

# CHAPTER 19

## Windows and Commands

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## Windows and Commands in the OS/390 Environment

Portable features of the SAS windowing environment are documented in the help for base SAS. Only features that are specific to OS/390 or that have aspects that are specific to OS/390 are documented in this section.

This section also includes information about terminals and special devices that you can use with the SAS System in the OS/390 environment.

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## Using the Graphical Interface

The graphical user interface provides windows, commands, and menus that are compatible with 3270 terminals, with 3270 terminal emulation, and with other graphics terminals used in the OS/390 environment. This section describes the ways that SAS windows and window controls function on these terminals.

For information on hardware support for terminals and mouse input devices, see “Terminal Support in the OS/390 Environment” on page 452.

---

## Window Controls and General Navigation

This section explains some of the basic capabilities of the SAS windowing environment under OS/390. The word *select* indicates positioning the cursor with a single click of the mouse button or with the TAB or SHIFT+TAB keys if you don't have a mouse. Press the ENTER key to confirm your selection. The word *choose* refers to the selection and confirmation of a menu option.

### 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 a function key or choose

►  ►

to display a command line window without removing the menus. You can also use the default function keys F9 for pmenus and F10 for a command line.

### Moving between windows

Issue the PREVWIND command (F7 by default) or the NEXT command (F8 by default) to move the cursor and bring different windows to the foreground. If a mouse is available, clicking in a particular window brings that window to the foreground. The LOG, PGM, and OUT commands move the Log, Program, or Output window to the foreground, respectively.

### 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

Choose

View ► Change Display

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, CASCADE, 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

#### Scrolling

Scroll down through a file with the FORWARD command (F20 by default). Scroll up with the BACKWARD command (F19 by default). Scroll right with the RIGHT command (F23 by default), and left with the LEFT command (F22 by default).

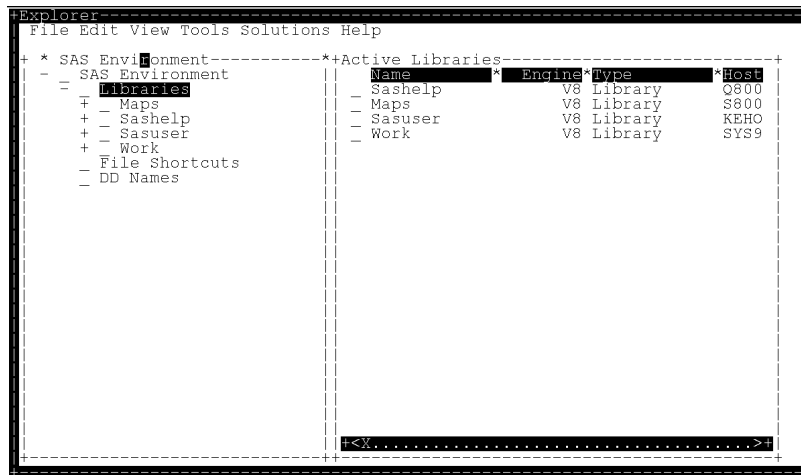
#### Moving through help topics

Issue the HBACKWARD command to move back one help topics (F11 by default). Issue the HFORWARD command (F12 by default) to move forward one help topic.

#### Selecting a view

In windows that contain a tree view on the left and a list view on the right, such as the SAS Explorer window (see Display 19.1 on page 435), select a view, press the ENTER key, then move the cursor from field to field within that view.

**Display 19.1** Tree View (left) and List View (right) in SAS Explorer Window



### Selecting a control or widget

A widget or a control is a screen character that implements a control function for the window or the application. An example is the X character that indicates the current position in a scroll bar. 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 upper right corner of the tree view or column heading. 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 OS/390 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 using the selection field represented by an underscore character ( ) just to the left of an item. To issue selection-field commands, position the cursor and type in a single character, some of which are listed below, or issue the WPOPUP command (mouse button 2 by default) or a question mark (?) to see a menu of available selection field commands.

S or X	Select or emulate a double-click
D	Deassign or delete
P	Properties
N	New
R	Rename

---

## Host-Specific Windows in the OS/390 Environment

Portable windows are documented primarily in the help for base SAS. In this help for SAS in the OS/390 environment, coverage is limited to windows that are specific to the OS/390 environment and to portable windows with contents or behavior that are specific to the OS/390 environment.

“DSINFO” on page 437

“FILENAME” on page 437

“FNAME” on page 438

“LIBNAME” on page 439

“MEMLIST” on page 440

## DSINFO

Provides information about a cataloged physical file

OS/390 specifics: all

### Syntax

**DSINFO**

**DSINFO** *DDname*

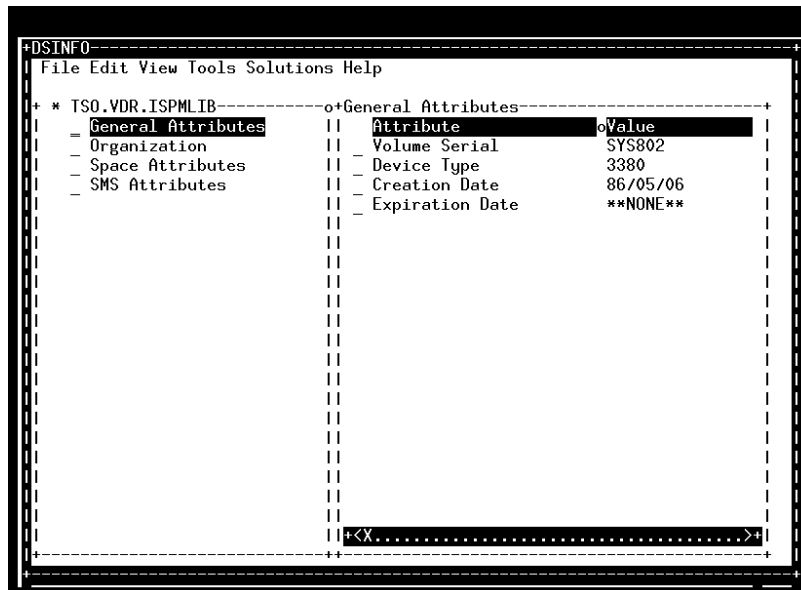
**DSINFO** '*physical-filename*'

### Details

You can invoke the DSINFO window from any window in the windowing environment, including the windows in SAS/FSP and SAS/AF. To invoke the DSINFO window, type DSINFO followed by either a DDname, a fully qualified physical file name, or a partially qualified name such as *'misc.text'*. (See “Specifying Physical Files” on page 13 for information about using partially qualified data set names.)

If you are referencing a concatenated file with a DDname, the DSINFO window displays information for the first data set in the concatenation.

Display 19.2 DSINFO Window



## FILENAME

Displays assigned filerefs and their associated filenames

**OS/390 specifics:** display of externally allocated DDnames

---

## Syntax

**FILENAME**

## Details

A DDname that was allocated externally (using the JCL DD statement or the TSO ALLOCATE command) is not listed by the FILENAME window or by the Active File Shortcuts window until after you have used it as a fileref in your SAS session.

---

## FNAME

Displays allocated DDnames, their associated data set names, and data set information

**OS/390 specifics:** all

---

## Syntax

**FNAME**

**FNAME** <DDname>

**FNAME** <generic-name\* >

**FNAME** <generic-name:>

## Details

The FNAME window displays allocated DDnames whether they are identified as librefs, filerefs, or other DDnames. You can invoke the FNAME window from any window in the windowing environment, including the windows in SAS/FSP and SAS/AF. To invoke it, type FNAME. If you do not supply the optional DDname, then the FNAME window displays all DDnames that are associated with your TSO login session and your SAS session, along with the names of the physical files that are associated with them. If you supply a DDname, it can either be specific or generic. For example, to see only DDnames that begin with S, you would use either of the following generic specifications: FNAME S\* or FNAME S: .

In the FNAME window you can perform various tasks by entering one of the following selection-field commands:

- |   |  |
|---|--|
| B | selects a sequential data set or partitioned data set (PDS) member for browsing. |
| E | selects a sequential data set or PDS member for editing.                         |
| I | includes a sequential data set or PDS member into the PROGRAM EDITOR window.     |
| F | frees (deallocates) an allocated fileref   |

- M** opens the MEMLIST window, which lists the members in a single PDS.
- C** lists the members in a concatenation of PDSs.
- S** selects or emulates a double-click. The action taken varies according to file type. Selecting a PDS brings up the MEMLIST window, for example.
- X** displays file properties.
- %** submits a %INCLUDE statement to SAS to include a sequential data set or PDS member.
- ?** displays a popup menu of available selection-field commands.

Display 19.3 FNAME Window

DDname	Data Set Name	Org	Status	Disp
CONFIG	M701.SAS.CONFIG(TSO)	PS	SHR	KEEP
	MVSHOST.SAS.BNDLCNFG(SASHOST)	PS	SHR	KEEP
CPLIB	MSM.REXEC.LOAD	PO	SHR	KEEP
	S701.SASC.RD.LOAD	PO	SHR	KEEP
	S701.SASC.SAMPLE.LOAD	PO	SHR	KEEP
CTrans	S701.SASC.LOAD	PO	SHR	KEEP
	S701.SASC.CSLLIB	PO	SHR	KEEP
DBGPROF	MSM.TRK701.CLIST	PS	SHR	KEEP
GDEVICE	M701.GDRV.TESTSIO	PS	SHR	KEEP
ISPCTLO	SYS98152.T131241.RA000.SASMMV.R0172631	PS	NEW	DELE
ISPCTL1	SYS98152.T131241.RA000.SASMMV.R0172632	PS	NEW	DELE
ISPCTL2	SYS98152.T131241.RA000.SASMMV.R0172633	PS	NEW	DELE
ISPLIST	++ SYSOUT ++	PS	MOD	DELE
ISPLST1	SYS98152.T131241.RA000.SASMMV.R0172634	PS	NEW	DELE
ISPLST2	SYS98152.T131241.RA000.SASMMV.R0172635	PS	NEW	DELE
ISPMLIB	TSO.VDR.ISPMLIB	PO	SHR	KEEP
	TSO.ISPF.ISPMLIB	PO	SHR	KEEP
ISPPLIB	SNO.OPER.PANELS	PO	SHR	KEEP
	TSO.VDR.ISPPLIB	PO	SHR	KEEP
	TSO.ISPF.ISPPLIB	PO	SHR	KEEP

## LIBNAME

Lists all the libraries that are currently assigned in your SAS session

OS/390 specifics: display of externally allocated libraries

### Syntax

**LIBNAME**

**LIBNAME** <libref>

## Details

If you specify *libref*, the Active Libraries window opens with a list of members of the specified library. Otherwise, the Active Libraries window lists the currently assigned libraries. You can select a library to list its members.

A library that was allocated externally (using the JCL DD statement or the TSO ALLOCATE command) is not listed by the LIBNAME window until after you have used it in your SAS session.

**Display 19.4** Active Libraries Window

The screenshot shows a window titled '\*Active Libraries' with a menu bar (File Edit View Tools Solutions Help). Below the menu bar is a header '\* Contents of 'Maps'' and a table with the following data:

Name	Size	Type	Description
Afghanis		Table	
Afghani2		Table	
Africa		Table	
Algeria		Table	
Algeria2		Table	
Andorra		Table	
Andorra2		Table	
Anomaly		Table	
Argentin		Table	
Argenti2		Table	
Armenia		Table	
Armenia2		Table	
Asia		Table	
Austral		Table	
Austral2		Table	
Austria		Table	
Austria2		Table	
Azerbaij		Table	
Azerbai2		Table	
Banglade		Table	

---

## MEMLIST

Displays a member list for a partitioned data set (PDS) or for a series of partitioned data sets in a concatenation

OS/390 specifics: all

### Syntax

**MEMLIST**

**MEMLIST** *DDname*

**MEMLIST** *DDname (member)*

**MEMLIST** *DDname(generic-name\*)*

**MEMLIST** *DDname (generic-name:)*

**MEMLIST** '*physical-filename*'

**MEMLIST** '*physical-filename (member)*'

**MEMLIST** '*physical-filename (generic-name \*)*'



**MEMLIST** 'physical-filename (generic-name :)'

## Details

You can invoke the MEMLIST window from any window in the windowing environment, including the windows in SAS/FSP and SAS/AF. You can specify either a generic member name or a specific member name. For example, to list only members whose names begin with TEST in a PDS to which you have assigned the fileref MYPDS, you would use the following generic specification: MEMLIST MYPDS(TEST\*).

You can also invoke the MEMLIST window by using the M selection-field command in the FNAME window.

By entering one of the following selection-field commands in the MEMLIST window, you can perform various functions on the displayed list of PDS members:

- B or S                selects a member for browsing.
- E                    selects a member for editing.
- I                    includes a member into the PROGRAM EDITOR window and makes PROGRAM EDITOR the active window.
- %                    submits a %INCLUDE statement for a member.
- R                    renames a member.
- D                    deletes a member.
- ?                    Display menu

**Display 19.5** MEMLIST Window

```

+MEMLIST-----
| File Edit View Tools Solutions Help
+-----+
| * Contents of fileref ISPMLIB-----+
| Name | Lib | VV.MM | Created | Changed | Size | Inits | Mod | ID |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| BSHC00 | 1 | 01.04 | 86/05/30 | 87/07/06 12:25 | 8 | 3 | 0 | SASFCF |
| CODE11 | 1 | | | | | | | |
| CODE12 | 1 | | | | | | | |
| CODE13 | 1 | | | | | | | |
| COPYRTE | 1 | 01.00 | 85/11/09 | 85/11/09 15:36 | 18 | 18 | 0 | * |
| CTMF00 | 1 | 01.00 | 96/05/19 | 96/05/19 05:00 | 141 | 141 | 0 | IOA500 |
| CTMJ00 | 1 | 01.00 | 96/05/19 | 96/05/19 05:00 | 27 | 27 | 0 | IOA500 |
| CTMK00 | 1 | 01.00 | 96/05/19 | 96/05/19 05:00 | 129 | 129 | 0 | IOA500 |
| CTMP00 | 1 | 01.00 | 96/05/19 | 96/05/19 05:00 | 88 | 88 | 0 | IOA500 |
| CTMQ00 | 1 | 01.00 | 96/05/19 | 96/05/19 05:00 | 103 | 103 | 0 | IOA500 |
| CTMS00 | 1 | 01.00 | 96/05/19 | 96/05/19 05:00 | 40 | 40 | 0 | IOA500 |
| DDHAM10 | 1 | | | | | | | |
| DDHAM11 | 1 | | | | | | | |
| DDHAM12 | 1 | | | | | | | |
| DDHAM13 | 1 | | | | | | | |
| DDHAM14 | 1 | | | | | | | |
| DDHAM15 | 1 | | | | | | | |
| DDHAM16 | 1 | | | | | | | |
| DDHAM17 | 1 | | | | | | | |
| DDHAM18 | 1 | | | | | | | |
+-----+
| <X | >+ |
+-----+

```

## Host-Specific Windows of the FORM Subsystem

The FORM subsystem consists of six windows that are described in detail in the help for base SAS. You use these frames to define a form for each printer that is available to you at your site.

Two of the windows in the FORM subsystem contain host-specific information. Both are print-file parameter windows that you use to specify the printer, text format, and destination for your output. Display 19.6 on page 442 and Display 19.7 on page 443 show these two frames. Display 19.7 on page 443 appears only if you select IBM 3800 print-file parameters.

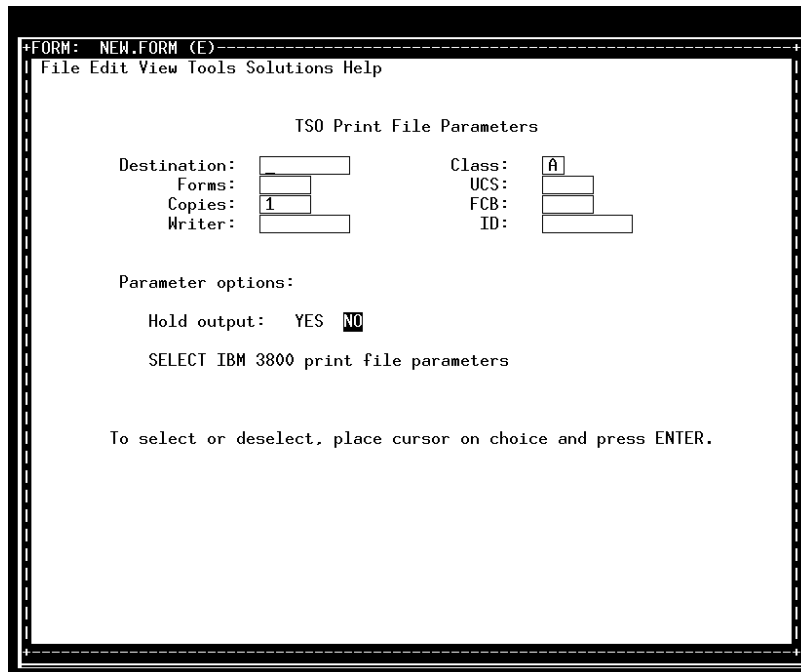
This section contains brief discussions of the fields in the OS/390-specific FORM windows. For additional information, select the field you're interested in and press the function key you use to issues the HELP command. Also see "Using the PRINT Command and the FORM Subsystem" on page 108 for more information about using the FORM subsystem.

The TSO print-file parameters in the first window are the same parameters you would use in a TSO ALLOCATE statement.

---

## TSO Print-File Parameter Frame

Display 19.6 TSO Print-File Parameter Frame



```

*FORM: NEW.FORM (E)
File Edit View Tools Solutions Help

                TSO Print File Parameters

Destination:  [ ]          Class:  A
Forms:       [ ]          UCS:    [ ]
Copies:      1           FCB:    [ ]
Writer:      [ ]          ID:     [ ]

Parameter options:

Hold output:  YES NO

SELECT IBM 3800 print file parameters

To select or deselect, place cursor on choice and press ENTER.

```

### Field Descriptions

Many of the values that are entered for these parameters are site specific. The data center personnel at your site can give you information about the Destination, Forms, and Class codes that are used at your site.

#### Destination

routes the output to a particular device. Destination is a one to eight alphanumeric or national character name that is defined for a device by your site.

#### Class

refers to the SYSOUT class of the file. The SYSOUT parameter is used to route output to printers and other devices. Class can be any alphanumeric character. Ask your data center personnel which specifications are appropriate for this field.

**Forms**

are specified by using one to four alphanumeric or national characters. Form numbers are used to request special paper. Ask your data center personnel which values are appropriate for this field.

**UCS**

requests that a print chain or print train that contains the Universal Character Set be mounted for a device. Ask your data center personnel which values are appropriate for this field.

**Copies**

specifies how many copies to print. The range is from 1 to 255, with a default value of 1.

**FCB**

is the forms control-buffer value, which specifies the movement of forms on a device. Ask your data center personnel which values are appropriate for this field.

**Writer**

specifies the name of a program in the SYS1.LINKLIB library that is to be used to write the output instead of JES2 or JES3. Ask your data center personnel for information about using this parameter.

**ID**

specifies the maximum number of output lines that can be printed. The range is from 1 to 16,777,215. If ID is exceeded, the job is automatically terminated.

**Hold**

requests that output be held in the output queue instead of going directly to the device.

---

## IBM 3800 Print-File Parameter Frame

**Display 19.7** IBM 3800 Print-File Parameter Frame

```

+FORM: NEW.FORM (E)-----
File Edit View Tools Solutions Help

                                IBM 3800 Print File Parameters

Character tables:  [ ] [ ] [ ] [ ]
Flash name:      [ ]
Modify name:     [ ]
Formdef:         [ ]

Flash count:     [ ]
Modify TRC:     [ ]
Pagedef:        [ ]

Options:

Burst           Optcode=J

To select or deselect, place cursor on choices and press ENTER.

```

## Field Descriptions

This frame requests the following print-file parameters. For more information, consult the help facility. Also refer to the IBM JCL reference manual for your system for additional information about these parameters.

### Character tables

specifies which character table to use for printing output. Ask your data center personnel which values are appropriate for this field.

### Flash name and Flash count

controls the use of overlay forms. Ask your data center personnel for details.

### Modify name and Modify TRC

controls the use of copy modification modules in SYS1.IMAGELIB for printing output. Ask your data center personnel for details.

### Burst

requests that your output be torn apart into separate sheets of paper. When Burst is not specified, the default is normal fanfold (continuous) printing.

### Optcode

works in conjunction with the character tables option. Ask your data center personnel for details.

---

## CLOCK

Displays the current time according to a 24-hour clock

OS/390 specifics: all

---

### Syntax

**CLOCK**

### Details

The time is shown as *hh.mm* in the lower-right corner of the display. Repeat the command to toggle the clock on and off. Issuing the command **CLOCK OFF** removes the clock.

---

## DFLTACTION

Simulates a mouse double-click

OS/390 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 icon, and list box.

The DFLTACTION command is best used by assigning the command to a function key. Enter the KEYS command to display and edit function key assignments.

To use a function key to issue the DFLTACTION command, position the cursor in a text entry field and press the function key.

---

## DLGENDR

Ends the SAS session

OS/390 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. An affirmative response ends the session.

---

## EXPLODE

Displays the full length of truncated text entry fields

OS/390 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. 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 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 in between.

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 and press the function key.

The EXPLODE command cannot expand normal text fields.

---

## GCURSOR

When applicable, turns the graphics cursor on or off

OS/390 specifics: all

---

### Syntax

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

### Details

This command is used only with 3179G, 3192G, IBM5550, and IBM3472G 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

Temporarily suspends the current SAS session and starts a session of the ISPF editor or browser

OS/390 specifics: host editor invoked

---

### Syntax

**HOSTEDIT** | **HED**

## Details

Under OS/390, this command starts a session of the ISPF editor or browser. Under other operating environments, it invokes other host-specific editors.

*Note:* The HOSTEDIT command works only if you have invoked SAS from the ISPF environment. △

You can execute the HOSTEDIT command from the command line of any SAS window that involves the SAS Text Editor, such as the PROGRAM EDITOR, LOG, OUTPUT, and NOTEPAD, windows, among others.

When the ISPF EDIT session begins, the screen displays the contents of the window from which it was invoked. Depending on how the window was defined when it was created, one of the following actions occurs:

- If the window can be edited, you are placed in an ISPF EDIT session editing the contents of the window. You can then use the standard ISPF EDIT commands to edit the text or to call up any of the ISPF EDIT models, and you can save changes back to the window from which the HOSTEDIT command was issued.
- If the window is read only, you are placed in an ISPF BROWSE session that displays the contents of the window.
- 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 ISPF EDIT session, do one of the following:

- To save the contents back to the window, issue the END command.
- To discard the changes you made, issue the CANCEL command.
- To save the contents of the window to an external file, use the standard ISPF EDIT commands such as CREATE or REPLACE. Then issue the END or CANCEL command, depending on whether you also want to save the changes back to the window.

In each case, you are returned to the window in the SAS session that was suspended.

## See Also

- “Using the ISPF Editor from Your SAS Session” on page 124

---

## INCLUDE

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

OS/390 specifics: file specification

---

### Syntax

**INCLUDE** *fileref*

**INCLUDE** *fileref(member)*

**INCLUDE** 'physical-filename'

**INCLUDE** 'physical-filename(member)'

## Details

This 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. You can also include an external file from the MEMLIST or FNAME windows using selection-field commands. You can identify the external file by specifying either a fileref or the physical file name. If you specify the physical file name, you must enclose it in quotes.

Here are examples of the INCLUDE command that illustrate the various ways you can specify physical files:

**INCLUDE** MYPGM

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

**INCLUDE** MYPGM(PGM1)

PGM1 is a member of the partitioned data set that is associated with the fileref MYPGM.

**INCLUDE** 'USERID.TEST.PGMS'

sequential data set name.

**INCLUDE** 'USERID.TEST.PGMS(AAA)'

data set name with member specified.

**INCLUDE** '.TEST.MYPGM'

Assuming that the FILESYSTEM= system option is set to MVS, SAS prepends this data set name with the value of the SAS system option SYSPREF=, which defaults to the your system prefix. If FILESYSTEM=HFS, SAS looks into your default UNIX System Services directory for the "hidden" file .TEST.MYPGM.

**INCLUDE** 'HFS:/u/userid/mypgms/mypgm1.c'

name of a UNIX System Services file in the hierarchical file system, represented by a partially qualified path. SAS searches for the file in the default HFS directory for that user. If the FILESYSTEM= system option was set to HFS and if MYPGM was a standard OS/390 data set, the alternate syntax of MVS: would be required above (see "FILESYSTEM=" on page 351).

**INCLUDE** 'pgms/mypgms/mypgm1.c'

This is another example of a relative path to a UNIX System Services file. Any file name containing a slash (/) is assumed to be in UNIX System Services, regardless of the value of the FILESYSTEM= system option.

## See Also

- "%INCLUDE" on page 307
- "Specifying Physical Files" on page 13
- *SAS Language Reference: Dictionary*

---

## NULLS

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



OS/390 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.

---

## TSO

Issues a TSO command or invokes a CLIST or a REXX exec from the command line

OS/390 specifics: all

---

## Syntax

**TSO** <command>

## Details

The TSO command is similar to the TSO (or X) statement, the TSO (or SYSTEM) CALL routine, the TSO (or SYSTEM) function, and the %TSO (or %SYSEXEC) macro statement. It accepts the following argument:

*command*

is a system command. Under OS/390, “system command” includes TSO commands, CLISTs, and REXX execs.

To submit a TSO command, or to invoke a CLIST or a REXX exec, use the TSO *command* form of the command. You can use the TSO command from the command line of any window. SAS executes the TSO command immediately.

Under OS/390, TSO is an alias for the X command. On other operating environments, the TSO command has no effect, whereas the X command is always processed.

You can use the TSO command to issue most TSO commands or to execute CLISTs or REXX execs. However, you cannot issue the TSO commands LOGON and LOGOFF, and you cannot execute CLISTs that include the TSO ATTN statement. Nor can you issue authorized commands, such as some RACF commands; however, you can use the TSOEXEC command to issue authorized commands, as in this example:

```
TSO TSOEXEC ALTDSD...
```

You can also use the TSO command to go into TSO submode from within a SAS session. To start the submode, enter **tsO** from the command line without specifying a TSO command. When the command is executed, SAS goes into TSO submode and

prompts you for TSO commands. Any commands that you enter in TSO submode are processed by TSO, not by the windowing environment. They can be any length; however, if the command is longer than one line, you must enter a TSO continuation symbol.

To return to the SAS session, enter **RETURN**, **END**, or **EXIT**. Any characters that follow the RETURN, END, or EXIT subcommand are ignored. An END command that occurs within a CLIST terminates the CLIST without ending the TSO submode.

*Note:* The TSO command processor does not know when or if it is invoking an interactive windowing application. To avoid problems with screen clearing, you may want to invoke ISPF, IOF, or similar facilities directly. For example:

```
tso ispf
```

This method works only if you invoked SAS from the TSO READY prompt. It does not work if you were already in ISPF when you invoked your current SAS session.  $\Delta$

## See Also

- Command: “X” on page 451
- Statements: “TSO” on page 321 and “X” on page 323
- CALL routines: “CALL TSO” on page 181 and “CALL SYSTEM” on page 180
- Functions: “TSO” on page 204 and “SYSTEM” on page 202
- “Macro Statements” on page 217

---

## WIDGNEXT

Moves the keyboard focus from one widget to the next widget

OS/390 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. For example, in the SAS Explorer window, you can use this command to change the keyboard focus from the list view to the tree view.

The WIDGNEXT command is best used by assigning the command to a function key. Enter the KEYS command to display and edit function key assignments.

To use a function key to issue the WIDGNEXT command, position the cursor in a text entry field and press the function key.

## See Also

- “WIDGPREV” on page 451

---

## WIDGPREV

Moves the keyboard focus from one widget to the previous widget

OS/390 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. For example, issuing WIDGPREV in the SAS Explorer window moves the keyboard focus between the list view and the tree view.

The WIDGPREV command is best used by assigning the command to a function key. Enter the KEYS command to display and edit function key assignments.

To use a function key to issue the WIDGPREV command, position the cursor in a text entry field and press the function key.

## See Also

- “WIDGNEXT” on page 450

---

## X

Enters host-system mode or enables you to issue a host-system command without ending your SAS session

OS/390 specifics: portable version of the TSO command

---

### Syntax

**X** <command>

### Details

The X and TSO commands are identical, with one exception: under an operating environment other than OS/390, the TSO command has no effect, whereas the X command is always processed. See “TSO” on page 449 for more information.

---

## SAS System Options That Affect the OS/390 Windowing Environment

You can use the following SAS system options to customize the windowing environment under OS/390:

- 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 OS/390 Environment” on page 328.

---

## Terminal Support in the OS/390 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 do 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 second 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 or 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 SAS 3270 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 they would use 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 OS/390

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 ENTER key is used to select menu items; to grow, shrink, or move windows; to scroll using scroll bars, and so on. Therefore, having the ENTER key on the mouse is useful. The text cursor moves to the location of the mouse cursor whenever you press this mouse button.

### center button

By default, SAS assigns a 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 somewhat nicer on some terminals than on others.

- On devices that support programmed symbols, the SAS windowing environment uses a predefined set of programmed symbols for its window components. Programmed symbols give window components a nicer appearance than APL symbols. 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 that 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 333 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. △





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