



## CHAPTER 20

# Windows and Commands

---

<i>Windows and Commands in the CMS Environment</i>	317
<i>Using the Graphical Interface</i>	318
<i>Window Controls and General Navigation</i>	318
<i>Selection-Field Commands</i>	319
<i>Host-Specific Frames of the FORM Subsystem</i>	319
<i>SAS Commands in the CMS Environment</i>	320
CLOCK	320
CMS	320
DFLTACTION	321
DLGENDR	321
EXPLODE	322
FILEMAC	323
GCURSOR	323
HOSTEDIT	324
INCLUDE	325
NULLS	325
WDRAG	326
WIDGNEXT	326
WIDGPREV	327
X	327
<i>SAS System Options That Affect the CMS Windowing Environment</i>	327
<i>Terminal Support in the CMS Environment</i>	328
Text Device Drivers	328
Graphics Device Drivers	328
EMULUS Extensions	329
Using a Mouse in the SAS Windowing Environment under CMS	329
Using a Three-Button Mouse	330
Using a Two-Button Mouse	330
Appearance of Window Borders, Scroll Bars, and Widgets	330
Improving Screen Resolution on an IBM 3290 Terminal	330

---

## Windows and Commands in the CMS Environment

Portable features of the SAS windowing environment are documented in the Help for base SAS. Only features that are CMS-specific or that have host-specific aspects are documented in this section.

This section also includes information about terminals and graphics devices that you can use with the SAS System under CMS.

## Using the Graphical Interface

The graphical user interface provides windows, commands, and menus that are compatible with 3270 terminals, with 3270 terminal emulation via Emulus, and with other graphics terminals used in the CMS environment. This section describes the ways that SAS windows and window controls function on these terminals.

---

### Window Controls and General Navigation

This section explains some of the basic capabilities of the SAS windowing environment under CMS. The word *select* indicates a single click of the mouse button. If you do not have a mouse, *select* indicates that you should position the cursor with the TAB or SHIFT+TAB keys and press the ENTER key.

#### Function keys

Issue the KEYS command to display and edit function key settings.

#### Displaying SAS menus

Issue the PMENU command to display the SAS menu bar at the top of each window. Then use function keys or select

►  ►

to display a command line for a particular window without removing the menus from all windows.

#### Resizing a window

Select the window border that you want to resize, then select the new position of that window border. Select a top, bottom, or side border to resize horizontally or vertically. Choose a corner to resize horizontally and vertically at the same time. You can also issue the ZOOM, ICON RESIZE, WGROW, and WSHRINK commands to change window dimensions.

#### Arranging windows

Select

►

to see a list of window arrangement options. For example, the CASCADE option moves and resizes windows to display the top row of all active windows. You can also issue the RESIZE and TILE commands to arrange windows.

#### Moving a window

Select the title of the window in the upper-left of the window border. The word MOVE appears in the bottom of the display area. A second click determines the new position of the top left corner of the window, which will not change size. You can also issue the WMOVE command to move a window.

#### Navigating in a window

##### Selecting a view

In windows that contain a tree view on the left and a list view on the right, select a view, press the ENTER key, then move the cursor from field to field within that view.

##### Selecting a field

To select a field in a window, click the left mouse button or press the TAB key to move the cursor, then press the Return key to select a highlighted option.

**Selecting a control or widget**

With the cursor positioned on a control or widget, issue the WDGNEXT or WDGPREV commands to move to the next, or the previous, control or widget.

**Scrolling a view or column**

Select a position in the scroll bar to change the displayed portion of a view or column. Selecting in various places causes the display to move up or down one screen width or move to the beginning or end of the view or column.

**Resizing a view or column**

Select the icon in the right corner of the tree view or column. The view title will change to the resize symbol. Select again to fix the new horizontal position of the corner.

**Sorting a column**

Select the heading of the column that you want to sort. Not all columns can be sorted.

---

## Selection-Field Commands

Selection fields allow you to accomplish tasks in windows using keystrokes or mouse clicks. This section introduces the selection-field commands that are generally available in the CMS windowing environment.

Certain SAS windows display a tree view on the left and a list view on the right. Each view has its own set of selection-field commands. (You may wish to display one of these windows to test the following commands.)

The tree view shows hierarchical structures such as SAS libraries and members. To display or hide a level of detail, position the cursor on the plus sign (+) or the dash (-) to the far left of the library or member name and press the ENTER key. A single mouse click does the same job.

In the tree view and list view, you may perform tasks by using the selection field represented by an underscore character (  ) just to the left of the item. To issue selection-field commands, select the selection field and press ENTER to display a menu (or use the WPOPUP command), or simply type the single-character command and press ENTER. This first set of commands is available in all selection fields in all windows:

S or X	Select or emulate a double-click
?	Display context or popup menu

Other selection-field commands are available only in certain windows. Here are some examples:

D	Deassign or delete
P	Properties
N	New
R	Rename

---

## Host-Specific Frames of the FORM Subsystem

The FSFORM command can be issued from any window to alter or create a print form to be used for printing full-screen output.

The FORM window includes frames that are used to tailor a FORM entry in the SASUSER.PROFILE catalog for the CMS environment and printers. FORM entries are used to send output from various procedures and commands to the printer you specify. (For example, the PRINT command sends window output to the printer specified by a FORM entry.) Information such as printer margins, printer control language, and font control information can be specified. See the Help for base SAS for complete information.

The FORM subsystem includes a Print File Parameters window that contains system-dependent information. This window enables you to specify printer, text format, and destination for your output.

To get help on any field in the frame, put your cursor on a field and press the function key that you use to issue the HELP command. The fields in the CMS Print File Parameters frame correspond to the parameters you would use in a CP TAG or SPOOL command, so you can also receive help from the CMS system. Refer to the TAG and SPOOL entries in *VM CP General User Command Reference* for more information.

---

## SAS Commands in the CMS Environment

Portable command-line commands are documented in the help for base SAS. This section includes detailed information about commands that are either specific to CMS or that have behavior or contents that are specific to CMS.

---

### CLOCK

Displays the current time according to a 24-hour clock

CMS specifics: all

---

#### Syntax

**CLOCK**

#### Details

The time is shown as *hh.mm* in the lower-right corner of the display. For example, 1:00 p.m. is displayed as 13:00. Repeat the command to toggle the clock on and off, or issue the command **CLOCK OFF**.

---

### CMS

Issues an operating environment command from the command line

CMS specifics: all

---

## Syntax

**CMS** <command>

## Details

You can use CMS, or the alias X, on the command line of any window. The CMS command and the CMS statement are similar, the main difference being how they are submitted to SAS for execution. The same CMS and CP commands that you execute with the CMS statement can also be executed from the command line.

You can also enter CMS subset mode by specifying CMS on the command line. For example, to leave your SAS session, type CMS on the command line to enter CMS subset mode. When you are finished with the subset, type RETURN to return to the SAS session.

## See Also

- “Issuing CMS and CP Commands during a SAS Session” on page 9

---

## DFLTACTION

**Simulates a mouse double-click**

**CMS specifics:** all

---

## Syntax

**DFLTACTION**

## Details

To enter a double-click without using a mouse, position the cursor (set the keyboard focus) on the control and issue the command. The DFLTACTION command applies to the following controls: text pad, combo box, list view, spin box, tree view, push button, desk top, and list box.

---

## DLGENDR

**Ends the SAS session**

**CMS specifics:** all

---

## Syntax

DLGENDR

## Details

This command causes SAS to display a window that asks you to confirm that you wish to end your SAS session.

---

# EXPLODE

Displays and edits the full length of truncated text entry fields

CMS specifics: all

---

## Syntax

**EXPLODE**

## Details

This command opens the EXPLODE window to display text that could not be fully displayed in the narrow width of a text entry field from Version 7 or later. If a window displays a maximum of 10 characters in a text entry field, and the value displayed in that field contains 20 characters, only the first 10 will be displayed. To see the entire 20 characters, enter EXPLODE on the command line, place the cursor on the text entry field, and press the ENTER key. The resulting EXPLODE window displays up to the first 255 characters of the text entry field, with any blank spaces retained.

In the EXPLODE window, you can edit all the text in the field, but only if the field is accessible for read and write. You cannot edit read-only fields, nor can you edit any part of a field that is longer than 255 characters. However, the EXPLODE command will display the first 255 characters of any text entry field from Version 7 or later.

The EXPLODE window displays text on five lines of 51 characters each. Each line is edited individually. Text does not scroll from one line to the next as you add and delete characters. Selecting the OK button concatenates the text on any of the five lines into the single text entry field, preserving any blank spaces between the lines.

EXPLODE is best used by assigning the command to one of your function keys. Enter the KEYS command to display and edit your function key assignments. To use a function key to issue the EXPLODE command, position the cursor in a text entry field from Version 7 or later and press the function key.

The EXPLODE command cannot expand normal text fields or Version 6 text entry fields.

---

## FILEMAC

Saves the contents of the Program Editor window as a member of a CMS MACLIB

CMS specifics: all

---

### Syntax

**FILEMAC** *member maclib* <REP | NOREP>

#### ***member***

is the name of the MACLIB member. Data from the Program Editor window is written to '*member* COPY A', which is then stored in the MACLIB member. If *member* is longer than 8 characters the name will be truncated.

#### ***maclib***

is the filename of the MACLIB to be created or updated with the specified *member*. If '*maclib* MACLIB \*' doesn't exist, it will be created on the A disk.

#### **NOREP**

If a file '*member* COPY A' already exists, it will not be replaced. If the MACLIB already contains *member*, it will not be replaced. The FILEMAC command will not write the contents of the Program Editor window. NOREP is the default.

#### **REP**

The contents of the Program Editor window will be written to the specified MACLIB member even if a member of that name already exists or if '*member* COPY A' already exists.

### Details

The FILEMAC command provides a means of saving the contents of the Program Editor window to a specified member of a CMS MACLIB.

The FILEMAC command is implemented as an autocall macro, so its use requires setting the SAS system options CMDMAC and MAUTOSOURCE.

#### **CAUTION:**

Ensure that lines in the Program Editor window do not exceed 80 characters in length. Because MACLIBs have a record length of 80, any longer records will be truncated. △

---

## GCURSOR

Turns the graphics cursor on and off (3179G and 3192G terminals only)

CMS specifics: all

---

### Syntax

**GCURSOR** <ON> | <OFF>

## Details

This command is used only with 3179G, 3192G, IBM5550, and IBM3572G graphics terminals. When a mouse is attached, the default setting for GCURSOR is on. Without a mouse, the cursor movement keys are used to position the graphics cursor. The GCURSOR command acts like a toggle switch. Alternatively, you can use the ON and OFF operands.

---

## HOSTEDIT

Lets you use XEDIT to edit the contents of a SAS window

CMS specifics: host editor invoked

---

## Syntax

**HOSTEDIT** | **HED**

## Details

The HOSTEDIT command enables you to use XEDIT to edit the contents of a window. This command temporarily suspends activity in the current SAS session and initiates an XEDIT session.

When this session begins, the XEDIT window contains the contents of the window from which it was invoked. You can then use the standard XEDIT commands to edit the text and save it to an external file. Unless the window is available for read access only, you can also save changes back to the window from which the HOSTEDIT command was issued.

To execute the HOSTEDIT command, type HOSTEDIT (or its alias, HED) on the command line. Depending on how the window was defined when it was created, one of the following occurs:

- If the window can be edited, you are placed in an XEDIT session editing the contents of the window.
- If the window is read-only, the XEDIT session starts with a warning on the message line stating this fact. This indicates that any changes you make during the XEDIT session will not be saved to the window when you exit from the editor. However, this does not prevent you from saving the contents of the editor to an external file.
- If the window cannot be edited by the host editor, a message to that effect appears in the window, and no other action occurs.

Special text attributes such as color or highlighting are lost during a host editing session. When the HOSTEDIT command is issued from a window that contains text with these attributes, a requestor window appears. The requestor window gives you the option of either continuing or aborting the HOSTEDIT command.

- When you have finished editing in the XEDIT session, do one of the following:
- To save the contents to the window, issue the FILE command.



- To discard the changes you made, issue the QQUIT command.
- To save the contents of the window to an external file, issue the standard XEDIT commands. Then issue the FILE or QQUIT command, depending on whether you also want to save the changes to the window.

In each case you are returned to the window in the SAS session that was suspended. For more information about XEDIT, refer to the applicable IBM documentation.

## INCLUDE

**Copies the contents of an external file into the current window**

**CMS specifics:** file specification

### Syntax

**INCLUDE** *fileref*

**INCLUDE** *fileref*(*filename*<*filetype*>)

**INCLUDE** '*filename*<*filetype*> <*filemode* | \* | *SFS-directory*>

### Details

The INCLUDE command is available in the PROGRAM EDITOR window as well as in any other window that uses the SAS Text Editor, such as the NOTEPAD window.

Here are some example file specifications for the INCLUDE command:

**INCLUDE** MYPGM

where MYPGM is a fileref that was previously associated with the external file.

**INCLUDE** MYPGM(PGM1)

where PGM1 is a member of the aggregate external file that is associated with the fileref MYPGM. The filetype is assumed to be SAS.

**INCLUDE** MYDIR(MYJOB IN)

where MYDIR is a fileref assigned to an aggregate external file, which could be an SFS directory or a CMS minidisk.

**INCLUDE** 'MYJOB IN A'

for a regular CMS file.

### See Also

- “Specifying CMS File Identifiers” on page 6
- Help for base SAS

## NULLS

**Turns NULLS on or off for all input fields of all windows**

CMS specifics: all

---

## Syntax

NULLS<ON> | <OFF>

## Details

When NULLS is on, all input fields are padded with null characters instead of blanks. The NULLS command acts like a toggle switch. Alternatively, you can use the ON and OFF operands.

---

## WDRAG

Lets you move or resize graphics objects

CMS specifics: all

---

## Syntax

WDRAG

## Details

The WDRAG command is used to move or resize a graphics object in certain SAS procedures such as PROC INSIGHT, PROC ISHIKAWA, and PROC BUILD, and in the graphics editor. On 3270 devices, it is used to simulate the dragging of a mouse. The command can be assigned to any function key.

To use the WDRAG command, first assign it to a function key. Then, press that function key to initiate the drag. Move your cursor and press ENTER to continue the drag. To end the drag, press any other function key.

---

## WIDGNEXT

Moves the keyboard focus from one widget to the next widget

CMS specifics: all

---

## Syntax

WIDGNEXT

## Details

With the keyboard focus on a widget in a window, entering the WIDGNEXT command moves the keyboard focus to the next widget in the window, in a manner similar to that seen with the TAB key.

---

## WIDGPREV

Moves the keyboard focus from one widget to the previous widget

CMS specifics: all

---

## Syntax

**WIDGPREV**

## Details

With the keyboard focus on a widget in a window, entering the WIDGPREV command moves the keyboard focus to the previous widget in the window, in a manner similar to that seen with the SHIFT+TAB keys.

---

## X

Issues an operating environment command from the command line

CMS specifics: portable version of the CMS command

---

## Syntax

**X** < *command* >

## Details

The X and CMS commands are identical, with one exception: under an operating environment other than CMS, the CMS command has no effect, whereas the X command is always processed. See “CMS” on page 320 for more information.

---

## SAS System Options That Affect the CMS Windowing Environment

You can use the following SAS system options to customize the windowing environment under CMS:

- CHARTYPE=**  
specifies which character set or screen size to use for a device.
- FSBORDER=**  
specifies what type of symbols to use in window borders and other widgets.
- FSDEVICE=**  
specifies which terminal device driver to use.
- FSMODE=**  
specifies which type of IBM 3270 data stream to use for a terminal.
- PFKEY=**  
specifies which set of function keys to designate as the primary set.

For detailed information about these system options, see “System Options in the CMS Environment” on page 252.

---

## Terminal Support in the CMS Environment

The information in the following sections may be useful to you if you use graphics or special device drivers in the SAS windowing environment.

---

### Text Device Drivers

SAS uses two interactive windowing text (nongraphics) device drivers: a non-Extended-Data-Stream (non-EDS) driver and an Extended-Data-Stream (EDS) driver. An EDS device supports IBM 3270 extended attributes such as colors and highlighting, whereas a non-EDS device does not. Note that EDS devices also support the non-EDS data stream. The ability to display graphics on a 3270 terminal implies that it is an EDS device. Examples of EDS and non-EDS IBM terminals are

<b>EDS</b>	<b>Non-EDS</b>
3179, 3290 (LT-1)	3277
3279, 3270-PC	3278 (most)
3278 with graphics RPQ	3290 (LT-2, 3, or 4)

On non-EDS terminals, vertical window borders occupy three display positions on the screen: the first position for the field attribute byte, the next position for the border character itself, and the third position for the attribute byte for the following field. Because a window has both left and right vertical borders, six display positions are used by the vertical borders. Therefore, on an 80-column non-EDS device, the maximum display/editing area in a window is 74 columns.

Vertical window borders on EDS devices occupy two display positions: the border character and the attribute for the next field (left vertical border), or the attribute and the border character (right vertical border). Therefore, on an 80-column EDS device, the maximum display/editing area in a window is 76 columns.

---

### Graphics Device Drivers

There are two 3270 graphics device drivers in the SAS windowing environment: the Programmed Symbol driver and the Vector-to-Raster driver. On terminals that support

graphics, these two drivers are used to produce graphics as well as mixed text and graphics. Both graphics drivers communicate with the text driver, which controls the terminal display.

- The Programmed Symbol graphics driver uses user-definable characters to display graphics. A programmed symbol is a character on the device in which certain pixels are illuminated to produce a desired shape in a position (cell) on the display. A loadable programmed symbol set is a terminal character set that contains these application-defined programmed symbols. (The default symbol set on a device is the standard character set—that is, those symbols that are normally displayed and that can be entered from the keyboard.) Examples of terminals that use programmed symbols to display graphics are the 3279G, 3290, and 3270-PC.
- The Vector-to-Raster graphics driver is used to produce graphics on terminals that support graphics drawing instructions such as MOVE and DRAW. Examples of these devices are the 3179G/3192G and the IBM5550. The 3179G/3192G terminals also have limited support for programmed symbol graphics.

---

## EMULUS Extensions

When used with Emulus 3270 terminal emulation software, the SAS3270 device drivers provide workstation-like capabilities that can greatly enhance SAS/GRAPH software, as well as applications that are developed using SAS/AF software. These capabilities include the following:

use of local workstation memory for graphics

offers significant performance improvements for SAS/AF applications because a local copy of graphics is stored in the workstation memory rather than being continually retransmitted from the mainframe.

color loading by RGB value

enables applications to use more colors than just the standard 8 or 16 graphics colors that are used on a typical 3270 terminal or terminal emulator.

rubber-banding

enables you to create, resize, and move objects. For example, you can

- create or size graphics objects by dragging the workstation mouse in the SAS/GRAPH Graphics Editor
- easily drag and position objects in the SAS/AF Frame Editor
- rotate a plot when using SAS/INSIGHT software
- resize or move SAS windows.

dynamic graphics cursor shapes

enables applications to change the shape of the graphics cursor to indicate the state of the application. For example, the graphics cursor typically changes shape when a user drags an object or rotates a plot.

---

## Using a Mouse in the SAS Windowing Environment under CMS

The IBM 3179G, 3192G, 3472G, and 5550 terminals are all graphics terminals that support the use of a mouse. The IBM 3179G, 3192G, and 5550 terminals use the three-button IBM 5277 Model 1 optical mouse, whereas the IBM 3472G terminal uses the two-button PS/2 mouse.

SAS recognizes when the mouse is attached and automatically places the graphics cursor under the control of the mouse.

## Using a Three-Button Mouse

The IBM 5277 Model 1 optical mouse has three buttons:

leftmost button

SAS uses the leftmost button as an ENTER key. The keyboard ENTER key is used to select menu items; to grow, shrink, or move windows; to scroll using scroll bars, and so on. The text cursor moves to the location of the mouse cursor whenever you press this mouse button.

center button

By default, SAS assigns the value of the F15 function key to the center button. You can use the KEYS window or the KEYDEF command to change the definition of this button. The button is designated as MB2. See the help for base SAS for more information about the KEYS window and the KEYDEF command.

rightmost button

The rightmost button is a reset button that unlocks the keyboard.

For additional information about using a mouse, refer to the appropriate documentation at your site.

## Using a Two-Button Mouse

The 3472G terminal is a multiple-session graphics terminal. This device uses the two-button PS/2 mouse. With the graphics cursor attached, these buttons have the same functions as the leftmost and center buttons on the three-button mouse.

---

## Appearance of Window Borders, Scroll Bars, and Widgets

Depending on the type of terminal, SAS uses either programmed symbols or APL symbols to create window borders, scroll bars, and widgets (radio buttons, push buttons, and check boxes). This can cause SAS windows to look different from terminal to terminal.

- On devices that support programmed symbols, the SAS windowing environment uses a predefined set of programmed symbols for its window components. Programmed symbols and APL symbols give window components a different appearance. These programmed symbols are available for the four most-common character cell sizes: 9 x 12, 9 x 14, 9 x 16, and 6 x 12. Programmed symbols are not used for any device that has a different character cell size (for example, 10 x 14 on a Tektronix 4205), even though the device supports programmed symbols.
- On 3270 terminals that do not support programmed symbols, but which support the APL character set, the SAS windowing environment uses APL symbols. APL is supported only on EDS devices, including all nongraphic 3279 and 3179 terminals, and on many PC 3270 emulators. The APL language relies heavily on mathematical-type notation, using single-character operators in a special character set.

---

## Improving Screen Resolution on an IBM 3290 Terminal

The IBM 3290 terminal gives you the ability to change character cell size (and therefore, to change screen resolution). This capability is useful if you are working with graphics, for example.

You use the CHARTYPE= system option to modify the character cell size. For example, on a 3290 terminal that is configured as having 43 rows by 80 columns, CHARTYPE=1 (the default) produces a 62 x 80 display size.

If you specify CHARTYPE=2, the display size will be 46 x 53. Note that if you configure the 3290 as 62 x 160 (the maximum display size available on the 3290), CHARTYPE=2 results in a display size of 46 x 106. This results in a very legible and attractive windowing environment. See “CHARTYPE=” on page 259 for more information about this option.

*Note:* If you are running in interactive graphics mode and you receive a message, your display may become corrupted. To correct this and return the screen to its original display, press ENTER in response to the SCREEN ERASURE message. Alternatively, you can configure the 3290 as one logical terminal with a 62 x 160 character cell size. △





# Glossary

---

**aggregate file**

an external file that is viewed by SAS as having multiple independent members. Under CMS, aggregate files can be CMS MACLIBs, SFS directories, or CMS minidisks.

**autoexec file**

a file containing SAS statements that are executed automatically when the SAS System is invoked. The autoexec file is usually used to specify SAS system options and to assign librefs and filerefs that are commonly used.

**BASE**

an alternate name for the V8 engine. See also the entry for V8.

**batch mode**

a CMS mode of running jobs in which all processing is done on a CMS batch machine or disconnected virtual machine. The SAS method of running programs may be either noninteractive or interactive line mode.

**BMDP**

this engine provides read-only access to BMDP files.

**buffer**

a temporary storage area reserved for holding data after they are read or before they are written.

**CALL routine**

(1) a program that can be called in the DATA step of a SAS program by issuing a CALL statement. (2) an alternate form of one of the SAS random number functions that allows more control over the seed stream and random number stream.

**carriage-control character**

a specific symbol that tells the printer how many lines to advance the paper, when to begin a new page, when to skip a line, and when to hold the current line for overprint.

**catalog**

See the entry for SAS catalog.

**catalog entry**

See the entry for entry type.

**CMS file system**

a way to create files in the CMS system. CMS files are created by using an identifier consisting of three fields: filename, filetype, and filemode or SFS directory. These

files are unique to the CMS system and cannot be read or written using other operating environments.

**concatenated libraries**

an ordered set of libraries specified in place of a single library in a SAS statement or option, such as LIBNAME.

**configuration file**

an external file containing SAS system options. The options in the file are put into effect when the SAS System is invoked.

**Control Program (CP)**

a component of VM that manages resources of a single computer so multiple computing systems appear to exist. Each virtual machine is the functional equivalent of an IBM System/370.

**Conversational Monitor System (CMS)**

a virtual machine operating environment and component of VM that provides general interactive time sharing, problem solving, program development capabilities, and operates only under the control of the VM Control Program (CP).

**converting SAS files**

the process of changing the format of a SAS file from the format appropriate to one version of the SAS System to the format appropriate to another version running under the same operating environment.

**descriptor portion**

the descriptive information the SAS System creates and maintains about each SAS data set. It includes such information as the names of all the data set variables, the attributes of all the variables, the number of observations in the data set, and the time and date when the data set was created.

**dialog box**

a feature of the PMENU facility that appears in response to an action, usually selecting a menu item. The purpose of dialog boxes is to obtain information, which you supply by filling in a field or choosing a selection from a group of fields. You can execute the CANCEL command to exit the dialog box.

**discontiguous saved segment**

one or more 64K segments of storage that were previously loaded, saved, and assigned a unique name. The segment(s) can be shared among virtual machines if the segment(s) contain reentrant code.

**disk**

a device for data storage that enables direct access to any record. Disk storage differs from tape storage, which enables only sequential processing of records.

**display manager**

See the entry for SAS Display Manager System.

**dummy variable**

(1) a variable used as a placeholder; dummy variables usually do not have meaningful values. (2) in some statistical applications, a numeric variable whose value is limited to 1 or 0.

**engine**

a part of SAS that reads from or writes to a file. Each engine allows SAS to access files with a particular format.

**entry type**

a part of the name for an entry in a SAS catalog that is assigned by the SAS System to identify what type of information is stored in the entry. For example, HELP is the

entry type for an entry containing help information for applications developed with the BUILD procedure in SAS/AF software.

### **EXEC**

a CMS file containing CMS and CP commands and other statements. You execute all of the commands in the EXEC file by issuing one EXEC command, which is the filename of the EXEC file, or implied EXEC command. An EXEC file is a convenient way to store sequences of commands that you use frequently because you need to issue only one command to execute all the commands stored in the file.

### **EXEC procedure**

(1) a procedure defined by a frequently used sequence of CMS and CP commands to do a commonly required function. A user creates the procedure to save repetitious rekeying of the sequence, and invokes the entire procedure by entering a command (that is, the EXEC file's filename). The procedure could consist of a long sequence of CMS and CP commands, along with REXX, EXEC 2, or CMS EXEC control statements to control processing within the procedure. (2) a CMS file with a filetype of EXEC.

### **external file**

a file created and maintained on the host operating environment from which you can read data or stored SAS programming statements or to which you can write procedure output or output created by PUT statements in a DATA step.

### **file access mode**

a filemode number that designates whether the file can be used as a read-only or read/write file by a user. See also the entry for filemode.

### **file ID**

a CMS file identifier that consists of a filename, filetype, and filemode. The file ID is associated with a particular file when the file is created, defined, or renamed under CMS. See also the entries for filename, filetype, and filemode.

### **filemode**

a two-character CMS file identifier field comprised of the filemode letter (A through Z) followed by the filemode number (0 through 6). The filemode letter indicates the minidisk of SFS directory on which the file resides. The filemode number indicates the access mode of the file. See also the entry for file access mode.

### **filename**

a one-to-eight character alphanumeric field, comprised of A through Z, 0 through 9, and special characters \$ # @ + - (hyphen) : (colon) \_ (underscore), that is part of the CMS file identifier and serves to identify the file for the user.

### **filetype**

a one-to-eight character alphanumeric field, comprised of A through Z, 0 through 9, and special characters \$ # @ + - (hyphen) : (colon) \\_ (underscore), that is used as a descriptor or as a qualifier of the filename field in the CMS file identifier.

### **fileref**

the name used to identify an external file to the SAS System. You assign a fileref with a FILENAME statement or with operating environment control language.

### **immediate command**

a type of CMS command that, when entered after an attention interruption, causes program execution, tracing, or terminal display to stop. Another immediate command can be entered to resume tracing or terminal display. They are called immediate commands because they are executed as soon as they are entered; they are not stacked in the console stack.

**index**

a feature of a SAS data set that enables the SAS System to access observations in the SAS data set quickly and efficiently. The purpose of SAS indexes is to optimize WHERE-clause processing and facilitate BY-group processing.

**interactive line-mode**

a method of running SAS programs without using the SAS Display Manager System. You enter one line of a SAS program at a time. The SAS System processes each line immediately after you enter it.

**interface engine**

an engine that reads and writes file formats supported by database management system products.

**libref (first-level name)**

the name temporarily associated with a SAS data library. You assign a libref with a LIBNAME statement or with operating environment control language. The libref is the first-level name of a two-level name. For example, A is the libref in the two-level name A.B. The default libref is WORK unless the USER libref is defined. See also the entry for USER library.

**MACLIB library**

a library that contains macros, copy files, or source program statements for use under CMS.

**member**

(1) a file in a SAS data library. (2) a single file in a CMS LOADLIB, MACLIB, or TXTLIB.

**member name**

(1) the name of a file in a SAS data library. When you reference a file with a two-level name, such as A.B, the member name is the second part of the name (the libref is the first part). (2) the name of a single file in a CMS LOADLIB, MACLIB, or TXTLIB.

**member type**

the classification of a file in a SAS data library that is assigned by the SAS System to identify what type of information is stored in the file. For example, CATALOG is the member type for catalogs.

**minidisk**

a logical subdivision (or all) of a physical disk pack that has its own virtual device address, consecutive virtual cylinders (starting with virtual cylinder 0), and a VTOC or disk label identifier. Each user virtual disk is preallocated and defined by a VM directory entry as belonging to a user.

**Multiple Engine Architecture (MEA)**

a feature of the SAS System that enables it to access a variety of file formats through sets of instructions called engines. See also the entry for engine.

**native SAS engine**

an engine that accesses forms of SAS files created and processed only by the SAS System.

**noninteractive processing**

a method of running SAS programs in which you prepare a file of SAS statements and submit the program to the computer system. The program runs immediately and occupies your current terminal session. Noninteractive mode is also available on a CMS batch machine.

**OSIRIS**

this engine provides read-only access to OSIRIS files.

**page size**

(1) the size of the page of printed output. (2) the number of bytes of data that the SAS System moves between external storage and memory in one input/output operation.

**permanent SAS data library**

a library that is not deleted when the SAS session terminates; it is available for subsequent SAS sessions. Unless the USER libref is defined, you use a two-level name to access a file in a permanent library. The first-level name is the libref, and the second-level name is the member name.

**physical filename**

the name the operating environment uses to identify a file.

**PMENU facility**

a menu system that is used instead of the command line as a way to execute commands.

**portable**

a computer application or SAS language element that can execute in more than one operating environment.

**print file**

an external file containing carriage-control (printer-control) information.

**pull-down menu**

the list of choices that appears when you choose an item from an action bar or from another pull-down menu in the PMENU facility. The choices in the list are called items.

**random access**

the ability to retrieve records in a file without reading previous records.

**requestor window**

a window that the SAS System displays so that you can confirm, cancel, or modify an action.

**return code**

a code passed to the operating environment that indicates whether the execution of a command or job step completed successfully.

**SAS catalog**

a SAS file that stores many different kinds of information in smaller units called entries. Some catalog entries contain system information such as key definitions. Other catalog entries contain application information such as window definitions, help windows, formats, informats, macros, or graphics output.

**SAS command**

a command that invokes the SAS System. Under CMS, this command invokes an EXEC supplied by SAS Institute.

**SAS data file**

a SAS data set that stores descriptor information and observations in the same location.

**SAS data library**

a collection of one or more SAS files that are recognized by the SAS System. Each file is a member of the library.

**SAS data set**

descriptor information and its related data values organized as a table of observations and variables that can be processed by the SAS System. A SAS data set can be either a SAS data file or a SAS data view.

**SAS data view**

a SAS data set in which the descriptor portion and the observations are stored in separate locations. SAS data views store the information required to retrieve data values that are stored in other files.

**SAS Display Manager System**

a windowing environment in which actions are performed with a series of commands or function keys. Within one session, multiple tasks can be accomplished. It can be used to prepare, edit, and submit programs and then review the results in various windows. You can then debug and resubmit your program if necessary.

**SAS file**

a specially structured file that is created, organized, and, optionally, maintained by the SAS System. A SAS file can be a SAS data set, a catalog, a stored program, or an access descriptor.

**SAS invocation**

the process of initializing a SAS session.

**SAS log**

a file that can contain the SAS statements you enter and messages about the execution of your program.

**SAS procedure output file**

a file that contains the result of the analysis or the report produced. Procedures write output to the procedure output file by default. DATA step reports that contain the FILE statement with the PRINT destination also go to this file.

**SAS system option**

an option that affects the appearance of SAS output, the handling of some of the files used by the SAS System, the use of system variables, the processing of observations in SAS data sets, the features of SAS System initialization, the SAS System's interface with your computer hardware, and the SAS System's interface with the operating environment.

**SASV8SYS CONFIG**

a file on the SAS System disk that determines the default settings for all SAS system options.

**sequential access**

a method of file access in which the records are read or written one after the other.

**shared file system**

a part of CMS that lets users organize their files into groups known as directories and to selectively share those files and directories with other users.

**site number**

the number used by SAS Institute to identify the site to which the SAS System is licensed. The site number appears near the top of the log in every SAS session.

**SPSS**

this engine provides read-only access to SPSS files.

**TAPE**

an alternate name for the V8SEQ engine. See also the entry for V8SEQ.

**temporary SAS data library**

a library that exists only for the current SAS session or job. The most common temporary library is the WORK library.

**USER library**

a SAS data library defined with the libref USER. When the libref USER is defined, the SAS System uses it as the default libref for one-level names.

**V5**

the Version 5 compatibility engine. This engine accesses Version 5 SAS data sets on disk. An alternate name for this engine is V5SEQ.

**V5SEQ**

an alternate name for the V5 engine. See also the entry for V5.

**V6**

this engine access SAS files in Version 6 disk format. Alternate names include V612, V611, V610, V609, V608, and V607.

**V607**

an alternate name for the V6 engine that accesses SAS files in Version 6 disk format.

**V608**

an alternate name for the V6 engine that accesses SAS files in Version 6 disk format.

**V609**

an alternate name for the V6 engine that accesses SAS files in Version 6 disk format.

**V610**

an alternate name for the V6 engine that accesses SAS files in Version 6 disk format.

**V611**

an alternate name for the V6 engine that accesses SAS files in Version 6 disk format.

**V612**

an alternate name for the V6 engine that accesses SAS files in Version 6 disk format.

**V6SEQ**

this engine accesses SAS files in Version 6 sequential file format. The sequential format files can be stored on tape or on disk.

**V7**

this engine access SAS files in Version 7 disk format.

**V7SEQ**

this engine access SAS files in Version 7 sequential format, on tape or on disk. You can also use the alias V7TAPE to specify this engine.

**V8**

this engine access SAS files in Version 8 disk format. You can also use the alias BASE to specify this engine.

**WORK data library**

the temporary SAS data library automatically defined by the SAS System at the beginning of each SAS session or job to store temporary files. When the libref USER is not defined, the SAS System uses WORK as the default library for one-level names.

**XPORT**

the transport engine. This engine accesses SAS files in transport format.





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

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

Copyright © 1999 by SAS Institute Inc., Cary, NC, USA.

ISBN 1-58025-481-0

All rights reserved. Printed in the United States of America. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, by any form or by any means, electronic, mechanical, photocopying, or otherwise, without the prior written permission of the publisher, SAS Institute, Inc.

**U.S. Government Restricted Rights Notice.** Use, duplication, or disclosure of the software by the government is subject to restrictions as set forth in FAR 52.227-19 Commercial Computer Software-Restricted Rights (June 1987).

SAS Institute Inc., SAS Campus Drive, Cary, North Carolina 27513.

1st printing, October 1999

SAS<sup>®</sup> and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.

IBM<sup>®</sup> and DB2<sup>®</sup> are registered trademarks or trademarks of International Business Machines Corporation. ® indicates USA registration.

Other brand and product names are registered trademarks or trademarks of their respective companies.

The Institute is a private company devoted to the support and further development of its software and related services.