be set
-

.....

Note: PROC OPTSAVE and PROC OPTLOAD, as well as the DMOPTSAVE and DMOPTLOAD commands are valid only in SAS 9.4. They are not valid in SAS Viya.

.....

The following SAS log shows a partial list of the options that can be saved by using PROC OPTSAVE or the DMOPTSAVE command:

Example Code 5.9 A Partial List of System Options That Can Be Saved

```

11  proc options listoptsave;
    run;

SAS (r) Proprietary Software Release 9.4 TS1M6

Core options that can be saved with OPTSAVE

ACCESSIBLECHECK    Detect and log ODS output that is not accessible.
ACCESSIBLEGRAPH    Create accessible ODS graphics by default.
ACCESSIBLEPDF      Create accessible PDF files by default.
ACCESSIBLETABLE    Create accessible tables for enabled procedures, by default.
ANIMATION          Specifies whether to start or stop animation.
ANIMDURATION       Specifies the number of seconds that each animation frame displays.
ANIMLOOP           Specifies the number of iterations that animated images repeat.
ANIMOVERLAY        Specifies that animation frames are overlaid in order to view all frames.
APPLETLOC          Specifies the location of Java applets, which is typically a URL.
AUTOCORRECT        Automatically corrects misspelled procedure names and keywords, and
                   global statement names.
AUTOSAVELOC        Specifies the location of the Program Editor auto-saved file.
AUTOSIGNON         Enables a SAS/CONNECT client to automatically submit the SIGNON command
                   remotely with the RSUBMIT command.
BINDING            Specifies the binding edge type of duplexed printed output.
BOMFILE            Writes the byte order mark (BOM) prefix when a Unicode-encoded file is
                   written to an external file.
BOTTOMMARGIN       Specifies the size of the margin at the bottom of a printed page.
BUFNO              Specifies the number of buffers for processing SAS data sets.
BUFSIZE            Specifies the size of a buffer page for output SAS data sets.

```

Results: OPTIONS Procedure

View PROC OPTIONS Output in the SAS Log

SAS writes the options list to the SAS log.

SAS system options of the form *option* | *NOoption* are listed as either *option* or *NOoption*, depending on the current setting. They are always sorted by the positive form. For example, NOCAPS would be listed under the Cs.

The OPTIONS procedure displays passwords in the SAS log as eight Xs, regardless of the actual password length.

Operating Environment Information: PROC OPTIONS produces additional information that is specific to the environment under which you are running SAS. For more information about this and for descriptions of host-specific options, refer to the SAS documentation for your operating environment.

See Also

- [SAS Companion for UNIX Environments](#)
- [SAS Companion for Windows](#)
- [SAS Companion for z/OS](#)

Examples: OPTIONS Procedure

Example 1: Producing the Short Form of the Options Listing

Features: PROC OPTIONS statement option
SHORT

Details

This example shows how to generate the short form of the listing of SAS system option settings. Compare this short form with the long form that is shown in [“Display a List of System Options”](#) on page 417.

Program

List all options and their settings. SHORT lists the SAS system options and their settings without any descriptions.

```
proc options short;  
run;
```

Log

Example Code 5.10 Partial Listing of the SHORT Option

```

6   proc options short;
7   run;
   SAS (r) Proprietary Software Release 9.4 TS1M6

Portable Options:

   NOACCESSIBLECHECK NOACCESSIBLEGRAPH NOACCESSIBLEPDF NOACCESSIBLETABLE ANIMATION=STOP
   ANIMDURATION=MIN ANIMLOOP=YES ANIMOVERLAY APPEND=
   APPLETLLOC=//bb03smb01/sasgen/dev/mva-v940m6/avdobj/jar/wx6no ARMAGENT= ARMLOC=ARMLOG.LOG
   ARMSUBSYS=(ARM_NONE) AUTOCORRECT AUTOEXEC= AUTOSAVELOC= NOAUTOSIGNON BINDING=DEFAULT BOMFILE
   BOTTOMMARGIN=0.000 IN BUFNO=1 BUFSIZE=0 BYERR BYLINE BYSORTED NOCAPS NOCARDIMAGE CASAUTHINFO=
   CASDATALIMIT=100M CASHOST= CASLIB= CASCHARMULTIPLIER=1 CASWORKERS=ALL CASPORT=0 CASSESSOPTS=
   CASTIMEOUT=60 CASUSER= CATCACHE=0 CBUFNO=0 CENTER CGOPTIMIZE=3 NOCHARCODE NOCHKPTCLEAN CLEANUP
   NOCMDMAC CMPLIB= CMPMODEL=BOTH CMPOPT=(NOEXTRAMATH NOMISSCHECK NOPRECISE NOGUARDCHECK
   NOGENSYMNAMES NOFUNCDIFFERENCING SHORTCIRCUIT NOPROFILE) NOCOLLATE COLOPHON= COLORPRINTING

```

Example 2: Displaying the Setting of a Single Option

Features: PROC OPTIONS statement option
 OPTION=
 DEFINE
 LOGNUMBERFORMAT
 VALUE

Details

This example shows how to display the setting of a single SAS system option. The log shows the current setting of the SAS system option MEMBLKSZ. The DEFINE and VALUE options display additional information. The LOGNUMBERFORMAT displays the value using commas.

Program

Specify the MEMBLKSZ SAS system option. OPTION=MEMBLKSZ displays option value information. DEFINE and VALUE display additional information. LOGNUMBERFORMAT specifies to format the value using commas.

```
proc options option=memblksz define value lognumberformat;
```

```
run;
```

Log

Example Code 5.11 Log Output from Specifying the MEMBLKSZ Option

```
13 proc options option=memblksz define value lognumberformat;
14 run;

SAS (r) Proprietary Software Release 9.4 TS1M6

Option Value Information For SAS Option MEMBLKSZ
Value: 16,777,216
Scope: Default
How option value set: Shipped Default

Option Definition Information for SAS Option MEMBLKSZ
Group= MEMORY
Group Description: Memory settings
Description: Specifies the memory block size for Windows memory-based libraries.
Type: The option value is of type INTMAX
Range of Values: The minimum is 0 and the maximum is 9223372036854775807
Valid Syntax(any casing): MIN|MAX|n|nK|nM|nG|nT|hexadecimal
Numeric Format: Usage of LOGNUMBERFORMAT impacts the value format
When Can Set: Session startup (command line or config) only
Restricted: Your Site Administrator can restrict modification of this option
Optsave: PROC Optsave or command Dmoptsave will not save this option
```

Example 3: Displaying Expanded Path Environment Variables

Features: PROC OPTIONS statement options
 OPTION=
 EXPAND
 NOEXPAND
 HOST

Details

This example shows the value of an environment variable when the path is displayed.

Program

Show the value of the environment variables: The EXPAND option causes the values of environment variables to display in place of the environment variable. The NOEXPAND option causes the environment variable to display. In this example, the environment variable is !sasroot

```
proc options option=msg expand;
run;
proc options option=msg noexpand;
run;
```

Log

Example Code 5.12 Displaying an Expanded and Nonexpanded Pathname Using the OPTIONS Procedure

```
6  proc options option=msg expand;
7  run;
   SAS (r) Proprietary Software Release 9.4 TS1M6

   MSG=( 'C:\Program Files\SASHome\SASFoundation\9.4\sasmsg' )
       The path to the sasmsg directory
NOTE: PROCEDURE OPTIONS used (Total process time):
      real time          0.01 seconds
      cpu time           0.00 seconds

8  proc options option=msg noexpand;
9  run;
   SAS (r) Proprietary Software Release 9.4 TS1M6
0

   MSG=( '!sasroot\sasmsg')
       The path to the sasmsg directory
```

Example 4: List the Options That Can Be Specified by the INSERT and APPEND Options

Features: PROC OPTIONS statement option
LISTINSERTAPPEND

Details

This example shows how to display the options that can be specified by the INSERT and APPEND system options.

Program

List all options that can be specified by the INSERT and APPEND options in SAS 9.4. The LISTINSERTAPPEND option provides a list and a description of these options.

```
proc options listinsertappend;
run;
```

Log

Example Code 5.13 Displaying the Options That Can Be Specified by the INSERT and APPEND Options

```
9  proc options listinsertappend;
10 run;

SAS (r) Proprietary Software Release 9.4   TS1M6
p

Core options that can utilize INSERT and APPEND

AUTOEXEC           Specifies the location of the SAS AUTOEXEC files.
CMPLIB             Specifies one or more SAS data sets that contain compiler subroutines to
                  include during compilation.
FMTSEARCH          Specifies the order in which format catalogs are searched.
MAPS               Specifies the location of SAS/GRAPH map data sets
MAPSGFK           Specifies the location of GfK maps.
.
SASAUTOS           Specifies the location of one or more autocall libraries.
SASHELP            Specifies the location of the Sashelp library.
SASSCRIPT          Specifies one or more locations of SAS/CONNECT server sign-on script
                  files.

Host options that can utilize INSERT and APPEND

HELPLOC            Specifies the location of the text and index files for the facility that
                  is used to view the online SAS Help and Documentation.
MSG                Specifies the path to the library that contains SAS error messages.
SET                Defines a SAS environment variable.
```

OPTLOAD Procedure

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Overview: OPTLOAD Procedure

What Does the OPTLOAD Procedure Do?

The OPTLOAD procedure reads SAS system option settings that are stored in the SAS registry or a SAS data set and puts them into effect.

You can load SAS system option settings from a SAS data set or registry key by using one of these methods:

- the DMOPTLOAD command from a command line in the SAS windowing environment. For example, the command loads system options from the registry: DMOPTLOAD key= "core\options".
- the PROC OPTLOAD statement.

When an option is restricted by the site administrator, and the option value that is being set by PROC OPTLOAD differs from the option value that was established by the site administrator, SAS issues a warning message to the log.

Syntax: OPTLOAD Procedure

Restriction: This procedure is not available in SAS Viya orders that include only SAS Visual Analytics.

PROC OPTLOAD <options>;

| Statement | Task | Example |
|--------------|---|-----------------------|
| PROC OPTLOAD | Use SAS system option settings that are stored in the SAS registry or in a SAS data set | Ex. 1 |

PROC OPTLOAD Statement

Loads saved setting of SAS system options that are stored in the SAS registry or in a SAS data set.

Syntax

PROC OPTLOAD <options>;

Summary of Optional Arguments

DATA=libref.dataset

Load SAS system option settings from an existing data set.

KEY="SAS registry key"

Load SAS system option settings from an existing registry key.

Optional Arguments

DATA=libref.dataset

specifies the library and data set name from where SAS system option settings are loaded. The SAS variable OPTNAME contains the character value of the SAS system option name, and the SAS variable OPTVALUE contains the character value of the SAS system option setting.

Default

If you omit the DATA= option and the KEY= option, the procedure will use the default SAS library and data set. The default library is where the current user profile resides. Unless you specify a library,

the default library is SASUSER. If SASUSER is being used by another active SAS session, then the temporary WORK library is the default location from which the data set is loaded. The default data set name is MYOPTS.

Requirement The SAS library and data set must exist.

KEY="SAS registry key"

specifies the location in the SAS registry of stored SAS system option settings. The registry is retained in SASUSER. If SASUSER is not available, then the temporary WORK library is used. For example, KEY="OPTIONS" loads system options from the OPTIONS registry key.

Requirements "SAS registry key" must be an existing SAS registry key.

You must use quotation marks around the "SAS registry key" name. Separate the names in a sequence of key names with a backslash (\). For example, KEY="CORE\OPTIONS" loads system options from the CORE\OPTIONS registry key.

Example: Load a Data Set of Saved System Options

Features: PROC OPTLOAD statement option
DATA=

Details

This example saves the current system option settings using the OPTSAVE procedure, modifies the YEARCUTOFF system option, and then loads the original set of system options.

Program

```
libname mysas "c:\mysas";  
  
proc options option=yearcutoff;  
run;  
  
proc optsave out=mysas.options;  
run;
```

```
options yearcutoff=2000;

proc options option=yearcutoff;
run;

proc optload data=mysas.options;
run;

proc options option=yearcutoff;
run;
```

Program Description

These statements and procedures were submitted one at a time and not run as a SAS program to allow the display of the YEARCUTOFF option.

Assign the libref.

```
libname mysas "c:\mysas";
```

Display the value of the YEARCUTOFF= system option.

```
proc options option=yearcutoff;
run;
```

Save the current system option settings in mysas.options.

```
proc optsave out=mysas.options;
run;
```

Use the OPTIONS statement to set the YEARCUTOFF= system option to the value 2000.

```
options yearcutoff=2000;
```

Display the value of the YEARCUTOFF= system option.

```
proc options option=yearcutoff;
run;
```

Load the saved system option settings.

```
proc optload data=mysas.options;
run;
```

Display the value of the YEARCUTOFF= system option. After loading the saved system option settings, the value of the YEARCUTOFF= option has been restored to the original value.

```
proc options option=yearcutoff;
run;
```

Log

Example Code 6.1 The SAS Log Shows the YEARCUTOFF= Value After Loading Options Using PROC OPTLOAD

```

1  libname mysas "c:\mysas";
NOTE: Libref MYSAS was successfully assigned as follows:
      Engine:          V9
      Physical Name:  c:\mysas

2  proc options option=yearcutoff;
3  run;

      SAS (r) Proprietary Software Release 9.4  TS1M6

      YEARCUTOFF=1926  Specifies the first year of a 100-year span that is used by date
informats              and functions to read a two-digit year.

NOTE: PROCEDURE OPTIONS used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

4  proc optsave out=mysas.options;
5  run;

NOTE: The data set MYSAS.OPTIONS has 259 observations and 2 variables.
NOTE: PROCEDURE OPTSAVE used (Total process time):
      real time          0.03 seconds
      cpu time           0.03 seconds

6  options yearcutoff=2000;

7  proc options option=yearcutoff;
8  run;

      SAS (r) Proprietary Software Release 9.4  TS1M6

      YEARCUTOFF=2000  Specifies the first year of a 100-year span that is used by date
informats              and functions to read a two-digit year.

NOTE: PROCEDURE OPTIONS used (Total process time):
      real time          0.00 seconds
      cpu time           0.00 seconds

9  proc optload data=mysas.options;
10 run;

NOTE: PROCEDURE OPTLOAD used (Total process time):
      real time          0.06 seconds
      cpu time           0.01 seconds

```

```
11 proc options option=yearcutoff;  
12 run;
```

SAS (r) Proprietary Software Release 9.4 TS1M6

YEARCUTOFF=1926 Specifies the first year of a 100-year span that is used by date
informats
and functions to read a two-digit year.

NOTE: PROCEDURE OPTIONS used (Total process time):

| | |
|-----------|--------------|
| real time | 0.00 seconds |
| cpu time | 0.00 seconds |

OPTSAVE Procedure

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Overview: OPTSAVE Procedure

What Does the OPTSAVE Procedure Do?

PROC OPTSAVE saves the current SAS system option settings in the SAS registry or in a SAS data set.

SAS system options can be saved across SAS sessions. You can save the settings of the SAS system options in a SAS data set or registry key by using one of these methods:

- the DMOPTSAVE command from a command line in the SAS windowing environment. Use the command like this: DMOPTSAVE <save-location>.
- the PROC OPTSAVE statement.

Syntax: OPTSAVE Procedure

Restriction: This procedure is not available in SAS Viya orders that include only SAS Visual Analytics.

PROC OPTSAVE <options >;

| Statement | Task | Example |
|--------------|--|---------|
| PROC OPTSAVE | Save the current SAS system option settings to the SAS registry or to a SAS data set | Ex. 1 |

PROC OPTSAVE Statement

Saves the current SAS system option settings in the SAS registry or in a SAS data set.

Syntax

PROC OPTSAVE <options >;

Summary of Optional Arguments

KEY=*"SAS registry key"*

Save SAS system option settings to a registry key.

OUT=*libref.dataset*

Save SAS system option settings to a SAS data set.

Optional Arguments

KEY=*"SAS registry key"*

specifies the location in the SAS registry of stored SAS system option settings.

The registry is retained in SASUSER. If SASUSER is not available, then the temporary WORK library is used. For example, KEY="OPTIONS" saves the system options in the OPTIONS registry key.

Restriction "SAS registry key" names cannot span multiple lines.

Requirements Separate the names in a sequence of key names with a backslash (\). Individual key names can contain any character except a backslash.

The length of a key name cannot exceed 255 characters (including the backslashes).

You must use quotation marks around the “SAS registry key” name.

Tip To specify a subkey, enter multiple key names starting with the root key.

CAUTION **If the key already exists, it will be overwritten.** If the specified key does not already exist in the current SAS registry, then the key is automatically created when option settings are saved in the SAS registry.

OUT=libref.dataset

specifies the names of the library and data set where SAS system option settings are saved. The SAS variable OPTNAME contains the character value of the SAS system option name. The SAS variable OPTVALUE contains the character value of the SAS system option setting.

Default If you omit the OUT= and the KEY= options, the procedure will use the default SAS library and data set. The default SAS library is where the current user profile resides. Unless you specify a SAS library, the default library is SASUSER. If SASUSER is in use by another active SAS session, then the temporary WORK library is the default location where the data set is saved. The default data set name is MYOPTS.

CAUTION **If the data set already exists, it will be overwritten.**

Usage: OPTSAVE Procedure

Determine If a Single Option Can Be Saved

You can specify DEFINE in the OPTIONS procedure to determine whether an option can be saved. In the log output, the line beginning with **Optsave:** indicates whether the option can be saved.

```
proc options option=pageno define;
run;
```

Example Code 7.1 The SAS Log Displaying Output for the Option Procedure DEFINE Option

```

8  proc options option=pageno define;
9  run;

SAS (r) Proprietary Software Release 9.4 TS1M6

PAGENO=1
Option Definition Information for SAS Option PAGENO
Group= LISTCONTROL
Group Description: Procedure output and display settings
Description: Resets the SAS output page number.
Type: The option value is of type LONG
Range of Values: The minimum is 1 and the maximum is 2147483647
Valid Syntax(any casing): MIN|MAX|n|nK|nM|nG|nT|hexadecimal
Numeric Format: Usage of LOGNUMBERFORMAT impacts the value format
When Can Set: Startup or anytime during the SAS Session
Restricted: Your Site Administrator can restrict modification of this option
Optsave: PROC Optsave or command Dmoptsave will save this option

```

Create a List of Options That Can Be Saved

Some system options cannot be saved. To create a list of options that can be saved, submit this SAS code:

```

proc options listoptsave;
run;

```

.....

Note: PROC OPTSAVE does not save these types of system options:

- SAS invocation options
 - SAS environment variable options
 - SAS system options that include passwords
 - SAS system options that are read-only and cannot be set
-

Here is a partial listing of options that can be saved:

Example Code 7.2 A Partial Listing of Options That Can Be Saved

```

51  proc options listoptsave;
52  run;

SAS (r) Proprietary Software Release 9.4 TS1M6

Core options that can be saved with OPTSAVE

ACCESSIBLECHECK    Detect and log ODS output that is not accessible.
ACCESSIBLEGRAPH    Create accessible ODS graphics by default.
ACCESSIBLEPDF      Create accessible PDF files by default.
ACCESSIBLETABLE    Create accessible tables for enabled procedures, by default.
ANIMATION          Specifies whether to start or stop animation.
ANIMDURATION       Specifies the number of seconds that each animation frame
displays.
ANIMLOOP           Specifies the number of iterations that animated images
repeat.
ANIMOVERLAY        Specifies that animation frames are overlaid in order to
view all frames.
APPLETLOC          Specifies the location of Java applets, which is typically a
URL.
AUTOCORRECT        Automatically corrects misspelled procedure names and
keywords, and
global statement names.
AUTOSAVELOC        Specifies the location of the Program Editor auto-saved file.
AUTOSIGNON         Enables a SAS/CONNECT client to automatically submit the
SIGNON command
remotely with the RSUBMIT command.
BINDING            Specifies the binding edge type of duplexed printed output.
BOMFILE           Writes the byte order mark (BOM) prefix when a Unicode-
encoded file is
written to an external file.
BOTTOMMARGIN       Specifies the size of the margin at the bottom of a printed
page.
BUFNO             Specifies the number of buffers for processing SAS data sets.
BUFSIZE           Specifies the size of a buffer page for output SAS data sets.
BYERR             SAS issues an error message and stops processing if the SORT
procedure
attempts to sort a _NULL_ data set.
BYLINE            Prints the BY line above each BY group.
BYSORTED          Requires observations in one or more data sets to be sorted
in
alphabetic or numeric order.
CAPS              Converts certain types of input, and all data lines, into
uppercase
characters.
CARDIMAGE         Processes SAS source code and data lines as 80-byte records.
CBUFNO           Specifies the number of extra page buffers to allocate for
each open SAS
catalog.
CENTER            Center SAS procedure output.

```

Example: Saving System Options in a Data Set

Features: PROC OPTSAVE statement option
OUT=

Details

This example saves the current system option settings using the OPTSAVE procedure.

Program

```
libname mysas "c:\mysas";

proc optsave out=mysas.options;
run;
```

Program Description

Create a libref.

```
libname mysas "c:\mysas";
```

Save the current system option settings.

```
proc optsave out=mysas.options;
run;
```

Log

Example Code 7.3 The SAS Log Shows Processing of PROC OPTSAVE

```
1  libname mysas "c:\mysas";
NOTE: Libref MYSAS was successfully assigned as follows:
      Engine:          V9
      Physical Name:  c:\mysas

2  proc optsave out=mysas.options;
3  run;

NOTE: The data set MYSAS.OPTIONS has 289 observations and 2 variables.
NOTE: PROCEDURE OPTSAVE used (Total process time):
      real time          0.03 seconds
      cpu time           0.03 seconds
```


PART 5**Appendix**

| | |
|--|------------|
| <i>Appendix 1</i> | |
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Appendix 1

Time Zone Information and Time Zone Names

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|--|-----|
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| <i>Area: Pacific</i> | 485 |

Area: Africa

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Africa/Abidjan | GMT | CI | Greenwich Mean Time | 00:00 |
| Africa/Accra | GMT | GH | Greenwich Mean Time | 00:00 |
| Africa/Algiers | CET | DZ | Central European Standard Time | 01:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Africa/Bamako | GMT | ML | Greenwich Mean Time | 00:00 |
| Africa/Bangui | WAT | CF | West Africa Standard Time | 01:00 |
| Africa/Banjul | GMT | GM | Greenwich Mean Time | 00:00 |
| Africa/Bissau | GMT | GW | Greenwich Mean Time | 00:00 |
| Africa/Brazzaville | WAT | CG | West Africa Time | 01:00 |
| Africa/Casablanca | +01 | MA | Western European Standard Time | 01:00 |
| Africa/Casablanca | +00 | MA | Western European Summer Time | 00:00 |
| Africa/Ceuta | CET | ES | Central European Standard Time | 01:00 |
| Africa/Ceuta | CEST | ES | Central European Summer Time | 02:00 |
| Africa/Conakry | GMT | GN | Greenwich Mean Time | 00:00 |
| Africa/Dakar | GMT | SN | Greenwich Mean Time | 00:00 |
| Africa/Douala | WAT | CM | West Africa Time | 01:00 |
| Africa/El_Aaiun | +01 | EH | Western European Standard Time | 01:00 |
| Africa/El_Aaiun | +00 | EH | Western European Summer Time | 00:00 |
| Africa/Freetown | GMT | SL | Greenwich Mean Time | 00:00 |
| Africa/Lome | GMT | TG | Greenwich Mean Time | 00:00 |
| Africa/Monrovia | GMT | LR | Greenwich Mean Time | 00:00 |
| Africa/Nouakchott | GMT | MR | Greenwich Mean Time | 00:00 |
| Africa/Ouagadougou | GMT | BF | Greenwich Mean Time | 00:00 |
| Africa/Sao_Tome | GMT | ST | Greenwich Mean Time | 00:00 |
| Africa/Timbuktu | GMT | CI | Greenwich Mean Time | 00:00 |
| Africa/Tunis | CET | TN | Central European Standard Time | 01:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Africa/Kinshasa | WAT | CD | West Africa Standard Time | 01:00 |
| Africa/Lagos | WAT | NG | West Africa Standard Time | 01:00 |
| Africa/Libreville | WAT | GA | West Africa Standard Time | 01:00 |
| Africa/Luanda | WAT | AO | West Africa Standard Time | 01:00 |
| Africa/Malabo | WAT | GQ | West Africa Standard Time | 01:00 |
| Africa/Ndjamena | WAT | TD | West Africa Standard Time | 01:00 |
| Africa/Niamey | WAT | NE | West Africa Standard Time | 01:00 |
| Africa/Porto-Novo | WAT | BJ | West Africa Standard Time | 01:00 |
| Africa/Windhoek | CAT | NA | Central Africa Time | 02:00 |
| Africa/Blantyre | CAT | MW | Central Africa Time | 02:00 |
| Africa/Bujumbura | CAT | BI | Central Africa Time | 02:00 |
| Africa/Gaborone | CAT | BW | Central Africa Time | 02:00 |
| Africa/Harare | CAT | ZW | Central Africa Time | 02:00 |
| Africa/Kigali | CAT | RW | Central Africa Time | 02:00 |
| Africa/Lubumbashi | CAT | CD | Central Africa Time | 02:00 |
| Africa/Lusaka | CAT | ZM | Central Africa Time | 02:00 |
| Africa/Maputo | CAT | MZ | Central Africa Time | 02:00 |
| Africa/Cairo | EET | EG | Eastern European Standard Time | 02:00 |
| Africa/Tripoli | EET | LY | Eastern European Standard Time | 02:00 |
| Africa/Johannesburg | SAST | ZA | South Africa Standard Time | 02:00 |
| Africa/Maseru | SAST | LS | South Africa Standard Time | 02:00 |
| Africa/Mbabane | SAST | SZ | South Africa Standard Time | 02:00 |
| Africa/Addis_Ababa | EAT | ET | East Africa Time | 03:00 |
| Africa/Asmara | EAT | ET | East Africa Time | 3.00 |
| Africa/Asmera | EAT | ER | East Africa Time | 03:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-----------------------|------------------|
| Africa/Dar_es_Salaam | EAT | TZ | East Africa Time | 03:00 |
| Africa/Djibouti | EAT | DJ | East Africa Time | 03:00 |
| Africa/Juba | EAT | SS | East Africa Time | 03:00 |
| Africa/Kampala | EAT | UG | East Africa Time | 03:00 |
| Africa/Khartoum | CAT | SD | Central Africa Time | 02:00 |
| Africa/Mogadishu | EAT | SO | East Africa Time | 03:00 |
| Africa/Nairobi | EAT | KE | East Africa Time | 03:00 |

Area: America–North, Central, and South

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|--------------------------------------|----------------|--------|-------------------------------|------------------|
| America/Adak | HST | US | Hawaii-Aleutian Standard Time | -10:00 |
| America/Adak | HDT | US | Hawaii-Aleutian Daylight Time | -09:00 |
| America/Anchorage | AKST | US | Alaska Standard Time | -09:00 |
| America/Anchorage | AKDT | US | Alaska Daylight Time | -08:00 |
| America/Anguilla | AST | AI | Atlantic Standard Time | -04:00 |
| America/Antigua | AST | AG | Atlantic Standard Time | -04:00 |
| America/Araguaina | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Argentina/ Buenos_Aires | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/ Catamarca | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/ ComodRivadavia | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/Cordoba | -03 | AR | Argentina Time | -03:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|--------------------------------|----------------|--------|----------------------------------|------------------|
| America/Argentina/Jujuy | -03 | AR | Argentina Standard Standard Time | -03:00 |
| America/Argentina/La_Rioja | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/Mendoza | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/Rio_Gallegos | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/Salta | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/San_Juan | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/San_Luis | -03 | AR | Western Argentina Standard Time | -03:00 |
| America/Argentina/Tucuman | -03 | AR | Argentina Standard Time | -03:00 |
| America/Argentina/Ushuaia | -03 | AR | Argentina Standard Time | -03:00 |
| America/Aruba | AST | AW | Atlantic Standard Time | -04:00 |
| America/Asuncion | -04 | PY | Paraguay Standard Time | -04:00 |
| America/Asuncion | -03 | PY | Paraguay Summer Time | -03:00 |
| America/Atikokan | EST | CA | Eastern Standard Time | -05:00 |
| America/Atka | HST | US | Hawaii-Aleutian Standard Time | -10:00 |
| America/Atka | HDT | US | Hawaii-Aleutian Daylight Time | -09:00 |
| America/Bahia | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Bahia_Banderas | CST | MX | Central Standard Time | -06:00 |
| America/Bahia_Banderas | CDT | MX | Central Daylight Time | -05:00 |
| America/Barbados | AST | BB | Atlantic Standard Time | -04:00 |
| America/Belem | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Belize | CST | BZ | Central Standard Time | -06:00 |
| America/Blanc-Sablon | AST | CA | Atlantic Standard Time | -04:00 |
| America/Boa_Vista | -04 | BR | Amazon Standard Time | -04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-------------------------------|------------------|
| America/Bogota | -05 | CO | Colombia Standard Time | -05:00 |
| America/Boise | MST | US | Mountain Standard Time | -07:00 |
| America/Boise | MDT | US | Mountain Daylight Time | -06:00 |
| America/Buenos_Aires | -03 | AR | Argentina Standard Time | -03:00 |
| America/Cambridge_Bay | MST | CA | Mountain Standard Time | -07:00 |
| America/Cambridge_Bay | MDT | CA | Mountain Daylight Time | -06:00 |
| America/Campo_Grande | -04 | BR | Amazon Standard Time | -04:00 |
| America/Campo_Grande | -03 | BR | Amazon Summer Time | -03:00 |
| America/Cancun | EST | MX | Eastern Standard Time | -05:00 |
| America/Caracas | -04 | VE | Venezuela Time | -04:00 |
| America/Catamarca | -03 | AR | Argentina Standard Time | -03:00 |
| America/Cayenne | -03 | GF | French Guiana Time | -03:00 |
| America/Cayman | EST | KY | Eastern Standard Time | -05:00 |
| America/Chicago | CST | US | Central Standard Time | -06:00 |
| America/Chicago | CDT | US | Central Daylight Time | -05:00 |
| America/Chihuahua | MST | MX | Mexican Pacific Standard Time | -07:00 |
| America/Chihuahua | MDT | MX | Mexican Pacific Daylight Time | -06:00 |
| America/Coral_Harbour | EST | CA | Eastern Standard Time | -05:00 |
| America/Cordoba | -03 | AR | Argentina Standard Time | -03:00 |
| America/Costa_Rica | CST | CR | Central Standard Time | -06:00 |
| America/Creston | MST | CA | Mountain Standard Time | -07:00 |
| America/Cuiaba | -04 | BR | Amazon Standard Time | -04:00 |
| America/Cuiaba | -03 | BR | Amazon Summer Time | -03:00 |
| America/Curacao | AST | CW | Atlantic Standard Time | -04:00 |
| America/Danmarkshavn | GMT | GL | Greenwich Mean Time | 00:00 |
| America/Dawson | PST | CA | Pacific Standard Time | -08:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|------------------------------|------------------|
| America/Dawson | PDT | CA | Pacific Daylight Time | -07:00 |
| America/Dawson_Creek | MST | CA | Mountain Standard Time | -07:00 |
| America/Denver | MST | US | Mountain Standard Time | -07:00 |
| America/Denver | MDT | US | Mountain Daylight Time | -06:00 |
| America/Detroit | EST | US | Eastern Standard Time | -05:00 |
| America/Detroit | EDT | US | Eastern Daylight Time | -04:00 |
| America/Dominica | AST | DM | Atlantic Standard Time | -04:00 |
| America/Edmonton | MST | CA | Mountain Standard Time | -07:00 |
| America/Edmonton | MDT | CA | Mountain Daylight Time | -06:00 |
| America/Eirunepe | -05 | BR | Acre Standard Time | -05:00 |
| America/EL_Salvador | CST | SV | Central Standard Time | -06:00 |
| America/Ensenada | PST | MX | Pacific Time | -08:00 |
| America/Ensenada | PDT | MX | Pacific Daylight Time | -07:00 |
| America/Fort_Nelson | MST | CA | Mountain Standard Time | -07:00 |
| America/Fort_Wayne | EST | US | Eastern Standard Time | -05:00 |
| America/Fort_Wayne | EDT | US | Eastern Daylight Time | -04:00 |
| America/Fortaleza | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Glace_Bay | AST | CA | Atlantic Standard Time | -04:00 |
| America/Glace_Bay | ADT | CA | Atlantic Daylight Time | -03:00 |
| America/Godthab | -03 | GL | West Greenland Standard Time | -03:00 |
| America/Godthab | -02 | GL | West Greenland Summer Time | -02:00 |
| America/Goose_Bay | AST | CA | Atlantic Standard Time | -04:00 |
| America/Goose_Bay | ADT | CA | Atlantic Daylight Time | -03:00 |
| America/Grand_Turk | EDT | TC | Eastern Daylight Time | -04:00 |
| America/Grand_Turk | EST | TC | Eastern Standard Time | -05:00 |
| America/Grenada | AST | GD | Atlantic Standard Time | -04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|----------------------------------|----------------|--------|-------------------------------|------------------|
| America/Guadeloupe | AST | GP | Atlantic Standard Time | -04:00 |
| America/Guatemala | CST | GT | Central Standard Time | -06:00 |
| America/Guayaquil | -05 | EC | Ecuador Time | -05:00 |
| America/Guyana | -04 | GY | Guyana Time | -04:00 |
| America/Halifax | AST | CA | Atlantic Standard Time | -04:00 |
| America/Halifax | ADT | CA | Atlantic Daylight Time | -03:00 |
| America/Havana | CST | CU | Cuba Standard Time | -05:00 |
| America/Havana | CDT | CU | Cuba Daylight Time | -04:00 |
| America/Hermosillo | MST | MX | Mexican Pacific Standard Time | -07:00 |
| America/Indiana/ Indianapolis | EST | US | Eastern Standard Time | -05:00 |
| America/Indiana/ Indianapolis | EDT | US | Eastern Daylight Time | -04:00 |
| America/Indiana/Knox | CST | US | Central Standard Time | -06:00 |
| America/Indiana/Knox | CDT | US | Central Daylight Time | -05:00 |
| America/Indiana/Marengo | EST | US | Eastern Standard Time | -05:00 |
| America/Indiana/Marengo | EDT | US | Eastern Daylight Time | -04:00 |
| America/Indiana/ Petersburg | EST | US | Eastern Standard Time | -05:00 |
| America/Indiana/ Petersburg | EDT | US | Eastern Daylight Time | -04:00 |
| America/Indiana/Tell_City | CST | US | Central Standard Time | -06:00 |
| America/Indiana/Tell_City | CDT | US | Central Daylight Time | -05:00 |
| America/Indiana/Vevay | EST | US | Eastern Standard Time | -05:00 |
| America/Indiana/Vevay | EDT | US | Eastern Daylight Time | -04:00 |
| America/Indiana/Vincennes | EST | US | Eastern Standard Time | -05:00 |
| America/Indiana/Vincennes | EDT | US | Eastern Daylight Time | -04:00 |
| America/Indiana/Winamac | EST | US | Eastern Standard Time | -05:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|---------------------------------|----------------|--------|-------------------------|------------------|
| America/Indiana/Winamac | EDT | US | Eastern Daylight Time | -04:00 |
| America/Indianapolis | EST | US | Eastern Standard Time | -05:00 |
| America/Indianapolis | EDT | US | Eastern Daylight Time | -04:00 |
| America/Inuvik | MST | CA | Mountain Standard Time | -07:00 |
| America/Inuvik | MDT | CA | Mountain Daylight Time | -06:00 |
| America/Iqaluit | EST | CA | Eastern Standard Time | -05:00 |
| America/Iqaluit | EDT | CA | Eastern Daylight Time | -04:00 |
| America/Jamaica | EST | JM | Eastern Standard Time | -05:00 |
| America/Jujuy | -03 | AR | Argentina Standard Time | -03:00 |
| America/Juneau | AKST | US | Alaska Standard Time | -09:00 |
| America/Juneau | AKDT | US | Alaska Daylight Time | -08:00 |
| America/Kentucky/ Louisville | EST | US | Eastern Standard Time | -05:00 |
| America/Kentucky/ Louisville | EDT | US | Eastern Daylight Time | -04:00 |
| America/Kentucky/ Monticello | EST | US | Eastern Standard Time | -05:00 |
| America/Kentucky/ Monticello | EDT | US | Eastern Daylight Time | -04:00 |
| America/Knox_IN | CST | US | Central Standard Time | -06:00 |
| America/Knox_IN | CDT | US | Central Daylight Time | -05:00 |
| America/Kralendijk | AST | BQ | Atlantic Standard Time | -04:00 |
| America/La_Paz | -04 | BO | Bolivia Time | -04:00 |
| America/Lima | -05 | PE | Peru Standard Time | -05:00 |
| America/Los_Angeles | PST | US | Pacific Standard Time | -08:00 |
| America/Los_Angeles | PDT | US | Pacific Daylight Time | -07:00 |
| America/Louisville | EST | US | Eastern Standard Time | -05:00 |
| America/Louisville | EDT | US | Eastern Daylight Time | -04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------------|------------------|
| America/Lower_Princes | AST | SX | Atlantic Standard Time | -04:00 |
| America/Maceio | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Managua | CST | NI | Central Standard Time | -06:00 |
| America/Manaus | -04 | BR | Amazon Standard Time | -04:00 |
| America/Marigot | AST | MF | Atlantic Standard Time | -04:00 |
| America/Martinique | AST | MQ | Atlantic Standard Time | -04:00 |
| America/Matamoros | CST | MX | Central Standard Time | -06:00 |
| America/Matamoros | CDT | MX | Central Daylight Time | -05:00 |
| America/Mazatlan | MST | MX | Mexican Pacific Standard Time | -07:00 |
| America/Mazatlan | MDT | MX | Mexican Pacific Daylight Time | -06:00 |
| America/Mendoza | -03 | AR | Argentina Standard Time | -03:00 |
| America/Menominee | CST | US | Central Standard Time | -06:00 |
| America/Menominee | CDT | US | Central Daylight Time | -05:00 |
| America/Merida | CST | MX | Central Standard Time | -06:00 |
| America/Merida | CDT | MX | Central Daylight Time | -05:00 |
| America/Metlakatla | AKST | US | Alaska Standard Time | -09:00 |
| America/Metlakatla | AKDT | US | Alaska Daylight Time | -08:00 |
| America/Mexico_City | CST | MX | Central Standard Time | -06:00 |
| America/Mexico_City | CDT | MX | Central Daylight Time | -05:00 |
| America/Miquelon | -03 | PM | St Pierre and Miquelon Standard Time | -03:00 |
| America/Miquelon | -02 | PM | St Pierre and Miquelon Daylight Time | -02:00 |
| America/Moncton | AST | CA | Atlantic Standard Time | -04:00 |
| America/Moncton | ADT | CA | Atlantic Daylight Time | -03:00 |
| America/Monterrey | CST | MX | Central Standard Time | -06:00 |
| America/Monterrey | CDT | MX | Central Daylight Time | -05:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|--------------------------------|----------------|--------|-----------------------------------|------------------|
| America/Montevideo | -03 | UY | Uruguay Standard Time | -03:00 |
| America/Montreal | EST | CA | Eastern Standard Time | -05:00 |
| America/Montreal | EDT | CA | Eastern Daylight Time | -04:00 |
| America/Montserrat | AST | MS | Atlantic Standard Time | -04:00 |
| America/Nassau | EST | BS | Eastern Standard Time | -05:00 |
| America/Nassau | EDT | BS | Eastern Daylight Time | -04:00 |
| America/New_York | EST | US | Eastern Standard Time | -05:00 |
| America/New_York | EDT | US | Eastern Daylight Time | -04:00 |
| America/Nipigon | EST | CA | Eastern Standard Time | -05:00 |
| America/Nipigon | EDT | CA | Eastern Daylight Time | -04:00 |
| America/Nome | AKST | US | Alaska Standard Time | -09:00 |
| America/Nome | AKDT | US | Alaska Daylight Time | -08:00 |
| America/Noronha | -02 | BR | Fernando de Noronha Standard Time | -02:00 |
| America/North_Dakota/Beulah | CST | US | Central Standard Time | -06:00 |
| America/North_Dakota/Beulah | CDT | US | Central Daylight Time | -05:00 |
| America/North_Dakota/Center | CST | US | Central Standard Time | -06:00 |
| America/North_Dakota/Center | CDT | US | Central Daylight Time | -05:00 |
| America/North_Dakota/New_Salem | CST | US | Central Standard Time | -06:00 |
| America/North_Dakota/New_Salem | CDT | US | Central Daylight Time | -05:00 |
| America/Ojinaga | MST | MX | Mountain Standard Time | -07:00 |
| America/Ojinaga | MDT | MX | Mountain Daylight Time | -06:00 |
| America/Panama | EST | PA | Eastern Standard Time | -05:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|------------------------|----------------|--------|-------------------------|------------------|
| America/Pangnirtung | EST | CA | Eastern Standard Time | -05:00 |
| America/Pangnirtung | EDT | CA | Eastern Daylight Time | -04:00 |
| America/Paramaribo | -03 | SR | Suriname Time | -03:00 |
| America/Phoenix | MST | US | Mountain Standard Time | -07:00 |
| America/Port-au-Prince | EST | HT | Eastern Standard Time | -05:00 |
| America/Port-au-Prince | EDT | HT | Eastern Daylight Time | -04:00 |
| America/Port_of_Spain | AST | TT | Atlantic Standard Time | -04:00 |
| America/Porto_Acre | -05 | BR | Acre Standard Time | -05:00 |
| America/Porto_Velho | -04 | BR | Amazon Standard Time | -04:00 |
| America/Puerto_Rico | AST | PR | Atlantic Standard Time | -04:00 |
| America/Punta_Arenas | -03 | CL | Chile Standard Time | -03:00 |
| America/Rainy_River | CST | CA | Central Standard Time | -06:00 |
| America/Rainy_River | CDT | CA | Central Daylight Time | -05:00 |
| America/Rankin_Inlet | CST | CA | Central Standard Time | -06:00 |
| America/Rankin_Inlet | CDT | CA | Central Daylight Time | -05:00 |
| America/Recife | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Regina | CST | CA | Central Standard Time | -06:00 |
| America/Resolute | CST | CA | Central Standard Time | -06:00 |
| America/Resolute | CDT | CA | Central Daylight Time | -05:00 |
| America/Rio_Branco | -05 | BR | Acre Standard Time | -05:00 |
| America/Rosario | -03 | AR | Argentina Standard Time | -03:00 |
| America/Santa_Isabel | PST | MX | Pacific Standard Time | -08:00 |
| America/Santa_Isabel | PDT | MX | Pacific Daylight Time | -07:00 |
| America/Santarem | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Santiago | -04 | CL | Chile Standard Time | -04:00 |
| America/Santiago | -03 | CL | Chile Summer Time | -03:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|------------------------------|------------------|
| America/Santo_Domingo | AST | DO | Atlantic Standard Time | -04:00 |
| America/Sao_Paulo | -03 | BR | Brasilia Standard Time | -03:00 |
| America/Sao_Paulo | -02 | BR | Brasilia Summer Time | -02:00 |
| America/Scoresbysund | -01 | GL | East Greenland Standard Time | -01:00 |
| America/Scoresbysund | +00 | GL | East Greenland Summer Time | 00:00 |
| America/Shiprock | MST | US | Mountain Standard Time | -07:00 |
| America/Shiprock | MDT | US | Mountain Daylight Time | -06:00 |
| America/Sitka | AKST | US | Alaska Standard Time | -09:00 |
| America/Sitka | AKDT | US | Alaska Daylight Time | -08:00 |
| America/St_Barthelemy | AST | BL | Atlantic Standard Time | -04:00 |
| America/St_Johns | NST | CA | Newfoundland Standard Time | -03:30 |
| America/St_Johns | NDT | CA | Newfoundland Daylight Time | -02:30 |
| America/St_Kitts | AST | KN | Atlantic Standard Time | -04:00 |
| America/St_Lucia | AST | LC | Atlantic Standard Time | -04:00 |
| America/St_Thomas | AST | VI | Atlantic Standard Time | -04:00 |
| America/St_Vincent | AST | VC | Atlantic Standard Time | -04:00 |
| America/Swift_Current | CST | CA | Central Standard Time | -06:00 |
| America/Tegucigalpa | CST | HN | Central Standard Time | -06:00 |
| America/Thule | AST | GL | Atlantic Standard Time | -04:00 |
| America/Thule | ADT | GL | Atlantic Daylight Time | -03:00 |
| America/Thunder_Bay | EST | CA | Eastern Standard Time | -05:00 |
| America/Thunder_Bay | EDT | CA | Eastern Daylight Time | -04:00 |
| America/Tijuana | PST | MX | Pacific Standard Time | -08:00 |
| America/Tijuana | PDT | MX | Pacific Daylight Time | -07:00 |
| America/Toronto | EST | CA | Eastern Standard Time | -05:00 |
| America/Toronto | EDT | CA | Eastern Daylight Time | -04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|------------------------|------------------|
| America/Tortola | AST | VG | Atlantic Standard Time | -04:00 |
| America/Vancouver | PST | CA | Pacific Standard Time | -08:00 |
| America/Vancouver | PDT | CA | Pacific Daylight Time | -07:00 |
| America/Virgin | AST | AI | Atlantic Standard Time | -04:00 |
| America/Whitehorse | PST | CA | Pacific Standard Time | -08:00 |
| America/Whitehorse | PDT | CA | Pacific Daylight Time | -07:00 |
| America/Winnipeg | CST | CA | Central Standard Time | -06:00 |
| America/Winnipeg | CDT | CA | Central Daylight Time | -05:00 |
| America/Yakutat | AKST | US | Alaska Standard Time | -09:00 |
| America/Yakutat | AKDT | US | Alaska Daylight Time | -08:00 |
| America/Yellowknife | MST | CA | Mountain Standard Time | -07:00 |
| America/Yellowknife | MDT | CA | Mountain Daylight Time | -06:00 |

Area: Antarctica

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|---------------------------|----------------|--------|----------------------------------|------------------|
| Antarctica/Casey | +08 | AQ | Australian Western Standard Time | 08:00 |
| Antarctica/Davis | +07 | AQ | Davis Time | 07:00 |
| Antarctica/DumontDURville | +10 | AQ | Dumont-d'Urville Time | 10:00 |
| Antarctica/Macquarie | +11 | AU | Macquarie Island Time | 11:00 |
| Antarctica/Mawson | +05 | AQ | Mawson Time | 05:00 |
| Antarctica/McMurdo | NZST | AQ | New Zealand Standard Time | 12:00 |
| Antarctica/McMurdo | NZDT | AQ | New Zealand Daylight Time | 13:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|---------------------------|------------------|
| Antarctica/Palmer | -03 | AQ | Chile Standard Time | -04:00 |
| Antarctica/Palmer | CLST | AQ | Chile Summer Time | -03:00 |
| Antarctica/Rothera | -03 | AQ | Rothera Time | -03:00 |
| Antarctica/South_Pole | NZST | AQ | New Zealand Standard Time | 12:00 |
| Antarctica/South_Pole | NZDT | AQ | New Zealand Daylight Time | 13:00 |
| Antarctica/Syowa | +03 | AQ | Syowa Time | 03:00 |
| Antarctica/Troll | +00 | AQ | Greenwich Mean Time | 00:00 |
| Antarctica/Troll | +02 | AQ | Greenwich Mean Time | 02:00 |
| Antarctica/Vostok | +06 | AQ | Vostok Time | 06:00 |

Area: Arctic

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Arctic/Longyearbyen | CET | SJ | Central European Standard Time | 01:00 |
| Arctic/Longyearbyen | CEST | SJ | Central European Summer Time | 02:00 |

Area: Asia

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-----------------------|------------------|
| Asia/Aden | +03 | YE | Arabian Standard Time | 03:00 |
| Asia/Almaty | +06 | KZ | East Kazakhstan Time | 06:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Asia/Amman | EET | JO | Eastern European Standard Time | 02:00 |
| Asia/Amman | EEST | JO | Eastern European Summer Time | 03:00 |
| Asia/Anadyr | +12 | RU | Anadyr Standard Time | 12:00 |
| Asia/Aqtau | +05 | KZ | West Kazakhstan Time | 05:00 |
| Asia/Aqtobe | +05 | KZ | West Kazakhstan Time | 05:00 |
| Asia/Ashgabat | +05 | TM | Turkmenistan Standard Time | 05:00 |
| Asia/Ashkhabad | +05 | TM | Turkmenistan Standard Time | 05:00 |
| Asia/Atyrau | +05 | KZ | West Kazakhstan Time | 05:00 |
| Asia/Baghdad | +03 | IQ | Arabian Standard Time | 03:00 |
| Asia/Bahrain | +03 | BH | Arabian Standard Time | 03:00 |
| Asia/Baku | +04 | AZ | Azerbaijan Standard Time | 04:00 |
| Asia/Baku | +05 | AZ | Azerbaijan Time | 05:00 |
| Asia/Bangkok | +07 | TH | Indochina Time | 07:00 |
| Asia/Barnaul | +07 | RU | Krasnoyarsk Time | 07:00 |
| Asia/Beijing | CST | CN | China Time | 08:00 |
| Asia/Beirut | EET | LB | Eastern European Standard Time | 02:00 |
| Asia/Beirut | EEST | LB | Eastern European Summer Time | 03:00 |
| Asia/Bishkek | +06 | KG | Kyrgyzstan Time | 06:00 |
| Asia/Brunei | +08 | BN | Brunei Darussalam Time | 08:00 |
| Asia/Calcutta | IST | IN | India Standard Time | 05:30 |
| Asia/Chita | +09 | RU | Yakutsk Standard Time | 09:00 |
| Asia/Choibalsan | +08 | MN | Choibalsan Standard Time | 08:00 |
| Asia/Choibalsan | +09 | MN | Choibalsan Summer Time | 09:00 |
| Asia/Chongqing | CST | CN | China Standard Time | 08:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Asia/Chungking | CST | CN | China Standard Time | 08:00 |
| Asia/Colombo | +0530 | LK | India Standard Time | 05:30 |
| Asia/Dacca | +06 | BD | Bangladesh Standard Time | 06:00 |
| Asia/Damascus | EET | SY | Eastern European Standard Time | 02:00 |
| Asia/Damascus | EEST | SY | Eastern European Summer Time | 03:00 |
| Asia/Dhaka | +06 | BD | Bangladesh Standard Time | 06:00 |
| Asia/Dili | +09 | TL | East Timor Time | 09:00 |
| Asia/Dubai | +04 | AE | Gulf Standard Time | 04:00 |
| Asia/Dushanbe | +05 | TJ | Tajikistan Time | 05:00 |
| Asia/Famagusta | EET | CY | Eastern European Standard Time | 02:00 |
| Asia/Famagusta | EEST | CY | Eastern European Summer Time | 03:00 |
| Asia/Gaza | EET | PS | Eastern European Standard Time | 02:00 |
| Asia/Gaza | EEST | PS | Eastern European Summer Time | 03:00 |
| Asia/Harbin | CST | CN | China Standard Time | 08:00 |
| Asia/Hebron | EET | PS | Eastern European Standard Time | 02:00 |
| Asia/Hebron | EEST | PS | Eastern European Summer Time | 03:00 |
| Asia/Ho_Chi_Minh | +07 | VN | Indochina Time | 07:00 |
| Asia/Hong_Kong | HKT | HK | Hong Kong Standard Time | 08:00 |
| Asia/Hovd | +07 | MN | Hovd Standard Time | 07:00 |
| Asia/Hovd | +08 | MN | Hovd Summer Time | 08:00 |
| Asia/Irkutsk | +08 | RU | Irkutsk Standard Time | 08:00 |
| Asia/Istanbul | +03 | TR | Eastern European Time | 03:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--|------------------|
| Asia/Jakarta | WIB | ID | Western Indonesia Time | 07:00 |
| Asia/Jayapura | WIT | ID | Eastern Indonesia Time | 09:00 |
| Asia/Jerusalem | IST | IL | Israel Standard Time | 02:00 |
| Asia/Jerusalem | IDT | IL | Israel Daylight Time | 03:00 |
| Asia/Kabul | +0430 | AF | Afghanistan Time | 04:30 |
| Asia/Kamchatka | +12 | RU | Petropavlovsk-Kamchatski Standard Time | 12:00 |
| Asia/Karachi | PKT | PK | Pakistan Standard Time | 05:00 |
| Asia/Kashgar | +06 | CN | China Time | 06:00 |
| Asia/Katmandu | +0545 | NP | Nepal Time | 05:45 |
| Asia/Khandyga | +09 | RU | Yakutsk Standard Time | 09:00 |
| Asia/Kolkata | IST | IN | India Standard Time | 05:30 |
| Asia/Krasnoyarsk | +07 | RU | Krasnoyarsk Standard Time | 08:00 |
| Asia/Kuala_Lumpur | +08 | MY | Malaysia Time | 08:00 |
| Asia/Kuching | +08 | MY | Malaysia Time | 08:00 |
| Asia/Kuwait | +03 | KW | Arabian Standard Time | 03:00 |
| Asia/Macao | CST | MO | China Standard Time | 08:00 |
| Asia/Macau | CST | MO | China Standard Time | 08:00 |
| Asia/Magadan | +11 | RU | Magadan Standard Time | 11:00 |
| Asia/Makassar | WITA | ID | Central Indonesia Time | 08:00 |
| Asia/Manila | PST | PH | Philippine Standard Time | 08:00 |
| Asia/Muscat | +04 | OM | Gulf Standard Time | 04:00 |
| Asia/Nicosia | EET | CY | Eastern European Standard Time | 02:00 |
| Asia/Nicosia | EEST | CY | Eastern European Summer Time | 03:00 |
| Asia/Novokuznetsk | +07 | RU | Krasnoyarsk StandardTime | 07:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|---------------------------|------------------|
| Asia/Novosibirsk | +07 | RU | Novosibirsk Standard Time | 07:00 |
| Asia/Omsk | +06 | RU | Omsk Standard Time | 06:00 |
| Asia/Qostanay | +06 | KZ | East Kazakhstan Time | 06:00 |
| Asia/Oral | +05 | KZ | West Kazakhstan Time | 05:00 |
| Asia/Osaka | JST | JP | Japan Time | 09:00 |
| Asia/Phnom_Penh | +07 | KH | Indochina Time | 07:00 |
| Asia/Pontianak | WIB | ID | Western Indonesia Time | 07:00 |
| Asia/Pyongyang | KST | KP | Korean Standard Time | 09:00 |
| Asia/Qatar | +03 | QA | Arabian Standard Time | 03:00 |
| Asia/Qyzylorda | +05 | KZ | West Kazakhstan Time | 05:00 |
| Asia/Rangoon | +0630 | MM | Myanmar Time | 06:30 |
| Asia/Riyadh | +03 | SA | Arabian Standard Time | 03:00 |
| Asia/Saigon | +07 | VN | Indochina Time | 07:00 |
| Asia/Sakhalin | +11 | RU | Sakhalin Standard Time | 11:00 |
| Asia/Samarkand | +05 | UZ | Uzbekistan Standard Time | 05:00 |
| Asia/Sapporo | JST | JP | Japan Time | 09:00 |
| Asia/Seoul | KST | KR | Korean Standard Time | 09:00 |
| Asia/Shanghai | CST | CN | China Standard Time | 08:00 |
| Asia/Singapore | +08 | SG | Singapore Standard Time | 08:00 |
| Asia/Srednekolymsk | +11 | RU | Magadan Standard Time | 11:00 |
| Asia/Taipei | CST | TW | Taipei Standard Time | 08:00 |
| Asia/Tashkent | +05 | UZ | Uzbekistan Standard Time | 05:00 |
| Asia/Tbilisi | +04 | GE | Georgia Standard Time | 04:00 |
| Asia/Tehran | +0330 | IR | Iran Standard Time | 03:30 |
| Asia/Tehran | +0430 | IR | Iran Daylight Time | 04:30 |
| Asia/Tel_Aviv | IST | IL | Israel Standard Time | 02:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|---------------------------------|------------------|
| Asia/Tel_Aviv | IDT | IL | Israel Daylight Time | 03:00 |
| Asia/Thimbu | +06 | BT | Bhutan Time | 06:00 |
| Asia/Thimphu | BTT | BT | Bhutan Time | 06:00 |
| Asia/Tokyo | JST | JP | Japan Standard Time | 09:00 |
| Asia/Tomsk | +07 | RU | Omsk Time | 07:00 |
| Asia/Ujung_Pandang | WITA | ID | Central Indonesia Time | 08:00 |
| Asia/Ulan_Bator | +08 | MN | Ulaanbaatar Bator Standard Time | 08:00 |
| Asia/Urumqi | XJT | CN | China Standard Time | 08:00 |
| Asia/Ust-Nera | +10 | RU | Vladivostok Standard Time | 10:00 |
| Asia/Vientiane | +07 | LA | Indochina Time | 07:00 |
| Asia/Vladivostok | +10 | RU | Vladivostok Standard Time | 10:00 |
| Asia/Yakutsk | +09 | RU | Yakutsk Standard Time | 09:00 |
| Asia/Yangon | +0630 | MM | | 06:30 |
| Asia/Yekaterinburg | +05 | RU | Yekaterinburg Standard Time | 05:00 |
| Asia/Yerevan | +04 | AM | Armenia Standard Time | 04:00 |
| Asia/Yerevan | +05 | AM | Armenia Time | 05:00 |

Area: Atlantic

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-----------------------------|------------------|
| Atlantic/Azores | AZOT | PT | Azores Time | -01:00 |
| Atlantic/Azores | +00 | PT | Azores Summer Standard Time | 00:00 |
| Atlantic/Bermuda | AST | BM | Atlantic Standard Time | -04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|------------------------|----------------|--------|--------------------------------|------------------|
| Atlantic/Bermuda | ADT | BM | Atlantic Daylight Time | -03:00 |
| Atlantic/Canary | WET | ES | Western European Standard Time | 00:00 |
| Atlantic/Canary | WEST | ES | Western European Summer Time | 01:00 |
| Atlantic/Cape_Verde | -01 | CV | Cape Verde Standard Time | -01:00 |
| Atlantic/Faeroe | WET | FO | Western European Standard Time | 00:00 |
| Atlantic/Faeroe | WEST | FO | Western European Summer Time | 01:00 |
| Atlantic/Faroe | WET | FO | Western European Time | 00:00 |
| Atlantic/Faroe | WEST | FO | Western European Summer Time | 01:00 |
| Atlantic/Jan_Mayen | CET | SJ | Central European Standard Time | 01:00 |
| Atlantic/Jan_Mayen | CEST | SJ | Central European Summer Time | 02:00 |
| Atlantic/Madeira | WET | PT | Western European Standard Time | 00:00 |
| Atlantic/Madeira | WEST | PT | Western European Summer Time | 01:00 |
| Atlantic/Reykjavik | GMT | IS | Greenwich Mean Time | 00:00 |
| Atlantic/South_Georgia | -02 | GS | South Georgia Time | -02:00 |
| Atlantic/St_Helena | GMT | SH | Greenwich Mean Time | 00:00 |
| Atlantic/Stanley | -03 | FK | Falkland Islands Standard Time | -03:00 |

Area: Australia

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--|------------------|
| Australia/ACT | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/ACT | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/Adelaide | ACST | AU | Australian Central Standard Time | 09:30 |
| Australia/Adelaide | ACDT | AU | Australian Central Daylight Time | 10:30 |
| Australia/Brisbane | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Broken_Hill | ACST | AU | Australian Central Standard Time | 09:30 |
| Australia/Broken_Hill | ACDT | AU | Australian Central Daylight Time | 10:30 |
| Australia/Canberra | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Canberra | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/Currie | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Currie | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/Darwin | ACST | AU | Australian Central Standard Time | 09:30 |
| Australia/Eucla | +0845 | AU | Australian Central Western Standard Time | 08:45 |
| Australia/Hobart | AEST | AU | Australian Eastern Standard Time | 10:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|----------------------------------|------------------|
| Australia/Hobart | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/LHI | +1030 | AU | Lord Howe Standard Time | 10:30 |
| Australia/LHI | +11 | AU | Lord Howe Daylight Time | 11:00 |
| Australia/Lindeman | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Lord_Howe | +1030 | AU | Lord Howe Standard Time | 10:30 |
| Australia/Lord_Howe | +11 | AU | Lord Howe Daylight Time | 11:00 |
| Australia/Melbourne | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Melbourne | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/NSW | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/NSW | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/North | ACST | AU | Australian Central Standard Time | 09:30 |
| Australia/Perth | AWST | AU | Australian Western Standard Time | 08:00 |
| Australia/Queensland | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/South | ACST | AU | Australian Central Standard Time | 09:30 |
| Australia/South | ACDT | AU | Australian Central Daylight Time | 10:30 |
| Australia/Sydney | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Sydney | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/Tasmania | AEST | AU | Australian Eastern Standard Time | 10:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|----------------------------------|------------------|
| Australia/Tasmania | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/Victoria | AEST | AU | Australian Eastern Standard Time | 10:00 |
| Australia/Victoria | AEDT | AU | Australian Eastern Daylight Time | 11:00 |
| Australia/West | AWST | AU | Australian Western Standard Time | 08:00 |
| Australia/Yancowinna | ACST | AU | Australian Central Standard Time | 09:30 |
| Australia/Yancowinna | ACDT | AU | Australian Central Daylight Time | 10:30 |

Area: Miscellaneous

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-----------------------------------|------------------|
| Brazil/Acre | -05 | BR | Acre Standard Time | -05:00 |
| Brazil/DeNoronha | -02 | BR | Fernando de Noronha Standard Time | -02:00 |
| Brazil/East | -03 | BR | Brasilia Standard Time | -03:00 |
| Brazil/East | -02 | BR | Brasilia Summer Time | -02:00 |
| Brazil/West | -04 | BR | Amazon Standard Time | -04:00 |
| CST6CDT | CST | US | Central Standard Time | -06:00 |
| CST6CDT | CDT | US | Central Daylight Time | -05:00 |
| Canada/Atlantic | AST | CA | Atlantic Standard Time | -04:00 |
| Canada/Atlantic | ADT | CA | Atlantic Daylight Time | -03:00 |
| Canada/Central | CST | CA | Central Standard Time | -06:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Canada/Central | CDT | CA | Central Daylight Time | -05:00 |
| Canada/Eastern | EST | CA | Eastern Standard Time | -05:00 |
| Canada/Eastern | EDT | CA | Eastern Daylight Time | -04:00 |
| Canada/Mountain | MST | CA | Mountain Standard Time | -07:00 |
| Canada/Mountain | MDT | CA | Mountain Daylight Time | -06:00 |
| Canada/Newfoundland | NST | CA | Newfoundland Standard Time | -03:30 |
| Canada/Newfoundland | NDT | CA | Newfoundland Daylight Time | -02:30 |
| Canada/Pacific | PST | CA | Pacific Standard Time | -08:00 |
| Canada/Pacific | PDT | CA | Pacific Daylight Time | -07:00 |
| Canada/Saskatchewan | CST | CA | Central Standard Time | -06:00 |
| Canada/Yukon | PST | CA | Pacific Standard Time | -08:00 |
| Canada/Yukon | PDT | CA | Pacific Daylight Time | -07:00 |
| Chile/Continental | -04 | CL | Chile Standard Time | -04:00 |
| Chile/Continental | -03 | CL | Chile Summer Time | -03:00 |
| Chile/EasterIsland | -06 | CL | Easter Island Standard Time | -06:00 |
| Chile/EasterIsland | -05 | CL | Easter Island Summer Time | -05:00 |
| Cuba | CST | CU | Cuba Standard Time | -05:00 |
| Cuba | CDT | CU | Cuba Daylight Time | -04:00 |
| EST5EDT | EST | US | Eastern Standard Time | -05:00 |
| EST5EDT | EDT | US | Eastern Daylight Time | -04:00 |
| Egypt | EET | EG | Eastern European Standard Time | 02:00 |
| Eire | GMT | IE | Greenwich Mean Time | 00:00 |
| Eire | IST | IE | Greenwich Mean Time | 01:00 |
| Etc/GMT | GMT | | Greenwich Mean Time | 00:00 |
| Etc/GMT+0 | GMT | | Greenwich Mean Time | 00:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-----------------------|------------------|
| Etc/GMT+1 | GMT-01 | | 1 hours behind GMT | -01:00 |
| Etc/GMT+2 | GMT-02 | | 2 hours behind GMT | -02:00 |
| Etc/GMT+3 | GMT-03 | | 3 hours behind GMT | -03:00 |
| Etc/GMT+4 | GMT-04 | | 4 hours behind GMT | -04:00 |
| Etc/GMT+5 | GMT-05 | | 5 hours behind GMT | -05:00 |
| Etc/GMT+6 | GMT-06 | | 6 hours behind GMT | -06:00 |
| Etc/GMT+7 | GMT-07 | | 7 hours behind GMT | -07:00 |
| Etc/GMT+8 | GMT-08 | | 8 hours behind GMT | -08:00 |
| Etc/GMT+9 | GMT-09 | | 9 hours behind GMT | -09:00 |
| Etc/GMT+10 | GMT-10 | | 10 hours behind GMT | -10:00 |
| Etc/GMT+11 | GMT-11 | | 11 hours behind GMT | -11:00 |
| Etc/GMT+12 | GMT-12 | | 12 hours behind GMT | -12:00 |
| Etc/GMT-0 | GMT | | Greenwich Mean Time | 00:00 |
| Etc/GMT-1 | GMT+01 | | 1 hour ahead of GMT | 01:00 |
| Etc/GMT-2 | GMT+02 | | 2 hours ahead of GMT | 02:00 |
| Etc/GMT-3 | GMT+03 | | 3 hours ahead of GMT | 03:00 |
| Etc/GMT-4 | GMT+04 | | 4 hours ahead of GMT | 04:00 |
| Etc/GMT-5 | GMT+05 | | 5 hours ahead of GMT | 05:00 |
| Etc/GMT-6 | GMT+06 | | 6 hours ahead of GMT | 06:00 |
| Etc/GMT-7 | GMT+07 | | 7 hours ahead of GMT | 07:00 |
| Etc/GMT-8 | GMT+08 | | 8 hours ahead of GMT | 08:00 |
| Etc/GMT-9 | GMT+09 | | 9 hours ahead of GMT | 09:00 |
| Etc/GMT-10 | GMT+10 | | 10 hours ahead of GMT | 10:00 |
| Etc/GMT-11 | GMT+11 | | 11 hours ahead of GMT | 11:00 |
| Etc/GMT-12 | GMT+12 | | 12 hours ahead of GMT | 12:00 |
| Etc/GMT-13 | GMT+13 | | 13 hours ahead of GMT | 13:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|------------------------------------|------------------|
| Etc/GMT-14 | GMT+14 | | 14 hours ahead of GMT | 14:00 |
| Etc/GMT0 | GMT | | Greenwich Mean Time | 00:00 |
| Etc/Greenwich | GMT | | Greenwich Mean Time | 00:00 |
| Etc/UCT | UCT | | Greenwich Mean Time | 00:00 |
| Etc/UTC | UTC | | Greenwich Mean Time | 00:00 |
| Etc/Universal | UTC | | Greenwich Mean Time | 00:00 |
| Etc/Zulu | UTC | | Greenwich Mean Time | 00:00 |
| GB | GMT | GB | Greenwich Mean Time | 00:00 |
| GB | BST | GB | Greenwich Mean Time | 01:00 |
| GB-Eire | GMT | GB | Greenwich Mean Time | 00:00 |
| GB-Eire | BST | GB | Greenwich Mean Time | 01:00 |
| GMT | GMT | | Greenwich Mean Time | 00:00 |
| GMT+0 | GMT | | Greenwich Mean Time | 00:00 |
| GMT-0 | GMT | | Greenwich Mean Time | 00:00 |
| GMT0 | GMT | | Greenwich Mean Time | 00:00 |
| Greenwich | GMT | | Greenwich Mean Time | 00:00 |
| Hongkong | HKT | HK | Hong Kong Standard Time | 08:00 |
| Iceland | GMT | IS | Greenwich Mean Time | 00:00 |
| Indian/Antananarivo | EAT | MG | East Africa Time | 03:00 |
| Indian/Chagos | +06 | IO | Indian Ocean Time | 06:00 |
| Indian/Christmas | +07 | CX | Christmas Island Time | 07:00 |
| Indian/Cocos | +0630 | CC | Cocos Islands Time | 06:30 |
| Indian/Comoro | EAT | KM | East Africa Time | 03:00 |
| Indian/Kerguelen | +05 | TF | French Southern and Antarctic Time | 05:00 |
| Indian/Mahe | +04 | SC | Seychelles Time | 04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Indian/Maldives | +05 | MV | Maldives Time | 05:00 |
| Indian/Mauritius | +04 | MU | Mauritius Standard Time | 04:00 |
| Indian/Mayotte | EAT | YT | East Africa Time | 03:00 |
| Indian/Reunion | +04 | RE | Reunion Time | 04:00 |
| Iran | +0330 | IR | Iran Standard Time | 03:30 |
| Iran | +0430 | IR | Iran Daylight Time | 04:30 |
| Israel | IST | IL | Israel Standard Time | 02:00 |
| Israel | IDT | IL | Israel Daylight Time | 03:00 |
| Jamaica | EST | JM | Eastern Standard Time | -05:00 |
| Japan | JST | JP | Japan Standard Time | 09:00 |
| Kwajalein | +12 | MH | Marshall Islands Time | 12:00 |
| Libya | EET | LY | Eastern European Standard Time | 02:00 |
| MST7MDT | MST | US | Mountain Standard Time | -07:00 |
| MST7MDT | MDT | US | Mountain Daylight Time | -06:00 |
| Mexico/BajaNorte | PST | MX | Mexican Pacific Standard Time | -08:00 |
| Mexico/BajaNorte | PDT | MX | Mexican Pacific Daylight Time | -07:00 |
| Mexico/BajaSur | MST | MX | Mexican Pacific Standard Time | -07:00 |
| Mexico/BajaSur | MDT | MX | Mexican Pacific Daylight Time | -06:00 |
| Mexico/General | CST | MX | Central Standard Time | -06:00 |
| Mexico/General | CDT | MX | Central Daylight Time | -05:00 |
| NZ | NZST | AQ | New Zealand Standard Time | 12:00 |
| NZ | NZDT | AQ | New Zealand Daylight Time | 13:00 |
| NZ-CHAT | +1245 | NZ | Chatham Standard Time | 12:45 |
| NZ-CHAT | +1345 | NZ | Chatham Daylight Time | 13:45 |
| Navajo | MST | US | Mountain Standard Time | -07:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Navajo | MDT | US | Mountain Daylight Time | -06:00 |
| PRC | CST | CN | China Standard Time | 08:00 |
| PST8PDT | PST | US | Pacific Standard Time | -08:00 |
| PST8PDT | PDT | US | Pacific Daylight Time | -07:00 |
| Poland | CET | PL | Central European Standard Time | 01:00 |
| Poland | CEST | PL | Central European Summer Time | 02:00 |
| Portugal | WET | PT | Western European Standard Time | 00:00 |
| Portugal | WEST | PT | Western European Summer Time | 01:00 |
| ROC | CST | TW | Taipei Standard Time | 08:00 |
| ROK | KST | KR | Korean Standard Time | 09:00 |
| Singapore | +08 | SG | Singapore Standard Time | 08:00 |
| Turkey | +03 | TR | Eastern European Time | 03:00 |
| UCT | UCT | | Greenwich Mean Time | 00:00 |
| US/Alaska | AKST | US | Alaska Standard Time | -09:00 |
| US/Alaska | AKDT | US | Alaska Daylight Time | -08:00 |
| US/Aleutian | HST | US | Hawaii-Aleutian Standard Time | -10:00 |
| US/Aleutian | HDT | US | Hawaii-Aleutian Daylight Time | -09:00 |
| US/Arizona | MST | US | Mountain Standard Time | -07:00 |
| US/Central | CST | US | Central Standard Time | -06:00 |
| US/Central | CDT | US | Central Daylight Time | -05:00 |
| US/East-Indiana | EST | US | Eastern Standard Time | -05:00 |
| US/East-Indiana | EDT | US | Eastern Daylight Time | -04:00 |
| US/Eastern | EST | US | Eastern Standard Time | -05:00 |
| US/Eastern | EDT | US | Eastern Daylight Time | -04:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-------------------------------|------------------|
| US/Hawaii | HST | US | Hawaii-Aleutian Standard Time | -10:00 |
| US/Indiana-Starke | CST | US | Central Standard Time | -06:00 |
| US/Indiana-Starke | CDT | US | Central Daylight Time | -05:00 |
| US/Michigan | EST | US | Eastern Standard Time | -05:00 |
| US/Michigan | EDT | US | Eastern Daylight Time | -04:00 |
| US/Mountain | MST | US | Mountain Standard Time | -07:00 |
| US/Mountain | MDT | US | Mountain Daylight Time | -06:00 |
| US/Pacific | PST | US | Pacific Standard Time | -08:00 |
| US/Pacific | PDT | US | Pacific Daylight Time | -07:00 |
| US/Pacific-New | PST | US | Pacific Standard Time | -08:00 |
| US/Pacific-New | PDT | US | Pacific Daylight Time | -07:00 |
| US/Samoa | SST | UM | Samoa Standard Time | -11:00 |
| UTC | UTC | | Greenwich Mean Time | 00:00 |
| Universal | UTC | | Greenwich Mean Time | 00:00 |
| W-SU | MSK | RU | Moscow Standard Time | 03:00 |
| Zulu | UTC | | Greenwich Mean Time | 00:00 |

Area: Europe

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Amsterdam | CET | NL | Central European Standard Time | 01:00 |
| Europe/Amsterdam | CEST | NL | Central European Summer Time | 02:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Andorra | CET | AD | Central European Standard Time | 01:00 |
| Europe/Andorra | CEST | AD | Central European Summer Time | 02:00 |
| Europe/Astrakhan | +04 | RU | Moscow Standard Time | 04:00 |
| Europe/Athens | EET | GR | Eastern European Standard Time | 02:00 |
| Europe/Athens | EEST | GR | Eastern European Summer Time | 03:00 |
| Europe/Belfast | GMT | GB | Greenwich Mean Time | 00:00 |
| Europe/Belfast | BST | GB | Greenwich Mean Time | 01:00 |
| Europe/Belgrade | CET | RS | Central European Standard Time | 01:00 |
| Europe/Belgrade | CEST | RS | Central European Summer Time | 02:00 |
| Europe/Berlin | CET | DE | Central European Standard Time | 01:00 |
| Europe/Berlin | CEST | DE | Central European Summer Time | 02:00 |
| Europe/Bratislava | CET | SK | Central European Standard Time | 01:00 |
| Europe/Bratislava | CEST | SK | Central European Summer Time | 02:00 |
| Europe/Brussels | CET | BE | Central European Standard Time | 01:00 |
| Europe/Brussels | CEST | BE | Central European Summer Time | 02:00 |
| Europe/Bucharest | EET | RO | Eastern European Standard Time | 02:00 |
| Europe/Bucharest | EEST | RO | Eastern European Summer Time | 03:00 |
| Europe/Budapest | CET | HU | Central European Standard Time | 01:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Budapest | CEST | HU | Central European Summer Time | 02:00 |
| Europe/Busingen | CET | DE | Central European Standard Time | 01:00 |
| Europe/Busingen | CEST | DE | Central European Summer Time | 02:00 |
| Europe/Chisinau | EET | MD | Eastern European Standard Time | 02:00 |
| Europe/Chisinau | EEST | MD | Eastern European Summer Time | 03:00 |
| Europe/Copenhagen | CET | DK | Central European Standard Time | 01:00 |
| Europe/Copenhagen | CEST | DK | Central European Summer Time | 02:00 |
| Europe/Dublin | GMT | IE | Greenwich Mean Time | 00:00 |
| Europe/Dublin | IST | IE | Greenwich Mean Time | 01:00 |
| Europe/Gibraltar | CET | GI | Central European Standard Time | 01:00 |
| Europe/Gibraltar | CEST | GI | Central European Summer Time | 02:00 |
| Europe/Guernsey | GMT | GG | Greenwich Mean Time | 00:00 |
| Europe/Guernsey | BST | GG | Greenwich Mean Time | 01:00 |
| Europe/Helsinki | EET | FI | Eastern European Standard Time | 02:00 |
| Europe/Helsinki | EEST | FI | Eastern European Summer Time | 03:00 |
| Europe/Isle_of_Man | GMT | IM | Greenwich Mean Time | 00:00 |
| Europe/Isle_of_Man | BST | IM | Greenwich Mean Time | 01:00 |
| Europe/Istanbul | +03 | TR | Eastern European Time | 03:00 |
| Europe/Jersey | GMT | JE | Greenwich Mean Time | 00:00 |
| Europe/Jersey | BST | JE | Greenwich Mean Time | 01:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Kaliningrad | EET | RU | Eastern European Standard Time | 02:00 |
| Europe/Kiev | EET | UA | Eastern European Standard Time | 02:00 |
| Europe/Kiev | EEST | UA | Eastern European Summer Time | 03:00 |
| Europe/Kirov | +03 | RU | Moscow Time | 03:00 |
| Europe/Lisbon | WET | PT | Western European Standard Time | 00:00 |
| Europe/Lisbon | WEST | PT | Western European Summer Time | 01:00 |
| Europe/Ljubljana | CET | SI | Central European Standard Time | 01:00 |
| Europe/Ljubljana | CEST | SI | Central European Summer Time | 02:00 |
| Europe/London | GMT | GB | Greenwich Mean Time | 00:00 |
| Europe/London | BST | GB | Greenwich Mean Time | 01:00 |
| Europe/Luxembourg | CET | LU | Central European Standard Time | 1:00 |
| Europe/Luxembourg | CEST | LU | Central European Summer Time | 02:00 |
| Europe/Madrid | CET | ES | Central European Standard Time | 01:00 |
| Europe/Madrid | CEST | ES | Central European Summer Time | 02:00 |
| Europe/Malta | CET | MT | Central European Standard Time | 01:00 |
| Europe/Malta | CEST | MT | Central European Summer Time | 02:00 |
| Europe/Mariehamn | EET | AX | Eastern European Standard Time | 02:00 |
| Europe/Mariehamn | EEST | AX | Eastern European Summer Time | 03:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Minsk | +03 | BY | Moscow Standard Time | 03:00 |
| Europe/Monaco | CET | MC | Central European Standard Time | 01:00 |
| Europe/Monaco | CEST | MC | Central European Summer Time | 02:00 |
| Europe/Moscow | MSK | RU | Moscow Standard Time | 03:00 |
| Europe/Nicosia | EET | CY | Eastern European Standard Time | 02:00 |
| Europe/Nicosia | EEST | CY | Eastern European Summer Time | 03:00 |
| Europe/Oslo | CET | NO | Central European Standard Time | 01:00 |
| Europe/Oslo | CEST | NO | Central European Summer Time | 02:00 |
| Europe/Paris | CET | FR | Central European Time | 01:00 |
| Europe/Paris | CEST | FR | Central European Summer Time | 02:00 |
| Europe/Podgorica | CET | ME | Central European Standard Time | 01:00 |
| Europe/Podgorica | CEST | ME | Central European Summer Time | 02:00 |
| Europe/Prague | CET | CZ | Central European Standard Time | 01:00 |
| Europe/Prague | CEST | CZ | Central European Summer Time | 02:00 |
| Europe/Riga | EET | LV | Eastern European Standard Time | 02:00 |
| Europe/Riga | EEST | LV | Eastern European Summer Time | 03:00 |
| Europe/Rome | CET | IT | Central European Standard Time | 01:00 |
| Europe/Rome | CEST | IT | Central European Summer Time | 02:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Samara | +04 | RU | Samara Standard Time | 04:00 |
| Europe/San_Marino | CET | SM | Central European Standard Time | 01:00 |
| Europe/San_Marino | CEST | SM | Central European Summer Time | 02:00 |
| Europe/Sarajevo | CET | BA | Central European Standard Time | 01:00 |
| Europe/Sarajevo | CEST | BA | Central European Summer Time | 02:00 |
| Europe/Saratov | +04 | RU | Moscow Standard Time | 04:00 |
| Europe/Simferopol | MSK | UA | Moscow StandardTime | 03:00 |
| Europe/Skopje | CET | MK | Central European Standard Time | 01:00 |
| Europe/Skopje | CEST | MK | Central European Summer Time | 02:00 |
| Europe/Sofia | EET | BG | Eastern European Standard Time | 02:00 |
| Europe/Sofia | EEST | BG | Eastern European Summer Time | 03:00 |
| Europe/Stockholm | CET | SE | Central European Standard Time | 01:00 |
| Europe/Stockholm | CEST | SE | Central European Summer Time | 02:00 |
| Europe/Tallinn | EET | EE | Eastern European Standard Time | 02:00 |
| Europe/Tallinn | EEST | EE | Eastern European Summer Time | 03:00 |
| Europe/Tirane | CET | AL | Central European Standard Time | 01:00 |
| Europe/Tirane | CEST | AL | Central European Summer Time | 02:00 |
| Europe/Tiraspol | EET | MD | Eastern European Standard Time | 02:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Tiraspol | EEST | MD | Eastern European Summer Time | 03:00 |
| Europe/Ulyanovsk | +04 | RU | Moscow Standard Time | 04:00 |
| Europe/Uzhgorod | EET | UA | Eastern European Standard Time | 02:00 |
| Europe/Uzhgorod | EEST | UA | Eastern European Summer Time | 03:00 |
| Europe/Vaduz | CET | LI | Central European Standard Time | 01:00 |
| Europe/Vaduz | CEST | LI | Central European Summer Time | 02:00 |
| Europe/Vatican | CET | VA | Central European Standard Time | 01:00 |
| Europe/Vatican | CEST | VA | Central European Summer Time | 02:00 |
| Europe/Vienna | CET | AT | Central European Standard Time | 01:00 |
| Europe/Vienna | CEST | AT | Central European Summer Time | 02:00 |
| Europe/Vilnius | EET | LT | Eastern European Standard Time | 02:00 |
| Europe/Vilnius | EEST | LT | Eastern European Summer Time | 03:00 |
| Europe/Volgograd | +04 | RU | Volgograd Standard Time | 04:00 |
| Europe/Warsaw | CET | PL | Central European Standard Time | 01:00 |
| Europe/Warsaw | CEST | PL | Central European Summer Time | 02:00 |
| Europe/Zagreb | CET | HR | Central European Standard Time | 01:00 |
| Europe/Zagreb | CEST | HR | Central European Summer Time | 02:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|--------------------------------|------------------|
| Europe/Zaporozhye | EET | UA | Eastern European Standard Time | 02:00 |
| Europe/Zaporozhye | EEST | UA | Eastern European Summer Time | 03:00 |
| Europe/Zurich | CET | CH | Central European Standard Time | 01:00 |
| Europe/Zurich | CEST | CH | Central European Summer Time | 02:00 |

Area: Pacific

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-----------------------------|------------------|
| Pacific/Apia | +13 | WS | Apia Standard Time | 13:00 |
| Pacific/Apia | +14 | WS | Apia Daylight Time | 14:00 |
| Pacific/Auckland | NZST | NZ | New Zealand Standard Time | 12:00 |
| Pacific/Auckland | NZDT | NZ | New Zealand Daylight Time | 13:00 |
| Pacific/Bougainville | +11 | PG | Papua New Guinea Time | 11:00 |
| Pacific/Chatham | +1245 | NZ | Chatham Standard Time | 12:45 |
| Pacific/Chatham | +1345 | NZ | Chatham Daylight Time | 13:45 |
| Pacific/Chuuk | +10 | FM | Chuuk Time | 10:00 |
| Pacific/Easter | -06 | CL | Easter Island Standard Time | -06:00 |
| Pacific/Easter | -05 | CL | Easter Island Summer Time | -05:00 |
| Pacific/Efate | +11 | VU | Vanuatu Standard Time | 11:00 |
| Pacific/Enderbury | +13 | KI | Phoenix Islands Time | 13:00 |
| Pacific/Fakaofu | +13 | TK | Tokelau Time | 13:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|-------------------------------|------------------|
| Pacific/Fiji | +12 | FJ | Fiji Standard Time | 12:00 |
| Pacific/Fiji | +13 | FJ | Fiji Summer Time | 13:00 |
| Pacific/Funafuti | +12 | TV | Tuvalu Time | 12:00 |
| Pacific/Galapagos | -06 | EC | Galapagos Time | -06:00 |
| Pacific/Gambier | -09 | PF | Gambier Time | -09:00 |
| Pacific/Guadalcanal | +11 | SB | Solomon Islands Time | 11:00 |
| Pacific/Guam | CHST | GU | Chamorro Standard Time | 10:00 |
| Pacific/Honolulu | HST | US | Hawaii-Aleutian Standard Time | -10:00 |
| Pacific/Johnston | HST | US | Hawaii-Aleutian Standard Time | -10:00 |
| Pacific/Kiritimati | +14 | KI | Line Islands Time | 14:00 |
| Pacific/Kosrae | +11 | FM | Kosrae Time | 11:00 |
| Pacific/Kwajalein | +12 | MH | Marshall Islands Time | 12:00 |
| Pacific/Majuro | +12 | MH | Marshall Islands Time | 12:00 |
| Pacific/Marquesas | -0930 | PF | Marquesas Time | -09:30 |
| Pacific/Midway | SST | UM | Samoa Standard Time | -11:00 |
| Pacific/Nauru | +12 | NR | Nauru Time | 12:00 |
| Pacific/Niue | -11 | NU | Niue Time | -11:00 |
| Pacific/Norfolk | +11 | NF | Norfolk Island Time | 11:00 |
| Pacific/Noumea | +11 | NC | New Caledonia Standard Time | 11:00 |
| Pacific/Pago_Pago | SST | AS | Samoa Standard Time | -11:00 |
| Pacific/Palau | +09 | PW | Palau Time | 09:00 |
| Pacific/Pitcairn | -08 | PN | Pitcairn Time | -08:00 |
| Pacific/Pohnpei | PONT | FM | Ponape Time | 11:00 |
| Pacific/Ponape | +11 | FM | Ponape Time | 11:00 |
| Pacific/Port_Moresby | +10 | PG | Papua New Guinea Time | 10:00 |
| Pacific/Rarotonga | -10 | CK | Cook Islands Standard Time | -10:00 |

| Time Zone Information | Time Zone Name | Region | Time Zone Description | Time Zone Offset |
|-----------------------|----------------|--------|------------------------|------------------|
| Pacific/Saipan | CHST | MP | Chamorro Standard Time | 10:00 |
| Pacific/Samoa | SST | UM | Samoa Standard Time | -11:00 |
| Pacific/Tahiti | -10 | PF | Tahiti Time | -10:00 |
| Pacific/Tarawa | +12 | KI | Gilbert Islands Time | 12:00 |
| Pacific/Tongatapu | +13 | TO | Tonga Standard Time | 13:00 |
| Pacific/Tongatapu | +14 | TO | Tonga Summer Time | 14:00 |
| Pacific/Truk | +10 | FM | Chuuk Time | 10:00 |
| Pacific/Wake | +12 | UM | Wake Island Time | 12:00 |
| Pacific/Wallis | +12 | WF | Wallis and Futuna Time | 12:00 |
| Pacific/Yap | +10 | FM | Chuuk Time | 10:00 |

