MicroVMS

User's Manual (continued)

digital software

Part 2 MicroVMS User's Manual

This part contains the appendixes of the *MicroVMS User's Manual*.

Appendix ACL

Access Control Lists

An access control list (ACL) specifies protection information for an object, such as a file, directory, device, system logical name table, or global section.

ACL.1 Format of Access Control Entries

An access control entry has the following general format (parentheses and commas are required).

(type, option, access)

The only portion that is always required is the *type* field. The *option* and *access* fields may be optional, depending on the type of ACE being specified.

PARAMETERS

type
    Indicates the kind of information to be supplied by the access control entry.
    Specify *type* as one of the following (abbreviations are allowed).

ALARM_JOURNAL=name	The name of an alarm journal to which security alarms are sent. The only name currently allowed is SECURITY. See the SET AUDIT command in Appendix DCL and Section 2.3.2.7 for more information about security auditing.
DEFAULT_PROTECTION	Default file protection information for a directory. Applicable only to an access control list of a directory file.
IDENTIFIER=identifier	Access information for an object (file, directory, or device). *Identifier* specifies the user(s) to whom the access information applies.

options

Specifies whether the access control entry is propagated and whether it can be displayed and/or deleted. Specify *option* in the following format:

OPTIONS=keyword+...

Specify *keyword* as one of the following (may be abbreviated).

NONE (default)	No options.
DEFAULT	The access control entry is to be placed in the access control list of each file subsequently created in the directory. (The DEFAULT option is not copied with the rest of the access control entry.) Applicable only to an access control list of a directory file.
HIDDEN	The access control entry can be changed only by the program that created it. The HIDDEN option can only be specified from a program. (You cannot specify it using DCL commands.)
PROTECTED	The access control entry is not deleted by explicit (/DELETE) or implicit (/LIKE) attempts to delete the entire ACL. An access control entry marked as protected must be explicitly identified to be deleted (for example, /ACL=(ACE)/DELETE).
NOPROPAGATE	The ACE is not propagated when the ACL is copied from one version of a file to a later version of the file.

access

Specifies the type of access to be granted. If the access control entry is of IDENTIFIER type, specify *access* in the form

ACCESS=keyword+...

Specify *keyword* as one of the following (may be abbreviated).

> NONE
> READ
> WRITE
> EXECUTE
> DELETE
> CONTROL

You may also specify the keywords SUCCESS and FAILURE with the ALARM_JOURNAL ACE type.

When applied to devices, access types have the following meanings:

NONE	No access to the device
READ	The right to allocate and issue read requests to the device
WRITE	The right to issue write requests to the device
CONTROL	The right to change the access control list
SUCCESS	Causes an alarm if access is granted to the device
FAILURE	Causes an alarm if access is denied to the device

When applied to files, access types have the following meanings:

NONE	No access to the file
READ	The right to read the file
WRITE	The right to read and write to the file
EXECUTE	The right to execute the file
DELETE	The right to delete the file
CONTROL	The right to change the file header; this implies that users with CONTROL access can give themselves any other type of access
SUCCESS	Causes an alarm if access is granted to the file
FAILURE	Causes an alarm if access is denied to the file

When applied to global sections, access types have the following meanings:

NONE	No access to the global section
READ	The right to map the section for read access
WRITE	The right to map the section for write access
EXECUTE	The right to map the section for execute access (available only to privileged software)
CONTROL	The right to change the access control list (applies only to page frame number (PFN) and page file global sections)
SUCCESS	Causes an alarm if access is granted to the global section
FAILURE	Causes an alarm if access is denied to the global section

When applied to system logical name tables, access types have the following meanings:

NONE	No access to the logical name table
READ	The right to look up logical names in the table
WRITE	The right to create and delete logical names in the table
DELETE	The right to delete the logical name table
CONTROL	The right to change the access control list
SUCCESS	Causes an alarm if access is granted to the logical name table
FAILURE	Causes an alarm if access is denied to the logical name table

When applied to volumes, access types have the following meanings:

NONE   No access to the volume.

READ   The right to examine, print, or copy files on a volume (READ access on
            volumes limits the access to read only)

WRITE   The right to modify or to write existing files on a volume

EXECUTE   The right to create files on the volume and to write into them

DELETE   The right to delete files on the volume

CONTROL   The right to change the protection and ownership of the volume

SUCCESS   Causes an alarm if access is granted to the volume

FAILURE   Causes an alarm if access is denied to the volume

For a DEFAULT_PROTECTION access control entry, specify *access* in the format

ownership:[access],...

Ownership is the ownership category: SYSTEM, OWNER, GROUP, or WORLD. Each
category may be abbreviated to the first character. *Access* is the access category: R
(read), W (write), E (execute), or D (delete). To deny access to an ownership category,
omit the access character after the ownership.

ACL.2   EDIT/ACL Command

Requires the Secure User Environment Option.
Requires the Common Utilities Option.

Use the DCL command EDIT/ACL to invoke the ACL editor.

EDIT/ACL object-spec

Requires the Secure User Environment Option.

Invokes the ACL editor. Enter CTRL/Z to exit from the ACL editor and save your
edits; enter GOLD + CTRL/Z to quit the editing session without saving the edits.

PARAMETERS

object-spec
    Specification of the object whose access control list is being edited. Specify a
    directory file as a file specification with the file type DIR. The file must be a disk
    file on a Files–11 Structure Level 2 formatted volume. No wildcard characters
    are allowed.

QUALIFIERS

/JOURNAL[=file-spec] (default)
/NOJOURNAL

Specifies whether or not the ACL editor keeps a journal file during an editing session and the specification of that journal file. *File-spec* defaults to the name of the file being edited and a file type of JOU.

/MODE=option

Specifies whether or not the ACL editor prompts for field values. Specify the option as PROMPT (default) or NOPROMPT.

/OBJECT=type

Specifies the type of object whose ACL is being edited. Possible types are:

FILE (default)	Specifies that the object is a file.
DEVICE	Specifies that the object is a device.
SYSTEM_GLOBAL_SECTION	Specifies that the object type is a system global section.
GROUP_GLOBAL_SECTION	Specifies that the object type is a group global section.
LOGICAL_NAME_TABLE	Specifies that the object type is a system logical name table.

/RECOVER[=file-spec]
/NORECOVER (default)

Specifies whether or not a journal file is executed before the editing session begins. *File-spec* defaults to the name of the file being edited and a file type of JOU.

EXAMPLES

$ `EDIT/ACL CHAP.TXT`

Invokes the ACL editor to edit the access control list associated with the highest version of the file CHAP.TXT. If CHAP.TXT does not exist, an error occurs. If CHAP.TXT has no access control list, one is created when the user enters CTRL/Z.

$ `EDIT/RECOVER/ACL CHAP.TXT`

Invokes the ACL editor to recover edits made during a previously aborted editing session.

ACL.3   ACL Editor Commands

Requires the Secure User Environment Option.
Requires the Common Utilities Option.

Invoke the ACL editor (with the EDIT/ACL command) to use the following commands.

ACL.3.1   Keypad Diagram

Use the keypad to enter keypad commands.

PF1	PF2	PF3	PF4
GOLD	HELP HELPFMT	FNDNXT FIND	DEL ACE UND ACE
7 SEL FIELD ADV FIELD	8	9	▬ DEL W UND W
4 ADVANCE BOTTOM	5 BACKUP TOP	6	, DEL C UND C
1 WORD	2 EOL DEL EOL	3	ENTER ENTER
0 OVER ACE INSERT		● ITEM	

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ACL.3.2 Keypad Commands

The diagram above the command description represents the keypad shown in Section ACL.3.1.

ADVANCE
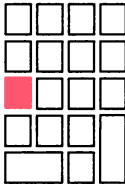
Sets the cursor direction forward, from top to bottom of the access control list, for the commands OVER ACE, FIND, FNDNXT, MOVE SCREEN, and WORD, and remains in effect until you press BACKUP.

ADV FIELD
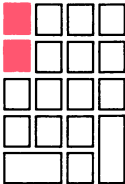
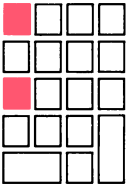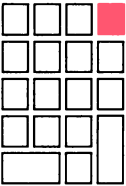Completes the current ACE field and moves the cursor to the next ACE field, inserting text as needed.

BACKUP
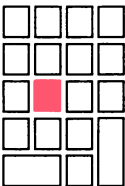
Sets cursor direction backward, from bottom to top of the access control list, for the commands OVER ACE, FIND, FNDNXT, MOVE SCREEN, and WORD, and remains in effect until you press ADVANCE.
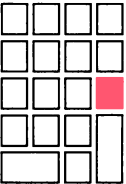
BOTTOM

Moves the cursor to the end, or bottom, of the access control list. If prompting is enabled, begins the prompting sequence for a new ACE.
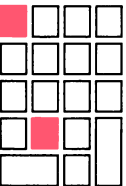
DEL ACE

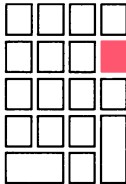Deletes the current ACE (which may be more than 1 line).

DEL C
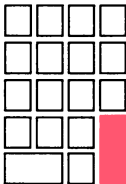
Deletes the character the cursor is on.

DEL EOL

Deletes the text from the cursor to the end of the line. The deleted text is stored in a buffer.
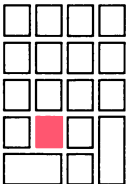
DEL W

Deletes text up to the first character of the next word.
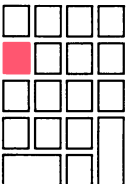
ENTER

Completes and checks the syntax of the current ACE. The object's ACL is not modified at this time.

EOL

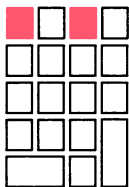Moves the cursor to the end of the current line.

FIELD

Completes the current ACE field and moves the cursor to the next ACE field or subfield, inserting text as needed.
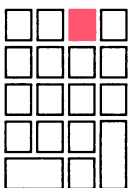
FIND

Displays the "Search for:" prompt and finds the first occurrence of the character string that you specify in response. You must terminate the string by pressing ENTER. If the string is found, the cursor moves to the first character in the string; otherwise, the cursor remains in place and the message "String was not found" appears.

FNDNXT

Moves the cursor to the first character of the next occurrence of the search string specified in the FIND command. If there is no further occurrence of the string, the cursor remains in place and the message "String was not found" appears.

GOLD
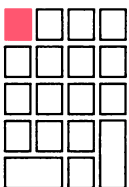
When pressed before another keypad key, specifies the second key's alternate function (the bottom function on the keypad diagram).

HELP
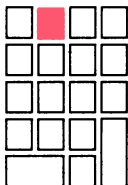
Displays a diagram of keypad keys. When one of the keys is pressed after HELP, information about that key is displayed. Pressing the TAB key after HELP is like pressing HELP FMT.

HELP FMT
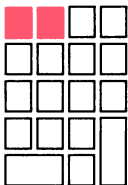
Displays the format of an ACE. By pressing the TAB key after HELP FMT, you can obtain information about each field and its possible values.

INSERT
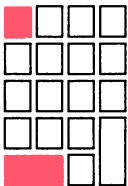
Inserts a blank line before the current ACE. If prompting is enabled, begins the prompting sequence for a new ACE.

ITEM
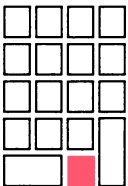
Selects the next value of the current ACE field.
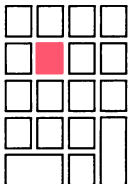
MOVE SCREEN

Moves the cursor one screen in the current direction (see ADVANCE or BACKUP). A screen is defined as two-thirds the number of lines in the display.

OVER ACE
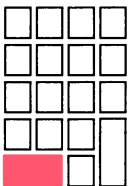
Moves the cursor to the beginning of the next ACE or to the beginning of the previous ACE.

TOP
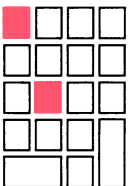
Moves the cursor to the beginning, or top, of the access control list.

UND ACE
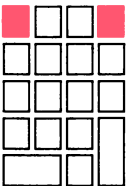
Inserts, above the current access control entry, the access control entry most recently deleted with DEL ACE.

UND C

Inserts to the left of the cursor the character most recently deleted with DEL C or DELETE.

UND W

Inserts to the left of the cursor the word most recently deleted with DELW or LINE FEED.
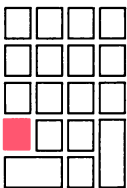
WORD

Moves the cursor one word in the current direction (see ADVANCE or BACKUP) within the current line.

Four arrow keys also move the cursor.

- DOWN ARROW—Moves the cursor to the character in the line below. If the access control entry in which the cursor is positioned is new, the ACL editor processes the access control entry before moving the cursor. If the entry is incomplete or improperly formatted, an error occurs and the cursor remains in place.

- LEFT ARROW—Moves the cursor one character to the left. If the cursor is at the left margin, LEFT ARROW moves the cursor to the rightmost character in the line above.

- RIGHT ARROW—Moves the cursor one character to the right. If the cursor is at the right margin, RIGHT ARROW moves it to the leftmost character in the line below.

- UP ARROW—Moves the cursor to the character in the line above it. If the access control entry in which the cursor is positioned is new, the ACL editor processes the access control entry before moving the cursor. If the entry is incomplete or improperly formatted, an error occurs and the cursor remains in place.

You can use the following keyboard keys to supplement the keypad keys. Keys in parenthesis are for a VT100 series terminal.

- F12 (BACKSPACE)—Moves the cursor to the beginning of the current line.

- $\boxed{X}$ (DELETE)—Deletes the character to the left of the cursor.

- F13 (LINE FEED)—Deletes the text from the cursor to the beginning of the word. If cursor is positioned at the first character of the word, deletes to the beginning of the previous word.

- TAB (TAB)—Moves the text to the next tab stop.

On the VT200 series terminal, you can also use the following supplemental editing keypad keys:

- FIND ($\boxed{E1}$)—Elicits the "Search for:" prompt as the first step in the FIND operation. Type the search string after the prompt and then press either the DO or ENTER key to process the search. (Performs the same function as the FIND keypad key.)

- INSERT HERE ($\boxed{E2}$)—Indicates the line where the selected text in the PASTE buffer is to be inserted. By default, support for the PASTE buffer is disabled.

- REMOVE ($\boxed{E3}$)—Removes the text within the select range to the PASTE buffer. Each time REMOVE is used, the previous contents of the PASTE buffer are deleted. By default, support for the PASTE buffer is disabled.

- COPY ($\boxed{GOLD}$ $\boxed{E3}$)—Copies the text within the select range to the PASTE buffer. Each time COPY is used, the previous contents of the PASTE buffer are deleted. By default, support for the PASTE buffer is disabled.

- SELECT ($\boxed{E4}$)—Marks the beginning of a range of text to be removed or copied to the PASTE buffer. Press SELECT; move the cursor to include the desired amount of text to be removed or copied; and press either REMOVE ($\boxed{E3}$) or COPY ($\boxed{GOLD}$ $\boxed{E3}$) to complete the operation. By default, support for the PASTE buffer is disabled.

- PREV SCREEN ([E5])—Moves the cursor one screen in the backward direction. By default, a screen is defined as two-thirds the number of lines in the display.

- NEXT SCREEN ([E6])—Moves the cursor one screen in the forward direction. By default, a screen is defined as two-thirds the number of lines in the display.

ACL.3.3 Control Keys

The following control keys also perform editing functions:

- CTRL/A—Determines whether characters are entered in insert or overstrike mode. Insert mode (the default) inserts a character to the left of the current character. Overstrike mode replaces the current character.

- CTRL/D—Allows you to execute one TPU command.

- CTRL/H—Moves the cursor to the beginning of the current line.

- CTRL/J—Deletes the text from the cursor to the beginning of the word. If the cursor is positioned at the first character of the word, CTRL/J deletes to the beginning of the previous word.

- CTRL/U—Deletes the text from the cursor to the beginning of the line.

- CTRL/W—Refreshes the screen by deleting extraneous characters and restoring the previous display.

- CTRL/Z—Terminates the editing session and updates the ACL.

- GOLD + CTRL/Z—Ignores changes made to the ACL and terminates the editing session.

ACL.4   DCL Commands That Affect ACLs

Use the following DCL commands to create, modify, or delete a single access control entry or to manipulate an entire access control list.

SET ACL object

Creates or modifies one or more access control entries (ACEs) in the access control list (ACL) of the specified object.

PARAMETERS

object

The specification of an object whose access control list is to be modified. Files must be on Files–11 Structure Level 2 formatted disk volumes. Logical name tables must be system logical name tables.

QUALIFIERS

/ACL[=(ace,...)]

Specifies the access control list or entries to be created or modified. *Ace* specifies an access control to be inserted at the top of the ACL. If no ACE is specified, the entire ACL is affected. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

/AFTER=ace

Places the access control entries specified with the /ACL qualifier after the access control entry specified with /AFTER. By default, access control entries are added to the beginning of the access control list. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

/BEFORE[=time]

Modifies the ACLs of only those files dated before the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, YESTERDAY. Compatible only with /OBJECT_TYPE=FILE.

/BY_OWNER[=uic]

Modifies only the ACLs of those files with the specified user identification code (UIC). The default UIC is that of the current process. Compatible only with /OBJECT_TYPE=FILE.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each modification. Compatible only with /OBJECT_TYPE=FILE. The following responses are valid:

YES	Modify the ACE.
NO	Do not modify the ACE.
TRUE	Modify the ACE.
FALSE	Do not modify the ACE.
1	Modify the ACE.
0	Do not modify the ACE.
RETURN	Do not modify the ACE.

ALL	Continue execution of the command with no further confirmation prompts.
CTRL/Z	Stop execution of the command.
QUIT	Stop execution of the command.

/CREATED

Modifies the ACLs of files selected according to their creation date. Relevant only with the /BEFORE and /SINCE qualifiers. Compatible only with /OBJECT_TYPE=FILE.

/DEFAULT

Creates a new ACL using the default ACEs of the parent (not the default) directory. For a directory file, the /DEFAULT qualifier propagates the entire ACL (except for ACEs with the NOPROPAGATE options) so that a particular access protection can be propagated throughout a directory tree. For all other files, the /DEFAULT qualifier propagates the DEFAULT option ACEs in the ACL of the parent directory to the ACL of the specified files. Compatible only with /OBJECT_TYPE=FILF

/DELETE

Deletes the access control entries specified with the /ACL qualifier. If no access control entry is specified with /ACL, the entire access control list is deleted (excluding ACEs specified with the PROTECTED option).

/EXCLUDE=(file-spec,...)

Excludes the specified files from the operation. Wildcard characters are allowed. However, you cannot use relative version numbers to exclude a specific version. Compatible only with /OBJECT_TYPE=FILE.

/LIKE=(OBJECT_TYPE=type,OBJECT_NAME=name)

Deletes the access control list of the specified object and replaces it with the access control list of the object specified with /LIKE. (The source and destination objects do not have to be the same type for this qualifier.) You can specify the following keywords for /OBJECT_TYPE: DEVICE, FILE, SYSTEM_GLOBAL_SECTION, GROUP_GLOBAL_SECTION, or LOGICAL_NAME_TABLE.

/LOG
/NOLOG (default)

Displays the specification of each object whose ACL is modified as the command executes.

/NEW

Deletes the ACL (except ACEs with the PROTECTED option) of the specified object and replaces it with the ACL specified with the /ACL or /LIKE qualifier.

/OBJECT_TYPE(=keyword)

Specifies the type of the object whose ACL is being modified. Possible keywords are: FILE (default), DEVICE, SYSTEM_GLOBAL_SECTION, GROUP_GLOBAL_SECTION, or LOGICAL_NAME_TABLE.

/REPLACE=(ace,...)

Deletes the access control entries specified with the /ACL qualifier and replaces them with the access control entries specified with /REPLACE.

/SINCE[=time]

Modifies only the ACLs of those files dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, and YESTERDAY. Compatible only with /OBJECT_TYPE=FILE.

EXAMPLES

```
$ SET ACL/ACL=(IDENTIFIER=[SMITH],ACCESS=CONTROL) *.FOR
```
Adds the access control entry specified by /ACL to the beginning of the access control list of each file with a file type of FOR in the current default directory. (The /OBJECT_TYPE qualifier defaults to file.)

```
$ SET ACL/ACL=(IDENTIFIER=NONEXEC,ACCESS=READ) -
_$ /REPLACE=(IDENTIFIER=NONEXEC,ACCESS=NONE)-
_$ /OBJECT_TYPE=DEVICE WORKDISK
```
Changes the access control entry specified by /ACL to the one specified by /REPLACE in the access control list of the device WORKDISK.

SET DEVICE/ACL [=(ace,...)] device-name,...

Creates or modifies one or more access control entries in the access control lists of the specified devices.

PARAMETERS

ace

Access control entries (ACEs) to be modified. If no ACE is specified, the entire access control list (ACL) is affected.

device-name

Specification of devices whose access control lists are being edited; no wildcard characters are allowed.

QUALIFIERS

/AFTER=ace

Places the access control entries specified with the /ACL qualifier after the access control entry specified with /AFTER. By default, access control entries are added to the beginning of the access control list. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

/DELETE

Deletes the access control entries specified with the /ACL qualifier. If no access control entry is specified with /ACL, the entire access control list is deleted (except ACEs specified with the PROTECTED option).

/LIKE=device-name

Deletes the access control list of the specified device and replaces it with the access control list of the file specified with /LIKE. No wildcard characters are allowed.

/LOG
/NOLOG (default)

Displays the device name of each device whose ACL is modified as the command executes.

/NEW

Deletes the access control lists (except ACEs with the PROTECTED option) of the specified devices and replaces them with the access control list specified with the /ACL or /LIKE qualifier.

/REPLACE=(ace,...)

Deletes the access control entries specified with the /ACL qualifier and replaces them with the access control entries specified with /REPLACE.

EXAMPLES

`$ SET DEVICE/ACL=(IDENTIFIER=[FRED],ACCESS=NONE) WORKDISK`

Adds an access control entry specified by /ACL to the beginning of the access control list of the device WORKDISK.

`$ SET DEVICE/ACL/LIKE=$CONSOLE TERMINAL2`

Replaces the access control list of TERMINAL2 with the access control list of the console terminal ($CONSOLE).

SET DIRECTORY/ACL [=(ace,...)] directory-spec,...

Creates or modifies one or more access control entries (ACEs) in the access control lists (ACLs) of the specified directory.

PARAMETERS

ace

    Access control entries (ACEs) to be modified. If no ACE is specified, the entire access control list (ACL) is affected.

directory-spec

    Specifications of directory whose access control list is being edited. Device name and colon are optional. Wildcard characters are allowed. Directories must be on a Files–11 Structure Level 2 formatted disk volume.

QUALIFIERS

/AFTER=ace

    Places the access control entries specified with the /ACL qualifier after the access control entry specified with /AFTER. By default, access control entries are added to the beginning of the access control list. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

/BEFORE[=time]

    Modifies only the ACLs of those directories dated before the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, YESTERDAY.

/BY_OWNER[=uic]

    Modifies only the ACLs of those directories with the specified user identification code (UIC). The default UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)

    Issues a request for confirmation before each modification. The following responses are valid:

YES	Modify the ACE.
NO	Do not modify the ACE.
TRUE	Modify the ACE.
FALSE	Do not modify the ACE.
1	Modify the ACE.
0	Do not modify the ACE.

RETURN	Do not modify the ACE.
ALL	Continue execution of the command with no further confirmation prompts.
CTRL/Z	Stop execution of the command.
QUIT	Stop execution of the command.

/CREATED

Modifies the ACLs of directories selected according to their creation date. Relevant only with the /BEFORE and /SINCE qualifiers.

/DEFAULT

Creates a new ACL using the default ACEs of the parent (not default) directory. For a directory file, the /DEFAULT qualifier propagates the entire ACL (except for ACEs with the NOPROPAGATE option) so that a particular access protection can be propagated throughout a directory tree.

/DELETE

Deletes the access control entries specified with the /ACL qualifier. If no access control entry is specified with /ACL, the entire access control list is deleted (except ACEs specified with the PROTECTED option).

/EXCLUDE=(directory-spec,...)

Excludes the specified directory from the operation. Wildcard characters are allowed.

/LIKE=directory-spec

Deletes the access control list of the specified directory and replaces it with the access control list of the directory specified with /LIKE. Wildcard characters are not allowed.

/LOG
/NOLOG (default)

Displays the specification of each directory modified as the command executes.

/NEW

Deletes the access control list (except ACEs set with the PROTECTED option) of the specified directory and replaces it with the access control entries specified with the /ACL qualifier.

/REPLACE=(ace,...)

Deletes the access control entries specified with the /ACL qualifier and replaces them with the access control entries specified with /REPLACE.

/SINCE[=time]

Modifies only those directories dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, YESTERDAY.

EXAMPLE

$ SET DIRECTORY/ACL/LIKE=[SMITH.PERSONAL] [JONES.PERSONAL]

Replaces the ACL of the directory [JONES.PERSONAL] with the ACL of the directory [SMITH.PERSONAL].

$ SET DIRECTORY/ACL=(IDENTIFIER=[123,321]+NETWORK,ACCESS=NONE)

Adds an identifier that permits no network access to the directory for user [123,321].

SET FILE/ACL [=(ace,...)] file-spec,...

Modifies one or more access control entries (ACEs) in the access control lists (ACLs) of the specified files.

PARAMETERS

ace

Access control entries (ACEs) to be modified. If no ACE is specified, the entire access control list (ACL) is affected.

file-spec

Specifications of files whose access control lists are being edited. Wildcard characters are allowed. Use a comma to separate file specifications. Each file must be on a Files–11 Structure Level 2 formatted disk volume.

QUALIFIERS

/AFTER=ace

Places the access control entries specified with the /ACL qualifier after the access control entry specified with /AFTER. By default, access control entries are added to the beginning of the access control list. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

/BEFORE[=time]

Modifies the ACLs of only those files dated before the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, and YESTERDAY.

/BY_OWNER[=uic]

Modifies the ACLs of only those files with the specified user identification code. The default UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each modification. The following responses are valid:

YES	Modify the ACE.
NO	Do not modify the ACE.
TRUE	Modify the ACE.
FALSE	Do not modify the ACE.
1	Modify the ACE.
0	Do not modify the ACE.
RETURN	Do not modify the ACE.
ALL	Continue execution of the command with no further confirmation prompts.
CTRL/Z	Stop execution of the command.
QUIT	Stop execution of the command.

/CREATED

Modifies the ACLs of files selected according to their creation date. Relevant only with the /BEFORE and /SINCE qualifiers.

/DEFAULT

Creates a new ACL using the default ACEs of the parent (not default) directory. For a directory file, the /DEFAULT qualifier propagates the entire ACL (except for ACEs with the NOPROPAGATE option) so that a particular access protection can be propagated throughout a directory tree. For all other files, the /DEFAULT qualifier propagates the DEFAULT option ACEs in the ACL of the parent directory to the ACL of the specified files.

/DELETE

Deletes the access control entries specified with the /ACL qualifier. If no access control entry is specified with /ACL, the entire access control list is deleted (except ACEs specified with the PROTECTED option).

/EXCLUDE=(file-spec,...)

Excludes the specified files from the operation. You can specify a directory name but not a device name in the file specifications. Wildcard characters are allowed. However, you cannot use relative version numbers to exclude a specific version.

/LIKE=file-spec

Deletes the access control list of the input files and replaces it with the access control list of the file specified with /LIKE.

/LOG
/NOLOG (default)

Displays the file specification of each file modified as the command executes.

/NEW

Deletes the access control list of the input file (except those entries set with the PROTECTED option) and replaces it with the access control list specified with the /ACL or /LIKE qualifier.

/REPLACE=(ace,...)

Deletes the access control entries specified with the /ACL qualifier and replaces them with the access control entries specified with /REPLACE.

/SINCE[=time]

Modifies only those input files dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, YESTERDAY.

EXAMPLES

```
$   SET FILE/ACL=(IDENTIFIER=[200,200],ACCESS=R+W+E+D) *.*;*
```
Adds the access control entry specified by /ACL to the beginning of the access control list of each file in the current default directory.

```
$   SET FILE/ACL=(IDENTIFIER=[200,200],ACCESS=R+W+E+D)/EXCLUDE=*.DAT *.*;*
```
Adds the access control entry specified by /ACL to the beginning of the access control list of each file in the current default directory, except those files with a file type of DAT.

```
$   SET FILE/ACL/LIKE=[USER]PROTO.TXT [USER...]*.*;*
```
Deletes the access control lists from all files in the [USER] directory tree and replaces them with the access control list of the file [USER]PROTO.TXT.

```
$   SET FILE/ACL=(IDENTIFIER=[200,200],ACCESS=R+W+E+D)-
_$   /REPLACE=(IDENTIFIER=[200,200],ACCESS=NONE) *.*;*
```
Changes the access control entry specified by /ACL to the one specified by /REPLACE in the access control list of each file in the current default directory.

```
$   SET FILE/ACL=(IDENTIFIER=[200,200],ACCESS=R+W+E+D)/NEW *.*;*
```
Replaces the access control list of each file in the current default directory with an access control list containing the access control entry specified by /ACL.

SHOW ACL object-name

Displays the access control list (ACL) of an object.

PARAMETERS

object-name

  The name of the object whose ACL is to be displayed. No wildcards are allowed.

QUALIFIERS

/OBJECT_TYPE=type

  Specifies the type of object whose ACL is to be displayed. Possible keywords
  are: FILE (the default), DEVICE, SYSTEM_GLOBAL_SECTION,
  GROUP_GLOBAL_SECTION, or LOGICAL_NAME_TABLE.

EXAMPLE

$ SHOW ACL/OBJECT_TYPE=DEVICE TTA1

Displays the ACL of the device TTA1.

Appendix AUTH

Authorize Utility (AUTHORIZE)

Use the Authorize Utility to maintain the user authorization file, the network authorization file, and the rights database. The following commands invoke the Authorize Utility.

```
$  SET DEFAULT SYS$SYSTEM
$  RUN AUTHORIZE
```

You must set your default directory to SYS$SYSTEM to access the system UAF. (The Authorize Utility works upon the highest version of SYSUAF.DAT in your default directory.) If a UAF exists in SYS$SYSTEM (or your default directory), you receive the following prompt:

```
UAF>
```

If a UAF does not exist, you receive the following error messages and query:

```
unable to open SYSUAF.DAT
%RMS-E-FNF, file not found
Do you want to create a new file?
```

Check to be sure your default directory is set correctly; that is, consider carefully whether or not you want to create a new system UAF. A response beginning with the letter Y (uppercase or lowercase) results in creation of a new system UAF containing a DEFAULT record and a SYSTEM record (no USERP record and no USER record). You then receive the UAF> prompt.

In response to the UAF> prompt, you can enter one of the commands in the following list. You can continue to enter commands until you enter the EXIT subcommand or type CTRL/Z. The documented defaults are those of the DEFAULT record as supplied by DIGITAL.

If the rights database file, RIGHTSLIST.DAT, does not exist, you must create it before you can add identifiers to the rights database (see the CREATE/RIGHTS command of the Authorize Utility).

ADD username

Adds a new user record to the UAF with field values as specified by the qualifiers or
(where qualifiers are omitted) the DEFAULT record, except that the password always
defaults to USER. If you have previously created a rights database, ADD adds an
identifier with the username to the rights database (unless you specify
/NOADD_IDENTIFIER).

PARAMETERS

username

A character string of 1 through 12 alphanumeric, underscore, and dollar sign
characters specifying a username for the account. The name must be unique
within the UAF.

QUALIFIERS

/ACCESS=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)
/NOACCESS=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)

Specifies the hours of access allowed the user for all modes of login (batch,
interactive, dialup, local, and remote). Specify hours as integers from 0 through
23, either as single hours (n) or as ranges of hours ($n-m$). Note that access
extends through the hour; for example, to specify access from 9 to 5, specify the
hours as 9–16, not 9–17. (If the ending hour of a range is earlier than the starting
hour, the range extends from the starting hour through midnight to the ending
hour.) PRIMARY specifies hours on primary days, SECONDARY on secondary
days; use the /PRIMEDAYS qualifier to specify which days are primary and
secondary. If no hours are specified for either PRIMARY or SECONDARY days,
access is permitted the entire day; if hours are specified with no day type, they
apply to both primary and secondary days. /NOACCESS prohibits access for the
specified hours.

/ACCOUNT=account-name

A character string of 1 through 8 characters, specifying an account name for the
account. Enclose the name within quotation marks if it contains blanks or special
characters. Defaults to blanks. If you specify the /ACCOUNT=account-name
qualifier and there is no group identifier for the group component of the user's
UIC in the rights database, an identifier with this name and value (grp,–1) is
created.

/ADD_IDENTIFIER (default)
/NOADD_IDENTIFIER

Adds identifiers for the username and account name to the rights database.

/ASTLM=ast-queue-limit

An integer with a minimum value of 2 specifying the number of ASTs the user
can have queued at one time. Defaults to 10.

/BATCH=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)
/NOBATCH=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)

Specifies hours of access permitted for batch jobs. See /ACCESS for specification of days and hours.

/BIOLM=buff-io-count-limit

An integer with a minimum value of 2 specifying the number of buffered I/Os the user can have active at one time. Defaults to 6.

/BYTLM=buff-io-byte-limit

An integer with a minimum value of 1024 specifying the number of bytes the user can have involved in buffered I/O operations. Defaults to 4096.

/CLI=cli-name

A character string of 1 through 31 characters specifying the default command language interpreter. Defaults to DCL.

/CLITABLES

A character string of 1 through 31 characters specifying the command language table (which must reside in SYS$LIBRARY and have a file type of EXE). Defaults to DCLTABLES.

/CPUTIME=delta-time

A delta time specifying the maximum CPU time allowed a user per session. The value 0 means no limit. Defaults to 0. See Section 5.4.2 for information about delta time format.

/DEFPRIVILEGES=([NO]privname[,...])

Specifies the default privileges that are allowed or disallowed the user at login. Specify the keyword [NO]ALL to disable or enable all user privileges.

/DEVICE=device-name

A character string of 1 through 15 characters specifying the user's default device at login. The colon can be omitted. Defaults to blanks. At login, a blank value means SYS$SYSDEVICE.

/DIALUP=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)
/NODIALUP=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)

Specifies hours of access permitted for interactive login via dialup terminals. See /ACCESS for specification of days and hours.

/DIOLM=dir-io-count-limit

An integer with a minimum value of 2 specifying the user's direct I/O count limit. Defaults to 6.

/DIRECTORY=directory-name

A character string of 1 through 63 characters specifying the user's default directory at login. The brackets can be omitted. Defaults to [USER].

/ENQLM=queued-locks-limit

An integer with a minimum value of 2 specifying the number of locks the user can have queued at one time. Defaults to 10.

/EXPIRATION=time

Specifies the expiration date and time for the account.

/FILLM=open-file-limit

An integer with a minimum value of 2 specifying the number of files the user can have open at once. Defaults to 20.

/FLAGS=(flag-name,...)

Login flags. NO in front of the flag name clears the flag. Defaults to all flags off. Possible flags are:

[NO]AUDIT	Audits all security-related actions
[NO]AUTOLOGIN	Restricts the account to the autologin mechanism
[NO]CAPTIVE	Places user under the control of the login command procedure; implies DISCTLY and DEFCLI
[NO]DEFCLI	Restricts the user to the default command language interpreter and CLI tables
[NO]DISCTLY	Disables the CTRL/Y function
[NO]DISMAIL	Prevents mail delivery to this user
[NO]DISNEWMAIL	Suppresses announcements of new mail at login time
[NO]DISREPORT	Suppresses time of last login and other security reports
[NO]DISUSER	Disables all logins for this account
[NO]DISWELCOME	Suppresses the system login message
[NO]GENPWD	Requires user to use generated passwords
[NO]LOCKPWD	Prevents the user from changing the password for the account
[NO]PWD_EXPIRED	Marks password as expired
[NO]PWD2_EXPIRED	Marks second password as expired

/GENERATE_PASSWORD[=keyword

Invokes the password generator at login. The /GENERATE_PASSWORD and /PASSWORD qualifiers are mutually exclusive. Possible keywords are:

ALL	Generate primary and secondary passwords
BOTH	Generate primary and secondary passwords
CURRENT (default)	Generate primary, secondary, or both passwords as specified for the DEFAULT account
PRIMARY	Generate primary password only
SECONDARY	Generate secondary password only

/INTERACTIVE=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)

Specifies hours of access permitted for interactive login via any terminal. See /ACCESS for specification of hours and days.

/JTQUOTA=n

Specifies the initial byte quota with which the job wide logical name table is to be created. The range is 0 to 7FFFFFFF, but it is bounded by the current quota remaining in the system directory logical name table. A quota of 0 pools the job table quota with that of its parent, the system directory logical name table. (In such a case, the job table has for all practical purposes an infinite quota.)

/LGICMD=file-spec

A file specification of up to 63 characters that specifies the name of the login command file. Defaults to the device specified for /DEVICE, the directory specified for /DIRECTORY, a file name of LOGIN, and a file type of COM.

/LOCAL=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)
/NOLOCAL=([PRIMARY],[n-m],[n],... [SECONDARY],[n-m],[n],...)

Specifies hours of access permitted for interactive login via local terminals. See /ACCESSED for specification of days and time.

/MAXACCTJOBS=value

Specifies the maximum number of batch, interactive, and detached processes that may be active at one time for all users of the specified user's account. A value of 0 means no limit. Defaults to 0.

/MAXDETACH=max-detach-procs

An integer value specifying the number of detached processes the user can have active at one time. A value of 0 means no limit. Defaults to 0.

/MAXJOBS=max-procs

An integer specifying the total number of interactive, batch, and detached processes the user can have active at one time. A value of 0 means no limit. Defaults to 0.

/NETWORK=([PRIMARY],[n-m],[n][,...] [SECONDARY,[n-m],[n][,...])
/NONETWORK=([PRIMARY],[n-m],[n][,...] [SECONDARY,[n-m],[n][,...])

Specifies hours of access permitted for network jobs. See /ACCESS for specification of days and hours.

/OWNER=owner-name

A character string of 1 through 31 characters specifying an owner name for the account. Defaults to blanks.

/PASSWORD=password1[,password2]
/NOPASSWORD

Specifies up to 2 passwords for login. Each password is a character string of 0 through 31 alphanumeric, underscore, and dollar sign characters. If omitted, password defaults to USER. To set only the first password, specify /PASSWORD=password1; to set both the first and second password, specify /PASSWORD=(password1, password2). To change the first password without affecting the second, specify /PASSWORD=(password,""). To change the second password without affecting the first, specify /PASSWORD=("",password). To set both passwords to null, specify /NOPASSWORD.

/PGFLQUOTA=paging-file-limit

An integer with a minimum value of 2048 specifying the number of pages the user can have in the paging file at one time. Defaults to 10000.

/PRCLM=subproc-create-limit

An integer with a minimum value of 0 specifying the number of subprocesses the user can have active at one time. Defaults to 2.

/PRIMEDAYS=([NO]day,...)

Primary and secondary days of the week for logging in. Specify primary days as MON, TUE, WED, THU, FRI, SAT, and SUN. Specify secondary days as NOMON, NOTUE, NOWED, NOTHU, NOFRI, NOSAT, and NOSUN. Defaults to MON, TUE, WED, THU, FRI, NOSAT, and NOSUN. Any days omitted from the list take their default values.

/PRIORITY=base-priority

An integer in the range 0 through 31 specifying the default base priority for the user's processes. Defaults to 4.

/PRIVILEGES=([NO]priv,...)

A list of privileges that the user is granted at login. NO in front of a privilege name removes the privilege. A specification of ALL means all privileges. Parentheses may be omitted for a single privilege name. Defaults to NETMBX and TMPMBX. (See Section 2.1.1.6 for a complete list of privileges.)

/PWD_EXPIRED
/NOPWD_EXPIRED

Specifies that a password is valid only for the first login. In order to log in to the account after the first session, the user must specify a new password during this session with the DCL command SET PASSWORD.

/PWDLIFETIME=delta-time
/NOPWDLIFETIME

Specifies a password's lifetime. If the password's lifetime has elapsed when the user logs in, he is issued a warning message and the password is marked as expired. The default is 180-00:00:00.00 (180 days). See Section 5.4.2 for information about delta time format.

/PWDMINIMUM=n

Specifies the minimum password length in characters; the default is 6 characters. Note that this value is enforced only by the SET PASSWORD command; passwords in violation of this value may be specified to AUTHORIZE.

/QUEPRIORITY=n

Specifies the priority for queuing batch and print jobs. The priority should be in the range from 0 to 31; 4 is the default for a timesharing user.

/REMOTE=([PRIMARY],[n-m],[n][,...] [SECONDARY,[n-m],[n][,...])
/NOREMOTE=([PRIMARY],[n-m],[n][,...] [SECONDARY,[n-m],[n][,...])

Specifies the hours of access permitted for interactive login via network remote terminals (that is, SET HOST). See /ACCESS for specification of days and hours.

/SHRFILLM=value

Specifies the maximum number of shared files that can be open at one time. The default value of 0 represents an infinite number.

/TQELM=timerD-queue-entry-limit

An integer specifying the number of timer queue entries the user can have at one time. Can be 0. Defaults to 10.

/UIC=uic

A user identification code for the user. The group number and member number must be separated by a comma and enclosed in brackets. The group number must be in the range 0 through 37776 octal; the member number must be in the range 0 through 177776 octal. The number must be specified in octal without a radix indicator. Defaults to [200,200].

/WSDEFAULT=working-set-default

An integer with a minimum value of 50 specifying the size in pages of the user's default working set size. Defaults to 150.

/WSEXTENT=working-set-extent

An integer with a minimum value of 50 specifying the size in pages of the user's working set extent. Defaults to 500.

/WSQUOTA=working-set-quota

An integer with a minimum value of 50 specifying the size in pages of the user's working set quota. Defaults to 200.

ADD/IDENTIFIER [identifier-name]

Adds the name of an identifier to the rights database.

PARAMETERS

identifier-name

The name of an identifier, which must be from 1 to 31 alphanumeric characters but must contain at least one alphabetic character. If *identifier-name* is omitted, the /USER qualifier must be specified.

QUALIFIERS

/ATTRIBUTES=(keyword)

Specifies the attributes to be associated with the new identifier. Valid keywords are:

[NO]DYNAMIC	Determines whether or not unprivileged holders of the identifiers may add or remove the identifiers from the process rights list
[NO]RESOURCE	Determines whether or not holders of the identifiers are allowed to charge resources to the identifiers

/USER=user-spec

Scans the UAF record(s) of the specified user(s) and creates the appropriate identifier(s). Specify *user-spec* as a user identification code (UIC) or a user name. You can use the asterisk wildcard (*) to specify multiple user names or UICs: full use of the asterisk and percent (%) wildcards is permitted for user names; UICs must be in the form [*,*], [n,*], [*,n], or [n,n]. A wildcard user name specification (*) creates identifiers alphabetically by user name; a wildcard UIC specification ([*,*]) creates them in numerical order by UIC.

/VALUE=value-specifier

Specifies the value to be attached to the identifier. The format of the value specifier is:

IDENTIFIER:integer	An integer value for a non-UIC identifier, where *integer* is in the range 32768 to 268435455 (decimal) or %X00008000 to %X0FFFFFFF (hexadecimal)
UIC:uic	A UIC value for a UIC identifier, where *UIC* is in the standard UIC format

ADD/PROXY node::remote-username local-username

Adds a proxy account to the network UAF. The remote user cannot already have a proxy account in the network UAF.

PARAMETERS

node::remote-username

Node name and username of the remote user. An asterisk in place of the username means all users on the node.

local-username

Username of an account in the UAF. An asterisk in place of the username means the same username specified in the first parameter.

COPY old-username new-username

Creates a new UAF record that duplicates an existing record except for individual fields as specified by the qualifiers. The password must be changed (unless it is null) to permit login. By default, COPY also attempts to add an identifier named *new-username*.

PARAMETERS

old-username

Username of an existing record in the UAF.

new-username

A character string of 1 through 12 alphanumeric, underscore, and dollar sign characters specifying the name of the new user. The name must be unique within the UAF.

QUALIFIERS

   Same as for ADD.

CREATE/PROXY

Creates and initializes a network UAF. The name of the file is NETUAF.DAT in your
default directory. The file contains no records.

CREATE/RIGHTS

Creates and initializes a new rights database file, RIGHTSLIST.DAT. The file is
created with no records and is assigned the protection: (S:RWED,O:RWED,G:R,W:R)

DEFAULT

Modifies fields in the DEFAULT record as specified by the qualifiers. Unspecified
fields remain the same.

QUALIFIERS

   Same as for ADD (except /ADD_IDENTIFIER does not exist).

EXIT

Returns you to DCL command level. Pressing CTRL/Z also returns you to DCL
command level.

GRANT/IDENTIFIER identifier-name user-identifier

Grants the specified identifier (previously added to the rights database with the
Authorize command ADD/IDENTIFIER) to the user.

PARAMETERS

identifier-name

   The name of an identifier; *identifier-name* can be up to 31 alphanumeric
   characters in length.

user-identifier

   A UIC identifier that specifies the user. Wildcard characters are permitted.

QUALIFIERS

/ATTRIBUTES=(keyword)
   Specifies the attributes to be associated with the identifier for the specified user.
   Valid keywords are:

   [NO]DYNAMIC   Determines whether or not unprivileged holders of the identifiers
                    may add or remove the identifiers from the process rights list

   [NO]RESOURCE   Determines whether or not holders of the identifiers are allowed to
                    charge resources to the identifiers

HELP [command-name]

Displays information explaining the use of AUTHORIZE. Follows the rules for
interactive HELP. Pressing CTRL/Z from within HELP returns you to AUTHORIZE
subcommand level.

PARAMETERS

command-name
   Subcommand for which information is required. If you omit the command name,
   a list of subcommands is displayed.

QUALIFIERS

   Any qualifier valid for *command-name*.

LIST [user-spec]

Creates a file named SYSUAF.LIS in your default directory containing a report on the
records in the UAF specified by *user-spec.*

PARAMETERS

user-spec
   A username or UIC. If you omit *user-spec*, the user records of all users are listed.
   Wildcard characters are permitted.

QUALIFIERS

/BRIEF
/FULL (default)
   A brief or full report. A brief report includes the owner, the username, the UIC,
   the account, a summary of privileges, the priority, and the default directory. A
   full report also includes the details of the limits, privileges, login flags, command
   interpreter, and the identifiers held by the user.

LIST/IDENTIFIER [identifier-name]

Creates RIGHTSLIST.LIS in your default directory and writes identifier information into it.

PARAMETERS

identifier-name

The name of an identifier. Wildcard characters are permitted. If *identifier-name* is omitted, either the /USER or /VALUE qualifier must be specified.

QUALIFIERS

/BRIEF
/FULL (default)

Specifies whether or not the identifier's holders will be listed with the identifier and its value.

/USER=user-spec

Specifies a user whose identifiers are to be listed. *User-spec* can be a UIC or username. You can use the asterisk wildcard (∗) to specify multiple usernames or UICs: full use of the asterisk and percent (%) wildcards is permitted for usernames; UICs must be in the form [∗,∗], [n,∗], [∗,n], or [n,n]. A wildcard username specification (∗) lists identifiers alphabetically by username; a wildcard UIC specification ([∗,∗]) lists identifiers numerically by UIC.

/VALUE=value-specifier

Lists the identifier with the specified value. The format of a value can be:

IDENTIFIER:integer	An integer value for a non-UIC identifier, where *integer* is in the range 32768 to 268435455 (decimal) or %X00008000 to %X0FFFFFFF (hexadecimal)
UIC:uic	A UIC value for a UIC identifier, where *UIC* is in the standard UIC format

LIST/PROXY

Creates a file named NETUAF.LIS in your default directory containing a report on all the records in the network UAF.

QUALIFIERS

/BRIEF (default)
/FULL

Effectively the same.

LIST/RIGHTS [identifier-name]

Lists the identifiers held by the specified identifier. If /USER is specified, lists all identifiers held by the specified user.

PARAMETERS

identifier-name

> The name of an identifier, specified in UIC format. If *identifier-name* is omitted, the /USER qualifier must be specified.

QUALIFIERS

/USER=user-spec

> Specifies a user whose identifiers are to be listed. *User-spec* can be a UIC or username. You can use the asterisk wildcard (*) to specify multiple usernames or UICs: full use of the asterisk and percent (%) wildcards is permitted for usernames; UICs must be in the form [*,*], [n,*], [*,n], or [n,n]. A wildcard username specification (*) lists identifiers alphabetically by username; a wildcard UIC specification ([*,*]) lists them numerically by UIC.

MODIFY username

Modifies fields of a UAF record (or records) as specified by the qualifiers. Unspecified fields remain the same.

PARAMETERS

username

> The user's username. Wildcard characters are permitted.

QUALIFIERS

> Same as for ADD, minus /ADD_IDENTIFIER, plus /MODIFY_IDENTIFIER.

/MODIFY_IDENTIFIER (default)
/NOMODIFY_IDENTIFIER

> Modifies the identifier associated with a user record when the UIC field in the UAF is modified.

MODIFY/IDENTIFIER identifier-name

Changes the specified identifier in the rights database.

PARAMETERS

identifier-name

> The name of an identifier, which can be up to 32 alphanumeric characters in length and must contain one alphabetic character.

QUALIFIERS

/ATTRIBUTES=(keyword)

> Specifies the attributes to be associated with the identifier for holders of the identifier. If individual holders are not specified with the /HOLDER qualifier, the attribute affects all holders of the identifier. Possible attributes are:

> | | |
> |---|---|
> | [NO]DYNAMIC | Determines whether or not unprivileged holders of the identifiers may add or remove the identifiers from the process rights list |
> | [NO]RESOURCE | Determines whether or not holders of the identifiers are allowed to charge resources to the identifiers |

/HOLDER=username

> Modifies the attributes (specified with the /ATTRIBUTES qualifier) in the specified user's holder record. The /NAME and /VALUE qualifiers are ignored if the /HOLDER qualifier is specified.

/NAME=identifier-name

> Specifies a new *identifier-name* for the identifier.

/VALUE=value-specifier

> Specifies a new value for the identifier. The format of a value specifier can be:

> | | |
> |---|---|
> | IDENTIFIER:integer | An integer value for a non-UIC identifier, where *integer* is in the range 32768 to 268435455 |
> | UIC:uic | A UIC value for a UIC identifier, where *UIC* is in the standard UIC format |

MODIFY/SYSTEM_PASSWORD =system-password

Changes the system password.

PARAMETERS

system-password

> Specifies the new system password.

REMOVE username

Deletes a record from the UAF. (However, you cannot delete the DEFAULT or
SYSTEM record.) Also deletes associated records in the network UAF and rights
database.

PARAMETERS

username
  Username of an existing record in the UAF.

QUALIFIERS

/REMOVE_IDENTIFIER (default)
/NOREMOVE_IDENTIFIER
  Removes the username and account name identifiers from the rights database
  when the UAF record is removed. (The account name identifier is only removed
  if there are no remaining UAF records with the same group as the deleted
  record.)

REMOVE/IDENTIFIER identifier-name

Deletes the specified identifier from the rights database.

PARAMETERS

identifier-name
  The name of the identifier.

REMOVE/PROXY node::remote-username

Deletes a record from the network UAF.

PARAMETERS

node::remote-username
  Name of a record. Defaults to all records in the network UAF.

RENAME old-username new-username

Changes the username of a record in the UAF. You cannot rename the DEFAULT or
SYSTEM record. The password must be changed as well (unless it is null) to permit
login. Also changes the username where it appears in the network UAF and the
rights database.

PARAMETERS

old-username
Username of an existing record in the UAF.

new-username
A character string of 1 through 12 alphanumeric, underscore, and dollar sign characters specifying the new name. The name must be unique within the UAF.

QUALIFIERS

/MODIFY_IDENTIFIER (default)
/NOMODIFY_IDENTIFIER
Modifies the identifier associated with the user record.

/PASSWORD=password1[,password2]
/NOPASSWORD
If no password is specified in the UAF for this account, you may specify /NOPASSWORD. If one password is specified in the UAF for this account, you must specify a new password, (a character string of 0 through 31 alphanumeric, underscore, and dollar sign characters) by typing /PASSWORD=password1. If two passwords are specified in the UAF for this account, you must specify two new passwords by typing /PASSWORD=(password1, password2). The first password defaults to USER.

RENAME/IDENTIFIER old-identifier-name new-identifier-name

Changes the name of the specified identifier.

PARAMETERS

old-identifier-name
The name of an existing identifier.

new-identifier-name
The name of a new identifier, which must be from 1 to 32 alphanumeric characters and must contain one alphabetic character.

REVOKE/IDENTIFIER identifier-name user-spec

Revokes an identifier from the specified user.

PARAMETERS

identifier-name
    The name of the identifier to be revoked.

user-spec
    An identifier (UIC or non-UIC format) that specifies the user.

SHOW user-spec

Displays a report on records in the UAF as specified by *user-spec*.

PARAMETERS

user-spec
    A username or UIC. Wildcard characters are permitted.

QUALIFIERS

/BRIEF
/FULL (default)
    A brief or full report. A brief report includes the owner, the username, the UIC,
    the account, a summary of privileges, the priority, and the default directory. A
    full report also includes the details of the limits, privileges, login flags, command
    interpreter, and identifiers held by the user.

SHOW/IDENTIFIER [user-spec]

Displays the specified identifier's name, value, and attributes.

PARAMETERS

user-spec
    The UIC identifier associated with the user. If *user-spec* is omitted, /USER must
    be specified.

QUALIFIERS

/BRIEF (default)
/FULL
    Determines whether or not the identifier's holders are displayed with the
    identifier and its value.

/USER=user-spec
    Specifies a user whose identifiers are to be displayed. *User-spec* can be a UIC or
    username. You can use the asterisk wildcard character (*) to specify multiple
    usernames or UICs: full use of the asterisk and percent sign (%) wildcards is

permitted for usernames; UICs must be in the form [*,*], [n,*], [*,n], or [n,n]. A wildcard username specification (*) lists identifiers alphabetically by username; a wildcard UIC specification ([*,*]) lists them numerically by UIC.

/VALUE=value-specifier

Displays the identifier with the specified value. The format of the value specifier is:

IDENTIFIER:integer	An integer value for a non-UIC identifier, where *integer* is in the range 32768 to 268435455
UIC:uic	A UIC value for a UIC identifier, where *UIC* is in the standard UIC format

SHOW/PROXY [node::remote-username]

Displays a report on one or all records in the network UAF.

PARAMETERS

node::remote-username

Name of a record. Defaults to all records in the network UAF.

SHOW/RIGHTS [identifier-name]

Displays the identifiers held by the specified identifier.

PARAMETERS

identifier-name

The name of the identifier to be displayed. If *identifier-name* is omitted, /USER must be specified.

QUALIFIERS

/USER=user-spec

Specifies a user whose identifiers are to be displayed. *User-spec* can be a UIC or username. You can use the asterisk wildcard character (*) to specify multiple usernames or UICs: full use of the asterisk and percent sign (%) wildcards is permitted for usernames; UICs must be in the form [*,*], [n,*], [*,n], or [n,n]. A wildcard username specification (*) lists identifiers alphabetically by username; a wildcard UIC specification ([*,*]) lists them numerically by UIC.

Appendix CHAR

Character Sets

The following tables present the ASCII character set and the DEC Multinational
Character Set.

CHAR.1   ASCII Character Set

The ASCII character set consists of the characters shown in the following table.
The characters with names are not printable. (The ASCII character set comprises
the first 127 characters of the DEC Multinational Character Set; descriptions of
the nonprintable characters are located in the table in Section CHAR.3.) You can
calculate the numeric value of a character by constructing a 2-digit hexadecimal
number in which the column position of the character represents the 16s position of
the hexadecimal number and the row position of the character represents the units
position of the number. For example, an uppercase A has the numeric value 41
hexadecimal. String comparisons are made using these values.

ASCII Character Set

Hex Values	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	'	<	K	\	l		
D	CR	GS	—	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	—	o	DEL

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CHAR.2   ASCII and DEC Multinational Character Set Tables

The table below represents the ASCII character set (characters with decimal values 0 through 127). The first half of each of the numbered columns identifies the character as you would enter it on a VT200 or VT100 series terminal or as you would see it on a printer (except for the nonprintable characters). The remaining half of each column identifies the character by the binary value of the byte; the value is stated in three radixes—octal, decimal, and hexadecimal. For example, the letter uppercase A has, under ASCII conventions, a storage value of hexadecimal 41 (a bit configuration of 01000001), equivalent to 101 in octal notation and 65 in decimal notation.

ASCII and DEC Multinational Character Set Tables

COLUMN	0	1	2	3	4	5	6	7
BITS (b8 b7 b6 b5)	0 0 0 0	0 0 0 1	0 0 1 0	0 0 1 1	0 1 0 0	0 1 0 1	0 1 1 0	0 1 1 1
ROW (b4 b3 b2 b1)								
0 (0 0 0 0)	NUL (0/0/0)	DLE (20/16/10)	SP (40/32/20)	0 (60/48/30)	@ (100/64/40)	P (120/80/50)	` (140/96/60)	p (160/112/70)
1 (0 0 0 1)	SOH (1/1/1)	DC1 (XON) (21/17/11)	! (41/33/21)	1 (61/49/31)	A (101/65/41)	Q (121/81/51)	a (141/97/61)	q (161/113/71)
2 (0 0 1 0)	STX (2/2/2)	DC2 (22/18/12)	" (42/34/22)	2 (62/50/32)	B (102/66/42)	R (122/82/52)	b (142/98/62)	r (162/114/72)
3 (0 0 1 1)	ETX (3/3/3)	DC3 (XOFF) (23/19/13)	# (43/35/23)	3 (63/51/33)	C (103/67/43)	S (123/83/53)	c (143/99/63)	s (163/115/73)
4 (0 1 0 0)	EOT (4/4/4)	DC4 (24/20/14)	$ (44/36/24)	4 (64/52/34)	D (104/68/44)	T (124/84/54)	d (144/100/64)	t (164/116/74)
5 (0 1 0 1)	ENQ (5/5/5)	NAK (25/21/15)	% (45/37/25)	5 (65/53/35)	E (105/69/45)	U (125/85/55)	e (145/101/65)	u (165/117/75)
6 (0 1 1 0)	ACK (6/6/6)	SYN (26/22/16)	& (46/38/26)	6 (66/54/36)	F (106/70/46)	V (126/86/56)	f (146/102/66)	v (166/118/76)
7 (0 1 1 1)	BEL (7/7/7)	ETB (27/23/17)	' (47/39/27)	7 (67/55/37)	G (107/71/47)	W (127/87/57)	g (147/103/67)	w (167/119/77)
8 (1 0 0 0)	BS (10/8/8)	CAN (30/24/18)	((50/40/28)	8 (70/56/38)	H (110/72/48)	X (130/88/58)	h (150/104/68)	x (170/120/78)
9 (1 0 0 1)	HT (11/9/9)	EM (31/25/19)	) (51/41/29)	9 (71/57/39)	I (111/73/49)	Y (131/89/59)	i (151/105/69)	y (171/121/79)
10 (1 0 1 0)	LF (12/10/A)	SUB (32/26/1A)	* (52/42/2A)	: (72/58/3A)	J (112/74/4A)	Z (132/90/5A)	j (152/106/6A)	z (172/122/7A)
11 (1 0 1 1)	VT (13/11/B)	ESC (33/27/1B)	+ (53/43/2B)	; (73/59/3B)	K (113/75/4B)	[(133/91/5B)	k (153/107/6B)	{ (173/123/7B)
12 (1 1 0 0)	FF (14/12/C)	FS (34/28/1C)	, (54/44/2C)	< (74/60/3C)	L (114/76/4C)	\ (134/92/5C)	l (154/108/6C)	| (174/124/7C)
13 (1 1 0 1)	CR (15/13/D)	GS (35/29/1D)	- (55/45/2D)	= (75/61/3D)	M (115/77/4D)	] (135/93/5D)	m (155/109/6D)	} (175/125/7D)
14 (1 1 1 0)	SO (16/14/E)	RS (36/30/1E)	. (56/46/2E)	> (76/62/3E)	N (116/78/4E)	^ (136/94/5E)	n (156/110/6E)	~ (176/126/7E)
15 (1 1 1 1)	SI (17/15/F)	US (37/31/1F)	/ (57/47/2F)	? (77/63/3F)	O (117/79/4F)	_ (137/95/5F)	o (157/111/6F)	DEL (177/127/7F)

KEY

CHARACTER	ESC	33	OCTAL
		27	DECIMAL
		1B	HEX

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The ASCII character set comprises the first half of the DEC Multinational Character Set. The following table represents the second half of the DEC Multinational Character Set (characters with decimal values 128 through 255). The first half of each of the numbered columns identifies the character as you would see it on a

Character Sets
ASCII and DEC Multinational Character Set Tables

VT200 series terminal or printer (these characters cannot be output on a VT100 series terminal). Section CHAR.3 describes how to enter symbols from the DEC Multinational Character Set.

8	9	10	11	12	13	14	15	COLUMN / BITS	ROW
200 / 128 / 80	DCS 220 / 144 / 90	▨ 240 / 160 / A0	° 260 / 176 / B0	À 300 / 192 / C0	320 / 208 / D0	à 340 / 224 / E0	360 / 240 / F0	0 0 0 0	0
201 / 129 / 81	PU1 221 / 145 / 91	¡ 241 / 161 / A1	± 261 / 177 / B1	Á 301 / 193 / C1	Ñ 321 / 209 / D1	á 341 / 225 / E1	ñ 361 / 241 / F1	0 0 0 1	1
202 / 130 / 82	PU2 222 / 146 / 92	¢ 242 / 162 / A2	² 262 / 178 / B2	Â 302 / 194 / C2	Ò 322 / 210 / D2	â 342 / 226 / E2	ò 362 / 242 / F2	0 0 1 0	2
203 / 131 / 83	STS 223 / 147 / 93	£ 243 / 163 / A3	³ 263 / 179 / B3	Ã 303 / 195 / C3	Ó 323 / 211 / D3	ã 343 / 227 / E3	ó 363 / 243 / F3	0 0 1 1	3
IND 204 / 132 / 84	CCH 224 / 148 / 94	244 / 164 / A4	264 / 180 / B4	Ä 304 / 196 / C4	Ô 324 / 212 / D4	ä 344 / 228 / E4	ô 364 / 244 / F4	0 1 0 0	4
NEL 205 / 133 / 85	MW 225 / 149 / 95	¥ 245 / 165 / A5	µ 265 / 181 / B5	Å 305 / 197 / C5	Õ 325 / 213 / D5	å 345 / 229 / E5	õ 365 / 245 / F5	0 1 0 1	5
SSA 206 / 134 / 86	SPA 226 / 150 / 96	246 / 166 / A6	¶ 266 / 182 / B6	Æ 306 / 198 / C6	Ö 326 / 214 / D6	æ 346 / 230 / E6	ö 366 / 246 / F6	0 1 1 0	6
ESA 207 / 135 / 87	EPA 227 / 151 / 97	§ 247 / 167 / A7	· 267 / 183 / B7	Ç 307 / 199 / C7	Œ 327 / 215 / D7	ç 347 / 231 / E7	œ 367 / 247 / F7	0 1 1 1	7
HTS 210 / 136 / 88	230 / 152 / 98	¤ 250 / 168 / A8	270 / 184 / B8	È 310 / 200 / C8	Ø 330 / 216 / D8	è 350 / 232 / E8	ø 370 / 248 / F8	1 0 0 0	8
HTJ 211 / 137 / 89	231 / 153 / 99	© 251 / 169 / A9	¹ 271 / 185 / B9	É 311 / 201 / C9	Ù 331 / 217 / D9	é 351 / 233 / E9	ù 371 / 249 / F9	1 0 0 1	9
VTS 212 / 138 / 8A	232 / 154 / 9A	ª 252 / 170 / AA	º 272 / 186 / BA	Ê 312 / 202 / CA	Ú 332 / 218 / DA	ê 352 / 234 / EA	ú 372 / 250 / FA	1 0 1 0	10
PLD 213 / 139 / 8B	CSI 233 / 155 / 9B	« 253 / 171 / AB	» 273 / 187 / BB	Ë 313 / 203 / CB	Û 333 / 219 / DB	ë 353 / 235 / EB	û 373 / 251 / FB	1 0 1 1	11
PLU 214 / 140 / 8C	ST 234 / 156 / 9C	254 / 172 / AC	¼ 274 / 188 / BC	Ì 314 / 204 / CC	Ü 334 / 220 / DC	ì 354 / 236 / EC	ü 374 / 252 / FC	1 1 0 0	12
RI 215 / 141 / 8D	OSC 235 / 157 / 9D	255 / 173 / AD	½ 275 / 189 / BD	Í 315 / 205 / CD	Ý 335 / 221 / DD	í 355 / 237 / ED	ý 375 / 253 / FD	1 1 0 1	13
SS2 216 / 142 / 8E	PM 236 / 158 / 9E	256 / 174 / AE	276 / 190 / BE	Î 316 / 206 / CE	336 / 222 / DE	î 356 / 238 / EE	376 / 254 / FE	1 1 1 0	14
SS3 217 / 143 / 8F	APC 237 / 159 / 9F	257 / 175 / AF	¿ 277 / 191 / BF	Ï 317 / 207 / CF	ß 337 / 223 / DF	ï 357 / 239 / EF	▨ 377 / 255 / FF	1 1 1 1	15

KEY

CHARACTER	ESC	33 OCTAL
		27 DECIMAL
		1B HEX

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CHAR.3 DEC Multinational Character Set

The DEC Multinational Character Set is an 8-bit character set with 256 characters; the first 128 characters in the set correspond to the ASCII character set. Each character has a value in the range 0 through 255 decimal.

In the following table, the graphic symbols shown in parentheses represent ASCII control characters. These are produced on most terminals by pressing the key indicated while holding down the CONTROL key. On VT200 series terminals, graphic symbols with decimal values greater than 127 can be entered using the compose sequences. Press the Compose Character key followed by the EDT symbol; the graphic symbol is then displayed on your terminal. On VT200 series terminals, you can enter symbols for characters 128 through 255 either in EDT or at DCL level.

On VT100 series terminals, graphic symbols with decimal values greater than 127 can only be entered from screen mode in EDT. Use the EDT keypad command SPECINS or the nokeypad command ASC to enter these characters in your text; EDT then displays the EDT symbol that corresponds to the character rather than displaying the graphic symbol itself.

Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
(@)	^@	0	NUL	null character
(A)	^A	1	SOH	start of heading
(B)	^B	2	STX	start of text
(C)	^C	3	ETX	end of text
(D)	^D	4	EOT	end of transmission
(E)	^E	5	ENQ	enquiry
(F)	^F	6	ACK	acknowledge
(G)	^G	7	BEL	bell
(H)	^H	8	BS	backspace
(I)		9	HT	horizontal tabulation
(J)	<LF>	10	LF	line feed
(K)	<VT>	11	VT	vertical tabulation
(L)	<FF>	12	FF	form feed
(M)	<CR>	13	CR	carriage return
(N)	^N	14	SO	shift out
(O)	^O	15	SI	shift in
(P)	^P	16	DLE	data link escape
(Q)	^Q	17	DC1	device control 1
(R)	^R	18	DC2	device control 2
(S)	^S	19	DC3	device control 3
(T)	^T	20	DC4	device control 4

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(Continued on next page)

Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
(U)	^U	21	NAK	negative acknowledge
(V)	^V	22	SYN	synchronous idle
(W)	^W	23	ETB	end of transmission block
(X)	^X	24	CAN	cancel
(Y)	^Y	25	EM	end of medium
(Z)	^Z	26	SUB	substitute
([)	<ESC>	27	ESC	escape
(\)	^\	28	FS	file separator
(])	^]	29	GS	group separator
(^)	^^	30	RS	record separator
(_)	^_	31	US	unit separator
		32	SP	space
!	!	33	!	exclamation point
"	"	34	"	quotation marks (double quote)
#	#	35	#	number sign
$	$	36	$	dollar sign
%	%	37	%	percent sign
&	&	38	&	ampersand
'	'	39	'	apostrophe (single quote)
(	(	40	(	opening parenthesis
)	)	41	)	closing parenthesis
*	*	42	*	asterisk
+	+	43	+	plus
,	,	44	,	comma
-	-	45	-	hyphen or minus
.	.	46	.	period or decimal point
/	/	47	/	slash
0	0	48	0	zero
1	1	49	1	one
2	2	50	2	two
3	3	51	3	three
4	4	52	4	four
5	5	53	5	five
6	6	54	6	six
7	7	55	7	seven
8	8	56	8	eight
9	9	57	9	nine
:	:	58	:	colon
;	;	59	;	semicolon
<	<	60	<	less than

Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
=	=	61	=	equals
>	>	62	>	greater than
?	?	63	?	question mark
((	((	64	((	commercial at
A	A	65	A	uppercase A
B	B	66	B	uppercase B
C	C	67	C	uppercase C
D	D	68	D	uppercase D
E	E	69	E	uppercase E
F	F	70	F	uppercase F
G	G	71	G	uppercase G
H	H	72	H	uppercase H
I	I	73	I	uppercase I
J	J	74	J	uppercase J
K	K	75	K	uppercase K
L	L	76	L	uppercase L
M	M	77	M	uppercase M
N	N	78	N	uppercase N
O	O	79	O	uppercase O
P	P	80	P	uppercase P
Q	Q	81	Q	uppercase Q
R	R	82	R	uppercase R
S	S	83	S	uppercase S
T	T	84	T	uppercase T
U	U	85	U	uppercase U
V	V	86	V	uppercase V
W	W	87	W	uppercase W
X	X	88	X	uppercase X
Y	Y	89	Y	uppercase Y
Z	Z	90	Z	uppercase Z
[	[	91	[	opening bracket
\	\	92	\	back slash
]	]	93	]	closing bracket
^	^	94	^	circumflex
		95	_	underline (underscore)
`	`	96	`	grave accent
a	a	97	a	lowercase a
b	b	98	b	lowercase b
c	c	99	c	lowercase c
d	d	100	d	lowercase d

DEC Multinational Character Set

Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
e	e	101	e	lowercase e
f	f	102	f	lowercase f
g	g	103	g	lowercase g
h	h	104	h	lowercase h
i	i	105	i	lowercase i
j	j	106	j	lowercase j
k	k	107	k	lowercase k
l	l	108	l	lowercase l
m	m	109	m	lowercase m
n	n	110	n	lowercase n
o	o	111	o	lowercase o
p	p	112	p	lowercase p
q	q	113	q	lowercase q
r	r	114	r	lowercase r
s	s	115	s	lowercase s
t	t	116	t	lowercase t
u	u	117	u	lowercase u
v	v	118	v	lowercase v
w	w	119	w	lowercase w
x	x	120	x	lowercase x
y	y	121	y	lowercase y
z	z	122	z	lowercase z
{	{	123	{	opening brace
|	|	124	|	vertical line
}	}	125	}	closing brace
~	~	126	~	tilde
DEL	<DEL>	127	DEL	delete, rubout
	<X80>	128	---	|reserved|
	<X81>	129	---	|reserved|
	<X82>	130	---	|reserved|
	<X83>	131	---	|reserved|
	<IND>	132	IND	index
	<NEL>	133	NEL	next line
	<SSA>	134	SSA	start of selected area
	<ESA>	135	ESA	end of selected area
	<HTS>	136	HTS	horizontal tab set
	<HTJ>	137	HTJ	horizontal tab set with justification
	<VTS>	138	VTS	vertical tab set
	<PLD>	139	PLD	partial line down
	<PLU>	140	PLU	partial line up

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Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
	\<RI\>	141	RI	reverse index
	\<SS2\>	142	SS2	single shift 2
	\<SS3\>	143	SS3	single shift 3
	\<DCS\>	144	DCS	device control string
	\<PU1\>	145	PU1	private use 1
	\<PU2\>	146	PU2	private use 2
	\<STS\>	147	STS	set transmit state
	\<CCH\>	148	CCH	cancel character
	\<MW\>	149	MW	message waiting
	\<SPA\>	150	SPA	start of protected área
	\<EPA\>	151	EPA	end of protected area
	\<X98\>	152	---	|reserved|
	\<X99\>	153	---	|reserved|
	\<X9A\>	154	---	|reserved|
	\<CSI\>	155	CSI	control sequence introducer
	\<ST\>	156	ST	string terminator
	\<OSC\>	157	OSC	operating system command
	\<PM\>	158	PM	privacy message
	\<APC\>	159	APC	application program command
	\<XA0\>	160	---	|reserved|
¡	\<!!\>	161	¡	inverted exclamation mark
¢	\<C/\>	162	¢	cent sign
£	\<L−\>	163	£	pound sign
	\<XA4\>	164	---	|reserved|
¥	\<Y−\>	165	¥	yen sign
	\<XA6\>	166	---	|reserved|
§	\<S0\>	167	§	section sign
¤	\<X0\>	168	¤	general currency sign
©	\<C0\>	169	©	copyright sign
a	\<a_\>	170	a	feminine ordinal indicator
«	\<\<\<\>	171	«	angle quotation mark left
	\<XAC\>	172	---	|reserved|
	\<XAD\>	173	---	|reserved|
	\<XAE\>	174	---	|reserved|
	\<XAF\>	175	---	|reserved|
°	\<0^\>	176	°	degree sign
±	\<+−\>	177	±	plus/minus sign
^{2}	\<2^\>	178	^{2}	superscript 2
^{3}	\<3^\>	179	^{3}	superscript 3
	\<XB4\>	180	---	|reserved|

Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
μ	</U>	181	μ	micro sign
¶	<P!>	182	⸿	paragraph sign, pilcrow
•	<.^>	183	•	middle dot
	<XB8>	184	---	|reserved|
¹	<1^>	185	¹	superscript 1
º	<o_>	186	º	masculine ordinal indicator
„	<>>>	187	„	angle quotation mark right
¼	<14>	188	¼	fraction one quarter
½	<12>	189	½	fraction one half
	<XBE>	190	---	|reserved|
¿	<??>	191	¿	inverted question mark
À	<A`>	192	À	uppercase A with grave accent
Á	<A´>	193	Á	uppercase A with acute accent
Â	<A^>	194	Â	uppercase A with circumflex
Ã	<A¯>	195	Ã	uppercase A with tilde
Ä	<A">	196	Ä	uppercase A with umlaut,(diaeresis)
Å	<A*>	197	A	uppercase A with ring
Æ	<AE>	198	Æ	uppercase AE diphthong
Ç	<C,>	199	Ç	uppercase C with cedilla
È	<E`>	200	È	uppercase E with grave accent
É	<E´>	201	É	uppercase E with acute accent
Ê	<E^>	202	Ê	uppercase E with circumflex
Ë	<E">	203	Ë	uppercase E with umlaut, (diaeresis)
Ì	<I`>	204	Ì	uppercase I with grave accent
Í	<I´>	205	Í	uppercase I with acute accent
Î	<I^>	206	Î	uppercase I with circumflex
Ï	<I">	207	Ï	uppercase I with umlaut, (diaeresis)
	<XD0>	208	---	|reserved|
Ñ	<N¯>	209	Ñ	uppercase N with tilde
Ò	<O`>	210	Ò	uppercase O with grave accent
Ó	<O´>	211	Ó	uppercase O with acute accent
Ô	<O^>	212	Ô	uppercase O with circumflex
Õ	<O¯>	213	Õ	uppercase O with tilde
Ö	<O">	214	Ö	uppercase O with umlaut, (diaeresis)
Œ	<OE>	215	Œ	uppercase OE ligature
Ø	<O/>	216	Ø	uppercase O with slash
Ù	<U`>	217	Ù	uppercase U with grave accent
Ú	<U´>	218	Ú	uppercase U with acute accent
Û	<U^>	219	Û	uppercase U with circumflex
Ü	<U">	220	Ü	uppercase U with umlaut, (diaeresis)

Graphic	EDT Symbol	Decimal Value	Abbrev.	Description
Ÿ	\<Y"\>	221	Ÿ	uppercase Y with umlaut, (diaeresis)
	\<XDE\>	222	---	[reserved]
ß	\<ss\>	223	ß	German lowercase sharp s
à	\<a`\>	224	à	lowercase a with grave accent
á	\<a´\>	225	á	lowercase a with acute accent
â	\<a^\>	226	â	lowercase a with circumflex
ã	\<a~\>	227	ã	lowercase a with tilde
ä	\<a"\>	228	ä	lowercase a with umlaut, (diaeresis)
å	\<a*\>	229	å	lowercase a with ring
æ	\<ae\>	230	æ	lowercase ae diphthong
ç	\<c,\>	231	ç	lowercase c with cedilla
è	\<e`\>	232	è	lowercase e with grave accent
é	\<e´\>	233	é	lowercase e with acute accent
ê	\<e^\>	234	ê	lowercase e with circumflex
ë	\<e"\>	235	ë	lowercase e with umlaut, (diaeresis)
ì	\<i`\>	236	ì	lowercase i with grave accent
í	\<i´\>	237	í	lowercase i with acute accent
î	\<i^\>	238	î	lowercase i with circumflex
ï	\<i"\>	239	ï	lowercase i with umlaut, (diaeresis)
	\<XF0\>	240	---	[reserved]
ñ	\<n~\>	241	ñ	lowercase n with tilde
ò	\<o`\>	242	ò	lowercase o with grave accent
ó	\<o´\>	243	ó	lowercase o with acute accent
ô	\<o^\>	244	ô	lowercase o with circumflex
õ	\<o~\>	245	õ	lowercase o with tilde
ö	\<o"\>	246	ö	lowercase o with umlaut, (diaeresis)
œ	\<oe\>	247	œ	lowercase oe ligature
ø	\<o/\>	248	ø	lowercase o with slash
ù	\<u`\>	249	ù	lowercase u with grave accent
ú	\<u´\>	250	ú	lowercase u with acute accent
û	\<u^\>	251	û	lowercase u with circumflex
ü	\<u"\>	252	ü	lowercase u with umlaut, (diaeresis)
ÿ	\<y"\>	253	ÿ	lowercase y with umlaut, (diaeresis)
	\<XFE\>	254	---	[reserved]
	\<XFF\>	255	---	[reserved]

Appendix DCL

DCL Commands

The DCL commands that follow are in alphabetical order. The headline for each command includes the name of the command and the command parameters in their required order. Bracketed parameters are optional.

A comma followed by an ellipsis indicates that you can enter a list containing any number of the preceding item. Most list items must be separated by commas, but some (noted in the documentation) items may be connected by plus signs. Lists of more than one qualifier value must be in parentheses. You can omit the parentheses if the list contains only one value. (The documentation always shows the parentheses.)

Qualifiers are listed in alphabetical order. Qualifiers are global unless otherwise stated. Explanations of positive/negative qualifiers apply to the positive qualifier unless otherwise stated.

ACCOUNTING [file-spec,...]

Requires the Secure User Environment Option.
Requires READ access to the input accounting file.

Collects, records, and reports accounting data.

PARAMETERS

file-spec
   Specification of the input accounting file. Wildcard characters are allowed. The default is SYS$MANAGER:ACCOUNTNG.DAT.

QUALIFIERS

/ACCOUNT=(["–",]account-name,...)
/NOACCOUNT (default)

Selects only those records matching the specified account names (in the user authorization file) if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified account names.

/ADDRESS=(["–",]node-address,...)
/NOADDRESS (default)

Selects only those records matching the specified remote node addresses if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified node addresses.

/BEFORE[=time]
/NOBEFORE (default)

Selects only those records created or modified before the specified time. You can specify time as absolute or a combination of absolute and delta times. The default is the current time.

/BINARY
/NOBINARY (default)

Generates an output file that contains image copies of the input records. By default, the output file contains formatted ASCII records. Incompatible with the /BRIEF, /FULL, and /SUMMARY qualifiers.

/BRIEF (default)
/NOBRIEF

Generates an output file that contains formatted displays of selected items in the input records as listed below. Incompatible with the /BINARY, /FULL, and /SUMMARY qualifiers.

DATE	Date in the format yyyy mmm dd
DAY	Day of the month (1–31)
HOUR	Hour of the day (0–23)
YEAR	Year
TYPE	Type of record (for example, process or print)
SUBTYPE	Type of process (for example, batch or interactive)

/ENTRY=(["–",]queue-entry-number,...)
/NOENTRY (default)

Selects only those records matching the specified queue entry numbers if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen

enclosed in quotation marks is the first item, excludes those records matching the specified queue entry numbers.

/FULL
/NOFULL (default)

Generates an output file that contains formatted displays of all the information in the input records. Incompatible with the /BINARY, /BRIEF, and /SUMMARY qualifiers.

/IDENTIFICATION=(["–",]process-id,...)
/NOIDENTIFICATION (default)

Selects only those records matching the specified process identifications if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified process identifications.

/IMAGE=(["–",]image-name,...)
/NOIMAGE (default)

Selects only those records matching the specified image file names if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified image file names.

/JOB=(["–",]job-name,...)
/NOJOB (default)

Selects only those records matching the specified job names if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified job names.

/LOG
/NOLOG (default)

Displays input file names, selected record counts, and rejected record counts on SYS$OUTPUT as the command executes.

/NODE=(["–",]node-name,...)
/NONODE (default)

Selects only those records matching the specified remote node names if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified remote node names. Do not specify a colon (:) in the node name.

/OUTPUT[=file-spec]
/NOOUTPUT

Writes the accounting information to the specified file. By default, the output is written to SYS$OUTPUT. The file name defaults to that of the input file. The file type defaults to LIS for formatted files and DAT for binary files.

/OWNER=(["-",]owner-process-id,...)
/NOOWNER (default)

Selects only those records matching the specified owner process identification if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified owner process identifications.

/PRIORITY=(["-",]priority,...)
/NOPRIORITY (default)

Selects only those records matching the specified priorities if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified priorities.

/PROCESS=(["-",]process-type,...)
/NOPROCESS (default)

Selects only those records matching the specified process types if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified process types. Possible *process-types* are: BATCH, DETACHED, INTERACTIVE, NETWORK, and SUBPROCESS.

/QUEUE=(["-",]queue-name,...)
/NOQUEUE (default)

Selects only those records matching the specified queue names if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified queue names.

/REJECTED[=file-spec]
/NOREJECTED (default)

Writes rejected records (in binary format) to the specified file. The file name defaults to that of the input file. The file type defaults to REJ.

/REMOTE_ID=(["−",]remote-id,...)
/NOREMOTE_ID (default)

Selects only those records matching the specified remote identifications if the first item in the list is not a hyphen enclosed in quotation marks ("−"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified remote identifications.

/REPORT[=report-item,...]
/NOREPORT (default)

Includes specified items in a summary report; requires the /SUMMARY qualifier. Specify *report-item* as:

BUFFERED_IO	Total buffered I/Os
DIRECT_IO	Total direct I/Os
ELAPSED	Total elapsed time
EXECUTION	Total images executed
FAULTS	Total page faults
GETS	Total RMS GETs
PAGE_FILE	Maximum page file usage
PAGE_READS	Total page read I/Os
PAGES	Total pages printed
PROCESSOR	Total processor time consumed
QIOS	Total QIOs issued
RECORDS	Total records in file (default)
VOLUMES	Total volumes mounted
WORKING_SET	Maximum working set size

/SINCE[=time]
/NOSINCE (default)

Selects only those accounting records dated after the specified time. You can specify time as absolute or a combination of absolute and delta times. The time defaults to midnight of the current day.

/SORT=([-]sort-item,...)
/NOSORT (default)

Sequences the accounting records in the output file. By default, the sequence is the same as that of the input file. You can sequence records according to the ASCII values of any of the following fields in the order specified. The fields are

sorted in ascending order unless preceded by a hyphen. Rejected records are not included in the sort. A record that does not contain a specified key field is rejected. Incompatible with /SUMMARY. Specify *sort-item* as:

ACCOUNT	User's account name
ADDRESS	Remote node address
BUFFERED_IO	Buffered I/O count
DIRECT_IO	Direct I/O count
ELAPSED	Elapsed time
ENTRY	Number of batch or print job queue entry
EXECUTION	Image execution count
FAULTS	Page faults
FINISHED	Termination time or time record was finished
GETS	Total RMS GETS
IDENT	Process identification
IMAGE	Image name
JOB	Name of batch or print job
NODE	Remote node name
OWNER	Owner process identification
PAGE_FILE	Peak page file usage
PAGE_READS	Page read I/Os
PAGES	Total pages printed
PRIORITY	Process priority
PROCESS	Process type
PROCESSOR	Processor time consumed
QUEUE	Name of queue
QUEUED	Time batch or print job was queued
QIOS	Total QIOs issued
STARTED	Start time
STATUS	Exit status
TERMINAL	Terminal name
TYPE	Record type
UIC	User identification code
USER	User's name
VOLUMES	Total volumes mounted
WORKING_SET	Peak working set size

/STATUS=(["–",]exit-status,...)
/NOSTATUS (default)

Selects only those records matching the specified exit states if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified exit states.

/SUMMARY=(summary-item,...)
/NOSUMMARY (default)

Generates an output file that contains formatted displays of selected items in the input records as listed below. Incompatible with the /BINARY, /BRIEF, /FULL, and /SORT qualifiers. Specify *summary-item* as:

ACCOUNT	Account name from the UAF
DATE	Date in the format yyyy mmm dd
DAY	Day of the month (1–31)
HOUR	Hour of the day (0–23)
IMAGE	Image name
JOB	Name of batch job or print job
MONTH	Month of year (1-12)
NODE	Remote node name
PROCESS	Process type
QUEUE	Batch or device queue name
TERMINAL	Terminal name
TYPE	Type of record (for example, logout or batch)

/TERMINAL=(["–",]terminal-name,...)
/NOTERMINAL (default)

Selects only those records matching the specified terminal names if the first item in the list is not a hyphen enclosed in quotation marks ("–"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified terminal names. Specify the physical device name of the terminal including the colon.

/TITLE=title
/NOTITLE (default)

Specifies a title to be printed in the center of the first line of a summary report. If the title contains spaces or special characters, enclose it in quotation marks.

/TYPE=(["-",]record-type,...)
/NOTYPE (default)

Selects only those records matching the specified record types if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified record types. Possible *record-types* are:

FILE	Accounting file forward and backward pointers
IMAGE	Termination of image
LOGFAIL	Unsuccessful conclusion of a login attempt
PRINT	Termination of a print job
PROCESS	Termination of process
SYSINIT	System initialization
UNKNOWN	Any record not recognized as one of the above
USER	Arbitrary user messages

/UIC=(["-",]uic,...)
/NOUIC (default)

Selects only those records matching the specified UIC if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified UIC. Wildcard characters can be used in both the group and member fields of the UIC.

/USER=(["-",]username,...)
/NOUSER (default)

Selects only those records matching the specified user names if the first item in the list is not a hyphen enclosed in quotation marks ("-"). If a hyphen enclosed in quotation marks is the first item, excludes those records matching the specified user names.

EXAMPLES

$ ACCOUNTING/FULL/USER=(USER,SYSTEM)

Generates a formatted full accounting report for the user names USER and SYSTEM. The input file is assumed to be SYS$MANAGER:ACCOUNTNG.DAT.

$ ACCOUNTING/BEFORE=15-APR-1984/OUTPUT=APRFILE.LIS UACCOUNT.DAT

Generates a formatted brief accounting report for all records dated earlier than April 15, 1984. The report is written to the file APRFILE.LIS of the default disk and directory. The input accounting file is UACCOUNT.DAT in the current default directory.

ALLOCATE device-name[:],... [logical-name]

Provides your process with exclusive access to a device until you deallocate the device or terminate your process. Optionally associates a logical name with the device.

PARAMETERS

device-name

Name of a physical device or a logical name that translates to the name of a physical device. The device name can be generic: if no controller or unit number is specified, any device that satisfies the specified part of the name is allocated. If more than one device is specified, the first available device is allocated.

logical-name

A character string of 1 through 255 characters. Enclose the string in quotation marks (") if it contains blanks. Trailing colons are not used. The name becomes a process logical name with the device name as the equivalence name. The logical name remains defined until it is explicitly deleted or your process terminates.

QUALIFIERS

/GENERIC
/NOGENERIC (default)

Indicates that the first parameter is a device *type* rather than a device *name*. Example device types are: RX50, RD52, TK50, RC25, RCF25, RL02.

/LOG (default)
/NOLOG

Displays a message indicating the name of the device allocated. If the operation specifies a logical name that is currently assigned to another device, displays the superseded value.

EXAMPLES

$ ALLOCATE $FLOPPY1
Allocates $FLOPPY1.

$ ALLOCATE $TAPE1
Allocates $TAPE1.

$ ALLOCATE /GENERIC RX50 ACCOUNTS
This command allocates the first free floppy disk drive and makes its name equivalent to the process logical name ACCOUNTS.

APPEND input-file-spec,... output-file-spec

Adds the contents of the specified input files to the end of the specified output file.

PARAMETERS

input-file-spec

The specification of the input files. Multiple input files are appended to the output file in the order specified; separate file specifications with commas or plus signs. Wildcard characters are allowed.

output-file-spec

A valid file specification. You must specify at least one field of the file specification. Device and directory default to your current default device and directory. Other fields default to the corresponding field of the first input file specification.

QUALIFIERS

/ALLOCATION=number-of-blocks

Qualifies output-file-spec.

Forces the initial allocation of the output file to the specified number of 512-byte blocks. If you do not specify the /ALLOCATION qualifier, the initial allocation of the output file is determined by the size of the input file. Relevant only with the /NEW_VERSION qualifier.

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

Selects files for the append operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

Selects for the append operation only those files dated before the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BY_OWNER[=uic]

Selects for the append operation only those files with the specified user identification code. The default user identification code is that of the current process.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each append operation. The following responses are valid:

YES	Perform the append operation
NO	Do not perform the append operation
TRUE	Perform the append operation
FALSE	Do not perform the append operation
1	Perform the append operation
0	Do not perform the append operation
RETURN	Do not perform the append operation
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CONTIGUOUS
/NOCONTIGUOUS

Qualifies output-file-spec.

Specifies that the output file must occupy physically contiguous disk blocks. By default, the APPEND command creates an output file in the same format as the corresponding input file and does not report an error if not enough space exists for a contiguous allocation.

/CREATED

See /BACKUP.

/EXCLUDE=(file-spec,...)

Omits the specified files from the append operation. You can include a directory but not a device in the file specifications. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED

See /BACKUP.

/EXTENSION=n

Qualifies output-file-spec.

Sets the extend quantity default for the output file. Relevant only with the /NEW_VERSION qualifier.

/LOG
/NOLOG (default)

Displays file specifications of input and output files as well as the number of blocks or records appended after each append operation. Displays the number of new files created after the entire append operation.

/MODIFIED

See /BACKUP.

/NEW_VERSION
/NONEW_VERSION (default)

Qualifies output-file-spec.

Creates a new output file if the specified output file does not exist. If the output file does exist, the /NEW_VERSION qualifier appends the input file to the output file.

/PROTECTION=(ownership[:access],...)

Qualifies output-file-spec.

Specifies protection for the output file. Specify ownership as SYSTEM, OWNER, GROUP, or WORLD and access as R, W, E, or D. The default protection is that of the existing output file; if no output file exists, the current default protection applies.

/READ_CHECK
/NOREAD_CHECK (default)

Qualifies input-file-spec.

Reads each record in the input files twice to verify that it has been read correctly.

/SINCE[=time]

Selects for the append operation only those files dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/WRITE_CHECK
/NOWRITE_CHECK (default)

Qualifies output-file-spec.

Reads each record in the output file after the record is written to verify that it is written correctly.

EXAMPLES

$ `APPEND FORMAT.TXT,MARKER.DAT WATER.TXT`

Appends the latest versions of FORMAT.TXT and MARKER.DAT (in that order) to the existing file WATER.TXT.

$ `APPEND/CONFIRM *.DAT NEW.TXT/NEW_VERSION`

Appends all files in the default directory with the file type DAT to the file NEW.TXT. If NEW.TXT does not exist, it is created. Each APPEND operation must be confirmed.

ASSIGN equivalence-name,... logical-name

Associates equivalence names with a logical name. If you specify an existing logical name, the new equivalence names replace the existing equivalence names.

PARAMETERS

equivalence-name

A character string of 1 to 255 characters. If the string contains other than uppercase alphanumeric, dollar sign, or underscore characters, enclose it in quotation marks ("). Use double quotation marks ("") to denote an actual quotation mark. Specifying more than one equivalence name for a logical name creates a search list.

logical-name

A character string of 1 to 255 characters. If the string contains other than upper case alphanumeric, dollar sign, or underscore characters, enclose it in quotation marks ("). Use double quotation marks ("") to denote an actual quotation mark. If you terminate *logical-name* with a colon, the system removes the colon. If the logical name is to be entered into the process or system directory logical name tables, then the name may only have from 1 to 31 alphanumeric characters (including the dollar sign and underscore).

QUALIFIERS

/EXECUTIVE_MODE
/SUPERVISOR_MODE (default)
/USER_MODE

Requires SYSNAM privilege for executive mode.

Specifies the mode of the logical name. If you specify executive mode, but do not have SYSNAM privilege, a supervisor mode logical name is created. The mode of the logical name must be the same as or external to (less privileged than) the mode of the table in which you are placing the name. If you specify a user mode logical name in the process logical name table, that logical name is used for the execution of a single image only; user mode entries are deleted from the logical name table when any image executing in the process exits; that is, after any DCL command or user program that executes an image completes execution.

/GROUP
/JOB
/PROCESS (default)
/SYSTEM
> Require SYSPRV or GRPNAM privilege for group logical names.
> Require SYSNAM or SYSPRV privilege for system logical names.
>
> Specifies the table in which the logical name is to be placed. The /GROUP
> qualifier is synonymous with /TABLE=LNM$GROUP. The /JOB qualifier is
> synonymous with /TABLE=LNM$JOB. The /PROCESS qualifier is synonymous
> with /TABLE=LNM$PROCESS. The /SYSTEM qualifier is synonymous with
> /TABLE=LNM$SYSTEM.

/LOG (default)
/NOLOG
> Displays a message when a new logical name supersedes an existing name.

/NAME_ATTRIBUTES[=(keyword,...)]
> Specifies the attributes for a logical name. (By default, no attributes are set. You
> can specify the following keywords for attributes:

> CONFINE   Does not copy the logical name into a spawned subprocess; Relevant
>   only for logical names in a private table.

> NO_ALIAS   Prohibits creation of logical names with the same name in an outer (less
>   privileged) access mode within the specified table; deletes any previously
>   created identical names in an outer access mode within the specified
>   table.

/PROCESS
> See /GROUP.

/SUPERVISOR_MODE
> See /EXECUTIVE_MODE.

/SYSTEM
> See /GROUP.

/TABLE=name
> Requires WRITE access to the table if the table is shareable.
>
> Specifies the name of the logical name table in which the logical name is to be
> entered. You can specify user-defined tables (created with the
> CREATE/NAME_TABLE command), the process, group, job, or system logical
> name table, or the process or system logical name directory table. The default
> is LNM$PROCESS. If you specify a table name that translates to more than one
> table, the logical name is placed in the first table found.

/TRANSLATION_ATTRIBUTES[=(keyword,...)]

Qualifies each equivalence-name.

Specifies attributes of the *equivalence-name*. Possible keywords are:

CONCEALED   Indicates that the equivalence string is the name of a concealed device

TERMINAL   Terminates logical name translation after iterative translation of this equivalence string

/USER_MODE

See /EXECUTIVE_MODE.

EXAMPLES

```
$   ASSIGN $DISK1:[ACCOUNTS.MEMOS] MEMOSD
```
Equates the partial file specification $DISK1:[ACCOUNTS.MEMOS] to the logical name MEMOSD.

```
$   ASSIGN/USER_MODE $DISK1:[ACCOUNTS.MEMOS]WATER.TXT TM1
```
Equates the logical name TM1 to a file specification. After the next image runs, the logical name is automatically deassigned.

ASSIGN/MERGE merge-queue-name source-queue-name

Requires the Secure User Environment Option.
Requires OPER privilege or EXECUTE access to both queues.

Removes all jobs from one queue and merges them into another existing queue. Does not affect jobs that are executing.

PARAMETERS

merge-queue-name

Name of the queue into which the jobs are being merged.

source-queue-name

Name of the queue from which the jobs are being removed.

EXAMPLE

```
$   ASSIGN/MERGE CONSOLE SYS$PRINT
```
Removes the jobs in the queue designated as SYS$PRINT and merges them into an existing queue named CONSOLE.

ASSIGN/QUEUE execution-queue-name[:] logical-queue-name[:]

Requires the Secure User Environment Option.
Requires OPER privilege or EXECUTE access to both queues.

Assigns, or redirects, a logical queue to a single execution queue.

PARAMETERS

execution-queue-name[:]

Name of the execution queue. The queue cannot be a logical, generic, or batch queue.

logical-queue-name[:]

Name of the logical queue.

EXAMPLE
```
$ ASSIGN/QUEUE $TERMINAL2 SYS$PRINT
```
Assigns the logical queue SYS$PRINT to the print queue $TERMINAL2.

ATTACH [process-name]

The SPAWN and ATTACH commands cannot be used if your terminal has an associated mailbox.

Transfers control from your current process (which then hibernates) to the specified process.

PARAMETERS

process-name

The name of a parent process or spawned subprocess to which control passes. The process must already exist, must be part of your current job, and must share the same input stream as your current process, but cannot be your current process or a subprocess created with the /NOWAIT qualifier. Incompatible with the /IDENTIFICATION qualifier.

QUALIFIERS

/IDENTIFICATION=pid

Specifies the process identification (PID) of the process to which terminal control will be transferred. Leading zeros can be omitted. Incompatible with the process-name parameter.

EXAMPLE

$ ATTACH USER_2

Transfers the terminal's control to the subprocess USER_2.

BACKUP input-file-spec,... [output-file-spec,...]

Copies files, saves files on save sets, restores files from save sets, lists files on save sets, and compares files with other files or save sets.

PARAMETERS

input-file-spec

Specification of a file to be copied or saved, or a save set to be restored. Wildcard characters are allowed in the specifications of regular files, and in those of save-set files on magnetic tape. DECnet node names are allowed only in save-set file specifications.

output-file-spec

Specification of a file to be created by a copy or restore operation, or a save set to be created by a save operation. Wildcard characters are allowed for normal files. No wildcard characters are allowed for save sets. DECnet node names are allowed only in save-set file specifications.

QUALIFIERS

/BACKUP
/CREATED
/EXPIRED
/MODIFIED (default)

Qualifies input files.

Selects files for the backup operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE=time

Qualifies input files.

Processes only those files dated earlier than the specified time, which can be an absolute time or one of the following keywords:

BACKUP	The date recorded by a previous BACKUP/RECORD; available only on Files–11 Structure Level 2 volumes
TODAY	The current day at 0 hours
TOMORROW	TODAY plus 24 hours
YESTERDAY	TODAY minus 24 hours

/BLOCK_SIZE=number-of-bytes

Qualifies output save sets.

Defines the block size, in bytes, for data records in a BACKUP save set. The acceptable range for n is 2048 through 65,534. If you do not specify this qualifier, the default blocking size for a disk save set is 32,528 bytes; for a magnetic tape save set, 8464 bytes.

/BRIEF (default)
/FULL

Lists a brief amount of information on each file saved or restored (specification, size, and creation date), or lists the information in the format of the DIRECTORY /FULL command. Relevant only when the /LIST qualifier is also specified.

/BUFFER_COUNT=number-of-buffers

Specifies the number of I/O buffers to be used in the backup operation. The maximum value is 5; the default is 3. Relevant with both disks and magnetic tape.

/COMMENT=string

Qualifies output save sets.

Places the comment in the save set. The comment is displayed in list operations. If the comment contains spaces or special characters, enclose it in quotation marks ("").

/COMPARE

Compares two files, two groups of files, or a save set and a file or group of files. In the latter case, the save set must be specified as the first parameter. The default version number is *, which processes all versions of the file.

/CONFIRM

Qualifies input files.

For each file being copied or saved, displays a query to which you must respond Y to copy the file — any other response skips the copy or save operation for that file.

/CRC (default)
/NOCRC

Qualifies input and output save sets.

Performs the Cyclic Redundancy Check on save-set data.

/CREATED

See /BACKUP.

/DELETE

Deletes input files after they are saved.

/DENSITY=n

The /DENSITY qualifier is not applicable to the TK50 tape device.

Specifies the density at which a magnetic tape save set is recorded. Use a value that is supported by the magnetic tape drive. If you do not specify the /DENSITY qualifier, the default density is the current density of the magnetic tape drive.

/EXCLUDE=(file-spec,...)

Qualifies input files.

Excludes the specified files from the copy or save operation. Wildcard characters are supported for file specification. However, you cannot use relative version numbers to exclude a specific version. No device names are allowed.

/EXPIRED

See /BACKUP.

/FAST

Requires WRITE access to [0,0]INDEX.SYS on the volume containing the files being saved, or the volume must be write-locked.

Uses a fast file scan. The /FAST qualifier is ignored if used with the /IMAGE qualifier.

/FULL

See /BRIEF.

/GROUP_SIZE=number-of-blocks

Qualifies output save sets.

Defines the number of blocks to be placed in each redundancy group. Using the redundant information, one "uncorrectable" read error in each redundancy group can be corrected. The value must be from 0 through 100; the default is 10; 0 means no redundancy blocks are written.

/IGNORE=keyword

Overrides restrictions placed on files. Possible keywords are:

INTERLOCK	Processes files that otherwise could not be processed because of file access conflicts (specifically, files currently open for writing); requires SYSPRV privilege
NOBACKUP	Saves or copies the contents of files that are marked with the /NOBACKUP qualifier of the SET FILE command

/IMAGE

Requires WRITE access to [0,0]INDEXF.SYS and [0,0]BITMAP.SYS on the volume being processed, or the volume must be write-locked.

Copies, saves, or restores an entire volume. The output volume must be mounted /FOREIGN. The file specification parameters must consist only of the disk

names. In save and copy operations, other file specification qualifiers are not allowed.

/INCREMENTAL

Restores an incremental save set to a disk volume. The output file specification must consist only of the device name. The /INCREMENTAL qualifier assumes /OWNER_UIC=ORIGINAL, and can be used only on Files–11 Structure Level 2 volumes.

/INITIALIZE (default for /IMAGE)
/NOINITIALIZE (default for sequential disk volumes)

Initializes the output volume (in an image copy or a save operation). An image copy operation uses the volume initialization data on the input volume. Any existing data on the output volume is lost.

/INTERCHANGE

Do not use except where explicitly instructed.

Does not copy access control lists or directories not selected as files. Block size on magnetic tape is limited to 8192 bytes. Magnetic tapes are written using normal error recovery to eliminate bad records on the resulting magnetic tape.

/JOURNAL[=file-spec]

Maintains a record of save sets, times of creation, and contents. When /JOURNAL is specified during a save operation, information concerning the operation is appended to the specified file. A new file is created if the specified file does not exist. The file specification defaults to SYS$DISK:BACKUP.BJL. Used with /LIST, the /JOURNAL qualifier displays the contents of the journal. The /BEFORE and /SINCE qualifiers, when used with /JOURNAL /LIST, refer to the time at which the save set (not saved files) was created.

/LABEL=(label,...)

Qualifies output-file-specs.

Specifies the volume label for a save set written on magnetic tape or sequential disk. For save sets written on tape, you must use a string of 1 to 6 alphanumeric characters. For save sets written on sequential disk volumes, the string must be 1 to 12 alphanumeric characters.

If you do not specify the /LABEL qualifier, *label* will be derived from the save-set name. In a multivolume disk save set, the volume set name will be the save-set name. The label of each volume in the volume set will be the label string or the label string derived from the save-set name and followed by a two-digit volume number, starting with 01.

If you specify a list of labels, BACKUP will label save-set volume n with label n in the list of labels. If the list of labels is shorter than the number of volumes in the save set, BACKUP will generate labels for the remaining volumes using the first label in the list followed by a two-digit relative volume number. Note that for magnetic tape save sets, the volumes are counted, starting (at 01) with the tape on which the current save set started. Magnetic tape volume numbers are not maintained across multiple save sets written on multiple magnetic tapes.

/LIST[=file-spec]

Lists information on the contents of a save set. The listing is written to file-spec, which defaults to SYS$OUTPUT. This qualifier can stand alone, in which case the first and only parameter must be the name of the save set; or the qualifier can be part of a save or restore operation, in which case the listing reflects the status of the save set after completion of the operation. Do not use /LOG with /LIST when the output is directed to SYS$OUTPUT.

/LOG
/NOLOG (default)

Displays on SYS$OUTPUT the name of each file as it is processed.

/MODIFIED (default)

See /BACKUP.

/NEW_VERSION

Qualifies output-file-specs.

Creates a new version of a file if you attempt to restore or copy a file to a directory that has a file of the same name and version number. Files are processed in decreasing version-number order and created in ascending order, so that version numbers are inverted. Results are unpredictable if /NEW_VERSION is used with /COMPARE or /VERIFY.

/OVERLAY

Qualifies output-file-specs.

Overlays the existing named file rather than allocating new space for the file.

/OWNER_UIC=[uic]

Positional qualifier.
Requires SYSPRV privilege or ownership of the UIC to specify with an output file or save set.
As an input file qualifier — Processes only files owned by the specified UIC. A specification of /OWNER_UIC without a value means your process UIC.

As an output file qualifier — Resets the ownership of the copied or restored file. You can specify a UIC or one of the following keywords:

DEFAULT   Your process UIC

ORIGINAL   Existing UIC of the saved file

PARENT   The UIC of the directory under which the file is being restored

If no /OWNER_UIC is specified, then it is the same as specifying /OWNER_UIC=DEFAULT. A /OWNER_UIC specification without a value means ORIGINAL.

As an output save-set qualifier — Specifies ownership of the save set. The default is your process UIC.

/PHYSICAL

Ignores any file structure on the volume. Output disks must be the same type as input disks; output disks cannot have a bad block where input disks do not. A save set written using /PHYSICAL can only be read as a physical save set. Output disks must have been mounted /FOREIGN; input disks must have been mounted /FOREIGN or the user must have LOG_IO privilege. The file specification for a physical volume can contain only a device name. Note that this should only be used on input and output disks proven to have no bad blocks.

/PROTECTION[=(ownership[:access],...)]

Qualifies output save sets.

Specifies protection for a save set. Specify ownership as SYSTEM, OWNER, GROUP, or WORLD. Specify access as R, W, E, or D. Default protection is that of the current process.

/RECORD

Requires ownership of the file or SYSPRV privilege.

Records in the file header the backup date for each file processed. Valid only for Files–11 Structure Level 2 volumes.

/REPLACE

Qualifies output files.

Deletes the existing output file and creates a new file if you attempt to restore or copy a file to a directory that has a file of the same name and version number.

/REWIND
/NOREWIND (default)

Causes the tape reel to be rewound (/REWIND) or not rewound (/NOREWIND) to beginning-of-tape (BOT) before BACKUP searches for the save-set name specified in the input specifier. Use this qualifier only for magnetic tape save sets.

/SAVE_SET
Qualifies input and output save sets.

Identifies the file specification as a save set, not a normal file. This qualifier is required for save sets on disk.

/SELECT=(file-spec,...)
Qualifies input save sets.

Restores only the specified files. Wildcard characters are allowed. No device names are allowed.

/SINCE=time
Qualifies input files.

Selects only those files dated after the specified time. You can specify time as an absolute time or as one of the following keywords:

BACKUP	The date recorded by a previous BACKUP/RECORD
TODAY	The current day at 0 hours
TOMORROW	TODAY plus 24 hours
YESTERDAY	TODAY minus 24 hours

/TRUNCATE
/NOTRUNCATE (default)
Truncates a sequential output file at end-of-file when creating it during a copy or restore operation. By default, a copy or restore operation uses the allocation of the input file to determine the size of the output file.

/VERIFY
Verifies data transfers. On file-structured copy operations, /VERIFY compares each file after it has been copied. On physical copy operations, /VERIFY compares the volume after it has been copied. For save or restore operations, /VERIFY compares in a separate pass. Incompatible with the /NEW_VERSION qualifier.

/VOLUME=number-of-volume
Processes a specific disk volume in a disk volume set. Valid only with the /IMAGE qualifier. The /VOLUME qualifier requires only n+1 drives (rather than 2*n); during a copy or save operation the entire set must be write-locked for consistent results. In save operations the save set contains the segments of the files located on the specified volume. The input volume set must be fully mounted. The save set can be restored only with the /VOLUME qualifier. In restore operations the input save set must have been created using the /IMAGE qualifier. In restore operations the output volume is a functionally equivalent copy of the selected relative volume. The input save set can be either an image save set of a full disk volume set or a selected volume save set created with the /VOLUME qualifier. You cannot use the /NOINITIALIZE qualifier in a restore

operation with the /VOLUME qualifier. In a selected volume-compare operation
between two disk volume sets, both volume sets must be fully mounted.

EXAMPLES

$ `BACKUP *.DAT [.SAVE]`

Copies all files in your default directory with a file type of DAT to files of the same
name in the [.SAVE] directory.

$ `BACKUP/NOREWIND  [ROBINSON...]  $TAPE1:ACCT.SAV/BUFFER_COUNT=5`

Saves all the contents of user Robinson's entire directory tree. The contents are
stored on a tape save set called ACCT.SAV. The save set is stored at the end of the
tape (/NOREWIND) and performance is improved by using five I/O buffers.

CALL label [p1[p2[... p8]]]

Tranfers control to a labeled subroutine within a command procedure. The CALL
command creates a new procedure level as does the @ (execute procedure)
command. The SUBROUTINE and ENDSUBROUTINE commands define the
beginning and ending of the subroutine. The SUBROUTINE command must be
the first executable statement in a subroutine.

PARAMETERS

label

   Specifies a 1- through 255-alphanumeric character label appearing as the first
   item on a command line. A label may not contain embedded blanks. When
   the CALL command is executed, control passes to the command following the
   specified label. The label can precede or follow the CALL statement in the
   current command procedure. When you use a label in a command procedure, it
   must be terminated with a colon. All labels are procedure level dependent except
   for those labels that define subroutine entry points. These labels are local to the
   current command procedure file level. Labels for subroutine entry points must
   be unique.

p1 [p2 [... p8]]

   Specifies from one to eight optional parameters to pass to the command
   procedure. Use quotation marks (" ") to specify a null parameter. The parameters
   assign character string values to the symbols named P1, P2, and so on in the
   order of entry, to a maximum of eight. The symbols are local to the specified
   command procedure.

QUALIFIER

/OUTPUT=file-spec

Requests that all output directed to the logical device SYS$OUTPUT be written to the file or device specified. System responses and error messages are written to SYS$COMMAND as well as to the specified file. If you specify /OUTPUT, the qualifier must immediately follow the CALL command. No wildcard characters are allowed in the output file specification.

EXAMPLES

```
$ CALL SUB1
```
Transfers control to the subroutine SUB1.
```
$ CALL/OUTPUT=NAMES.LIS SUB2
```
Transfers control to the subroutine SUB2 directing the output to the file NAMES.LIS.

CANCEL [process-name]

Requires ownership of the process, or GROUP or WORLD privilege.

Cancels wakeup requests for a specified process that were scheduled with either the RUN command or the $SCHDWK system service.

PARAMETERS

process-name

Name of the process. The specified process must have the same group number in its UIC as does the current (issuing) process. Defaults to the current process. Ignored if the /IDENTIFICATION qualifier is specified.

QUALIFIERS

/IDENTIFICATION=pid

Identifies the process by its process identification (PID). You can omit leading zeros in the PID.

EXAMPLE
```
$ CANCEL CALENDAR
```
Cancels a wakeup request for a process named CALENDAR (which continues to hibernate until deleted with the STOP command).

CLOSE logical-name[:]

Closes a file opened with the OPEN command and deassigns the associated logical name. (Files that are opened for reading or writing at DCL command level stay open until explicitly closed with the CLOSE command or until the process terminates.)

PARAMETERS

logical-name

Logical name associated with the file.

QUALIFIERS

/ERROR=label

Specifies a label in the command procedure to receive control if the CLOSE operation results in an error. Overrides any ON condition action specified and sets $STATUS to success.

/LOG (default)
/NOLOG

Generates a warning message when you attempt to close a file that was not opened by DCL. If you specify the /ERROR qualifier, the /LOG qualifier has no effect.

EXAMPLE

$ CLOSE ACCOUNTS

Closes the file associated with the logical name ACCOUNTS.

CONNECT virtual-terminal

Requires that the virtual terminal feature for the system and for your terminal be enabled with the SYSGEN utility.

Connects your physical terminal to a virtual terminal that is connected to another process with your UIC. No other physical terminals may be connected to the virtual terminal.

PARAMETERS

virtual-terminal

Name of the virtual terminal.

QUALIFIERS

/CONTINUE
/NOCONTINUE (default)

Continues execution of your previous process after the connection is established. Incompatible with the /LOGOUT qualifier.

/LOGOUT (default)
/NOLOGOUT

Logs out your previous process when the connection is established. Incompatible with the /CONTINUE qualifier.

EXAMPLE

$ `CONNECT VTA16`

Connects you to the virtual terminal VTA16 and logs out your current process.

CONTINUE

Resumes execution of an image or command procedure interrupted by CTRL/Y or CTRL/C. You cannot resume execution of the image if you have entered a command that executes another image or if you have invoked a command procedure.

COPY input-file-spec,... output-file-spec

Creates a new file (or files) from one or more existing files. If device or directory is not specified, your current default device and directory are used.

PARAMETERS

input-file-spec

Specifications of existing files to be copied. Wildcard characters are allowed. Use a plus sign or a comma to indicate multiple file specifications.

output-file-spec

Name of the resultant output file. Wildcard characters can be used in the directory name, file name, file type, and/or version number to generate multiple output files. You must specify at least one field in the output file specification. Normally, the owner of the output file will be the same as the creator of the output file. However, if a user with extended privileges creates the output file, the owner will be the owner of the parent directory or a previous version of the output file if it exists.

QUALIFIERS

/ALLOCATION=number-of-blocks

Qualifies output-file-spec.

Forces the initial allocation of the output file to the specified number of 512-byte blocks. If you do not specify the /ALLOCATION qualifier, the initial allocation of the output file is determined by the size of the input file.

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

Selects files for the copy operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

Selects only those files with dates that precede the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BY_OWNER[=uic]

Selects for the copy operation only those files with the specified user identification code. The default user identification code is that of the current process.

/CONCATENATE (default)
/NOCONCATENATE

Creates one output file from multiple input files when wildcard characters are not used in the output file specification. A specification of /NOCONCATENATE generates multiple output files. Files from Files–11 Structure Level 2 disks are concatenated in alphanumeric order; if you specify a wildcard in the file version field, files are copied in descending order by version number. Files from Files–11 Structure Level 1 disks are concatenated in random order.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each copy operation. The following responses are valid:

YES	Perform the copy operation
NO	Do not perform the copy operation
TRUE	Perform the copy operation
FALSE	Do not perform the copy operation
1	Perform the copy operation
0	Do not perform the copy operation
RETURN	Do not perform the copy operation
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CONTIGUOUS
/NOCONTIGUOUS

Qualifies output-file-spec.

Specifies that the output file must occupy contiguous physical disk blocks. By default, the COPY command creates an output file in the same format as the

corresponding input file and does not report an error if not enough space exists for a contiguous allocation.

The /CONTIGUOUS qualifier has no effect when you copy files to or from tapes because the size of the file on tape cannot be determined until after it is copied to the disk. If you copy a file from a tape and want the file to be contiguous, use the COPY command twice: once to copy the file from the tape, and a second to create a contiguous file.

/CREATED

See /BACKUP.

/EXCLUDE=(file-spec,...)

Omits the specified files from the copy operation. You can include a directory but not a device in the file specifications. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED

See /BACKUP.

/EXTENSION=n

Qualifies output-file-spec.

Sets the extend quantity default for the output file.

/LOG
/NOLOG (default)

Displays file specifications of input and output files as well as the number of blocks or records copied after each copy operation. Displays the number of files created after the entire copy operation.

/MODIFIED

See /BACKUP.

/OVERLAY
/NOOVERLAY (default)

Qualifies output-file-spec.

Overlays the existing specified file rather than allocating new space for the file.

/PROTECTION=(ownership[:access],...)

Qualifies output-file-spec.

Specifies protection for the output file. Specify ownership as SYSTEM, OWNER, GROUP, or WORLD and access as R, W, E, or D. The default protection is that of the existing output file; if no output file exists, the current default protection applies.

/READ_CHECK
/NOREAD_CHECK (default)
> Qualifies input-file-spec.

> Reads each record in the input files twice to verify that it has been read correctly.

/REPLACE
/NOREPLACE (default)
> Qualifies output-file-spec.

> Deletes an existing file and creates a new file (allocating new space) if a version number is specified in the output file. If no version number is specified in the output file specification, a new version of the output file is created (regardless of /REPLACE). If an existing version number is specified in the output file specification without /REPLACE, an error occurs.

/SINCE[=time]
> Selects only those files dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/TRUNCATE
/NOTRUNCATE (default)
> Qualifies output-file-spec.

> Truncates the output file at end-of-file during the copy operation. By default, the size of the output file is determined by the allocation of the input file.

/VOLUME=relative-volume-number
> Qualifies output-file-spec.

> Places the output file on the specified relative volume number of a multivolume set. By default, the output file is placed arbitrarily in a multivolume set.

/WRITE_CHECK
/NOWRITE_CHECK (default)
> Qualifies output-file-spec.

> Reads each record in the output files after the record is written to verify that it is written correctly.

EXAMPLES

$ `COPY FORMAT.TXT WATER.TXT`

Copies the latest version of FORMAT.TXT in your default directory to a file named WATER.TXT also in your default directory. If a file with this name already exists, a new version is created.

$ `COPY WATER.TXT SAVWATER`

Copies WATER.TXT to SAVWATER.TXT, creating a new file or a new version.

`$   COPY/LOG WATER.TXT SAVWATER.TXT;1/REPLACE`

Replaces SAVWATER.TXT;1 with the contents of WATER.TXT and displays messages to report the operations performed.

`$   COPY *.TXT [MEMOS]`

Copies the highest versions of all files in the default directory with a file type of TXT to the directory [MEMOS]; the file names and types remain the same.

`$   COPY *.TXT *.SAV`

Copies the highest versions of all files in the default directory with a file type of TXT to new files (or new versions of files) with the same file names but a file type of SAV.

`$   COPY WATER.TXT,WATER.DAT SAVE.*`

Copies WATER.TXT and WATER.DAT to two files named SAVE.TXT and SAVE.DAT.

`$   COPY *.TXT SAVE.TXT`

Copies the highest versions of all files in the default directory with a file type of TXT to one file named SAVE.TXT.

`$   COPY *.TXT SAVE.TXT/NOCONCATENATE`

Copies the highest versions of all files in the default directory with a file type of TXT to different versions of a file named SAVE.TXT.

CREATE file-spec,...

Creates a sequential text file (or files). Specify the content of the file on the lines following the command, one record per line. In interactive mode, terminate the file input with CTRL/Z. In a command procedure, terminate the file input with a line beginning with a dollar sign in column 1 (or with the end of the command procedure).

PARAMETERS

file-spec

Specification of the file being created. Wildcard characters are not allowed. The file name and the file type default to null strings. If the specified file already exists, a new version is created.

QUALIFIERS

/LOG
/NOLOG (default)

Displays the file specification of each new file created as the command executes.

/OWNER_UIC=uic

Requires SYSPRV privilege for a UIC other than your own.

Specifies an owner UIC for the file.

/PROTECTION=(ownership[:access],...)

Specifies protection for the file. Specify ownership as SYSTEM, OWNER, GROUP, or WORLD and protection as R, W, E, or D. The default protection is the current default protection.

/VOLUME=relative-volume-number

Places the file on the specified relative volume of a multivolume set. By default, the file is placed arbitrarily in a multivolume set.

EXAMPLE

```
$ CREATE WATER.TXT
Charlie,
Residents in the Frog Pond area report a foul smell coming
from the water. Would you check it out and get back to me?
Regards,
Elwood
CTRL/Z
```

Creates a text file named WATER.TXT in your default directory containing the lines that follow until the CTRL/Z.

CREATE/DIRECTORY directory-spec,...

Requires WRITE access to the master file directory (MFD) to create a first-level directory.

Creates one or more new directories or subdirectories.

PARAMETERS

directory-spec

Valid directory specification optionally preceded by a device name (and colon); the directory defaults to the current default. Wildcard characters are not allowed.

QUALIFIERS

/LOG
/NOLOG (default)

Displays the directory specification of each directory created as the command executes.

/OWNER_UIC=[uic]

Requires SYSPRV privilege for a UIC other than your own.

Specifies an owner UIC for the directory. The default is your UIC. You can specify the keyword PARENT in place of a UIC to mean the UIC of the parent directory. If a user with privileges creates a subdirectory, the default is that the owner of the subdirectory will be the owner of the parent directory (or the owner of the Master File Directory if creating a main level directory). If you do not

specifiy the /OWNER_UIC qualifier when creating a directory, the command assigns ownership as follows: (1) if you specify the directory name in either alphanumeric or subdirectory format, the default is your UIC (unless you are privileged in which case the UIC defaults to the parent directory); (2) if you specify the directory in UIC format, the default is the specified UIC.

/PROTECTION=(ownership[:access],...)

Specifies protection for the directory. Specify ownership as SYSTEM, OWNER, GROUP, or WORLD and protection as R, W, E, or D. The default protection is the protection of the parent directory (the master directory for top-level directories) minus any delete access.

/VERSION_LIMIT=limit

Specifies the number of versions of any one file that can exist in the directory. If you go over the limit, the system deletes the lowest numbered version. A specification of 0 means no limit. A maximum limit of approximately 60 versions applies no matter the specification. The default is the limit for the parent directory.

/VOLUME=relative-volume-number

Requests that the directory file be placed on the specified relative volume of a multivolume set. By default, the file is placed arbitrarily within the multivolume set.

EXAMPLES

$ CREATE/DIRECTORY [.MEMOS]

Creates a subdirectory named MEMOS in your current default directory.

$ CREATE/DIRECTORY/VERSION_LIMIT=2 $DISK1:[ACCOUNTS.MEMOS]

Creates a subdirectory named MEMOS in the ACCOUNTS directory on $DISK1. No more than two versions of each file can exist in the directory.

CREATE/NAME_TABLE table

Creates a logical name table.

PARAMETERS

table

A string of from 1 to 31 characters that identifies the logical name table. The string can include alphanumeric characters, the dollar sign, and the underscore.

QUALIFIERS

/ATTRIBUTES[=(keyword,...)]

Specifies attributes for the table. By default, no attributes are set. Possible keywords are:

CONFINE   Does not copy the table name or the logical names contained in the table into a spawned subprocess; relevant only for process-private tables.

NO_ALIAS   Prohibits creation of table names with the same name in an outer (less privileged) access mode in the same logical name table directory; deletes any previously created identical table names in an outer access mode in the same logical name table directory.

SUPERSEDE   If a name exists within the appropriate directory at the indicated access mode, it is deleted and a new table is created.

/EXECUTIVE_MODE
/SUPERVISOR_MODE (default)
/USER_MODE

Requires SYSNAM privilege for executive mode.

Specifies the access mode of the table. If you specify executive mode without having SYSNAM privilege, a supervisor mode logical name table is created.

/LOG (default)
/NOLOG

Specifies whether or not an informational message is generated when the SUPERSEDE attribute is specified or when the table already exists but the SUPERSEDE attribute is not specified.

/PARENT_TABLE=table

Requires SYSPRV and ENABLE access to specify a shareable table.

Specifies the name of the parent table, which must have the same access mode or an access mode inner to the access mode of the table you are creating. Defaults to LNM$PROCESS_DIRECTORY. The parent table determines whether the table is private or shareable and where the quota of the new table comes from.

/PROTECTION=(ownership[:access],...)

Applies the specified protection to shareable name tables. The ownership categories are SYSTEM, OWNER, GROUP, WORLD; the access categories are R (read), W (write), E (enable), and D (delete). The default protection is (SYSTEM:RWED,OWNER:RWED,GROUP:,WORLD:)

/QUOTA=number-of-bytes

Specifies the size limit of the table. The size of each logical name entered in the new table is deducted from this size limit. The new table's quota is statically subtracted from the parent table's quota holder. The parent table's quota holder is the first logical name table encountered when working upward in the table

hierarchy that has an explicit quota and is therefore its own quota holder. If /QUOTA is not specified or the size limit is 0, the parent table's quota holder becomes the new table's quota holder and space is dynamically withdrawn from it whenever a logical name is entered in this new table.

/SUPERVISOR_MODE (default)

See /EXECUTIVE_MODE.

/USER_MODE

See /EXECUTIVE_MODE.

EXAMPLE

$ CREATE/NAME_TABLE TEST

Creates a logical name table named TEST, whose parent table is LNM$PROCESS_ DIRECTORY by default.

DEALLOCATE [device-name]

Makes an allocated device available to other processes (but does not deassign any logical name associated with the device).

PARAMETERS

device-name

Name of the device to be deallocated. The device name can be a physical device name or a logical name. On a physical device name, the controller defaults to A and the unit to 0. Incompatible with the /ALL qualifier.

QUALIFIERS

/ALL

Deallocates all devices currently allocated by your process. Incompatible with the *device-name* parameter.

EXAMPLES

$ DEALLOCATE ACCOUNTS

Deallocates the device whose logical name is ACCOUNTS.

$ DEALLOCATE/ALL

Deallocates all devices currently allocated by your process.

$ DEALLOCATE $FLOPPY1

Deallocates $FLOPPY1.

$ DEALLOCATE $TAPE1

Deallocates $TAPE1.

DEASSIGN [logical-name[:]]

Deletes a logical name. Logical names in private tables are deleted automatically
when your process terminates. All logical names in the job table and the job
table itself are deleted when your process terminates. User mode logical names
in the process table are deleted automatically when the next image exits. All other
logical names in shareable tables remain unless explicitly deassigned. All names in
descendant tables are deleted when the parent table logical name is deassigned.

PARAMETERS

logical-name
   The logical name to be deleted. Names containing other than alphanumeric,
   dollar sign, or underscore characters must be enclosed in quotation marks ("). If
   the name ends with a colon, you must specify two colons. Incompatible with the
   /ALL qualifier.

QUALIFIERS

/ALL
   Deletes all logical names in the same or an outer (less privileged) access mode.
   Incompatible with the logical-name parameter.

/EXECUTIVE_MODE
/SUPERVISOR_MODE (default)
/USER_MODE
   Requires SYSNAM privilege to deassign executive mode.
   Deletes only entries that were created in the specified mode or an outer (less
   privileged) mode. If you do not have SYSPRV privilege for executive mode, a
   supervisor mode operation is assumed.

/GROUP
/JOB
/PROCESS (default)
/SYSTEM
   Group logical names require GRPNAM or SYSPRV privilege.
   System logical names require SYSNAM or SYSPRV privilege.
   Specifies the table in which the logical name resides. The /GROUP qualifier is
   synonymous with /TABLE=LNM$GROUP. The /JOB qualifier is synonymous
   with /TABLE=LNM$JOB. The /PROCESS qualifier is synonymous with
   /TABLE=LNM$PROCESS. The /SYSTEM qualifier is synonymous with
   /TABLE=LNM$SYSTEM.

/PROCESS
   See /GROUP.

/SUPERVISOR_MODE

See /EXECUTIVE_MODE.

/SYSTEM

See /GROUP.

/TABLE=name

Requires WRITE access to the table to delete a shareable logical name.
Requires SYSPRV or DELETE access to delete a shareable logical name table.

Specifies the table from which the logical name is to be deleted. Defaults to
LNM$PROCESS. The table can be the process, group, job, or system table, one
of the directory tables, or the name of a user-created table.

/USER_MODE

See /EXECUTIVE_MODE.

EXAMPLES

$ DEASSIGN MEMO

Deassigns the process logical name MEMO.

$ DEASSIGN/ALL

Deassigns all process logical names that were created in user and supervisor mode.

$ DEASSIGN/TABLE=LNM$PROCESS_DIRECTORY TAX

Deletes the logical name table TAX, and any descendant tables.

DEASSIGN/QUEUE logical-queue-name[:]

Requires the Secure User Environment Option.
Requires the OPER privilege or EXECUTE access to the queue.

Deassigns a logical queue from a physical device queue. Any jobs in the queue are
left pending until the logical queue is reassigned to another device queue.

PARAMETERS

logical-queue-name[:]

Name of the logical queue.

EXAMPLE

$ DEASSIGN/QUEUE SYS$PRINT

Deassigns the logical queue SYS$PRINT.

DECK

Marks the beginning of an input stream for a command or program. DECK is required in command procedures when the first nonblank character in any data record in the stream is a dollar sign.

QUALIFIERS

/DOLLARS[=string]

Sets the end-of-file indicator to the specified string of 1 through 15 characters. Enclose the string in quotation marks if it contains literal lowercase letters, multiple blanks, or tabs. You must specify the EOD command to signal the end of the stream if you do not specify the /DOLLARS qualifier.

DEFINE logical-name equivalence-name,...

Associates equivalence names with a logical name. If you specify an existing logical name, the new equivalence names replace the existing equivalence name.

PARAMETERS

equivalence-name

A character string of 1 to 255 characters. If the string contains other than uppercase alphanumeric, dollar sign, or underscore characters, enclose it in quotation marks ("). Use double quotation marks ("") to denote an actual quotation mark. Specifying more than one equivalence name for a logical name creates a search list.

logical-name

A character string of 1 through 255 characters. If the string contains other than upper case alphanumeric, dollar sign, or underscore characters, enclose it in quotation marks ("). Use double quotation marks ("") to denote an actual quotation mark. If the logical name is to be entered into the process or system directory logical name tables, then the name may only have from 1 to 31 alphanumeric characters (including the dollar sign and underscore).

QUALIFIERS

/EXECUTIVE_MODE
/SUPERVISOR_MODE (default)
/USER_MODE

Executive mode requires SYSNAM privilege.

Specifies the mode of the logical name. If you specify executive mode without SYSNAM privilege, a supervisor mode logical name is created. The mode of the logical name must be the same as or external to (less privileged than) the mode of the table in which you are placing the name.

/GROUP
/JOB
/PROCESS (default)
/SYSTEM
    Group logical names require GRPNAM or SYSPRV privilege.
    System logical names require SYSNAM or SYSPRV privilege.
    Specifies the table in which the logical name is to be placed. The /GROUP
    qualifier is synonymous with /TABLE=LNM$GROUP. The /JOB qualifier is
    synonymous with /TABLE=LNM$JOB. The /PROCESS qualifier is synonymous
    with /TABLE=LNM$PROCESS. The /SYSTEM qualifier is synonymous with
    /TABLE=LNM$SYSTEM.

/LOG (default)
/NOLOG
    Displays a message when a new logical name supersedes an existing name.

/NAME_ATTRIBUTES[=(keyword,...)]
    Specifies the attributes for a logical name. (By default, no attributes are set.)
    Possible keywords are:

    CONFINE   Does not copy the logical name into a spawned subprocess; relevant only
                 for logical names in a private table.

    NO_ALIAS   Prohibits creation of logical names with the same name in a less
                 privileged access mode within the specified table; deletes any previously
                 created identical names in an outer access mode within the specified
                 table.

/PROCESS
    See /GROUP.

/SUPERVISOR_MODE
    See /EXECUTIVE_MODE.

/SYSTEM
    See /GROUP.

/TABLE=name
    Requires WRITE access to the table if the table is shareable.
    Specifies the name of the logical name table in which the logical name is to be
    entered. You can specify user-defined tables (created with the CREATE/NAME_
    TABLE command), the process, job, group, or system logical name table, or the
    process or system logical name directory tables. The default is LNM$PROCESS.
    If you specify a table name that translates to more than one table, the logical
    name is placed with the first table found.

/TRANSLATION_ATTRIBUTES[=keyword,...]
    Qualifies each equivalence string.
    Specifies attributes of the equivalence strings. Possible keywords are:

CONCEALED	Indicates that the equivalence string is the name of a concealed device
TERMINAL	Terminates logical name translation after translation of this equivalence string

/USER_MODE
    See /EXECUTIVE_MODE.

EXAMPLES

`$ DEFINE MEMO $DISK1:[ACCOUNTS.MEMO]`
Defines the logical name MEMO as equivalent to the partial file specification
$DISK1:[ACCOUNTS.MEMO].

`$ DEFINE/USER_MODE TM1 $DISK1:[ACCOUNTS.MEMOS]WATER.TXT`
Defines TM1 as equivalent to a file specification. After the next image runs, the
logical name TM1 is automatically deassigned.

DEFINE/CHARACTERISTIC name number

Requires the Secure User Environment Option.
Requires OPER privilege.

Assigns a numeric value to a queue characteristic. The characteristic is created if it
does not exist. Used in conjunction with the /CHARACTERISTIC qualifier of the
PRINT command.

PARAMETERS

name
    The name of an existing characteristic or a string of 1 through 31 characters that
    defines a new characteristic. The character string can include any uppercase and
    lowercase letters, digits, the dollar sign and the underscore, and must include at
    least one alphabetic character.

number
    An integer in the range 0 through 127.

EXAMPLE

`$ DEFINE/CHARACTERISTIC REDINK 3`
Defines the characteristic REDINK as having the value 3.

DEFINE/FORM form-name number

Requires the Secure User Environment Option.
Requires OPER privilege.

Assigns a numeric value to a print forms name. Used in conjunction with the
/FORM qualifier of the PRINT command.

PARAMETERS

form-name

> The name of an existing forms type or a string of from 1 to 31 characters to
> define a new forms type. The character string can include any uppercase and
> lowercase letters, digits, the dollar sign and the underscore, and must include at
> least one alphabetic character.

number

> An integer in the range 0 through 999.

QUALIFIERS

/DESCRIPTION=string

> Specifies a string of from 1 to 255 characters to further describe the form. If the
> string contains alphanumeric, underscore, or dollar sign characters, it must be
> enclosed in quotation marks (″). The default string is the name specified in the
> DEFINE/FORM command.

/LENGTH=page-length

> Specifies the physical length of a forms page as an integer in the range 1 through
> 255. Defaults to 66. The print symbiont sets the page length of the device equal
> to the form length. This enables the driver to compute the number of line feeds
> for devices lacking mechanical form feed.

/MARGIN=(keyword,...)

> Specifies one or more margin options. Possible keywords are:

> BOTTOM=n   Specifies the number of blank lines between the end of the print image
> area and the end of the physical page; the value of n must be between 0
> and the value of the /LENGTH parameter and defaults to 6

> LEFT=n   Specifies the number of columns between the leftmost printing position
> and the print image area; the value of n must be between 0 and the
> value of the /WIDTH parameter and defaults to 0

> RIGHT=n   Specifies the number of columns between the /WIDTH parameter and
> the image area; the value of n must be between 0 and the value of the
> /WIDTH parameter and defaults to 0

TOP=n   Specifies the number of blank lines between the top of the physical page
                 and the top of the print image; the value of *n* must be between 0 and
                 the value of the /LENGTH parameter and defaults to 0

/PAGE_SETUP=(module,...)
/NOPAGE_SETUP (default)
Specifies one or more modules that set up the device before every page. The
modules are located in the device control library. When a new page is detected,
the system extracts the appropriate modules from the device control library and
copies them to the printer before the page is printed.

/SETUP=(module,...)
/NOSETUP (default)
Specifies one or more modules in the device control library that set up the device
appropriately for the specified form. When the form is mounted, the system
extracts the specified module from the device control library and copies it to the
printer before the file is printed.

/SHEET_FEED
/NOSHEET_FEED (default)
Specifies that print jobs pause at the end of every physical page so that a new
piece of paper can be inserted.

/STOCK=type
Specifies the type of paper stock to be associated with the form as a string
of from 1 through 31 characters. The string must consist of alphanumeric,
underscore, and dollar sign characters.

/TRUNCATE (default)
/NOTRUNCATE
Discards any characters that exceed the current line length (specified by /WIDTH
and /MARGIN=RIGHT). Incompatible with the /WRAP qualifier. If you specify
both /NOTRUNCATE and /NOWRAP, the printer prints as many characters on
a line as possible.

/WIDTH=width
Specifies the physical width of the paper in terms of columns or character
positions as an integer in the range 0 through 65535. Defaults to 132. The
/MARGIN=RIGHT qualifier overrides the /WIDTH qualifier.

/WRAP
/NOWRAP (default)
Causes lines that exceed the current line length (specified by /WIDTH and
/MARGIN=RIGHT) to wrap onto the next line. Incompatible with the

/TRUNCATE qualifier. If you specify both /NOWRAP and /NOTRUNCATE, the printer prints as many characters on a line as possible.

EXAMPLE

$ `DEFINE/FORM/MARGIN=(TOP=6,LEFT=10) CENTER 3`

Defines the form CENTER to have a top margin at line 6 and a left margin at column 10. The form is assigned the number 3.

DEFINE/KEY key-name equivalence-string

Equates a key on the terminal keyboard to a character string.

PARAMETERS

key-name

The name of the key to be defined. Permissible keys are as follows:

Key Name	VT100 Key	VT200 Key
PF1	PF1	PF1
PF2	PF2	PF2
PF3	PF3	PF3
PF4	PF4	PF4
KP0, KP1–KP9	Keypad 0–9	Keypad 0–9
PERIOD	Period Key	Period Key
COMMA	Comma Key	Comma Key
MINUS	Minus Key	Minus Key
ENTER	Enter Key	Enter Key
FIND, INSERT HERE	—	Find, Insert Here
REMOVE, SELECT	—	Remove, Select
PREV_SCREEN	—	Prev Screen
NEXT_SCREEN	—	Next Screen
HELP, DO	—	Help(F15), Do(F16)
F6–F20	—	Function Keys F6–F20

NOTE: You cannot define the UP and DOWN arrow keys or function keys F1 through F5. You must issue the SET TERMINAL/NOLINE_EDITING command before defining the LEFT and RIGHT arrow keys and function keys F6 through F14. You can also press CTRL/V to enable keys F7 through F14, but CTRL/V will not enable the F6 key.

equivalence-string

A character string to replace the key as input. Enclose the string in quotation marks to preserve spaces and lowercase characters.

QUALIFIERS

/ECHO (default)
/NOECHO

Displays the equivalence string on the screen after the key has been pressed. The /NOECHO qualifier is incompatible with the /NOTERMINATE qualifier.

/ERASE
/NOERASE (default)

Erases the current line before the key translation is inserted.

/IF_STATE=(state,...)
/NOIF_STATE (default)

Specifies a list of one or more states, one of which must be in effect for the key definition to work. The /NOIF_STATE has the same meaning as /IF_STATE=current_state.

/LOCK_STATE
/NOLOCK_STATE (default)

Specifies that the state set by the /SET_STATE qualifier remain in effect until explicitly changed. (By default, the /SET_STATE qualifier is in effect only for the next definable key you press or the next read-terminating character that you type.) Relevant only with the /SET_STATE qualifier.

/LOG (default)
/NOLOG

Displays a message indicating that the key definition has been successfully created.

/SET_STATE=state
/NOSET_STATE (default)

Specifies a new state to be set when the specified key is pressed. (By default, the current locked state is reset when the key is pressed.) Specify the state as a character string enclosed in quotation marks (").

/TERMINATE
/NOTERMINATE (default)

Specifies that the key definition be processed immediately when the key is pressed (equivalent to typing the string and pressing RETURN). By default, you can press other keys before the definition is processed.

EXAMPLES

$ DEFINE/KEY PF3 "SHOW TIME"/TERMINATE

Defines the PF3 key in the numeric keypad to execute the SHOW TIME command when pressed.

$ DEFINE/KEY/IF_STATE=ONE PF1 "ONE"

Defines the PF1 key to be "ONE" for key state ONE.

DELETE file-spec,...

Requires DELETE access to the file or sufficient privilege to override the protection.

Deletes a file or files.

PARAMETERS

file-spec,...

Specifications of files being deleted. Wildcard characters can be used. The plus sign can be used in place of the comma between file specifications. Version numbers must be specified on all file specifications. A null version number (a semicolon without the number) or a version number of zero deletes the latest version. A wildcard version number deletes all versions. File specifications after the first one can omit all parts except the version number, and the defaults will come from the preceding specification. The first file specification can omit only the device and directory; the defaults will come from your current device /directory. Files cannot be deleted from tape devices.

QUALIFIERS

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

Selects files for the delete operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

Deletes only those files with dates that precede the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BY_OWNER[=uic]

Deletes only those files with the specified user identification code. The default for *uic* is that of the current process.)

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each deletion. The following responses are valid:

YES	Delete the file
NO	Do not delete the file
TRUE	Delete the file
FALSE	Do not delete the file
1	Delete the file
0	Do not delete the file
RETURN	Do not delete the file
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CREATED

See /BACKUP.

/ERASE
/NOERASE (default)

Erases the specified files from the disk so that the deleted data does not exist physically. By default, a file is just marked as deleted.

/EXCLUDE(=file-spec,...)

Excludes the specified files from deletion. You can include a directory name but not a device name in the file specifications. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED

See /BACKUP.

/LOG
/NOLOG (default)

Displays the file specification of each file deleted as the command executes.

/MODIFIED

See /BACKUP.

/SINCE[=time]

Selects for deletion only those files dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

EXAMPLES

$ DELETE WATER.TXT;3

Deletes version 3 of the file WATER.TXT in your current default directory.

$ DELETE WATER.TXT;*

Deletes all versions of WATER.TXT.

$ DELETE/EXCLUDE=(WATER.TXT;5) WATER.TXT;*

Deletes all versions of WATER.TXT except the fifth version.

$ DELETE $DISK1:[HEALTH.MEMOS]WATER.TXT;*,SOIL.TXT;*

Deletes all versions of WATER.TXT and SOIL.TXT in the directory HEALTH.MEMOS on $DISK1.

$ DELETE [HEALTH.TEMP]*.*;*

Deletes all files in the directory [HEALTH.TEMP] on the current default device.

DELETE/CHARACTERISTIC name

Requires the Secure User Environment Option.
Requires OPER privilege.

Deletes a queue characteristic.

PARAMETERS

name

The name of the characteristic.

EXAMPLE

$ DELETE/CHARACTERISTIC BLUE

Deletes the characteristic named BLUE.

DELETE/ENTRY =(job-number,...) queue-name[:]

Requires the Secure User Environment Option.
Requires OPER privilege, EXECUTE access to the queue, or DELETE access to the job.

Deletes one or more print or batch jobs from a queue. The jobs can be in progress or waiting in the queue. *Job-number* specifies the job number of the job being deleted.

PARAMETERS

queue-name[:]
     Name of the queue handling the job to be deleted.

EXAMPLES

    $ DELETE/ENTRY=(110,111) SYS$PRINT
Deletes job numbers 110 and 111 from the queue named SYS$PRINT.

    $ DELETE/ENTRY=1233 SYS$BATCH
Deletes job number 1233 from the queue named SYS$BATCH.

DELETE/FORM form-name

Requires the Secure User Environment Option.
Requires OPER privilege.

Deletes a form type for a printer or a terminal queue. When you delete a form definition, you must ensure that no outstanding references to the form exist in queues that have been mounted with the form or by jobs requesting that form.

PARAMETERS

form-name
     The name of the form.

EXAMPLE

    $ DELETE/FORM CENTER
Deletes the form named CENTER.

DELETE/INTRUSION_RECORD source

Requires the Secure User Environment Option.
Requires CMKRNL and SECURITY privileges.

Removes an entry from the breakin database.

PARAMETERS

source

Source field of the entry being removed from the breakin database.

EXAMPLE

$ DELETE/INTRUSION_RECORD TTC2:

Removes all intrusion records generated by the breakin attempts on TTC2.

$ DELETE/INTRUSION_RECORD GALAXY::HAMMER

Removes all intrusion entries generated from node GALAXY for user HAMMER.

DELETE/KEY [key-name]

Deletes key definitions.

PARAMETERS

key-name

The name of the key to be deleted. Incompatible with the /ALL qualifier.

QUALIFIERS

/ALL

Deletes all key definitions in the specified (or, by default, the current) state. Incompatible with the key-name parameter.

/LOG (default)
/NOLOG

Displays a message indicating the deletion has taken place.

/STATE=(state,...)
/NOSTATE (default)

Specifies the name of the state for which the specified key definition is to be deleted. The default state is the current state.

EXAMPLES

$ DELETE/KEY/LOG PF3

Deletes the definition for the key PF3.

$ DELETE/KEY/ALL

Deletes all key definitions established for the current state since you logged in.

DELETE/QUEUE queue-name[:]

Requires the Secure User Environment Option.
Requires OPER privilege.

Deletes a print or batch queue and all the jobs in the queue. The specified queue must have been stopped.

PARAMETERS

queue-name[:]
    Name of the queue being deleted.

EXAMPLE
$ DELETE/QUEUE LETTER_HEAD
Deletes the queue named LETTER_HEAD and all the jobs in the queue.

DELETE/SYMBOL [symbol-name]

Deletes a symbol or symbols.

PARAMETERS

symbol-name
    Name of the symbol being deleted. A name is required unless the /ALL qualifier is specified. Incompatible with the /ALL qualifier.

QUALIFIERS

/ALL
    Deletes all symbols at the specified level. The /ALL qualifier is incompatible with the *symbol-name* parameter.

/GLOBAL
/LOCAL (default)
    Specifies the level of the symbol.

/LOG
/NOLOG (default)
    Displays the symbols being deleted.

EXAMPLES
$ DELETE/SYMBOL/GLOBAL WRITEMEMO
Deletes the global symbol WRITEMEMO.

$ DELETE/SYMBOL/ALL
Deletes all local symbols at the current command level.

DEPOSIT location=data,...

Requires user mode READ and WRITE access to the virtual memory location.

Replaces the contents of the specified locations in virtual memory and displays the new contents. If the specified address can be read but not written by the current access mode, the original contents are displayed; if the specified address can be neither read nor written, asterisks are displayed in the data field. The DEPOSIT command maintains a pointer at that location (at the byte following the last byte modified).

PARAMETERS

location

A virtual address or a range of virtual addresses (where the second address is larger than the first). A location can be any valid integer expression containing an integer value, a symbol name, a lexical function, or a combination of these entities. Radix qualifiers determine the radix in which the address is interpreted; hexadecimal is the initial default radix. Symbol names are always interpreted in the radix in which they were defined. The radix operators %X, %D, or %O can precede the location. A hexadecimal value must begin with a number (or be preceded by %X).

data

The data to be deposited into the specified locations; the data is initially interpreted as hexadecimal and deposited in longwords by default.

QUALIFIERS

/ASCII

Specifies that the data is ASCII. Only one data item is allowed; all characters to the right of the equal sign are considered to be part of a single string. Unless they are enclosed within quotation marks, characters are converted to uppercase; all blanks are compressed into one blank.

/BYTE
/LONGWORD
/WORD

Deposits the data in bytes, longwords, or words. The initial default is longwords.

/DECIMAL
/HEXADECIMAL
/OCTAL

Interprets the data as decimal, hexadecimal, or octal. The initial default is hexadecimal.

/HEXADECIMAL
    See /DECIMAL.

/LONGWORD
    See /BYTE.

/OCTAL
    See /DECIMAL.

/WORD
    See /BYTE.

EXAMPLES

`$ DEPOSIT/DECIMAL %X900=10`

Deposits the decimal value 10 in the location specified as hexadecimal 900.

`$ DEPOSIT/ASCII 2C00=FILE: NAME: TYPE: 00002C00: FILE: NAME:TYPE:...`

Deposits character data at hexadecimal location 2C00 and displays the new contents of the location in longwords (the current default). An ellipsis indicates that the remainder of the last longword of data contains data that was not modified by the DEPOSIT command.

DIFFERENCES input1-file-spec [input2-file-spec]

Requires the Common Utilities Option.

Compares two files, displaying the records that do not match.

PARAMETERS

input1-file-spec
    Specification of the first file being compared. Wildcard characters are not allowed.

input2-file-spec
    Specification of the second file being compared. Unspecified fields default to the corresponding fields in input1-file-spec. If the two file specifications are the same or input2-file-spec is omitted, the version number defaults to the next lower version of input1-file-spec.

QUALIFIERS

/CHANGE_BAR=([change-char][,[NO]NUMBER])

Marks with the specified character each line in the input1 file that differs from the corresponding line in the input2 file. The change bar character defaults to an exclamation point (!) for ASCII output. If you specify hexadecimal or octal output (see /MODE qualifier), the change bar character is ignored and differences are marked by a "***CHANGE***" string. The keyword NONUMBER suppresses line numbers in the listing. If only one option is specified, the parentheses can be omitted.

/COMMENT_DELIMITER[=(character,...)]

Ignores lines starting with a specified comment character. If the comment character is an exclamation point or semicolon, it can appear anywhere in the line and characters to the right of the character are ignored. If you specify just one character, you can omit the parentheses. Lowercase characters are automatically converted to uppercase unless they are enclosed in quotation marks. Special DCL characters (such as ! and ,) must be enclosed in quotation marks. You can specify up to 32 comment characters by typing the character itself or one of the following keywords (keywords can be abbreviated provided that the resultant keyword is not ambiguous and has at least two characters).

COLON	Colon (:)
COMMA	Comma (,)
EXCLAMATION	Exclamation point (!)
FORM_FEED	Form feed
LEFT	Left bracket ([)
RIGHT	Right bracket (])
SEMI_COLON	Semicolon (;)
SLASH	Slash (/)
SPACE	Space
TAB	Tab

The following characters are the default comment delimiters for files with the specified file types.

B2S, B32, BAS, BLI	!
CBL, CMD	! and ;
COB	* or / in the first column
COM, COR	!
FOR	! anywhere and C, D, c, d in the first column
HLP	!
MAC, MAR	;
R32, REQ	!

/IGNORE=(keyword,...)

Inhibits the comparison of the specified characters, strings, or records, and formats the output file. If you specify only one keyword, you can omit the parentheses. The first set of keywords determines what, if anything, is ignored during file comparison; the second set of keywords determines whether or not ignored characters are included in the output.

BLANK_LINES	Blank lines between data lines.
COMMENTS	Data following a comment character.
FORM_FEEDS	Form feed character.
HEADER[=n]	First *n* records of the file, beginning with a record whose first character is a form feed. The first record is not ignored if the only character it contains is a form feed. (N indicates the number of records and defaults to 2. A record with a single form feed is not counted.)
TRAILING_SPACES	Space and tab characters at the end of a data line
SPACING	Extra blank spaces or tabs within data lines.
EDITED	Omits ignored characters from the output records.
EXACT	Includes ignored characters in the output records.
PRETTY	Formats output records.

If you specify /PARALLEL, output records are always formatted. To format output records, specify the following:

Character	Formatted Output
Tab (CTRL/I)	1-8 spaces
RETURN (CTRL/M)	<CR>
Line feed (CTRL/J)	<LF>
Vertical tab (CTRL/K)	<VT>
Form feed (CTRL/L)	<FF>
Other nonprinting characters	. (period)

/MATCH=n

Specifies the number of records (*n*) that should indicate matching data after a difference is found; defaults to 3.

/MAXIMUM_DIFFERENCES=n

Terminates DIFFERENCES after a specified number of differences (*n*) is found.

/MERGED[=n]

Specifies that the output file contain a merged list of differences with the specified number (*n*) of matched records listed after each group of unmatched records. The specified number (*n*) must be less than or equal to the number specified in the /MATCH qualifier; defaults to 1. If neither /MERGED nor /SEPARATED nor /PARALLEL is specified, the resulting output is merged, with one matched record following each unmatched record.

/MODE=(radix,...)

Specifies the format of the output as follows (keywords may be abbreviated): ASCII (default), HEXADECIMAL, or OCTAL.

If you specify only one radix, you can omit the parentheses. If you specify /PARALLEL, /MODE is ignored.

/NUMBER (default)
/NONUMBER

Includes line numbers in the listing of differences.

/OUTPUT[=file-spec]

Specifies an output file to receive the list of differences. If /OUTPUT is omitted, the list is written to the terminal. *File-spec* defaults to that of the first input file with a file type of DIF. No wildcards are allowed.

/PARALLEL[=n]

Lists the records with differences side by side. *N* specifies the number of matched records to merge after each unmatched record. *N* must be less than or equal to the number specified in /MATCH; defaults to 0.

/SEPARATED[=(input1-file-spec[,input2-file-spec])]

Lists only the records from the specified file that contain differences. If no files are specified, a separate listing is generated for each file. If only one file is specified, you can omit the parentheses. To specify *input1-file-spec*, use either the first input file specified as the DIFFERENCES parameter or the keyword MASTER. To specify *input2-file-spec*, use either the second input file specified as the DIFFERENCES parameter or the keyword REVISION.

/WIDTH=n

Specifies the width of the lines in the output file. The default is 132 characters. If output is written to the terminal, /WIDTH is ignored and the terminal line width is used.

/WINDOW=n

Searches the number of records specified (*n*) before a record is declared as unmatched. By default, DIFFERENCES searches to the ends of both input files.

DIRECTORY [file-spec,...]

Requires READ access to the directories or sufficient privilege to override the protection to obtain information other than the file name.

Displays the names and attributes of files in a directory or directories.

PARAMETERS

file-spec

Specification of file being listed. Wildcard characters are allowed. If no file is specified, all files in your default directory are listed. If just a directory name is specified, all files in that directory are listed. If the file type and version number are omitted, all versions of all file types of the specified file are listed. If the version number is omitted, all versions of the specified file are listed. The plus sign can be used in place of the comma between file specifications.

QUALIFIERS

/ACL

Displays the access control list (ACL) for each file. The /ACL qualifier overrides the /COLUMNS qualifier.

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

Selects files for the directory operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

Lists only those files with dates that precede the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BRIEF (default)

Displays only a file's name, type, and version number. You can use the /ACL, /DATE, /FILE_ID, /NOHEADING, /OWNER, /PROTECTION, /SECURITY, and /SIZE qualifiers to expand a brief display.

/BY_OWNER[=uic]

Displays only those files with the specified user identification code. The default UIC is that of the current process.

/COLUMNS=columns

Specifies the number of columns in a brief display. The default is four. The number of columns is restricted by the value of the /WIDTH qualifier. The /COLUMNS qualifier is incompatible with /ACL and /FULL.

/CREATED

See /BACKUP.

/DATE[=option]
/NODATE (default)

Expands the display to include dates. Possible options are:

ALL	Creation, expiration, backup, and last modification dates
BACKUP	Last backup date
CREATED	Creation date
EXPIRED	Expiration date
MODIFIED	Last modification date

/EXCLUDE=(file-spec,...)

Excludes files from the display. The file specification can include a directory but not a device name. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED

See /BACKUP.

/FILE_ID

Displays the file's identification number (FID). By default, a file's identification is not displayed unless the /FULL qualifier is specified.

/FULL

Displays the following information: file specification, size (blocks used, blocks allocated), creation date, last backup date, last modification date, expiration date, owner UIC, protection, file identification number (FID), file organization (sequential or indexed), file attributes, record attributes, record format, and access control list (ACL).

/GRAND_TOTAL

Displays only the totals for all specified files and directories.

/HEADING (default)
/NOHEADING

Prints headers consisting of the device and directory in which the files reside. When /NOHEADING is specified, the display is in single-column format

and the device and directory information appears with each file name. The
/NOHEADING qualifier overrides /COLUMNS.

/MODIFIED

See /BACKUP.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the name of a file to which the directory display is written; by default,
the display is written to the current SYS$OUTPUT device. Wildcard characters
are not allowed.

/OWNER
/NOOWNER (default)

Displays the owner UIC of the file.

/PRINTER

Requires the Secure User Environment Option.

Puts the display in a file and queues the file to SYS$PRINT for printing. The
name of the file is as specified in the /OUTPUT qualifier (or, if /OUTPUT is not
specified, a temporary file named DIRECTORY.LIS which is queued for printing
and then deleted).

/PROTECTION
/NOPROTECTION (default)

Displays the protection on the file.

/SECURITY

Displays information about file security (equivalent to the /ACL, /OWNER, and
/PROTECTION qualifiers together).

/SELECT=SIZE=(MINIMUM=n,MAXIMUM=n)

Selects files for display according to size.

MAXIMUM=n   Displays files that have fewer blocks than the value of n, which defaults
             to 1073741823

MINIMUM=n   Displays files that have more blocks than the value of n, which defaults
             to 0

/SINCE[=time]

Selects for display only those files dated after the specified date. You can specify
time as an absolute time, a combination of absolute and delta times, or one of the
following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified
with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/SIZE[=option]
/NOSIZE (default)

Displays the size of each file. If you omit *option,* the default lists the file size in blocks used (USED). Specify *option* as one of the following:

ALL	Lists blocks allocated and blocks used
ALLOCATION	Lists blocks allocated
USED	Lists blocks used

/TOTAL

Displays only the directory name and total number of files.

/TRAILING (default)
/NOTRAILING

Displays summary information: the number of files listed, the total number of blocks used, and the total number of blocks allocated. If more than one directory is listed, the summary includes the total number of directories, total number of blocks used, and total number of blocks allocated. The /SIZE and /FULL qualifiers determine more precisely what summary information is included.

/VERSIONS=versions

Specifies the number of versions of a file to describe and defaults to all versions.

/WIDTH=(keyword,...)

Formats the width of the display. Possible keywords are:

DISPLAY=n	Specifies the total width of the display as an integer in the range 1 through 256 and defaults to 0 (setting the display width to the terminal width)
FILENAME=n	Specifies the width of the file name field; defaults to 19
OWNER=n	Specifies the width of the owner field; defaults to 20
SIZE=n	Specifies the width of the size field; defaults to 6

EXAMPLES

$ DIRECTORY

Displays a brief description of all files in your default directory.

$ DIRECTORY/VERSIONS=1/COLUMNS=1

Displays a brief description of the latest version of all files in your default directory in one-column format.

$ DIRECTORY MEMO*.TXT

Displays a brief description of all files in the default directory whose names begin with MEMO and whose file types are TXT.

$ DIRECTORY/PRINTER/FULL

Prints a full description of all files in the default directory.

$ DIRECTORY/SIZE [HEALTH.MEMO]
Displays the names and sizes (blocks used) of all files in the directory HEALTH.MEMO.

$ DIRECTORY/BY_OWNER=[350,12]
Displays only those files belonging to the process with the specified UIC.

DISCONNECT

Breaks the connection between a physical terminal and a virtual terminal. After the physical terminal is disconnected, both the virtual terminal and the process using it remain on the system.

QUALIFIER

/CONTINUE
/NOCONTINUE (default)
    Permits an interrupted image to continue after the disconnect takes place.

DISMOUNT device-name[:]

Requires GRPNAM or SYSNAM privilege to dismount group or system volumes, respectively.

Closes a mounted disk or magnetic tape volume for further processing and deassigns the logical name associated with the device. If the volume is mounted with the /SHARE qualifier, its logical name is deassigned but the volume remains mounted until all processes using it dismount it or terminate. Note that all open files on the volume must be closed before the actual dismount can be done. Note, also, that the file system cannot dismount a volume while any known file lists associated with it contain entries.

PARAMETERS

device-name[:]
    Name of the device containing the volume — either a logical name or a physical name. If a physical name is specified, the controller defaults to A and the unit defaults to 0.

QUALIFIERS

/ABORT

Requires VOLPRO privilege if you are not the owner of the volume.

Specifies that the volume is to be dismounted, regardless of who mounted it. The primary purpose of the /ABORT qualifier is to terminate mount verification. DISMOUNT/ABORT also cancels any outstanding I/O requests. If the volume was mounted with the /SHARE qualifier, /ABORT causes the volume to be dismounted for all users.

/UNIT

Dismounts only the volume of a volume set on the specified device. By default, all volumes in a set are dismounted.

NOTE: Avoid dismounting the root volume of a volume set since it contains the master file directory (MFD).

/UNLOAD (default)
/NOUNLOAD

Unloads the device on which the volume is mounted. If you specify /NOUNLOAD, the device remains in a ready state.

EXAMPLES

$ DISMOUNT $FLOPPY1
Dismounts the volume on $FLOPPY1.

$ DISMOUNT $TAPE1
Dismounts the volume on $TAPE1.

DUMP file-spec

Requires the Common Utilities Option.

Displays the contents of a file, disk volume, or magnetic tape volume in decimal, hexadecimal, or octal format, as well as the ASCII conversion.

PARAMETERS

file-spec

Specification of the file or name of the device being dumped.

QUALIFIERS

/ALLOCATED

   Includes in the dump all blocks allocated to the file. (By default, the dump does
   not include blocks following the end-of-file.) /ALLOCATED and /RECORDS are
   mutually exclusive.

/BLOCKS[=START:n,END:n,COUNT:n]

   Dumps the specified blocks. Block numbers are specified as integers relative
   to the beginning of the file. Typically, blocks are numbered beginning with 1.
   If a disk device is mounted /FOREIGN, blocks are numbered beginning with
   0. START specifies the number of the first block to be dumped; the default is
   the first block. END specifies the number of the last block to be dumped; the
   default is the last block or the end-of-file block, depending on the /ALLOCATED
   qualifier. COUNT specifies the number of files to be dumped; COUNT provides
   an alternative to END. /BLOCKS and /RECORDS are mutually exclusive.

/BYTE

   Formats the dump in bytes. /BYTE, /LONGWORD, and /WORD are mutually
   exclusive.

/DECIMAL

   Dumps the file in decimal radix. /DECIMAL, /HEXADECIMAL, and /OCTAL
   are mutually exclusive.

/FILE_HEADER

   Dumps each data block that is a valid Files–11 header in Files–11 header format
   rather than the selected radix and length.

/FORMATTED (default)
/UNFORMATTED

   Dumps the file header in Files–11 format; /UNFORMATTED dumps the file
   header in octal format. This qualifier is useful only when /HEADER is specified.

/HEADER

   Dumps the file header and access control list. To dump only the file header,
   also specify /BLOCK=(COUNT:0). /HEADER is invalid for devices mounted
   /FOREIGN.

/HEXADECIMAL (default)

   Dumps the file in hexadecimal radix. /DECIMAL, /HEXADECIMAL, and
   /OCTAL are mutually exclusive.

/LONGWORD (default)

   Formats the dump in longwords. /BYTE, /LONGWORD, and /WORD are
   mutually exclusive.

/NUMBER[=n]

Specifies how byte offsets are assigned to the lines of output. If you specify /NUMBER, the byte offsets increase continuously through the dump, beginning with n; if you omit /NUMBER, the first byte offset is 0. By default, the byte offset is reset to 0 at the beginning of each block or record.

/OCTAL

Dumps the file in octal radix. /DECIMAL, /HEXADECIMAL, and /OCTAL are mutually exclusive.

/OUTPUT[=file-spec]

Specifies the output file. The default is the file name of the file being dumped and the file type DMP. If this qualifier is not specified, the dump goes to SYS$OUTPUT. No wildcard characters are allowed. /OUTPUT and /PRINTER are mutually exclusive.

/PRINTER

Queues the dump to SYS$PRINT in a file named with the file name of the file being dumped and the file type DMP. If this qualifier is not specified, the dump goes to SYS$OUTPUT. No wildcard characters are allowed. /OUTPUT and /PRINTER are mutually exclusive.

/RECORDS[=START:n,END:n,COUNT:n]

Dumps the file a record at a time rather than a block at a time. Records are numbered beginning with 1. START specifies the number of the first record to be dumped; the default is the first record. END specifies the number of the last record to be dumped; the default is the last record. COUNT specifies the number of records to be dumped; provides an alternative to END. If you specify /RECORDS, you cannot specify /ALLOCATED or /BLOCKS.

/WORD

Formats the dump in words. /BYTE, /LONGWORD, and /WORD are mutually exclusive.

EXAMPLE

$ DUMP TEST.DATA

Displays the contents of TEST.DATA in both hexadecimal and ASCII beginning with the first block in the file.

EDIT/ACL

See Appendix ACL.

EDIT/EDT

See Appendix EDT.

EDIT/TPU

See Appendix VAXTPU.

EOD

Terminates a data line that begins with a dollar sign, or terminates an input file if more than one input file is contained in the command stream without intervening commands.

EXAMINE location[:location]

Requires user mode READ and WRITE access to the virtual memory location.

Displays the specified virtual memory location, maintaining a pointer at that location.

PARAMETERS

location

A virtual address or a range of virtual addresses (where the second address is larger than the first). A location can be any valid arithmetic expression containing arithmetic or logical operators or previously assigned symbols. Radix qualifiers determine the radix in which the address is interpreted; hexadecimal is the initial default radix. Symbol names are always interpreted in the radix in which they were defined. The radix operators %X, %D, or %O can precede the location. A hexadecimal value must begin with a number (or be preceded by %X).

QUALIFIERS

/ASCII

Displays the data in ASCII; uses hexadecimal as the default radix for numeric literals that are specified on the command line. Binary values that do not have ASCII equivalents are displayed as periods.

/BYTE
/LONGWORD
/WORD

Displays the data in bytes, longwords, or words. The initial default is longwords.

/DECIMAL
/HEXADECIMAL
/OCTAL

Displays the data in decimal, hexadecimal, or octal. The initial default is hexadecimal.

/HEXADECIMAL

See /DECIMAL.

/LONGWORD

See /BYTE.

/OCTAL

See /DECIMAL.

/WORD

See /BYTE.

EXAMPLES

$ EXAMINE 2678

Displays the contents of location 2678 (hexadecimal).

$ EXAMINE/DECIMAL 900
00000384:   0554389621

Interprets location 900 in decimal and displays its contents in decimal. (EXAMINE always displays the location in hexadecimal.)

EXIT [status-code]

Terminates processing of a command procedure and returns control to the next higher command level — either an invoking command procedure or DCL. The EXIT command also terminates an image normally after CTRL/Y is typed (executing another image has the same effect).

PARAMETERS

status-code

Longword (integer) value giving the exit status of the image. (This value is assigned to the global symbol $STATUS and the lower three bits determine the value of the global symbol $SEVERITY.)

EXAMPLES

$ EXIT 1

Exits to the next higher command level giving $STATUS and $SEVERITY a value of
1.

$ ON WARNING THEN EXIT

Terminates the command procedure whenever any warnings or errors occur.

GOSUB label

Transfers control to a labeled subroutine in a command procedure without creating a
new procedure level. The RETURN command terminates the GOSUB subroutine.

PARAMETER

label

  A valid label (1 through 255 alphanumeric characters, terminated by a colon, first
  item on the line) in the command procedure. If two or more labels are identical,
  control passes to the nearest label preceding the GOSUB command, or to the
  nearest label following the GOSUB command if no duplicate label precedes the
  command.

EXAMPLE

$ GOSUB GET_COMMAND

Transfers control to the label GET_COMMAND within the current command
procedure.

GOTO label

Transfers control to a labeled statement in a command procedure.

PARAMETERS

label

  A valid label (1 through 255 alphanumeric characters, terminated by a colon, first
  item on the line) in the command procedure. If two or more labels are identical,
  control passes to the nearest label preceding the GOTO command, or to the
  nearest label following the GOTO command if no duplicate label precedes the
  command.

EXAMPLE

$ GOTO READ_DATA

Transfers control to the label READ_DATA within the current command procedure.

HELP [topic[subtopic]...]

Requires the Common Utilities Option to display the MicroVMS HELP text.

Displays information concerning use of the system, including formats and explanations of commands, parameters, and qualifiers.

PARAMETERS

topic

Name of the topic. If only a topic name is specified, information concerning the topic is displayed along with a list of subtopics at the next level. If topic... is specified, information concerning the topic and all subtopics is displayed. If topic * is specified, information concerning all subtopics is displayed. An asterisk or percent sign within a topic name serves as a wildcard. If you type just HELP or if the topic contains subtopics, you are prompted. Type the subtopic name to get help on the subtopic. Type a question mark to display the topic information again. Press RETURN to back up a level in the topic hierarchy. Press CTRL/Z to exit directly to DCL command level.

subtopic

Name of a subtopic. Information concerning the lowest subtopic specified is displayed along with a list of any further subtopics. If subtopic... is specified, information concerning the subtopic and all lower subtopics is displayed. If subtopic * is specified, information concerning all lower subtopics is displayed. An asterisk or percent sign within a subtopic name serves as a wildcard.

QUALIFIERS

/INSTRUCTIONS (default)
/NOINSTRUCTIONS

Displays an explanation of the HELP command along with the list of topics (if no topic is specified).

/LIBLIST (default)
/NOLIBLIST

Displays any auxiliary help libraries.

/LIBRARY=file-spec (default)
/NOLIBRARY

Names the main help library. Defaults to SYS$HELP (which is normally the logical name for [SYSHLP]HELPLIB.HLB on the system disk). The file type defaults to HLB. No wildcards are allowed.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies an output file to which the information is written; by default, the information is written to the current SYS$OUTPUT device. No wildcards are allowed.

/PAGE (default)
/NOPAGE

Stops the display when the screen is full. You must press RETURN to continue.

/PROMPT (default)
/NOPROMPT

Permits you to solicit further information interactively.

/USERLIBRARY[=(level,...) (default)
/NOUSERLIBRARY

Names the levels of search for information in auxiliary libraries.

PROCESS	Libraries defined at process level
GROUP	Libraries defined at group level
SYSTEM	Libraries defined at system level
ALL	All libraries (default)
NONE	No libraries (same as /NOUSERLIBRARY)

Auxiliary help libraries are libraries defined with the logical names HLP$LIBRARY, HLP$LIBRARY_1, HLP$LIBRARY_2, and so on. Libraries are searched for information in this order: current library, main library (if not current), libraries defined at process level, libraries defined at group level, and libraries defined at system level. The default is /USERLIBRARY=ALL.

EXAMPLES

$ HELP COPY

Displays a description of the COPY command.

$ HELP COPY PARAMETERS

Displays a description of the COPY parameters.

$ HELP COPY /LOG

Displays a description of the /LOG qualifier to COPY.

$ HELP COPY *

Displays a description of all the COPY parameters and qualifiers.

$ HELP COPY...

Displays a description of the COPY command and of the command's parameters and qualifiers.

$ HELP LEXICAL

Displays descriptions of the lexical functions.

IF expression THEN command

Tests the value of the specified expression and executes the commands in the THEN clause if the expression is true.

PARAMETERS

expression

An expression that evaluates to a logical or numeric value.

command

Any DCL command.

EXAMPLE

`$ IF COMMAND .NES. "P" THEN GOTO END_PURGE`

Passes control to the label END_PURGE if the value of the symbol COMMAND does not equal the letter P.

INITIALIZE device-name volume-label

Requires volume protection (VOLPRO) privilege for most INITIALIZE operations.

Formats a disk or magnetic tape volume and writes a label on the volume. At the end of initialization, the disk is empty except for the system files containing the structure information. All former contents of the disk are lost.

PARAMETERS

device-name

Name of the device on which the volume is physically mounted.

volume-label

Specifies the identification to be encoded on the volume. For a disk volume, you can specify a maximum of 12 alphanumeric characters; for a magnetic tape volume, you can specify a maximum of 6 alphanumeric characters. Letters are automatically changed to uppercase. Nonalphanumeric characters are not allowed in the volume-label specification on disk.

QUALIFIERS

/ACCESSED=number-of-directories

> Requires OPER privilege.
>
> Specifies the number of directories to be maintained in system space for ready access as an integer in the range 0 through 255. Defaults to 3.

/BADBLOCKS=(area,...)

> Specifies faulty areas on a volume so that no data will be written to them. Possible formats for area are:

lbn[:count]	Logical block number of the first block and optionally a block count beginning with the first block
sec.trk.cyl[:cnt]	Sector, track, and cylinder of the first block, and optionally a block count beginning with the first block

/CLUSTER_SIZE=number-of-blocks

> Defines the minimum allocation unit in blocks. The maximum size is 1/100 of the volume size. The minimum size is 255*4096 divided into the disk size in blocks. Structure Level 2 disks smaller than 50,000 blocks have a default value of 1. Structure Level 1 disks must always have a cluster size of 1.

/DATA_CHECK[=(keyword,...)]

> Checks all read and/or write operations on the disk. By default, no data checks are made. Specify one or both keywords:

READ	Checks all read operations
WRITE	Checks all write operations; default if only /DATA_CHECK is specified

/DENSITY=density-value

> The /DENSITY qualifier is not applicable to the TK50 tape device.
>
> For floppy disk volumes that are to be initialized on RX02 dual-density disk drives, specifies the density at which the floppy disk is to be formatted.
>
> For magnetic tape volumes, specifies the density in bytes per inch (bpi) at which the magnetic tape is to be written.
>
> RX02 dual-density disk drives allow floppy disks to be initialized at single or double density. To specify single-density formatting of a floppy disk, specify the density value SINGLE. To specify double-density formatting of a floppy disk, specify the density value DOUBLE.
>
> If you do not specify a density value for a floppy disk being initialized on an RX02 drive, the system leaves the volume at the density to which the volume was last formatted. Floppy disks purchased from DIGITAL are formatted in single density.

For magnetic tape volumes, the density value specified can be 800 bpi, 1600 bpi, or 6250 bpi, as long as the density is supported by the magnetic tape drive. If you do not specify a density value for a blank magnetic tape, the system uses a default density of the highest value allowed by the tape drive. If the drive allows 6250, 1600, and 800 bpi operation, the default density is 6250. If the drive allows only 1600 and 800 bpi operation then the default density is 1600. If you do not specify a density value for a magnetic tape that has been previously written, the system uses the density of the first record on the volume. The magnetic tape density will not default on an unusually short record.

/DIRECTORIES=number-of-entries

Allocates the specified number of entries for user directories as an integer in the range 16 through 16000. The default is 16.

/ERASE
/NOERASE (default)

Physically destroys deleted data (by writing over it).

/EXTENSION=n

Affects Files–11 Structure Level 1 disks ONLY

Specifies, for disk volumes, the number of blocks to use as a default extension size for all files on the volume. The value n can range from 0 through 65,535. The default is 5.

/FILE_PROTECTION=code

Affects Files–11 Structure Level 1 disks ONLY

Defines, for disk volumes, the default protection to be applied to all files on the volume.

/GROUP

Defines a group volume. The /GROUP qualifier applies protection of RWED to all ownership categories unless /GROUP is specified with /NOSHARE, in which case the volume protection is RWED for all but the world category. The owner UIC of the volume defaults to your group number and a member number of 0.

/HEADERS=number-of-headers

Specifies the number of file headers to be allocated for the index file. The minimum and default value is 16. The maximum is the value set with the /MAXIMUM_FILES qualifier.

/HIGHWATER (default)
/NOHIGHWATER

Sets the file highwater mark (FHM) volume attribute, which guarantees that a user cannot read data that he has not written. You cannot specify /NOHIGHWATER for magnetic tape.

/INDEX=keyword

Specifies the location of the index file for the volume's directory structure. Possible keywords are:

BEGINNING	Beginning of the volume
MIDDLE	Middle of the volume (default)
END	End of the volume
BLOCK:n	Beginning of the logical block specified by n

/LABEL=option

Defines characteristics for the magnetic tape volume label, as directed by the included option. The available options are as follows:

OWNER_IDENTIFIER:"(14 ANSI characters)"

Allows you to specify the Owner Identifier field in the volume label. The field specified can accept up to 14 ANSI characters.

VOLUME_ACCESSIBILITY:"character"

Specifies the character to be written in the volume-accessibility field of the MicroVMS ANSI volume label VOL1 on an ANSI magnetic tape. The character may be any valid ANSI "a" character. This set of characters includes numeric characters, uppercase letters, and any one of the following nonalphanumeric characters:

! " % ' ( ) * + , - . / : ; < = > ?

By default, MicroVMS provides a routine that checks this field in the following manner. If the magnetic tape was created on a version of MicroVMS that conforms to Version 3 of ANSI, then this option must be used to override any character other than an ASCII space. If a MicroVMS protection is specified and the magnetic tape conforms to an ANSI standard that is later than that of Version 3, then this option must be used to override any character other than an ASCII 1. If you specify any character other than the default character, you must specify the /OVERRIDE=ACCESSIBILITY qualifier on the INITIALIZE and MOUNT commands in order to access the magnetic tape.

/MAXIMUM_FILES=number-of-files

Restricts the maximum number of files that the volume can contain. The /MAXIMUM_FILES qualifier overrides the default value, which is calculated as follows:

```
volume size in blocks
-----------------------
(cluster factor + 1) * 2
```

The maximum size you can specify for any volume is:

```
volume size in blocks
---------------------
(cluster factor + 1)
```

The minimum value is 0. Note that the maximum can be increased only by reinitializing the volume.

/OVERRIDE=(option,...)

Requests the INITIALIZE command to ignore data on a magnetic tape volume that protects it from being overwritten. You may specify one of the following options:

ACCESSIBILITY   (For magnetic tapes only.) If the installation allows, this option overrides any character in the Accessibility Field of the volume. The necessity of this option is defined by the installation. That is, each installation has the option of specifying a routine that the magnetic tape file system will use to process this field. By default, MicroVMS provides a routine that checks this field in the following manner. If the magnetic tape was created on a version of MicroVMS that conforms to Version 3 of ANSI, then this option must be used to override any character other than an ASCII space. If a MicroVMS protection is specified and the magnetic tape conforms to an ANSI standard that is later than Version 3, then this option must be used to override any character other than an ASCII 1. To use the ACCESSIBILITY option, you must have the user privilege VOLPRO or be the owner of the volume.

EXPIRATION   (For magnetic tapes only). Allows you to write to a tape that has not yet reached its expiration date. You must have the user privilege VOLPRO to override volume protection, or your UIC must match the UIC written on the volume.

OWNER_IDENTIFIER   Allows you to override the processing of the Owner Identifier field of the volume label.

If you specify only one option, you may omit the parentheses.

In order to initialize a volume that was initialized previously with the /PROTECTION qualifier, your UIC must match the UIC written on the volume or you must have VOLPRO privilege.

/OWNER_UIC=uic

Specifies an owner UIC for the volume. The default is your default UIC.

/PROTECTION=(ownership[:access],...)

Applies the specified protection to the volume. The default is your default protection. The ownership categories are SYSTEM, OWNER, GROUP, WORLD; the access categories are R (read), W (write), E (create), and D (delete).

/SHARE (default)
/NOSHARE

Permits all categories of access by all categories of ownership. The /NOSHARE qualifier denies access to group (unless /GROUP is also specified) and world processes.

/STRUCTURE=level

Specifies whether the volume should be formatted in Files–11 Structure Level 1 or Structure Level 2 (the default). Level 1 is incompatible with the /DATA_CHECK and /CLUSTER_SIZE qualifiers.

/SYSTEM

Requires a system UIC or SYSPRV privilege.

Defines a system volume. The owner UIC defaults to [1,1]. Protection defaults to complete access by all ownership categories, except that only system processes can create top-level directories.

/USER_NAME=name

Specifies a user name to be associated with the volume. The name must be 1 to 12 alphanumeric characters. The default is your user name.

/VERIFIED
/NOVERIFIED

Indicates whether the disk has bad block data on it. Use the /NOVERIFIED qualifier to ignore bad block data on the disk. The default is /VERIFIED for disks with 4096 blocks or more and /NOVERIFIED for disks with less than 4096 blocks.

/WINDOWS=number-of-pointers

Specifies the number of mapping pointers (used to access data in the file) to be allocated for file windows. The value can be an integer in the range 7 through 80. The default is 7.

EXAMPLES

```
$ INITIALIZE $FLOPPY1 ACCOUNTS
```
Initializes the volume on $FLOPPY1 and labels the volume ACCOUNTS.

```
$ INITIALIZE/USER_NAME=CPA $FLOPPY1 ACCOUNTS
```
Initializes the volume on $FLOPPY1, labels the volume ACCOUNTS, and gives the volume a user name of CPA.

INITIALIZE/QUEUE queue-name

Requires the Secure User Environment Option.
Requires OPER privilege.

Creates a print or batch queue and assigns it a name and attributes.

PARAMETERS

queue-name

> User-defined name of the queue. *Queue-name* may be up to 31 alphanumeric
> characters.

QUALIFIERS

/BASE_PRIORITY=priority

> Specifies the process base priority at which jobs are initiated from a batch queue
> or the base priority of the symbiont process for a printer, terminal, or server
> queue. The value can be an integer in the range 0 through 15. The base priority
> defaults to the same priority as the base priority established by DEFPRI at system
> generation (usually 4).

/BATCH
/NOBATCH (default)

> Specifies that the queue is a batch queue. If you specify /NOBATCH or omit this
> qualifier, the queue is assumed to be a printer queue.

/BLOCK_LIMIT=([lower,]upper)
/NOBLOCK_LIMIT (default)

> Restricts the size of print jobs that can be executed on a printer, terminal, or
> server queue. The lower parameter specifies the minimum number of blocks that
> will be accepted by the queue for a print job. The upper parameter specifies the
> maximum number of blocks that will be accepted by the queue for a print job. If
> a job contains fewer blocks than the number specified by the lower parameter or
> more blocks than the number specified by the upper parameter, the job remains
> pending until the block limit for the queue is changed. To specify only the lower
> parameter, you must use two sets of quotation marks ("") in place of the upper
> specifier.

/CHARACTERISTICS=(characteristic,...)
/NOCHARACTERISTICS (default)

> Specifies one or more characteristics for processing jobs on the queue. (Use
> the SHOW QUEUE/CHARACTERISTIC command to display the available
> characteristics.) A queue must have all the characteristics specified for a job or
> the job remains pending.

/CPUDEFAULT=time

   Specifies the default CPU time limit for batch jobs. Time can be specified
   as a delta time, 0, NONE (the default), or INFINITE. Both the value 0 and the
   keyword INFINITE allow unlimited CPU time (subject to the restrictions imposed
   by the /CPUMAXIMUM qualifier or the user authorization file).

/CPUMAXIMUM=time

   Specifies the maximum CPU time limit for batch jobs. The /CPUMAXIMUM
   qualifier overrides the time limit specified in the user authorization file (UAF).
   Time can be specified as a delta time, 0, NONE (the default), or INFINITE. Both
   the value 0 and the keyword INFINITE allow unlimited CPU time.

/DEFAULT=(option,...)
/NODEFAULT

   Establishes default options for the PRINT command. The /DEFAULT qualifier
   cannot be used with the /GENERIC qualifier. Possible options are:

[NO]BURST[=keyword]	Specifies where to print burst pages (flag pages that are printed over the paper's perforations for easy identification of individual files in a print job). The keyword ALL places burst pages before each printed file in the job. The keyword ONE places a burst page before the first printed file in the job.
[NO]FEED	Specifies whether a form feed is automatically inserted at the end of a page. (The default is FEED.)
[NO]FLAG[=keyword]	Specifies where to print flag pages (containing the job entry number, the name of the user submitting the job, and so on). The keyword ALL places flag pages before each printed file in the job. The keyword ONE places a flag page before the first printed file in the job.
FORM=type	Specifies the default form for a printer, terminal, or server queue. If a job is not submitted with an explicit form definition, then this form will be used to process the job. The systemwide default form, form=0, is the default value for this keyword. See also /FORM_MOUNTED.
[NO]TRAILER[=keyword]	Specifies where to print trailer pages. The keyword ALL places trailer pages after each printed file in the job. The keyword ONE places a trailer page after the last printed file in the job.

   If you specify any of the keywords BURST, FLAG, or TRAILER without
   specifying a value, the value ALL is used by default.

/DISABLE_SWAPPING
/NODISABLE_SWAPPING (default)

Controls whether batch jobs executed from a queue can be swapped in and out of memory.

/ENABLE_GENERIC (default)
/NOENABLE_GENERIC

Determines whether or not a queue will accept files from a generic queue of the same type (where the generic queue was initialized without a queue name specified with the /GENERIC qualifier).

/FORM_MOUNTED=type

Specifies the form type for a printer, terminal, or server queue. If the stock of the mounted form is not identical to the stock of the default form, as indicated by the DCL command qualifier /DEFAULT=FORM=type, then all jobs submitted to this queue without an explicit form definition will enter a pending state. If a job is submitted with an explicit form and the stock of the explicit form is not identical to the stock of the mounted form, then the job will enter a pending state. In both cases, the pending state will be maintained until the stock of the mounted form of the queue is identical to the stock of the form associated with the job. The /FORM_MOUNTED qualifier cannot be used with the /GENERIC qualifier.

/GENERIC[=(queue-name,...)]
/NOGENERIC (default)

Specifies that the queue is generic and that the jobs placed in it can be moved to compatible execution queues for processing. If you specify one or more names with /GENERIC, jobs can be moved only to the specified queues. The target execution queues may be initialized with the /NOENABLE_GENERIC qualifier to disable them from accepting jobs from the generic queues that do not specify an explicit execution queue list. If you do not specify a queue name with /GENERIC, jobs can be moved to any execution queue (with /ENABLE_GENERIC in effect) that is the same type (batch, printer, terminal, or server) as the generic queue. By default, a generic queue is a print queue. Use the appropriate qualifier (/BATCH, /PROCESSOR, /TERMINAL) to override the default. The /GENERIC qualifier is incompatible with the /DEFAULT, /FORM_MOUNTED, and /SEPARATE qualifers. (The generic and execution queues must be initialized with matching /BATCH and /PROCESSOR queues.)

The /BATCH qualifier determines that an execution queue is a batch queue. The symbiont process determines whether queues are printer, terminal, or server queues; the standard symbiont sets this characteristic depending upon whether the output device is a printer or a terminal.

/JOB_LIMIT=number-of-jobs

Specifies the number of batch jobs that can be executed concurrently from the queue. Defaults to 1.

/LIBRARY=filename (default)
/NOLIBRARY

Assigns a device control library (containing escape sequence modules) for programmable printers. (The /LIBRARY qualifier can be used to specify an alternate device control library when used to initialize an output queue.) The default library is SYS$LIBRARY:SYSDEVCTL.TLB. You can specify only a file name. The library must be in SYS$LIBRARY and the file type must be TLB.

/ON=device[:]

Specifies the device on which the queue is located. The default *device-name* is the queue name.

/OWNER_UIC=uic

Specifies the user identification code (UIC) of the queue. The default UIC is [1,4].

/PROCESSOR=filename
/NOPROCESSOR

Specifies a file containing a print symbiont. Specify only a file name. The file must be in SYS$SYSTEM and must have a type of EXE. The default print symbiont is named PRTSMB. (Used for a generic queue, the /PROCESSOR qualifier specifies that the generic queue can place jobs only on queues that were defined as server queues and that are executing the specified symbiont image.)

/PROTECTION=(ownership[:access],...)

Specifies the protection of the queue. Ownership categories are: SYSTEM, OWNER, GROUP, WORLD; each category can be abbreviated to its first character. Access categories are: R (read), W (write), E (execute), or D (delete); a null access specification means no access. The default protection is: (SYSTEM:E, OWNER:D, GROUP:R, WORLD:W).

/RECORD_BLOCKING (default)
/NORECORD_BLOCKING

Determines whether the symbiont can concatenate (or block together) output records for transmission to the output device. If you specify /NORECORD_ BLOCKING, the symbiont is directed to send each formatted record in a separate I/O request to the output device. For the standard MicroVMS print symbiont, record blocking can have a significant performance advantage over single-record mode.

/RETAIN[=keyword]
/NORETAIN (default)

Holds jobs in the queue in a completed status after they have executed. Possible keywords are:

ALL (default)   Holds all jobs in the queue after execution

ERROR   Holds in the queue only jobs that complete unsuccessfully

/SCHEDULE=SIZE (default)
/SCHEDULE=NOSIZE

Schedules jobs in a print queue on the basis of size so that short jobs print before long jobs. The effect of this qualifier on currently pending jobs is unpredictable.

/SEPARATE=(keyword,...)
/NOSEPARATE (default)

Specifies the job separation defaults for a printer or terminal queue. The /SEPARATE qualifier cannot be used with the /GENERIC qualifier. Possible keywords are:

[NO]BURST   Prints a burst page (a flag page printed over the paper's perforations for easy identification of individual files) at the beginning of every job.

[NO]FLAG   Prints a flag page (containing the job entry number, the name of the user submitting the job, and so on) at the beginning of every job.

[NO]TRAILER   Prints a trailer page at the end of every job.

[NO]RESET=(m,...)   Specifies a job reset sequence for the queue. The specified modules from the device control library (see /LIBRARY) are used to reset the device each time a job reset occurs.

/START
/NOSTART (default)

Starts the queue being initialized by the current INITIALIZE/QUEUE command.

/TERMINAL
/NOTERMINAL (default)

Associates a generic queue with a terminal queue (instead of a printer queue) of matching characteristics.

/WSDEFAULT=n

Defines a working set default for a batch job. The /WSDEFAULT qualifier overrides the working set size specified in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

When used for an output queue, this qualifier specifies the working set default of a symbiont process for a printer, terminal, or server queue when the symbiont process is created.

/WSEXTENT=n

Defines a working set extent for the batch job. The /WSEXTENT qualifier overrides the working set extent in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

When used for an output queue, this qualifier specifies the working set extent of a symbiont process for a printer, terminal, or server queue when the symbiont process is created.

/WSQUOTA=n

Defines a working set page size (working set quota) for the batch job. The /WSQUOTA qualifier overrides the value in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

When used for an output queue, this qualifier specifies the working set quota of a symbiont process for a printer, terminal, or server queue when the symbiont process is created.

EXAMPLES

`$ INITIALIZE/QUEUE/BATCH SYS$BATCH`
Initializes a batch queue with the logical name SYS$BATCH.

`$ INITIALIZE/QUEUE SYS$PRINT /DEFAULT=FLAG`
Initializes a print queue with the logical name SYS$PRINT. Jobs will be printed with flag pages.

`$ INITIALIZE/QUEUE /DEFAULT=FORM=LN01_PORTRAIT LN01_PRINT`
Initializes a print queue LN01_PRINT with a default form type LN01_PORTRAIT.

INQUIRE symbol-name [prompt]

Reads a value from SYS$COMMAND (usually the terminal in interactive mode or the next line in the main command procedure) and assigns it to a symbol. (The value must be enclosed in quotation marks ("") to preserve lowercase characters, multiple spaces, and tabs.)

PARAMETERS

symbol-name

Name for the symbol. The name must be 1 to 255 alphanumeric characters.

prompt

Prompt to be issued in interactive mode. Enclose the prompt in quotation marks ("") if it contains lowercase characters, punctuation, multiple blanks or tabs, or the at sign (@). The default prompt is the specified symbol name.

QUALIFIERS

/GLOBAL
/LOCAL (default)

Makes the symbol global or local to the current command level.

/PUNCTUATION (default)
/NOPUNCTUATION

Inserts a colon and a space after the prompt.

EXAMPLES

$ `INQUIRE COMMAND "Command"`
Writes the prompt "Command: " to the terminal and reads the response into the symbol COMMAND.

$ `INQUIRE /NOPUNCTUATION ANS "Do you want directions? "`
Writes the prompt "Do you want directions?" to the terminal and reads the response into the symbol ANS.

LIBRARY library-file-spec [input-file-spec,...]

Creates, modifies, and examines libraries.

PARAMETERS

library-file-spec

Specification of the library file. The file type defaults to OLB for object and shareable image libraries, MLB for macro libraries, HLB for help libraries, and TLB for text libraries. No wildcard characters are allowed.

input-file-spec

Specification of file containing modules to be added, inserted, or replaced in the library. The file type defaults to OBJ for object files, EXE for shareable image files, MAR for macro files, HLP for help files, and TXT for text files. Wildcard characters are allowed. This parameter is required with /INSERT and /REPLACE, optional with /CREATE, and otherwise invalid. You can specify SYS$INPUT to input one text module from the terminal: name the module

with /MODULE; type the text of the module on lines following the command; terminate the terminal input with CTRL/Z.

QUALIFIERS

/BEFORE[=time]

Used with the /LIST qualifier to list only those modules with dates (creation, modification, expiration, or backup) that precede the specified time. You can specify time as an absolute time or a combination of absolute and delta times.

/COMPRESS[=(option,...)]

Creates a new library file from the current library file, recovering any space left by modules deleted from the library. The name of the new file is as specified in /OUTPUT or defaults to the next version of the current library file. The options are as follows, with the same as defaults the current library file.

BLOCKS:blocks	Number of 512-byte blocks allocated to the new library
GLOBALS:symbols	Maximum number of global symbols allowed in an object or shareable image library
HISTORY:records	Maximum number of history records allowed in the library; if this value is less than the current number in the library, the oldest records are deleted (only applies if KEEP is specified)
KEEP	Saves update history records and additional information in module headers
KEYSIZE:size	Maximum number of characters allowed in any module or global symbol name
MODULES:modules	Maximum number of modules allowed in library

/CREATE[=(option,...)]

Creates a library file. If input-file-spec is specified (second parameter), the modules in the input file are added to the library. The options are as follows:

BLOCKS:blocks	Number of blocks allocated to the new library; defaults to 100
GLOBALS:symbols	Maximum number of global symbols allowed in an object or shareable image library; defaults to 128
HISTORY:records	Maximum number of history records allowed in the library; defaults to 20
KEYSIZE:n	Maximum name length of modules or global symbols; defaults to 31 for object and text libraries and to 15 for help modules; maximum size possible is 128
MODULES:modules	Maximum number of modules allowed in the library; defaults to 512 for an object or shareable image library, and 256 for all others

/CROSS_REFERENCE[=(option,...)]

Generates a cross-reference listing file for object libraries. Name the file with /OUTPUT. The options are as follows:

ALL	Equivalent to (MODULE, SYMBOL, VALUE)
MODULE	Lists global symbol references and definitions
NONE	Equivalent to not specifying /CROSS_REFERENCE
SYMBOL	Lists the global symbols by name; the default
VALUE	Lists the global symbols by value; the default

/DATA=keyword

Determines whether data is reduced or expanded, depending upon the specified keyword. (Both forms of /DATA perform an implicit /COMPRESS; that is, while reducing or expanding the data format, the librarian also recovers space that had been occupied by modules deleted from the library.)

EXPAND	Expands a reduced library
REDUCE	Stores data in reduced format, requiring less disk space but taking longer to access

/DELETE=(module,...)

Deletes the specified modules from the library. Wildcard characters are allowed.

/EXTRACT=(module,...)

Copies the specified modules into a new file. Wildcard characters are allowed. The name of the new file is as specified by /OUTPUT with a default file type of OBJ, EXE, MAR, HLP, or TXT, depending on the type of library; or is, by default, the name of the library file with the default file type.

/FULL

Gives a full description of each module listed by /LIST. When used with /HISTORY/LIST, names the modules inserted or deleted.

/GLOBALS (default)
/NOGLOBALS

Includes global symbols of object modules in the global symbol table.

/HELP
/MACRO
/OBJECT (default)
/SHARE
/TEXT

Identifies the type of library.

/HISTORY

Lists history records. Valid only with /LIST. When used with /LIST/FULL, additionally lists the names of updated modules.

/INSERT

Adds the modules in the specified input file to the library. If a module being added already exists in the library, the new module is not added and an error message is issued.

/LIST[=file-spec]
/NOLIST (default)

Writes header information and lists the contents of the library. The information is written to the specified file, whose file type defaults to LIS. If the file specification is omitted, the information is written to SYS$OUTPUT. If specified with other operations (for example, /DELETE, /INSERT, or /REPLACE), the listing reflects the status of the library after the other operations are performed.

/LOG
/NOLOG (default)

Writes a message to SYS$OUTPUT after each operation (for example, /DELETE, /INSERT, /REMOVE, or /REPLACE) occurs.

/MACRO

See /HELP.

/MODULE=module-name

Qualifies input-file-spec.

Names an incoming text module. This qualifier applies only to /INSERT and /REPLACE operations on text libraries. The module name defaults to the name of the file. Incompatible with /EXTRACT, /DELETE, and /REMOVE.

/NAMES
/NONAMES (default)

Lists all the global symbol names and module names in an object module library. This qualifier applies only when /LIST is specified.

/OBJECT (default)

See /HELP.

/ONLY=(module,...)

Limits a /LIST or /CROSS_REFERENCE operation to the specified modules. Wildcards are allowed.

/OUTPUT[=file-spec]

Specifies the output file specification for a /COMPRESS, /EXTRACT, or /CROSS_REFERENCE operation. The file type defaults to OLB, MLB, HLB, or TLB for /COMPRESS operations; OBJ, EXE, MAR, HLP, or TXT for /EXTRACT operations; or LIS for /CROSS_REFERENCE operations. If /OUTPUT is not specified, the default is the name of the library with the default file type. Wildcard characters are not allowed.

/REMOVE=(symbol-name,...)

Deletes the specified global symbol names from the object library. Wildcard characters are allowed.

/REPLACE (default)

Adds the modules in the specified input file to the library. If a module being added already exists in the library, the new module replaces the exisiting module. The action specified by /REPLACE is the default librarian operation.

/SELECTIVE_SEARCH

Applies only to individual modules in object libraries. When the library is used as input to a link operation, the linker excludes global symbols not referenced by other modules from the resultant image and (if applicable) symbol table.

/SHARE

See /HELP.

/SINCE[=time]

Writes only those modules dated after the specified time when used with the /LIST command. You can specify time as an absolute time or a combination of absolute and delta times.

/SQUEEZE (default)
/NOSQUEEZE

Compresses (deletes trailing blanks, trailing tabs, and comments) macros before putting them in a macro library. Use with /CREATE, /INSERT, and /REPLACE.

/TEXT

See /HELP.

/WIDTH=number-of-characters

Specifies the screen width for listing global symbol names with /NAMES. Defaults to the width of the listing device (usually 80 for terminals and 132 for printers). The maximum allowable width is 132.

EXAMPLES

$ LIBRARY/TEXT/CREATE MEMO
Creates a text library named MEMO in the file MEMO.TLB.

$ LIBRARY/TEXT/LIST/ONLY=GET* MEMO
Displays all the modules in MEMO.TLB that start with the letters GET.

LOGOUT

Terminates a terminal session.

QUALIFIERS

/BRIEF (default)
/FULL

> Prints a brief logout message (process name, date, and time) or a full logout message (a brief message plus accounting statistics).

/FULL

> See /BRIEF.

/HANGUP
/NOHANGUP

> Disconnects the phone line when you log out on a dialup terminal.

EXAMPLES

$ LOGOUT/HANGUP
Logs you out with a brief message and disconnects the phone line.

$ LOGOUT/FULL
Logs you out with a full message.

MAIL

See Appendix MAIL.

MERGE input1-file-spec,input2-file-spec,... output-file-spec

Merges ordered files into one ordered output file.

PARAMETERS

input-file-spec

>   Specification of existing file to be merged. All input files must have the same
>   record format and key description, but may have different file organizations.
>   Wildcard characters are not allowed. The file type defaults to DAT.

output-file-spec

>   Specification of the file produced by the merge operation. Wildcard characters
>   are not allowed. The file type defaults to the file type of the last input file.

QUALIFIERS

/ALLOCATION=file-size

>   Qualifies output-file-spec.
>
>   Required only to override relative and indexed-sequential input file characteris-
>   tics. *File-size* is the number of 512-byte blocks to be allocated for the file and
>   must be an integer in the range 1 through 4294967295.

/BUCKET_SIZE=bucket-size

>   Qualifies output-file-spec.
>
>   Required only to override input file characteristics. For relative and indexed
>   files, specifies the bucket size in blocks. For input and output files of the same
>   organization, the default is the same as the bucket size of the first input file;
>   otherwise, the default is 1. Bucket size must be an integer in the range 1
>   through 32.

/CHECK_SEQUENCE (default)
/NOCHECK_SEQUENCE

>   Verifies the order of input records.

/COLLATING_SEQUENCE=sequence

>   Names the collating sequence for character data. *Sequence* can be ASCII (default),
>   EBCDIC, or MULTINATIONAL. Note that when you specify EBCDIC, the
>   characters remain in ASCII representation; only the order is changed. The
>   /MULTINATIONAL qualifier specifies the collating sequence of the DEC
>   Multinational Character Set.

/CONTIGUOUS

>   Qualifies output-file-spec.
>
>   Required only to override the first input file's characteristics. Specifies that the
>   allocation of blocks for the output file be contiguous. /ALLOCATION must also
>   be specified.

/DUPLICATES (default)
/NODUPLICATES

Deletes records with duplicate keys from the merge operation. The /NODUPLICATES qualifier is incompatible with the /STABLE qualifier.

/FORMAT=(option,...)

Qualifies input-file-spec and output-file-spec.

Specifies record format and size. Possible options for the input file are:

RECORD_SIZE=n   An integer in the range 1 through 32767

FILE_SIZE=n   An integer in the range 1 through 4294967295

Possible options for the output file are:

FIXED=n   A fixed-size record whose maximum size is an integer in the range 1 through 32767 for sequential files; 1 through 16383 for relative files; and 1 through 16383 for indexed sequential files

VARIABLE=n   A variable-size record whose maximum size is an integer in the range 1 through 32767 for sequential files; 1 through 16383 for relative files; 1 through 16383 for indexed sequential files

CONTROLLED=n   A controlled record whose size is an integer in the range 1 through 32767 for sequential files; 1 through 16383 for relative files; and 1 through 16383 for indexed sequential files

SIZE=n   An integer in the range 1 through 255

If /FORMAT is not specified for the output file, the format is based on the merge process selected: if RECORD or TAG merge is selected, the default is the format of the first input file; if ADDRESS or INDEX merge is selected, the default is FIXED.

/INDEXED_SEQUENTIAL
/RELATIVE
/SEQUENTIAL

Qualifies output-file-spec.

Specifies the organization of the file. For a record or tag merge, the output file format defaults to the organization of the input file. For an indexed merge, the output file must exist and be empty and you must specify the /OVERLAY qualifier.

/KEY=(option,...)

Defines a merge key. You can specify /KEY up to 255 times to define 255 different key fields on which to merge. The default is a character data key, beginning in position 1 of the input record for the length of the LRL (longest record length) for the input files, up to a maximum length of 32767 bytes. The following keywords specify position, size, and data type of the key field within the record.

Option	Description
POSITION=start of key	Starting byte of the key within the record, where the first byte of the record is position 1. The value must be an integer in the range 1-32767. The position option is required.
CHARACTER (default) BINARY F_FLOATING D_FLOATING G_FLOATING H_FLOATING ZONED DECIMAL PACKED_DECIMAL	Data type of the key.
SIZE=n	Size of the key as follows depending on data type:
	CHARACTER—Number of characters specified as an integer in the range 1-32767 (default = 32767)
	BINARY—Then integer value 1 (byte), 2 (word), 4 (longword), 8 (quadword), or 16
	DECIMAL—Number of digits, not counting the sign, specified as an integer in the range 1 to 31
	PACKED_DECIMAL—same as DECIMAL
	Do not specify a size for floating-point data types, whose sizes are fixed at 4 (F_FLOATING), 8 (D_ and G_FLOATING), and 16 (H_FLOATING) bytes. The total size of all keys must not exceed 32767 bytes.
NUMBER=key order	Priority of the key specified as an integer in the range 1-255, where 1 means the primary key. The default is the order in which the keys are specified.
ASCENDING (default) DESCENDING	Order in which records are sorted for the key.
SIGNED (default) UNSIGNED	Whether or not a sign is stored (binary keys only)
TRAILING_SIGN (default) LEADING_SIGN	Byte in which sign is stored — first or last (decimal keys only).

Option	Description
OVERPUNCHED_SIGN (default) SEPARATE_SIGN	Whether the sign is superimposed on the decimal value or is separated from the decimal (decimal keys only).

/OVERLAY

Qualifies output-file-spec.

Writes the output to an existing file which must be empty. By default, a new output file is created for sequential and relative files. If the output file is INDEXED_SEQUENTIAL, /OVERLAY must be specified.

/RELATIVE

See /INDEXED_SEQUENTIAL.

/SEQUENTIAL

See /INDEXED_SEQUENTIAL.

/SPECIFICATION=file-spec

Identifies the specification file to be used in the MERGE operation. Any qualifiers specified in the MERGE command line override the qualifiers in the specification file. The specification file can contain the following qualifiers:

QUALIFIERS

/CDD_PATH_NAME="cdd-path-name"

Specifies a record definition ("cdd-path-name") from the Common Data Dictionary (CDD) if your system has VAX–11 CDD installed. Once the fields have been identified, they may be used in later specification file qualifiers. (The /CDD_PATH_NAME qualifier may be used with or in place of the /FIELD qualifier.)

/CHECK_SEQUENCE (default)
/NOCHECK_SEQUENCE

Specifies whether or not MERGE checks the sequence of records in input files.

/COLLATING_SEQUENCE=(SEQUENCE=sequence[,keyword=,...])

Specifies the collating sequence for character key fields; the collating sequence can be ASCII (the default), EBCDIC, MULTINATIONAL, or a user-defined collating sequence that is specified as a string of characters (single or double) or a range of single characters. Each character and range must be separated by commas and enclosed in parentheses. You can also specify characters by their corresponding octal, decimal, or hexadecimal values, using the radix operators: %O, %D, %X. Specify the quotation mark by doubling its occurrence within quotation marks

("") or by using a radix operator. Specify the null character with a radix operator (such as %X0). You must include in the sequence all characters that appear in the character keys or the character will be ignored (unless the MODIFICATION or FOLD keyword is specified).

Other optional keywords are as follows. Note that the FOLD, MODIFICATION, and IGNORE keywords are processed in the order in which they are specified.

MODIFICATION	Specifies the change you want to make to the collating sequence (ASCII, EBCDIC, MULTINATIONAL, or user-defined). Use the format MODIFICATION=(character operator character). Specify *character* as it is in the collating sequence and *operator* as > , <, or =. You can specify the following changes to a collating sequence: (1) Equate a character (single or double) to a character (single or double) that has already been assigned a collating value ("a"="A" or "CH"="SH" or "C"="CH"). (2) Collate a character (single or double) after a single character that has already been assigned a collating value ("CH"> "C"). (3) Collate a character (single or double) before a character that has already been assigned a collating value ("CH" <"C").
IGNORE	Specifies the character or range of characters to be initially ignored in the collating sequence (unless two or more strings have compared as equal and (1) TIE_BREAK is in effect or (2) the Multinational sequence is being used). Specify in the format IGNORE=character (or IGNORE=character range,...).
FOLD	Gives all lowercase letters the collating value of their uppercase equivalents (the Multinational sequence does this by default).
[NO]TIE_BREAK	Specifies whether or not numeric values are used to break any ties between characters that have equivalent values. (The Multinational sequence breaks ties in this way by default.)

/CONDITION=(NAME=condition-name,TEST=(field-name operator test[logical-operator,...]))

Defines a conditional test that can be used to change the relative order of a record (with the /KEY or /DATA qualifier) or to alter the contents of certain fields of a record (with the /OMIT or /INCLUDE qualifier). *Condition-name* specifies the name of the condition; once defined, you can use the condition name with the /KEY, /DATA, /OMIT, and /INCLUDE qualifiers. *Field-name* specifies the name of the field (defined by the /FIELD qualifier) being tested; *logical operator* specifies the logical (AND or OR) or relational (EQ, NE, GT, GE, LT, or LE) operator used

in the test. *Operator-test* specifies the constant for which you are testing. Specify the constant with the following syntax: %D decimal—digits, %O octal—digits, %X hexadecimal—digits, and "character".

/DATA=field-name
/DATA=(IF condition-name THEN "new-contents" ELSE "new-contents")

Specifies the fields to be directed to the output file and their order. (By default, the output file has the same record format as that of the input file.) Only the specified fields will appear in the output field. *Field-name* specifies the previously defined name of a field in a record; *condition-name* specifies a previously defined condition; and *new-contents* is either a constant or a field name that specifies how the record is to be altered.

/FIELD=(NAME=field-name,POSITION:n,SIZE:n, data-type) [DIGITS:n]

Defines the fields in the input files. (You must specify each field in the records to be merged, including key fields, fields to be compared, and fields to be directed to your output file.) *Field-name* cannot have any embedded blanks, must begin with an alphabetic character, and can be no longer than 31 characters. POSITION specifies the position of the field in the record. SIZE specifies the size of a field, according to data type: character data must not exceed 32,767 characters; binary data must be 1, 2, 4, 8, or 16 bytes; and floating-point data has no specified size. *Data-type* specifies the data type of the field; the default is character. Specify *data-type* as:

- CHARACTER (default)

- BINARY[,SIGNED]

- BINARY,UNSIGNED

- D—FLOATING

- F—FLOATING

- G—FLOATING

- H—FLOATING

- ZONED

- DECIMAL[,SIGNED,TRAILING—SIGN,OVERPUNCHED—SIGN]

- DECIMAL,LEADING—SIGN,SEPARATE—SIGN[,SIGNED]

- DECIMAL,LEADING—SIGN,[OVERPUNCHED—SIGN,SIGNED]

- DECIMAL,[TRAILING—SIGN],SEPARATE—SIGN[,SIGNED]

- DECIMAL,UNSIGNED

- PACKED—DECIMAL

DIGITS specifies the size of a field containing decimal data; n cannot exceed 31 digits.

/INCLUDE=(CONDITION=condition-name,[KEY=...],DATA=...])

Specifies that records are to be conditionally included (according to a previously defined condition). If you specify multiple /INCLUDE qualifiers, the order in which you specify them determines the order in which the input records are tested for inclusion. You unconditionally include any records not previously omitted or included by specifying /INCLUDE without a condition. The order of the key fields you specify determines how the internal key is built for merging; the order of the DATA fields determines the way in which the output record is formatted. If you specify a key or data field with /INCLUDE, you must define all other key or data fields in the record.

/KEY=(field-name[,order])
/KEY=(IF condition-name THEN value ELSE value)

Specifies key fields (up to 255) and the order of their priority (unnecessary if you are merging on the entire record using character data). *Field-name* is the name of the field specified in the /FIELD qualifier. *Order* can be ASCENDING or DESCENDING. The conditional form of the /KEY qualifier specifies a relative order of records; *value* can be a constant or a field name that has been defined in a /FIELD qualifier.

/OMIT=(CONDITION=condition-name)

Specifies records to be conditionally omitted from the output file (by a previously defined condition). If you specify multiple /OMIT qualifiers, the order in which you specify them determines the order in which the input records are tested for omission. You can unconditionally omit any records not previously omitted or included by specifying /OMIT without a condition.

/PAD=single-character

Specifies a character to be used to fill an incomplete record when you are reformatting a record or comparing strings of unequal length; the null character is the default pad character. The pad character can be a character or a digit (either decimal, octal, or hexadecimal). Enclose characters in quotation marks ("") and precede digits with a radix (%X23).

/STABLE (default)
/NOSTABLE (default)

Arranges records with equal keys in the output file in the same order of the input files (by default, the order is unpredictable).

/WORK_FILES=(disk,...)
    Assigns work files to the specified disk and/or diskette. (By default,
    work files are located in the directory SYS$SCRATCH; placing them on
    separate disks with /WORK_FILES permits overlap of MERGE's read
    /write cycle.)

/STABLE
/NOSTABLE (default)

Maintains the order of records with identical keys; otherwise, the order is un-
predictable. The /STABLE qualifier is incompatible with the /NODUPLICATES
qualifier.

/STATISTICS
/NOSTATISTICS (default)

Displays a statistical summary at the end of the merge.

EXAMPLE

$ MERGE/KEY=(POSITION=8,SIZE=15) NAME1.LST,NAME2.LST NAME3.LST

Merges the files NAME1.LST and NAME2.LST according to that portion of each
record starting at position 8 and ending at position 15; the output file is NAME3.LST.

MOUNT device-name,... [volume-label,...] [logical-name]

Makes a volume available for processing. The volume must be physically loaded on
a ready device. Volumes mounted privately from a subprocess become owned by the
master process.

PARAMETERS

device-name

Name of the device (physical name or logical name) on which the volume is
physically loaded.

volume-label

Label placed on the volume at initialization time. You must specify the
label unless the volume is mounted with the /FOREIGN, /NOLABEL, or
/OVERRIDE=IDENTIFICATION qualifier. (You must specify the volume-label
position in order to specify a logical name.)

logical-name

A character string of 1 through 255 characters. If the string contains blanks,
enclose it in quotation marks (""). The logical name defaults to DISK$volume-
label for disk volumes. (Do not use a logical name that matches the file name of
an executable image in SYS$SYSTEM.)

QUALIFIERS

/ACCESSED=number-of-directories

Requires OPER privilege.

Specifies the approximate number of directories that will be in use concurrently on the volume. The value specified with the /ACCESSED qualifier (which can be from 0 through 255) overrides the default set when the volume was initialized.

/ASSIST (default)
/NOASSIST

Allows operator or user intervention if the MOUNT request fails. Operator replies are written to SYS$OUTPUT.

NOTE: Operator-assisted MOUNT commands will not work unless the OPCOM process is running. SYS$MANAGER:SYLOGIN.COM creates the symbol MOUNT/NOASSIST for the MOUNT command. If you choose to allow operator-assisted MOUNT commands, you should remove this symbol and start OPCOM by deleting the comment character (!) from the line @SYS$SYSTEM:STARTUP OPCOM in SYS$MANAGER:SYSTARTUP.COM.

/AUTOMATIC (default)
/NOAUTOMATIC

Determines whether MOUNT enables or disables automatic volume switching and labeling for magnetic tape. If you have multiple magnetic tape drives allocated to a volume set, the MTAACP performs the volume switch by sequentially selecting the next available drive allocated to the volume set. The MTAACP expects the next reel of the volume set to be loaded on that drive.

/BIND=volume-set-name

Creates a volume set of one or more disk volumes or adds one or more volumes to an existing volume set. (Specify the root volume label first, if it is not online.) The *volume-set-name* can be from 1 through 12 alphanumeric characters.

/BLOCKSIZE=n

Specifies, for magnetic tape volumes, the default block size. Valid values are in the range 18 through 65,534 for MicroVMS RMS operations and 14 through 65,534 for MicroVMS non-RMS operations. By default, records are written to magnetic tape volumes in 2048-byte blocks. For foreign or unlabeled magnetic tapes, the default is 512 bytes.

You must specify /BLOCKSIZE when you are mounting either tapes that do not have HDR2 labels, or tapes that contain blocks whose size exceeds the default block size (2048 bytes).

/CACHE=(keyword,...)
/NOCACHE

For disk devices, overrides the disk caching limits established at system generation time. With the TAPE_DATA option, enables or disables the write cache for the tape controller specified. Possible keywords are:

[NO]EXTENT[=n]	Enables extent caching to the specified limit. NOEXTENT or EXTENT=0 disables extent caching. Requires OPER privilege.
[NO]FILE_ID[=n]	Enables file identification caching. The value of N must be greater than 1. Requires OPER privilege. NOFILE_ID or FILE_ID=1 disables file identification caching.
LIMIT=n	Specifies the maximum amount of free space in the extent cache in 1/1000's of currently available free space on the disk.
[NO]QUOTA[=n]	Enables quota caching. You normally set N to the maximum number of expected active users for a disk with quotas enabled. NOQUOTA or QUOTA=0 disables quota file caching.
TAPE_DATA	Enables the write cache for a tape device if the tape controller supports a write cache. /NOCACHE is the default for mounting tape devices. If the tape controller does not support a write cache, the option is ignored.
WRITETHROUGH	Disables writeback caching which only writes the file headers of files open for write after the files are closed. Thus, WRITETHROUGH writes file headers to the disk on every file header operation.

If you specify more than one option, separate them by commas and enclose the list in parentheses.

/COMMENT="string"

Writes the string containing additional information for the operator (when operator assistance is necessary) to the operator log file and the current SYS$OUTPUT device. The string must contain no more than 78 characters.

/DATA_CHECK=(keyword,...)

Checks all read and/or write operations on the disk. Overrides the initialization value. Specify one or both keywords:

READ	Checks all read operations
WRITE	Checks all write operations (default)

/DENSITY=n

The /DENSITY qualifier is not applicable to the TK50 tape device.

Specifies, for foreign or unlabeled tapes, the density (in bpi) at which the tape will be written. You can specify 800, 1600, or 6250, if the density is supported by the magnetic tape drive. If you do not specify a density for a tape that was previously written, the density defaults to that of the first record on the volume.

/EXTENSION=n

Sets the extend quantity default for all files on the volume. The value *n* can range from 0 through 65535.

/FOREIGN

Requires ownership of the volume or VOLPRO privilege for Files–11 volumes.

Indicates the volume is not to be processed by the file system.

/GROUP

Requires GRPNAM privilege.

Makes the volume available to all processes with your group number, and makes its name a group logical name.

/HDR3 (default)
/NOHDR3

Controls whether MicroVMS file header labels are written on magnetic tapes. By default, MicroVMS file header labels are written on magnetic tape. You can specify /NOHDR3 to write tapes that will be used on other systems that do not process MicroVMS file header labels correctly.

/INITIALIZE=CONTINUATION

Specifies that any volume added to the magnetic tape volume set is initialized before you can write to the volume.

/LABEL (default)
/NOLABEL

Indicates, for magnetic tape volumes, whether the tape contains MicroVMS ANSI labels. Note that /NOLABEL is equivalent to /FOREIGN.

/MESSAGE (default)
/NOMESSAGE

Writes MOUNT request messages to SYS$OUTPUT.

/MOUNT_VERIFICATION (default)
/NOMOUNT_VERIFICATION

Enables mount verification.

/OVERRIDE=(option,...)

Requires OPER or VOLPRO privileges to specify /OVERRIDE=(ACCESSIBILITY, EXPIRATION) along with the /FOREIGN qualifier; otherwise, the tape will not be read.

Allows you to override one or more protection checks that the MOUNT command performs. The options are as follows:

ACCESSIBILITY	(For magnetic tapes only.) If the installation allows, this option overrides any character in the Accessibility Field of the volume. The necessity of this option is defined by the installation. That is, each installation has the option of specifying a routine that the magnetic tape file system will use to process this field. By default, MicroVMS provides a routine that checks this field in the following manner. If the magnetic tape was created on a version of MicroVMS that conforms to Version 3 of ANSI, then this option must be used to override any character other than an ASCII space. If a MicroVMS protection is specified and the magnetic tape conforms to an ANSI standard that is later than Version 3, then this option must be used to override any character other than an ASCII 1. To use the ACCESSIBILITY option, you must have the user privilege VOLPRO or be the owner of the volume.
EXPIRATION	(For magnetic tapes only). Allows you to write to a tape that has not yet reached its expiration date. You must have the user privilege (VOLPRO) to override volume protection or your UIC must match the UIC written on the volume.
IDENTIFICATION	Allows you to mount a volume when you do not know what the volume label is. If you specify /OVERRIDE=IDENTIFICATION, you can specify anything for the volume-label parameter or you can omit it; the MOUNT command ignores whatever you enter. The volume must be mounted /NOSHARE (either explicitly or by default).
LOCK	Directs MOUNT not to write-lock the volume as a consequence of certain errors encountered while mounting it. Use this option when you are mounting a damaged volume to be repaired using the Verify Utility. (BYPASS privilege will be necessary to actually perform the repair operation.) VOLPRO privilege or ownership of the volume is required to use this option.
OWNER_IDENTIFIER	Allows you to override the processing of the Owner Identifier field of the volume label.
SETID	(For tapes that do not conform to ANSI standards). Allows you to inhibit checks of the file set identifier when you switch reels in a multivolume tape set.

If you specify more than one option, separate them with commas and enclose the list in parentheses.

/OWNER_UIC=[uic]

Requires ownership of the volume or VOLPRO privilege to specify a UIC other than your own.

Specifies an owner UIC for the volume while it is mounted. The default is the UIC initialized for the volume.

/PROCESSOR=keyword

Requires OPER privilege.

For magnetic tapes and Files–11 Structure Level 1 disk, requests that the MOUNT command associate an ACP to process the volume. The /PROCESSOR qualifier causes MOUNT to override the default manner in which ACPs are associated with devices.

For Files–11 Structure Level 2 disk, controls block cache allocation.

Possible keywords are:

UNIQUE	For magnetic tape and Files–11 Structure Level 1 disk, creates a new process to execute a copy of the default ACP image for the specified device type or controller.
	For Files–11 Structure Level 2 disk, allocates a separate block cache.
SAME:device	For magnetic tape and Files–11 Structure Level 1 disk, uses the same ACP process currently being used by the device specified.
	For Files–11 Structure Level 2 disk, takes the block cache allocation from the specified device.
file-spec	Creates a new process to execute the ACP image specified by the file-spec (for example, a modified or a user-written ACP). No wildcard characters are allowed in the file specification.
	Also, node and directory names are not allowed in the file specification.
	This option requires CMKRNL and OPER privilege.

/PROTECTION=(ownership[:access],...)

Requires VOLPRO privilege for a volume other than your own.

Applies the specified protection to the volume while it is mounted. The default is the protection initialized for the volume. The ownership categories are SYSTEM, OWNER, GROUP, WORLD; the access categories are R (read), W (write), E (create), and D (delete).

/QUOTA (default)
/NOQUOTA

Requires VOLPRO privilege for a volume other than your own.

Enforces disk quotas for each user on the volume if the volume contains a quota file.

/REBUILD (default)
/NOREBUILD

Controls whether or not MOUNT performs a rebuild operation on a disk volume. If a disk volume has been improperly dismounted (such as during a system failure), it must be rebuilt in order to recover any caching limits that were enabled on the volume at the time of the dismount. By default, MOUNT attempts the rebuild.

The rebuild may consume a considerable amount of time, depending on the number of files on the volume and, if quotas are in use, on the number of different file owners. If you use the /NOREBUILD qualifier, devices can be returned to active use immediately. You can then perform the rebuild later with the DCL command SET VOLUME/REBUILD.

/RECORDSIZE=n

Specifies, for magnetic tape volumes, the number of characters in each record. This qualifier is normally used with the /FOREIGN and /BLOCKSIZE qualifiers to read or write fixed-length records on a block-structured device. In this case, the record size must be less than or equal to the block size that is specified or used by default. The block size may be in the range 18 through 65,534 bytes if you are using MicroVMS RMS, or 14 through 65,534 bytes if you are not using MicroVMS RMS.

/SHARE
/NOSHARE (default)

Makes the volume available to all users. You can **not** use /SHARE with tape devices.

/SYSTEM

Requires SYSNAM privilege.

Makes the volume available to all users of the system and makes its logical name a system logical name.

/UNLOAD (default)
/NOUNLOAD

Controls whether or not the disk specified in the MOUNT command is unloaded when it is dismounted.

/WINDOWS=number-of-pointers

Specifies the number of mapping pointers (used to access data in the file) to be allocated for file windows. The value of *n* can be from 7 through 80; the default is 7. Overrides the initialization value.

/WRITE (default)
/NOWRITE

Permits WRITE access to the volume.

EXAMPLES

$ MOUNT $FLOPPY1 ACCOUNTS

Mounts the volume labeled ACCOUNTS on $FLOPPY1.

$ MOUNT/SHARE $FLOPPY1 ACCOUNTS

Mounts the volume labeled ACCOUNTS on $FLOPPY1 and permits it to be used by other processes on the system.

ON event THEN command

Performs a specified action when an error equal to or greater than the specified error severity level or a CTRL/Y interrupt occurs. Use only in command procedures.

PARAMETERS

event

One of the following events:

WARNING	Return status of warning ($SEVERITY equals 0) occurs
ERROR	Return status of error ($SEVERITY equals 2) occurs
SEVERE_ERROR	Return status of error ($SEVERITY equals 4) occurs
CONTROL_Y	CTRL/Y character occurs on SYS$INPUT

command

Any valid DCL command.

EXAMPLES

$ ON ERROR THEN CONTINUE

Causes the command procedure to continue execution if an error or severe error occurs.

$ ON CONTROL_Y THEN GOTO END_TYPE

Passes control to the label END_TYPE if a CTRL/Y interrupt occurs.

OPEN logical-name file-spec

Opens a file for reading or writing and associates a logical name with the file.

PARAMETERS

logical-name
> A character string of 1 through 63 characters.

file-spec
> File specification of the file being opened. The file type defaults to DAT.
> Wildcard characters are not allowed.

QUALIFIERS

/APPEND
> Opens an existing file for output. New records are added to the end of the file.
> Incompatible with the /WRITE qualifier.

/ERROR=label
> Transfers control to the location specified by *label* (in a command procedure)
> if the OPEN operation results in an error. This qualifier overrides any ON
> condition action specified.

/READ (default)
> Opens the file for reading.

/SHARE[=option]
> Permits other users READ or READ/WRITE access to the file. Specify option as
> READ or WRITE (default).

/WRITE
> Opens the file for writing. If the file already exists when you open it for WRITE
> access, a new version is created.

EXAMPLE

```
$ OPEN/WRITE ACCOUNTS $DISK1:[ACCOUNTS]1981.DAT
```
Opens the file $DISK1:[ACCOUNTS]1981.DAT for writing and associates it with
logical name ACCOUNTS.

PRINT file-spec,...

**Requires the Secure User Environment Option and that the system print queues
have been initialized and started.**

Queues one or more files for printing.

PARAMETERS

file-spec

Specification of the file to be printed. Wildcard characters are allowed. The plus sign can be used in place of the comma between file specifications. The file type of the first file specified defaults to LIS. The file must not reside on an allocated device. Node names are allowed only when the /REMOTE qualifier is used.

QUALIFIERS

/AFTER=time
/NOAFTER

Holds the job until the specified time. The time can be specified as an absolute time or a combination of absolute and delta times. If the specified time has passed, the job is queued for printing immediately.

/BACP
/NOBACKUP

Selects files according to the dates of their most recent backups. Relevant only when used with the /BEFORE or /SINCE qualifier.

/BEFORE[=time]
/NOBEFORE

Selects for printing only those files that are dated before the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BURST[=keyword]
/NOBURST

Positional qualifier.

Prints a burst page (a flag page printed over the perforation between pages for easy identification of individual files) according to one of the following keywords. If the /BURST qualifier is specified between the PRINT command and the file specifications, it can take either of two keywords:

ALL   Prints a burst page before each file in the job

ONE   Prints a burst page before the first file in the job

The default is the queue specification established in the INITIALIZE/QUEUE command.

To have the /BURST qualifier apply to individual files in a multi-file job, place the qualifier directly after each file that you want to have a burst page. The default is /NOBURST.

/BY_OWNER[=uic]
/NOBY_OWNER

Selects one or more files only if their owner user identification code (UIC) matches the specified UIC. If the BY_OWNER qualifier is specified without a UIC, the UIC of the current process is assumed.

/CHARACTERISTICS=(characteristic,...)

Specifies one or more characteristics for printing the job. Use the SHOW QUEUE/CHARACTERISTICS command to display the available characteristics (defined with the DEFINE/CHARACTERISTIC command).

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each printing. The following requests are valid:

YES	Print the file
NO	Do not print the file
TRUE	Print the file
FALSE	Do not print the file
1	Print the file
0	Do not print the file
RETURN	Do not print the file
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/COPIES=n

Positional qualifier.

Specifies the number of copies to print. The value of n can be from 1 to 255 and defaults to 1.

If you place the /COPIES qualifier after the PRINT command name, each file in the parameter list is printed the specified number of times. If you specify /COPIES following a file specification, only that file is printed the specified number of times.

/CREATED (default)
/NOCREATED

Selects files based on their dates of creation. Relevant only when used with the /BEFORE or /SINCE qualifier.

/DELETE
/NODELETE (default)

   Positional qualifier.

   Controls whether files are deleted after printing. If you place the /DELETE
   qualifier after the PRINT command name, all specified files are deleted. If you
   specify /DELETE after a file specification, only that file is deleted after it is
   printed.

/DEVICE=queue-name[:]

   Places the print job in the specified queue (rather than the default queue
   SYS$PRINT). This qualifier is synonymous with /QUEUE, except that the
   /DEVICE qualifier is reserved for special use by DIGITAL. Its usage, therefore, is
   not recommended.

/EXCLUDE=(file-spec,...)
/NOEXCLUDE

   Excludes any files that match the listed file specifications from the PRINT
   operation. Wildcard characters are supported for file specifications. However,
   you cannot use relative version numbers to exclude a specific version.

/EXPIRED
/NOEXPIRED

   Selects files according to the dates on which they will expire. Relevant only
   when used with the /BEFORE or /SINCE qualifier.

/FEED (default)
/NOFEED

   Positional qualifier.

   Automatically inserts form feeds when pages are within 4 lines of the end of the
   page (line 62 on 66-line forms). You can reset the number of lines per form with
   the /FORM qualifier. This qualifier does not affect user-formatted files.

/FLAG[=keyword]
/NOFLAG

   Positional qualifier.

   Controls whether a flag page is printed preceding a file. The flag page contains
   the name of the user submitting the job, the job entry number, and other
   information about the file being printed.

If the /FLAG qualifier is positioned between the PRINT command and the file specifications, it can take either of two keywords:

ALL   Prints a flag page before each file in the job

ONE   Prints a flag page before the first file in the job

To have the /FLAG qualifier apply to individual files in a multifile job, place the qualifier directly after each file that you want to have a flag page.

/FORM=type

Specifies a form type for print queues (defined with the DEFINE/FORM command). Type SHOW QUEUE/FORM to display the available print forms. The default is /FORM=0.

/HEADER
/NOHEADER (default)

Qualifies file-spec.

Prints the name of the file at the top of each page.

/HOLD
/NOHOLD (default)

Holds the job (until released by a SET QUEUE/ENTRY command).

/IDENTIFY (default)
/NOIDENTIFY

Displays the queue name and job number of the job when it is queued.

/JOB_COUNT=n

Prints the job n times. The value of n can be from 1 through 255 and defaults to 1.

/LOWERCASE
/NOLOWERCASE (default)

Prints the job only on a printer that supports lowercase characters.

/MODIFIED
/NOMODIFIED

Selects files according to the dates on which they were last modified. Relevant only with the /BEFORE or /SINCE qualifier.

/NAME=job-name

Names the job. The name consists of 1 through 39 alphanumeric characters. The default is the name of the first file in the job.

/NOTE=string

Specifies a message string of up to 255 characters to appear on the flag page of the job.

/NOTIFY
/NONOTIFY (default)

Broadcasts a message to your terminal when the job is printed.

/OPERATOR=string

Specifies a message of up to 255 characters to be sent to the operator when the job begins to print.

/PAGES=([lower,]upper)

Positional qualifier.

Specifies the number of pages to print for each file in the job, or for the specified file. The lower parameter specifies the first page to print; the default is the first page of the file. The upper parameter specifies the last page to print; the default is the last page, but you must include double quotation marks ("") if you do not specify the upper parameter.

/PARAMETERS=(parameter,...)

Specifies from one to eight optional parameters to be passed to the job; each parameter can contain up to 255 characters. Enclose parameters containing any special characters or delimiters with quotation marks ("").

/PASSALL
/NOPASSALL (default)

Positional qualifier.

Specifies whether the symbiont bypasses all formatting and sends the output QIO to the driver with format suppressed for each file in the job, or for the specified file. All qualifiers affecting formatting, as well as the /HEADER, /PAGES, and /PAGE_SETUP qualifiers, will be ignored.

/PRIORITY=n

Requires OPER or ALTPRI privilege to raise the priority above the SYSGEN parameter MAXQUEPRI.

Specifies the job's priority. The value of n can be from 0 through 255, where 0 is the lowest priority and 255 the highest. The default value of n is the value of the SYSGEN parameter DEFQUEPRI.

/QUEUE=queue-name

Queues the job to the specified print queue. If this qualifier is omitted, the default is SYS$PRINT. This qualifier is synonymous with /DEVICE.

/REMOTE
   Requires the DECnet Option.

   Queues the job to SYS$PRINT on the remote node specified in the file specification (the file must exist on the remote node). You cannot specify any other qualifiers with /REMOTE.

/RESTART (default)
/NORESTART
   Restarts the job after a crash or a STOP/REQUEUE command.

/SETUP=module,...
   Extracts the specified module from the device control library (containing escape sequence modules for programmable printers) and copies the module to the printer before a file is printed.

/SINCE[=time]
/NOSINCE
   Selects for printing only those files dated after the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/SPACE
/NOSPACE (default)
   Positional qualifier.

   Double spaces all files in the print job, or the specified file (the default is single spacing).

/TRAILER[=keyword]
/NOTRAILER
   Positional qualifier.

   Controls whether a trailer page is printed at the end of a file. The trailer page displays the job entry number as well as information about the user submitting the job and the files being printed.

   If the /TRAILER qualifier is positioned between the PRINT command and the file specifications, it can take either of two keywords:

   ALL   Prints a trailer page after each file in the job
   ONE   Prints a trailer page after the last file in the job

   To have the /TRAILER qualifier apply to individual files in a multifile job, place the qualifier directly after each file that you want to have a trailer page.

/USER=username
   Specifies a user name other than your own as the submitter of the print job.

EXAMPLES

$ `PRINT WATER.TXT`

Queues a print job for the file WATER.TXT to the queue SYS$PRINT.

$ `PRINT WATER1.TXT,WATER2`

Queues a print job for two files — WATER1.TXT and WATER2.TXT — to SYS$PRINT.

$ `PRINT /QUEUE=SPECIAL WATER1.TXT`

Queues a print job for the file WATER1.TXT to the print queue SPECIAL.

$ `PRINT WATER1.TXT,WATER2.TXT/FLAG`

Queues a print job for two files to SYS$PRINT. Puts a flag page at the beginning of the second file.

$ `PRINT/REMOTE BLINK::WORK3:[ACCOUNTS]LAND2.TXT`

Queues a print job for the file BLINK::WORK3:[ACCOUNTS]LAND2.TXT to the print queue SYS$PRINT on the remote node BLINK.

PURGE [file-spec,...]

Deletes all but the highest numbered version or versions of a file or files.

PARAMETERS

file-spec

> Specification of file to be purged. Wildcard characters are allowed in the directory, file name, and file type fields. No version number can be specified. The default is all files in the current default directory.

QUALIFIERS

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

> Selects files for the purge operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

> Purges only those files dated before the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED or /MODIFIED.

/BY_OWNER[=uic]

Purges only those files with the specified user identification code. The default UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each purge. The following responses are valid:

YES	Purge
NO	Do not purge
TRUE	Purge
FALSE	Do not purge
1	Purge
0	Do not purge
RETURN	Do not purge
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CREATED (default)

See /BACKUP.

/ERASE
/NOERASE (default)

Erases the specified files from the disk so that the purged data no longer exists physically on the deallocated disk blocks.

/EXCLUDE=(file-spec,...)

Excludes files from the purge. The qualifier value *file-spec* cannot include a device name. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED

See /BACKUP.

/KEEP=number-of-versions

Retains the specified number of versions (starting with the highest) of each file. The default is 1.

/LOG
/NOLOG (default)
　　Displays the file specifications of the files as they are purged.

/MODIFIED
　　See /BACKUP.

/SINCE[=time]
　　Selects for purging only those files dated after the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED or /MODIFIED.

EXAMPLES

`$ PURGE`

Purges all files in your default directory leaving only the highest numbered version of each file.

`$ PURGE/KEEP=2`

Purges all files in your default directory, leaving only the two highest numbered versions of each file.

`$ PURGE [.MEMOS]`

Purges all files in your MEMOS subdirectory.

`$ PURGE/ERASE/SINCE=YESTERDAY [.MEMOS]`

Purges all files in your MEMOS subdirectory that have been created or modified since yesterday and erases the storage locations so that the purged data no longer exists.

READ logical-name symbol-name

Reads a record from SYS$INPUT, SYS$COMMAND, or a file opened with the DCL OPEN command and assigns its contents to a symbol.

PARAMETERS

logical-name
　　The logical name associated with the input file by the OPEN command, or the logical names SYS$INPUT or SYS$COMMAND.

symbol-name
　　Name of a symbol to be equated to the contents of the record. The name must be 1 through 255 alphanumeric characters. The symbol becomes a local character symbol. If the symbol has already been defined, the READ command redefines it to the contents of the record.

QUALIFIERS

/DELETE

Deletes a record from an ISAM file after it has been read. Requires that the ISAM file be opened with the /READ and /WRITE qualifiers.

/END_OF_FILE=label

Transfers control to the location specified by *label* (in a command procedure) when the end of the file is reached. The transfer overrides any /ERROR label or ON condition action specified.

/ERROR=label

Transfers control to the location specified by *label* (in a command procedure) when a read error occurs. Overrides any ON condition action specified. The system symbol $STATUS retains the error code.

/INDEX=key-of-reference

Specifies the index to be used to look up keys when reading an ISAM file. The default value is 0, the primary index.

/KEY=key-value

Reads a record with the key that matches the specified value. Enclose the value in quotation marks (""). Binary and integer keys are not allowed.

/MATCH=option

Specifies the match algorithm to be used when searching for matching keys.

EQ   Select keys equal to the match value (default)

GE   Select keys greater than or equal to the match value

GT   Select keys greater than the specified key

/NOLOCK

Specifies that the record not be locked and enables a record to be read that has been locked by other accessors. By default, records are locked as they are read and unlocked on the next I/O operation on the file.

/PROMPT=prompt

Specifies an alternate prompt if you are reading from the terminal. Enclose the prompt in quotation marks ("") if it contains spaces, special characters, or lower case characters. The default prompt is DATA:.

/TIME_OUT
/NOTIME_OUT (default)

Specifies a number of seconds after which READ is terminated if no input is received. If you enter /TIME_OUT, you must specify a value from 0 through

255. If you enter both the /TIME—OUT and /ERROR qualifiers, and if the time limit expires, the error branch is taken.

EXAMPLE

$ READ /END_OF_FILE=END_READ_DATA ACCOUNTS ACCNT_DATA

Reads the next record from the file associated with the logical name ACCOUNTS and puts it in the symbol ACCNT—DATA. Control passes to the label END—READ—DATA if the end of the file is reached when the READ is performed.

RECALL [command]

Displays previously entered commands on the screen for subsequent execution.

PARAMETERS

command

The first few characters or the number of the command you wish to recall. The specified characters should be sufficient to make the command unique since the most recently issued command line that matches the specified characters is recalled. The number of the command can be from 1 to 20 (where 1 is the last command entered) and defaults to 1.

QUALIFIERS

/ALL

Displays all the commands (and their numbers) available for recall.

EXAMPLE

$ RECALL

Recalls the last entered command.

$ RECALL T

Recalls the last command entered which begins with the letter "T".

RENAME input-file-spec,... output-file-spec

Changes all or part of a file specification.

PARAMETERS

input-file-spec

Specification of file to be renamed. Wildcard characters are allowed.

output-file-spec

New file specification. Wildcard characters are allowed. Parts of the output file specification that are omitted or replaced by wildcard characters default to the corresponding parts of the input file specification, except for the version number. A version number is determined (1) by the output file version number if specified

explicitly, (2) by the input file version if a wildcard is used for the input or output file type, or (3) by the next higher version number or a version number of 1 if the version number is not specified.

QUALIFIERS

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

Selects files for the rename operation according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

Renames only those files with dates that precede the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED or /MODIFIED.

/BY_OWNER[=uic]

Renames only those files with the specified user identification code. The default UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each file is renamed. The following responses are valid:

YES	Rename the file
NO	Do not rename the file
TRUE	Rename the file
FALSE	Do not rename the file
1	Rename the file
0	Do not rename the file
RETURN	Do not rename the file
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CREATED (default)

See /BACKUP.

/EXCLUDE(=file-spec,...)

Excludes the specified files from the rename operation. The qualifier value
file-spec cannot include a device name. Wildcard characters are supported for file
specifications. However, you cannot use relative version numbers to exclude a
specific version.

/EXPIRED

See /BACKUP.

/LOG
/NOLOG (default)

Displays the file specification of each file as it is renamed.

/MODIFIED

See /BACKUP.

/NEW_VERSION (default)
/NONEW_VERSION

Assigns a new version number if an output file specification is the same as that
of an existing file. The /NONEW_VERSION qualifier displays an error message
if an output file specification is the same as that of an existing file.

/SINCE[=time]

Renames only those files dated after the specified time. You can specify time as
an absolute time, as a combination of absolute and delta times, or as one of the
following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified
with /BACKUP, /CREATED (default), /EXPIRED or /MODIFIED.

EXAMPLES

`$ RENAME WATER.TXT SAVWATER`

Renames the highest version of WATER.TXT to the next higher version of
SAVWATER.TXT (or to SAVWATER.TXT;1 if that file does not exist).

`$ RENAME /NONEW_VERSION WATER.TXT;2 SAVWATER`

Renames WATER.TXT;2 to the next higher version of SAVWATER.TXT, or to
SAVWATER.TXT;1 if that file doesn't exist.

`$ RENAME/LOG [.MEMOS]*.TXT;* *.SAV;*`

Renames all files in the MEMOS subdirectory with a file type of TXT to the same file
specifications except that the file type is SAV. Displays the file specification of each
file as it is renamed.

`$ RENAME WATER.TXT [.MEMOS]`

Changes the directory name of WATER.TXT from your default directory to the
MEMOS subdirectory. (In effect, moves the file to another directory.)

`$ RENAME [.MEMOS]WATER.TXT []`
Moves WATER.TXT from the MEMOS subdirectory to your default directory.

`$ RENAME/SINCE=YESTERDAY [.MEMOS]*.TXT []`
Moves all files with the file type TXT created since yesterday to your default directory.

REPLY "message-text"

Broadcasts a message to a terminal or terminals.

PARAMETERS

message-text

Text of the message. The text must be 1 through 128 characters. Enclose the text in quotation marks ("") if it contains spaces, special characters, or lowercase characters.

QUALIFIERS

/ABORT=identification-number

Sends a message to the user or magnetic tape file system corresponding to the unique identification number and cancels the request.

/ALL

Requires OPER privilege.

Broadcasts a message to all terminals that are attached to the system, that have broadcast-message reception enabled, and that are turned on. Incompatible with /USERNAME and /TERMINAL.

/BELL

Rings a bell at the terminal receiving a message when issued with the /ALL, /TERMINAL, or /USER qualifiers; two bells when issued with /URGENT; and three bells when issued with /SHUTDOWN.

/BLANK_TAPE=identification-number

Requires VOLPRO privilege.

Sends a message to the magnetic tape file system indicated by the identification number to override the checking of volume label information. The volume label must be specified in the message text parameter. The current terminal must be enabled as an operator terminal for TAPES.

/DISABLE[=(keyword,...)]

Requires OPER privilege.

Restores to normal (that is, nonoperator) status a terminal at which the command is issued or whose name is specified in the message text parameter. The /DISABLE qualifier cannot be issued from a batch job. To restrict the types

of messages displayed on an operator's terminal, specify one of the following keywords:

CENTRAL	Inhibits messages sent to the central system operator
DEVICES	Inhibits messages pertaining to mounting disks
DISKS	Inhibits messages pertaining to mounting and dismounting disk volumes
NETWORK	Inhibits messages pertaining to networks; the keyword CENTRAL must also be specified to inhibit network messages
OPER1 through OPER12	Inhibits messages sent to operators identified as OPER1 through OPER12
PRINTER	Inhibits messages pertaining to print requests
SECURITY	Inhibits/allows messages pertaining to security events. Requires SECURITY privilege.
TAPES	Inhibits/allows messages pertaining to mounting and dismounting tape volumes.

/ENABLE[=(keyword,...)]
Requires OPER privilege.

Designates as an operator's terminal the terminal at which the REPLY command is issued. Cannot be issued from a batch job.

CENTRAL	Displays messages sent to the central system operator
DEVICES	Displays messages pertaining to mounting disks
DISKS	Displays messages pertaining to mounting and dismounting disk volumes
NETWORK	Displays messages pertaining to networks; the keyword CENTRAL must also be specified to inhibit network messages
OPER1 through OPER12	Displays messages sent to operators identified as OPER1 through OPER12
PRINTER	Displays messages pertaining to print requests
SECURITY	Inhibits/allows messages pertaining to security events. Requires SECURITY privilege.
TAPES	Inhibits/allows messages pertaining to mounting and dismounting tape volumes.

/INITIALIZE_TAPE=identification-number

Sends a message to the magnetic tape file system indicated by the identification number to initialize a magnetic tape volume. This qualifier can be used whenever the file system requests the mounting of a new volume. The system performs normal protection and expiration checks before initializing the volume. The current terminal must be enabled as an operator terminal for TAPES.

/LOG
/NOLOG
Requires OPER privilege.

Closes the current operator's log file and opens a new one. (The /NOLOG qualifier does not open a new log file.) The current terminal must be enabled as an operator terminal.

/NOTIFY(default)
/NONOTIFY
Sends a message describing success back to the originating terminal.

/PENDING=identification-number
Requires OPER privilege.

Sends a message to the user specified by the identification number and prevents the user from entering other commands until the operator fulfills or aborts the request. The current terminal must be enabled as an operator terminal.

/SHUTDOWN
Sends a message beginning "SHUTDOWN..."; if used with /BELL, rings three bells at terminals receiving the message.

/STATUS
Requires OPER privilege.

Reports the current operator status and all outstanding user requests for the terminal from which this command was entered. The current terminal must be enabled as an operator terminal.

/TEMPORARY
Designates the terminal at which the command is issued to be an operator's terminal for the current interactive session only. This qualifier is meaningful only when used with the /ENABLE qualifier.

/TERMINAL=(terminal-name,...)
Requires OPER privilege.

Broadcasts the message to specified terminals, where *terminal-name* is the device name of the terminal. Incompatible with /ALL and /USERNAME.

/TO=identification-number
Requires OPER privilege.

Sends a message to the user or file system specified by the identification number and completes the request. The current terminal must be enabled as an operator terminal.

/URGENT

Sends a message beginning "URGENT..."; if used with the /BELL qualifier, rings two bells at terminals receiving the message.

/USERNAME[=(username,...)]

Requires OPER privilege.

Broadcasts a message to all terminals at which users are logged in to the system, or only to the terminals of the specified users. Overrides any NOBROADCAST settings at users' terminals.

/WAIT

Sends message synchronously and waits.

EXAMPLES

$ REPLY /ALL /BELL "System going down in 10 minutes"
Broadcasts a message to all users.

$ REPLY /TERMINAL=$TERMINAL2 "Your print job is done"
Broadcasts a message to the terminal whose logical name is $TERMINAL2.

REQUEST "message-text"

Requires the Secure User Environment Option.

Displays a message at the operator's terminal and optionally requests a reply. All messages are logged at the operator's console and in the operator's log file, if that file is initialized.

NOTE: To use this command, you must start the OPCOM process at boot-time by specifying the DCL command @SYS$SYSTEM:STARTUP OPCOM in the site-specific startup command file, SYS$MANAGER:SYSTARTUP.COM.

PARAMETERS

message-text

The text of the message to be displayed. The string can be up to 128 characters. If the string contains spaces, special characters, or lowercase characters, enclose it in quotation marks ("").

QUALIFIERS

/REPLY

Requests a reply to the message and issues a unique identification number to which the operator sends the response. You receive a message that the operator has been notified; you cannot enter any commands until the operator responds. If you press CTRL/C before the operator responds, you can then enter another message to the operator, or press CTRL/Z to cancel the request.

/TO[=(operator,...)]

Specifies one or more operators to whom you wish to send the message. Possible keywords are:

CENTRAL	Sends the message to the central system operator
DEVICES	Sends the message to operators who mount and dismount disks
DISKS	Sends the message to operators who mount and dismount disk volumes
NETWORK	Sends the message to the network operator
OPER1 through OPER12	Sends the message to operators identified as OPER1 through OPER12
PRINTER	Sends the message to operators designated to handle print requests
SECURITY	Sends the message to operators designated to respond to security-related requests
TAPES	Sends the message to operators designated to mount and dismount tape volumes

EXAMPLE

```
$  REQUEST/REPLY "Are you there?"
```
Issues a message and requests a response.

RETURN [status-code]

Terminates a GOSUB subroutine and returns control to the command following the calling GOSUB command.

PARAMETER

status-code

Longword (integer) value giving the exit status of the subroutine. (This value is assigned to the global symbol $STATUS and the lower three bits determine the value of the global symbol $SEVERITY.)

EXAMPLE

```
$ RETURN 1
```
Transfers control to the command following the calling GOSUB statement giving $STATUS and $SEVERITY a value of 1.

RUN file-spec (image)

Executes an image within the context of your process.

PARAMETERS

file-spec

> Specification of a file containing an executable image. The file type defaults to EXE. Wildcard characters are not allowed.

QUALIFIERS

/DEBUG
/NODEBUG

> Executes the image under control of the debugger. The default is /DEBUG if the image is linked with /DEBUG and /NODEBUG if the image is linked without /DEBUG. The /DEBUG qualifier is invalid if the image is linked with /NOTRACEBACK. The /NODEBUG qualifier overrides the effect of LINK /DEBUG.

EXAMPLES

`$ RUN INCOME`
Executes the image INCOME.EXE in your default directory.

`$ RUN /NODEBUG [.INCX]INCOME`
Executes the image INCOME.EXE in your INCX subdirectory, ensuring that the image does not run under control of the debugger.

RUN file-spec (process)

Creates a subprocess or a detached process to run an image and deletes the process when the image completes execution. If you specify any of the qualifiers except /UIC or /DETACHED, the RUN command creates a subprocess. A detached process is created if the /UIC qualifier is specified and you have the DETACH user privilege.

PARAMETERS

file-spec

> Specification of a file containing an executable image. The file type defaults to EXE. Wildcards are not allowed.

QUALIFIERS

/ACCOUNTING (default)
/NOACCOUNTING
Requires the Secure User Environment Option.
Requires ACNT privilege to disable accounting.
Logs accounting records for the created process.

/AST_LIMIT=quota
Specifies the maximum number of asynchronous system traps (ASTs) that the
created process can have outstanding. The default quota is that established at
system generation time. The minimum required for any process to execute is 2.
The AST limit quota is nondeductible.

/AUTHORIZE
/NOAUTHORIZE (default)
Requires DETACH privilege.
Searches the user authorization file to validate a detached process when the
image to be executed is the system login image (LOGINOUT.EXE). The
/NOAUTHORIZE qualifier creates a detached process that runs under the
control of the command interpreter.

/BUFFER_LIMIT=quota
Specifies the maximum amount of memory, in bytes, that the process can use for
buffered I/O operations or temporary mailbox creation. The quota default is that
established at system generation time. The minimum amount required for any
process to execute is 1024 bytes; the buffer limit quota is pooled.

/DELAY=delta-time
Places the created process in hibernation and awakens it after a specified time
interval. If you specify both /DELAY and /INTERVAL, the first wakeup request
occurs at the time specified by /DELAY and all subsequent wakeups occur at
intervals as specified by /INTERVAL.

/DETACHED
/NODETACHED
Creates a detached process with the same user identification code (UIC) as the
current process. (Use the /UIC qualifier to create a detached process with a
different UIC.) By default, the detached process has the same resource quotas
as the current process; the DETACH privilege allows you to specify quotas
for the detached process. The maximum number of detached processes that
you can create is limited to the quota defined by MAX_DETACH in your user
authorization file, unless you have the DETACH privilege.

/DUMP
/NODUMP (default)

When an image terminates due to an unhandled error, /DUMP writes the contents of the address space to the file named SYS$LOGIN:IMAGEDUMP.DMP.

/ENQUEUE_LIMIT=quota

Specifies the maximum number of locks that a process can have outstanding at any one time. The default quota is that established at system generation time. The minimum required for any process to operate is 2.

/ERROR=file-spec

Defines an equivalence name string of from 1 to 63 alphanumeric characters for the logical device name SYS$ERROR. The logical name and equivalence name are placed in the process logical name table for the created process. (This qualifier is ignored if you are running SYS$SYSTEM:LOGINOUT.)

/EXTENT=quota

Specifies the maximum size to which the image being executed in the process can increase its physical memory size. The default quota is that established at system generation time. The minimum value required for any process to execute is 10 pages. The extent quota is nondeductible.

/FILE_LIMIT=quota

Specifies the maximum number of files that a process can have open at any one time. The default quota is that established at system generation time. The minimum amount required for any process to execute is 2. The file limit quota is pooled.

/INPUT=file-spec

Defines an equivalence name string of from 1 to 63 characters for SYS$INPUT. The logical name and equivalence name are placed in the process logical name table for the created process.

/INTERVAL=delta-time

Requests that the created process be placed in hibernation and awakened at regularly scheduled intervals. If you specify the /DELAY or /SCHEDULE qualifier with the /INTERVAL qualifier, the first wakeup occurs at the time specified by /DELAY or /SCHEDULE, and all subsequent wakeups occur at intervals specified by /INTERVAL. If you specify neither /DELAY nor /SCHEDULE with /INTERVAL, the first wakeup occurs immediately by default.

/IO_BUFFERED=quota

Specifies the maximum number of system-buffered I/O operations that the created process can have outstanding at any one time. The default quota is that

established at system generation time. The minimum required for any process to
execute is 2. The buffered I/O quota is nondeductible.

/IO_DIRECT=quota

Specifies the maximum number of direct I/O operations that the created process
can have outstanding at any one time. The default quota is that established at
system generation time. The minimum required for any process to execute is 2.
The direct I/O quota is nondeductible.

/JOB_TABLE_QUOTA=quota

Allows you to specify a quota for a detached process's job-wide logical name
table.

Note that the /JOB-TABLE_QUOTA qualifier is relevant only for detached
processes. If the /JOB_TABLE_QUOTA is specified in a RUN command which
results in the creation of a subprocess, it will be ignored.

/MAILBOX=unit

Specifies the unit number of a mailbox to receive a termination message when
the created process is deleted. (If no mailbox is specified, the creating process
receives no notification of the subprocess's deletion.)

/MAXIMUM_WORKING_SET=quota

Specifies the maximum size to which the image being executed in the process
can increase its working set size. The default quota is that established at system
generation time. The minimum value required for any process to execute is 10
pages. The maximum working set quota is nondeductible.

/OUTPUT=file-spec

Defines an equivalence name string of from 1 to 63 characters for the logical
device name SYS$OUTPUT. Both the equivalence name and the logical name are
placed in the process logical name table for the created process.

/PAGE_FILE=quota

Specifies the maximum number of pages that can be allocated in the paging file
for the process. The default quota is that established at system generation time.
The minimum value required for a process to execute is 256 pages. The paging
file quota is pooled.

/PRIORITY=n

Requires ALTPRI privilege to set the priority higher than your base priority.

Specifies the base priority at which the created process will execute. The value
of n is a decimal number from 0 through 31. The default priority is that of the
current process.

/PRIVILEGES=(keyword,...)

Requires SETPRV privilege to specify privileges that you do not have.

Defines user privileges for the created process. By default, the created process has the same privileges as its creator. If you specify a version number (or semicolon) in the *file-spec* parameter, the current process privileges are used, overriding any privileges specified with the /PRIVILEGES qualifier. The following table lists process privileges:

[NO]ACNT	Create processes for which no accounting messages are written
[NO]ALL	Have all privileges
[NO]ALLSPOOL	Allocate spooled devices
[NO]ALTPRI	Set priority values
[NO]BUGCHK	Make bug check error log entries
[NO]BYPASS	Bypass UIC protection
[NO]CMEXEC	Change mode to executive
[NO]CMKRNL	Change mode to kernel
[NO]DETACH	Create detached processes
[NO]DIAGNOSE	Issue diagnostic I/O requests
[NO]EXQUOTA	Exceed quotas
[NO]GROUP	Control other processes in the same group
[NO]GRPNAM	Place names in the group logical name table
[NO]GRPPRV	Access group objects
[NO]LOG_IO	Issue logical I/O requests to a device
[NO]MOUNT	Issue a mount volume QIO request
[NO]NETMBX	Create a network device
[NO]OPER	Perform operator functions
[NO]PFNMAP	Create or delete sections mapped by page frame number
[NO]PHY_IO	Issue physical I/O requests to a device
[NO]PRMCEB	Create permanent common event flag clusters
[NO]PRMGBL	Create permanent global sections
[NO]PRMJNL	Create a permanent journal
[NO]PRMMBX	Create permanent mailboxes
[NO]PSWAPM	Alter swap mode
[NO]READALL	Bypass existing restrictions on reading a file
[NO]SECURITY	Perform security-related functions
[NO]SETPRV	Give higher privileges to other processes
[NO]SHARE	Assign a channel to a device, even if the channel is allocated to another process

[NO]SHMEM	Create data structures in shared memory
[NO]SYSGBL	Create system global sections
[NO]SYSLCK	Request locks on systemwide resources
[NO]SYSNAM	Place names in the system logical name table
[NO]SYSPRV	Access system objects
[NO]TMPJNL	Create a temporary journal
[NO]TMPMBX	Create a temporary mailbox
[NO]VOLPRO	Override volume protection
[NO]WORLD	Control all other processes in the system

/PROCESS_NAME=process-name

Specifies a name of from 1 to 15 characters for the created process. The process name is implicitly qualified by the group number of the process's UIC. By default, the name is null.

/QUEUE_LIMIT=quota

Specifies the maximum number of timer queue entries that the created process can have outstanding at any one time. The default quota is that established at system generation time. The timer queue entry quota is pooled.

/RESOURCE_WAIT (default)
/NORESOURCE_WAIT

Places the created process in a wait state when a resource required for a particular function is not available. The /NORESOURCE_WAIT qualifier generates an error status code when a resource is unavailable.

/SCHEDULE=absolute-time

Places the created process in hibernation and awakens it at the specified time.

/SERVICE_FAILURE
/NOSERVICE_FAILURE (default)

Signals an exception condition if an error occurs during a system service request. By default, an error status code is returned to the process.

/SUBPROCESS_LIMIT=quota

Specifies the maximum number of subprocesses that the created process is allowed to create. The default quota is that established at system generation time. The subprocess limit is pooled.

/SWAPPING (default)
/NOSWAPPING
> Requires PSWAPM privilege to inhibit swapping.

> Permits the process to be swapped.

/TIME_LIMIT=quota
> Specifies the maximum amount of CPU time (in delta time) to be allocated to the created process. The resolution is to 10 milliseconds. When the time expires, the process is deleted. The default limit is that established at system generation time (usually infinite). A CPU time limit of 0 specifies that CPU time is not restricted. The time limit quota is deductible.

/UIC=uic
> Specifies that the created process be a detached process and assigns it a UIC.

/WORKING_SET=default
> Specifies the number of pages in the working set of the created process. The default working set size is that established at system generation time. The minimum number of pages required for a process to execute is 10 pages. The value specified cannot be greater than the quota specified with /MAXIMUM_WORKING_SET. The maximum working set quota is nondeductible.

EXAMPLES

$ RUN/PROCESS_NAME=ALTER INCAVE
Creates a subprocess named ALTER and runs the image INCAVE.EXE.

$ RUN/DELAY=3:30/OUTPUT=BALANCE.OUT BALANCE
Creates a subprocess to run the image BALANCE.EXE 3 hours and 30 minutes from now; output will be written to the file BALANCE.OUT.

RUNOFF

See Appendix DSR.

RUNOFF/CONTENTS

See Appendix DSR.

RUNOFF/INDEX

See Appendix DSR.

SEARCH file-spec,... search-string,...

Requires the Common Utilities Option.

Displays all occurrences of the specified string within the specified files.

PARAMETERS

file-spec[,...]

Specification of file to be searched. Wildcard characters are allowed.

search-string[,...]

Character string to be located. Enclose strings containing lowercase letters, blanks or other nonalphanumeric characters in quotation marks.

QUALIFIERS

/EXACT
/NOEXACT (default)

Distinguishes between uppercase and lowercase characters.

/EXCLUDE=(file-spec,...)

Excludes the specified files from the search. Do not include device and directory fields in the filespec. Wildcards characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/FORMAT=option

Formats output in one of four ways:

DUMP	Displays both control and nonprintable characters as ANSI mnemonics.
NONULLS	Same as DUMP, but removes any null characters.
PASSALL	Does not translate control and nonprintable characters; the terminal driver does not actually pass 8-bit characters to the terminal unless SET TERMINAL/PASTHRU or SET TERMINAL/EIGHT_BIT are already in effect.
TEXT	Displays control characters as ANSI mnemonics; displays terminal formatting characters as: $<$HT$>$, $<$CR$>$, $<$LF$>$, $<$VT$>$, and $<$FF$>$.

/HEADING (default)
/NOHEADING

Includes file names in the output file and displays 30 asterisks as a window separator between groups of lines that belong to different files. (The /WINDOW qualifier displays 15 asterisks as a separator between windows.)

/LOG
/NOLOG (default)

Types a message to SYS$OUTPUT for each file searched. The message includes the file name, the number of records, and the number of matches for each file searched.

/MATCH=option

Interprets multiple search strings in one of the following ways:

AND   A match occurs only if the record contains all the strings.

NOR   A match occurs only if the record contains none of the strings.

NAND   A match occurs only if the record does not contain all of the strings.

OR   A match occurs if the record contains any of the strings. (default).

/NUMBERS
/NONUMBERS (default)

Includes source line numbers in the output.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies an output file. The default is SYS$OUTPUT.

/REMAINING
/NOREMAINING (default)

Includes in the output all records from the first matched record to the end of the file. This qualifier overrides $n2$ in /WINDOW, but allows /WINDOW=$n1$.

/STATISTICS
/NOSTATISTICS (default)

Determines whether or not statistics about the search are displayed.

/WINDOW[=(n1[,n2])]
/NOWINDOW (default)

Specifies the number of lines to be displayed with the search string. If you specify the /WINDOW qualifier without $n1$ and $n2$, two lines above the search string, the search string, and the two lines below the search string are included in the output. If you specify $n1$ and $n2$, the /WINDOW qualifier displays $n1$ lines above the search string, the search string, and $n2$ lines below the search string. If you specify /WINDOW with a single number ($n1$), $n1$ specifies the number of lines to display including the search string: half the lines precede the matched search string, and half follow it. (If n is odd, 1 line is added to the lines following the matched search string.) If you specify /WINDOW=0, the file name of each file containing a match (but no records) is included in the output. If you omit the /WINDOW qualifier, only the line containing a match is displayed.

SET ACCOUNTING

Requires OPER privilege.

Enables or disables the logging of various activities in the accounting log file SYS$MANAGER:ACCOUNTNG.DAT, or closes the current accounting log file and opens a new one with a version number incremented by 1.

QUALIFIERS

/DISABLE[=(keyword,...)]
/ENABLE[=(keyword,...)]

Disables or enables the logging of the specified activities recorded in the accounting log file. If you specify only /DISABLE, the logging of all activities is disabled. If you specify only /ENABLE, the logging of all activities is enabled. The following keywords specify the activities:

BATCH	Batch job termination
DETACHED	Detached job termination
IMAGE	Image activation
INTERACTIVE	Interactive job termination
LOGIN_FAILURE	Login failures
MESSAGE	User messages
NETWORK	Network job termination
PRINT	Print jobs
PROCESS	Process termination
SUBPROCESS	Subprocess termination

/NEW_FILE

Closes the current accounting file and opens a new version of that file.

EXAMPLES

`$ SET ACCOUNTING/DISABLE=PRINT`
Suppresses the recording of print job statistics.

`$ SET ACCOUNTING/ENABLE`
Enables the recording of statistics on all activities.

SET ACL

See Appendix ACL.

SET AUDIT

Requires the SECURITY privilege.

Enables security auditing to send alarms to terminals that have been enabled as security operators (see REPLY/ENABLE) whenever the system detects specified events. If you enable security alarms, you must delete the comment delimiter (!) from the following line in SYS$MANAGER:SYSTARTUP.COM:

`$! @SYS$SYSTEM:STARTUP OPCOM`

QUALIFIERS

/ALARM

Sends alarm messages to all terminals enabled as security operators. Both /ALARM and either /DISABLE or /ENABLE are required.

/DISABLE=(keyword,...)
/ENABLE=(keyword,...)

Enables or disables security auditing for the specified events. The /ENABLE qualifier requires the /ALARM qualifier; /DISABLE overrides /ENABLE. Specify events to be audited with the following keywords:

ACL	An event requested by an Access Control List (ACL), including ACLs on files and global sections
ALL	All possible events
AUDIT	An event resulting from the execution of a SET AUDIT command.
AUTHORIZATION	The modification of any portion of the system or network user authorization file (UAF), including any password changes; the modification of any portion of the rights database
BREAKIN=(keyword,...)	The occurrence of one or more of the following classes of breakin attempts, as specified by one or more of the keywords below:

ALL	All possible sources of breakins, as defined by the remaining keywords
DETACHED	Detached process breakin attempt
DIALUP	Dialup breakin attempt
LOCAL	Local breakin attempt
NETWORK	Network server breakin attempt
REMOTE	Remote breakin attempt

FILE_ACCESS=(keyword,...)   The occurrence of file and global section access events (regardless of the value specified in the file's access control list, if any). You can specify one or more of the following keywords to describe the type of file access event.

ALL   All types of file access events, as defined by the remaining keywords

BYPASS
[:access,...]   Successful file access due to the use of the BYPASS privilege

FAILURE
[:access,...]   Unsuccessful file access

GRPPRV   Successful file access due to the use
[:access,...]   of the GRPPRV privilege

READALL   Successful file access due to the use
[:access,...]   of the READALL privilege

SUCCESS
[:access,...]   Successful file access

SYSPRV   Successful file access due to the use
[:access,...]   of the SYSPRV privilege

Most of the keywords permit you to optionally define the type of file access that was obtained with the following keywords:

ALL   All types of file access events, as defined by the remaining keywords; if no access types are specified, ALL is assumed by the system

READ   Read access

WRITE   Write access

EXECUTE   Execute access

DELETE   Delete access

CONTROL   Owner access

INSTALL   The occurrence of any INSTALL operations

LOGFAILURE=(keyword,...) The occurrence of one or more of the following classes of login failure, as specified by one or more of the keywords:

ALL	All possible types of login failures, as defined by the remaining keywords
BATCH	Batch process login failure
DETACHED	Detached process login failure
DIALUP	Dialup interactive login failure
LOCAL	Local interactive login failure
NETWORK	Network server task login failure
REMOTE	Interactive login failure from another network node, for example, with a SET HOST command
SUBPROCESS	Subprocess process login failure

LOGIN=(keyword,...) The occurrence of one or more of the following classes of logins, as specified by one or more of the keywords:

ALL	All possible sources of logins, as defined by the remaining keywords
BATCH	Batch process login
DETACHED	Detached process login
DIALUP	Dialup interactive login
LOCAL	Local interactive login
NETWORK	Network server task login
REMOTE	Interactive login from another network node, for example, with a SET HOST command
SUBPROCESS	Subprocess process login

LOGOUT=(keyword,...)		The occurrence of one or more of the following classes of logouts, as specified by one or more of the keywords:
	ALL	All possible sources of logouts, as defined by the remaining keywords
	BATCH	Batch process logout
	DETACHED	Detached process logout
	DIALUP	Dialup interactive process logout
	LOCAL	Local interactive process logout
	NETWORK	Logout by a network server task
	PROCESS	Subprocess or detached process logout
	REMOTE	Logout of a process that logged in interactively from another network node
MOUNT		The issuing of a MOUNT or DISMOUNT request

EXAMPLES

$ SET AUDIT/ALARM/ENABLE=ALL

Enables alarms for all possible events.

$ SET AUDIT/ALARM/ENABLE=(AUTHORIZATION,BREAKIN)

Enables alarms for any change in the system or network user authorization file (UAF) and for any breakin attempts.

SET BROADCAST =(class-name,...)

Enables you to select the kinds of messages to be broadcast to your terminal.

PARAMETERS

class-name

The class of message that you want to enable or disable for broadcast to your terminal. Specify the class of message with one or more of the following keywords:

ALL	All messages
[NO]DCL	Messages issued by DCL
[NO]GENERAL	All normal REPLY messages or messages from $BRDCST
[NO]MAIL	Messages giving notification of mail
NONE	No messages

[NO]OPCOM	Messages issued by OPCOM
[NO]PHONE	Messages from the Phone Utility
[NO]QUEUE	Messages about print or batch jobs issued by the queue manager
[NO]SHUTDOWN	Messages issued from REPLY/ID=SHUTDOWN
[NO]URGENT	Messages issued from REPLY/ID=SHUTDOWN
[NO]USERn	Messages from the specified user groups; n can be from 1 through 16

SET [NO]CONTROL [=(T,Y)]

Enables or disables CTRL/Y, which interrupts a command and returns you to DCL command level, and/or CTRL/T, which momentarily interrupts a command to print a line of statistics. The default keyword is Y.

CTRL/C responds as a CTRL/Y unless the current image has a special action routine defined for CTRL/C.

EXAMPLE

`$ SET NOCONTROL=Y`
Disables CTRL/Y.

SET DAY

Requires OPER privilege.

Sets the default day type specified in the user authorization file (UAF) for the current day.

QUALIFIERS

/DEFAULT

Overrides any previous SET DAY specification and sets the normal UAF defaults as today's day type.

/LOG
/NOLOG (default)

Displays the new SET DAY information on the terminal.

/PRIMARY

Sets today until midnight to a primary day.

/SECONDARY

Sets today until midnight to a secondary day.

EXAMPLES

$ `SET DAY/PRIMARY`

Sets today until midnight to a primary day.

$ `SET DAY/DEFAULT`

Sets today's day type to the UAF-defined default.

SET DEFAULT partial-file-spec

Sets your default device and directory specifications.

PARAMETERS

partial-file-spec

Device and/or directory name. A device name must be terminated with a colon. A directory name must be enclosed in brackets. A logical name can be used for the specification but it must constitute at least the device part of the specification. The minus sign wildcard can be used to specify the next higher directory from the current default.

EXAMPLES

$ `SET DEFAULT $FLOPPY1:[WATER.MEMOS]`

Sets your default to the WATER.MEMOS subdirectory on $FLOPPY1.

$ `SET DEFAULT [-]`

If you are in the WATER.MEMOS subdirectory on $FLOPPY1, sets your default to $FLOPPY1:[WATER]. If you are in the WATER directory on $FLOPPY1, sets your default to the master directory on the disk — $FLOPPY1:[000000].

$ `SET DEFAULT $FLOPPY1:`

Sets your default device to $FLOPPY1 without changing the directory part of the default.

SET DEVICE device-name

Requires OPER privilege.

Sets various characteristics for a device. You can use the SHOW DEVICE/FULL command to find out the state of these characteristics.

PARAMETERS

device-name
> Name of the affected device.

QUALIFIERS

/AVAILABLE
/NOAVAILABLE
> Specifies that the disk is available for mounting.

/DUAL _PORT
/NODUAL _PORT
> Enables the port seize logic in the device driver of the specified disk. Use only
> on disks that contain a dual port kit and have been dismounted.

/ERROR_LOGGING
/NOERROR_LOGGING
> Logs device errors in the error log file.

/LOG
/NOLOG (default)
> Displays log information at the terminal.

EXAMPLE

$ SET DEVICE/NOERROR_LOGGING $DISK1
Turns off error logging for $DISK1.

SET DEVICE/ACL

See Appendix ACL.

SET DIRECTORY directory-spec,...

Modifies the characteristics of one or more directories.

PARAMETERS

directory-spec
> Disk device (optional) and name of the directory or subdirectory. Wildcard
> characters are allowed.

QUALIFIERS

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

Selects files according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

Selects only those directories with dates that precede the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BY_OWNER[=uic]

Selects only those directories with the specified user identification code. The default UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)

Issues a request for confirmation before each SET DIRECTORY operation. The following responses are valid:

YES	Modify the directory
NO	Do not modify the directory
TRUE	Modify the directory
FALSE	Do not modify the directory
1	Modify the directory
0	Do not modify the directory
RETURN	Do not modify the directory
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CREATED

See /BACKUP.

/EXCLUDE=(file-spec,...)

Excludes the specified directory from modification. Wildcard characters are supported for directory specifications. You cannot include a device name.

/EXPIRED

See /BACKUP.

/LOG
/NOLOG (default)

Displays the directory specification of each directory modified as the command executes.

/MODIFIED

See /BACKUP.

/OWNER_UIC=[uic]

Requires SYSPRV privilege to specify a UIC other than your own.

Specifies an owner UIC for the directory. The default is the UIC of your process.

/SINCE[=time]

Selects only those directories dated after the specified time. You can specify time as an absolute time, a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/VERSION_LIMIT[=limit]

Specifies the maximum number of versions for files with the same name and type in the directory. The value 0 implies the Files–11 architectural limit of 32,767. If you change the version limit for the directory, the new limit applies only to files created after the change has been made.

EXAMPLES

`$ SET DIRECTORY/VERSION_LIMIT=5 [JONES...]`

Sets a version limit of 5 for all files in the [JONES] directory and all subdirectories of [JONES].

`$ SET DIRECTORY/OWNER_UIC=[360,020] [JONES],[ACCOUNTS]`

Changes the UIC of directories [JONES] and [ACCOUNTS] to [360,020].

SET DIRECTORY/ACL

See Appendix ACL.

SET FILE file-spec,...

Modifies file characteristics.

PARAMETERS

file-spec
   A valid file specification. Wildcards are allowed.

QUALIFIERS

/BACKUP
/NOBACKUP (default)
   Specifies that BACKUP will record the contents of the file. The /NOBACKUP
   qualifier causes BACKUP to record the attributes of the file but not its contents.
   Valid only for Files–11 Structure Level 2 files.

/BEFORE[=time]
   Selects only those files with dates that precede the specified time. You can
   specify time as an absolute time, as a combination of absolute and delta times,
   or as one of the following keywords: TODAY (default), TOMORROW, or
   YESTERDAY.

/BY_OWNER[=uic]
   Selects only those files with the specified user identification code. The default
   UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)
   Issues a request for confirmation before each SET FILE operation. The following
   responses are valid:

YES	Modify the file
NO	Do not modify the file
TRUE	Modify the file
FALSE	Do not modify the file
1	Modify the file
0	Do not modify the file
RETURN	Do not modify the file
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CREATED
   Selects files based on the dates of their creation. Relevant only with the
   /BEFORE or /SINCE qualifiers.

/DATA_CHECK[=([[NO]READ],[[NO]WRITE])]

Verifies read operations, by rereading each record, and write operations, by reading each record after it is written. By default, a WRITE data check is performed.

/END_OF_FILE

Resets the end-of-file mark to the highest block allocated.

/ENTER=new-file-spec

Assigns an additional name to a single file. Use with caution. To remove one of the log names of a file, use the /REMOVE qualifier.

/ERASE_ON_DELETE

Specifies that the specified files will be physically removed from the disk when purged or deleted.

/EXCLUDE=(file-spec,...)

Excludes the specified file from the SET FILE operation. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version. The file specification can contain a directory specification, but not a device specification.

/EXPIRATION_DATE=date
/NOEXPIRATION_DATE

Requires ownership of the file or access control.

Controls whether an expiration date is assigned to the specified files.

/EXTENSION[=n]

Sets the extend quantity default for the file. The value of n can range from 0 through 65,535. A specification of /EXTENSION or /EXTENSION=0 means a system-calculated value.

/GLOBAL_BUFFER=n

Sets the global buffer count for the file (the number of buffers that can be shared by processes accessing the file). The value must be an integer in the range 0 through 32,767. The value 0 disables buffer sharing.

/LOG
/NOLOG (default)

Displays the file specification of each file modified as the command executes.

/NODIRECTORY

Removes the directory attributes of a file. Valid only for Files–11 Structure Level 2 files. Use with extreme caution.

/OWNER_UIC=[uic]

Requires GRPPRV for a UIC in the same group.
Requires SYSPRV for any UIC outside your group.

Specifies an owner UIC for the file. The default is the UIC of your process.

/PROTECTION[=(ownership[:access],...)]

Specifies protection for the specified file. The ownership categories are SYSTEM, OWNER, GROUP, and WORLD. The access categories are R (read), W (write), E (create), and D (delete). If you specify /PROTECTION without the ownership and access code, the file protection is set according to the current default protection.

/REMOVE

Removes one of the names of a file specified with /ENTER=new-file-spec. Use with caution.

/SINCE[=time]

Selects only those files dated after the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY.

/TRUNCATE

Truncates the file at the end-of-file marker, that is, releases allocated but unused blocks of the file.

/UNLOCK

Makes an improperly closed file accessible.

/VERSION_LIMIT[=n]

Specifies the maximum number of versions for the specified file. The value 0 implies the architectural limit of 32,767. When you exceed the limit, the earliest file is deleted without notification to the user.

EXAMPLES

`$ SET FILE/VERSION_LIMIT=12 ACCOUNT.DAT`

Sets a version limit of 12 for the file ACCOUNT.DAT in your default directory.

`$ SET FILE/EXPIRATION_DATE=15-APR-1984:11:00 BATCH.COM;3`

Specifies that the expiration date of the file BATCH.COM;3 be set to 11:00 A.M., April 15, 1984.

`$ SET FILE/BEFORE=15-APR/ERASE_ON_DELETE [PERSONNEL]*.DAT`

Specifies that all files in the directory [PERSONNEL] with the file type of DAT that are dated before April 15 of the current year be erased from the disk when they are deleted with either the DELETE or PURGE command so that the data in the files no longer exist.

SET FILE/ACL

See Appendix ACL.

SET HOST [node-name]

Requires DECnet if the /DTE qualifier is not specified.

Connects your terminal to another (remote) system. After the connection is made, you must observe the login procedures on the host system.

PARAMETERS

node-name

> The name of the remote system to which you will connect; incompatible with the /DTE qualifier.

QUALIFIERS

/DIAL=(NUMBER:number[,MODEM_TYPE:modem-type])

> Allows a modem attached to the outgoing terminal line to be autodialed using the autodial protocol of that modem. *Number* is the phone number to be autodialed; *modem-type* is the type of modem being used. The default for *modem-type* is DF03. Use the /DIAL qualifier only in conjunction with the /DTE qualifier.

/DTE terminal-line

> Allows you to connect your system to another (remote) system via an outgoing terminal line (rather than through a network). Specify *terminal-line* as the outgoing terminal line that connects your system either directly to the other system or to a modem. When connecting directly to another system, it is recommended that the outgoing port be set to NOTYPEAHEAD. To exit from the remote node, type CTRL/\; that is, type a backslash (\) while pressing the CTRL key.

/LOG[=file-spec]
/NOLOG (default)

> Keeps a record of the entire session in the specified file. The default file specification is SETHOST.LOG. The use of this qualifier is not recommended for the purpose of file transfers.

EXAMPLES

$ SET HOST BRUTUS

Connects your terminal to the VMS system named BRUTUS via the network.

$ SET HOST/DTE TTA2:/DIAL=NUMBER:5551234

Connects your terminal to the outgoing terminal line TTA2, which is attached to a modem (type DF03 by default) set for autodial to the phone number 555-1234.

SET KEY

Sets and locks the key definition state for keys defined with the DEFINE/KEY command.

QUALIFIERS

/LOG (default)
/NOLOG
　　Displays a message indicating the key definition state that has been set.

/STATE=state-name
/NOSTATE
　　Specifies the name of the state.

EXAMPLE
$ SET KEY/STATE=RED
Enables the keypad key definitions that were defined for the RED state.

SET LOGINS/INTERACTIVE

Requires the OPER privilege.

Sets the interactive limit (number of interactive users allowed on the system), or displays the interactive limit and the current number of interactive users. OPER privilege is required to log in to a system if the current number of interactive users equals or exceeds the interactive limit. Users logged in to the system are not affected by any change in the interactive limit.

QUALIFIERS

/INTERACTIVE[=n]
　　If n is specified, set the interactive limit to n.

　　If n is not specified, displays the interactive limit and the number of interactive users.

EXAMPLE
$ SET LOGINS/INTERACTIVE=5
Sets the interactive limit to 5.

SET MAGTAPE

Defines the default characteristics associated with a specific magnetic tape device for subsequent file operations.

PARAMETER

device-name

Specifies the name of the magnetic tape device for which the characteristics are to be set. The device must not be currently allocated to any other user.

QUALIFIERS

/DENSITY=density

The /DENSITY qualifier is not applicable to the TK50 tape device.

Specifies the default density, in bits per inch (bpi), for all write operations on the magnetic tape device when the volume is mounted as a foreign tape or as an unlabeled tape. The density can be specified as 800, 1600, or 6250, if the density is supported by the magnetic tape drive.

/END_OF_FILE

Writes a tape mark at the current position on the magnetic tape volume.

/LOG
/NOLOG

Displays information about the operations performed on the magnetic tape volume.

/LOGSOFT (default)
/NOLOGSOFT

Controls whether soft errors on the specified device are to be logged in the error log file. Soft errors are errors that are corrected by the hardware without software intervention. This qualifier only affects devices that support hardware error correction, such as the TU78 magnetic tape drive. When used with other devices, this qualifier has no effect.

/REWIND

Requests that the volume on the specified device be rewound to the beginning of the magnetic tape.

/SKIP=option

Requests that the magnetic tape volume be positioned according to any of the following options:

BLOCK:n	Directs the SET MAGTAPE command to skip the specified number of blocks *(n)*
END_OF_TAPE	Directs the SET MAGTAPE command to position the volume at the end-of-tape mark

FILES:n

Directs the SET MAGTAPE command to skip the specified number of files *(n)*

RECORD:n

Directs the SET MAGTAPE command to skip the specified number of records *(n)*

/UNLOAD

Requests that the volume on the specified device be rewound and unloaded.

EXAMPLES

```
$ MOUNT MUB1:/FOREIGN
$ SET MAGTAPE MUB1: /REWIND
```

The MOUNT command mounts a foreign tape on the device MUB1. The SET MAGTAPE command requests that the volume be rewound to the beginning of the magnetic tape.

```
$ MOUNT $TAPE1:/FOREIGN
$ SET MAGTAPE $TAPE1:/SKIP=FILES:4
```

The MOUNT command mounts a foreign tape on the device $TAPE1. The SET MAGTAPE command directs the magnetic tape position to skip four files.

SET MESSAGE [file-spec]

Sets the format for system messages or specifies a process level message file.

PARAMETERS

file-spec

Name of the process level message file. Messages in this file supersede messages for the same conditions in the system message file or in an existing process message file. The file type defaults to EXE. No wildcard characters are allowed. If this parameter is not specified, the qualifiers apply to the system message file.

QUALIFIERS

/DELETE

Removes any process permanent message files currently in effect. Do not specify *file-spec* with this qualifier.

/FACILITY
/NOFACILITY

Formats messages so that the facility name prefix appears.

/IDENTIFICATION
/NOIDENTIFICATION

Formats messages so that the message identification prefix appears.

/SEVERITY
/NOSEVERITY

Formats messages so that the severity level appears.

/TEXT
/NOTEXT

Formats messages so that the message text appears.

EXAMPLES

```
$ SET MESSAGE/TEXT/NOFACILITY/NOIDENTIFICATION/NOSEVERITY
$ SHOW DEVICES/MUONTED
unrecognized qualifier - check validity, spelling, and placement
\MUONTED\
```

The command in this example formats the error message so that only the text appears.

```
$ SET MESSAGE INCMSG
```

Establishes INCMSG.EXE in your current default directory as a process permanent message file.

SET [NO]ON

SET ON enables error checking at the current command level. Specify SET NOON to disable error checking. (Even with SET NOON, the proper values are still placed in $STATUS and $SEVERITY.)

EXAMPLE

```
$ SET ON
```

Enables error checking.

SET OUTPUT_RATE [=delta-time]

Sets the rate at which output is written to a batch job log file.

PARAMETERS

delta-time

The time interval at which output will be written to the batch job log file. If no delta time is specified, the information is written to the log file but the output rate is not changed from the default of once per minute. Specify *delta-time* as dd-hh:mm:ss.ss.

EXAMPLE

`$ SET OUTPUT_RATE=:0:30`

Changes the default output rate to once every 30 seconds.

SET PASSWORD

Establishes, changes, or removes a password. You will be prompted for the old password—type the password (it is not echoed) or just press RETURN if no password is established. You will then be prompted for the new password and a verification—type the new password each time or just press RETURN if you are removing the password. A password is 1 through 31 alphanumeric, dollar sign, or underscore characters (uppercase and lowercase characters are equivalent).

QUALIFIERS

/GENERATE[=value]

Generates a list of 5 passwords for you to select from. Press RETURN to repeat the procedure until a suitable password appears. *Value* restricts the length of the password (value is a number from 1 to 10).

/SECONDARY

Creates or allows you to replace a secondary password. The procedure is the same as setting your primary password. Incompatible with the /SYSTEM qualifier.

/SYSTEM

Requires CMKRNL and SECURITY privileges.

Changes the system password, rather than a user password.

EXAMPLE

`$ SET PASSWORD`
`Old password:`
`New password:`
`Verification:`

Changes the current password. Your input is not displayed on the screen.

SET PRINTER printer-name

Requires OPER privilege.
Requires LOG_IO privilege if the printer is spooled.

Describes the characteristics of a printer. A characteristic changes only if the qualifier is specified; otherwise, it remains the same. (The following defaults are the defaults for an initially bootstrapped system.)

PARAMETERS

printer-name

Device name of the printer.

QUALIFIERS

/CR
/NOCR (default)

Signals a carriage return to printers that do not include the carriage return operation as part of a line feed or vertical tab.

/FALLBACK
/NOFALLBACK (default)

Signals the printer to try to translate multinational characters into 7-bit equivalent representations. If unable, the printer will print an underscore character.

/FF (default)
/NOFF

Signals the printer to perform mechanical form feeds.

/LA11

Specifies the printer as an LA11.

/LA180

Specifies the printer as an LA180.

/LOG
/NOLOG (default)

Displays information confirming the printer setting.

/LOWERCASE
/NOLOWERCASE (default)

Passes lowercase characters to the printer. /LOWERCASE is equivalent to /NOUPPERCASE.

/LP11

Specifies the printer as an LP11.

/PAGE=lines-per-page

Specifies the number of lines per page on the print forms being used. The value must be an integer in the range 0 through 255 and defaults to 64. (The printer driver and print symbiont both use this value to determine when to perform and simulate form feeds.)

/PASSALL
/NOPASSALL (default)

Passes all data to the printer as 8-bit binary data (without interpreting special characters as blanks, line feeds, etc.). /PASSALL is equivalent to /NOPRINTALL.

/PRINTALL
/NOPRINTALL (default)

Expands tab characters to blanks, fills carriage return and line feed characters, and interprets control characters. /PRINTALL is equivalent to /NOPASSALL.

/TAB
/NOTAB (default)

Controls whether the printer interprets special characters or whether they are passed on to the hardware controller.

/TRUNCATE (default)
/NOTRUNCATE

Controls whether the printer truncates data exceeding the value specified by the /WIDTH qualifier. Note that the /TRUNCATE and the /WRAP qualifiers are incompatible.

/UNKNOWN

Specifies the printer as nonstandard.

/UPPERCASE (default)
/NOUPPERCASE

Passes only uppercase characters to the printer. /UPPERCASE is equivalent to /NOLOWERCASE.

/WIDTH=characters-per-line

Specifies the number of characters per line. The value must be an integer in the range 0 through 65535 and defaults to 132.

/WRAP
/NOWRAP (default)

Generates a carriage return and line feed when the value of /WIDTH is reached.

EXAMPLES

$ `SET PRINTER/PAGE=60/WIDTH=80 $PRINTER`

Sets the size of a print page as 60 lines by 80 characters per line on SYS$LINEPRINTER

$ `SET PRINTER/LOWERCASE $PRINTER`

Sets $PRINTER as an uppercase/lowercase printer.

SET PROCESS process-name

Changes the execution characteristics associated with the specified process for the current terminal session or job.

PARAMETERS

process-name

Requires that you own the process or that you have GROUP privilege and that the process is in your group.

The name of the process for which the characteristics are to be changed. The process name can contain from 1 to 15 alphanumeric characters. The default is the current process. Compatible only with the /PRIORITY, /RESUME, and /SUSPEND qualifiers.

QUALIFIERS

/DUMP
/NODUMP (default)

Causes the contents of the address space to be written to the file named SYS$LOGIN:IMAGEDUMP.DMP when an image terminates due to an unhandled error.

/IDENTIFICATION=pid

Requires GROUP or WORLD privilege for processes other than your own.

Specifies the process identification (PID) of the process for which characteristics are to be changed. Overrides the *process-name* parameter. Compatible only with the /PRIORITY, /RESUME, and /SUSPEND qualifiers.

/NAME=string

Changes the name of the current process to a string of 1 through 15 characters.

/PRIORITY=n

Requires ALTPRI privilege to set the priority higher than your base priority.

Changes the priority of the specified process.

/PRIVILEGES=(keyword,...)

Requires SETPRV to enable a privilege you do not have.

Enables privileges for the process. The following table lists process privileges.

[NO]ACNT	Create processes for which no accounting messages are written
[NO]ALL	Have all privileges
[NO]ALLSPOOL	Allocate spooled devices
[NO]ALTPRI	Set priority values
[NO]BUGCHK	Make bug check error log entries

[NO]BYPASS	Bypass UIC protection
[NO]CMEXEC	Change mode to executive
[NO]CMKRNL	Change mode to kernel
[NO]DETACH	Create detached processes
[NO]DIAGNOSE	Issue diagnostic I/O requests
[NO]EXQUOTA	Exceed quotas
[NO]GROUP	Control other processes in the same group
[NO]GRPNAM	Place names in the group logical name table
[NO]GRPPRV	Access group objects
[NO]LOG_IO	Issue logical I/O requests to a device
[NO]MOUNT	Issue a mount volume QIO request
[NO]NETMBX	Create a network device
[NO]OPER	Perform operator functions
[NO]PFNMAP	Create or delete sections mapped by page frame number
[NO]PHY_IO	Issue physical I/O requests to a device
[NO]PRMCEB	Create permanent common event flag clusters
[NO]PRMGBL	Create permanent global sections
[NO]PRMMBX	Create permanent mailboxes
[NO]PSWAPM	Alter swap mode
[NO]READALL	Bypass existing restrictions on reading a file
[NO]SECURITY	Perform security-related functions
[NO]SETPRV	Give higher privileges to other processes
[NO]SHARE	Assign a channel to a device, even if the channel is allocated to another process
[NO]SHMEM	Create data structures in shared memory
[NO]SYSGBL	Create system global sections
[NO]SYSLCK	Request locks on systemwide resources
[NO]SYSNAM	Place names in the system logical name table
[NO]SYSPRV	Access system objects
[NO]TMPMBX	Create a temporary mailbox
[NO]VOLPRO	Override volume protection
[NO]WORLD	Control all other processes in the system

/RESOURCE_WAIT
/NORESOURCE_WAIT

Enables resource wait mode so that the process waits for resources to become available. If you specify the /NORESOURCE_WAIT qualifier, the process receives an error status code when system dynamic memory is not available or

when the process exceeds one of the following resource quotas: direct I/O limit, buffered I/O limit, or buffered I/O byte count (buffer space) quota.

/RESUME

Allows a process suspended by a previous SET PROCESS command to resume operation.

/SUSPEND
/NOSUSPEND

Requires GROUP or WORLD privilege to use this qualifier.

Temporarily stops the process's activities. The qualifier /NOSUSPEND allows a suspended process to resume operation.

/SWAPPING (default)
/NOSWAPPING

Requires PSWAPM privilege for /NOSWAPPING.

Permits the process to be swapped.

EXAMPLES

$ SET PROCESS/PRIORITY=10 TESTER

Assigns the process TESTER a priority of 10.

$ SET PROCESS/PRIVILEGE=EXQUOTA

Assigns the current process the privilege of exceeding quotas.

SET PROMPT [=string]

Replaces the default DCL dollar sign prompt with the specified string.

PARAMETERS

string

The prompt string. Enclose the string in quotation marks if it contains spaces, special characters, or lowercase letters.

QUALIFIERS

/CARRIAGE_CONTROL (default)
/NOCARRIAGE_CONTROL

Inserts carriage return and line feed characters before the prompt string.

EXAMPLE

$ SET PROMPT="COMMAND: "

Replaces the dollar sign prompt with the word COMMAND followed by a colon and 2 spaces.

SET PROTECTION [=(ownership[:access],...)] file-spec,...

Establishes the protection that limits other users' access to a file.

PARAMETERS

ownership

The ownership category — SYSTEM, OWNER, GROUP, or WORLD. Each category can be abbreviated to its first character.

access

An access category — R (read), W (write), E (execute), or D (delete) — to be assigned to a category of ownership. A null access specification means no access.

file-spec

Name of the affected file or files. Wildcard characters are allowed.

QUALIFIERS

/CONFIRM
/NOCONFIRM (default)

Prompts you for confirmation before changing protection on each file. Respond with a T or Y to change the protection.

/LOG
/NOLOG (default)

Displays a message for each file processed.

/PROTECTION=(ownership[:access],...)
Qualifies file-spec

Specifies protection for an individual file or group of files. Overrides the access specified after SET PROTECTION.

EXAMPLES

```
$ SET PROTECTION=(S:RWED,O:RWED,G,W) MAST12.TXT
```
Changes the protection on the file MAST12.TXT to grant all access to system and owner processes and to deny access to group and world processes.

```
$ SET PROTECTION=(O:RWED) LICENSE.DIR
```
Changes the protection on the directory file LICENSE.DIR to allow the owner to read, write, edit, and delete the file. The protection on system, group, and world processes is unchanged.

SET PROTECTION =(ownership[:access],...)/DEFAULT

Establishes the protection to be applied by default to all files subsequently created.

PARAMETERS

ownership

    The ownership category — SYSTEM, OWNER, GROUP, or WORLD. Each category can be abbreviated to its first character.

access

    An access category — R (read), W (write), E (execute), or D (delete) — to be given to a specified type of owner. A null access specification means no access.

EXAMPLE

$ `SET PROTECTION=(S:RWED,O:RWED,G,W)/DEFAULT`
Changes your default protection to grant all access to system and owner processes and to deny access to group and world processes.

SET PROTECTION =(ownership[:access],...)/DEVICE device-name

Requires OPER privilege.

Limits access to a non-file-structured device.

PARAMETERS

ownership

    An ownership category — SYSTEM, OWNER, GROUP, or WORLD. Each category can be abbreviated to its first character.

access

    An access category — R (read or allocate), W (write), L (logical I/O), and P (physical I/O) — to be assigned to a specified type of owner. A null access specification means no access.

device-name

    Name of the non-file-structured device.

QUALIFIERS

/OWNER_UIC=[uic]

    Specifies an owner UIC for the device. The default owner is the UIC of your process.

EXAMPLE

`$ SET PROTECTION=(S,O,RWLP,G,W)/DEVICE/OWNER_UIC=[103,4] $TERMINAL1`

Sets protection for the device $TERMINAL1 to allow all types of access to processes with a UIC of [1,4] and to deny access to anyone else.

SET QUEUE queue-name[:]

Requires the Secure User Environment Option.
Requires OPER privilege or execute access to the specified queue.

Changes the current status or attributes of the specified queue.

PARAMETERS

queue-name[:]

The name of an execution queue or a generic queue.

QUALIFIERS

/BASE_PRIORITY=n

Specifies the process base priority at which jobs are initiated from a batch queue. (You must stop and restart symbiont queues to change the symbiont priority for printer, terminal, or server queues.) The value of n can be from 0 through 15.

/BLOCK_LIMIT=([lower,]upper)
/NOBLOCK_LIMIT

Restricts the size of print jobs that can be executed on a printer or terminal queue. The lower parameter specifies the minimum number of blocks that will be accepted by the queue for a print job. The upper parameter specifies the maximum number of blocks that will be accepted by the queue for a print job. If a job contains fewer blocks than the number specified by the lower parameter or more blocks than the number specified by the upper parameter, the job remains pending until the block limit for the queue is changed. To specify only the lower parameter, you must use two sets of quotation marks (" ") in place of the upper specifier.

/CHARACTERISTICS=(characteristic,...)
/NOCHARACTERISTICS

Specifies one or more characteristics for processing jobs on the queue. Use the SHOW QUEUE/CHARACTERISTICS command to display queue characteristics. The queue must have all the characteristics specified for a job or the job remains pending.

/CPUDEFAULT=time

Specifies the default CPU time limit for batch jobs. Time can be specified as delta time, 0, NONE, or INFINITE. Both the value 0 and the keyword INFINITE allow unlimited CPU time (subject to the restrictions imposed by the /CPUMAXIMUM qualifier or the user authorization file). The keyword NONE specifies that no time limit is needed.

/CPUMAXIMUM=time

Specifies the maximum CPU time limit for batch jobs. The /CPUMAXIMUM qualifier overrides the time limit specified in the user authorization file (UAF). Time can be specified as delta time, 0, NONE, or INFINITE. Both the value 0 and the keyword INFINITE allow unlimited CPU time (subject to the restrictions imposed by the /CPUMAXIMUM qualifier or the user authorization file). The keyword NONE specifies that no time limit is needed.

/DEFAULT=(option,...)
/NODEFAULT

Sets defaults for the following PRINT options so that you do not have to specify them with the PRINT commands.

[NO]BURST[=keyword]	Specifies where to print burst pages (flag pages that are printed over the paper's perforations for easy identification of individual files in a print job.) The keyword ALL places burst pages before each printed file in the job. The keyword ONE places a burst page before the first printed file in the job.
[NO]FEED	Specifies whether a form-feed is automatically inserted at the end of a page.
[NO]FLAG[=keyword]	Specifies where to print flag pages (containing the job entry number, the name of the user submitting the job, and so on). The keyword ALL places flag pages before each printed file in the job. The keyword ONE places a flag page before the first printed file in the job.
FORM=type	Specifies the default form for a printer, terminal, or server queue. If a job is not submitted with an explicit form definition, then this form will be used to process the job. The systemwide default form, form=0, is the default value for this keyword. See also /FORM_MOUNTED.
[NO]TRAILER[=keyword]	Specifies where to print trailer pages. The keyword ALL places trailer pages after each printed file in the job. The keyword ONE places a trailer page after the last printed file in the job.

If you specify any of the keywords BURST, FLAG, TRAILER without specifying a value, the value ALL is used by default.

/DISABLE_SWAPPING
/NODISABLE_SWAPPING

Allows swapping of the batch jobs.

/ENABLE_GENERIC
/NOENABLE_GENERIC

Allows files queued to a generic queue that does not specify explicit queue names to be placed in this execution queue for processing.

/FORM_MOUNTED=type

Specifies the form type for a printer, terminal, or server queue. (Form types are installation specific and are defined as numeric values or form names with the DEFINE/FORM command. The SHOW QUEUE/FORM command displays the available print forms.) If the stock of the mounted form is not identical to the stock of the default form, as indicated by the DCL command qualifier /DEFAULT=FORM=type, then all jobs submitted to this queue without an explicit form definition will enter a pending state. If a job is submitted with an explicit form and the stock of the explicit form is not identical to the stock of the mounted form, then the job will enter a pending state. In both cases, the pending state will be maintained until the stock of the mounted form of the queue is identical to the stock of the form associated with the job.

/JOB_LIMIT=n

Specifies the number of batch jobs that can be executed concurrently from the queue. The value of n defaults to 1.

/OWNER_UIC=uic

Requires OPER privilege.

Specifies a UIC for the queue.

/PROTECTION=(ownership[:access],...)

Requires OPER privilege.

Applies the specified protection to the queue. The ownership categories are SYSTEM, OWNER, GROUP, and WORLD. The access categories are R (read), W (write), E (create), and D (delete). The default protection is (SYSTEM:E, OWNER:D, GROUP:R, WORLD:W).

/RECORD_BLOCKING
/NORECORD_BLOCKING

Determines whether the symbiont can concatenate (or block together) output records for transmission to the output device. If you specify /NORECORD_BLOCKING, the symbiont is directed to send each formatted

record in a separate I/O request to the output device. For the standard MicroVMS print symbiont, record blocking can have a significant performance advantage over single-record mode.

/RETAIN[=keyword]
/NORETAIN

Retains jobs in the queue in a completed status after they have executed. Possible keywords are

ALL   Retains all jobs in the queue after execution (default)

ERROR   Retains in the queue only jobs that complete unsuccessfully

/SCHEDULE=SIZE
/SCHEDULE=NOSIZE

Specifies whether pending jobs in a printer or terminal queue are scheduled for printing based on the size of the job. When /SCHEDULE=SIZE is in effect, shorter jobs will print before longer ones.

/SEPARATE=(keyword,...)
/NOSEPARATE

Specifies the job separation defaults for a printer or terminal queue. Possible keywords are

[NO]BURST	Prints a burst page (a flag page printed over the paper's perforations for easy identification of individual files) at the beginning of every job.
[NO]FLAG	Prints a flag page (containing the job entry number, the name of the user submitting the job, and so on) at the beginning of every job.
[NO]TRAILER	Prints a trailer page at the end of every job.
[NO]RESET=(m,...)	Specifies a job reset sequence for the queue. The specified modules from the device control library (see /LIBRARY) are used to reset the device each time a job reset occurs.

/WSDEFAULT=n

Defines a working set default for a batch job. The /WSDEFAULT qualifier overrides the working set size specified in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). The value 0 or the keyword NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

/WSEXTENT=n

Defines a working set extent for the batch job. The /WSEXTENT qualifier overrides the working set extent in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE

(the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

/WSQUOTA=n

Defines a working set page size (working set quota) for the batch job. The /WSQUOTA qualifier overrides the value in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

EXAMPLE

$ SET QUEUE SYS$BATCH/BASE_PRIORITY=3

Changes the base priority of the queue SYS$BATCH to 3.

$ SET QUEUE/DEFAULT=FORM=MEMO PRINTER_2

Changes the default form to MEMO for PRINTER_2.

SET QUEUE/ENTRY =job-number queue-name

Requires the Secure User Environment Option.

Changes the status of a queued print or batch job that is not currently executing.

PARAMETERS

job-number

The number of the job to be executed. The job number is displayed at the time of the job's submission.

queue-name

Name of the print or batch queue.

QUALIFIERS

/AFTER=time
/NOAFTER

Holds the job until the specified time. If the time has passed, queues the job for immediate execution. The time must be in absolute date/time format.

/BURST
/NOBURST

Prints a burst page (a flag page printed over the perforations between pages for easy identification of individual files) at the beginning of the job according to one of the following keywords:

ALL   All printed files contain a burst page

ONE   The first printed file contains a burst page

/CHARACTERISTICS=(characteristic,...)
/NOCHARACTERISTICS

Specifies one or more characteristics for processing jobs on the queue. Use the SHOW QUEUE/CHARACTERISTIC command to display queue characteristics. The queue must have all the characteristics specified for a job or the job remains pending.

/CLI=filename

Specifies the name of a command language interpreter (CLI) to use in processing the job. The file must be in SYS$SYSTEM and be of type EXE.

/COPIES=n

Specifies the number of copies to print for all files in the job. The value of n can be from 1 to 255.

/CPUTIME=keyword

Specifies a CPU time limit for the batch job. Time can be specified as: delta time, 0, NONE, or INFINITE. Both the value 0 and the keyword INFINITE allow unlimited CPU time; the keyword NONE defaults to your UAF value or the limit specified on the queue. You cannot specify more time than permitted by the base queue limits or your own UAF.

/ENTRY=job-number

Specifies the system-assigned number of the job. This qualifier is required and must precede all other qualifiers and parameters.

/FEED
/NOFEED

Inserts form feeds in print jobs.

/FLAG[=keyword]
/NOFLAG

Prints a flag page (containing the job entry number, the name of the user submitting the job, and other information about the file being printed) according to one of the following keywords:

ALL   Prints a flag page before each file in the job

ONE   Prints a flag page before the first file in the job

/FORM=type

Specifies special print form (including width, length, or type of paper) for the job. The SHOW QUEUE/FORM command displays the available print form. If you specify a form type different from that of the queue, the job remains pending until the queue's form type is set to that of the job's specified form type. To change the form type for the queue, stop the queue, physically change the form, and restart the queue, specifying the new form type with the /FORM qualifier.

/HEADER
/NOHEADER

Prints a heading line at the top of each page in the print job.

/HOLD
/NOHOLD

Holds the job until released by the /NOHOLD or /RELEASE qualifier. The /NOHOLD qualifier also releases jobs held in a queue with the /RETAIN qualifier and jobs refused by a user-written symbiont.

/JOB_COUNT=n

Prints the job n times. The value of n can be from 1 through 255. This qualifier overrides both the /JOB_COUNT qualifier specified and the default of the PRINT command.

/KEEP
/NOKEEP

Retains the batch job log file after it is printed.

/LOG_FILE=file-spec
/NOLOG_FILE

Creates a log file with the specified file specification, which can include a device name as long as the process executing the batch job has access to the device on which the log file will reside. Logical names in the file specification are translated in the context of the process that executes the SET QUEUE/ENTRY command. If this qualifier is not specified, a log file with the file name of the first command file (or the file name specified with the /NAME qualifier) and a file type of LOG is created.

/LOWERCASE
/NOLOWERCASE

Prints the job only on a printer that supports lowercase characters.

/NAME=job-name

Names (or renames) the job. The name can be 1 through 39 alphanumeric characters. The file name defaults to the file name of the first file in the job and a file type of LOG.

/NOCHECKPOINT

For a batch job, erases the value established by the most recently executed SET RESTART_VALUE command. For a print job, clears the stored checkpoint so that the job will restart from the beginning.

/NODELETE

Cancels file deletion for a job that was submitted with the /DELETE qualifier. If no /DELETE qualifier was specified when the job was originally submitted to the queue, you cannot use the SET QUEUE/ENTRY to establish file deletion at a later time. You cannot use the /NODELETE qualifier to specify that individual files in a multi file job not be deleted.

/NOTE=message

Specifies a message of up to 255 characters to appear on the flag page of the job. Enclose the message in quotation marks if it contains spaces, special characters, or lowercase characters.

/NOTIFY
/NONOTIFY

Broadcasts notification of job completion or abortion to any terminal at which you are logged in.

/OPERATOR=message

Specifies a message string of up to 255 characters to be sent to the operator just before the job begins execution. Enclose the message in quotation marks if it contains spaces, special characters, or lowercase characters.

/PAGES=([lower,]upper)

Specifies the number of pages to print for the specified job. By default, all pages of a file are printed. The lower parameter specifies the first page to print; it defaults to the first page of the job. The upper parameter specifies the last page to print; it defaults to the last page of the job. You must specify double quotation marks (" ") if you omit the upper parameter.

/PARAMETERS=(parameter,...)

Specifies from 1 to 8 optional parameters to be passed to the job. A parameter can consist of 1 through 255 characters. Enclose the parameter in quotation marks if it contains spaces, special characters, or lowercase characters. For batch jobs, the parameters define values to be equated to the symbols named P1 through P8 in each command procedure in the job.

/PASSALL
/NOPASSALL

Specifies whether the symbiont bypasses all formatting and sends the output QIO to the driver with format suppressed. All qualifiers affecting formatting, as well as the /HEADER, /PAGES, and /PAGE_SETUP qualifiers, will be ignored.

When you use the /PASSALL qualifier with the SET QUEUE/ENTRY command, the qualifier applies to the entire job. You cannot use this qualifier to specify PASSALL mode for individual files within a multifile job.

/PRINTER[=queue-name]
/NOPRINTER

Queues the batch job log to the specified printer queue when the job is completed. By default, the printer queue for the log file is SYS$PRINT. The /NOPRINTER qualifier assumes the /KEEP qualifier.

/PRIORITY=n

Requires OPER or ALTPRI privilege to raise the priority above the value of the SYSGEN parameter MAXQUEPRI.

Specifies the base priority at which a batch job will execute. The value of n can be from 0 to 31 and defaults to the value of the SYSGEN parameter DEFQUEPRI.

/RELEASE

Releases for processing jobs submitted with the /AFTER qualifier, jobs held in a queue with the /RETAIN qualifier, and jobs refused by a user-written symbiont.

/REQUEUE=queue-name

Moves the job to the specified queue.

/RESTART
/NORESTART

Restarts a batch or print job after a system crash or a STOP/REQUEUE command.

/SETUP=module,...

Extracts the specified module from the device control library (containing escape sequence modules for programmable printers) and copies the module to the printer before a file is printed.

/SPACE
/NOSPACE

Double spaces a print job. The default is single spacing.

/TRAILER[=keyword]
/NOTRAILER

Prints a trailer page (containing the job entry number, the name of the user submitting the job, and other information about the file) according to one of the following keywords:

ALL   All printed files contain a trailer page

ONE   The last printed file contains a trailer page

/WSDEFAULT=n

Defines a working set default for a batch job. The /WSDEFAULT qualifier overrides the working set size specified in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A value of 0 or the keyword NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

/WSEXTENT=size

Defines a working set extent for the batch job. The /WSEXTENT qualifier overrides the working set extent in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

/WSQUOTA=size

Defines a working set page size (working set quota) for the batch job. The /WSQUOTA qualifier overrides the value in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

EXAMPLE

```
$ SET QUEUE/ENTRY=245/RELEASE
```
Releases job number 245 on SYS$PRINT.

SET RESTART_VALUE =string

Sets a value for the symbol BATCH$RESTART.

PARAMETERS

string

A string of up to 255 characters specifying the label at which the batch job should begin executing again.

EXAMPLE

$ `SET RESTART_VALUE=FIRST_PART`

Sets the value of BATCH$RESTART to FIRST_PART.

SET RIGHTS_LIST id-name

Modifies the process or system rights list. You must specify either /DISABLE or /ENABLE with the SET RIGHTS_LIST command.

PARAMETER

id-name[,...]

Identifiers to be added to or removed from the process or system rights list. **Id-name** is a string of 1 to 31 alphanumeric characters, underscores, and dollar signs. At least one character must be nonnumeric.

QUALIFIERS

/ATTRIBUTES=(keyword[,...])

Specifies attributes to be added to new or existing identifiers. Valid keywords are:

[NO]DYNAMIC   Indicates whether or not unprivileged holders of the identifiers may add or remove them from the process rights list. The default is NODYNAMIC.

[NO]RESOURCE Indicates whether or not holders of the identifiers may charge resources to them. The default is NORESOURCE.

/ENABLE
/DISABLE

Adds or removes the identifiers to or from the process or system rights list.

/IDENTIFICATION=pid
/PROCESS[=process-name]

Requires CMKRNL privilege and GROUP or WORLD privilege to affect other processes on the system.

Identifies the process identification value (pid) or name of the process whose rights list is to be modified. The process name can contain from 1 to 15 alphanumeric characters. The default is the current process. You cannot use either of these qualifiers with the /SYSTEM qualifier.

/SYSTEM

Requires CMKRNL and SYSNAM privilege.

Specifies that the desired operation be performed on the system rights list. Incompatible with /PROCESS or /IDENTIFICATION.

EXAMPLES

```
$ SET RIGHTS_LIST/ENABLE/ATTRIBUTES=RESOURCE MARKETING
```

Adds the MARKETING identifier to the process rights list of the current process, and allows holders of the MARKETING identifier to charge resources to it.

```
$ SET PROCESS/PRIVILEGES=(CMKRNL,SYSNAM)
$ SET RIGHTS_LIST/ENABLE/SYSTEM PHYSICS101
```

Adds the PHYSICS101 identifier to the system rights list.

SET RMS_DEFAULT

Defines default values for the multiblock and multibuffer counts used by MicroVMS RMS for file operations. Defaults are set for sequential, indexed-sequential, or relative access files on a process-only basis, unless a systemwide basis is requested. For indexed sequential files, SET RMS_DEFAULT defines default prologue level options. For sequential files, SET RMS_DEFAULT defines default extensions; if your program does not specify a default extension, the process or system default is used.

QUALIFIERS

/BLOCK_COUNT=count

Specifies a default multiblock count (from 0 through 127) for file operations, where *count* is the number of blocks to be allocated for each I/O buffer.

/BUFFER_COUNT=count

Specifies a default multibuffer count (from 0 through 127) for file operations, where *count* is the number of buffers to be allocated. If you do not specify the type of files (/DISK, /INDEXED, /RELATIVE, /SEQUENTIAL, and /UNIT_RECORD) to which the default is to be applied, /SEQUENTIAL is assumed.

/DISK

Applies the specified defaults to file operations on disks. (The /SEQUENTIAL qualifier assumes /DISK.)

/EXTEND_QUANTITY=n

Specifies the number of blocks (n) to extend a sequential file; the value of n can be from 0 to 65535. If you do not specify /EXTEND_QUANTITY, MicroVMS RMS calculates its own extend value.

/INDEXED

Applies the specified defaults to indexed file operations.

/MAGTAPE

Indicates that the specified multibuffer default is to be applied to operations on magnetic tape volumes. If /SEQUENTIAL is specified, /MAGTAPE is assumed.

/NETWORK_BLOCK_COUNT=count

Specifies a default block count for network access to remote sequential, indexed sequential, and relative files. Specify *count* as a value in the range of 0 to 127.

/PROLOG=n

Specifies a default prologue level for indexed sequential files where *n* is 0, 2, or 3. (A value of 1 is not allowed.) By default, the value of *n* is 0; if *n* is 0, the record management system (RMS) sets an appropriate prologue level.

/RELATIVE

Applies the specified defaults to relative file operations.

/SEQUENTIAL (default)

Applies the specified defaults to sequential file operations.

/SYSTEM

Requires the change-mode-to-kernel (CMKRNL) privilege.

Indicates that the specified defaults are to be applied to file operations by all processes.

/UNIT_RECORD

Applies the specified defaults to file operations on unit record devices.

EXAMPLE

```
$ SET RMS_DEFAULT/DISK/BLOCK_COUNT=16
```

Defines (for the current process) the multiblock count for disk file I/O operations as 16 blocks.

SET SYMBOL

Controls access to local and global symbols in command procedures.

QUALIFIER

/SCOPE=(keyword,...)

Controls access to local and global symbols. Allows the user to treat symbols as being undefined. Possible keywords are:

[NO]LOCAL   Specifying the NOLOCAL keyword causes all local symbols defined in outer procedure levels to be treated as being undefined by the current procedure and all inner procedure levels. Specifying LOCAL removes any symbol translation limit set by the current procedure level.

[NO]GLOBAL   Specifying the NOGLOBAL keyword causes all global symbols to be inaccessible to the current procedure level and all inner procedure levels unless otherwise changed. Specifying GLOBAL restores access to all global symbols.

Note that when you exit a procedure back to a previous procedure, the symbol scoping context from the previous level is restored for both local and global symbols.

EXAMPLES

$ SET SYMBOL/SCOPE=NOLOCAL

Denies access to all local symbols defined in outer procedures.

$ SET SYMBOL/SCOPE=NOGLOBAL

Denies access to all global symbols.

SET TERMINAL [device-name]

Sets the characteristics of a terminal. Entering a qualifier changes a characteristic. Omitting a qualifier leaves the characteristic unchanged. (The /DEVICE_TYPE qualifier sets the default characteristics for the specified terminal type; the /INQUIRE qualifier automatically assigns default characteristics according to terminal type.)

PARAMETERS

device-name

Device name of the terminal. The default is SYS$COMMAND if that device is a terminal.

QUALIFIERS

/ADVANCED_VIDEO
/NOADVANCED_VIDEO

Specifies that the terminal has advanced video attributes and is capable of 132-column video. If the terminal width is set to 132 columns and /ADVANCED_VIDEO is enabled, the terminal page limit is set to 24 lines; if /NOADVANCED_VIDEO is enabled, the terminal page limit is set to 12 lines.

/ALTYPEAHD
/NOALTYPEAHD

Sets the size of the type-ahead buffer when used with the /PERMANENT qualifier.

/ANSI_CRT (default)
/NOANSI_CRT

Conforms to ANSI standards for terminal transmissions.

/APPLICATION_KEYPAD
/NUMERIC_KEYPAD (default)

Specifies whether the keys of the numeric keypad will be used to type numbers and punctuation marks (/NUMERIC_KEYPAD) or to enter DCL commands defined with the DEFINE/KEY command (/APPLICATION_KEYPAD).

/AUTOBAUD
/NOAUTOBAUD

Specifies whether the terminal baud rate is reset when you log in. You must press the RETURN key two or more times at intervals of at least one second for the baud rate to be correctly determined. If you press a key other than RETURN, /AUTOBAUD might detect the wrong baud rate. If this happens, wait for the login procedure to time out before continuing. The /AUTOBAUD qualifier must be used with the /PERMANENT qualifier.

/BLOCK_MODE
/NOBLOCK_MODE

Performs block mode transmission, local editing, and field protection.

/BRDCSTMBX
/NOBRDCSTMBX (default)

Sends broadcast messages to an associated mailbox if it exists.

/BROADCAST (default)
/NOBROADCAST

Enables reception of broadcast messages (such as those issued by MAIL and REPLY).

/CRFILL[=fill-count]

Generates the specified number of null characters after each carriage return before transmitting the next meaningful character (to ensure that the terminal is ready for reception). The value must be an integer in the range 0 through 9 and defaults to 0.

/DEC_CRT[=(value1,value2)]
/NODEC_CRT[=(value1,value2)]

Specifies that the terminal conforms to DEC VT100-family standards and supports the minimum VT100 standards, which include the VT100 escape sequences.

Two optional values may be specified. A value of 1 requests that the DEC_CRT terminal characteristic be set. This is the default. A value of 2 requests that the DEC_CRT2 terminal characteristic be set. This determines whether the terminal conforms to DEC VT200-family standards and supports the minimum VT200 standards, including additional DEC escape sequences.

Note that DEC_CRT2 is a superset of DEC_CRT. Clearing DEC_CRT will cause DEC_CRT2 to be cleared. Similarly, setting DEC_CRT2 will cause DEC_CRT (and ANSI_CRT) to be set.

/DEVICE_TYPE=device-type

Informs the system of the terminal type and sets characteristics according to the device type specified. The default characteristics for the VT100, VT102, VT125, and VT200 series terminals are as follows:

/ADVANCEDVIDEO	/CRFILL=0	/LFFILL=0	/SPEED=9600
/NOALTYPEAHD	/ECHO	/LOWERCASE	/TAB
/ANSI_CRT	/NOEIGHT_BIT	/NODMA	/TTSYNC
/NOAUTOBAUD	/NOESCAPE	/PAGE=24	/TYPE_AHEAD
/NOBLOCK_MODE	/NOFORM	/NOPARITY	/WIDTH=80
/NOBRDCSTMBX	/FULLDUP	/NOPASTHRU	/WRAP
/BROADCAST	/NOHOSTSYNC	/NOREADSYN	

/DIALUP
/NODIALUP (default)

Specifies that the terminal is a dialup terminal.

/DISCONNECT
/NODISCONNECT (default)

Specifies that the process connected to this terminal not be disconnected if the line detects a hangup. The /DISCONNECT qualifier is only valid when /PERMANENT is specified.

/DISMISS
/NODISMISS (default)

Makes the terminal driver ignore data causing a parity error (instead of terminating the currently outstanding I/O with an error status).

/DMA
/NODMA

Controls the use of direct memory access (DMA) mode on a controller that supports this feature.

/ECHO (default)
/NOECHO

Makes the terminal display the input it receives. With /NOECHO, the terminal displays only system and/or user application output.

/EDIT_MODE
/NOEDIT_MODE

Specifies that the terminal can perform ANSI-defined advanced editing functions.

/EIGHT_BIT
/NOEIGHT_BIT (default)

Uses 8-bit ASCII protocol rather than 7-bit ASCII protocol.

/ESCAPE
/NOESCAPE (default)

Validates escape sequences.

/FALLBACK
/NOFALLBACK

Displays the 8-bit DEC Multinational Character Set characters on the terminal in their 7-bit representation. The default depends on the /EIGHTBIT setting of the terminal.

/FORM
/NOFORM

Transmits a form feed rather than translating it into multiple line feeds.

/FRAME=n

Specifies the number of data bits that the terminal driver expects for every character that is input or output. The value of n can be from 5 through 8. The default value depends on the /PARITY and /EIGHTBIT settings of the terminal.

/FULLDUP
/NOFULLDUP

Operates in full duplex mode. /FULLDUP is equivalent to /NOHALFDUP.

/HALFDUP (default)
/NOHALFDUP

Operates in half duplex mode. /HALFDUP is equivalent to /NOFULLDUP.

/HANGUP
/NOHANGUP (default)

>May require LOG_IO or PHY_IO privilege depending on system parameter settings.

>Hangs up the terminal modem when you log out.

/HARDCOPY
/NOHARDCOPY

>Establishes the device as a hardcopy terminal and thus outputs a backslash (\) when the DELETE key is pressed. The /HARDCOPY qualifier is equivalent to /NOSCOPE.

/HOSTSYNC
/NOHOSTSYNC (default)

>When you specify the /HOSTSYNC qualifier, the system stops transmission to the terminal (by generating a CTRL/S) when the input buffer is full and resumes transmission (by generating a CTRL/Q) when the input buffer is empty.

/INQUIRE

>Sets the device type according to a response elicited from the terminal; the default is UNKNOWN. Works only on DIGITAL terminals, and not on the LA36 or VT05 terminals.

/INSERT
/OVERSTRIKE (default)

>Specifies whether you can insert a character (/INSERT) when editing command lines, or type over a character (/OVERSTRIKE). You can use CTRL/A to switch from one mode to the other.

/LFFILL[=fill-count]

>Transmits to the terminal the specified number of null characters after each line feed before transmitting the next meaningful character (to ensure that the terminal is ready for reception). The value must be an integer in the range 0 through 9.

/LINE_EDITING
/NOLINE_EDITING (default)

>Enables advanced line-editing features for editing command lines: both RETURN and CTRL/Z are recognized as line terminators, as are escape sequences.

/LOCAL_ECHO
/NOLOCAL_ECHO (default)

>Echoes characters locally (rather than the host echoing them) for command level terminal functions. (Do not use /LOCAL_ECHO with utilities that require control over echoing, such as line editing or EDT's screen mode.) Note that

MicroVMS cannot control the echoing of passwords when /LOCAL_ECHO is set.

/LOWERCASE
/NOLOWERCASE

Passes lowercase characters to the terminal. The /NOLOWERCASE qualifier translates all input to uppercase. /LOWERCASE is equivalent to /NOUPPERCASE.

/MANUAL

Indicates manual switching of terminal lines to dynamic asynchronous DDCMP lines when your local terminal emulator does not support automatic switching. The /MANUAL qualifier should be specified with the /PROTOCOL=DDCMP and /SWITCH=DECNET qualifiers.

/MODEM
/NOMODEM

Indicates that the terminal is connected to a modem or a cable that supplies standard EIA modem control signals. If your terminal has the MODEM characteristic, typing SET TERMINAL/NOMODEM automatically logs you out.

/NUMERIC_KEYPAD

See /APPLICATION_KEYPAD.

/OVERSTRIKE

See /INSERT.

/PAGE[=lines-per-page]

For hardcopy terminals, specifies the number of print lines between perforations. (When the terminal reads a form feed, it advances the paper to the next perforation.) The value of n can be from 0 through 255 and defaults to 0 (which treats a form feed as a line feed).

/PARITY[=option]
/NOPARITY (default)

Passes data with odd or even parity, where *option* equals ODD or EVEN. If you specify /PARITY without an option, the value defaults to EVEN.

/PASTHRU
/NOPASTHRU (default)

Passes all data (including tabs, carriage returns, line feeds, and control characters) to an application program as binary data.

/PERMANENT

Requires LOG_IO or PHY_IO privilege.

Sets characteristics on a permanent basis, that is, over terminal sessions.
However, the characteristics revert to their initial values if the system is halted
and restarted. Use in a system start-up file to establish characteristics for all
terminals on the system.

/PRINTER_PORT
/NOPRINTER_PORT (default)

Specifies that the terminal has a printer port (an attribute not set by the SET
TERMINAL/INQUIRE command).

/PROTOCOL=DDCMP
/PROTOCOL=NONE (default)

Controls whether the terminal port specified is changed into an asynchronous
DDCMP line. The /PROTOCOL=NONE qualifier changes an asynchronous
DDCMP line back into a terminal line. Note that /PROTOCOL=DDCMP is a
permanent characteristic; therefore, the /PERMANENT qualifier is not required.

/READSYNC
/NOREADSYNC (default)

Uses the CTRL/S and CTRL/Q functions to synchronize data transmitted from
the terminal.

/REGIS
/NOREGIS

Specifies that the terminal understands ReGIS graphic commands.

/SCOPE
/NOSCOPE

Establishes the device as a video terminal. /SCOPE is equivalent to
/NOHARDCOPY.

/SECURE_SERVER
/NOSECURE_SERVER (default)

Sets the BREAK key on the terminal to log out the current process. The
/SECURE_SERVER qualifier has no effect on terminals set with /AUTOBAUD.

/SET_SPEED
/NOSET_SPEED

Requires either LOG_IO or PHY_IO privilege.

Allows the /SPEED qualifier to be used to change the terminal speed.

/SIXEL_GRAPHICS
/NOSIXEL_GRAPHICS (default)

Specifies that the terminal is capable of displaying graphics using the sixel graphics protocol.

/SOFT_CHARACTERS
/NOSOFT_CHARACTERS (default)

Specifies that the terminal is capable of loading a user-defined character set.

/SPEED=(input-rate,output-rate)

Sets the baud rate at which the terminal receives and transmits data. If the input and output rates are the same, specify /SPEED=rate.

/SWITCH=DECNET

Causes the terminal lines at each node to be switched to dynamic asynchronous DDCMP lines, when specified with the /PROTOCOL=DDCMP qualifier. Note that /SWITCH=DECNET is a permanent characteristic; therefore, the /PERMANENT qualifier is not required.

/SYSPASSWORD
/NOSYSPASSWORD (default)

Requires LOG_IO privilege.

Determines whether the terminal requires that a system password be entered before the USERNAME prompt.

/TAB
/NOTAB (default)

Does not convert tab characters to multiple blanks. The /NOTAB qualifier expands all tab characters to blanks and assumes tab stops at 8-character intervals.

/TTSYNC (default)
/NOTTSYNC

Stops transmitting to the terminal when CTRL/S is pressed and resumes transmission when CTRL/Q is pressed.

/TYPE_AHEAD (default)
/NOTYPE_AHEAD

Accepts unsolicited input for the terminal to the limit of the type-ahead buffer.

/UNKNOWN

Specifies a terminal type that is unknown to the system, which then uses the default terminal characteristics for unknown terminals.

/UPPERCASE
/NOUPPERCASE

Passes only uppercase characters to the terminal. /UPPERCASE is equivalent to /NOLOWERCASE.

/WIDTH=characters-per-line

Specifies the maximum characters per line. This value must be an integer in the range 1 through 511. With /WRAP, the terminal generates a carriage return and line feed when the width specification is reached.

/WRAP (default)
/NOWRAP

Generates a carriage return and line feed when the value of /WIDTH is reached.

EXAMPLES

`$ SET TERMINAL/DEVICE_TYPE=VT100`

Sets the characteristics for your terminal to those associated with a VT100.

`$ SET TERMINAL/INQUIRE`

Queries the terminal as to its type and sets terminal characteristics accordingly.

SET TIME [=time]

Requires both OPER and LOG_IO privileges.

Resets the system clock, which is used both as a timer to record intervals between various internal events and as a source clock for displaying the time of day.

PARAMETERS

time

A date in the format day-month-year, a time in the format hour:minute:second.hundredth, or both. *Day* must be an integer in the range 1 through 31. *Month* must be JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, or DEC. *Year* must be an integer in the range 1858 through 9999. *Hour* must be an integer in the range 0 through 23. *Minute* must be an integer in the range 0 through 59. *Second* must be an integer in the range 0 through 59. *Hundredth* (of a second) must be an integer in the range 0 through 99. The hyphens, colons, and period are required delimiters. Delimit the date and time, when both are specified, with a colon.

EXAMPLE

`$ SET TIME=24-AUG-1983:19:31:0.0`

Sets the date/time at August 24, 1983, 7:31 P.M.

SET UIC uic

Requires CMKRNL (change mode to kernel mode) privilege.

Changes the user identification code (UIC) of your process.

PARAMETERS

[uic]
    A valid UIC. Brackets are required around the UIC.

EXAMPLE

$ SET UIC [370,10]
Sets the UIC as [370,10].

SET [NO]VERIFY [=([NO]PROCEDURE,[NO]IMAGE)]

Controls whether command lines and/or data lines in command procedures are displayed at the terminal or printed in a batch job log. Specify the keyword PROCEDURE to write each DCL command line in a command procedure to the output device. Specify IMAGE to write data lines to the output device. By default, both types of verification are set or cleared with SET VERIFY and SET NOVERIFY. The default setting for command procedures executed interactively is SET NOVERIFY; the default for batch jobs is SET VERIFY.

PARAMETERS

PROCEDURE (default)
/NOPROCEDURE
    Writes each DCL command line in a command procedure to the output device.

IMAGE (default)
/NOIMAGE
    Writes data lines (input data that is included as part of the SYS$INPUT input stream) to the output device.

EXAMPLE

$ SET VERIFY
Types each line of a command procedure as it is executed.

SET VOLUME device-spec[:],...

Requires WRITE access to the index file on the volume.

Changes the characteristics of a mounted Files–11 volume.

PARAMETERS

device-spec[:]
The name of a mounted Files–11 volume.

QUALIFIERS

/ACCESSED=[n]
Requires OPER privilege.

Specifies the number of directories to be maintained in system space for ready access. The value of n can be from 0 through 255 and defaults to 3. If you specify a value greater than the current value, the new value is effective immediately; otherwise, the new value will not take effect until the next time the volume is mounted.

/DATA_CHECK[=(keyword,...)]
Defines a default for data check operations following all reads and/or writes to the specified volume. (If you do not specify the /DATA_CHECK qualifier, no checks are made.) Possible keywords are

READ	Performs checks following all read operations
WRITE	Performs checks following all write operations (default)

/ERASE_ON_DELETE
/NOERASE_ON_DELETE (default)
Files on the volume are overwritten with zeros when they are deleted.

/EXTENSION=n
Sets the extend quantity default for all files on the volume. The value n can range from 0 through 65535.

/FILE_PROTECTION [=(ownership[:access],...)]
Sets the default protection to be applied to all files on the specified disk volume. Specify ownership as SYSTEM, OWNER, GROUP, or WORLD and access as R (read), W (write), E (execute), or D (delete). A null access specification means no access.

/HIGHWATER_MARKING
/NOHIGHWATER_MARKING
Sets the File Highwater Mark (FHM) volume attribute, which guarantees that a user cannot read data that he has not written. Applies to Structure Level 2 volumes only.

/LABEL=volume-label
Specifies a 1 through 12-character alphanumeric name to be encoded on the volume. Characters are automatically changed to uppercase.

/LOG
/NOLOG (default)

Displays the volume specification of each volume after the modification.

/MOUNT_VERIFICATION
/NOMOUNT_VERIFICATION

Enables mount verification (preventing interruption to user input/output operations and notifying the operator of problems with the disk).

/OWNER_UIC[=uic]

Sets the owner UIC of the volume to the specified UIC. The default UIC is that of the current process. Brackets are required around the UIC.

/PROTECTION=(ownership[:access],...)

Specifies the protection to be applied to the volume. The ownership categories are SYSTEM, OWNER, GROUP, and WORLD; the access categories are R (read), W (write), E (create), and D (delete). The default protection is all types of access by all categories of user.

/REBUILD

Recovers caching limits for a volume that was improperly dismounted. If a disk volume was dismounted improperly (such as during a system failure), and was then remounted with the MOUNT/NOREBUILD command, you can use SET VOLUME/REBUILD to recover the caching that was in effect at the time of the dismount.

/RETENTION=(minimum[,maximum])

Specifies the minimum and maximum retention times to be used by the file system to determine the expiration date for files on the volume. When a file is created, its expiration date is set to the current time + maximum. Each time the file is accessed, the current time is added to the minimum time and if the sum is greater than the expiration date, a new expiration date is computed. Maximum defaults to the smaller of (2 x minimum) or (minimum + 7).

/UNLOAD (default)
/NOUNLOAD

Specifies for the DISMOUNT command that the volume is unloaded.

/USER_NAME[=username]

Specifies a user name of up to 12 alphanumeric characters to be recorded on the volume. The default name is the current process user name.

/WINDOWS[=n]

Specifies the number of mapping pointers to be allocated for file windows. The value of n can be from 7 through 80; the default value is 7.

EXAMPLE

$ `SET VOLUME/DATA_CHECK=(READ,WRITE) $DISK1`
Performs data checks on all reads and writes to $DISK1.

SET WORKING_SET

Redefines the default working set size of the current process or sets an upper limit to which the working set size can be changed by an image that the process executes. (The working set limits cannot be set to exceed those defined in the user authorization file.)

QUALIFIERS

/ADJUST (default)
/NOADJUST
    Enables the system's changing of the process working set.

/EXTENT=n
    Specifies the maximum number of pages that can be resident in the working set during image execution. The extent value must be greater than the minimum working set defined at system generation and must be less than or equal to the authorized extent defined in the user authorization file. If you specify a value greater than the authorized extent, the command sets the working set limit at the maximum authorized value.

/LIMIT=n
    Specifies the size to which the working set is to be reduced at image exit. If you specify a value greater than the current quota, the quota value is also increased. If you specify a limit equal to the /QUOTA value, automatic working set adjustment is disabled.

/LOG
/NOLOG (default)
    Displays confirmation of the SET WORKING_SET command.

/QUOTA=n
    Specifies the maximum number of pages that any image executing in the process context can request. If you specify a quota value that is greater than the authorized quota, the working set quota is set to the authorized quota value.

EXAMPLES

$ `SET WORKING_SET/LIMIT=100`
Sets the working set size for any image in the process to 100.

$ `SET WORKING_SET/QUOTA=1000`
Sets the quota limiting the maximum number of pages any image can request to 1000.

SHOW ACCOUNTING

Displays the activities for which accounting is currently enabled.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

   Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ `SHOW ACCOUNTING/OUTPUT=ACCOUNTING.SET`
Writes the current setting of SET ACCOUNTING to the file ACCOUNTING.SET.

SHOW ACL

See Appendix ACL.

SHOW AUDIT

Requires the SECURITY privilege.

Displays the set of auditing features that have been enabled with the SET AUDIT command and the events that they will report.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

   Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW AUDIT

Displays the current security auditing settings on SYS$OUTPUT.

SHOW BROADCAST

Displays the message classes that are currently enabled by the SET BROADCAST command.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW BROADCAST/OUTPUT=BROADCAST.SET

Writes the current setting of SET BROADCAST to the file BROADCAST.SET.

SHOW DEFAULT

Displays the current default device and directory.

EXAMPLE

$ SHOW DEFAULT

Displays the default device and directory.

SHOW DEVICES [device-name]

Displays information about the devices on the system.

PARAMETERS

device-name

Name of the device. The name can be generic — if no controller or unit number is specified, all devices that satisfy that portion of the name are displayed. For example, D means all disk devices.

QUALIFIERS

/ALLOCATED

Displays information on allocated devices.

/BRIEF (default)
/FULL

Provides a brief display or a full display. A brief display contains the following information: time, device name, status (on line or not), characteristics (if the device is allocated, if it is spooled, if it has a volume mounted on it, if it has a foreign volume mounted on it), error count, volume label, free blocks on the volume, number of transactions, number of mount requests.

A full display contains the information of a brief display plus: number of I/O operations completed, number of references, process identification and name of the device owner, default buffer size, UIC of volume owner, volume protection, volume status (if it is mounted /SYSTEM or /GROUP), name of the volume's ACP, relative volume number, default cluster size, maximum number of files allowed on the volume.

/FILES

Requires SYSPRV or BYPASS privilege to read protected files.

Names the open files on the volume. A blank file name indicates a temporary file. If the /SYSTEM qualifier is also specified, only the names of installed files and files opened by the system are displayed (including files opened without the ACP and system files). If /NOSYSTEM is specified, only files opened by processes are displayed. Incompatible with /ALLOCATED, /BRIEF, /FULL or /MOUNTED.

/FULL

See /BRIEF.

/MOUNTED

Displays devices with volumes mounted on them.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

/SYSTEM
/NOSYSTEM

Names (when /FILES is specified) only those files opened by the system or only those files opened by a process (/NOSYSTEM). The default is all open files.

/WINDOWS

> Displays the window count and total size of all windows for files open on a volume, as well as the file name and related process name and process identification (PID). The letter C in the display indicates that the file is open with cathedral (segmented) windows.

EXAMPLES

$ SHOW DEVICES

Provides a brief display of all devices connected to the system.

$ SHOW DEVICES DU

Provides a brief display of all devices whose physical names begin with "DU".

$ SHOW DEVICES/FULL $DISK1

Provides a full display of $DISK1.

SHOW ERROR

Displays any nonzero error count for the CPU, memory, and devices.

QUALIFIERS

/FULL

> Displays the error count for all devices, including those with no errors.

/OUTPUT[=file-spec]
/OUTPUT=SYS$OUTPUT (default)

> Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW ERROR/FULL

Displays error counts for CPU, memory, and all devices.

SHOW INTRUSION

Requires the Secure User Environment Option.
Requires CMKRNL and SECURITY privileges.

Displays the contents of the breakin database.

QUALIFIERS

/OUTPUT[=file-spec]

Specifies the file to which output is written; by default, the display is written to the current SYS$OUTPUT device.

/TYPE=keyword

Selects the type of information displayed with one of the following keywords:

ALL (default)	Displays all breakin entries.
SUSPECT	Displays breakin entries for login failures that have occurred but have not been identified as intruder.
INTRUDER	Displays breakin entries for which the login failure rate was high enough to warrant evasive action.

EXAMPLE

$ SHOW INTRUSION/TYPE=INTRUDER

```
Intrusion   Type        Count    Expiration      Source
TERMINAL    INTRUDER    9        10:29:39.16     _LTA23:
NETWORK     INTRUDER    7        10:47:53.12     STAR::HAMM
```
Displays all intruder entries currently in the breakin database.

SHOW KEY [key-name]

Displays key definitions created with the DEFINE/KEY command.

PARAMETERS

key-name

The name of the key. Permissible keys are as follows:

Keyname	VT100 Key	VT200 Key
PF1	PF1	PF1
PF2	PF2	PF2
PF3	PF3	PF3
PF4	PF4	PF4
KP0, KP1—KP9	Keypad 0—9	Keypad 0—9
PERIOD	Period Key	Period Key
COMMA	Comma Key	Comma Key
MINUS	Minus Key	Minus Key
ENTER	Enter Key	Enter Key

Keyname	VT100 Key	VT200 Key
FIND, INSERT HERE	-	Find, Insert Here
REMOVE, SELECT	-	Remove, Select
PREV_SCREEN	-	Prev Screen
NEXT_SCREEN	-	Next Screen
HELP, DO	-	Help(F15), Do(F16)
F6–F20	-	Function Keys F6—F20

NOTE: You cannot define the UP and DOWN arrow keys or function keys F1 through F5. You must issue the SET TERMINAL/NOLINE_EDITING command before defining the LEFT and RIGHT arrow keys and function keys F6 through F14.

QUALIFIERS

/ALL

Displays all key definitions in the current state (or the state specified with the /STATE qualifier), including the state for each definition and all qualifiers that are associated with each definition. Incompatible wtih the *key-name* parameter.

/BRIEF (default)
/FULL

Determines whether only the key definition and state are displayed (/BRIEF) or whether all qualifiers associated with the key definition are displayed as well (/FULL).

/DIRECTORY

Displays the names of all states for which keys have been defined.

/STATE=(state-name,...)
/NOSTATE

Displays the key definition for the specified state. The current state is the default.

EXAMPLE

$ SHOW KEY PF1
Displays the definition of the PF1 key.

SHOW LOGICAL [logical-name,...]

Displays a logical name or names, equivalences, level of translation, and logical name table. If no logical name is specified, displays the logical names in the list of tables specified by LNM$DCL_LOGICAL.

PARAMETERS

logical-name

A logical name or names. The asterisk (*) and percent (%) wildcard characters are allowed; however, if a wildcard character is present, iterative translation is not done.

QUALIFIERS

/ACCESS_MODE=mode

Displays names defined in the specified access mode and any inner access modes. You can specify one of the following keywords to indicate the access mode: USER_MODE, SUPERVISOR_MODE, EXECUTIVE_MODE or KERNEL_MODE. The default is USER_MODE. By default, the system displays any definitions in all three access modes.

/ALL (default)

Indicates that all logical names in the specified logical name tables are to be displayed.

/DESCENDANTS
/NODESCENDANTS (default)

Displays names from the specified logical name table and any descendant tables. (A descendant table is created by the CREATE/NAME_TABLE command, with the PARENT_TABLE qualifier specifying its parent table.) If you use the /DESCENDANTS qualifier, you must also use the /TABLE qualifier.

/FULL

Displays more detailed information on the access mode and any attributes for each logical name, equivalence string, and logical name table.

/GROUP
/JOB
/PROCESS
/SYSTEM

Specifies the table from which the logical name is to be read. The /GROUP qualifier is synonymous with /TABLE=LNM$GROUP. The /JOB qualifier is synonymous with /TABLE=LNM$JOB. The /PROCESS qualifier is synonymous with /TABLE=LNM$PROCESS. The /SYSTEM qualifier is synonymous with /TABLE=LNM$SYSTEM.

/JOB

See /GROUP.

/OUTPUT[=file-spec]
/NOOUTPUT
Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

/PROCESS
See /GROUP.

/STRUCTURE
/NOSTRUCTURE (default)
Displays the family tree of all accessible tables. /STRUCTURE is mutually exclusive with all other qualifiers but /OUTPUT, /ACCESS_MODE, and /FULL.

/SYSTEM
See /GROUP.

/TABLE=(name,...)
Requires READ access to display or search a shareable logical name table.

Displays the specified logical name tables. Wildcards are allowed. Wildcarded names are used to match table names. Nonwildcarded names are treated both as table names and table search lists (whichever is appropriate).

EXAMPLES

$ SHOW LOGICAL/PROCESS

Displays all process logical names and their equivalences.

$ SHOW LOGICAL INCOME

Displays the logical name INCOME, its equivalence name, and the table in which it is entered.

$ SHOW LOGICAL/PROCESS INCOME

Displays the logical name INCOME, its equivalence name, and the table in which it is entered if INCOME is a process logical name.

SHOW MAGTAPE

Displays the current characteristics and status of a specified magnetic tape device.

PARAMETER

device-name
Specifies the name of the magnetic tape device for which you want to display the characteristics and status.

QUALIFIER

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW MAGTAPE MUAO:

```
Magtape MUAO:, device type TK50, is online, file-oriented device, available to
    cluster, error logging is enabled.
    Error count                   0    Operations completed                 0
    Owner process                ""    Owner UIC                        [0,0]
    Owner process ID       00000000    Dev Prot    S:RWED,O:RWED,G:RWED,W:RWED
    Reference count               0    Default buffer size               2048
    Density                    1600    Format                       Normal-11


    Volume status:  no-unload on dismount, odd parity.
```

Displays the characteristics of the device MUA0:.

SHOW MEMORY

Displays information about system resources related to memory.

QUALIFIERS

/ALL (default)

Displays information about paging and swapping files, physical memory, use of pool areas, process entry slots, and balance slots.

/FILES

Displays information about the paging and swap files.

/FULL

When used with the /FILES and /POOL qualifiers, displays additional information about the usage of each pool area or paging and swapping file.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

/PHYSICAL _PAGES
>Displays information about the use of physical memory, including the number of pages in use and the number of pages on the free and modified page lists.

/POOL
>Displays additional information about the use of fixed-size and dynamic pool areas, including the amount of used and free space and the size of the largest contiguous block for each pool.

/SLOTS
>Displays information about the availability of process entry and balance slots.

EXAMPLES

$ SHOW MEMORY

Displays all memory information.

$ SHOW MEMORY/POOL

Displays pool information.

SHOW NETWORK

Requires the DECnet Option.

If your system is a routing node, displays the name and hardware line for each accessible network node, plus the number of logical links, the line cost, and the actual cost (hops) between your node and the other node. If your system is a nonrouting node, displays the designated router for your system.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT
>Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW NETWORK

Displays the accessible network nodes.

SHOW PRINTER device-name

Displays the characteristics of a printer.

PARAMETERS

device-name

   Name of the printer.

QUALIFIERS

/OUTPUT=[file-spec]

   Specifies the file to which the display is written; by default, the display is written
   to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW PRINTER $PRINTER

Displays the characteristics of $PRINTER.

SHOW PROCESS [process-name]

Displays information about your process and any current subprocesses. If no qualifier
is entered, only a basic subset of information is displayed: the time, process terminal,
user name and UIC, process name and process identification, priority, default
directory, and allocated devices.

PARAMETERS

process-name

   Requires ownership of the process or that you have GROUP privilege and the
   process is in your group.
   The name of the process about which information is to be displayed.
   Incompatible with the /IDENTIFICATION qualifier.

QUALIFIERS

/ACCOUNTING

   Displays the accumulated accounting statistics for the current session.

/ALL

   Displays the basic subset of information plus the accounting statistics, privileges,
   quotas, and subprocesses.

/CONTINUOUS

   Dynamically displays information about the specified process. Specify the
   process name as a parameter (process name defaults to the current process).
   Press the V key to display a map of the pages in the virtual address space of the
   process. Each character displayed in the map represents the type of page. If the
   current program counter (PC) is in the page, the page type is indicated by an at
   (@) sign. Pages locked in the working set are indicated by the letter L. Global
   pages are indicated by the letter G. Other valid pages in the working set are

indicated by an asterisk. To terminate the display, press the E key. To return to the original display, press the spacebar.

/IDENTIFICATION=pid

Requires GROUP or WORLD privilege to access a process other than the current process.

Displays information about the process with the specified process identification. Incompatible with the process name parameter and the /SUBPROCESSES qualifier.

/MEMORY

Displays the process's use of dynamic memory areas.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

/PRIVILEGES

Displays privileges and identifiers currently enabled for the process.

/QUOTAS

Displays, for each resource, either a quota or a limit. The values displayed for quotas reflect any quota reductions resulting from subprocess creation. The values displayed for limits reflect the resources available to a process at creation.

/SUBPROCESSES

Displays the current subprocesses in hierarchical order. Incompatible with the /IDENTIFICATION qualifier.

EXAMPLES

$ SHOW PROCESS

Displays the basic subset of information for your process.

$ SHOW PROCESS/ACCOUNTING

Displays the accounting statistics for the current session.

SHOW PROTECTION

Displays your default file protection.

EXAMPLE

$ SHOW PROTECTION

Displays the current default protection.

SHOW QUEUE [queue-name]

Requires the Secure User Environment Option.

Displays the current status of batch and print jobs.

PARAMETERS

queue-name

Name of the queue in which the job exists. If *queue-name* is not specified, information on all queues is displayed. Wildcard characters are valid; the default queue name is *.

QUALIFIERS

/ALL

Displays all current and pending jobs in the specified queues.

/BATCH

Displays all batch queues and any jobs in those queues that are owned by the current process.

/BRIEF (default)
/FULL

Displays a brief or full description of the jobs in the queues.

/DEVICE

Displays jobs owned by the current process in all printer, terminal, and server queues.

/FILES

Requests a brief listing of information about job entries in the queue with the list of files associated with each job. The display includes a full file specification for each file in each job.

/FULL

See /BRIEF.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written
to the current SYS$OUTPUT device.

EXAMPLES

$ SHOW QUEUE/DEVICE

Displays all current and pending print jobs for your process.

$ SHOW QUEUE/ALL/DEVICE

Displays all current and pending print jobs

$ SHOW QUEUE/FULL SYS$BATCH

Displays full information on all current and pending jobs for your process in
SYS$BATCH.

SHOW QUEUE/CHARACTERISTICS [characteristic]

Requires the Secure User Environment Option.

Displays the names and numbers of available queue characteristics.

PARAMETERS

characteristic

The name of a characteristic. You can use wildcard characters. The default is *.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written
to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW QUEUE/CHARACTERISTIC

Displays all the characteristics that have been defined for this system.

SHOW QUEUE/FORM [form-name]

Requires the Secure User Environment Option.

Displays predefined form names and numbers that are available on queues.

PARAMETERS

form-name

The name of the form. You can use wildcard characters. The default is *.

QUALIFIERS

/BRIEF (default)
/FULL

Displays a brief listing of information about the forms (form name, stock, number, and form description).

/FULL

See /BRIEF.

/OUTPUT[=file-spec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW QUEUE/FORM

Displays only the default form.

SHOW QUOTA

Requires the Secure User Environment Option.
Requires READ access to the quota file in order to display the quotas of other users.

Displays the current disk quota that is authorized for a specific user on a specific disk. (This display also includes a calculation of the amount of space available and the amount of overdraft that is permitted.)

QUALIFIERS

/DISK[=device-name[:]]

Specifies the disk whose quotas are to be examined. By default, the current default disk is examined.

/USER=uic

Specifies which user's quotas are to be displayed. By default, the current user's quotas are displayed.

EXAMPLE

$ SHOW QUOTA

Displays the amount of disk space authorized, used, and still available on the current default disk for the present user.

SHOW RMS_DEFAULT

Displays the current default multiblock count and multibuffer count that RMS uses for file operations.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

> Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW RMS_DEFAULT

Displays the current process and system default multiblock and multibuffer counts for all types of files, as well as the current process and system prologue level and extend quantity.

SHOW STATUS

Displays the current status of your process: the date, cumulative processor time used, cumulative buffered I/O operations performed, cumulative direct I/O operations performed, working set limit, amount of physical memory being used, number of open files, and cumulative page faults.

EXAMPLE

$ SHOW STATUS

Displays the status of your process.

SHOW SYMBOL [symbol-name]

Displays the value of the specified symbol.

PARAMETERS

symbol-name

> The name of the symbol. The *symbol-name* parameter is required if /ALL is not specified and is incompatible with /ALL. If /LOCAL or /GLOBAL is not specified, symbol-name means the first symbol at: (1) the current command

level, (2) a higher command level, or (3) the global level, in that order. Wildcard characters are allowed in the *symbol-name* specification.

QUALIFIERS

/ALL
Displays the current values of all symbols in the specified symbol table.

/GLOBAL
/LOCAL (default when /ALL is specified)
Indicates the level of the symbol.

/LOCAL
See /GLOBAL.

/LOG (default)
/NOLOG
Generates a message indicating truncation of the symbol value. (The symbol value is truncated if it exceeds 255 characters.)

EXAMPLES

$ SHOW SYMBOL INCD
Displays the value of the symbol INCD.

$ SHOW SYMBOL/LOCAL INCD
Displays the value of the symbol INCD if it is defined at the current command level.

$ SHOW SYMBOL/ALL/GLOBAL
Displays all global symbols and their values.

SHOW SYSTEM

Displays status information concerning current processes: the time, process name and identification, processing state, priority, total process I/O, cumulative processor time used, cumulative page faults, amount of physical memory being used, and the type of process if not interactive (B for batch, N for network, S for subprocess).

QUALIFIERS

/BATCH
/NETWORK
/PROCESS (default)
/SUBPROCESS
Displays all batch jobs, all network processes, all processes, or all subprocesses on the system.

/FULL

    Displays the default status information for current processes, plus process UICs.

/OUTPUT[=file-spec]
/NOOUTPUT

    Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLES

$ SHOW SYSTEM

Displays all processes on the system.

$ SHOW SYSTEM/BATCH

Displays all batch jobs on the system.

SHOW TERMINAL [device-name]

Displays the current characteristics of a terminal. (See SET TERMINAL for a list of the characteristics displayed.)

PARAMETERS

device-name

    Name of the terminal. The default is your terminal (SYS$COMMAND).

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

    Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

/PERMANENT

    Displays the permanent characteristics of the terminal. Use of the /PERMANENT qualifier requires LOG_IO or PHY_IO privilege.

EXAMPLE

$ SHOW TERMINAL

Displays the current characteristics of your terminal.

SHOW [DAY]TIME

Displays the current date and time.

SHOW TRANSLATION logical-name

Searches one or more logical name tables for a specified logical name and returns the equivalence name of the first match found. If you do not specify the table, the tables specified by the multivalued logical name LNM$DCL_LOGICAL are searched. Unless LNM$DCL_LOGICAL has been redefined for your process, the process, job, group, and system logical name tables are searched in that order. The translation is not iterative.

PARAMETERS

logical-name

    The logical name to be displayed.

QUALIFIERS

/TABLE=name

    Searches the specified table. The default is /TABLE = LNM$DCL_LOGICAL.

EXAMPLE

`$ SHOW TRANSLATION INCOME`

Displays the logical name INCOME, its equivalence name, and the table in which the logical name is defined.

SHOW USERS [username]

Displays the user name, process name, terminal name, and process identification code (PID) of interactive users on the system.

PARAMETERS

username

    The user about whom you want information. If you specify a string, all users whose user names begin with the string are displayed. If you omit *username*, a list of all interactive users is displayed.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

    Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

EXAMPLE

$ SHOW USERS

Displays all users currently using the system.

SHOW WORKING_SET

Displays the working set limit, quota, and extent assigned to the current process.

QUALIFIERS

/OUTPUT[=file-spec]
/NOOUTPUT

> Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

SORT input-file-spec,... output-file-spec

Sorts a file or files into one ordered output file.

PARAMETERS

input-file-spec

> Specification of files whose records are to be sorted. All files must have the same record format and key description, but may have different file organizations. Wildcard characters are not allowed. The file type defaults to DAT.

output-file-spec

> Specification of the file produced by the sort operation. Wildcard characters are not allowed. The file type defaults to the file type of the first input file.

QUALIFIERS

/ALLOCATION=file-size

> Qualifies output-file-spec.
>
> Required only to override relative and indexed-sequential input file characteristics. *File-size* is the number of 512-byte blocks to be allocated for the file and must be an integer in the range 1 through 4294967295. The /ALLOCATION qualifier is required if /CONTIGUOUS is specified.

/BUCKET_SIZE=bucket-size

> Qualifies output-file-spec.
>
> Required only to override input file characteristics. For relative and indexed files, specifies the bucket size in blocks. For input and output files of the same organization, the default is the same as the bucket size of the first input file; otherwise, the default is 1. Bucket size must be an integer in the range 1 through 32.

/COLLATING_SEQUENCE=sequence

Names the collating sequence for character data. *Sequence* can be ASCII, EBCDIC, or MULTINATIONAL. Note that when you specify EBCDIC, the characters remain in ASCII representation; only the order is changed. The /MULTINATIONAL qualifier specifies the collating sequence of the DEC Multinational Character Set. See Appendix CHAR for the ASCII and DEC Multinational Character Sets.

/CONTIGUOUS

Qualifies output-file-spec.

Required only to override the first input file's characteristics. Specifies that the allocation of blocks for the output file be contiguous. /ALLOCATION must also be specified.

/DUPLICATES (default)
/NODUPLICATES

Deletes records with duplicate keys from the sort operation. The /NODUPLICATES qualifier is incompatible with the /STABLE qualifier.

/FORMAT=record-format[n:]

Qualifies input-file-spec and output-file-spec.

Specifies record format and size. Possible options for the input file are:

RECORD_SIZE=n	An integer in the range 1 through 32767 for sequential files, 1 through 16383 for relative files, or 1 through 16383 for indexed sequential files
FILE_SIZE=n	An integer in the range 1 through 4294967295

Possible options for the output file are:

FIXED=n	A fixed size record whose maximum size is an integer in the range 1 through 32767 for sequential files, 1 through 16383 for relative files, or 1 through 16383 for indexed sequential files
VARIABLE=n	A variable size record whose maximum size is an integer in the range 1 through 32767 for sequential files, 1 through 16383 for relative files, or 1 through 16383 for indexed sequential files
CONTROLLED=n	A controlled record whose size is an integer in the range 1 through 32767 for sequential files, 1 through 16383 for relative files, or 1 through 16383 for indexed sequential files
SIZE=n	An integer in the range 1 through 255

If /FORMAT is not specified for the output file, the format is based on the sort process selected: if RECORD or TAG sort is selected, the default is the format of the first input file; if ADDRESS or INDEX sort is selected, the default is FIXED.

/INDEXED_SEQUENTIAL
/RELATIVE
/SEQUENTIAL

Qualifies output-file-spec.

Specifies the organization of the file. For a record or tag sort, the output file format defaults to the organization of the input file. For an indexed sort, the output file must exist and be empty and you must specify the /OVERLAY qualifier.

/KEY=(option,...)

Defines a sort key. You can specify /KEY up to 255 times to define 255 different key fields on which to sort. The default is a character data key, beginning in position 1 of the input record for a length of the LRL (longest record length) for the input file, up to a maximum length of 32767 bytes. The following keywords specify position, size, and data type of the key field within the record.

Option	Description
POSITION=start of key	Starting byte of the key within the record, where the first byte of the record is position 1. The value must be an integer in the range 1-32767. The position option is required.
CHARACTER (default) BINARY F_FLOATING D_FLOATING G_FLOATING H_FLOATING ZONED DECIMAL PACKED_DECIMAL	Data type of the key.

Option	Description
SIZE=n	Size of the key as follows depending on data type:
	CHARACTER—Number of characters specified as an integer in the range 1-32767 (default = 32767)
	BINARY—Then integer value 1 (byte), 2 (word), 4 (longword), 8 (quadword), or 16
	DECIMAL—Number of digits, not counting the sign, specified as an integer in the range 1 to 31
	PACKED_DECIMAL—same as DECIMAL
	Do not specify a size for floating-point data types, whose sizes are fixed at 4 (F_FLOATING), 8 (D_ and G_FLOATING), and 16 (H_FLOATING) bytes. The total size of all keys must not exceed 32767 bytes.
NUMBER=key order	Priority of the key specified as an integer in the range 1-255, where 1 means the primary key. The default is the order in which the keys are specified.
ASCENDING (default) DESCENDING	Order in which records are sorted for the key.
SIGNED (default) UNSIGNED	Whether or not a sign is stored (binary keys only)
TRAILING_SIGN (default) LEADING_SIGN	Byte in which sign is stored — first or last (decimal keys only).
OVERPUNCHED_SIGN (default) SEPARATE_SIGN	Whether the sign is superimposed on the decimal value or is separated from the decimal (decimal keys only).

/OVERLAY
/NOOVERLAY
  Qualifies output-file-spec.
  Writes the output to an existing file which must be empty. By default, a new output file is created for sequential and relative files. If the output file is INDEXED_SEQUENTIAL, /OVERLAY must be specified.

/PROCESS=keyword

Defines the type of sort with one of the following keywords:

RECORD Sorts complete records and produces an output file of complete records in sorted order (default).

TAG Sorts keys, then reaccesses the input file to produce an output file of complete records in sorted order (the net result is the same as a record sort); terminal input is not allowed.

ADDRESS Sorts keys and produces an output file of pointers; multiple input files are not allowed; terminal input is not allowed; the output file is in binary format.

INDEX Sorts keys and produces an output file of pointers and keys; multiple input files are not allowed; terminal input is not allowed; the output file is in binary format.

/RELATIVE

See /INDEXED_SEQUENTIAL.

/SEQUENTIAL

See /INDEXED_SEQUENTIAL.

/SPECIFICATION=file-spec

Identifies the specification file to be used in the SORT operation. File type defaults to SRT. Any qualifiers specified in the SORT command line override the qualifiers in the specification file. The specification file can contain the following qualifiers:

QUALIFIERS

/CDD_PATH_NAME="cdd-path-name"

Specifies a record definition (*"cdd-path-name"*) from the Common Data Dictionary (CDD) if your system has VAX CDD installed. Once the fields have been identified, they may be used in later specification file qualifiers. (The /CDD_PATH_NAME qualifier may be used with or in place of the /FIELD qualifier.)

/COLLATING_SEQUENCE=(SEQUENCE=sequence[,keyword=,...])

Specifies the collating sequence for character key fields; the collating sequence can be ASCII (the default), EBCDIC, MULTINATIONAL, or a user-defined collating sequence that is specified as a string of characters (single or double) or a range of single characters. Each character and range must be separated by commas and enclosed in parentheses. You can also specify characters by their corresponding octal, decimal, or hexadecimal values, using the radix operators %O, %D, %X. Specify the quotation mark by doubling its occurrence within quotation marks by

using a radix operator. Specify the null character with a radix operator (such as %X0). You must include in the sequence all characters that appear in the character keys or the character will be ignored (unless the MODIFICATION or FOLD keyword is specified).

Other optional keywords are as follows. Note that the FOLD, MODIFICATION, and IGNORE keywords are processed in the order in which they are specified.

MODIFICATION   Specifies the change you want to make to the collating sequence (ASCII, EBCDIC, MULTINATIONAL, or user-defined). Use the format MODIFICATION=(character operator character). Specify *character* as it is in the collating sequence and *operator* as > , <, or =. You can specify the following changes to a collating sequence: (1) Equate a character (single or double) to a character (single or double) that has already been assigned a collating value ("a"="A" or "CH"="SH" or "C"="CH"). (2) Collate a character (single or double) after a single character that has already been assigned a collating value ("CH"> "C"). (3) Collate a character (single or double) before a character that has already been assigned a collating value ("CH" <"C").

IGNORE   Specifies the character or range of characters to be initially ignored in the collating sequence (unless two or more strings have compared as equal and (1) TIE_BREAK is in effect or (2) the Multinational sequence is being used). Specify in the format IGNORE=character (or IGNORE=character range,...).

FOLD   Gives all lowercase letters the collating value of their uppercase equivalents (the Multinational sequence does this by default).

[NO]TIE_BREAK   Specifies whether or not numeric values are used to break any ties between characters that have equivalent values. (The Multinational sequence breaks ties in this way by default.)

/CONDITION=(NAME=condition-name,TEST=(field-name operator test[logical-operator,...]))

Defines a conditional test that can be used to change the relative order of a record (with the /KEY or /DATA qualifier) or to alter the contents of certain fields of a record (with the /OMIT or /INCLUDE qualifier). *Condition-name* specifies the name of the condition; once defined, you can use the condition name with the /KEY, /DATA, /OMIT, and /INCLUDE qualifiers. *Field-name* specifies the name of the field (defined by the /FIELD qualifier) being tested; *logical operator* specifies the logical

(AND or OR) or relational (EQ, NE, GT, GE, LT, or LE) operator used
in the test. *Operator-test* specifies the constant for which you are testing.
Specify the constant with the following syntax: %D decimal_digits, %O
octal_digits, %X hexadecimal_digits, and "character".

/DATA=field-name
/DATA=(IF condition-name THEN "new-contents" ELSE "new-contents")

Specifies the fields to be directed to the output file and their order. (By
default, the output file has the same record format as that of the input
file.) Only the specified fields will appear in the output field. *Field-name*
specifies the previously defined name of a field in a record; *condition-
name* specifies a previously defined condition; and *new-contents* is either
a constant or a field name that specifies how the record is to be altered.

/FIELD=(NAME=field-name,POSITION:n,SIZE:n, data-type) [DIGITS:n]

Defines the fields in the input files. (You must specify each field in the
records to be merged, including key fields, field to be compared, and
fields to be directed to your output file.) *Field-name* cannot have any
embedded blanks, must begin with an alphabetic character, and can be
no longer than 31 characters. POSITION specifies the position of the
field in the record. SIZE specifies the size of a field, according to data
type: character data must not exceed 32,767 characters; binary data must
be 1, 2, 4, 8, or 16 bytes; and floating-point data has no specified size.
Data-type specifies the data type of the field; the default is character.
Specify *data-type* as one of the following:

```
CHARACTER (default)            BINARY[,SIGNED]
BINARY,UNSIGNED                ZONED
D_FLOATING                     F_FLOATING
G_FLOATING                     H_FLOATING
PACKED_DECIMAL                 DECIMAL,UNSIGNED
DECIMAL[,SIGNED,TRAILING_SIGN,OVERPUNCHED_SIGN]
DECIMAL,LEADING_SIGN,SEPARATE_SIGN[,SIGNED]
DECIMAL,LEADING_SIGN,[OVERPUNCHED_SIGN,SIGNED]
DECIMAL,[TRAILING_SIGN],SEPARATE_SIGN[,SIGNED]
```

DIGITS specifies the size of a field containing decimal data; *n* cannot
exceed 31 digits.

/INCLUDE=(CONDITION=condition-name,[KEY=...],DATA=...])

Specifies that records are to be conditionally included (according to
a previously defined condition). If you specify multiple /INCLUDE
qualifiers, the order in which you specify them determines the order in
which the input records are tested for inclusion. You unconditionally
include any records not previously omitted or included by specifying
/INCLUDE without a condition. The order of the key fields you specify

determines how the internal key is built for merging; the order of the
DATA fields determines the way in which the output record is formatted.
If you specify a key or data field with /INCLUDE, you must define all
other key or data fields in the record.

/KEY=(field-name[,order])
/KEY=(IF condition-name THEN value ELSE value)

Specifies key fields (up to 255) and the order of their priority
(unnecessary if you are merging on the entire record using character
data). *Field-name* is the name of the field specified in the /FIELD
qualifier. *Order* can be ASCENDING or DESCENDING. The conditional
form of the /KEY qualifier specifies a relative order of records; *value* can
be a constant or a field name that has been defined in a /FIELD qualifier.

/OMIT=(CONDITION=condition-name)

Specifies records to be conditionally omitted from the output file (by a
previously defined condition). If you specify multiple /OMIT qualifiers,
the order in which you specify them determines the order in which the
input records are tested for omission. You can unconditionally omit any
records not previously omitted or included by specifying /OMIT without
a condition.

/PAD=single-character

Specifies a character to be used to fill an incomplete record when you
are reformatting a record or comparing strings of unequal length; the
null character is the default pad character. The pad character can be a
character or a digit (decimal, octal, or hexadecimal). Enclose characters
in quotation marks and precede digits with radix (%X23).

/PROCESS=type

Specifies the type of sort: type can be record (default), tag, address, or
index. You cannot use address or index sort if the output records are
going to be reformatted.

/STABLE (default)
/NOSTABLE (default)

Arranges records with equal keys in the output file in the order of the
input files (by default, the order is unpredictable).

/WORK_FILES=(disk,...)

Assigns work files to the specified disk and/or diskette. (By default,
work files are located in the directory SYS$SCRATCH; placing them on
separate disks with /WORK_FILES permits overlap of SORT's
read/write cycle.)

/STABLE
/NOSTABLE (default)

Maintains the order of records with identical keys; otherwise, the order is unpredictable. The /STABLE qualifier is incompatible with the /NODUPLICATES qualifier.

/STATISTICS
/NOSTATISTICS (default)

Displays a statistical summary at the end of the sort.

/WORK_FILES=number-of-files

Specifies the number of temporary work files. The value can be from 0 through 10, with a default of 2.

EXAMPLE

$ SORT/SPECIFICATION=AB.SRT A.DAT,B.DAT ZIP.OUT

Sorts two input files, A.DAT and B.DAT, arranging records in the output file (ZIP.OUT) according to the qualifiers in the specification file (AB.SRT).

SPAWN [command-string]

Requires TMPMBX or PRMMBX user privilege.
The SPAWN and ATTACH commands cannot be used if your terminal has an associated mailbox.

Creates a subprocess.

PARAMETERS

command-string

A command string of less than 132 characters that is to be executed in the context of the created subprocess. When the command completes execution, the subprocess terminates and control returns to the parent process. If both a command string and the /INPUT qualifier are specified, the specified command string executes before additional commands are obtained from the /INPUT qualifier.

QUALIFIERS

/CARRIAGE_CONTROL
/NOCARRIAGE_CONTROL

Prefixes carriage return/line feed characters to the subprocess's prompt string. The default is the parent process's setting.

/CLI=cli-file-spec
/NOCLI

Specifies the command language interpreter (CLI) that will be used by the subprocess. The default CLI is that defined in SYSUAF. If you specify /CLI, context is copied to the subprocess.

/INPUT=file-spec

Specifies an input file containing one or more DCL commands to be executed by the subprocess. File type defaults to COM. Once processing of the input file is complete, the subprocess is terminated. If both a command string and the /INPUT qualifier are specified, the specified command string executes before additional commands are obtained from the /INPUT qualifier. If none is specified, SYS$INPUT is assumed (in which case a SPAWN/NOWAIT will be aborted if CTRL/Y is typed to abort something running in your parent process.

/KEYPAD (default)
/NOKEYPAD

Copies keypad key definitions and the current keypad state from the parent process.

/LOG (default)
/NOLOG

Displays the assigned subprocess name and any messages indicating transfer of control between processes.

/LOGICAL_NAMES (default)
/NOLOGICAL_NAMES

Copies process logical names and logical name tables (except those explicitly marked CONFINE or created in executive or kernel mode) to the subprocess.

/NOTIFY
/NONOTIFY (default)

Broadcasts a message to your terminal notifying you that your subprocess has completed or aborted. Incompatible with the /NOWAIT qualifier or the execution of SPAWN from within a noninteractive process.

/OUTPUT=file-spec

Specifies the output file to which the results of the SPAWN operation are written. (Do not specify SYS$COMMAND as a file specification with the /NOWAIT qualifier; both parent and subprocess output will be displayed simultaneously on your terminal.)

/PROCESS=subprocess-name

Specifies the name of the subprocess to be created. The default subprocess name format is: username_n.

/PROMPT[=string]

Specifies the prompt string for DCL to use in the subprocess. The default is the prompt of the parent process. The string must be enclosed in quotation marks if it contains spaces, special characters, or lowercase characters.

/SYMBOLS (default)
/NOSYMBOLS

Passes global and local symbols (except $RESTART, $SEVERITY, and $STATUS) to the subprocess.

/TABLE=command=table

Specifies the name of an alternate command table to be used by the subprocess.

/WAIT (default)
/NOWAIT

Requires that you wait for the subprocess to terminate before you issue another DCL command. The /NOWAIT qualifier allows you to issue new commands while the subprocess is running. (Use the /OUTPUT qualifier with the /NOWAIT qualifier to avoid displaying both parent and subprocess output on the terminal simultaneously.)

EXAMPLE

$ SPAWN MAIL

Spawns a subprocess which executes the MAIL utility.

START/QUEUE queue-name

Requires the Secure User Environment Option.
Requires OPER privilege or EXECUTE access to the queue.

Starts or restarts the specified queue after it has been initialized. The /TOP_OF_FILE, /BACKWARD or /FORWARD, /SEARCH, and /ALIGN qualifiers are processed in that order when more than one occurs in a command line.

PARAMETERS

queue-name

Name of the queue.

QUALIFIERS

/ALIGN[=(option,...)]

Prints alignment pages that enable the operator to properly align the forms in the printer or terminal. Use this qualifier in restarting an output queue from a paused state. Possible options are:

MASK   Displays alphabetic characters as x's and numbers as 9's; nonalphanumeric characters are not masked. The default is not to mask.

n   Specifies the number of alignment pages to print. The value of n can be from 1 to 20; the default is 1.

/BACKWARD=n

Restarts a print queue n pages before the current page; n defaults to 1. Use this qualifier in restarting an output queue from a paused state.

/BASE_PRIORITY=n

Specifies the process priority base at which jobs are initiated from a batch queue. The value of n can be from 0 through 15. By default, jobs are initiated at the priority established by DEFPRI at system generation (usually 4).

/BATCH
/NOBATCH (default)

Specifies that the queue is a batch queue. (The queue must have been initialized as a batch queue.)

/BLOCK_LIMIT=([lower,]upper)
/NOBLOCK_LIMIT (default)

Restricts the size of print jobs that can be executed on a printer or terminal queue. The lower parameter specifies the minimum number of blocks that will be accepted by the queue for a print job. The upper parameter specifies the maximum number of blocks that will be accepted by the queue for a print job. If a job contains fewer blocks than the number specified by the lower parameter or more blocks than the number specified by the upper parameter, the job remains pending until the block limit for the queue is changed. To specify only the lower parameter, you must use two sets of quotation marks ("") in place of the upper specifier.

/CHARACTERISTICS=(characteristic,...)
/NOCHARACTERISTICS (default)

Specifies one or more characteristics for processing jobs on the queue. Each time you specify /CHARACTERISTIC, all previously set characteristics are erased. A queue must have all the characteristics specified for the job or the job remains pending.

/CPUDEFAULT=time

Specifies the default CPU time limit for batch jobs. Time can be specified as delta time, 0, NONE, or INFINITE. Both the value 0 and the keyword INFINITE allow unlimited CPU time (subject to the restrictions imposed by the /CPUMAXIMUM qualifier or the user authorization file); the keyword NONE indicates that no time limit is needed.

/CPUMAXIMUM=time

Specifies the maximum CPU time limit for batch jobs. The /CPUMAXIMUM qualifier overrides the time limit specified in the user authorization file (UAF). Time can be specified as delta time, 0, NONE, or INFINITE. Both the value 0 and the keyword INFINITE allow unlimited CPU time; the keyword NONE specifies that no time limit is needed.

/DEFAULT=(option,...)
/NODEFAULT

Establishes default options for the PRINT command. The /DEFAULT qualifier can not be used with the /GENERIC qualifier. Possible options are:

[NO]BURST[=keyword]	Specifies where to print burst pages (flag pages that are printed over the paper's perforations for easy identification of individual files in a print job). The keyword ALL (the default) places burst pages before each printed file in the job. The keyword ONE places a burst page before the first printed file in the job.
[NO]FEED	Specifies whether a form-feed is automatically inserted at the end of a page
[NO]FLAG[=keyword]	Specifies where to print flag pages (containing the job entry number, the name of the user submitting the job, and so on). The keyword ALL places flag pages before each printed file in the job. The keyword ONE places a flag page before the first printed file in the job.
FORM=type	Specifies the default form for a printer, terminal, or server queue. If a job is not submitted with an explicit form definition, then this form will be used to process the job. The systemwide default form, form=0, is the default value for this keyword. See also /FORM_MOUNTED.
[NO]TRAILER[=keyword]	Specifies where to print trailer pages. The keyword ALL places trailer pages after each printed file in the job. The keyword ONE places a trailer page after the last printed file in the job.

If you specify any of the keywords BURST, FLAG, TRAILER without specifying a value, the value ALL is used by default.

/DISABLE_SWAPPING
/NODISABLE_SWAPPING (default)

Controls whether batch jobs executed from a queue can be swapped in and out of memory.

/ENABLE_GENERIC (default)
/NOENABLE_GENERIC

Allows files queued to a generic queue that does not specify explicit queue names in the /GENERIC qualifier to be placed in this execution queue for processing.

/FORM_MOUNTED=type

Specifies the form type for a printer, terminal, or server queue. If the stock of the mounted form is not identical to the stock of the default form, as indicated by the DCL command qualifier /DEFAULT=FORM=type, then all jobs submitted to this queue without an explicit form definition will enter a pending state. If a job is submitted with an explicit form and the stock of the explicit form is not identical to the stock of the mounted form, then the job will enter a pending state. In both cases, the pending state will be maintained until the stock of the mounted form of the queue is identical to the stock of the form associated with the job. The /FORM_MOUNTED qualifier can not be used with the /GENERIC qualifier.

/FORWARD=n

Advances the specified number of pages before resuming printing the current file; the default is 1. Use this qualifier in restarting an output queue from a paused state.

/GENERIC[=(queue-name,...)]
/NOGENERIC (default)

Specifies that the queue is generic; jobs in a generic queue are moved to one of the specified queues for processing. (The /BATCH qualifier of the generic queue and all the specified execution queues must match.) If you do not specify a queue, jobs can move to any execution queue (initialized without the printer, terminal, or server) as the generic queue. (For a generic server queue, the /PROCESSOR qualifier of the generic queue and the execution queue must also match.) By default, a generic queue is a print queue; use the appropriate qualifier (/BATCH, /PROCESSOR, /TERMINAL) to override the default. The /GENERIC qualifier is incompatible with the /DEFAULT, /FORM_MOUNTED, and /SEPARATE qualifiers.

/JOB_LIMIT=n

Specifies the number of batch jobs that can be executed concurrently from the queue; the value of n defaults to 1.

/LIBRARY=filename

Specifies the file name for the device control library. (The /LIBRARY qualifier can be used to specify an alternate device control library when used to initialize a symbiont queue.) The default library is SYS$LIBRARY:SYSDEVCTL.TLB. You can specify only a file name; the library must be in SYS$LIBRARY and the file type must be TLB.

/NEXT

Restarts the queue with the next job. (By default, the job that was executing when the queue stopped resumes if it has not been deleted.)

/ON=device[:]

Specifies the device on which this execution queue is located; the default device name is the same as the queue name. For batch queues, you can only specify the node name.

/OWNER_UIC=uic

Requires OPER privilege.

Specifies a UIC for the queue. The default UIC is [1,4].

/PROCESSOR=filename
/NOPROCESSOR

Used for a symbiont queue, specifies a print symbiont image in SYS$SYSTEM:filename.EXE; the default file name is PRTSMB. Used for a generic queue, the /PROCESSOR qualifier specifies that the generic queue can place jobs only on queues that have declared themselves as server queues and that are executing the specified symbiont image.

/PROTECTION=(ownership[:access],...)

Requires OPER privilege.

Applies the specified protection to the queue. The ownership categories are SYSTEM, OWNER, GROUP, WORLD; the access categories are R (read), W (write), E (create), and D (delete). The default protection is (SYSTEM:E, OWNER:D, GROUP:R, WORLD:W).

/RECORD_BLOCKING (default)
/NORECORD_BLOCKING

Determines whether the symbiont can concatenate (or block together) output records for transmission to the output device. If you specify /NORECORD_BLOCKING, the symbiont is directed to send each formatted record in a separate I/O request to the output device. For the standard MicroVMS print symbiont, record blocking can have a significant performance advantage over single-record mode.

/RETAIN[=keyword]
/NORETAIN (default)

Retains jobs in the queue in a completed status after they have executed.
Possible keywords are:

ALL   Retains all jobs in the queue after execution (default)

ERROR   Retains in the queue only jobs that complete unsuccessfully

/SCHEDULE=SIZE (default)
/SCHEDULE=NOSIZE

Specifies whether pending jobs in a printer or terminal queue are scheduled for printing based on the size of the job. When the default, /SCHEDULE=SIZE, is in effect, shorter jobs will print before longer ones.

Note: If you issue this command while there are pending jobs in any queue, the effect on future jobs is unpredictable.

/SEARCH="string"

Resumes printing the current file on the first page containing the specified string. The string can be from 1 through 63 characters and must be enclosed in quotation marks. Use this qualifier in restarting an output queue from a paused state.

/SEPARATE=(keyword,...)
/NOSEPARATE (default)

Specifies the job separation defaults for a printer or terminal queue. The /SEPARATE qualifier can not be used with the /GENERIC qualifier. Possible keywords are:

[NO]BURST	Prints a burst page (a flag page printed over the paper's perforations for easy identification of individual files) at the beginning of every job.
[NO]FLAG	Prints a flag page (containing the job entry number, the name of the user submitting the job, and so on) at the beginning of every job.
[NO]TRAILER	Prints a trailer page at the end of every job.
[NO]RESET=(m,...)	Specifies a job reset sequence for the queue. The specified modules from the device control library (see /LIBRARY) are used to reset the device each time a job reset occurs.

/TERMINAL
/NOTERMINAL (default)

Associates a generic queue with terminal queues (instead of printer queues) with matching characteristics.

/TOP_OF_FILE

Resumes printing at the beginning of the file that was current when the queue paused. Use this qualifier only when restarting an output queue from a paused state.

/WSDEFAULT=n

Defines a working set default for a batch job. The /WSDEFAULT qualifier overrides the working set size specified in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

When used for an output queue, this qualifier specifies the working set default of a symbiont process for a printer, terminal, or server queue when the symbiont process is created.

/WSEXTENT=n

Defines a working set extent for the batch job. The /WSEXTENT qualifier overrides the working set extent in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

When used for an output queue, this qualifier specifies the working set extent of a symbiont process for a printer, terminal, or server queue when the symbiont process is created.

/WSQUOTA=n

Defines a working set page size (working set quota) for the batch job. The /WSQUOTA qualifier overrides the value in the user authorization file. Possible values are: a positive integer in the range 1 through 65,535, 0, or the keyword NONE (the default). A zero or NONE sets the default value to the value specified either in the UAF or by the SUBMIT command (if specified).

When used for an output queue, this qualifier specifies the working set quota of a symbiont process for a printer, terminal, or server queue when the symbiont process is created.

EXAMPLES

$ START/QUEUE SYS$BATCH

Starts the batch queue SYS$BATCH.

$ START/QUEUE/TOP_OF_FILE SYS$PRINT

Restarts the print queue SYS$PRINT at the beginning of the current job.

$ START/QUEUE/DEFAULT=FORM=MEMO PRINTER_2

Restarts the print queue PRINTER_2 with the default form MEMO.

START/QUEUE/MANAGER [file-spec]

Requires the Secure User Environment Option.
Requires both OPER and SYSNAM privilege.

Starts the queue manager for the batch/print facility and opens the job queue
manager file. The START/QUEUE/MANAGER command must be executed before
you can execute any other queue management or job submission command.

PARAMETERS

file-spec
   The name of the file containing the information about batch and print jobs,
   queues, and form definitions. The default file specification is
   SYS$SYSTEM:JBCSYSQUE.DAT.

QUALIFIERS

/BUFFER_COUNT=n
   Specifies the number of buffers in a local buffer cache to allocate for performing
   I/O operations to the system job queue file. Specify n as a positive integer in the
   range of 1 through 127 or 0. If 0 is specified, the default value of n=50 is used.

/EXTEND_QUANTITY=n
   Specifies the number of blocks by which the system job queue file is extended
   (when this action is necessary). This value is also used as the initial allocation
   size when the queue file is created. Specify n as a positive integer in the range of
   10 through 65,535 or 0. If 0 is specified, the default value of n=100 is used.

/NEW_VERSION
/NONEW_VERSION (default)
   Specifies that a new version of the job queue manager file be created to supersede
   an existing version. All jobs in the previous version are lost if a new version is
   specified.

/RESTART
/NORESTART (default)
   The /RESTART qualifier specifies that the queue manager be restarted
   automatically on recovery from a job controller abort. In addition, batch and
   output queues are restored to the states that existed prior to the interruption of
   service. The job queue manager file that is opened is the same file that was open
   before the abort. Upon restarting, the job controller uses the default values for
   the /EXTEND_QUANTITY and /BUFFER_COUNT qualifiers. Previously set
   values are lost.

When the job controller incurs an internal fatal error, the process aborts and restarts itself. By default, the queue manager is not restarted. Intervention by a user with OPERATOR privilege is necessary to restart the queue manager and to restore the queueing environment using START/QUEUE/MANAGER and appropriate START/QUEUE commands.

Note: In order to prevent a looping condition, the job controller will not restart the queue manager if it detects an error within two minutes of starting the queue manager.

STOP [process-name]

Requires GROUP privilege to stop other processes in the same group.
Requires WORLD privilege to stop other processes outside your group.

Terminates execution of a command, image, a command procedure, a command procedure that was interrupted by CTRL/Y, or a detached process or subprocess.

PARAMETERS

process-name
Requires that the process be in your group.
Name of the process running the command procedure or image. The process name can have from 1 to 15 alphanumeric characters. Incompatible with the /IDENTIFICATION qualifier. You must use /IDENTIFICATION=pid to specify a process outside of your group.

QUALIFIERS

/IDENTIFICATION=pid
Specifies the system-assigned process identification. /IDENTIFICATION can be used in place of the process name parameter.

EXAMPLES

`$ STOP`
Abnormally terminates the current image (interrupted by CTRL/Y) in your process.

`$ STOP LIBRA`
Deletes the process named LIBRA.

`$ ON ERROR THEN STOP`
In a command procedure, on an error returns the user to DCL command level regardless of the current command level depth.

STOP/QUEUE queue-name

Requires the Secure User Environment Option.
Requires OPER (operator) privilege or EXECUTE access to the queue.

Stops the specified execution queue. All jobs currently executing in the queue are
suspended (until the queue is restarted with the START/QUEUE command) and no
new jobs can be initiated. The /REQUEUE and /RESET qualifiers provide other
ways of stopping queues. To stop individual jobs on the queue, specify the /ABORT,
/ENTRY, or /REQUEUE qualifier.

PARAMETERS

queue-name
  Name of the queue.

QUALIFIERS

/ABORT
  Aborts the current print job, deleting it from the queue, and resumes execution of
  the jobs in the queue. (STOP/QUEUE/ABORT is equivalent to STOP/ABORT.)

/ENTRY=job-number
  Stops the currently executing job on the specified batch queue.

/HOLD
  Places the aborted job on hold; must be used in combination with the
  /REQUEUE qualifier. To release the job, use the
  SET QUEUE/ENTRY/RELEASE or SET QUEUE/ENTRY/NOHOLD command;
  to delete, specify DELETE/ENTRY.

/NEXT queue-name
  Stops the queue after all executing jobs have completed processing. No new jobs
  can be initiated; the START/QUEUE command will restart the queue.

/PRIORITY=n
  Requires OPER or ALTPRI privilege to raise the priority above the value of the
  MAXQUEPRI parameter.
  Changes the priority of the aborted job. Must be used with the /REQUEUE
  qualifier. The value of n is an integer from 0 to 255 that specifies priority; the
  default is the current priority of the job.

/REQUEUE[=queue-name]
  Stops the current job and requeues it for later processing. Print jobs that have
  been checkpointed will resume printing at the checkpoint. Batch jobs containing
  SET RESTART_VALUE commands will run those portions of the job that have
  not successfully completed. When you use /REQUEUE with a batch queue,

you must also use /ENTRY. If you specify a queue name, the current job is transferred to another queue.

/RESET

Stops the queue without first terminating currently executing jobs. The START/QUEUE command restarts the queue. Current jobs that are restartable (all print jobs and any batch jobs submitted with the /RESTART qualifier) will be requeued for processing. Current jobs that are not restartable are aborted and must be resubmitted for processing.

EXAMPLE

$ STOP/QUEUE SYS$BATCH

Stops SYS$BATCH at the current point of execution.

STOP/ABORT queue-name[:]

Requires the Secure User Environment Option.
Requires OPER privilege, EXECUTE access to the queue, or DELETE access to the current job.

Aborts the executing print job, deleting it from the queue, and resumes execution of jobs in the queue. (The STOP/ABORT command is equivalent to the STOP/QUEUE/ABORT command.)

PARAMETERS

queue-name

The name of the queue in which the job is executing.

EXAMPLE

$ STOP/ABORT SYS$PRINT

Stops the current print job on the queue SYS$PRINT and begins the next pending job in the queue.

STOP/ENTRY =entry-number queue-name[:]

Requires the Secure User Environment Option.
Requires OPER (operator) privilege, EXECUTE access to the queue, or DELETE access to the current job.

Stops the specified job currently executing in the specified batch queue and resumes execution of the next pending job in the queue. The job number is the number assigned to the job when it is submitted to the queue. (The STOP/ENTRY command is equivalent to the STOP/QUEUE/ENTRY command; use the DELETE/ENTRY command to stop an entry that is queued and awaiting execution.)

PARAMETERS

queue-name
>   The name of the batch queue in which the job is executing.

EXAMPLE

$ `STOP/QUEUE/ENTRY=365 SYS$BATCH`

Stops batch job number 365 currently executing on the SYS$BATCH queue and begins the next pending job in the queue.

STOP/QUEUE/MANAGER

Requires the Secure User Environment Option.
Requires both OPER and SYSNAM privilege.

Performs an orderly shutdown of the system job queue manager.

EXAMPLE

$ `STOP/QUEUE/MANAGER`

Performs a shutdown of all queues.

STOP/REQUEUE [=queue-name] queue-name[:]

Requires the Secure User Environment Option.
Requires OPER (operator) privilege, EXECUTE access to the queue or DELETE access to the current job.

Stops the current job on the specified queue and requeues it for later processing; execution of the next pending job in the queue resumes. Print jobs that have been checkpointed will resume printing at the checkpoint. Batch jobs (specify /ENTRY) containing SET RESTART_VALUE commands will run those portions of the job that have not successfully completed.

PARAMETERS

queue-name
>   The first *queue-name* ([=queue-name]) optionally specifies a queue to which the job is to be requeued. The second, required *queue-name* (queue-name[:]) specifies the name of the queue in which the job is executing.

QUALIFIERS

/ENTRY=job-number

Required with batch queues to specify the job; the *job-number* is the number assigned to the job when it was submitted to the queue.

/HOLD

Places the aborted job in a hold state for later release with the SET/QUEUE /ENTRY/RELEASE or SET QUEUE/ENTRY/NOHOLD command. (Use DELETE/ENTRY to delete a job in the hold state.)

/PRIORITY=n

Requires either OPER privilege or ALTPRI privilege to raise the priority value above the value of the SYSGEN parameter MAXQUEPRI.

Changes the priority of the requeued job. The value of n can be from 0 to 255; the default value of n is the job's current priority value.

EXAMPLE

$ STOP/REQUEUE/ENTRY=758 SYS$BATCH

Stops batch job number 758 and requeues it for later processing on SYS$BATCH.

SUBMIT file-spec,...

Requires the Secure User Environment Option.
Requires OPER privilege, E (execute) access to the queue, or W (write) access to the queue.

Queues a batch job.

PARAMETERS

file-spec

Name of a file containing a command procedure. Wildcard characters are allowed. The file type defaults to COM. If a node name is specified, the /REMOTE qualifier must also be specified.

QUALIFIERS

/AFTER=absolute-time

Holds the job until the specified time. If the time has passed, processes the job immediately. Time can be an absolute time or a combination of absolute and delta times.

/BACKUP
/NOBACKUP

Selects files according to the dates of their most recent backups. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]
/NOBEFORE

Submits only those files dated before the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BY_OWNER[=uic]

Submits only those files with the specified user identification code. The default UIC is that of the current process.

/CHARACTERISTICS=(characteristic,...)

Specifies one or more characteristics for processing the job. A job must have all the characteristics specified for the job (or it remains pending).

/CLI=file-spec

Specifies the command language interpreter (CLI) that will be used in processing the job. The file name specifies that the CLI be SYS$SYSTEM:filename.EXE. The default CLI is that defined in the user authorization file.

/CONFIRM
/NOCONFIRM (default)

Requests confirmation before submitting each file. The following responses are valid:

YES	Submit the file
NO	Do not submit the file
TRUE	Submit the file
FALSE	Do not submit the file
1	Submit the file
0	Do not submit the file
RETURN	Do not submit the file
ALL	Continue execution of the command with no further confirmation prompts
CTRL/Z	Stop execution of the command
QUIT	Stop execution of the command

/CPUTIME=keyword

Specifies a CPU time limit for the batch job. Time can be specified as delta time, 0, NONE, or INFINITE. Both the value 0 and the keyword INFINITE allow unlimited CPU time; the keyword NONE defaults to your user authorization file (UAF) value or the limit specified on the queue. Note that you cannot specify more time than permitted by the base queue limits or your own UAF.

/CREATED
/NOCREATED

Selects files based on their dates of creation. Relevant only with the /BEFORE and /SINCE qualifiers.

/DELETE
/NODELETE (default)

Positional qualifier.

If you specify the /DELETE qualifier after the SUBMIT command name, all files are deleted after executing them. If you specify the /DELETE qualifier after a file specification, only that file is deleted after it is executed.

/EXCLUDE=(file-spec,...)
/NOEXCLUDE

Excludes files from the SUBMIT operation. The qualifier value file-spec cannot include a device name. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED
/NOEXPIRED

Selects files based on their dates of expiration. Relevant only with the /BEFORE and /SINCE qualifiers.

/HOLD
/NOHOLD (default)

Holds the job (until released by the SET QUEUE/ENTRY command).

/IDENTIFY (default)
/NOIDENTIFY

Displays the queue name and job number of the job when it is queued.

/KEEP
/NOKEEP

Saves the log file after printing it; /NOKEEP is the default unless /NOPRINTER is specified.

/LOG_FILE=file-spec
/NOLOG_FILE

Names the log file. The default is job-name.LOG. You can use /LOG_FILE to specify a different device. Logical names in the file specification are translated in the context of the process that submits the job.

/MODIFIED
/NOMODIFIED

Selects files according to the dates on which they were last modified. Relevant only with the /BEFORE and /SINCE qualifiers.

/NAME=job-name

Names the job (and possibly the batch job log file). The name must be 1 through 39 alphanumeric characters. Enclose the name in parentheses if it contains any special characters. The default is the name of the first file in the job.

/NOTIFY
/NONOTIFY (default)

Broadcasts a message to your terminal when the job completes.

/PARAMETERS=(parameter,...)

Provides the values of up to 8 optional parameters (equated to P1 through P8, respectively, in each command procedure in the job). The symbols are local to the specified command procedure. If the parameter contains spaces, special characters, or lowercase characters, enclose it in quotation marks. The size of the parameter (including enclosing quotation marks and the preceding comma) must not exceed 255 characters. However, the total length of all eight parameter strings of the /PARAMETER qualifier cannot exceed 480 characters.

/PRINTER=queue-name
/NOPRINTER

Queues the log file to the specified queue for printing. The default is SYS$PRINT.

/PRIORITY=n

Requires OPER or ALTPRI privilege to raise the priority above the value of the MAXQUEPRI parameter.

Specifies the job-scheduling priority for the specified job. The value of n is an integer from 0 to 255; the default is the value of the SYSGEN parameter DEFQUEPRI.

/QUEUE=queue-name

Queues the job to the specified batch queue. The default is SYS$BATCH.

/REMOTE

Requires the DECnet Option.

Queues the job to a queue on another node. The node name must be included in the file specification. No other qualifiers can be specified with /REMOTE.

/RESTART
/NORESTART (default)

Restarts the job after a system failure or a STOP/REQUEUE command.

/SINCE[=time]
/NOSINCE

Submits only those files dated after the specified time. You can specify time as an absolute time, as a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/USER=username

Requires CMKRNL privilege and R (read) access to the user authorization file (UAF).

Submits a job for another user so that the job runs under the *username* and UIC of the other user.

/WSDEFAULT=n

Defines a working set default for a batch job; the /WSDEFAULT qualifier overrides the working set size specified in the user authorization file. Possible values of *n* are a positive integer in the range 1 through 65,535, 0, or the keyword NONE. A value of 0 or the keyword NONE sets the default value to the value specified either in the UAF or by the working set quota established for the queue. You cannot request a value higher than the default.

/WSEXTENT=n

Defines a working set extent for the batch job; the /WSEXTENT qualifier overrides the working set extent in the user authorization file. Possible values of *n* are a positive integer in the range 1 through 65,535, 0, or the keyword NONE. A value of 0 or the keyword NONE sets the default value either to the value specified in the UAF or set for the queue. You cannot request a value higher than the default.

/WSQUOTA=n

Defines a working set page size (working set quota) for the batch job; the /WSQUOTA qualifier overrides the value in the user authorization file. Possible values of *n* are a positive integer in the range 1 through 65,535, 0, or the keyword NONE. A value of 0 or the keyword NONE sets the default value to the value specified either in the UAF or set for the queue. You cannot request a value higher than the default.

EXAMPLES

$ `SUBMIT/AFTER=16:30 NOTIFY`

Submits the command procedure NOTIFY.COM to SYS$BATCH. The procedure is executed at 16:30 or later.

$ `SUBMIT SORT/PARAMETERS=([ACCOUNT]DATA.DAT,NAME.DAT)`

Submits the command procedure SORT.COM to SYS$BATCH. The files DATA.DAT and NAME.DAT in the [ACCOUNT] directory are passed to SORT as parameters.

SYNCHRONIZE [job-name]

Requires the Secure User Environment Option.

Holds your process until the specified batch job terminates.

PARAMETERS

job-name

　　Name of the job (as specified in the SUBMIT command). If you have more than one job with the same name, the synchronization occurs for the last job submitted. The job name parameter is overridden by the /ENTRY qualifier.

QUALIFIERS

/ENTRY=job-number

　　Identifies the job by the system assigned job number. The /ENTRY qualifier overrides any job name specified. You must specify either the job name or the /ENTRY qualifier.

/QUEUE=queue-name

　　Names the queue containing the job. The default is SYS$BATCH.

EXAMPLE

$ `SYNCHRONIZE SORT`

The command procedure containing this command executes after the job named SORT.

TYPE file-spec,...

Displays a file or files in text format on SYS$OUTPUT (your terminal unless you reassign SYS$OUTPUT).

PARAMETERS

file-spec

 The specification of the file being displayed. Wildcard characters are allowed. The plus sign can be used in place of the comma between file specifications. The file type defaults to LIS.

QUALIFIERS

/BACKUP
/CREATED (default)
/EXPIRED
/MODIFIED

 Selects files according to the dates of their most recent backups, their creation dates, their expiration dates, or the dates of their last modifications. Relevant only with the /BEFORE and /SINCE qualifiers.

/BEFORE[=time]

 Displays only those files with dates that precede the specified time. You can specify time as absolute or a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

/BY_OWNER[=uic]

 Displays only those files with the specified user identification code. The default UIC is that of the current process.

/CONFIRM
/NOCONFIRM (default)

 Requests confirmation before displaying each file. The following responses are valid:

YES	Type the file
NO	Do not type the file
TRUE	Type the file
FALSE	Do not type the file
1	Type the file
0	Do not type the file
RETURN	Do not type the file
ALL	Continue execution of the command with no further confirmation prompts

CTRL/Z   Stop execution of the command

QUIT   Stop execution of the command

/CREATED (default)

See /BACKUP.

/EXCLUDE=(file-spec,...)

Excludes the specified files from display. The qualifier value *file-spec* cannot include a device name. Wildcard characters are supported for file specifications. However, you cannot use relative version numbers to exclude a specific version.

/EXPIRED

See /BACKUP.

/MODIFIED

See /BACKUP.

/OUTPUT[=file-spec]
/NOOUTPUT

Names a file, rather than SYS$OUTPUT, to receive the typed output.

/PAGE
/NOPAGE (default)

Displays a screenful of the specified file with each RETURN.

/SINCE[=time]

Selects for display only those files dated after the specified time. You can specify time as absolute or a combination of absolute and delta times, or as one of the following keywords: TODAY (default), TOMORROW, or YESTERDAY. Specified with /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

EXAMPLES

$ `TYPE WATER.TXT`
Displays WATER.TXT, a file in your default directory.

$ `TYPE/OUTPUT=SAVETEXT.TXT *.TXT`
Writes all TXT files in your default directory to a file called SAVETEXT.TXT (also in your default directory).

UNLOCK file-spec,...

Makes an improperly closed file accessible.

PARAMETERS

file-spec

Specification of file to be unlocked. Wildcard characters are allowed. The plus sign can be used in place of the comma between file names.

QUALIFIERS

/CONFIRM
/NOCONFIRM (default)

For each file being unlocked, displays a query to which you must respond Y or T to unlock the file. Any other response aborts the unlock operation.

/LOG
/NOLOG (default)

Displays the file specification of each file being unlocked.

EXAMPLE

$ UNLOCK WATER.TXT
Unlocks WATER.TXT in your default directory.

WAIT time

Puts your process into a wait state for the specified amount of time.

PARAMETERS

time

A time interval specified in the format hour:minute:second.hundredth, where hour is an integer in the range 0 through 59; minute is an integer in the range 0 through 59; second is an integer in the range 0 through 59; hundredth (of a second) is an integer in the range 0 through 99. The colons and period are required delimiters. The format is hh:mm:ss.ss.

EXAMPLE

$ WAIT 00:00:10.00
Waits 10 seconds before executing the next command.

WRITE logical-name data-item,...

Writes the specified data item as one record to an open file specified by a logical name. All qualifiers must precede all *data-item* expressions.

PARAMETERS

logical-name

Logical name of the output file. Use the logical name assigned by the OPEN command, or, in interactive mode, specify SYS$INPUT, SYS$OUTPUT, SYS$COMMAND, or SYS$ERROR to mean your terminal.

data-item

Symbol name, character string in quotation marks, literal numeric value, or a list of expressions. Multiple data items are concatenated into one record which cannot exceed 255 characters in length.

QUALIFIERS

/ERROR=label

Transfers control on an I/O error to the location specified by *label* (in a command procedure). /ERROR overrides any ON condition action specified. The symbol $STATUS retains the error code.

/SYMBOL

Causes the expression to be interpreted and its expanded value placed in a 2048-byte (instead of a 1024-byte) buffer before the WRITE operation is performed. If you specify multiple expressions, their values are concatenated and placed in the 2048-byte buffer. Each expression specified must be a symbol.

/UPDATE

Replaces the last record read with the specified *data-item*. The specified data item must be exactly the same size as the record it is replacing. This qualifier can only be used if the file is opened for both READ and WRITE access.

EXAMPLES

```
$ WRITE ACCOUNTS ACCNT_DATA
```

Writes the value of the symbol ACCNT_DATA as the next record in the file associated with the logical name ACCOUNTS.

```
$ WRITE SYS$OUTPUT ACCNT_DATA
```

Writes the value of the symbol ACCNT_DATA to SYS$OUTPUT.

Appendix DISKQ

Diskquota

Requires the Secure User Environment Option.

Use the Disk Quota Utility (DISKQUOTA) to monitor and control users' consumption of disk space. To invoke the Disk Quota Utility, use the DCL command RUN, as shown:

`$ RUN SYS$SYSTEM:DISKQUOTA`

To perform DISKQUOTA operations on a disk other than your current default disk, you must enter the USE command to specify the appropriate disk.

To exit from DISKQUOTA, use the EXIT subcommand or press CTRL/Z. Specifications for the DISKQUOTA subcommands follow.

ADD uic

Requires WRITE access to the quota file.

Adds an entry to the quota file.

PARAMETERS

uic
> The numeric or alphanumeric UIC of the user whose entry is to be added.

QUALIFIERS

/PERMQUOTA=number-of-blocks
> An integer that specifies the maximum number of blocks that the user can have allocated. The value defaults to that specified for UIC [0,0].

/OVERDRAFT=number-of-blocks
> An integer that specifies the number of blocks by which a user can overflow the allocation specified by the /PERMQUOTA qualifier. The value defaults to that specified for UIC [0,0].

CREATE

Requires WRITE access to the volume's MFD and at least one of the following: SYSPRV privilege, a system UIC, or ownership of the volume.

Creates a quota file for the volume. The quota file is named [000000]QUOTA.DISK and contains one entry ([0,0]). In a volume set, the quota file is placed on the first volume.

DISABLE

Requires one of the following: SYSPRV privilege, a system UIC, or ownership of the volume.

Suspends enforcement of quotas and maintenance of the quota file.

ENABLE

Requires one of the following: SYSPRV privilege, a system UIC, or ownership of the volume.

Resumes enforcement of quotas and maintenance of the quota file.

EXIT

Returns you to DCL command level.

HELP [command-name]

Displays information explaining the use of DISKQUOTA. Follows the rules for interactive HELP. Pressing CTRL/Z from within HELP returns you to DISKQUOTA subcommand level.

PARAMETERS

command-name

   Subcommand for which information is required. If you omit the command name, a list of subcommands is displayed.

QUALIFIERS

Any qualifier valid for the specified command name.

MODIFY uic

Requires WRITE access to the quota file.

Changes the specified entry of the quota file.

PARAMETERS

uic

The numeric or alphanumeric UIC of the user whose entry is to be modified.

QUALIFIERS

/PERMQUOTA=number-of-blocks

An integer that specifies the maximum number of blocks that the user can have allocated. The value defaults to that specified for UIC [0,0]. If the specified value is less than the number of blocks currently allocated by the user, the specified quota is entered into the quota file and a warning message is issued.

/OVERDRAFT=number-of-blocks

An integer that specifies the number of blocks by which a user can overflow the allocation specified by the /PERMQUOTA qualifier. The value defaults to that specified for UIC [0,0].

REBUILD

Requires WRITE access to the quota file and one of the following: SYSPRV privilege, a system UIC, or ownership of the volume.

Updates the usage counts in the quota file. If blocks are allocated by a UIC that does not have an entry in the quota file, REBUILD creates an entry. The allocation and overdraft quotas are set to those specified for UIC [0,0]. No file on the volume can be created, deleted, extended, or truncated while REBUILD is executing.

REMOVE uic

Requires WRITE access to the quota file.

Deletes the specified entry from the quota file. If the usage count for the entry is greater than 0, a warning message is issued (the entry is still deleted).

PARAMETERS

uic

The numeric or alphanumeric UIC of the user whose entry is to be deleted.

SHOW username

For entries other than your own, requires READ access to the quota file.

Displays the allocation quota, the overdraft quota, and the usage count of the specified entries.

PARAMETERS

username

Username of the user whose entry is to be displayed. Wildcard characters are allowed.

USE volume

Specifies the volume to be affected.

PARAMETERS

volume

Physical name or logical name of the volume. If the specified volume is part of a volume set, relative volume 1 is used.

Appendix DSR

Digital Standard Runoff

Requires the Common Utilities Option.

Digital Standard Runoff (DSR) creates formatted files from input files consisting of text, DSR commands, and DSR flags.

DSR.1 DCL Commands for Invoking DSR

Process DSR files with the RUNOFF, RUNOFF/CONTENTS, and RUNOFF/INDEX commands. A positional qualifier is local when placed after a file name and global when placed after the command name. A local qualifier applies only to the file it follows; a global qualifier applies to all files unless overridden by a local qualifier.

RUNOFF dsr-file,...

Creates formatted files from source DSR (RNO) files, unformatted table of contents (RNT) files, and unformatted index (RNX) files. Optionally creates intermediate (BRN) files for input to RUNOFF/CONTENTS and RUNOFF/INDEX commands.

PARAMETERS

dsr-file

 Specification of an input DSR file. Wildcard characters are not allowed. The file type defaults to RNO; you must specify the file type for RNT and RNX files. Specify SYS$INPUT to type the input from your terminal or a command procedure; terminate input from the terminal by pressing CTRL/Z.

QUALIFIERS

/BACKSPACE

Positional qualifier

Bolds, overstrikes, and underlines by backspacing to each character after it is printed, if the printer permits. Otherwise, these operations are implemented by performing a carriage return without a line feed after the entire line is printed.

/BOLD[=overstrike] (default)
/NOBOLD

Positional qualifier

Specifies the number of times characters are overstruck in a bolding operation. The value must be 0 or a positive integer and defaults to 1. A specification of /BOLD=0 or /NOBOLD disables all bolding, even if the appropriate flags are recognized and enabled.

/CHANGE_BARS[=character]
/NOCHANGE_BARS

Positional qualifier

Enables change bars (the .BEGIN BAR and .END BAR commands) starting at the beginning of the DSR file (just as if you had included an .ENABLE BAR command within the DSR file). The value specifies the character to be used for the change bar and defaults to a vertical line (|). You can specify the change bar character as a single printable character or a number preceded by a radix indicator (%D, %O, or %X) to represent the ASCII value of a printable or nonprintable character. (For example, you can specify /CHANGE_BARS=%D7 to ring the bell on terminal output.) A specification of /NOCHANGE_BARS overrides any .ENABLE BAR command in the DSR file.

/DEBUG[=(option,...)]
/NODEBUG (default)

Positional qualifier

Traces certain operations by placing the DSR commands in the output file. The options are as follows:

CONDITIONALS	Ignores conditional commands (.IF, .IFNOT, .ELSE, .ENDIF) in processing the DSR file and places them in the output file.
FILES	Places .REQUIRE commands in the output file (as well as the text of the required file).
INDEX	Places .INDEX and .ENTRY commands in the output file. Index flags are represented by .INDEX commands before the lines on which the flag occurs.
CONTENTS	Places .SEND TOC commands in the output file.

A specification of /DEBUG means /DEBUG=ALL.

/DEVICE[=(option,...)]
Positional qualifier

Produces an output file suitable for printing on an LN01 or an LN03 printer. The options are as follows.

LN01	Designates a standard LN01 printer with a paper size of 8 1/2 by 11 inches.
LN01E	Designates a European LN01 printer with a paper size of European A4. Incompatible with LN01.
LN03	Designates a standard LN03 printer with a paper size of 8 1/2 by 11 inches.
LANDSCAPE	Prints pages with the long dimension at top using a smaller type size. Allowable page dimensions are 0 to 73 lines per page and 0 to 132 characters per line.
PORTRAIT (default)	Prints pages with the short dimension at top using a larger type size. Allowable page dimensions are 0 to 66 lines per page and 0 to 80 characters per line. Incompatible with LANDSCAPE.
ITALIC (default)	Italicizes characters flagged for underlining. Italicized characters can also be bolded.
UNDERLINE	Underlines characters flagged for underlining. You cannot underline more than 63 consecutive characters (counting a space as a character). Incompatible with ITALIC.

/DOWN[=lines]
/NODOWN (default except for LN01 or LN03)
Positional qualifier

Shifts the entire page down the specified number of lines. A specification of /DOWN means /DOWN=5, but if you specify /DEVICE=LN01, /DEVICE=LN01E, or /DEVICE=LN03, /DOWN defaults to /DOWN=3.

/FORM_SIZE=lines

Specifies the maximum number of lines per page including running heads and running feet. Defaults to /FORM_SIZE=66, which is standard for 11-inch paper. For laser printers, set the number of lines as follows:

Paper size	Lines	Mode
8.05	69	Landscape
8.28	71	Landscape (LN01E default)
8.51	73	Landscape (LN01, LN03 default)
11.00	66	Portrait (LN01, LN03 default)

Paper size	Lines	Mode
11.66	70	Portrait (LN01E default)
12.33	74	Portrait
13.00	78	Portrait
14.00	84	Portrait

/INTERMEDIATE[=file-spec]
/NOINTERMEDIATE (default)
Positional qualifier

Creates an intermediate file that can be used as input to a table of contents or index operation. The directory and file name default to that of the DSR file. The file type defaults to BRN.

/LOG
/NOLOG (default)
Writes a termination message after successful completion of the DSR operation. (The message is always written if the operation fails.) The message states the DSR version number, the number of diagnostic messages (if any), the number of output pages, and the output file specification. If /INTERMEDIATE is specified, the message also includes the number of index records produced and the number of table of contents records produced.

/MESSAGES=(option,...)
Positional qualifier

Directs error messages to the terminal, to the output file, or to both. You cannot suppress error messages entirely. The options are as follows:

OUTPUT   Output file

USER   Terminal

The default (if you do not specify the qualifier) is /MESSAGES=(OUTPUT,USER).

/OUTPUT[=file-spec] (default)
/NOOUTPUT
Positional qualifier

Specifies that an output file is to be produced and optionally names it. The directory and file name default to that of the DSR file. The file type defaults to one of the following:

BLB   For an RNB input file

CCO   For an RNC input file

DOC   For an RND input file

ERR	For an RNE input file
HLP	For an RNH input file
LNI	For an RNO input file with /DEVICE set to LN01, LN01E, or LN03
MAN	For an RNM input file
MEC	For an RNT input file
MEM	For an RNO input file with no /DEVICE specification
MEX	For an RNX input file
OPR	For an RNP input file
PLM	For an RNL input file
STD	For an RNS input file

If you specify /NOOUTPUT, no output file is produced.

/PAGES="range"
Positional qualifier

Specifies the pages that will be produced from the output file. Defaults to all pages. Specify the range as follows:

start-page-no:end-page-no,...

You can specify up to five ranges; you can omit the colon and the end page number on the last range to mean the last page. You can omit the quotation marks if you specify only one range. Page numbers must be specified in their default form, not the form specified in a .DISPLAY command. You can specify just the appendix letter or name to produce an entire appendix. You can specify just the word INDEX to produce an entire index.

/PAUSE
/NOPAUSE (default)

Stops output at the end of each page during processing. You must press the space bar to continue processing. Do not use /PAUSE if you name a spooled device as the output file.

/REVERSE_EMPHASIS
Positional qualifier

Directs DSR to change the order in which flagged text is underlined on an output device. If you use this qualifier, the printer first prints the characters to be underlined, then issues a carriage return without a linefeed, and then prints the underscores to underline the flagged text. If you view your file on the terminal, the flagged characters are overwritten by the underline character.

/RIGHT[=spaces]
/NORIGHT (default except for LN01)
   Positional qualifier

   Shifts the text on each page to the right the specified number of spaces. This
   qualifier does not affect the page width. A specification of /RIGHT means
   /RIGHT=5. A specification of /RIGHT=0 means /NORIGHT. The defaults (if
   /RIGHT is not specified) for LN01 files are as follows:

Mode	LN01	LN01E	LN03
Landscape	9	13	9
Portrait	2	2	2

/SEPARATE_UNDERLINE[=character]
   Positional qualifier

   Prints underlines as separate characters on the next line instead of overstriking
   with underscores on the same line. The value specifies the character to be used
   for the underline character and defaults to a hyphen (-). You can specify the
   underline character as a single printable character or a number preceded by a
   radix indicator (%D, %O, or %X) to represent the ASCII value of a printable or
   nonprintable character.

/SEQUENCE
/NOSEQUENCE (default)
   Positional qualifier

   Precedes the lines in the output file with the line numbers of the corresponding
   lines in the DSR file. Sequential numbering is used if line numbers were not
   explicitly specified in the DSR file.

/SIMULATE
/NOSIMULATE (default)
   Inserts blank lines instead of a form feed to cause an advance to the top of the
   next page. Also stops output before the first page is processed; you must press
   the space bar to continue processing. Do not specify /SIMULATE if you name a
   spooled device as the output file.

/UNDERLINE_CHARACTER[=character]
/NOUNDERLINE_CHARACTER> RUNOFF
   Positional qualifier

   Specifies the character to be used for the underline character. Defaults to
   an underscore (_). You can specify the underline character as a single
   printable character or a number preceded by a radix indicator (%D, %O, or
   %X) to represent the ASCII value of a printable or nonprintable character.
   A specification of /NOUNDERLINE_CHARACTER overrides any .ENABLE

UNDERLINING command in the DSR file. Incompatible with /SEPARATE_
UNDERLINE.

/VARIANT="variant,..."
Positional qualifier

Identifies conditional structures in the DSR file. You must name conditional
structures introduced by .IF to process them. You must name conditional
structures introduced by .IFNOT to exclude them. You must not name
conditional structures introduced by .ELSE to process them. If you specify
only one variant, you do not need the quotation marks.

RUNOFF/CONTENTS intermediate-file,...

Creates an unformatted table of contents file from an intermediate file.

PARAMETERS

intermediate-file

Specification of an input intermediate file. Wildcard characters are not allowed.
The file type defaults to BRN. You can concatenate input files into a single output
file by connecting the input file specifications with plus signs. (If you separate
the input file specifications with commas, separate output files are created.)

QUALIFIERS

/BOLD
NOBOLD (default)

Bolds header titles that are flagged as bold in the text.

/DEEPEST_LEVEL=level

Writes header titles up to the specified level. Level must be an integer in the
range 1-6. The default is /DEEPEST_LEVEL=6.

/IDENTIFICATION
/NOIDENTIFICATION (default)

Displays the version number of the DSR table of contents facility.

/INDENT
/NOINDENT (default)

Indents each level of header titles another two spaces. The default indents all
levels after the first the same two spaces.

/LOG
/NOLOG (default)

Writes the name of each input file as it is processed and after it is processed, and
the name of each output file created. Error messages are always written.

/OUTPUT[=file-spec] (default)
/NOOUTPUT

   Specifies that an output file is to be produced and optionally names it. The
   directory and file name default to that of the DSR file. The file type defaults to
   RNT. If you specify /NOOUTPUT, no output file is produced.

/PAGE_NUMBERS=(option,...)

   Displays page number references in the table of contents according to the options
   you specify.

RUNNING	Running page numbers (1, 2, 3, and so on)
NORUNNING (default)	Chapter-oriented page numbers (1-1, 1-2, and so on); incompatible with RUNNING
LEVEL=number	The number of levels for which page numbers are written (specification of LEVEL=0 writes no page numbers); defaults to LEVEL=6

   You can specify RUNNING or NORUNNING no matter how the text displays
   page numbers.

/SECTION_NUMBERS (default)
/NOSECTION_NUMBERS

   Writes section numbers to the table of contents.

/UNDERLINE
/NOUNDERLINE (default)

   Underlines header titles that are flagged for underlining in the text.

RUNOFF/INDEX intermediate-file,...

Creates a DSR index file from an intermediate file.

PARAMETERS

intermediate-file

   Specification of an input intermediate file. Wildcard characters are not allowed.
   The file type defaults to BRN. You can concatenate input files into a single output
   file by connecting the input file specifications with plus signs. (If you separate
   the input file specifications with commas, separate output files are created.)

QUALIFIERS

/IDENTIFICATION
/NOIDENTIFICATION (default)

> Displays the version number of the DSR index facility.

/LINES_PER_PAGE=lines

> Number of lines of index entries on each index page. Defaults to 55 lines. If the original DSR file specifies other than a layout of 0 (.LAYOUT command) and a page length of 58 (.PAGE SIZE command), you should explicitly specify /LINES_PER_PAGE as follows: page length minus 3, minus 1 if subtitles are used, minus the number of lines reserved by the layout at the bottom of the page.

/LOG
/NOLOG (default)

> Writes the name of each input file as it is processed and after it is processed, and the name of each output file created. Error messages are always written.

/OUTPUT[=file-spec]
/NOOUTPUT

> Specifies that an output file is to be produced and optionally names it. The directory and file name default to that of the DSR file. The file type defaults to RNX. If you specify /NOOUTPUT, no output file is produced.

/PAGE_NUMBERS=option

> Displays page number references in the index according to the option you specify.

> | | |
> |---|---|
> | RUNNING | Running page numbers (1, 2, 3, and so on) |
> | NORUNNING (default) | Chapter oriented page numbers (1-1, 1-2, and so on); incompatible with RUNNING |

> You can specify RUNNING or NORUNNING no matter how the text displays page numbers.

/REQUIRE=file-spec
/NOREQUIRE (default)

> Substitutes a user heading for the standard heading on the first page of the index. The standard heading is the word INDEX centered on the first line, followed by three blank lines. The substitute heading is contained in the file you specify which can contain DSR commands and text. See also /RESERVE.

/RESERVE=lines
/NORESERVE (default)

> Reserves space at the top of the first page of the index for a user heading.

DSR.2 DSR Commands

The DSR commands in the DSR file determine how the text will be formatted in the output file. The format of a DSR command is as follows. The first character of a command must be the control flag, which is a period by default.

.command-name [parameter,...][;]

You must observe the following rules:

- Period in column 1—The control flag (a period by default) of the first command on a line must be in column 1. No text can precede a command on a line.

- Multiple commands on one line—You can place as many DSR commands on one line as space permits except that commands taking text parameters may not be followed by another command.

- Text on a command line—You can follow a command with text if you terminate the command with a semicolon. The text must immediately follow the semicolon.

- Comments—You can put a comment in your DSR file wherever you can put a command, that is, as the first item on a line or one of a string of commands on a line. Format a comment as follows. The first character of a comment must be the comment flag, which is an exclamation point by default.

  !Any text except a semicolon[;]

- Separators—You must separate the command name from the first parameter and parameters from one another if two consecutive entries are both alphabetic or both numeric. Otherwise, you can choose to separate or not separate the entities. Valid separators between commands and parameters are spaces and tabs. Valid separators between parameters are spaces, tabs, and commas.

- Abbreviations—Abbreviations exist for the DSR command names. The abbreviations are listed in parentheses after the command names in the command descriptions that follow.

- Case—Command names can be in uppercase or lowercase.

- Null parameters—You can enter a null value for a parameter by typing just a comma.

.APPENDIX (.AX) [title]

Starts an appendix by performing the following actions:

1. Issues the commands:

    ```
    .BREAK
    .LEFT MARGIN 0
    .SPACING 1
    .FILL (if .AUTOJUSTIFY is in effect)
    .JUSTIFY (if .AUTOJUSTIFY is in effect)
    .PAGING
    .PAGE
    ```

2. Inserts 12 blank lines.

3. Centers on the next line the word APPENDIX followed by a space and the letter or name identifying the appendix.

4. Inserts one blank line.

5. Centers on the next line the specified title. The title is written in uppercase unless case flags indicate otherwise.

6. Inserts three blank lines.

The appendix identifier is regulated by the .NUMBER APPENDIX and .DISPLAY APPENDIX commands.

The title becomes the running head. Any subtitle in effect is blanked.

.AUTOJUSTIFY (.AJ)

Causes the following commands to issue .JUSTIFY and .FILL commands:

```
.APPENDIX
.CHAPTER
.HEADER LEVEL
.NOTE
```

Initial default.

.AUTOPARAGRAPH (.AP)

Causes a .PARAGRAPH command to be issued whenever a line begins with a space or a tab. Cancels .AUTOTABLE if it is in effect. The .FILL command must be in effect.

.AUTOSUBTITLE (.AST) [header-level]

Causes .HEADER LEVEL titles to be used for running head subtitles. *Header-level* specifies the highest header level for which subtitles will be written and takes one of the following forms:

* Integer in the range 1 through 6—The exact header level.

* Integer preceded by a plus sign—A value to be added to the last header level specified in an .AUTOSUBTITLE command.

* Integer preceded by a minus sign—A value to be subtracted from the last header level specified in an .AUTOSUBTITLE command.

Header-level defaults to 1.

You must issue a .SUBTITLE command for .AUTOSUBTITLE to work. See .SUBTITLE for other effects connected with subtitles.

Initial default: .AUTOSUBTITLE 1

.AUTOTABLE (.AT)

Causes a .PARAGRAPH command to be issued whenever a line does not begin with a space or a tab. Cancels .AUTOPARAGRAPH if it is in effect. The .FILL command must be in effect.

.BEGIN BAR (.BB)

Begins the insertion of change bars at the beginning of lines. The .ENABLE BAR command must be in effect.

.BLANK (.B) [lines]

Issues a .BREAK command and inserts blank lines. Specify *lines* as either:

* Zero or unsigned integer—The number of blank lines to be inserted.

* Integer preceded by a minus sign—The number of lines from the bottom of the page where writing will resume.

Lines defaults to 1.

The .BLANK command does not work at the top of a page. (Use the .FIGURE command.) The .BLANK command does not continue to the next page if *lines* is greater than the number of lines left on the page. If the page contains a footnote, the line directly above a footnote is considered the bottom of the page.

.BREAK (.BR)

Ends the current line without filling or justification. A .BREAK command immediately following a .PARAGRAPH, .INDENT, .LEFT MARGIN, .AUTOPARAGRAPH, or .AUTOTABLE command cancels any specified indentation.

.CENTER (.C) [line-size]

Issues a .BREAK command and centers the text that follows. Specify *line-size* as follows:

* Unsigned integer—Twice the value of the position that you want to center the text around.

* Integer preceded by a plus sign—A value to be added to the last centering position used.

* Integer preceded by a minus sign—A value to be subtracted from the last centering position used.

Line-size defaults to the value of the left margin plus the value of the right margin, which causes the text to be centered between the two margins.

The .CENTER command must be the last command on a line. Enter the text to be centered on the next line or terminate the command with a semicolon and enter the text to be centered immediately after the semicolon. The text must all be on one line. The line can contain flags but not commands. The text can extend beyond margin and page size settings but cannot extend to the left of position 0.

.CHAPTER (.CH) [title]

Starts a chapter by performing the following actions:

1. Issues the commands:
   ```
   .BREAK
   .LEFT MARGIN 0
   .SPACING 1
   .FILL (if .AUTOJUSTIFY is in effect)
   .JUSTIFY (if .AUTOJUSTIFY is in effect)
   .PAGING
   .PAGE
   ```

2. Inserts 12 blank lines.

3. Centers on the next line the word CHAPTER followed by a space and the number of the chapter.

4. Inserts one blank line.

5. Centers on the next line the specified title. The title is written in uppercase unless case flags indicate otherwise.

6. Inserts three blank lines.

The chapter number is regulated by the .NUMBER CHAPTER and .DISPLAY CHAPTER commands.

The title becomes the running head. Any subtitle in effect is blanked.

.COMMENT (.!) [text]

Ignores the text for output processing.

.CONTROL CHARACTERS (.CC)

Accepts and places in the output file nonprinting characters (characters with ASCII values in the ranges 0 through 31 and 127 through 160).

.DATE (.D)

Adds the date to running heads. You must issue a .SUBTITLE command for .DATE to work. Either .LAYOUT 1 or .LAYOUT 2 overrides the .DATE command.

.DISABLE BAR (.DBB)

Disables the .BEGIN BAR and .END BAR commands. If .ENABLE BAR has been in effect, .DISABLE BAR does not shift the lines of text back to their original positions.

Initial default.

.DISABLE BOLDING (.DBO)

Disables use of the bold flag.

.DISABLE HYPHENATION (.DHY)

Disables use of the hyphenation flag.

.DISABLE INDEXING (.DIX)

Disables use of the index flag and the commands .INDEX and .ENTRY.

.DISABLE OVERSTRIKING (.DOV)

Disables use of the overstrike flag.

.DISABLE TOC (.DTC)

Disables the collection of information for a table of contents.

.DISABLE UNDERLINING (.DUL)

Disables use of the underline flag.

.DISPLAY APPENDIX (.DAX) format-code

Issues a .BREAK command and defines the appearance of appendix identifiers.
Specify *format-code* as one of the following:

D	Decimal numbers
O	Octal numbers
H	Hexadecimal numbers
RU	Uppercase roman numerals
RL	Lowercase roman numerals
RM	Mixed case roman numerals (initial capitals)
LU	Uppercase letters
LL	Lowercase letters
LM	Mixed case letters (initial capitals)

Initial default: .DISPLAY APPENDIX LU

.DISPLAY CHAPTER (.DCH) format-code

Issues a .BREAK command and defines the appearance of chapter identifiers. Specify *format-code* as one of the following:

D	Decimal numbers
O	Octal numbers
H	Hexadecimal numbers
RU	Uppercase roman numerals
RL	Lowercase roman numerals
RM	Mixed case roman numerals (initial capitals)
LU	Uppercase letters
LL	Lowercase letters
LM	Mixed case letters (initial capitals)

Initial default: .DISPLAY CHAPTER D

.DISPLAY ELEMENTS (.DLE) ["left",]format-code[,"right"]

Issues a .BREAK command and defines the appearance of list-element identifiers. The command must be specified after the .LIST command and before the first .LIST ELEMENT command.

List-element identifiers consist of sequential numbers in the format specified by *format-code*, preceded by the character specified as *left* and followed by the character specified as *right*. *Left*, which must be a single character enclosed in quotation marks or apostrophes, defaults to a space. *Right*, which must be a single character enclosed in quotation marks or apostrophes, defaults to a period. Specify *format-code* as one of the following:

D	Decimal numbers
O	Octal numbers
H	Hexadecimal numbers
RU	Uppercase roman numerals
RL	Lowercase roman numerals
RM	Mixed case roman numerals (initial capitals)
LU	Uppercase letters
LL	Lowercase letters
LM	Mixed case letters (initial capitals)

A .DISPLAY ELEMENTS command remains in effect only until the .END LIST command occurs. The next list uses the default appearance unless another .DISPLAY ELEMENTS command is specified.

Default appearance of lists: .DISPLAY ELEMENTS "",D,"."

.DISPLAY LEVELS (.DHL) [format-code],...

Issues a .BREAK command and defines the appearance of section identifiers in section headers. You can specify or omit up to six *format-code* values, one for each section level. The first *format-code* value corresponds to section level 1, the second *format-code* value to section level 2, and so on. If you omit a *format-code* value, specify the comma unless no more values follow. Specify each *format-code* value as one of the following:

D	Decimal numbers
O	Octal numbers
H	Hexadecimal numbers
RU	Uppercase roman numerals
RL	Lowercase roman numerals
RM	Mixed case roman numerals (initial capitals)
LU	Uppercase letters
LL	Lowercase letters
LM	Mixed case letters (initial capitals)

Initial default: .DISPLAY LEVELS D,D,D,D,D,D

.DISPLAY NUMBER (.DNM) format-code

Issues a .BREAK command and defines the appearance of page numbers starting with the next page number written. Specify *format-code* as one of the following:

D	Decimal numbers
O	Octal numbers
H	Hexadecimal numbers
RU	Uppercase roman numerals
RL	Lowercase roman numerals
RM	Mixed case roman numerals (initial capitals)
LU	Uppercase letters

LL   Lowercase letters

LM   Mixed case letters (initial capitals)

Initial default: .DISPLAY NUMBER D

.DISPLAY SUBPAGE (.DSP) format-code

Issues a .BREAK command and defines the appearance of subpage numbers starting with the next page number written. (Subpage numbers are the numbers appended to the page numbers on subpages, for example, page 1-12A.) Specify *format-code* as one of the following:

D   Decimal numbers

O   Octal numbers

H   Hexadecimal numbers

RU   Uppercase roman numerals

RL   Lowercase roman numerals

RM   Mixed case roman numerals (initial capitals)

LU   Uppercase letters

LL   Lowercase letters

LM   Mixed case letters (initial capitals)

Initial default: .DISPLAY SUBPAGE LU

.ELSE variant

Starts the *else* portion of a conditional block. *Variant* must be the same value as in the .IF command or .IFNOT command. The *else* portion is processed if the *if* or *ifnot* portion of the conditional block is not processed; otherwise, the *else* portion is not processed. Must be paired with an .IF or .IFNOT command.

.ENABLE BAR (.EBB)

Enables use of the .BEGIN BAR and .END BAR commands. Causes all further text to be shifted three characters to the right to make room for the bars.

.ENABLE BOLDING (.EBO)

Enables use of the bold flag.

Initial default.

.ENABLE HYPHENATION (.EHY)

Enables use of the hyphenation flag.

Initial default.

.ENABLE INDEXING (.EIX)

Enables use of the index flag and the commands .INDEX and .ENTRY.

Initial default.

.ENABLE OVERSTRIKING (.EOV)

Enables use of the overstrike flag.

Initial default.

.ENABLE TOC (.ETC)

Enables the collection of information for a table of contents.

Initial default.

.ENABLE UNDERLINING (.EUN)

Enables use of the underline flag.

Initial default.

.END BAR (.EB)

Ends the insertion of change bars at the beginning of lines. Must be paired with a .BEGIN BAR command.

.END FOOTNOTE (.EFN)

Ends a footnote and restores case, fill, justify, spacing, and margin settings to what they were before the footnote began. Must be paired with a .FOOTNOTE command.

.END LIST (.ELS) [lines]

Ends a list and restores case, fill, justify, spacing, and margin settings to what they were before the list began. Must be paired with a .LIST command. Specify *lines* as one of the following:

- Zero or unsigned integer—The number of blank lines to follow the list.

- Integer preceded by a minus sign—The number of lines from the bottom of the page where writing will resume.

Lines defaults to the most recent skip lines setting in a .PARAGRAPH or .SET PARAGRAPH command (parameter 2).

.END LITERAL (.EL)

Ends literal text. Must be paired with a .LITERAL command.

.END NOTE (.EN) [lines]

Ends a note and restores case, fill, justify, spacing, and margin settings to what they were before the note began. Must be paired with a .NOTE command. Specify *lines* as one of the following:

- Zero or unsigned integer—The number of blank lines to follow the note.

- Integer preceded by a minus sign—The number of lines from the bottom of the page where writing will resume.

Lines defaults to a value of 1.

.END SUBPAGE (.ES)

Issues the .BREAK command and begins a new page with normal page numbering.

.ENDIF variant

Ends a conditional block. *Variant* must be the same value as in the .IF or .IFNOT command. Must be paired with an .IF or .IFNOT command.

.ENTRY (.Y) topic[> subtopic]...

Creates an index entry without a page reference. The parameters specify the text of the entries. Subtopics are arranged alphabetically under topics.

.FIGURE (.FG) [lines]

Issues the .BREAK command and inserts the number of blank lines specified by lines. If the current page does not have sufficient room for all the blank lines, the page is ended and the blank lines are placed on the next page.

Lines must be specified as an integer in the range 1 through the maximum number of lines permitted on the page (after header, footer, and forced blank lines are taken into account). *Lines* defaults to a value of 1.

.FIGURE DEFERRED (.FGD) [lines]

Issues the .BREAK command and inserts the number of blank lines specified by lines. If the current page does not have sufficient room for all the blank lines, text is added until the page is complete and the blank lines are placed on the next page.

Lines must be specified as an integer in the range 1 through the maximum number of lines permitted on the page (after header, footer, and forced blank lines are taken into account). *Lines* defaults to a value of 1.

.FILL (.F)

Causes line endings in the DSR file to be treated as spaces. Lines are created in the output file by accumulating words until the next word would exceed the right margin. The .FILL command also restores: the most recent justification setting set by a .JUSTIFY or .NO JUSTIFY command; any .AUTOPARAGRAPH or .AUTOTABLE setting that was in effect.

Initial default.

.FIRST TITLE (.FT)

Permits a running head to be written on the first page unless a .CHAPTER or .APPENDIX command is issued.

.FLAGS ACCEPT (.FL ACCEPT) [character]

Recognizes the accept flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the accept flag is represented by an underscore (_).

Initial default.

.FLAGS ALL (.FL)

Permits recognition of all enabled flags.

Initial default.

.FLAGS BOLD (.FL BOLD) [character]

Recognizes the bold flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the bold flag is represented by an asterisk (*).

.FLAGS BREAK (.FL BREAK) [character]

Recognizes the break flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the break flag is represented by a vertical bar (|).

.FLAGS CAPITALIZE (.FL CAPITALIZE) [character]

Recognizes the capitalize flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the capitalize flag is represented by a left angle bracket (<).

.FLAGS COMMENT (.FL COMMENT) [character]

Recognizes the comment flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the comment flag is represented by an exclamation point (!).

Initial default.

.FLAGS CONTROL (.FL CONTROL) [character]

Recognizes the control flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the control flag is represented by a period (.).

Initial default.

.FLAGS HYPHENATE (.FL HYPHENATE) [character]

Recognizes the hyphenate flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the hyphenate flag is represented by an equal sign (=).

.FLAGS INDEX (.FL INDEX) [character]

Recognizes the index flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the index flag is represented by a right angle bracket ($>$).

.FLAGS LOWERCASE (.FL LOWERCASE) [character]

Recognizes the lowercase flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the lowercase flag is represented by a backslash (\).

Initial default.

.FLAGS OVERSTRIKE (.FL OVERSTRIKE) [character]

Recognizes the overstrike flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the overstrike flag is represented by a percent sign (%).

.FLAGS PERIOD (.FL PERIOD) [character]

Recognizes the period flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the period flag is represented by a plus sign (+).

.FLAGS SPACE (.FL SPACE) [character]

Recognizes the space flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the space flag is represented by a number sign (#).

Initial default.

.FLAGS SUBINDEX (.FL SUBINDEX) [character]

Recognizes the subindex flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the subindex flag is represented by a right angle bracket (>).

Initial default.

.FLAGS SUBSTITUTE (.FL SUBSTITUTE) [character]

Recognizes the substitute flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the substitute flag is represented by a dollar sign ($).

.FLAGS UNDERLINE (.FL UNDERLINE) [character]

Recognizes the underline flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the underline flag is represented by an ampersand (&).

Initial default.

.FLAGS UPPERCASE (.FL UPPERCASE) [character]

Recognizes the uppercase flag and optionally specifies a character to represent it. *Character* must be specified as a single character. By default, the uppercase flag is represented by a circumflex (^).

Initial default.

.FOOTNOTE (.FN)

Places the text that follows up to the .END FOOTNOTE command at the bottom of the page if it fits, or at the bottom of the next page if it does not fit. Must be paired with an .END FOOTNOTE command.

The .FOOTNOTE command does not provide any special formatting. Format the footnote by including DSR commands within the footnote.

If the .NO PAGING command is in effect, all footnotes appear at the end of the document.

.HEADER LEVEL (.HL) [level] [title]

Starts a section by performing the following actions:

1. Issues the commands:

    ```
    .BREAK
    .TEST PAGE lines (as specified in .STYLE HEADER)
    .SPACING 1
    .FILL (if .AUTOJUSTIFY is in effect)
    .JUSTIFY (if .AUTOJUSTIFY is in effect)
    ```

2. Writes the section number and header, formatted according to the .STYLE HEADER values in effect.

3. Inserts punctuation and/or spacing according to the .STYLE HEADER values in effect.

Level must be specified as one of the following:

*   Unsigned integer in the range 1 to 6—The exact level of the header.

*   Integer preceded by a plus sign—A value to be added to the last level specified in a .HEADER LEVEL or .SET LEVEL command (or 1 if a level has not yet been set).

*   Integer preceded by a minus sign—A value to be subtracted from the last level specified in a .HEADER LEVEL or .SET LEVEL command (or 1 if a level has not yet been set).

Level defaults to the value of the last level specified in a .HEADER LEVEL or .SET LEVEL command (or 1 if the level has not yet been set).

The title must follow on the same line as the command with no intervening semicolon. If the title exceeds the size of the output line, the first line is filled (and justified if justification is in effect) and the title continues on the next line.

The title becomes the running head. Any subtitle in effect is blanked.

.HEADERS LOWER (.HD LOWER)

Writes in lowercase the word "page" that precedes the page number in some layouts. Writes in lowercase the word "index" that is part of the page number in indexes.

.HEADERS MIXED (.HD MIXED)

Writes in lowercase with an initial capital the word "Page" that precedes the page number in some layouts. Writes in lowercase with an initial capital the word "Index" that is part of the page number in indexes.

Initial default.

.HEADERS [ON] (.HD)

Writes running heads on each page except the first (unless you also specify .FIRST TITLE) according to the current .LAYOUT values.

Initial default.

.HEADERS UPPER (.HD UPPER)

Writes in uppercase the word "PAGE" that precedes the page number in some layouts. Writes in uppercase the word "INDEX" that is part of the page number in indexes.

.IF variant

Starts a conditional block and introduces the *if* portion of the block. The *if* portion of the block is processed if *variant* is specified as a value of the /VARIANT qualifier in the invoking DSR command. The .IF command must be paired with an .ENDIF command. The conditional block can contain an .ELSE command.

You can nest one conditional block within another. The nested conditional block must be entirely contained within the *if* or the *else* portion of the nesting block.

.IFNOT variant

Starts a conditional block and introduces the *ifnot* portion of the block. The *ifnot* portion of the block is processed if *variant* is not specified as a value to the /VARIANT qualifier in the invoking DSR command. The .IFNOT command must be paired with an .ENDIF command and can be paired with an .ELSE command. The .ELSE command must precede the .ENDIF command.

You can nest one conditional block within another. The nested conditional block must be entirely contained within the *if* or the *else* portion of the nesting block.

.INDENT (.I) spaces

Issues a .BREAK command and indents a line of text. If you specify a .BREAK command after .INDENT, the indent operation is canceled. Specify *spaces* as one of the following:

- Zero or unsigned integer—The number of spaces to indent to the right of the left margin.

- Integer preceded by a minus sign—The number of spaces to indent to the left of the left margin. You cannot indent past position 0.

The parameter defaults to the value of the *spaces* parameter of the most recent .PARAGRAPH or .SET PARAGRAPH command.

You can enter the line of text after the command (with an intervening semicolon) or on the next line. The line cannot contain commands.

.INDEX (.X) topic[> subtopic...]

Creates an index entry with a page reference. The parameters specify the text of the entries. Subtopics are arranged alphabetically under topics with their own page references.

.JUSTIFY (.J)

Issues a .BREAK command and causes the text that follows to be justified – extra spaces are inserted between words so that the last character on each line reaches the right margin.

Initial default.

.KEEP (.K)

Causes blank lines in the input file to be inserted in the output file. The .NO FILL command must be in effect.

.LAYOUT (.LO) code [,lines]

Issues a .BREAK command and specifies the format for page header and footer information. Specify *code* as one of the following:

Code	Description
0	Running head appears in the upper left of the page. Page number and date appear in the upper right.
1	Running head appears centered at the top of the page. Page number appears centered at the bottom.
2	Running head appears at the top right of an odd-numbered page and the top left of an even-numbered page. Page number appears centered at the bottom.
3	Running head appears in the upper left of the page. Date appears in the upper right. Page number appears centered between hyphens at the bottom of the page. Page numbers are consecutive through the entire document.

If code equals 1, 2, or 3, specify *lines* as an unsigned integer equal to the number of lines below the last line of text that the page number will appear. If code equals 0, do not specify *lines*.

Initial default: .LAYOUT 0

.LEFT MARGIN (.LM) position

Issues a .BREAK command and sets the position of the left margin. Specify *position* as one of the following:

- Unsigned integer—The exact position of the left margin.

- Integer preceded by a plus sign—A value to be added to the current position of the left margin.

- Integer preceded by a minus sign—A value to be subtracted from the current position of the left margin.

Position defaults to a value of 0.

The left margin must be greater than 0 and less than the right margin.

Initial default: .LEFT MARGIN 0

.LIST (.LS) [lines] [,"character"]

Starts a list by performing the following actions:

1. Issues a .BREAK command.

2. Issues the command .LEFT MARGIN 9 if the left margin is currently 0; otherwise, issues the command .LEFT MARGIN +4.

3. Issues a .TEST PAGE command specifying for the *lines* parameter a value of 2 plus the value of *test-lines* in the most recent .PARAGRAPH or .SET PARAGRAPH command.

Specify *lines* as one of the following:

*   Zero or unsigned integer—The number of blank lines to be inserted before each element in the list.

*   Integer preceded by a minus sign—The number of lines from the bottom of the page where writing will resume.

Specify *character* as a character enclosed in quotation marks or apostrophes. Each list element is preceded by this character and two spaces. If you omit *character*, the list elements are preceded by a sequence of numbers starting with number 1.

The .LIST command must be paired with an .END LIST command. A list can contain .LIST ELEMENT commands. You can nest one list within another to a maximum level of 14; a nested list must be entirely contained within one element of the nesting list.

.LIST ELEMENT (.LE)

Issues a .BREAK command and writes the text that follows as a list element. The text is terminated by either another .LIST ELEMENT command or an .END LIST command.

You can specify .LIST ELEMENT without having issued a .LIST command. List elements not enclosed in lists begin at the left margin and are numbered sequentially throughout the entire document. Do not issue an .END LIST command.

.LITERAL (.LT)

Issues a .BREAK command, issues the command .RIGHT MARGIN 150, and writes text as it appears in the input file until an .END LITERAL command occurs. Must be paired with an .END LITERAL command. When .LITERAL is in effect, flags are treated as text even if they are recognized and enabled. Commands and flags in effect before the .LITERAL command are disabled (until the .END LITERAL command occurs) except for .LEFT MARGIN, .TAB STOPS, the underline flag, and the bold flag.

.NO AUTOJUSTIFY (.NAJ)

Disables the effects of the .AUTOJUSTIFY command.

.NO AUTOPARAGRAPH (.NAP)

Disables the effects of the .AUTOPARAGRAPH command.

Initial default.

.NO AUTOSUBTITLE (.NAST)

Disables the effects of the .AUTOSUBTITLE command.

.NO AUTOTABLE (.NAT)

Disables the effects of the .AUTOTABLE command.

Initial default.

.NO CONTROL CHARACTERS (.NCC)

Disables the effects of the .CONTROL CHARACTERS command.

Initial default.

.NO DATE (.ND)

Disables the effects of the .DATE command.

Initial default.

.NO FILL (.NF)

Issues a .BREAK command and disables the effects of the .AUTOPARAGRAPH, .AUTOTABLE, .FILL, and .JUSTIFY commands.

.NO FLAGS ACCEPT (.NFL ACCEPT)

Disables recognition of the accept flag.

.NO FLAGS [ALL] (.NFL [ALL])

Does not permit recognition of flags except the comment and control flags.

Initial default.

.NO FLAGS BOLD (.NFL BOLD)

Disables recognition of the bold flag.

Initial default.

.NO FLAGS BREAK (.NFL BREAK)

Disables recognition of the break flag.

Initial default.

.NO FLAGS CAPITALIZE (.NFL CAPITALIZE)

Disables recognition of the capitalize flag.

Initial default.

.NO FLAGS COMMENT (.NFL COMMENT)

Disables recognition of the comment flag.

.NO FLAGS CONTROL (.NFL CONTROL)

Disables recognition of the control flag.

.NO FLAGS HYPHENATE (.NFL HYPHENATE)

Disables recognition of the hyphenate flag.

Initial default.

.NO FLAGS INDEX (.NFL INDEX)

Disables recognition of the index flag.

Initial default.

.NO FLAGS LOWERCASE (.NFL LOWERCASE)

Disables recognition of the lowercase flag.

.NO FLAGS OVERSTRIKE (.NFL OVERSTRIKE)

Disables recognition of the overstrike flag.

Initial default.

.NO FLAGS PERIOD (.NFL PERIOD)

Disables recognition of the period flag.

Initial default.

.NO FLAGS SPACE (.NFL SPACE)

Disables recognition of the space flag.

.NO FLAGS SUBINDEX (.NFL SUBINDEX)

Disables recognition of the subindex flag.

.NO FLAGS SUBSTITUTE (.NFL SUBSTITUTE)

Disables recognition of the substitute flag.

Initial default.

.NO FLAGS UNDERLINE (.NFL UNDERLINE)

Disables recognition of the underline flag.

.NO FLAGS UPPERCASE (.NFL UPPERCASE)

Disables recognition of the uppercase flag.

.NO JUSTIFY (.NJ)

Issues a .BREAK command and disables the effects of the .JUSTIFY command.

.NO KEEP (.NK)

Disables the effects of the .KEEP command.

Initial default.

.NO NUMBER (.NNM)

Suspends the writing of page numbers, unless .LAYOUT 3 is in effect.

.NO PAGING (.NPA)

Causes the document to be written without page breaks and without reserving room for headers and footers.

.NO PERIOD (.NPR)

Disables the effects of the .PERIOD command.

.NO SPACE (.NSP)

Causes a space not to be inserted in place of a carriage return between two lines of text. The .NO SPACE command must be placed between two lines of text and affects only those lines. The .FILL command must be in effect.

.NO SUBTITLE (.NST)

Causes subtitles not to be written.

Initial default.

.NOTE (.NT) [title]

Performs the following actions:

1. Issues a .BREAK command.

2. Issues a .TEST PAGE command specifying for the *lines* parameter the value of *test-lines* in the most recent .PARAGRAPH or .SET PARAGRAPH command.

3. Issues the command .SKIP 1, writes the specified title, and issues the command .SKIP 1. The title defaults to the word NOTE in uppercase.

4. If the left margin is set to position 0, issues the commands .LEFT MARGIN +8 and .RIGHT MARGIN –8. Otherwise, issues the commands LEFT MARGIN +4 and .RIGHT MARGIN –4.

5. Issues the command .FILL. Issues the command .JUSTIFY if autojustification is in effect. Writes the text that follows the .NOTE command until an .END NOTE command occurs.

A .NOTE command must be paired with an .END NOTE command.

.NUMBER APPENDIX (.NMAX) [identifier]

Specifies the identifier of the next appendix as follows:

- Character—A single character.

- Character string—Up to five characters.

- Unsigned integer—The sequence number of the letter in the alphabet: 1 means A, 2 means B, 26 means Z, 27 means AA, and so on.

- Integer preceded by a plus sign—A value to be added to the sequence number of the current identifier.

- Integer preceded by a minus sign—A value to be subtracted from the sequence number of the current identifier.

Identifier defaults to a value of A.

If you do not explicitly provide an identification for the next appendix with the
.NUMBER APPENDIX command, the identifier assumes the value of the identifier of
the current appendix incremented by one.

Initial default: .NUMBER APPENDIX A

.NUMBER CHAPTER (.NMCH) number

Specifies the identifier of the next chapter as follows:

* Unsigned integer—The number of the chapter.

* Integer preceded by a plus sign—A value to be added to the number of the
  current chapter.

* Integer preceded by a minus sign—A value to be subtracted from the number of
  the current chapter.

Number defaults to a value of 1.

If you do not explicitly provide an identification for the next chapter with the
.NUMBER CHAPTER command, the chapter assumes the value of the current
chapter number incremented by one.

Initial default: .NUMBER CHAPTER 1

.NUMBER LEVEL (.NMLV) [number],...

Specifies a base section number. You can specify up to six numbers: each number
corresponds to a level. Omit a level by including just the comma, except that trailing
commas can be omitted. A number defaults to the current number in effect for the
level. Specify each number as follows:

* Unsigned integer—The number of the section for the indicated level.

* Integer preceded by a plus sign—A value to be added to the current number for
  the indicated level.

* Integer preceded by a minus sign–A value to be subtracted from the current
  number for the indicated level.

If you do not explicitly provide a number for the next section header with the
.NUMBER LEVEL command, the section header number assumes the value of the
current section header number incremented by one.

.NUMBER LIST (.NMLS) number

Specifies the number of the next element in a list.

If you do not explicitly provide a number for the next list element with the .NUMBER LIST command, the list element number assumes the value of the current list element number incremented by one.

.NUMBER [PAGE] (.NMPG) [number]

Resumes page numbering if .NO NUMBER is in effect. Sets the number of the next page to the value of *number*, which must be one of the following:

- Unsigned integer—The number of the next page.
- Integer preceded by a plus sign—A value to be added to the current page number.
- Integer preceded by a minus sign—A value to be subtracted from the current page number.

Number defaults to the current page number.

Do not use the .NUMBER PAGE command if the .LAYOUT 3 command is in effect.

.NUMBER RUNNING (.NMR) number

Sets the number of the next page to the value of *number*, which must be one of the following:

- Unsigned integer—The number of the next page.
- Integer preceded by a plus sign—A value to be added to the current page number.
- Integer preceded by a minus sign—A value to be subtracted from the current page number.

Number defaults to the current page number.

Use only if the .LAYOUT 3 command is in effect.

.NUMBER SUBPAGE (.NMSPG) [identifier]

Specifies the identifier of the next subpage as follows:

- One or more characters—A letter such as A, B, Z, or AA.

- Unsigned integer—The sequence number of the letter in the alphabet: 1 means A, 2 means B, 26 means Z, 27 means AA, and so on.

- Integer preceded by a plus sign—A value to be added to the sequence number of the current identifier.

- Integer preceded by a minus sign—A value to be subtracted from the sequence number of the current identifier.

Identifier defaults to a value of A.

The .NUMBER SUBPAGE command issues a .SUBPAGE command if .SUBPAGE is not already in effect.

.PAGE (.PG)

Issues a .BREAK command and starts a new page. The current page must contain at least one line of text. The .PAGE command works even if .NO PAGING is in effect.

.PAGE SIZE (.PS) [max-lines], [running-width]

Issues a .BREAK command, sets a maximum for the number of lines of text on a page, and sets the page width for writing running heads (does not affect normal text). Specify *max-lines* as follows:

- Unsigned integer—The maximum number of lines allowed.

- Integer preceded by a plus sign—A value to be added to the current maximum.

- Integer preceded by a minus sign—A value to be subtracted from the current maximum.

Max-lines defaults to the current maximum. The maximum cannot be less than 13.

Specify *running-width* as follows:

- Unsigned integer—The width of the page for writing running heads.

- Integer preceded by a plus sign—A value to be added to the current width.

- Integer preceded by a minus sign—A value to be subtracted from the current width.

Running-width defaults to the current width. The width cannot exceed 150.

If the .NO PAGING command is in effect, the .PAGE SIZE command issues a
.PAGING command.

Initial default: .PAGE SIZE 58,70

.PAGING (.PA)

Issues a .BREAK command and causes the document to be split into pages.

Initial default.

.PARAGRAPH (.P) [spaces],[skip-lines],[test-lines]

Issues a .BREAK command followed by .TEST PAGE, .SKIP, and .INDENT
commands. Specify *spaces* as one of the following:

* Zero or unsigned integer—The number of spaces to indent the first line of the
  paragraph to the right of the left margin.

* Integer preceded by a minus sign—The number of spaces to indent to the left of
  the left margin. You cannot indent past position 0.

Specify *skip-lines* as one of the following:

* Zero or unsigned integer—The number of blank lines to be inserted before the
  paragraph.

* Integer preceded by a minus sign—The number of lines from the bottom of the
  page where writing will resume.

Specify *test-lines* as a factor in determining the number of lines that must be left on
the page for the paragraph to start on the page. Otherwise, the paragraph starts on
the next page. The precise algorithm is as follows, where *spacing* is the current value
of the .SPACING command (initial default is 1):

(*skip-lines* + *test-lines* + 1) * *spacing*

All three parameters default to the values specified in the last .PARAGRAPH or .SET
PARAGRAPH command.

Initial default: .PARAGRAPH 5,1,2

.PERIOD (.PR)

Adds an extra space after a period (.), colon (:), question mark (?), or exclamation point (!). The .FILL command must be in effect, the character must be followed by a space or carriage return, and the character must not be preceded by the accept flag.

Initial default.

.REPEAT (.RPT) times, "characters"

Repeats the specified characters the specified number of times. The characters must be enclosed in quotation marks or apostrophes. You cannot specify more than 150 characters.

If the .FILL command is in effect, the characters are repeated horizontally. If the .NOFILL command is in effect, the characters are repeated vertically starting at the left margin.

.REQUIRE (.REQ) "file-spec"

Processes the contents of another file as if those contents existed in place of the .REQUIRE command. The file specification must be enclosed in quotation marks or apostrophes. The file type defaults to RNO. A .REQUIRE command must be the last command on a line.

.RESTORE (.RE)

Restores the formatting context saved by the last .SAVE command. Must be paired with a .SAVE command.

.RIGHT (.R) [spaces]

Issues a .BREAK command and positions a line of text relative to the right margin. If you specify a .BREAK command after the .RIGHT, the operation is canceled. Specify *spaces* as one of the following:

•   Zero or an unsigned integer—The number of spaces to indent to the left of the right margin. You cannot indent past position 0.

•   Integer preceded by a minus sign—The number of spaces to extend to the right of the right margin.

Spaces defaults to 0.

You can enter the line of text after the command (with an intervening semicolon) or on the next line. The line cannot contain commands.

.RIGHT MARGIN (.RM) [position]

Issues a .BREAK command and sets the position of the right margin. Specify *position* as one of the following:

* Unsigned integer—The exact position of the right margin.

* Integer preceded by a plus sign—A value to be added to the current position of the right margin.

* Integer preceded by a minus sign—A value to be subtracted from the current position of the right margin.

Position defaults to 70.

Initial default: .RIGHT MARGIN 70

.SAVE (.SA)

Saves the current formatting context which includes the following settings: date status, fill, flags, headers, justification, keep status, margins, numbering, page size, paging, paragraph parameters, spacing, subtitles, and tab stops. The .SAVE command must be paired with a .RESTORE command. You can nest one saved-formatting context within another to a depth of 20.

.SEND TOC (.STC) toc-line

Writes a line to the table of contents. The line can contain text, DSR commands, and DSR flags.

.SET DATE (.SDT) [[day],[month],[year]]

Issues a .BREAK command and sets the date. Specify *day, month,* or *year* as follows:

* Unsigned integer—The day of the month, month, or year. You can specify the entire year or the last two digits.

* Integer preceded by a plus sign—A value to be added to the current value of *day, month,* or *year*.

* Integer preceded by a minus sign—A value to be subtracted from the current value of *day, month,* or *year*.

You can omit a parameter by including only the comma. Omitted parameters default to the current values.

If you omit the parameters entirely, the date is reset to the current date (the date on which the DSR processing occurs).

Initial default: .SET DATE current-date

.SET LEVEL (.SL) [level]

Sets the level used in .HEADER LEVEL commands. Specify level as one of the following:

- Unsigned integer in the range 1-6—The exact level of the header.

- Integer preceded by a plus sign—A value to be added to the current level setting.

- Integer preceded by a minus sign—A value to be subtracted from the current level setting.

Level defaults to the last level specified in a .HEADER LEVEL or .SET LEVEL command (or 1 if a level has not yet been set).

.SET PARAGRAPH (.SPR) [spaces],[skip-lines],[test-lines]

Sets the parameter values used in .PARAGRAPH commands. Specify *spaces* as one of the following:

- Zero or unsigned integer—The number of spaces to indent the first line to the right of the left margin.

- Integer preceded by a minus sign—The number of spaces to indent to the left of the left margin. You cannot indent past position 0.

Specify *skip-lines* as one of the following:

- Zero or unsigned integer—The number of blank lines to be inserted before the paragraph.

- Integer preceded by a minus sign—The number of lines from the bottom of the page where writing will resume.

Specify *test-lines* as a factor in determining the number of lines that must be left on the page for the paragraph to start on the page. Otherwise, the paragraph starts on the next page. The precise algorithm is as follows, where *spacing* is the current value of the .SPACING command (initial default is 1).

(*skip-lines* + *test-lines* + 1) * *spacing*

The parameters default to the values specified in the last .PARAGRAPH or .SET PARAGRAPH command.

.SET TIME (.STM) [[hour],[minute],[second]]

Issues a .BREAK command and sets the time. Specify *hour, minute,* or *second* as follows:

• Unsigned integer—The hour of the day, minute of the hour, or second of the minute.

• Integer preceded by a plus sign—A value to be added to the current hour, minute, or second.

• Integer preceded by a minus sign—A value to be subtracted from the current hour, minute, or second.

You can omit parameters by including only the comma. Omitted parameters default to the current values.

If you omit the parameters entirely, the time is reset to the current time (the time at which the DSR processing occurs).

Initial default: .SET TIME current-time

.SKIP (.S) [lines]

Issues a .BREAK command and inserts blank lines. *Lines* must be one of the following. The value is multiplied by the current value of the .SPACING command (initial default is 1).

• Zero or unsigned integer—The number of blank lines to be inserted.

• Integer preceded by a minus sign—The number of lines from the bottom of the page where writing will resume.

Lines defaults to a value of 1.

The .SKIP command does not work at the top of a page unless *lines* is negative. (Use the .FIGURE command.) The .SKIP command does not continue to the next page if *lines* is greater than the number of lines left on the page. If the page contains a footnote, the line directly above the footnote is considered the bottom of the page.

.SPACING (.SP) lines

Sets the spacing between lines of text, where 1 means single spacing (no blank lines between lines of text), 2 means double spacing, and so on. The following commands multiply a *lines* specification by the current .SPACING value to determine the number of physical lines: .AUTOPARAGRAPH, .AUTOTABLE, .PARAGRAPH, .SET PARAGRAPH, and .SKIP.

Specify *lines* as an integer in the range 1 through 5.

Initial default: .SPACING 1

.STYLE HEADERS (.STHL) [code],...

Issues a .BREAK command and sets the formatting for level headers. You can specify up to nine codes as follows. The codes must be written in the specified position. Specify a default value by including just the comma.

1. Run-in format—An integer in the range 0 through 7 specifying the lowest numbered level of header to have a run-in format. (A run-in format starts the text on the same line as the header.) Defaults to 3.

2. Uppercase title—An integer in the range 0 through 7 specifying the highest numbered level of header to have its title written in all uppercase letters. Overrides any conflicting code 3 setting. Defaults to 1.

3. Initial capitals in title—An integer in the range 0 through 7 specifying the highest numbered level of header to have its title written in uppercase and lowercase (that is, initial capitals). Defaults to 6.

4. Section number—An integer in the range 0 through 7 specifying the lowest numbered level of header not to have a section number written to the left of the title. Defaults to 7.

5. Centered title—An integer in the range 0 through 7 specifying the lowest numbered level of header to have its header centered. (However, run-in headers are not centered.) Defaults to 7.

6. Preceding blank lines—An unsigned integer specifying the number of blank lines preceding a header. Defaults to 2.

7. Following blank lines—An unsigned integer specifying the number of blank lines following a header. Defaults to 1.

8. Test page lines—An unsigned integer specifying the number of lines that must be left on a page for the level header to be written to that page. Otherwise, the header is written at the top of the next page. Defaults to 7 plus the most recent value specified for the test-lines parameter of a .PARAGRAPH or .SET PARAGRAPH command.

9. Spaces after section number—An integer in the range 1 through 75 specifying the number of spaces between the header number and title. Defaults to 2.

Initial default: .STYLE HEADERS 3,1,6,7,7,2,1,9,2

.SUBPAGE (.SPG)

Issues a .BREAK command and starts a new page. Initiates subpage numbering: each page has the number of the most recent page immediately followed by a subpage appendix. For example, page 1-12 might be followed by subpages 1-12A and 1-12B. Must be paired with an .END SUBPAGE command.

.SUBTITLE (.ST) [subtitle]

Issues a .BREAK command and sets *subtitle* as the running head to be used. *Subtitle* must be specified as a character string. A .SUBTITLE command must be the last command on a line.

.TAB STOPS (.TS) [position],...

Sets the tab stops. Specify *position* as one of the following:

*   Unsigned integer—The exact position of the tab stop.

*   Integer preceded by a plus sign—A value to be added to the current position of the tab stop.

*   Integer preceded by a minus sign—A value to be subtracted from the current position of the tab stop.

Tab stops are set left to right as specified. Each tab stop must be at least two greater than the preceding tab stop. You can retain the value of the previous tab stop by specifying just a comma; you must specify the commas to retain trailing tab stops.

Initial default: .TAB STOPS 8,16,24,...

.TEST PAGE (.TP) lines

Issues a .BREAK command and checks the current page for the specified number of remaining lines. If the page does not contain enough room for the specified number of lines, a new page is started. *Lines* must be specified as an unsigned integer.

.TITLE (.T) [title]

Issues a .BREAK command and sets *title* as the running head title to be used.
Title must be specified as a character string. A .TITLE command must be the last
command on a line.

.VARIABLE (.VR) name [true, false]

Identifies text and commands contained in conditional blocks if the /DEBUG qualifier
is specified with the RUNOFF command.

Name must be the name of a variable in an .IF or .IFNOT command. The .IF or
.IFNOT command must follow the .VARIABLE command.

True must be a single character. This character (followed by a space) will appear as
the first character of each line which is true for the specified variable.

False must be a single character. This character (followed by a space) will appear as
the first character of each line which is false for the specified variable.

.XLOWER (.XL)

Uppercases and lowercases index entries exactly as they appear in the DSR file.

.XUPPER (.XU)

Uppercases the first character of an index entry and lowercases the remaining
characters, except where explicitly overridden by the capitalize or uppercase flag.

Initial default.

DSR.3   DSR Flags

The following conditions must be met for a flag to be used:

- Master recognition—The .FLAGS ALL command must be in effect, except for the
  comment and control flags.

- Individual recognition—The specific .FLAGS command must be in effect.

- Individual enabling—The specific .ENABLE command must be in effect.

If a character is not recognized as a flag, the character is treated as normal text. If
a character is not enabled as a flag, the character does not cause the flag action to
occur.

The flags are as follows. The second column lists the initial default character representing each flag.

Flag Name	D	Description
ACCEPT	—	Treats the next character as text even if the character is a flag that is in effect, a period, or a space.
BOLD	*	Writes the next character in bold (by overstriking).
BREAK	I	Permits a word to be broken between lines at the point where the flag appears. No hyphen is automatically inserted.
CAPITALIZE	<	Capitalizes all characters that follow until one of the following occurs: an expandable space, a BREAK flag, a HYPHENATE flag, a CAPITALIZE flag, a pair of UPPERCASE flags, a pair of LOWERCASE flags, the end of the line.
COMMENT	!	Treats the characters that follow as a comment until a semicolon or the end of the line occurs. A comment can only occur where a DSR command is legal; otherwise, the COMMENT flag is treated as text.
CONTROL	.	Treats the characters that follow as a DSR command until a semicolon or the end of the line occurs. The CONTROL flag is treated as text if it occurs where a DSR command is not legal.
HYPHENATE	=	Permits a word to be broken between lines at the point where the flag appears. A hyphen is automatically inserted.
INDEX	>	Treats the characters that follow as an index entry.
LOWERCASE	\	Lowercases the next character.
OVERSTRIKE	%	Overstrikes the preceding character with the next character.
PERIOD	+	Inserts an expandable space when the flag is placed after the last character in a word.
SPACE	#	Produces one unexpandable space. The word preceding the flag, the flag, and the next word are all treated as one word in processing.
SUBINDEX	>	In an .INDEX command, treats the characters that follow as a subentry. In an .ENTRY command, treats the characters that follow as a cross-reference.
SUBSTITUTE	$	Must be paired with itself. See the next table.
UNDERLINE	&	Underlines the next character.
UPPERCASE	^	Uppercases the next character.

The following flag pairs can be used. The second column lists the default characters representing each flag pair.

Flag Pair	D	Description
CONTROL COMMENT	.!	Makes an entire line a comment.
CONTROL CONTROL	..	Inserts an actual period in the text.
LOWERCASE BOLD	*	Ends the bolding of characters.
LOWERCASE LOWERCASE	\\	Writes the text that follows in lowercase until another case flag occurs.
LOWERCASE UNDERLINE	\&	Ends the underlining of characters.
SUBSTITUTE SUBSTITUTE	$$	Inserts the date, time, or a part of the date or time depending on a keyword that follows the SUBSTITUTE SUBSTITUTE flag pair. The keyword must immediately follow the flag pair and can be uppercase or lowercase. The valid keywords are as follows: DATE, TIME, YEAR, MONTH, DAY, HOURS, MINUTES, SECONDS.
UNDERLINE SPACE	&#	Inserts an actual underscore into the text.
UPPERCASE BOLD	^*	Bolds the characters that follow until a LOWERCASE BOLD flag pair occurs.
UPPERCASE CAPITALIZE	^<	Capitalizes the characters that follow until another case flag occurs.
UPPERCASE UNDERLINE	^&	Underlines the characters that follow until a LOWERCASE UNDERLINE flag pair occurs.
UPPERCASE UPPERCASE	^^	Writes the text that follows as it appears in the DSR file until another case flag occurs.

DSR.4   Index Formatting

Indexes are formatted according to the following rules:

- Punctuation—A comma separates an index entry or subentry from its page reference. Commas separate multiple page references for the same entry. No comma follows an entry that does not have a page reference.

- Position of subentries—Subentries are positioned under an entry and indented two spaces on their own lines.

- Case—The .XLOWER and .XUPPER commands control whether index entries are uppercase or lowercase.

- Merging—Index entries merge with other entries having identical spelling, spacing, punctuation, and emphasis.

  If .XLOWER is in effect, uppercase characters sort before lowercase characters. If .XUPPER is in effect, uppercase and lowercase entries are merged.

Entries with different emphasis are sorted in the following order: bolded and underlined, bolded, underlined, no emphasis.

- Sorting .ENTRY entries—Entries without page references are sorted at the beginning of each subindex level.

Appendix EDT

EDT Editor

The following appendix lists the specifications of the DCL command EDIT which invokes the EDT editor, the keypad and line editing commands available in EDT, and the nokeypad-editing commands used to redefine keys in EDT.

EDT.1   EDIT Command

Use the DCL EDIT command to invoke EDT.

EDIT/EDT file-spec

Invokes the EDT editor.

PARAMETERS

file-spec
   Specification of the file being edited.

QUALIFIERS

/COMMAND=file-spec (default)
/NOCOMMAND
   Determines whether EDT executes a startup command file before the editing session begins and the specification of that command file. The default is /COMMAND=[default-directory]EDTINI.EDT.

/CREATE (default)
/NOCREATE
   Determines whether EDT creates a new file when the specified input file is not found.

/JOURNAL=file-spec (default)
/NOJOURNAL

Determines whether EDT keeps a journal file during an editing session and the specification of that journal file. The default is /JOURNAL=filename.JOU, where filename is the name of the file being edited.

/OUTPUT=file-spec (default)
/NOOUTPUT

Determines whether EDT creates an output file during the editing session and specifies the name of the output file. The default is /OUTPUT=input-file-spec, where the file name and type remain unchanged and the version number is incremented by one.

/READ—ONLY
/NOREAD—ONLY (default)

Determines whether both an output file and a journal file are created. With the default, /NOREAD_ONLY, EDT maintains the journal file in case an interruption occurs and creates an output file when the EXIT command is issued. Use the /READ_ONLY qualifier when you are merely looking at a file and do not intend to make any changes to it. When you use the /READ_ONLY qualifier, enter the QUIT command to exit from EDT (unless you want to specify an output file name with the EXIT command).

/RECOVER
/NORECOVER (default)

Determines whether a journal file is executed before the editing session begins. If the name of the journal file is different from that of the input file, you must specify it with the /JOURNAL qualifier.

EXAMPLES

`$ EDIT CHAP.TXT`
Invokes EDT to edit the highest version of the file CHAP.TXT. EDT attempts to read and execute an EDTINI.EDT file in your default directory, creates a journal file, and when you exit from EDT creates an output file named CHAP.TXT with the highest version number.

`$ EDIT/NOCOMMAND OLDFILE.DAT/OUTPUT=NEWFILE.DAT`
Invokes EDT to edit the highest version of the file OLDFILE.DAT, prevents EDT from attempting to read a startup command file, and creates an output file with the name NEWFILE.DAT.

`$ EDIT/READ_ONLY OLDFILE.DAT`
Invokes EDT to read the file OLDFILE.DAT without creating a journal file and without creating an output file.

$ EDIT/RECOVER CHAP.TXT
Invokes EDT to recover edits made during a previously aborted editing session. EDT
reads and executes the editing commands in the journal file CHAP.JOU. Once the
file has finished processing CHAP.JOU, it returns control to the user.

EDT.2   EDT Keypad Editing

In EDT keypad-editing mode, you use keypad keys and control keys to perform
editing functions. To enter change mode for EDT keypad editing you must enter the
EDT line-editing command CHANGE; text appears on the screen and the
keypad-editing keys immediately assume their editing functions.

EDT.2.1 Keypad Commands

Each key on the keypad performs at least one editing command; most perform two.
Pressing a key invokes the primary (or upper) function. Pressing the GOLD key
(labeled PF1) first and then pressing the desired key invokes the alternate (or lower)
function. (Do not hold down the GOLD key while pressing the other editing key.)
In examples, GOLD key sequences are shown with the word *GOLD* followed by
a backslash (\) and the other editing key. On VT200 series terminals there is a
smaller supplemental editing keypad located between the main keyboard and the
EDT keypad. See Section EDT.2.3 for more information on the supplemental editing
keypad.

PF1 GOLD	PF2 HELP	PF3 FNDNXT FIND	PF4 DEL L UND L
7 PAGE COMMAND	8 SECT FILL	9 APPEND REPLACE	▬ DEL W UND W
4 ADVANCE BOTTOM	5 BACKUP TOP	6 CUT PASTE	, DEL C UND C
1 WORD CHNGCASE	2 EOL DEL EOL	3 CHAR SPECINS	ENTER ENTER
0 LINE OPEN LINE		● SELECT RESET	SUBS

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The diagram above each command description represents the EDT keypad shown above.

ADVANCE
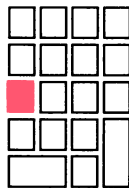
Sets the cursor direction forward, from top to bottom of the buffer, for the following commands: CHAR, WORD, FIND, FNDNXT, CHNGCASE, LINE, EOL, PAGE, SECT, and SUBS, and remains in effect until after you press BACKUP.

APPEND
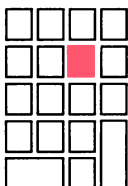
Deletes the select range (see SELECT) and stores it at the end of the PASTE buffer without otherwise modifying the PASTE buffer's original contents.

BACKUP
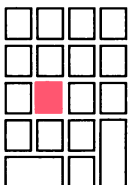
Sets cursor direction backward, from bottom to top of buffer, for the following commands: CHAR, WORD, FIND, FNDNXT, CHNGCASE, LINE, EOL, PAGE, SECT, and SUBS, and remains in effect until you press ADVANCE.
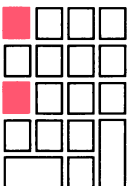
BOTTOM

Moves the cursor to the end, or bottom, of the buffer.

CHAR
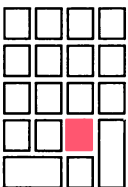
Moves the cursor one character in the current direction (depending upon whether ADVANCE or BACKUP is set.)
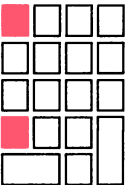
CHNGCASE

Changes the case (from uppercase to lowercase, or lowercase to uppercase) of all
letters in the selected range (see SELECT) or search string (see SET SEARCH).
If there is no selected range or the cursor is not positioned on the search string,
CHNGCASE changes the case of the current character.

COMMAND

Invokes the "Command:" prompt for entering a line-editing command. Use the
ENTER key to process a line-editing command issued at the "Command:" prompt.

CUT
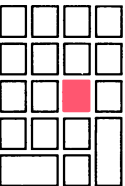
Deletes the selected range (see SELECT) from the current buffer and places the text
in the PASTE buffer.

DEL C
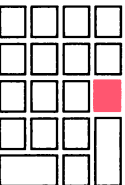
Deletes the character on which the cursor is positioned.

DEL EOL
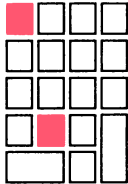
Deletes the text from the cursor to the end of the current line, excluding the line terminator. If the cursor is already at the end of a line, DEL EOL deletes the next line.

DEL L
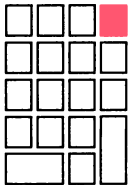
Deletes text from the cursor to the end of the line, including the line terminator. If the cursor is at the beginning of the line, the entire line is deleted, positioning the cursor at the beginning of the next line.

DEL W
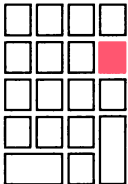
Deletes the text from the cursor to the first character of the next word. The line terminator (EOL) is treated as a word by the DEL W command.

ENTER
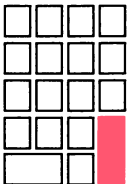
Enters the response to a "Search for:" or "Command:" prompt, or completes the processing of the key definition operation.

EOL
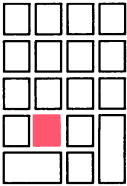
Moves the cursor to the end of the current line or the previous line (depending upon whether ADVANCE or BACKUP is set). If the cursor is already at the end of the line, EOL moves it to the end of the next or previous line.

FILL
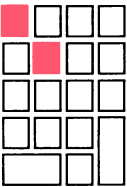
Formats a select range of text by filling each line with as many whole words as possible within the defined line width. (The SET WRAP command defines line width.)

FIND
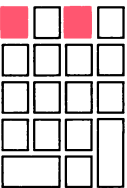
Elicits the "Search for:" prompt as the first step in the FIND operation. The command sequence is: FIND (type the search string after the prompt) and ENTER (or ADVANCE or BACKUP). If the string is found, the cursor moves to the first character in the string; otherwise, the cursor remains in place and the message "String was not found" appears. The default search string is the line terminator (EOL).

FNDNXT
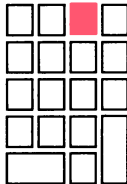
Moves the cursor to the first character of the next occurrence of the search string specified in the FIND command. If there is no further occurrence of the string, the cursor remains in place and the message "String was not found" appears.
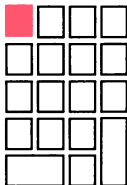
GOLD

When pressed before another keypad key, specifies that key's alternate function. When pressed before a number and another keypad command, GOLD causes the command to be performed the number of times specified by the number. When used with SPECINS, inserts a character from the DEC Multinational Character Set (see SPECINS command). GOLD can be used to define GOLD/keyboard key sequences (see CTRL/K).

HELP
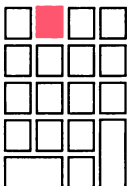
Displays a diagram of keypad keys. When one of the keys is pressed after HELP, information about that key is displayed. This function has no effect on the text you are editing. Press the spacebar to return to keypad editing.
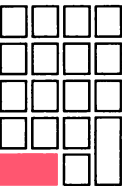
LINE

Moves the cursor to the beginning of the next or previous line (depending upon whether ADVANCE or BACKUP is set).

OPEN LINE
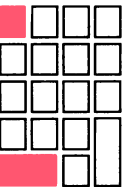
Inserts a line terminator at the current cursor position.

PAGE
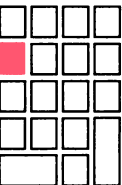
Moves the cursor to the next or previous page boundary (depending upon whether ADVANCE or BACKUP is set). The page entity defaults to the text between form feeds and can be defined with the SET ENTITY command.

PASTE

Inserts the contents of the PASTE buffer (the text last affected by the CUT or APPEND command) at the cursor's current position, positioning the cursor at the end of the inserted text.

REPLACE
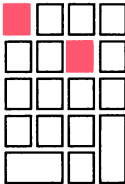
Deletes the selected range and replaces it with the contents of the PASTE buffer (the text last affected by the CUT or APPEND command). The command sequence is: store the new text in the PASTE buffer with SELECT and CUT; locate the old text with FIND and ENTER; mark a selected range of the text to be replaced; and press REPLACE. If a range of text to be replaced is not selected, the text of the search string will be replaced.

RESET
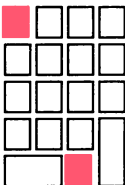
Cancels a selected range, and sets EDT's current direction to ADVANCE.

SECT
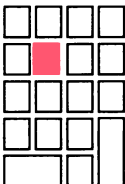
Moves the cursor 16 lines in the current direction (depending upon whether ADVANCE or BACKUP is set).
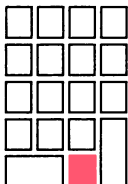
SELECT

Marks the current cursor position as the beginning of a selected range. The selected range consists of all the text between this marked position and the cursor's subsequent position at the other end of the selected text.

SPECINS
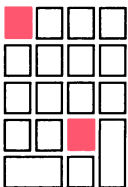
Inserts a character (using its decimal value) from the DEC Multinational Character Set (see Appendix CHAR). The command sequence is: GOLD, the decimal value of the character, GOLD, and SPECINS.

SUBS
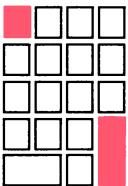
Deletes the selected range, replaces it with the contents of the PASTE buffer, and moves the cursor (in the direction set by ADVANCE or BACKUP) to the next occurrence of the search string. The command sequence is: store the new text in the PASTE buffer with SELECT and CUT; locate the old text with FIND and ENTER; replace the old text with the new text and find the next occurrence of the search string using SUBS. If the string is not found, the cursor remains in place and the message "String was not found" appears. If the string is found, you can replace any subsequent occurrences of the search string by entering SUBS.

TOP
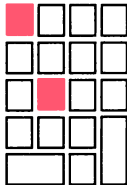
Moves the cursor to the beginning, or top, of the buffer.

UND C
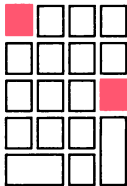
Inserts at the cursor's current position the character most recently deleted with DEL C or DELETE.

UND L
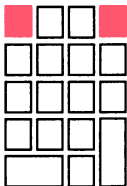
Inserts at the cursor's current position the line of text most recently deleted with DEL L, DEL EOL, or CTRL/U.

UND W
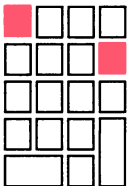
Inserts at the cursor's current position the word most recently deleted with DEL W or LINEFEED.
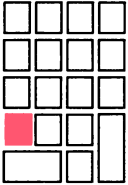
WORD

Moves the cursor one WORD in the current direction (depending upon whether ADVANCE or BACKUP is set). You can define the WORD entity with the SET ENTITY command.

You can use the following directional keys:

DOWN ARROW

Moves the cursor to the character in the line directly below. If the line of text below does not extend as far as the cursor's position, DOWN ARROW places the cursor on the last character (EOL) in the line below.

LEFT ARROW

Moves the cursor one character to the left. If the cursor is at the left margin, LEFT ARROW moves the cursor to the last character (EOL) in the previous line.

RIGHT ARROW

Moves the cursor one character to the right. If the cursor is at the end of the line (EOL), RIGHT ARROW moves it to the leftmost character in the next line.

UP ARROW

Moves the cursor to the character in the line directly above. If the line of text above does not extend as far as the current cursor position, UP ARROW places the cursor at the last character (EOL) in the line above.

EDT.2.2 Keyboard Keys

You can use the following keyboard keys to supplement the keypad:

* F12 (the BACKSPACE key on VT100 series terminals)—Moves the cursor to the beginning of the current line. If the cursor is already at the beginning of a line, F12 (BACKSPACE) moves it to the beginning of the previous line.

* The Delete (<X]) key (DELETE on VT100 series terminals)—Deletes the character to the left of the cursor.

* F13 (the LINEFEED key on VT100 series terminals)—Deletes the text from the cursor back to the beginning of the word. If the cursor is on the first character in a word, F13 (LINEFEED) deletes the previous word.

* RETURN—Inserts a line terminator at the current cursor position.

* TAB—Moves the text to the next tab stop.

EDT.2.3 VT200 Supplemental Editing Keypad

The VT200 series terminal has a supplemental editing keypad, which is illustrated in the figure below:

Help	(Enter) Do

Find	(Paste) Insert Here	(Cut) Re- move
Select	Prev Screen	Next Screen

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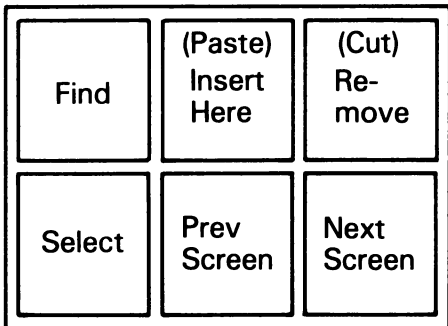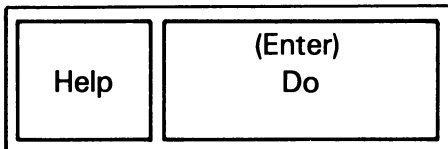
The VT200 supplemental editing keypad keys perform the same functions as some of the EDT keypad keys, and are described below:

- DO—Enters the response to a "Search for:" or "Command:" prompt or completes the processing of line-editing commands. (Performs the same function as the ENTER keypad key.)

- FIND—Elicits the "Search for:" prompt as the first step in the FIND operation. Type the search string after the prompt and then press either the DO or ENTER key to process the search. (Performs the same function as the FIND keypad key.)

- HELP—Displays a diagram of EDT keypad keys. When one of the keys is pressed after HELP, information about that key is displayed. This function has no effect on the text you are editing. (Performs the same function as the HELP keypad key.)

- INSERT HERE—Inserts the contents of the PASTE buffer at the cursor's current position. (Performs the same function as the PASTE keypad key.)

- NEXT SCREEN—Moves the cursor forward 16 lines. (Performs the same function as the ADVANCE SECT keypad sequence.)

- PREV SCREEN—Moves the cursor backward 16 lines. (Performs the same function as the BACKUP SECT keypad sequence.)

- REMOVE—Deletes the select range (see SELECT) from the current buffer and places the text in the PASTE buffer. (Performs the same function as the CUT keypad key.)

- SELECT—Marks the current cursor position as the beginning of the select range. The select range consists of all the text between this marked position and the cursor's subsequent position at the end of the text being selected. (Performs the same function as the SELECT keypad key.)

EDT.2.4 Control Keys

You can use the following control keys in EDT keypad editing.

CTRL/A

Establishes the current cursor position and resets the indentation level count to be the quotient of the cursor position divided by the SET TAB value. The cursor position must be a multiple of the SET TAB value (a valid tab stop); otherwise EDT returns the message "Could not align tabs with cursor" and no action is taken. (GOLD + A also performs this function.)

CTRL/C

Aborts the currently executing EDT command.

CTRL/D

Decreases the TAB indentation level count one tab setting. (GOLD + D also performs this function.)

CTRL/E

Increments the TAB indentation level count by one. (GOLD + E also performs this function.)

CTRL/H

Like BACKSPACE, moves the cursor to the beginning of the line (or to the beginning of the preceding line if the cursor is already at the beginning of the line).

CTRL/I

Like TAB, moves a line of text to the next tab stop.

CTRL/J

Like LINEFEED, deletes backward from the cursor to the beginning of a word. If the cursor is on the first character in a word, CTRL/J deletes the previous word.

CTRL/K

Redefines keypad, control keypad, and gold keypad keys for the current terminal session. When you press CTRL/K, the message "Press the key you wish to define" appears. After you have responded, the message "Now enter the definition terminated by ENTER" appears. Enter the key definition, either by pressing one or more EDT keypad keys or by typing EDT nokeypad editing commands (or a combination of pressing keypad keys and typing nokeypad commands). The guidelines for valid definitions are identical to the DEFINE KEY command, except that you do not need to include the delimiting quotation marks. Terminate the definition by typing a period and pressing the ENTER key.

The following key definition redefines CHAR to transpose the two characters to the left of the cursor. It moves the cursor two characters to the left (← ←); deletes the character at the new cursor position (DEL C); moves the cursor one character to the right (→); restores the deleted character (GOLD and UND C); and then moves the cursor back to its previous position (→).

CTRL/K

`Press the key you wish to define:`

CHAR

`Now enter the definition terminated by ENTER`

LEFT ARROW

LEFT ARROW

DEL C
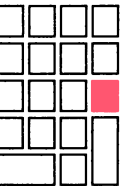
RIGHT ARROW

UND C
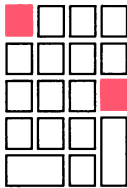
RIGHT ARROW

To complete the key definition, type a period on the main keyboard and then press the ENTER key.

CTRL/L

Inserts a form feed character.

CTRL/M

Like RETURN, inserts a carriage return (<CR>) into your text.

CTRL/R

Clears and refreshes the screen, removing extraneous characters and restoring the previous display.

CTRL/T

If you have previously specified a SET TAB value, CTRL/T indents whole lines in the select range one tab stop to the right. (GOLD + T also performs this function.)

NOTE: To allow CTRL/T to work correctly in EDT, you must first disable the DCL function of CTRL/T. By default, DCL displays process statistics when you enter CTRL/T. To disable the DCL function, enter the DCL command SET NOCONTROL=T at the dollar-sign prompt.

CTRL/U

Deletes from the cursor to the beginning of the line. If the cursor is positioned at the beginning of the line, CTRL/U deletes the previous line.

CTRL/W

Clears and refreshes the screen, removing extraneous characters and restoring the previous display.

CTRL/Z

Changes editing mode from keypad editing to line editing. (GOLD + Z also performs this function.)

EDT.3   Line Editing

Some line-editing commands in EDT require range specifications.

EDT.3.1 Range Specifications

You use the following range specifications as parameters for EDT line-editing commands.

Range	Description
.	The current line. (Example: *DELETE .)
line number	The line indicated by number. Only decimal integers are legal. (Example: *DELETE 22)
'string' or "string"	The next line(s) containing the specified string. The default command, when no other command is specified, is TYPE. (Example: *DELETE 'EDT')
buffer-name	The specified buffer (that may contain a line range). Buffer names must begin with a letter or underscore but may contain numerics. (Example: *DELETE =BUFA 22:33)
BEGIN	The first line in the current buffer. (Example: *DELETE BEGIN)
END	The end of the buffer (marked by the [EOB] symbol by default). (Example: *COPY BEGIN TO END)
LAST	The last line in the previous buffer where the cursor was positioned. The cursor moves to the beginning of this line. (Example: *COPY BEGIN TO LAST)
BEFORE	All lines in the buffer that precede the current line. (Example: *DELETE BEFORE)
REST	The current line plus all lines after it in the buffer. (Example: *DELETE REST)
WHOLE	The entire buffer. (Example: *DELETE WHOLE)
ALL 'string'	All lines containing the specified string. (Example: *DELETE ALL 'EDT')
[range] AND [range]	The specified single lines. (Example: *DELETE 22 AND 33)
[range] , [range]	The specified single lines. (Example: *DELETE 22,33,55)
[range] THRU [range]	The set of lines between the specified ranges. The default for either range is the current line. (Example: *DELETE 22 THRU 33)
[range] : [range]	The set of lines between the specified ranges. The default for either range is the current line. (Example: *DELETE 22:33)
[range] FOR n	Range and the next n lines (where range is a single line that defaults to the current line). (Example: *DELETE 22 FOR 10)
[range] # n	Range and the next n lines (where range is a single line that defaults to the current line). (Example: *DELETE 22 # 10)
[range] + n	The line that is n lines after the range. Range defaults to the current line and n to 1. (Example: *DELETE BEGIN + 3)
[range] - n	The line that is n lines before the range. Range defaults to the current line and n to 1. (Example: *DELETE . - 10)

EDT.3.2 Line-Editing Commands

Enter EDT line-editing commands after the asterisk prompt. (To obtain the asterisk prompt from EDT keypad-editing mode, enter CTRL/Z.)

CHANGE [range]

Changes EDT editing mode from line to either keypad or nokeypad editing (depending on whether you have used the SET KEYPAD or SET NOKEYPAD command). The default is keypad editing. The range specifies the cursor position when you enter keypad or nokeypad editing mode; the range defaults to the cursor's current position.

PARAMETERS

range
> The line at which the cursor is positioned when you enter EDT keypad or nokeypad editing mode. If no range is specified, the range defaults to the cursor's current position.

EXAMPLE

* CHANGE END

Changes from EDT line editing to keypad editing, positioning the cursor at the end of the buffer.

CLEAR buffer-name

Deletes the contents of and removes the specified buffer.

PARAMETERS

buffer-name
> The name of the buffer to be cleared. The buffer name must be specified, even if it is the current buffer. The contents of the MAIN and PASTE buffers can be deleted, but the buffers themselves cannot be removed.

EXAMPLE

* CLEAR PASTE

Deletes the contents of the PASTE buffer.

COPY [range-1] TO [range-2]

Inserts the text specified by *range-1* immediately before the line specified by *range-2*. The original text remains intact and the cursor is positioned at the end of the inserted text. You can specify the buffer that contains the range by preceding the range with =buffer name.

PARAMETERS

range-1

The line or lines and/or buffer name containing the text to be copied. If *range-1* is omitted, EDT copies the current line. If a buffer name is specified with no range, the entire contents of the buffer are copied.

range-2

The line and/or buffer name to be preceded by the copied text. If *range-2* is omitted, EDT inserts a copy of the text preceding the current line. If a buffer name is specified with no range, the text is inserted at the top of the specified buffer.

QUALIFIERS

/DUPLICATE:n

Performs the COPY command n times.

/QUERY

Prompts for verification of each line as it is copied. Possible responses are:

Y (yes)	Copy this text
N (no)	Do not copy this line
A (all)	Complete the remaining copy operations without further query
Q (quit)	Do not attempt any further copy operations

EXAMPLES

* :COPY 5:10 TO END

Duplicates lines 5 through 10 at the end of the current buffer.

* :COPY 25:30 TO END/QUERY/DUPLICATE:3

Duplicates lines 25 through 30 at the end of the current buffer, prompting for verification of each line before it is copied. The confirmed lines are copied in their original order three times.

* .COPY =MAIN TO =BUF1/QUERY

Duplicates the contents of the MAIN buffer (MAIN) in the buffer named BUF1, prompting for verification before each line is copied.

DEFINE KEY parameter AS 'string'

Defines or redefines the function of keys used in EDT keypad editing by assigning
EDT nokeypad-editing commands to keypad, control, or function keys. (See
Section EDT.4.2 for a list of these commands.) You must use EDT's numerical
designations for the keypad and function keys you define. The figures below
illustrate the key numbers for both the VT200 and VT100 series terminals. (To
designate VT200 function keys, you must precede the key number with the word
FUNCTION.)

ARROW
KEYS {

| 12 | 13 | 15 | 14 |

EDT
KEYPAD {

20	10	11	17
7	8	9	18
4	5	6	19
1	2	3	21
0	16		

ZK-1776-84
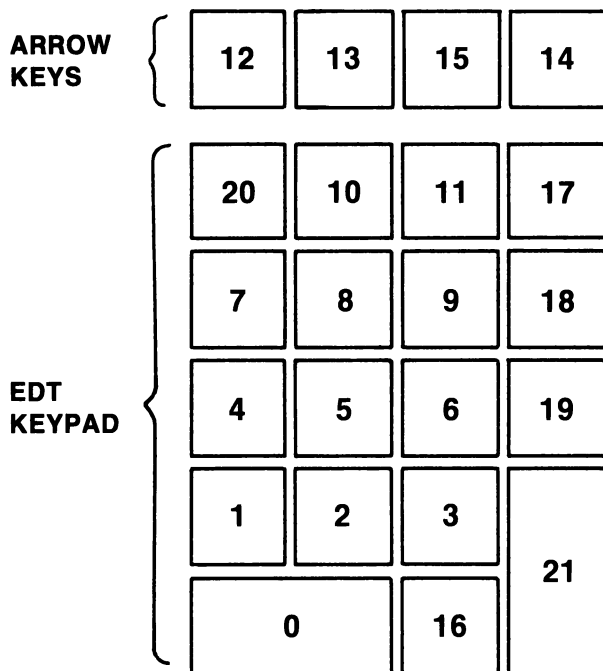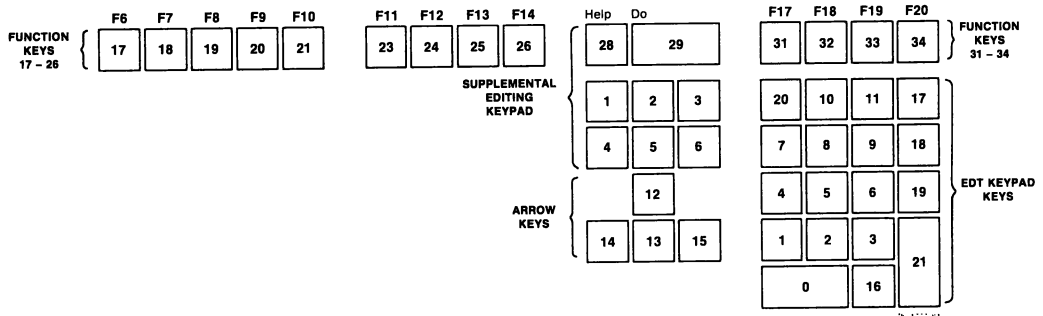
Parameter consists of the name of the key to be defined, and *string* consists of EDT nokeypad-editing commands enclosed in quotation marks. (Valid types of key sequences are described below.) Use a period (.) at the end of the key definition to have EDT execute the command immediately.

To define a key to invoke a prompt, include a question mark (?), in the string followed by the prompt string in quotation marks. Do not use the same type of quotation marks to enclose the prompt string as you use to surround the key definition. You can enter up to 64 characters in response to the prompt, terminated by the ENTER key. To allow the RETURN key to also be used to terminate a response, insert an asterisk (*) immediately after the question-mark prompt in the key definition.

PARAMETERS

[GOLD]number

> Specifies the number of the keypad key to be defined. The optional GOLD specifies the alternate function of the key. (See the preceding figure for an illustration of the correct EDT key numbers.)

CTRL/letter

> Specifies the control/key sequence to be defined. *CONTROL* can be specified either with just a keyboard character or with *GOLD* and a keyboard character (where the correct sequence is: GOLD CONTROL letter). The following control keys are used by the operating system to perform special functions; therefore, you should not redefine them:
>
>> CTRL/C
>> CTRL/O
>> CTRL/P
>> CTRL/Q
>> CTRL/R
>> CTRL/S
>> CTRL/T

CTRL/U
CTRL/W
CTRL/X
CTRL/Y
CTRL/Z

FUNCTION number

Definable function keys on the VT200 series terminal include keys F17 through F20 on the function key row across the top of the keyboard. To define a function key, type the word *FUNCTION* followed by the function key number.

GOLD character

Specifies the keyboard key to be assigned a new editing function. The keys 0 through 9, !, %, ', –, and " cannot be redefined. To specify the DELETE key, type the reserved word *DELETE* to define that key.

'string'

A string can contain multiple nokeypad-editing commands (see Section EDT.4.2).

EXAMPLES

* DEFINE KEY GOLD 1 AS 'CHGCW.'
Redefines the function of keypad GOLD + 1 to change (CHGC) a word (W) from uppercase to lowercase or from lowercase to uppercase.

* DEFINE KEY GOLD CONTROL A AS 'BACK C DC ADV C UNDC.'
Defines the function of GOLD CTRL/A to transpose the two characters to the left of the cursor by setting the cursor direction backward (BACK), moving the cursor one character (C), deleting one character (DC), setting the cursor in the forward direction (ADV), moving the cursor one character (C), and restoring the first character deleted (UNDC).

* DEFINE KEY FUNCTION 19 AS "EXT S/?'REPLACE: '/?' WITH: '/WHOLE."
Redefines the function of key F19 to substitute one string for another throughout a buffer by extending the line-editing command (SUBSTITUTE) to EDT keypad editing (EXT) and substituting the specified text (entered after the prompt REPLACE:) with the specified text (entered after the prompt WITH:) throughout the buffer (WHOLE).

DEFINE MACRO macro-name

Defines the macro name as an EDT line-editing command. To use the new
command, create a buffer with the same name as the macro and insert the sequence
of EDT commands (the macro) that you want to execute whenever you type the
macro name after the asterisk prompt. A macro can be saved in an external file and
copied into a buffer during your editing session with the INCLUDE command. If
you redefine an ED line-editing command, the original command is not available as
long as the macro definition is in effect. To delete a macro, use the macro name as
the buffer specifier with the CLEAR command. You can nest macros to almost any
depth.

PARAMETERS

macro-name

> The name of the EDT macro containing line-editing commands. The macro name
> must be the same as the name of the buffer containing the EDT macro.

EXAMPLE

```
*DEFINE MACRO HEADING
*FIND=HEADING
 INSERT;NAME:
 INSERT;DEPT:
 INSERT;DATE:
 INSERT;SUBJ:
*FIND=MAIN .
```

Defines a macro named HEADING to insert a heading format whenever you enter
HEADING as an EDT line-editing command. To place the preceding macro in an
EDT startup command file, include the following commands:

```
DEFINE MACRO HEADING
FIND=HEADING
INSERT;INSERT;NAME:
INSERT;INSERT;DEPT:
INSERT;INSERT;DATE:
INSERT;INSERT;SUBJ:
FIND=MAIN.
```

The DEFINE MACRO command is necessary to create the macro definition; the FIND
commands are necessary to enter and exit from the buffer containing the macro; and
the INSERT command is necessary to enter each command in the macro sequence
(hence, the double INSERT commands).

DELETE [range]

Deletes the lines specified by the range.

PARAMETERS

range

> The line or lines specified for deletion. The range defaults to the current line.

QUALIFIERS

/QUERY

> Prompts for verification before each line is deleted. Possible responses are:

Y (yes)	Delete this line
N (no)	Do not delete this line
A (all)	Complete the remaining deletions without further query
Q (quit)	Do not make any further deletions

EXAMPLE

* DELETE 12:56/QUERY

Deletes lines 12 through 56, prompting for verification.

EXIT [file-spec]

Ends an editing session, writing the contents of the MAIN buffer to an output file.

PARAMETERS

[file-spec]

> Defines the file specification of the output file. The default is the highest version of the input file named in the EDIT command line (or the output file named with the DCL command EDIT/OUTPUT=file-spec). If you enter EDT with the DCL command EDIT/READ_ONLY, the EXIT command must include an output file specification.

QUALIFIERS

/SEQUENCE[:initial[:increment]]

> Assigns sequence numbers, which become part of the file. The initial qualifier defines the starting line number. The increment qualifier defines the increment between sequence numbers. (This qualifier should not be used to number programs since references to line numbers within programs will not be changed.)

/SAVE

> Saves the journal file, which has the file type JOU and the file name of the input file specified in the EDIT command line.

EXAMPLES

* EXIT

Saves the contents of the MAIN buffer in an output file and returns you to DCL command level.

* EXIT NAME.NEW/SEQUENCE:5:5/SAVE

Saves the contents of the MAIN buffer in the output file NAME.NEW. The /SEQUENCE qualifier assigns sequence numbers that become part of the file: the sequence number of the first line in the file is 5, and the following lines are incremented by five. The /SAVE qualifier saves the journal file.

FILL [range]

Reorganizes the text in a select range of lines so that the maximum number of whole words are fitted within the current line width. The default line width for EDT is 80 characters. Use the line-editing command SET WRAP to change the line width for the FILL operation.

PARAMETERS

range

A line or lines and/or buffer name to be filled. If you do not specify a range or buffer name with the FILL command, EDT attempts to fill the text in the active select range. If no select range is active EDT displays an error message.

EXAMPLE

* FILL 10 THRU 15

Fills lines 10 through 15 to the value of SET WRAP or SET SCREEN.

FIND [range]

Places the cursor at the first line of the specified range in the specified or current buffer, but does not display the line at the bottom of your screen. In line mode, once the specified line has been found, EDT returns the line-mode asterisk (*) prompt. (Use the TYPE command to display the line.) The FIND command searches either forward or backward for a string in the current buffer. To search backward toward the beginning of the buffer, precede the search string (range) with a minus sign (−). If you specify a buffer that does not exist, EDT creates it. To move the cursor to its previous position in a buffer, include a period (.) immediately after the buffer name. (The FIND command is useful for moving from one buffer to another.)

PARAMETERS

range

A line and/or buffer name. When a buffer name is specified without a range, EDT positions the cursor at the first character of the buffer. When both a buffer name and range are specified, EDT positions the cursor at the line specified by *range* in the specified buffer. Use a space to separate the buffer name from the range specifier. (If you use a string as a range specifier, EDT performs the search using the defaults: GENERAL, BEGIN, and UNBOUNDED.)

EXAMPLES

* FIND =BUFA 45

Positions the cursor at line 45 in the buffer named BUF1.

* FIND=MAIN.

Returns the cursor to its previous position in the MAIN buffer.

HELP [topic [subtopic]]

Displays a list of EDT topics on which you can get information.

PARAMETERS

topic

The topic for which you wish to display information.

subtopic

The subtopic for which you wish to display information.

EXAMPLE

* HELP FILL

Displays information about the EDT command FILL.

INCLUDE file-spec [range]

Copies the specified file to a text buffer, placing it immediately before the range and positioning the cursor immediately following the inserted text.

PARAMETERS

file-spec

The name of the file you wish to include in the specified buffer.

range

A line number or buffer name. If no buffer is specified, the file is added to the current buffer. The range defaults to the current line in the specified buffer.

EXAMPLES

*INCLUDE CHAP1.TXT
Copies the contents of the file named CHAP1.TXT into the current buffer just before the current line.

*INCLUDE CHAP1.TXT =BUF1 30
Copies the contents of the file named CHAP1.TXT into the buffer named BUF1, beginning before line 30.

INSERT [range]

Inserts text before the specified single line range. To insert a full line or more of text, press RETURN after the optional range specifier, followed by lines of text terminated with a CTRL/Z. To insert one line of text, place a semicolon after the range; any text typed after the semicolon is inserted before the range when you press RETURN. (Use only the semicolon insertion in startup command procedures.) If lines are inserted between two lines whose line numbers differ by one or less, EDT will number the new lines using decimal fractions. (In extreme cases EDT may be forced to renumber lines after the last line you insert.)

PARAMETERS

range
> The line and/or buffer before which the text is to be inserted. When a buffer name is specified, EDT moves to that buffer and remains there after the insertion has been made. The buffer name defaults to the current buffer and the range defaults to the current line.

EXAMPLES

*INSERT 25
Inserts lines of text before line 25.

*INSERT =BUF1 30;ENTER YOUR BADGE NUMBER
Inserts "ENTER YOUR BADGE NUMBER" before line 30 in the buffer named BUF1.

MOVE [range-1] TO [range-2]

Deletes the lines specified in *range-1* and inserts them before the line specified in *range-2* (which then becomes the current line). (COPY inserts the text in both places.)

PARAMETERS

range-1

The line or lines and/or buffer name containing the text to be moved. If *range-1* is omitted, EDT moves the current line. If a buffer name is specified with no range, the entire contents of the buffer are moved.

range-2

The line and/or buffer name to be preceded by the moved text. If *range-2* is omitted, EDT inserts the text just before the current line. If a buffer name is specified with no range, the text is inserted at the top of the specified buffer.

QUALIFIERS

/QUERY

Prompts for verification of each line before it is moved. Possible responses are:

Y (yes)	Move this text
N (no)	Do not move this text
A (all)	Complete the remaining move operations without further query
Q (quit)	Do not move any more lines of text

EXAMPLE

* MOVE TO 65

Deletes the current line and inserts it before line 65.

PRINT file-spec [range]

Copies the specified range to a printable file; that is, PRINT inserts a form feed and two blank lines every 55 lines, and line numbers become part of the new file's text. The file is submitted to SYS$PRINT and is printed.

PARAMETERS

file-spec

The specification of the file to be printed.

range

The line or lines and/or buffer name containing the text to be printed. The range defaults to the entire current buffer.

EXAMPLE

* PRINT NEWFILE.DAT 22:30

Copies lines 22 through 30 to the printable file named NEWFILE.DAT.

QUIT

Terminates EDT without saving the edits made during the session.

QUALIFIERS

/SAVE

> Saves the journal file, which has the file type JOU and the file name of the input file (unless you used /JOURNAL in the EDIT command line).

REPLACE [range]

Deletes the specified range and inserts new text in place of the deleted range. EDT renumbers the inserted text, using decimal line numbers when the new text is longer than the old. (When the new text consists of fewer lines than the old, the extra line numbers are not used.)

PARAMETERS

range

> The line or lines containing the text to be replaced. The range defaults to the current line. To insert a full line or more, press RETURN and type the text, terminating it with CTRL/Z. To insert one line, enter a semicolon after the range; all text typed after the semicolon is inserted in place of the range when you press RETURN.

EXAMPLE

* REPLACE 3; I regret to inform you that `RETURN`
Replaces line 3 with the string "I regret to inform you that"

RESEQUENCE [range]

Assigns new EDT line numbers to the specified range.

PARAMETERS

range

> The consecutive lines or buffer to be renumbered. The range defaults to the entire current buffer.

QUALIFIERS

[/SEQUENCE[:initial[:increment]]]

>   Assigns line numbers according to the specified starting number *initial* and
>   increment value *increment*. (The defaults for *initial* and *increment* are 1.)

EXAMPLE

* RESEQUENCE =BUFA

Resequences the line numbers of the lines in the buffer named BUFA.

SET [NO]AUTOREPEAT

Enables EDT to prevent keypad keys (including arrow keys) from repeating faster
than EDT can update the screen. SET AUTOREPEAT is the default.

EXAMPLE

* SET NOAUTOREPEAT

Prevents keypad keys from repeating more rapidly than EDT can update the screen.

SET CASE [[none][upper][lower]]

Distinguishes uppercase and lowercase letters when you are reading text at a
single-case terminal. No permanent marks are placed in the text itself. The default is
SET CASE NONE.

PARAMETERS

none

>   Causes no provision to be made for artificially distinguishing between uppercase
>   and lowercase letters.

upper

>   Causes each uppercase letter in the text to be preceded by an apostrophe (').

lower

>   Causes each lowercase letter in the text to be preceded by an apostrophe (').

EXAMPLE

* SET CASE UPPER

Assuming you are at a single-case terminal, flags all letters that are uppercase in the
original text.

SET COMMAND file-spec

Specifies an additional EDT startup command file (besides the default EDT startup command file, EDTINI.EDT) when you invoke EDT. The default file type is EDT. If the specified file does not exist, EDT ignores the SET COMMAND and continues to process any remaining commands in the current startup command file. (To bypass the default startup command file, specify a different startup command file in your EDT startup command file.)

PARAMETERS

file-spec

The specification of the startup command file you wish to process.

EXAMPLE

* `SET COMMAND USEREDT.EDT`
As a line in an EDT startup command file, transfers control to another EDT startup command file, USEREDT.EDT.

SET CURSOR top:bottom

Determines at which lines scrolling begins: top is the upper limit and bottom is the lower. EDT scrolls the display when the cursor reaches either limit.

PARAMETERS

top

The number of lines from the top of the screen to the cursor. The allowable limits for top are 0 through 21; the default is top=7.

bottom

The number of lines from the cursor to the bottom of the screen. The allowable limits for bottom are 0 through 21; the default is bottom=14.

EXAMPLE

* `SET CURSOR 0:5`
Sets the scrolling region to the first 6 lines on the screen. (If you try to move the cursor beyond either limit, EDT scrolls the display.)

SET ENTITY entity 'boundary'

Defines the boundaries for an entity.

PARAMETERS

boundary

The delimiter values for WORD, SENTENCE, PARAGRAPH, and PAGE. The default boundaries are as follows:

WORD	SENTENCE	PARAGRAPH	PAGE
\<LF\>	.	\<CR\> \<CR\>	\<FF\>
\<VT\>	?		
\<FF\>	!		
\<CR\>			

entity

The WORD, SENTENCE, PARAGRAPH, or PAGE for which you wish to set boundaries.

EXAMPLE

* SET ENTITY WORD '\<LF\>\<VT\>\<FF\>\<CR\>. ? ! ; : '

Defines the following as delimiters for the WORD entity: line feeds, vertical tabs, form feeds, carriage returns, periods, question marks, exclamation points, semicolons, colons, and individual spaces. All commands using the WORD entity (such as DEL W) work on a unit of characters up to these delimiters.

SET [NO]FNF

Suppresses the "Input file does not exist" message that appears by default when you use EDT to create a new file.

SET HELP file-spec

Enables you to access HELP files other than the default EDT help files (found in SYS$HELP:EDTHELP.HLB).

PARAMETERS

file-spec

The specification of the HELP file you wish to access.

EXAMPLE
* SET HELP DISK1:USEREDTHELP.HLB
Enables you to access the help file USEREDTHELP.HLB on device DISK1.

SET [NO]KEYPAD

Sets either EDT keypad or nokeypad editing as the default editing mode. The default setting is KEYPAD.

EXAMPLE
* SET NOKEYPAD
Nokeypad becomes the editing mode when you give the CHANGE command.

SET LINES number

Sets the number of lines that EDT displays on your screen while keypad editing. (This command is useful in reducing the time required to refresh the screen image when editing at low baud rates.)

PARAMETERS

number
    The number of lines can be set from 1 to 22; the default setting is 22 lines.

EXAMPLE
* SET LINES 10
Causes EDT to display 10 lines of text on the screen while keypad editing.

SET MODE CHANGE or LINE

Placed in an EDTINI.EDT startup command file, SET MODE specifies either keypad (CHANGE) or line (LINE) mode as the initial editing mode. The SET MODE command should be used only in an EDT startup command file. Change mode is set by default.

EXAMPLE
SET MODE CHANGE
Causes EDT to enter change mode for keypad editing after the startup command file has executed.

SET [NO]NUMBERS

Determines whether or not EDT displays line numbers in line-editing mode. The default setting is NUMBERS.

EXAMPLE

* SET NONUMBERS

Suppresses the line numbers normally displayed in line-editing mode.

SET [NO]QUIET

Suppresses the ringing of the bell when a message occurs in keypad-editing mode. The default setting is NOQUIET.

EXAMPLE

* SET QUIET

Causes EDT to suppress the bell when a message occurs in keypad-editing mode.

SET [NO]REPEAT

Controls the use of the GOLD repeat feature, which allows you to repeat EDT keypad functions by pressing GOLD and keyboard digits; and the SPECINS keypad function, which enables you to insert any character from the DEC Multinational Character Set into your text by using its decimal equivalent value. SET REPEAT is the default.

EXAMPLE

* SET NOREPEAT

Disallows the use of the GOLD repeat feature and the SPECINS keypad function.

SET SCREEN width

Sets the maximum length of line that EDT displays.

PARAMETERS

width

> The length of the line to be displayed; the default line width set by VAX/VMS is 80 characters. In EDT keypad editing, when you insert more characters than the length set for character editing, EDT displays a solid diamond at the line's end. In line-editing, EDT displays the overflow characters on succeeding lines.

EXAMPLE

* SET SCREEN 132

Sets the maximum length of line displayed to 132.

SET SEARCH parameter

Controls string searches with the FIND command.

PARAMETERS

parameter

The characteristics that determine how a search is conducted. Possible
parameters are:

GENERAL (default) or EXACT	Determines whether or not EDT disregards the case of alphabetic characters
BEGIN (default) or END	Determines whether EDT positions the cursor at the beginning or end of the found string
UNBOUNDED (default) or BOUNDED	Determines whether EDT searches the entire buffer or stops the search when it reaches a page boundary marker

EXAMPLE

* SET SEARCH EXACT
* SET SEARCH BOUNDED
* SET SEARCH END
* TYPE 'Mark'

Causes EDT to search between the current cursor position and the next page
delimiter for the first occurrence of the exact string "Mark" (that is, the first character
of the string must be in uppercase and the rest in lowercase). When the string is
found, the cursor will be positioned after the string.

SET [NO]SUMMARY

Controls whether or not EDT prints a summary (the complete file specification and
the number of lines in the file) when you exit from EDT and when you issue the
WRITE command. The default is SET SUMMARY.

EXAMPLE

* SET NOSUMMARY

Suppresses the summary information generated when you exit from EDT.

SET TAB n or SET NOTAB

Controls the number of columns to which the first tab stop is set. Only the initial tab stop is affected; the remaining tab stops, multiples of 8, are unchanged. SET NOTAB, which is the default, sets the first tab stop at 8 columns from the left margin. SET TAB n sets the first tab stop at n columns from the left margin.

The numbers below indicate column numbers.

EXAMPLE

123456789

* SET TAB 5
* CHANGE

 It is with great pleasure that I announce the winner RETURN

 <TAB>

       of the Steeple Creek sales award: RETURN

 <TAB><TAB>
        Roberta Brown of Lancaster County)

By default, the first tab stop is set to 8 columns. The SET TAB 5 command sets the first tab stop to 5 columns; the second tab stop is still set to 8 columns—the next multiple of 8 after the SET TAB value. (The third tab stop is at 16 columns, the fourth at 24, and so on in multiples of 8.)

SET TERMINAL

Resets the following terminal characteristics:

    Terminal type (HCPY, VT100)
    Scrolling regions (SCROLL, NOSCROLL)
    Additional character display (EIGHTBIT,NOEIGHTBIT)
    Enhanced screen editing (EDIT,NOEDIT)

Do not specify SET TERMINAL from keypad-editing mode.

SET TEXT

Specifies a string to be displayed at the end of a page (PAGE) or buffer (END) by controlling the display of the <FF> character. SET TEXT PAGE displays your string for every form feed in the buffer; SET TEXT END displays your string at the end of the buffer. Specify the string in quotation marks. The default strings displayed are: PAGE= <FF> and END=[EOB].

EXAMPLES

* SET TEXT PAGE "<PAGE BREAK>"

Displays the string <PAGE BREAK> for each form-feed character.

* SET TEXT END "[END OF BUFFER ADD]"

Displays the string [END OF BUFFER ADD] at the end of the current buffer (replacing the [EOB] symbol).

SET [NO]TRUNCATE

Determines whether the display of lines that are longer than the SET SCREEN value will be truncated or wrapped to the next line. The default setting is TRUNCATE.

EXAMPLE

* SET NOTRUNCATE

Causes the display of lines that are longer than the screen width to be wrapped to the next line.

SET [NO]VERIFY

Displays the commands in startup command files and macros as they are executed. The default setting is NOVERIFY.

EXAMPLE

* SET VERIFY

Causes EDT to display the commands in startup command files and macros as they are executed.

SET WORD [NO]DELIMITER

Controls whether or not EDT treats word boundaries (defined with SET ENTITY) as words. By default, EDT considers all word boundaries except spaces to be words when it is deleting words or moving the cursor by word. Specify SET WORD NODELIMITER to change the default.

EXAMPLE

* SET WORD NODELIMITER

Causes EDT to use word boundaries to determine where words begin and end but
not to treat these delimiters as separate words.

SET WRAP n or NOWRAP

In keypad editing, specifies a right margin where, when the cursor position exceeds
the value of n, EDT wraps the full word to the next line. This command also sets the
right margin for the FILL command, which fills each line in the select range to the
word delimiter nearest the limit n. The default setting is NOWRAP.

EXAMPLE

* SET WRAP 60

Causes EDT to wrap words exceeding 60 characters in length to the next line and
sets the right margin to 60 for the FILL command.

SHOW AUTOREPEAT

Displays the current setting of the SET AUTOREPEAT command.

EXAMPLE

* SHOW AUTOREPEAT
noautorepeat

Indicates that the SET NOAUTOREPEAT command is in effect.

SHOW BUFFER

Lists the buffers in use during the current editing session and the number of lines of
text in each buffer. The MAIN and PASTE buffers are always displayed in response
to this command, even when empty. The current buffer is marked by an equal sign
before the buffer's name. An asterisk following the MAIN buffer line count indicates
that the input file has not yet been read to the end of the file, and therefore the line
count is not accurate.

EXAMPLE

* SHOW BUFFER
  MAIN   396 LINES
=BUF1   10 LINES
  PASTE   4 LINES

Indicates that the buffers MAIN, BUF1, and PASTE are being used in the current
editing session, and that BUF1 is the current buffer.

SHOW CASE

Indicates whether uppercase or lowercase, or neither, has been established by the SET CASE command.

EXAMPLE

* SHOW CASE
None
Indicates that the SET CASE NONE command is in effect.

SHOW COMMAND

Displays the name of the current startup command file when SHOW COMMAND is included in a startup command file.

EXAMPLE

* SHOW COMMAND

*
Indicates that there is no additional startup command file besides the default EDTINI.EDT.

SHOW CURSOR

Shows the cursor's current scrolling range. EDT responds with "top:bottom," which are integers indicating the top and bottom lines of the scrolling range. The SET CURSOR command sets the scrolling range.

EXAMPLE

* SHOW CURSOR
5:5
Indicates that EDT will scroll at the upper and lower limits of 5.

SHOW ENTITY WORD or SENTENCE or PAGE or PARAGRAPH

Shows the current boundaries for the specified entity. The SET ENTITY command defines these entities.

EXAMPLE

* SHOW ENTITY PAGE
<FF>
Indicates that the current boundary for PAGE is a form feed (<FF>).

SHOW FILES

Displays the input file and output file for the current EDT session.

EXAMPLE
```
* SHOW FILES
Input  File: TASKS.DAT
Output File: TASKS.DAT
```
Indicates that the name of the output file will be the same as the input file with the version number incremented by one. Use the /OUTPUT=file-spec qualifier of the DCL command EDIT to set the name of the output file.

SHOW FNF

Displays the current setting of the SET FNF command.

EXAMPLE
```
* SHOW FNF
fnf
```
Indicates that the SET FNF command is in effect.

SHOW HELP

Displays the current EDT HELP file. The default is SYS$HELP:EDTHELP:HLB.

EXAMPLE
```
* SHOW HELP
SYS$HELP:EDTHELP:HLB
```
Indicates that the current EDT HELP file is set to the default.

SHOW KEY

Displays the definition of the specified keypad or keyboard key. To refer to a GOLD or control key sequence, type GOLD then the key or CONTROL plus the key. (The DEFINE KEY command and CTRL/K define keys.)

EXAMPLE
```
* SHOW KEY GOLD P
TOP
```
Shows the current definition for the GOLD + P key sequence set with the SET KEY command.

SHOW KEYPAD

Displays the current keypad-editing mode: KEYPAD or NOKEYPAD.

EXAMPLE

```
* SHOW KEYPAD
keypad
```
Indicates that the current keypad-editing mode is keypad.

SHOW LINES

Shows the number of lines displayed on the screen at one time (set with SET LINES).

EXAMPLE

```
* SHOW LINES
22
```
Indicates that the current setting of the SET LINES command is 22.

SHOW MODE

Displays the last SET MODE command setting (which is set in an EDT startup command file). (Does not display modes set by the CHANGE, CTRL/Z, or EX commands.)

EXAMPLE

```
* SHOW MODE
Change
```
Indicates that the last command mode setting was SET MODE CHANGE.

SHOW NUMBERS

Indicates whether or not line numbers are currently displayed (set with SET NUMBERS).

EXAMPLE

```
* SHOW NUMBERS
nonumbers
```
Indicates that the current setting is SET NONUMBERS.

SHOW QUIET

Displays the current setting of the SET QUIET command.

EXAMPLE

```
* SHOW QUIET
noquiet
```
Indicates that the current setting is SET NOQUIET.

SHOW REPEAT

Displays whether or not you can use the GOLD repeat feature and the SPECINS function in keypad-editing mode (set with the SET REPEAT command).

EXAMPLE

```
* SHOW REPEAT
repeat
```
Indicates that the current setting is SET REPEAT.

SHOW SCREEN

Shows the current setting for the maximum length of a line EDT displays. (The SET SCREEN command defines line length.)

EXAMPLE

```
* SHOW SCREEN
80
```
Indicates that the maximum length of line displayed is 80 characters.

SHOW SEARCH

Shows the current search parameters (set with the SET SEARCH command).

EXAMPLE

```
* SHOW SEARCH
general begin unbounded
```
Indicates that the current settings are SET SEARCH GENERAL, SET SEARCH BEGIN, and SET SEARCH UNBOUNDED.

SHOW SUMMARY

Displays the current setting of the SET SUMMARY command.

EXAMPLE

```
* SHOW SUMMARY
summary
```
Indicates that the current setting is SET SUMMARY.

SHOW TAB

Displays the current setting of SET TAB and the current tab indentation level count.

EXAMPLE

```
* SHOW TAB
tab size 5; tab level 1
```
Indicates that the current tab setting is 5 and the tab indentation level count is 1.

SHOW TERMINAL

Displays the current terminal settings.

EXAMPLE

```
* SHOW TERMINAL
VT100, scroll, noeightbit, edit
```
Displays the current terminal characteristics.

SHOW TEXT PAGE or END

Indicates what text EDT is currently displaying for the <FF> and [EOB] marks (set with SET TEXT).

EXAMPLE

```
* SHOW TEXT END
[THE END]
```
Indicates that the current end-of-buffer setting is SET TEXT END "[THE END]".

SHOW TRUNCATE

Displays the current setting of the SET TRUNCATE command.

EXAMPLE

```
* SHOW TRUNCATE
notruncate
```
Indicates that the current setting is SET NOTRUNCATE.

SHOW VERIFY

Displays the current setting of SET VERIFY, which controls whether or not the commands in an EDT startup command file or macro are displayed. SET NOVERIFY is the default.

EXAMPLE

```
* SHOW VERIFY
noverify
```
Indicates that the current setting is SET NOVERIFY.

SHOW VERSION

Displays the current version of EDT.

EXAMPLE

```
* SHOW VERSION
V3.00-17          COPYRIGHT (C) DIGITAL EQUIPMENT CORPORATION 1980, 1984
```
Displays the current version of EDT.

SHOW WORD

Displays the current setting of the SET WORD command.

EXAMPLE

```
* SHOW WORD
delimiter
```
Indicates that the current setting is SET WORD DELIMITER.

SHOW WRAP

Displays the current setting of SET WRAP.

EXAMPLE

```
* SHOW WRAP
75
```
Indicates that the current setting is SET WRAP 75.

SUBSTITUTE \string-1\string-2\[range]

Replaces occurrences of one specified string with another string. A string can be from 0 to 64 characters. Except for the percent sign (%), you can use any nonalphanumeric character that does not appear in either of the strings as a delimiter. You must use the same character as delimiter throughout the command line. (Slashes preceding qualifiers are required.)

PARAMETERS

[range]

EDT replaces all the occurrences of string-1 within the specified range with string-2 and displays the number of substitutions made. At the end of the substitution, the cursor returns to the first line in the specified range. If you do not specify a range, EDT replaces only the first occurrence of the string in the current line.

string-1

The text string to be replaced.

string-2

The replacement text string.

QUALIFIERS

/BRIEF[:n]

Displays the first n characters of the lines containing string-1. The value of n defaults to 10.

/QUERY

Prompts for verification before each substitution.

/NOTYPE

Prevents the display of lines containing substitutions.

EXAMPLES

* SUBSTITUTE\INADVERTANT\INADVERTENT\WHOLE

Substitutes "inadvertent" for each occurrence of "inadvertant" in the buffer. EDT displays both the number of substitutions made and the lines containing the substitutions.

*,SUBSTITUTE*section*chapter*20:50/QUERY

Within the range of lines from 20 through 50, substitutes "chapter" for "section," prompting for verification before each substitution.

[SUBSTITUTE] NEXT [string-1/string-2/]

Replaces the next occurrence of string-1 with string-2 and positions the cursor at the line where the substitution is made. String-1 defaults to the current search string, and string-2 to the last specified string-2.

PARAMETERS

string-1
    The string to be replaced.

string-2
    The replacement text string.

EXAMPLE

* NEXT

If your last substitute command was: "SUB/several/some/", the NEXT (SUBSTITUTE NEXT) command above will find the next occurrence of the word "several" and replace it with "some", displaying the corrected line (so long as you haven't changed the search string in the meantime).

TAB ADJUST [-]n [=buffer] [range]

Indents whole lines in the specified range n number of tab stops to create layered text. A minus sign before the n specifier allows you to move text back toward the left margin. In order for the command to work you must first establish a SET TAB value for your editing session.

PARAMETERS

=buffer
    The name of the buffer to be indented.

range
    The line or lines to be indented. If you include a buffer specifier with no range, the entire buffer is indented. When you omit both the buffer and range specifiers, EDT assumes that you have an active select range (see the keypad SELECT command).

[-]n
    The number of tab stops you wish to indent the text.

EXAMPLES

* TAB ADJUST 1 5
Indents line number 5 one tab stop.

* TAB ADJUST -4 25
Moves (indented) line number 25 four tab stops to the left.

TYPE [range][:n]

Displays a specified range of lines and positions the cursor at the first line of the specified range.

PARAMETERS

range
　　The range of lines to be displayed. The range defaults to the current line.

QUALIFIERS

/BRIEF[:n]
　　Displays the first n characters of the lines contained in the specified range. The value of n defaults to 10.

/STAY
　　Prevents the cursor from moving to the first line of the range.

EXAMPLES

* TYPE WHOLE
Displays the entire contents of the current buffer.

* TYPE 27
Displays line 27.

* TYPE 40 THRU END
Displays all lines from line 40 through the last line of the buffer.

* TYPE 40:END all "news"
Displays all lines containing the string "news" that occur between line 40 and the end of the buffer.

WRITE filename [range]

Copies the specified range of text to the specified file.

PARAMETERS

range

The line or lines of text to be written. The range defaults to the entire current buffer.

QUALIFIERS

/SEQUENCE[:initial[:increment]]

Assigns sequential line numbers to the file. The initial qualifier defines the starting line number; the increment qualifier defines the increment between line numbers.

EXAMPLES

* `WRITE NEWCHAP.TXT`

Copies the entire contents of the current buffer to the file NEWCHAP.TXT. EDT displays the specification of the new file and the number of lines written to the file.

* `WRITE NEWCHAP.TXT 10:90`

Copies lines 10 through 90 of the current buffer to the file NEWCHAP.TXT. EDT displays the specification of the new file and the number of lines written to the file.

* `WRITE NEWCHAP.TXT =BUF1/SEQUENCE:10:10`

Copies the contents of BUF1 to the file NEWCHAP.TXT and renumbers the lines (beginning with line 10 and incrementing by 10). EDT displays the specification of the new file and the number of lines written to the file.

EDT.4   Nokeypad Editing

You can redefine keypad keys and control keys by using the DEFINE KEY line-editing command with EDT nokeypad-editing commands as the definition. EDT nokeypad commands cannot contain spaces; for example, to delete two paragraphs and put the text in a buffer named EXTRA, type CUT2PAR=EXTRA. You can put several EDT nokeypad commands on the same line; spaces between commands are allowed but not required. You can repeat a series of commands by preceding the commands with the repeat count and enclosing them in parentheses 3(V D+EL).

EDT.4.1   Text Entities

You can use the following text entities as parameters for EDT nokeypad-editing commands. The parameters are presented in uppercase, followed by their functions in parentheses.

PARAMETERS

C (character)

Single alphabetic, numeric, or special character.

W (word)

User-defined entity. The default boundaries are spaces, line terminators, tabs, and form feeds. You define the word boundaries with the SET ENTITY command.

BW (beginning of word)

The string of characters from the cursor to the beginning of the word; when the cursor is at the beginning of a word, BW is the previous word.

EW (end of word)

The string of characters from the cursor position to the end of the word, including the character at the cursor position.

L (line)

Single line of text, where L is a string of characters between line terminators.

BL (beginning of line)

The string of characters from the cursor position to the beginning of the line. When the cursor is at the beginning of a line, BL is the previous line.

EL (end of line)

The string of characters from the cursor position to the end of the line, including the character at the cursor position.

NL (next line)

The string of characters from the cursor position to the beginning of the next line.

V (vertical)

The characters starting at the current cursor character and extending to the character directly above or below in the next line.

SEN (sentence)

User-defined entity. The default boundaries are a period, a question mark, or an exclamation point (each of which is followed by a space). You can redefine the sentence boundaries through the SET ENTITY command.

BSEN (beginning of sentence)

The string of characters from the cursor position to the beginning of the sentence. If you are at the beginning of a sentence, BSEN selects the entire previous sentence.

ESEN (end of sentence)

The string of characters from the cursor position to the end of the sentence, not including the sentence delimiter.

PAR (paragraph)

User-defined entity. The default boundaries are two successive line terminators. You define the paragraph boundary with the SET ENTITY command.

BPAR (beginning of paragraph)

The string of characters from the cursor position to the beginning of the paragraph. If you are already at the beginning of a paragraph, BPAR selects the entire previous paragraph.

EPAR (end of paragraph)

The string of characters from the cursor position to the end of the paragraph, including the character at the cursor, but not the paragraph delimiter.

PAGE (page)

User-defined entity. The default is the text between two form-feed characters, including the second form feed. You define the page boundaries with the SET ENTITY command.

BPAGE (beginning of page)

The text from the cursor position to the beginning of the page, not including the page delimiters.

EPAGE (end of page)

The text from the cursor position to the end of the page, not including the page delimiters.

BR (beginning of range)

The string of characters from the cursor to the beginning of the buffer.

ER (end of range)

The string of characters from the cursor to the end of the buffer.

SR (select range)

The text between the last SEL command and the cursor position. When select range is not active (no select command entered) and the cursor is at the present search string, SR selects the search string. When neither of the above conditions

exists, SR selects a single character in the current direction when used with the CHGC command.

'string'
  All characters between the initial cursor position and the beginning of 'string.'

EDT.4.2 Nokeypad Commands

The following list of EDT nokeypad-editing commands presents the commands in uppercase, followed by their functions in parentheses. The word "count" preceded by "+" or "–" specifies either the number of times a nokeypad-editing command is to be repeated or the number of entities that the command will affect. (The maximum value for the count specifier is 32767.) The symbol "|" is equivalent to the word "or" in the commands that follow.

ADV (advance)
ADV
  Sets the cursor's direction forward. (You can override advance for a single command by preceding that command with a minus sign.)

APPEND (append)
[+ | –][count]APPEND[+ | –][count]entity[=buffer]
  Deletes the specified entities in the current buffer and moves them to the end of the specified buffer (which defaults to the PASTE buffer).

ASC (ASCII)
[number]ASC
  Inserts an ASCII character when you specify the character's decimal representation (defaults to 0, or NUL).

BACK (backup)
BACK
  Sets the cursor's direction backward. (You can override BACK for a single command by preceding that command with a plus sign.)

BELL (bell)
BELL
  Causes the terminal bell to sound when the command is processed. (Used primarily in keypad key definitions.)

CHGC (change case)
[+ | –][count]CHGC[+ | –][count]entity
  Changes the case of the characters within an entity.

CHGL (change case lower)
[+ | –][count]CHGL[+ | –][count]entity

> Changes all uppercase letters within a specified entity to lowercase; existing lowercase letters remain unchanged.

CHGU (change case upper)
[+ | –][count]CHGU[+ | –][count]entity

> Changes all lowercase letters within a specified entity to uppercase; existing uppercase letters remain unchanged.

CLSS (clear search string)
CLSS

> Clears the search string currently in the search buffer.

CUT (cut)
[+ | –][count]CUT[+ | –][count]entity[=buffer]

> Deletes the specified entities from the current buffer, moves them to the specified buffer (which defaults to the PASTE buffer), and deletes the previous contents of the receiving buffer.

DATE (date)
DATE

> Inserts the current date into your text at the current cursor position.

DELETE (delete)
[+ | –][count]D[+ | –][count]entity

> Deletes a specified number of entities.

DEFK (define key)
DEFK

> Defines keypad operations in terms of nokeypad-editing commands.

DESEL (deactivate select)
DESEL

> Cancels a select range after you have used the SEL (select) command, the SSEL (search and select) command, or the TGSEL (toggle select) command.

DLWC (default lowercase)
DLWC

> Changes all uppercase letters to lowercase letters wherever you move the cursor during your EDT session. (Use the DMOV (default move) command to reset EDT so that case is not affected by move operations.)

DMOV (default move)
DMOV
Returns your editing session to EDT's default state after you have used either
DLWC (default lowercase) or DUPC (default uppercase).

DUPC (default uppercase)
DUPC
Changes all lowercase letters to uppercase wherever you move the cursor during
your EDT session. (Use the DMOV (default move) command to reset EDT so
that case is not affected by move operations.)

EX (exit)
EX
Exits to line-editing mode.

EXT (extend)
EXT
Accepts the rest of the line (after EXT) as a line-editing command.

FILL (fill)
[+ | −][count]FILL[+ | −][count]entity
Places the maximum number of words (within the bounds set by the SET WRAP
or SET SCREEN command) on a line. The default is 80 characters.

HELP (help)
HELP
Defines a different key or key sequence in keypad-editing mode to carry out the
keypad HELP function.

I (insert)
Itext^Z
I RETURN text CTRL/Z
Inserts the text typed immediately following the I or between RETURN and
CTRL/Z to the left of the cursor.

KS (KED substitute)
[PASTE]KS
Moves the cursor either to the beginning or the end of the inserted text at the
completion of the nokeypad PASTE command. The placement of the cursor
depends upon EDT's current direction. (There should not be a space between the
command words PASTE and KS.)

NULL (move cursor)
[+ | −][count]entity
> Moves the cursor to the specified entity.

PASTE (paste)
[+ | −][count]PASTE[=buffer]
> Copies the contents of the specified buffer to the left of the cursor.

QUIT (quit)
QUIT
> Ends the editing session without saving your edits and returns you to the system command level prompt.

REPLACE (replace)
[+ | −][count]R[+ | −][count]entity
> Deletes the specified entities and replaces them with text you insert. Terminate the insertion of text with a CTRL/Z.

REF (refresh)
REF
> Refreshes the entire screen.

SEL (select)
SEL
> Marks the present cursor position as the beginning of a select range of text. Move the cursor to the desired position to mark the end of the range.

SSEL (search and select)
[+ | −]SSEL[+ | −]"string"
> Both finds a string and designates it as a select range in one operation. The string must be enclosed in quotation marks.

SHL (shift left)
[count]SHL
> Shifts the screen image to the left count number of tab stops, where one tab stop equals 8 columns.

SHR (shift right)
[count]SHR
> Shifts the screen image to the right count number of tab stops, where one tab stop equals 8 columns.

S (substitute)
[+ | –][count]S/string-1/string-2/

Replaces one string of characters with another. The value of count defines the
number of substitutions. The characters "–" (backup) and "+" (advance) specify
the direction of the search. Any nonalphanumeric character will work as a
delimiter (so long as it is not used in one of the strings).

SN (substitute next)
[+ | –][count]SN

Uses strings 1 and 2 defined in the last substitute command (stored in the search
and substitute buffers) to replace the next occurrence of string 1 with string
2. The value of count defines the number of substitutions. The characters "–"
(backup) and "+" (advance) specify the direction of the search.

TAB (tab)
[count]TAB

Moves a line of text to the next tab stop or, if a count is specified, to count
number of tab stops.

TADJ (tab adjust)
[+ | –][level-count]TADJ[+ | –][entity-count]entity

Indents whole lines *level-count* number of tab stops to create layered text. A
minus sign before the level-count specifier allows you to move text back toward
the left margin. The entity count determines how many lines, paragraphs, or
pages will be affected by the TADJ command. A minus sign before the entity or
entity count means that EDT will work backward in determining which entities
to indent. You must establish a SET TAB value for your EDT editing session
before issuing this command.

TC (tab compute)
TC

Establishes the present cursor position and resets the indentation level count to
be the quotient of the cursor position divided by the SET TAB value. The cursor
position must be a multiple of the SET TAB value.

TD (tab decrement)
[count]TD

Decreases the current indentation level count by the amount indicated by the
count specifier.

TI (tab increment)
[count]TI

Increases the current indentation level count by the amount indicated by the
count specifier.

TGSEL (toggle select)
TGSEL

Performs the same function as the DSEL command (cancels the select range)
when there is an active select range. When there is no active select range,
TGSEL performs the same function as the SEL command (initiates the process of
creating a select range).

TOP (top)
TOP

Places the current line at the top of the screen.

UNDC (undelete character)
[count]UNDC

Inserts the contents of the character buffer into the current buffer to the left of
the cursor. The character buffer contains the last character deleted by one of the
delete character commands. *Count* repeats the UNDC operation *count* number of
times.

UNDL (undelete line)
[count]UNDL

Inserts the contents of the line buffer into the current text buffer just ahead of
the cursor. The line buffer contains the last line deleted by one of the delete-line
editing commands. *Count* repeats the UNDL operation *count* number of times.

UNDW (undelete word)
[count]UNDW

Inserts the contents of the word buffer into the current buffer to the left of the
cursor. The word buffer contains the last word deleted by one of the delete word
commands. *Count* repeats the UNDW operation *count* number of times.

(circumflex)
[count]^[A...Z]

Enters a control character in your text. The value of count controls the number
of times the operation is performed.

Appendix ESC

Escape Sequences

This appendix describes the escape sequences on VT200 and VT100 series terminals; Chapter 3 explains how to use them. The escape sequences are arranged here according to function, and the following table briefly summarizes the common escape sequences.

CURSOR x=integer (Default=1)		CHARACTER ATTRIBUTES	
up	— <ESC> [xA	<ESC> [xm where x is:	
down	— <ESC> [xB	0—off	
right	— <ESC> [xC	1—bold	
left	— <ESC> [xD	4—underscore	
		5—blink	
Position		7—reverse video	
row, column	— <ESC> [r;cH	double height (top)	— <ESC> #3
column, row	— <ESC> [c;rf	double height (bot)	— <ESC> #4
ERASING		single width (default)	— <ESC> #5
		double width	— <ESC> #6
cursor to eol	— <ESC> [0K	**CHARACTER SETS**	
bol to cursor	— <ESC> [1K		
entire line	— <ESC> [2K		on off
cursor to eos	— <ESC> [0J	US <ESC> (B <ESC>)B	
bos to cursor	— <ESC> [1J	UK <ESC> (A <ESC>)A	
entire screen	— <ESC> [2J	GRAPHIC <ESC> (0 <ESC>)0	
SCROLLING REGION		**RESET**	
<ESC> [t;br (t < b)		<ESC> c	

NOTE: If your terminal is not in the VT200 series or VT100 series, consult your terminal user guide for the appropriate escape sequences for your terminal.

ESC.1   Moving the Cursor

The following table lists the escape sequences that allow you to move the cursor, where n represents an integer that determines the number of character positions or lines that the cursor is to move. If you omit n, the number defaults to one. In the escape sequence that positions the cursor, r and c represent integers that indicate the row number and the column number, respectively.

Escape Sequence	Function
\<ESC> [nA	Move cursor up; no scrolling
\<ESC> M	Move cursor up; scrolls within scrolling region
\<ESC> [nB	Move cursor down; no scrolling
\<ESC> D \<LF>	Move cursor down; scrolls within scrolling region
\<ESC> [nC	Move cursor right
\<ESC> [nD	Move cursor left
\<ESC> E	Move cursor to the beginning of the next line
\<ESC> [r;cH	Position cursor on the screen
\<ESC> 7	Save cursor's column position and character attributes
\<ESC> 8	Restore cursor's column position and character attributes

A carriage return moves the cursor to the beginning of the next line. Therefore, if you want text to appear on the screen at a certain place, be sure that the text immediately follows the escape sequence that positions the cursor. Putting a carriage return between the escape sequence and the text causes the text to be written at the beginning of the next line.

ESC.2   Setting Character Sets and Characteristics

Escape sequences allow you to choose a character set from a given group of character sets. You can choose character sets permanently (using locking shifts) or for the insertion of just the next character you enter (using single shifts).

ESC.2.1 Specifying Character Sets

The VT200 and VT100 series terminals allow you to specify three different character sets:

1. US (default)—The ASCII character set. The escape sequence <ESC> (B specifies the US character set.

2. UK—The same as the US character set with the exception that pressing SHIFT/3 echoes the pound sign used in the United Kingdom rather than the number sign used in the United States. The escape sequence <ESC> (A specifies the UK character set.

3. Graphic—The graphic character set echoes a different set of characters for ASCII codes 5F through 7E. The escape sequence <ESC> (0 specifies the graphic character set.

On VT200 series terminals it is also possible to specify downline loadable (or "soft") character sets. For information on designating soft character sets, refer to your terminal's reference manual.

Selecting a character set is a two-step process. The following figure illustrates the procedure for selecting character sets.

```
CO          GL

INVOKING
SEQUENCES        LS0    LS1    SS2    SS3          7-BIT SET IN USE
(LOCKING &
SINGLE SHIFT)                                      LS0  SI

                                                   LS1  SO

         G0       G1       G2       G3             SS2  SS2

                                                   SS3  SS3

DESIGNATING                              *ALWAYS ASCII OR U.K. IN
SEQUENCES                                 VT100 MODE AS SELECTED
                                          IN SET-UP
                  GRAPHIC
                  REPERTORY
```

7K 1773 84

To select a character set from the graphic repertory, you must first use character set selection sequences to designate a graphic set. This marks the graphic set and makes it available (or "on call") for use later in your program. You may designate up to two character sets each for both locking shift and single shift operations; locking shifts designate G0 and G1 and single shifts designate G2 and G3. Character sets remain designated until you enter another character set selection escape sequence. The following table lists the escape sequences you use to designate character sets.

Character Set	Escape Sequence	Designate as:
ASCII	ESC(B	G0
	ESC)B	G1
U.K. National	ESC(A	G0
	ESC)A	G1
Graphic	ESC(0	G0
	ESC)0	G1

To actually map any one of these sets into GL, you must then invoke any of G0 through G3 into GL. The GL block contains the graphic characters with decimal values 33 through 127; these are the only characters that are affected when you invoke different character sets. The CO (Control) block contains graphic characters with decimal values 0 through 32; these characters are not affected by invoking different character sets. You invoke character sets using either locking shifts or single shifts, depending upon whether you want to select a particular character set for extended use or for the insertion of just a single character. When using locking shifts, you should always invoke G0 first, leaving G1 available for the designation of another character set. The following table lists the locking shift and single shift control functions used to invoke character sets.

Control Name	Coding	Function
LS0 - Lock Shift G0	SI	Invoke G0 into GL (default)
LS1 - Lock Shift G1	SO	Invoke G1 into GL
SS2 - Single Shift G2	SS2 (or ESC N)	Invoke G2 into GL
SS3 - Single Shift G3	SS3 (or ESC O)	Invoke G3 into GL

All locking shifts remain active until you issue another locking shift; single shifts remain active for only the next single graphic character. The default graphic character set mapping is reset whenever you turn on your terminal.

ESC.2.2 Specifying Display Characteristics

The following table lists the escape sequences that allow you to specify the display characteristics. (When programming, you should use the screen package rather than escape sequences.)

Escape Sequence	Function
<ESC> [0m (default)	Write normal characters
<ESC> [1m	Write bold characters
<ESC> [4m	Write underlined characters
<ESC> [5m	Write blinking characters
<ESC> [7m	Write reverse video characters
<ESC> #3	Write double height (top half)
<ESC> #4	Write double height (bottom half)
<ESC> #5	Write single width (default)
<ESC> #6	Write double width
<ESC> 7	Save cursor's column position and character attributes
<ESC> 8	Restore cursor's column position and character attributes

NOTE: The height functions cannot be used with the graphic character set.

ESC.3 Erasing the Screen

The following table lists the escape sequences that allow you to erase specified sections of text. After text is erased, the cursor is left where the erasing completed (for example, erasing from cursor to end of line leaves the cursor at the end of the line, erasing from beginning of line to cursor leaves the cursor at its original position). Erasing text does not affect the current character attributes.

Escape Sequence	Erase Function
<ESC> [0K	From cursor to end of line
<ESC> [1K	From beginning of line to cursor
<ESC> [2K	Entire line
<ESC> [0J	From cursor to end of screen
<ESC> [1J	From bottom of screen to cursor
<ESC> [2J	Entire screen

ESC.4   Creating a Scrolling Region

A scrolling region is a horizontal section of the screen within which the text scrolls. The text above and below the scrolling region remains stationary. The following table lists the escape sequences that allow you to create a scrolling region and to define whether cursor position 0,0 means the upper left corner of the screen or the upper left corner of the scrolling region.

In the first escape sequence, t and b represent integers that indicate the first and last lines of the scrolling region. Both integers must be between 1 and 24; t must be less than b.

Escape Sequence	Function
<ESC> [t;br	Set up a scrolling region
<ESC> [?6h	Set cursor position 0,0 equal to the upper left corner of the scrolling region
<ESC> [?6l (default)	Set cursor position 0,0 equal to the upper left corner of the screen

ESC.5   Setting Terminal Characteristics

Section 3.3 describes the setup functions that allow you to set the terminal attributes. Many of these attributes can also be set with escape sequences.

The RESET key used in setup to reset the default terminal attributes can be duplicated with the <ESC> escape sequence.

The following table lists the escape sequences that allow you to set the terminal attributes that you would normally set from the Display and Tab Set-Up screens on VT200 series terminals or from SET-UP A on VT100 series terminals.

Escape Sequence	Function
<ESC> [?3l	Set screen width to 80 columns
<ESC> [?3h	Set screen width to 132 columns
<ESC> H	Set tab at current column
<ESC> [g or <ESC> [0g	Clear tab at current column
<ESC> [3g	Clear all tabs

ESC.6   Setting Keypad Characteristics

On both the VT200 and VT100 series terminals, the auxiliary keypad to the right of the main keyboard and the four arrow keys to the left of that keypad can be set to generate data or escape sequences. By default, the arrow keys and the PFn keys (on the top row of the keypad) generate escape sequences, and the remaining keypad keys generate data.

To make the keypad generate numeric values, use the SET TERMINAL/NUMERIC command or the <ESC> > escape sequence. To make the keypad keys generate application values, use the SET TERMINAL/APPLICATION command or the <ESC> = escape sequence.

The following table lists the code generated by the auxiliary keypad keys for both the numeric and application keys. The values generated by these keys are identical on VT200 and VT100 series terminals.

Key	Numeric	Application
0	0	<ESC> Op
1	1	<ESC> Oq
2	2	<ESC> Or
3	3	<ESC> Os
4	4	<ESC> Ot
5	5	<ESC> Ou
6	6	<ESC> Ov
7	7	<ESC> Ow
8	8	<ESC> Ox
9	9	<ESC> Oy
–	– (minus)	<ESC> Om
,	, (comma)	<ESC> Ol
.	. (period)	<ESC> On
ENTER	RETURN	<ESC> OM
PF1	<ESC> OP	<ESC> OP
PF2	<ESC> OQ	<ESC> OQ
PF3	<ESC> OR	<ESC> OR
PF4	<ESC> OS	<ESC> OS

The following table lists the codes generated by the arrow keys in both Cursor Key Mode Set and Cursor Key Mode Reset.

Key	Cursor Key Mode Reset	Cursor Key Mode Set
Up arrow	<ESC> [A	<ESC> OA
Down arrow	<ESC> [B	<ESC> OB
Left arrow	<ESC> [C	<ESC> OC
Right arrow	<ESC> [D	<ESC> OD

In addition to the keys described above, the VT200 series terminal has a set of six editing keys located between the main keyboard and the auxiliary keypad and a row of 20 function keys located above the main keyboard. The first five function keys (F1 through F5) do not transmit codes; they are local keys. Function keys F6 through F14 are VAX/VMS-defined. (See Appendix KEY for a table listing these operating system-defined keys.) Applications that wish to make use of keys F6 through F14 (to generate the code listed in the table below) should insert the following command into their $QIO function code:

IO$_READVBLK ! IO$M_NOFILTR

By default, function keys F15 (Help), F16 (Do), and F17 through F20 generate the codes listed below.

The following table lists the editing keypad keys and function keys along with the codes they generate.

Generic Key Name	Code Generated
Find (E1)	<ESC> [1~
Insert Here (E2)	<ESC> [2~
Remove (E3)	<ESC> [3~
Select (E4)	<ESC> [4~
Prev Screen (E5)	<ESC> [5~
Next Screen (E6)	<ESC> [6~
F6	<ESC> [17~
F7	<ESC> [18~
F8	<ESC> [19~
F9	<ESC> [20~
F10	<ESC> [21~
F11	<ESC> [23~
F12	<ESC> [24~
F13	<ESC> [25~
F14	<ESC> [26~

ESC–10 Escape Sequences
Setting Keypad Characteristics

Generic Key Name	Code Generated
Help (F15)	\<ESC\> [28~
Do (F16)	\<ESC\> [29~
F17	\<ESC\> [31~
F18	\<ESC\> [32~
F19	\<ESC\> [33~
F20	\<ESC\> [34~

Appendix EXP

Expressions

The following table lists data operations and comparisons in order of precedence, beginning with the highest.

Operator	Precedence	Description
+	1	Indicates a positive number
−	1	Indicates a negative number
*	2	Multiplies two numbers
/	2	Divides two numbers
+	3	(1) Adds two numbers (2) Concatenates two character strings
−	3	(1) Subtracts two numbers (2) Subtracts two character strings
.EQS.	4	Tests if two character strings are equal
.GES.	4	Tests if first character string is greater than or equal
.GTS.	4	Tests if first character string is greater than
.LES.	4	Tests if first character string is less than or equal
.LTS.	4	Tests if first character string is less than
.NES.	4	Tests if two character strings are not equal
.EQ.	4	Tests if two numbers are equal
.GE.	4	Tests if first number is greater than or equal to
.GT.	4	Tests if first number is greater than
.LE.	4	Tests if first number is less than or equal to
.LT.	4	Tests if first number is less than
.NE.	4	Tests if two numbers are not equal
.NOT.	5	Logically negates a number
.AND.	6	Combines two numbers with a logical AND
.OR.	7	Combines two numbers with a logical OR

The following tables demonstrate the results of logical operations on a bit-by-bit basis and a number-by-number basis. In logical operations, a character string beginning

with an uppercase or lowercase T or Y is treated as the number 1; a character string beginning with any other character is treated as the number 0. In logical operations, odd numbers are considered true and even numbers and zero are considered false.

Given Bit A	Bit B	Results .NOT A	A .AND. B	A .OR. B
1	1	0	1	1
1	0	0	0	1
0	1	1	0	1
0	0	1	0	0

Given Number A	Number B	Results .NOT A	A .AND. B	A .OR. B
odd	odd	even	odd	odd
odd	even	even	even	odd
even	odd	odd	even	odd
even	even	odd	even	even

Appendix KEY

Terminal Keys

The following tables present the operating system's interpretation of keys on terminals in the VT200 and VT100 series.

KEY.1 VT200 Terminal Series

The following table describes how the operating system responds when various keys and control characters are pressed on VT200 series terminals. The table assumes that line editing is enabled (the default). (Characters not mentioned in the table are treated as null characters.)

Character	HEX	System Response
CTRL/A	01	Switches between overstrike and insert modes
CTRL/B	02	Recalls previous line
CTRL/C	03	Interrupts current image (image may define alternate CTRL/C action)
CTRL/D	04	Moves cursor left one character
CTRL/E	05	Moves cursor to end of line
CTRL/F	06	Moves cursor right one character
CTRL/H	08	Moves cursor to beginning of line
CTRL/I	09	Horizontal tab
CTRL/J	0A	Deletes previous word
CTRL/M	0D	Line terminator
CTRL/O	0F	Suspends/resumes echoing of output
CTRL/Q	11	Resumes output (see CTRL/S)
CTRL/R	12	Refreshes current line
CTRL/S	13	Suspends output (see CTRL/Q)

Character	HEX	System Response
CTRL/T	14	Displays process information (must be enabled with SET CONTROL=T command)
CTRL/U	15	Deletes characters from cursor to beginning of line
CTRL/V	16	Passes next character or escape sequence to the image without interpreting it as described in this table
CTRL/X	18	Purges type-ahead buffer; if characters are on the current line, deletes characters from cursor to beginning of line
CTRL/Y	19	Interrupts current image
CTRL/Z	1A	Indicates end of file
Data keys	-	Enters appropriate character
<X]	-	Deletes previous character
CTRL	-	Modifies another key
CTRL/[(ESC)	1B	Begins escape sequence
CTRL/F5	-	Executes answerback message
DOWN ARROW	-	Repeats current line
F1 (No Scroll)	-	Suspends/resumes output
F5 (Break)	-	Shuts down transmission line
F6 (Interrupt)	-	Interrupts the current image
F10 (Exit)	-	Terminates the current image or command procedure
F12 (Backspace)	08	Moves cursor to beginning of line
F13 (Line Feed)	-	Deletes previous word
F14 (^A)	01	Switches between overstrike and insert modes
LEFT ARROW	-	Moves cursor left one character
PFn	-	Can be defined (see DEFINE/KEY)
RETURN	-	Line terminator
RIGHT ARROW	-	Moves cursor right one character
TAB	-	Horizontal tab
UP ARROW	-	Repeats current line

KEY.2 VT100 Terminal Series

The following table describes how the operating system responds when various keys and control characters are pressed on VT100 terminals. The table assumes that line editing is enabled (the default). (Characters not mentioned in the table are treated as null characters.)

Character	HEX	System Response
CTRL/A	01	Switches between overstrike and insert modes
CTRL/B	02	Recalls previous line
CTRL/C	03	Interrupts current image (image may define alternate CTRL/C action)
CTRL/D	04	Moves cursor left one character
CTRL/E	05	Moves cursor to end of line
CTRL/F	06	Moves cursor right one character
CTRL/H	08	Moves cursor to beginning of line
CTRL/I	09	Horizontal tab
CTRL/J	0A	Deletes previous word
CTRL/M	0D	Line terminator
CTRL/O	0F	Suspends/resumes echoing of output
CTRL/Q	11	Resumes output (see CTRL/S)
CTRL/R	12	Refreshes current line
CTRL/S	13	Suspends output (see CTRL/Q)
CTRL/T	14	Displays process information
CTRL/U	15	Deletes characters from cursor to beginning of line
CTRL/V	16	Passes next character or escape sequence to the image without interpreting it as described in this table
CTRL/X	18	Purges type-ahead buffer; if characters are on the current line, deletes characters from cursor to beginning of line
CTRL/Y	19	Interrupts current image
CTRL/Z	1A	Indicates end of file
Data keys	-	Enter appropriate character
Backspace (^H)	08	Moves cursor to beginning of line
BREAK	-	Shuts down transmission line
CTRL	-	Modifies another key
CTRL/BREAK	-	Executes answerback message
DELETE	-	Deletes previous character
DOWN ARROW	-	Repeats current line
ESC	1B	Begins escape sequence
LEFT ARROW	-	Moves cursor left one character
LINE FEED	-	Deletes previous word
NO SCROLL	-	Suspends/resumes output
PFn	-	Can be defined (see DEFINE/KEY)

KEY-4   Terminal Keys
VT100 Terminal Series

Character	HEX	System Response
RETURN	-	Line terminator
RIGHT ARROW	-	Moves cursor right one character
TAB	-	Horizontal tab
UP ARROW	-	Repeats current line

Appendix LEX

Lexical Functions

The following tables list the lexical functions by category. The remainder of the appendix describes each function in alphabetical order.

Integer/character string conversion:

Function	Description
F$TYPE	Determines whether a symbol is a number or a string
F$INTEGER	Converts a character string to a number
F$STRING	Converts a number to a character string
F$CVSI	Converts a bit string to a signed integer
F$CVUI	Converts a bit string to an unsigned integer

Character string manipulation:

Function	Description
F$LENGTH	Returns the length of a character string
F$LOCATE	Returns the location of a substring
F$EXTRACT	Returns a substring
F$ELEMENT	Returns one of a list of elements

Text formatting:

Function	Description
F$EDIT	Edits a string
F$FAO	Creates character strings from character strings, numbers, and special directives

Time:

Function	Description
F$TIME	Returns the current date and time
F$CVTIME	Converts a date/time for comparison

Devices and files:

Function	Description
F$DIRECTORY	Returns the name of the default directory
F$FILE_ATTRIBUTES	Returns information on a file
F$GETDVI	Returns information on a device
F$IDENTIFIER	Returns the numeric equivalent of an alphanumeric identifier or vice versa
F$PARSE	Returns a file specification given a partial specification and defaults
F$SEARCH	Returns specific file specifications given a file specification containing wildcards
F$TRNLNM	Returns the equivalence string or attributes of a logical name

Environment:

Function	Description
F$ENVIRONMENT	Returns information about the DCL command environment
F$GETJPI	Returns information about a process
F$PROCESS	Returns the name of the current process
F$PRIVILEGES	Returns the current process privileges
F$SETPRV	Sets process privileges
F$USER	Returns the UIC of the current process in alphanumeric format
F$PID	Returns process identification numbers of processes using the system
F$MODE	Returns the process type—interactive, batch, or network
F$VERIFY	Returns or sets the verification mode
F$MESSAGE	Returns a system message given the code
F$GETSYI	Returns information about the system

F$CVSI (start-bit,number-of-bits,string)

Converts the specified bits in the specified character string to a signed number.

ARGUMENTS

start-bit

>The offset of the starting bit.

number-of-bits

>The length of the bit string, which must be less than or equal to the number of bits in the string.

string

>The character string to be edited.

The following example converts the low-order four bits of the ASCII character + (the bit configuration of this character is 00101011—hexadecimal 2B) to a signed number.

```
$ LOW_FOUR = F$CVSI (0,4,"+")
$ SHOW SYMBOL LOW_FOUR
  LOW_FOUR = -5   Hex = FFFFFFFB  Octal = 177773
```

F$CVTIME ([input-time],[format],[field])

Given a character string containing a time, F$CVTIME returns the time or a field of the time in the specified format. If you omit arguments, commas to the left of the last specified argument must be included as place holders.

ARGUMENTS

input-time

>A string containing an absolute, combination, or delta time, or TODAY, TOMORROW, or YESTERDAY. (Section 5.4 describes absolute, delta, and combination formats.) If *input-time* is omitted or specified as a null string (""), the current system date and time, in absolute format, is used. If parts of the date field are omitted, the missing values default to the current date. If parts of the time field are omitted, the missing values default to zero.

format

>A character string containing one of the following (do not abbreviate): ABSOLUTE, COMPARISON (default), or DELTA. Comparison format ("yyyy-mm-dd hh:mm:ss.cc") is used for comparing two times. If *input-time* is a delta time, you must specify DELTA. If *input-time* is an absolute or combination time, *format* can be either ABSOLUTE or COMPARISON.

field

A character string containing one of the following (do not abbreviate): DATE, MONTH, DATETIME (default), SECOND, DAY, TIME, HOUR, WEEKDAY, HUNDREDTH, YEAR, MINUTE. If *input-time* is a delta time and *format* is DELTA, you cannot specify MONTH, WEEKDAY, or YEAR.

The following example returns the current system time in comparison format.

```
$ TIME = F$CVTIME ()
$ SHOW SYMBOL TIME
  TIME = "1984-10-15 20:42:03.21"
```

The next example shows which weekday May 6, 1984 lands on:

```
$ DAY = F$CVTIME ("6-MAY-1984",,"WEEKDAY")
$ SHOW SYMBOL DAY
  DAY = "Sunday"
```

F$CVUI (start-bit,number-of-bits,string)

Converts the specified bits in the specified character string to an unsigned number.

ARGUMENTS

start-bit

The offset of the starting bit.

number-of-bits

The length of the bit-string, which must be less than or equal to the number of bits in *string*.

string

The character string to be edited.

The following example converts the low-order four bits of the ASCII character + (the bit configuration of this character is 00101011—hexadecimal 2B) to an unsigned number.

```
$ LOW_FOUR = F$CVUI (0,4,"+")
$ SHOW SYMBOL LOW_FOUR
  LOW_FOUR = 11   Hex = 0000000B  Octal = 000013
```

F$DIRECTORY ( )

Returns the current default directory as a character string, as shown in the following example.

```
$ DEFAULT = F$DIRECTORY ()
$ SHOW SYMBOL DEFAULT
  DEFAULT = "[ACCOUNTS]"
```

F$EDIT (string,edit-list)

Edits the character string as specified by edit-list.

ARGUMENTS

string

A character string to be edited. Quoted sections of the string are not edited.

edit-list

A character string containing one or more of the following keywords (do not abbreviate, separate keywords with commas).

Edit	Action
COLLAPSE	Removes all spaces or tabs
COMPRESS	Replaces multiple spaces or tabs with a single space
LOWERCASE	Changes all uppercase characters to lowercase
TRIM	Removes leading and trailing spaces or tabs
UNCOMMENT	Removes comments
UPCASE	Changes all lowercase characters to uppercase

The following example compresses the line and removes leading and trailing spaces.

```
$ LINE = "  Could  it have   been a  clearer   day? "
$ LINE = F$EDIT (LINE, "COMPRESS,TRIM")
$ SHOW SYMBOL LINE
  LINE = "Could it have been a clearer day?"
```

F$ELEMENT (number,delimiter,string)

Extracts one element from a string of elements.

ARGUMENTS

number

   The number of the element to extract (numbering begins with zero). If *number*
   exceeds the number of elements in the string, F$ELEMENT returns the delimiter.

delimiter

   A character used to separate the elements.

string

   A string containing the delimited list of elements.

The following command procedure processes files named CHAP1, CHAP2, ...
CHAP6, CHAPA, CHAPB, and CHAPC, in that order. (0 is included in the
CHAPTERS string to clarify the procedure logic).

```
$ ! INDEX.COM
$ !
$ CHAPTERS = "0,1,2,3,4,5,6,A,B,C"
$ NEXT = 0
$ LOOP:
$   NEXT = NEXT + 1
$   NUM = F$ELEMENT(NEXT,",",CHAPTERS)
$   RUN INDEX CHAP'NUM'
$   IF (CHAPTERS .NES. ",") THEN GOTO LOOP
```

F$ENVIRONMENT (item)

Returns information about the current DCL command environment.

ARGUMENTS

item

   A character string containing one of the following (do not abbreviate):

Item	Data	Information Returned
CAPTIVE	string	TRUE if you are logged into a captive account.
CONTROL	string	Control characters currently enabled with SET CONTROL. Multiple characters are separated by commas; if no control characters are enabled, the null string is returned.
DEFAULT	string	Current default device and directory.
DEPTH	integer	Current command procedure depth.

Item	Data	Information Returned
INTERACTIVE	string	TRUE if the process is executing interactively.
KEY_STATE	string	Current locked keypad state; see the DEFINE/KEY command in Appendix DCL.
MAX_DEPTH	integer	Maximum allowable command procedure depth.
MESSAGE	string	Current setting of SET MESSAGE qualifiers; each qualifier is prefaced by a slash.
NOCONTROL	string	Currently disabled control characters. Multiple characters are separated by commas; if no control characters are disabled, the null string is returned.
ON_CONTROL_Y	string	TRUE if ON_CONTROL_Y is set. ON_CONTROL_Y always returns FALSE at DCL command level.
ON_SEVERITY	string	Severity level at which the action specified with the ON command is performed. ON_SEVERITY returns NONE when SET NOON is in effect or at DCL command level.
OUTPUT_RATE	string	Delta time indicating how often data is written to the batch job log file. OUTPUT_RATE returns a null string if used interactively.
PROCEDURE	string	File specification of the current command procedure. PROCEDURE returns a null string if used interactively.
PROMPT	string	Current DCL prompt.
PROMPT_CONTROL	string	TRUE if a carriage return and line feed precede the prompt.
PROTECTION	string	Current default file protection.
SYMBOL_SCOPE	string	[NO]LOCAL,[NO]GLOBAL to indicate the current symbol scoping state.
VERIFY_IMAGE	string	TRUE if image verification is in effect; see SET VERIFY=IMAGE in Appendix DCL.
VERIFY_PROCEDURE	string	TRUE if procedure verification is in effect; see SET VERIFY=PROCEDURE in Appendix DCL.

The following command procedure saves a user's default device, directory, and
protection, executes a series of commands that may change those defaults, and then
restores the original defaults.

```
$ ! PROCEDURE.COM
$ !
$ OLD_DEFAULT = F$ENVIRONMENT("DEFAULT")
$ OLD_PROT = F$ENVIRONMENT("PROTECTION")
         .
         . ! commands
         .
$ SET DEFAULT 'OLD_DEFAULT'
$ SET PROTECTION=('OLD_PROT')/DEFAULT
```

F$EXTRACT (start,length,string)

Extracts the specified characters from the specified string.

ARGUMENTS

start
   The offset of the starting character.

length
   The number of characters to extract; must be less than or equal to the size of the
   string.

string
   The character string to be edited.

The following example (which would be in a command procedure) reads a character
string from the terminal and extracts the first character.

```
$ ! PROCEDURE.COM
$ !
$ INQUIRE YN /NOPUNCTUATION "Do you want to continue? "
$ YN = F$EXTRACT (0,1,YN)
         .
         .
         .
```

F$FAO (format-instructions,[data-entity,...])

Creates character strings from character and numeric input (FAO stands for formatted
ASCII output). Formatting instructions convert numbers to character strings, insert
carriage returns and form feeds, insert text, and so on.

ARGUMENTS

format-instruction

Character string (enclose in quotation marks or equate to a symbol) consisting of text and directives. Directives take the following forms:

!code	One directive
!repeat(code)	A directive repeated a specified number of times
!length-code	A directive affecting an output field of a specified length
!repeat(length-code)	A directive affecting an output field of a specified length, repeated a specified number of times

data-entity

Arguments required by the FAO directives used in the control string. Specify the data entities as integer or character string expressions.

The directives and their parameter requirements are as follows:

Instruction	Description	Parameter
	Character string insertion	
!AS	Inserts a character string as is. The field length defaults to the length of the character string. Short values inserted in explicit-length fields are left-justified and blank filled. Long values inserted in explicit-length fields are truncated on the right	Character string
	Zero-filled numeric conversion	
!OB !OW !OL	Converts a byte, word, or longword to octal notation[1]	A number. For byte and word conversions only the low-order 8 and 16 bits are used.

[1]The output field lengths default to 2 (byte), 4 (word), and 8 (longword) for hexadecimal; 3, 6, and 11 for octal; and the required number of characters for decimal.

The numbers in the output field are right-justified and zero-filled on the left. For hexadecimal and octal numbers: explicit-length fields longer than the default are blank-filled on the left; explicit-length fields shorter than the default are truncated on the left. For decimal numbers: explicit-length fields longer than the default are zero-filled on the left; explicit-length fields shorter than the default are filled with asterisks.

	Zero-filled numeric conversion	
!XB !XW !XL	Converts a byte, word or longword to hexadecimal notation.[1]	
!ZB !ZW !ZL	Converts a byte, word, or longword to decimal notation.[1]	

	Blank-filled numeric conversion	
!UB !UW !UL	Converts a byte, word, or longword to decimal notation without adjusting for negative numbers.[2]	A number. For byte and word conversions, only the low-order 8 and 16 bits are used.
!SB !SW !SL	Converts a byte, word, or longword to decimal notation with negative numbers converted properly.[2]	

[1]The output field lengths default to 2 (byte), 4 (word), and 8 (longword) for hexadecimal; 3, 6, and 11 for octal; and the required number of characters for decimal.

The numbers in the output field are right-justified and zero-filled on the left. For hexadecimal and octal numbers: explicit-length fields longer than the default are blank-filled on the left; explicit-length fields shorter than the default are truncated on the left. For decimal numbers: explicit-length fields longer than the default are zero-filled on the left; explicit-length fields shorter than the default are filled with asterisks.

[2]Output field lengths default to the required number of characters. Values shorter than explicit-length fields are right-justified and blank-filled. Values longer than explicit-length fields cause the field to be filled with asterisks.

Instruction	Description	Parameter
	Special formatting	
!/	Inserts a carriage return.	None.
!_	Inserts a tab.	
!^	Inserts a form feed.	
!!	Inserts an exclamation point.	
!%I	Converts a longword integer to an alphanumeric UIC in the format [group,member].	Integer
!%S	Inserts an uppercase S if the most recently converted number is not 1.	

Instruction	Description	Parameter
	Special formatting	
!%U	Converts a longword integer to a numeric UIC in the format [group,member]. The directive inserts the brackets and the comma.	Integer
!n <...!>	Left justifies and blank fills all data represented by the ellipsis in fields n characters wide.	
!n*c	Repeats the character represented by c n times.	
	Time	
!%T	Inserts the current time.	A literal 0.
!%D	Inserts the current date/time.	A literal 0.
	Parameter Interpretation	
!-	Reuses the last parameter.	None.
!+	Skips the next parameter.	

For example, !SL means convert a number to a character string; !2(SL) means convert two numbers; !8SL means convert a number and put it in an 8-character field; and !2(8SL) means convert two numbers and put them in 8-character fields. Character data other than directives can be mixed with the directives and appears in the output as it is typed. For example, COMPLAINTS!8SL creates a character string consisting of the word COMPLAINTS followed by a converted number in an 8-character field. To create a literal exclamation point, type a double exclamation point.

You can specify the repeat and length portions of a directive as literal numbers or in variable format by substituting a number sign. The number sign indicates that the repeat or length number is the value of the next parameter.

For each directive that works upon a data entity, you must supply the data entity as a literal or symbol in the parameter list. The following command, for example, converts the number equated to COMPLAINT_COUNT to a character string.

```
$  REPORT_1 = F$FAO("!SL",COMPLAINT_COUNT)
```

Parameters must correspond exactly to the order of their respective directives. Remember that repeat counts require the specified number of parameters. In the following example, the literal "Complaints" corresponds to the formatting instruction !AS, while COMPLAINT_COUNT_1 and COMPLAINT_COUNT_2 correspond to the instruction !2(8SL).

```
$  REPORT_1 = F$FAO("!AS!2(8SL)",)-
_$ "Complaints",COMPLAINT_COUNT_1,COMPLAINT_COUNT_2
```

If you misplace a parameter, you will probably not receive an error message, but the output will be incorrect.

F$FILE_ATTRIBUTES (file-spec,item)

Returns a specified item of information about a specified file.

ARGUMENTS

file-spec

A character string containing a file specification with no wildcards.

item

A character string containing one of the following (do not abbreviate):

Item	Data Type	Information Returned
ALQ	integer	Allocation quantity
BDT	string	Backup date/time
BKS	integer	Bucket size
BLS	string	Block size
CBT	string	TRUE if contiguous-best-try
CDT	string	Creation date/time
CTG	string	TRUE if contiguous
DEQ	integer	Default extension quantity
DID	string	Directory identification
DVI	string	Device name
EDT	string	Expiration date/time
EOF	integer	Number of blocks used
FID	string	File identification
FSZ	integer	Fixed control area size
GRP	integer	Owner group number
KNOWN	string	TRUE if file is installed.
MBM	integer	Owner member number
MRN	integer	Maximum record number
MRS	integer	Maximum record size
NOA	integer	Number of areas
NOK	integer	Number of keys
ORG	string	File organization (SEQ, REL, IDX)
PRO	string	File protection
PVN	integer	Prologue version number

Item	Data Type	Information Returned
RAT	string	Record attributes (CR, PRN, FTN)
RCK	string	TRUE if read check
RDT	string	Revision date/time
RFM	string	Record format (VAR, FIX, VFC, UDF)
RVN	integer	Revision number
UIC	string	Owner UIC
WCK	string	TRUE if write check

The following example returns the file identification of 1983.DAT.

```
$ FILEID = F$FILE_ATTRIBUTES ("1983.DAT","FID")
$ SHOW SYMBOL FILEID
  FILEID = "(65,1,0)"
```

F$GETDVI (device-name,item)

Returns a specified item of information about a specified device.

ARGUMENTS

device-name

A character string containing a physical device name or a logical name equated to a physical device name.

item

A character string containing one of the following (do not abbreviate):

Item	Data Type	Information Returned
ACPPID	string	ACP process identification
ACPTYPE	integer	ACP type code
ALL	string	TRUE if device is allocated
ALLDEVNAM	string	Allocation class device name
AVL	string	TRUE if device is available
CCL	string	TRUE if carriage control device
CLUSTER	integer	Volume cluster size
CONCEALED	string	TRUE if device is a concealed device
CYLINDERS	integer	Number of cylinders on the volume
DEVBUFSIZ	integer	Device buffer size

Item	Data Type	Information Returned
DEVCHAR	integer	Device characteristics
DEVCHAR2	integer	More device characteristics
DEVCLASS	integer	Device class (value): Disk device (1), Tape (2), Synchronous communications device (32), Terminal (66), Real-time (96), Bus (128), Mailbox (160), Miscellaneous device (200)
DEVDEPEND	integer	Device dependent information
DEVDEPEND2	integer	More device dependent information
DEVLOCKNAM	string	Device lock name
DEVNAM	string	Device name
DEVSTS	integer	Device dependent status information
DEVTYPE	integer	Device type (value): KLESI (5), TK50P (8), RQDX1 (7), RQDX2 (7), RL02 (10), TK50 (10), RRD50 (13), DEQNA (22), DMV11 (23), Removable RC25 (23), Fixed RC25 (24), RD51 (25), RX50 (26), RD52 (27), RD53 (28), CDR50 (34), VT100 (96), VT240 (110)
DIR	string	TRUE if device is directory structured
DMT	string	TRUE if device is marked for dismount
DUA	string	TRUE if the device is a generic device
ELG	string	TRUE if error logging is enabled
ERRCNT	integer	Error count
EXISTS	string	TRUE if the device exists on the system
FOD	string	TRUE if file-oriented device
FOR	string	TRUE if device is mounted foreign
FREEBLOCKS	integer	Free blocks left on the volume
FULLDEVNAM	string	Fully qualified device name
GEN	string	TRUE if device is generic
IDV	string	TRUE if device is capable of input
LOGVOLNAM	string	Logical volume name
MAXBLOCK	integer	Number of logical blocks on the volume
MAXFILES	integer	Maximum files on volume
MBX	string	TRUE if device is a mailbox
MNT	string	TRUE if device is mounted
MOUNTCNT	integer	Mount count
NET	string	TRUE if network device
NEXTDEVNAM	string	Device name of next volume in volume set

Item	Data Type	Information Returned
ODV	string	TRUE if device is capable of output
OPCNT	integer	Operation count
OPR	string	TRUE if device is an operator
OWNUIC	integer	UIC of device owner
PID	string	Process identification of device owner
RCK	string	TRUE if device has read checking enabled
REC	string	TRUE if device is record oriented
RECSIZ	integer	Blocked record size
RND	string	TRUE if device allows random access
ROOTDEVNAM	string	Device name of root volume in volume set
RTM	string	TRUE if device is real-time
SDI	string	TRUE if device is single directory structured
SECTORS	integer	Number of sectors per track
SERIALNUM	integer	Volume serial number
SHR	string	TRUE if device is shareable
SPL	string	TRUE if device is spooled
SPLDEVNAM	string	Spooled device name
SQD	string	TRUE if device is sequential block oriented
STS	integer	Status information
SWL	string	TRUE if device is software write locked
TRACKS	integer	Number of tracks per cylinder
TRANSCNT	integer	Volume transaction count
TRM	string	TRUE if device is a terminal
TT_ALTYPEAHD	string	TRUE if terminal has an alternate type ahead buffer
TT_ANSICRT	string	TRUE if terminal is an ANSI CRT terminal
TT_APP_KEYPAD	string	TRUE if terminal keypad is in applications mode
TT_AUTOBAUD	string	TRUE if terminal has automatic baud rate detection
TT_AVO	string	TRUE if terminal has a VT100-family display
TT_BLOCK	string	TRUE if the terminal has block mode capability
TT_BRDCSTMBX	string	TRUE if terminal uses mailbox broadcast messages
TT_CRFILL	string	TRUE if terminal requires fill after RET
TT_DECCRT	string	TRUE if terminal is a DIGITAL CRT terminal
TT_DIALUP	string	TRUE if terminal is connected to dialup
TT_DISCONNECT	string	TRUE if terminal can be disconnected

Item	Data Type	Information Returned
TT_DMA	string	TRUE if the terminal has DMA mode
TT_DRCS	string	TRUE if terminal supports loadable character font
TT_EDIT	string	TRUE if terminal edit characteristic is set
TT_EDITING	string	TRUE if terminal advanced editing is enabled
TT_EIGHTBIT	string	TRUE if terminal uses 8-bit ASCII character set
TT_ESCAPE	string	TRUE if terminal generates escape sequences
TT_FALLBACK	string	TRUE if terminal uses multinational fallback option
TT_HALFDUP	string	TRUE if terminal is in half-duplex mode
TT_HANGUP	string	TRUE if terminal has hangup characteristic set
TT_HOSTSYNC	string	TRUE if terminal has host/terminal communication
TT_INSERT	string	TRUE if insert-mode is the default line-editing mode for terminal
TT_LFFILL	string	TRUE if terminal requires fill after LF
TT_LOCALECHO	string	TRUE if terminal has local echo characteristic set
TT_LOWER	string	TRUE if terminal has lowercase characters set
TT_MBXDSABL	string	TRUE if mailboxes associated with the terminal will receive unsolicited input notification or input notification
TT_MECHFORM	string	TRUE if terminal has mechanical form feed
TT_MECHTAB	string	TRUE if terminal has mechanical tabs and is capable of tab expansion
TT_MODEM	string	TRUE if terminal is connected to a modem
TT_MODHANGUP	string	TRUE if terminal has modify hang-up characteristic set
TT_NOBRDCST	string	TRUE if terminal will receive broadcast messages
TT_NOECHO	string	TRUE if terminal does not echo input characters
TT_NOTYPEAHD	string	TRUE if data must be solicited by a read operation
TT_OPER	string	TRUE if terminal is an operator terminal
TT_PASTHRU	string	TRUE if terminal has passall with flow control
TT_PRINTER	string	TRUE if terminal has available printerport
TT_READSYNC	string	TRUE if terminal has read synchronization
TT_REGIS	string	TRUE if terminal has REGIS graphics
TT_SCOPE	string	TRUE if terminal has a video screen display
TT_SECURE	string	TRUE if terminal can recognize the secure server
TT_SETSPEED	string	TRUE if you can set the speed on the terminal line
TT_SIXEL	string	TRUE if the sixel is supported

Item	Data Type	Information Returned
TT_SYSPWD	string	TRUE if the system password is enabled for a particular terminal
TT_TTSYNC	string	TRUE if terminal/host synchronization exists
TT_WRAP	string	TRUE if a new line is inserted when the cursor moves beyond the right margin
UNIT	integer	Unit number
VOLCOUNT	integer	Volumes in volume set
VOLNAM	string	Volume name
VOLNUMBER	integer	Current volume in volume set
VOLSETMEM	string	TRUE if disk is in a volume set
VPROT	string	Volume protection mask
WCK	integer	TRUE if write checking is enabled

The following example returns the error count for DUA0.

```
$ ERR = F$GETDVI ("DUAO","ERRCNT")
$ SHOW SYMBOL ERR
  ERR = 0   Hex = 00000000  Octal = 000000
```

F$GETJPI (process-id,item)

Returns a specified item of information about a specified process.

ARGUMENTS

process-id

A character string containing a process identification number (leading zeros can be omitted). A null string ("") or a numeric zero identifies the current process.

item

A character string containing one of the following (do not abbreviate):

Item	Data	Information Returned
ACCOUNT	string	Account name string (8 characters filled with trailing blanks)
APTCNT	integer	Active page table count
ASTACT	integer	Access modes with active ASTs
ASTCNT	integer	Remaining AST quota

Item	Data	Information Returned
ASTEN	integer	Access modes with ASTs enabled
ASTLM	integer	AST limit quota
AUTHPR	integer	Maximum priority that a process without the ALTPRI privilege can achieve
AUTHPRIV	string	Privileges that a process can enable
BIOCNT	integer	Remaining buffered I/O quota
BIOLM	integer	Buffered I/O limit quota
BUFIO	integer	Count of process-buffered I/O operations
BYTCNT	integer	Remaining buffered I/O byte-count quota
BYTLM	integer	Buffered I/O byte-count limit quota
CLINAME	string	Current command language interpreter; always returns "DCL"
CPULIM	integer	Limit on process CPU time
CPUTIM	integer	CPU time used in hundredths of a second
CURPRIV	string	Current process privileges
DFPFC	integer	Default page fault cluster size
DFWSCNT	integer	Default working set size
DIOCNT	integer	Remaining direct I/O quota
DIOLM	integer	Direct I/O limit quota
DIRIO	integer	Count of direct I/O operations for the process
EFCS	integer	Local event flags 0 through 31
EFCU	integer	Local event flags 32 through 63
EFWM	integer	Event flag wait mask
ENQCNT	integer	Lock request quota remaining
ENQLM	integer	Lock request quota limit
EXCVEC	integer	Address of a list of exception vectors
FILCNT	integer	Remaining open file quota
FILLM	integer	Open file quota
FINALEXC	integer	Address of a list of final exception vectors
FREP0VA	integer	First free page at end of program region
FREP1VA	integer	First free page at end of control region
FREPTECNT	integer	Number of pages available for virtual memory expansion
GPGCNT	integer	Global page count in working set GRP
IMAGECOUNT	integer	Number of images that have been run down for the process
IMAGNAME	string	File name of the current image
IMAGPRIV	string	Privileges with which the current image was installed

Item	Data	Information Returned
JOBPRCCNT	integer	Number of subprocesses owned by the process
LOGINTIM	string	Process creation time
MASTER_PID	string	Returns the process identification of the process at the top of the current job's process tree.
MEM	integer	Member number of UIC
MODE	string	Process mode (BATCH, INTERACTIVE, NETWORK, or OTHER)
MSGMASK	integer	Default message mask
OWNER	string	Process identification of process owner
PAGEFLTS	integer	Count of page faults
PAGFILCNT	integer	Remaining paging file quota
PAGFILLOC	integer	Location of the paging file
PGFLQUOTA	integer	Paging file quota (maximum virtual page count)
PHDFLAGS	integer	Flags word
PID	string	Process identification
PPGCNT	integer	Process page count
PRCCNT	integer	Count of subprocesses
PRCLM	integer	Subprocess quota
PRCNAM	string	Process name
PRIB	integer	Process's base priority
PROCPRIV	integer	Process's default privileges
SITESPEC	integer	Per-process site-specific longword
STATE	string	Process state
STS	integer	Process status flags
SWPFILLOC	integer	Location of the swap file
TERMINAL	string	Login terminal name for interactive users (1-7 characters)
TMBU	integer	Termination mailbox unit number
TQCNT	integer	Remaining timer queue entry quota
TQLM	integer	Timer queue entry quota
UIC	string	Process's UIC
USERNAME	string	User name string
VIRTPEAK	integer	Peak virtual address size
VOLUMES	integer	Count of currently mounted volumes

Item	Data	Information Returned
WSAUTH	integer	Maximum authorized working set size
WSAUTHEXT	integer	Maximum authorized working set extent
WSEXTENT	integer	Current working set extent
WSPEAK	integer	Working set peak
WSQUOTA	integer	Working set size quota
WSSIZE	integer	Process's current working set size

The following example returns the user name for process 003B0018.

```
$ NAME = F$GETJPI ("3B0018","USERNAME")
$ SHOW SYMBOL NAME
  NAME = "USER        "
```

F$GETSYI (item,[node])

Returns a specified item of information about the system. The second argument is not applicable for MicroVMS.

ARGUMENTS

item

A character string containing one of the following (do not abbreviate):

Item	Information Returned and Data Type
ARCHFLAG	Architecture flags (string)
BOOTTIME	Time the system was booted (string)
CHARACTER_ EMULATED	TRUE if the character string instructions are emulated on the CPU (string)
CLUSTER_MEMBER	TRUE if the node is a member of a cluster; CLUSTER_MEMBER always returns FALSE on a MicroVMS system (string)
CPU	Processor type: 7 for a MicroVAX I (integer)
DECIMAL_ EMULATED	TRUE if the decimal string instructions are emulated on the CPU (string)
D_FLOAT_ EMULATED	TRUE if the D_floating instructions are emulated on the CPU (string)
F_FLOAT_ EMULATED	TRUE if the F_floating instructions are emulated on the CPU (string)
G_FLOAT_ EMULATED	TRUE if the G_floating instructions are emulated on the CPU (string)

Item	Information Returned and Data Type
PAGEFILE_FREE	Returns the number of free pages in the currently installed paging files (integer)
PAGEFILE_PAGE	Returns the number of pages in the currently installed paging files (integer)
SID	System identification (integer)
SWAPFILE_FREE	Returns the number of free pages in the currently installed swapping files (integer)
SWAPFILE_PAGE	Returns the number of pages in the currently installed swapping files (integer)
VERSION	Version of VAX/VMS in use (string)

The following example returns the system identification.

```
$ SID = F$GETSYI ("SID")
$ SHOW SYMBOL SID
  SID = 117441280  Hex = 070003000  Octal = 0700001400
```

F$IDENTIFIER (identifier,translation)

Converts an alphanumeric UIC to its numeric equivalent, or a numeric UIC to its alphanumeric equivalent. (Alphanumeric UICs are optionally equated to numeric UICs in the rights database.)

ARGUMENTS

identifier

   A character string containing an identifier.

translation

   If *identifier* is alphanumeric, specify *translation* as a character string containing NAME_TO_NUMBER. If *identifier* is numeric, specify *translation* as a character string containing NUMBER_TO_NAME.

The following example translates the alphanumeric identifier JONES to its numeric equivalent.

```
$ NAME = F$IDENTIFIER("JONES","NAME_TO_NUMBER")
$ SHOW SYMBOL NAME
  Name = 589926  Hex = 00090066  Octal = 00002200146
```

F$INTEGER (string)

Converts the specified string to a number. The character string must be null (zero) or a valid decimal specification (no hexadecimal or octal specifications) of a positive or negative integer. If the character string does not contain a numeric character string, it is converted to either a 1 (if the first character is Y,y,T, or t) or a 0.

ARGUMENTS

string
    A character string or integer.

The following example (which would appear in a command procedure) reads a character string from the terminal and converts it to a number.

```
$ INQUIRE DOG_COUNT "Number of dogs"
$ DOG_COUNT = F$INTEGER (DOG_COUNT)
```

F$LENGTH (string)

Returns the length of the specified character string.

ARGUMENTS

string
    A character string whose length is being determined.

The following example indicates that the character string equated to REPORT_1 is 56 characters in length.

```
$ LINE_LENGTH = F$LENGTH (REPORT_1)
$ SHOW SYMBOL LINE_LENGTH
  LINE_LENGTH = 56  Hex = 00000038 Octal = 000070
```

F$LOCATE (substring,string)

Locates a specified portion of a character string and returns as a number the offset of the first character. The first character in a string is always offset position 0 from the beginning of the string. If the substring is not present, the offset of the last character in the character string plus one is returned.

ARGUMENTS

substring
    The character string in *string* that you want to locate.

string
    A character string to be edited by F$LOCATE.

The following example returns the position of the substring DOGS.

```
$ SHOW SYMBOL LINE_1
  LINE_1 = "Number of dogs:"
$ DOGS = F$LOCATE ("dogs",LINE_1)
$ SHOW SYMBOL DOGS
  DOGS = 10  Hex = 0000000A  Octal = 12
```

F$MESSAGE (message-code)

Returns as a character string the facility, severity, identification and text associated with the specified message code.

ARGUMENTS

message-code

> An integer for which you are requesting error message text. The message code must be specified as a number (decimal, hexadecimal, or octal).

The following example returns the success message.

```
$ MESS = F$MESSAGE (1)
$ SHOW SYMBOL MESS
  MESS = "%SYSTEM-S-NORMAL, normal successful completion"
```

F$MODE ( )

Returns the character string INTERACTIVE if you issue the command from the terminal, the character string BATCH if you issue the command from a batch job, and the character string NETWORK if you issue the command from a network job. In the following example, you issue the command from the terminal.

```
$ MODE = F$MODE ()
$ SHOW SYMBOL MODE
  MODE = "INTERACTIVE"
```

F$PARSE (file-spec,[def-spec1],[def-spec2],[field,...],[type])

Returns either the full file specification for the specified file or one of the following fields: NODE, DEVICE, DIRECTORY, NAME, TYPE, VERSION. The device name in the resulting file specification must be a valid device. The directory must be a valid directory on that device. An error in the resulting file specification returns a null string (unless the SYNTAX_ONLY type is specified or a specific field is requested). Logical names and device names must terminate with a colon. If you omit arguments, commas to the left of the last specified argument must be included as place holders.

ARGUMENTS

file-spec

A character string containing a file specification. If *file-spec* is not a full file specification, defaults are taken from (1) your current default directory if *def-spec1* is not specified; (2) *def-spec1* and then your current default directory if *file-spec* and *def-spec1* are specified; (3) *def-spec1*, then *def-spec2*, and then your current default directory if both *def-spec1* and *def-spec2* are specified. The file name, file type, and version number are null if not specified in either *file-spec* or *def-spec1*. Wildcards can be used.

def-spec1

A character string which is substituted in the output string if a particular field in *file-spec* is missing.

def-spec2

A character string which is substituted in the output string if a particular field in *file-spec* and *def-spec2* is missing.

field

A character string containing one of the following fields (do not abbreviate field names): NODE, DEVICE, DIRECTORY, NAME, TYPE, VERSION.

type

The type of parsing to be done. Valid types are:

SYNTAX_ONLY   Does not check for the existence of the directory or device

NO_CONCEAL   Ignores the "conceal" attribute in the translation of a logical name as part of the file specification

The following example returns the directory name for the file 1983.DAT in your default directory.

```
$ D = F$PARSE ("1983.DAT",,,"DIRECTORY")
$ SHOW SYMBOL D
  D = "[ACCOUNTS]"
```

The next example returns the full file specification.

```
$ D = F$PARSE ("1983.DAT")
$ SHOW SYMBOL D
  D = "DUA1:[ACCOUNTS]1983.DAT;"
```

The next example uses DOG subdirectory as a default directory.

```
$ D = F$PARSE ("1983.DAT","DUA1:[LICENSES.DOG]")
$ SHOW SYMBOL D
  D = "DUA1:[LICENSES.DOG]1983.DAT;")
```

The device name in the resulting file specification must be a valid device. The
directory name must be a valid directory on that device. An error in the resulting file
specification returns a null string.

F$PID (context-symbol)

Returns a process identification (PID) number, and updates the context symbol to
identify the current position in the system's process list. If context-symbol is equated
to zero or a null string (""), returns as a character string the process identification
number of the first process on the system. If context-symbol was used in a previous
F$PID function and has not been redefined, F$PID returns the process identification
number of the next process on the system. A null string is returned after the last
process on the system has been examined. If your system has individual accounts,
you may not have access to all processes on the system.

ARGUMENTS

context_symbol

> A symbol that DCL uses to store a pointer into the system's list of processes.
> The first time you use F$PID, use a symbol that is undefined or equated to the
> null string ("").

The following command procedure returns the process identification number of each
process on the system.

```
$ ! SYSPID.COM
$ !
$ NEXT = 0
$ START:
$ PID = F$PID (NEXT)
$ IF PID .EQS. "" THEN EXIT
$ SHOW SYMBOL PID
$ GOTO START
```


F$PRIVILEGE (priv-list)

Returns a string containing TRUE or FALSE, depending on whether all of the
privileges are set as specified. You can specify either the positive or negative version
of a privilege.

ARGUMENTS

priv-list

> A character string identifying a privilege or a list of privileges separated by
> commas.

The following example finds that the current process does not have one SYSPRV,
does not have WORLD, or does not have either. To determine which privileges are
not set, you would have to check each individually.

```
$ PRIVS = F$PRIVILEGE ("SYSPRV,WORLD")
$ SHOW SYMBOL PRIVS
  PRIVS = "FALSE"
```

F$PROCESS ( )

Returns as a character string the name of the current process, as demonstrated in the
following example.

```
$ PROC = F$PROCESS ()
$ SHOW SYMBOL PROC
  PROC = "USER"
```

F$SEARCH (file-spec,[stream-id])

Returns the full file specification of *file-spec*. If device or directory are omitted, the
current defaults are used. If version is omitted, the latest version number is used. If
file-spec contains wildcards, each time F$SEARCH is called, the next file specification
that agrees with *file-spec* is returned. A null string is returned after the last file
specification that agrees with *file-spec*.

ARGUMENTS

file-spec

The file name and type of the file specification to be searched for; wildcards are
permitted.

stream-id

A positive integer used to maintain separate search contexts.

The following command procedure returns the latest versions of all the type EXE files
in the SYS$SYSTEM directory.

```
$ ! SEARCH.COM
$ !
$ START:
$ FILE = F$SEARCH ("SYS$SYSTEM:*.EXE")
$ IF FILE .EQS. "" THEN EXIT
$ SHOW SYMBOL FILE
$ GOTO START
```

The following command procedure returns all COM and DAT files.

```
$ ! COM_DAT.COM
$ !
$ ! find first COM and DOC files
$ COM = F$SEARCH ("*.COM;*",1)
$ DOC = F$SEARCH ("*.DOC;*",2)
$ START:
$      ! set DONE to true
$      DONE = 1
$
$      ! search for COM file
$      IF (COM .EQS. "") THEN GOTO END_COM
$          SHOW SYM COM
$          COM = F$SEARCH ("*.COM;*",1)
$          DONE = 2        ! DONE is false
$          END_COM:
$
$      ! search for DOC file
$      IF (DOC .EQS. "") THEN GOTO END_DOC
$          SHOW SYM DOC
$          DOC = F$SEARCH ("*.DOC;*",2)
$          DONE = 2        ! DONE is false
$          END_DOC:
$
$      ! if no DOC or COM files, DONE is still true
$      IF DONE THEN EXIT
$      GOTO START
```

F$SETPRV (priv-list)

If the process has the proper authorization, F$SETPRV enables or disables the specified privileges. In addition, F$SETPRV returns a string containing the state of the specified privileges before F$SETPRV was executed.

ARGUMENTS

priv-list

A character string defining a privilege or list of privileges separated by commas. You can specify either the positive or negative version of a privilege.

The following example sets SYSPRV and WORLD. The current process had SYSPRV; WORLD was set by F$SETPRV.

```
$ PRIV = F$SETPRV ("WORLD,SYSPRV")
$ SHOW SYMBOL PRIV
  PRIV = "NOWORLD,SYSPRV"
$ TEST = F$PRIVILEGE ("WORLD,SYSPRV")
  TEST = "TRUE"
```

F$STRING (expression)

Returns the string that is equivalent to the specified expression.

ARGUMENTS

expression

An integer or string expression. When converting an integer to a string, F$STRING uses decimal notation, omitting leading zeros. If the integer is negative, a minus sign precedes the number.

In the following example, F$STRING evaluates the integer expression and converts it to a character string.

```
$ DOG_1 = 12
$ DOG_2 = 13
$ TOTAL_DOGS = F$STRING (DOG_1 + DOG_2)
$ SHOW SYMBOL TOTAL_DOGS
  TOTAL_DOGS = "25"
```

F$TIME ( )

Returns as a character string the current date and time in absolute time format, as demonstrated in the following example.

```
$ TIME = F$TIME ()
$ SHOW SYMBOL TIME
  TIME = "21-OCT-1983 12:45:22"
```

F$TRNLNM (name,[table],[index],[mode],[case],[item])

Finds a logical name and returns the translation or the requested attributes. If the logical name does not exist, F$TRNLNM returns a null string. (Section 4.4 discusses logical names.) If you omit arguments, commas to the left of the last specified argument must be included as place holders.

ARGUMENTS

name

A character string containing the logical name.

table

A character string containing a logical name whose equivalence names are the logical name tables to be searched (the search order is determined when the logical name is defined). The *table* argument defaults to LNM$DEFAULT_ SEARCH whose equivalence names are process, job, group, and system logical name tables, in that order.

index

The number of the equivalence name to return if the logical name has more than one translation; defaults to 0.

mode

A character string containing one of the following access modes (do not abbreviate): USER (default), SUPERVISCR, EXECUTIVE, or KERNEL.

case

A character string containing one of the following (do not abbreviate): CASE_BLIND (F$TRNLNM searches for a logical name match without taking into account character casing; default) or CASE_SENSITIVE (F$TRNLNM searches for an exact logical name match).

item

A character string containing one of the following (do not abbreviate):

Item	Data Type	Information Returned
ACCESS_MODE	string	Access mode associated with the logical name
CONCEALED	integer	TRUE if the logical name is concealed
CONFINE	string	TRUE if the logical name is confined
LENGTH	integer	Length of the equivalence name
MAX_INDEX	integer	Number of logical name translations
NO_ALIAS	string	TRUE if the logical name must be unique within its access mode and outer access modes

Item	Data Type	Information Returned
TABLE	string	TRUE if the logical name is the name of a logical name table
TABLE_NAME	string	Name of the table containing the logical name
TERMINAL	string	TRUE if the logical name cannot be translated iteratively
VALUE	string	Default. Equivalence name

In the following example, the logical name GROUP_NAMES is confined (it is not copied to subprocesses).

```
$ CONFINE = F$TRNLNM ("GROUP_NAMES",,,,,"CONFINE")
$ SHOW SYMBOL CONFINE
  CONFINE = "TRUE"
```

F$TYPE (symbol)

Returns the data type of the symbol. If *symbol* forms a valid integer, F$TYPE returns INTEGER. If *symbol* is a character string whose characters do not form a valid integer, F$TYPE returns STRING. If *symbol* is undefined, F$TYPE returns a null string.

ARGUMENTS

symbol
    A character string or integer which references the name of the symbol to be edited.

The following example returns the data type INTEGER.

```
$ NUM = "673"
$ TYPE = F$TYPE (NUM)
$ SHOW SYMBOL TYPE
  TYPE = "INTEGER"
```

F$USER ( )

Returns as a character string the current UIC, as demonstrated in the following example.

```
$ UIC = F$USER ()
$ SHOW SYMBOL UIC
  UIC = "[DEVELOPMENT,OSGOOD]"
```

F$VERIFY ([procedure][,image])

Returns a value indicating whether the procedure verification setting is on or off. If called with the first argument, turns procedure and image verification on if the argument is 1 and off if the argument is 0. If called with both arguments, turns procedure verification on or off depending on the value of the first argument and turns image verification on or off depending on the value of the second argument. If you specify only the second argument, you must include the comma as a place holder.

ARGUMENTS

procedure

An integer with a value of 1 to turn procedure verification on or a value of 0 to turn procedure verification off.

image

An integer with a value of 1 to turn procedure verification on or a value of 0 to turn procedure verification off.

The following command procedure saves the user's setting of procedure and image verification at the beginning of the procedure and then restores those settings at the end of the procedure.

```
$ ! PROCEDURE.COM
$ !
$ SAVE_PROC_VER = F$ENVIRONMENT ("VERIFY_PROCEDURE")
$ SAVE_IMAGE_VER = F$ENVIRONMENT ("VERIFY_IMAGE")
          .
          .   ! commands
          .
$ GARBAGE = F$VERIFY (SAVE_PROC_VER, SAVE_IMAGE_VER)
```

Appendix MAIL

MAIL

Requires the Common Utilities Option.

The DCL command MAIL sends a specified file to a specified user or users. Typing the MAIL command without a file specification and user name invokes the interactive Mail Utility.

MAIL.1 DCL Command

Use the DCL command MAIL with parameters and the optional /SELF and /SUBJECT qualifiers to send a file to other users without invoking the interactive Mail Utility. Use the DCL command MAIL without parameters and with the optional /EDIT qualifier to invoke the interactive Mail Utility.

MAIL [file-spec] [username,...]

When the optional parameters are specified, MAIL sends a file to the specified user(s). When the optional parameters are not specified, MAIL invokes the interactive Mail Utility.

PARAMETERS

file-spec
> Specification of the file to be sent. No wildcard characters are allowed. The file type defaults to TXT.

username
> Name of the user or distribution list to receive the mail message. If you include a distribution list, precede the name of the list with an at sign (@), and enclose both the at sign and the name in quotation marks.

QUALIFIERS

/EDIT[=(keyword,...)]
/NOEDIT

Invokes EDT for the Mail Utility commands FORWARD, REPLY, or SEND used during the current interactive session. If you do not specify a keyword, the default is MAIL/EDIT=(SEND,REPLY). Possible keywords are:

FORWARD	Invokes EDT to edit the last message read before sending it to the specified users.
REPLY[=EXTRACT]	Invokes EDT to edit your response to the last message read. Specify the keyword EXTRACT to edit the message to which you are replying.
SEND	Invokes EDT to edit the message you are sending.

/SELF
/NOSELF

Sends you a copy of the file you are sending. When you send a message from the DCL command level (instead of from within the Mail Utility), /SELF or /NOSELF overrides any setting you have established with the SET COPY_SELF command.

/SUBJECT= "text"

Specifies the subject of the mail. Enclose *text* in quotation marks if the subject consists of more than one word.

EXAMPLES

$ MAIL/SUBJECT="PROJECT DAWN" DAWN.DAT BRUTUS::OSGOODE, PORTIA::RIPLEY

Sends the file DAWN.DAT to user Osgoode on node BRUTUS and to user Ripley on node PORTIA. The subject of the message is PROJECT DAWN.

$ MAIL DAWN.DAT BRUTUS::OSGOODE,"@ALLBUD"

Sends the file DAWN.DAT to user Osgoode on node BRUTUS and to everyone on the distribution list ALLBUD.DIS.

$ MAIL/NOSELF MYFILE.DAT CHARLES
Sends the file MYFILE.DAT to user CHARLES without sending a copy back to you.

$ MAIL
Invokes the MAIL Utility.

MAIL.2 Interactive Mail Utility

The Mail Utility allows you to send, receive, and manipulate messages either by typing MAIL commands or by entering them on the default MAIL keypad.

MAIL.2.1 MAIL Commands

Type MAIL commands in response to the MAIL prompt.

ANSWER [file-spec]

Sends a response to the message you have just read. If you include a file specification, the specified file is sent as your answer; otherwise, you will be prompted for the text of your message. (ANSWER is interchangeable with REPLY.)

PARAMETERS

file-spec
> The specification of the file to be sent as a reply.

QUALIFIERS

/EDIT
/NOEDIT (default)
> Invokes the editor to create or edit the message you are sending. The EXIT command completes the ANSWER operation; the QUIT command cancels the ANSWER operation. The /NOEDIT qualifier overrides the ANSWER/EDIT default established with the DCL command MAIL/EDIT.

/EXTRACT
> Enables you to use the editor to edit the message to which you are replying rather than starting a new message.

/LAST
> Inserts the message most recently sent as text for the reply. The /LAST qualifier cannot be used with any of the other qualifiers for the ANSWER command or with a file specification.

/SELF
/NOSELF (default)
> Determines whether or not MAIL sends you a copy of your response. The default is /NOSELF, unless you have used the SET COPY_SELF command to specify that copies be sent to you automatically.

ATTACH process name

Transfers control of your terminal from your current process (which then hibernates) to the specified process. (Note that you always SPAWN to a new process and ATTACH to a process that already exists.)

PARAMETERS

process-name
    The name of the process or subprocess to which the connection is to be made.

QUALIFIERS

/PARENT
    Indicates that you want to attach to the parent process of your current process. You cannot specify the process-name parameter with the /PARENT qualifier.

EXAMPLE

```
$ SPAWN MAIL

%DCL-S-SPAWNED, process OSGOODE_1 spawned
%DCL-S-ATTACHED, terminal now attached to process OSGOODE_1
MAIL>  DIRECTORY MAIL
              .
              .
              .
MAIL>  ATTACH OSGOODE
%DCL-S-RETURNED, control returned to process OSGOODE

              .
              .
              .
CTRL/Y
$ ATTACH OSGOODE_1
```

Enters the DCL command SPAWN to create a subprocess (OSGOODE_1), which invokes MAIL and uses the ATTACH command to move between MAIL (OSGOODE_1) and the DCL command level (OSGOODE). The ATTACH command allows you to transfer control between processes.

BACK

Displays the previous message if the last command issued was READ. When the last command issued was the DIRECTORY command, the BACK command displays the previous screen of the directory display.

QUALIFIERS

/EDIT

> Invokes the editor. You can use the editor to peruse the previous message (enter the QUIT command when finished) or you can edit the previous message and save the new version in a sequential file (when finished, enter the EXIT command and supply a file name).

COMPRESS [file-spec]

Makes an ISAM mail file smaller. When you compress a file, the following four steps occur:

1. A temporary file named MAIL＿nnnn＿COMPRESS.TMP is created (nnnn is a unique four-digit number).

2. The contents of the file to be compressed are copied to the temporary file and compressed.

3. The original (uncompressed) file is renamed with a file type of OLD.

4. The newly compressed file is renamed from MAIL＿nnnn＿COMPRESS.TMP to its original name.

PARAMETERS

file-spec

> The name of the mail file to be compressed. If the name of a file is not specified, MAIL will compress the mail file that is currently open. If there is no open mail file, MAIL will compress the default mail file, MAIL.MAI.

QUALIFIERS

/OUTPUT=output-file-spec

> Specifies the name of the compressed file.

EXAMPLE

```
MAIL> COMPRESS SOCIAL.MAI
%MAIL-S-CREATED, WORKDISK:[OSGOODE]MAIL_08C8_COMPRESS.TMP;1 created
%MAIL-S-COPIED, WORKDISK:[OSGOODE]SOCIAL.MAI;1 copied to
WORKDISK:[OSGOODE]
MAIL_08C8_COMPRESS.TMP;1 (2 records)
%MAIL-S-RENAMED, WORKDISK:[OSGOODE]SOCIAL.MAI;1 renamed to
WORKDISK:[OSGOODE]
SOCIAL.OLD;2
%MAIL-S-RENAMED, WORKDISK:[OSGOODE]MAIL_08C8_COMPRESS.TMP;1 renamed to
WORKDISK:[OSGOODE]SOCIAL.MAI;1
```

Compresses the contents of a file named SOCIAL.MAI.

COPY foldername [filename]

Copies a message to another folder without deleting it from the current folder. If the specified folder does not exist, it is created. (Enter CTRL/C to cancel the operation without exiting from MAIL.)

PARAMETERS

foldername

The name of the folder to which the message is to be copied. If the specified folder does not exist (and you have not entered the qualifier /NOCONFIRM) you are asked whether you want to create it. A folder name can be 1 to 39 characters in length. Valid characters for folder names are A through Z, a through z, $, _, and 0 through 9.

filename

The name of the mail file to which the message is copied. The default is the current mail file. If the specified mail file does not exist, it is created.

QUALIFIERS

/ALL

Copies all the currently selected messages to another folder. (See the SELECT command for more information on selecting messages.)

/CONFIRM (default)
/NOCONFIRM

Determines whether or not you will be queried about creating a new folder.

EXAMPLE

```
MAIL> 2
        .
        .
        .
MAIL> COPY
_Folder: MEMOS
_File: RETURN
Folder MEMOS does not exist.
Do you want to create it (Y/N, default is N)? Y

%MAIL-I-NEWFOLDER, folder MEMOS created
```

Puts a copy of mail message #2 into the new folder MEMOS in the default mail file.

CURRENT

Displays the beginning of the message you are currently reading.

QUALIFIERS

/EDIT

> Invokes the editor. You can invoke the editor to peruse the current message (enter the QUIT command when finished) or you can edit the current message and save the new version in a sequential file (enter the EXIT command and supply a file name).

DEFINE/KEY key-name string

Defines a key to execute a MAIL command. Defining a key enables you to press that key to enter a command instead of typing the command name. For information on the MAIL keypad, see Section MAIL.3.

To increase the number of key definitions available on your terminal, you can use the /SET_STATE qualifier. The same key can be assigned any number of definitions as long as each definition is associated with a different key state. State names can be any alphanumeric string (for example, GOLD, SWITCH, SNAG1, or SNAG2).

Any key definitions you define during a MAIL session will disappear when you EXIT from the Mail Utility. To retain keypad key definitions from one MAIL session to another, create a file in your top-level directory with a file type of INI containing these definitions (for example, MAIL_KEYDEF.INI). Enter the following command in your login command file (LOGIN.COM):

```
$ DEFINE MAIL$INIT SYS$LOGIN:MAIL_KEYDEF.INI
```

The file you create (MAIL_KEYDEF.INI) containing your key definitions will act as a login command file for MAIL.

PARAMETERS

key-name

> The name of the key you are defining.

The following table lists the key names to use when you define keys:

Keyname	VT100 Key	VT200 Key
PF1	PF1	PF1
PF2	PF2	PF2
PF3	PF3	PF3
PF4	PF4	PF4
KP0, KP1– KP9	Keypad 0– 9	Keypad 0– 9
PERIOD	Period key	Period key
COMMA	Comma key	Comma key
MINUS	Minus key	Minus key
ENTER	Enter key	Enter key
FIND, INSERT HERE	—	Find, Insert Here
REMOVE, SELECT	—	Remove, Select
PREV_SCREEN	—	Prev Screen
NEXT_SCREEN	—	Next Screen
HELP, DO	—	Help(F15), Do(F16)
F17– F20	—	Function Keys F17– F20

(Note that you cannot define the arrow keys or function keys F1 through F14.) The keys
PF1– PF4, KP0– KP9, PERIOD, COMMA, MINUS, and ENTER all have default definitions.
You may, however, override those definitions with your own key definitions.

PARAMETERS

string

The MAIL command string to be entered when the specified key is pressed.

QUALIFIERS

/ECHO (default)
/NOECHO

Specifies whether or not the command line is echoed after you press the defined
key. You cannot define a key specifying both /NOECHO and /NOTERMINATE.

/IF_STATE=state-list
/NOIF_STATE=state-list (default)

Specifies a list of one or more states, one of which must be set in order to enable
the specified key definition. If you omit or negate this qualifier, the default is the
current state.

/LOCK_STATE
/NOLOCK_STATE (default)

> Retains the state specified by the /SET_STATE qualifier until you use the
> /SET_STATE qualifier again to change it.

/LOG (default)
/NOLOG

> Specifies whether or not informational messages that signal successfully created
> key definitions are displayed.

/SET_STATE=state-name
/NOSET_STATE=state-name (default)

> Associates a state with the key you are defining. A state name can be any
> alphanumeric string. If you omit or negate this qualifier, the current state
> remains unchanged. You cannot define a key specifying both /SET_STATE and
> /TERMINATE.

/TERMINATE
/NOTERMINATE (default)

> Determines whether or not the specified command string executes when you
> press the key. When you use /NOTERMINATE you must press RETURN to
> execute the command string. You cannot define a key specifying both
> /SET_STATE and /TERMINATE.

EXAMPLE

MAIL> `DEFINE/KEY PF4 "SET" /SET_STATE=SUB2`

MAIL> `DEFINE/KEY KP3 "FOLDER" /ECHO/TERMINATE/IF_STATE=SUB2`

The first command defines the PF4 keypad key as the SET command and associates
this key with the state named SUB2. The second command defines keypad key 3 to
be "FOLDER" and makes it dependent on a state named SUB2. When you press the
PF4 key followed by keypad key 3, MAIL executes the SET FOLDER command.

DELETE [message-number]

Moves the specified message to the WASTEBASKET folder. The message is not
actually deleted until you exit from MAIL or read another message file. If you enter
QUIT or CTRL/Y before exiting from MAIL or before reading another message, the
delete operation is canceled. To recover a message from the WASTEBASKET folder,
SELECT the WASTEBASKET folder, READ the desired message, and MOVE it to
another folder.

PARAMETERS

message-number
> The number of the message that is to be deleted from the current folder. Defaults
> to the most recently read mail message.

QUALIFIERS

/ALL
> Deletes all the messages in the currently selected folder (see the SELECT
> command for more information).

EXAMPLE

MAIL> DELETE 2

Deletes message number 2 from the current folder.

DIRECTORY [foldername]

Displays a list of the currently selected messages in the specified folder, listing
message number, sender's name and node, date, and subject. If there are no
currently selected messages, MAIL displays a directory of the messages in the
NEWMAIL folder (if any unread messages exist) or the MAIL folder. (See the
SELECT command for more information about selecting messages.)

PARAMETERS

foldername
> The name of the folder containing the messages you want to display. If the
> folder name is omitted, MAIL displays a directory of the current folder.

QUALIFIERS

/BEFORE=date
> Lists all the mail messages received before the specified date. Specify the
> date as DD-MMM-YYYY or specify one of the following keywords: TODAY,
> TOMORROW, or YESTERDAY. The default is the current date ("today").

/FOLDER
> Lists all the folders contained in the current mail file.

/FULL
> Displays the number of records in the message and indicates whether or not you
> have replied to the message.

/NEW
> Lists any new (unread) mail messages. When there are no unread messages,
> MAIL displays the message "No new messages".

/SINCE=date
> Lists all the mail messages received on or after the specified date. Specify the date as DD-MMM-YYYY or specify one of the following keywords: TODAY, TOMORROW, or YESTERDAY. The default is the current date ("today").

/START=start-point
> Displays a listing of all the mail messages beginning with the message number indicated. If you specify a starting number larger than the number of messages in the current folder, MAIL displays a listing of the last few messages in that folder. To display an alphabetical listing of a group of folders, specify /FOLDER and indicate the first folder name you want to display as *start-point*.

EXAMPLES

MAIL> DIRECTORY/SINCE=11-NOV-1986 DEADLINE

```
                                                        DEADLINE
# From                  Date              Subject

1 BRUTUS::OSGOODE       11-NOV-1986       APPENDIX A
2 PORTIA::RIPLEY        12-NOV-1986       DEADLINES
3 UTOPIA::BARBER         3-DEC-1986       A REMINDER
```
Lists the sender, date, and subject of mail messages received on or after November 11, 1986, that are currently located in the DEADLINE folder.

MAIL> DIRECTORY/FOLDER/START=DEMOS
```
Listing of folders in WORKDISK:[OSGOODE]MAIL.MAI;1
      Press CTRL/C to cancel listing
DEMOS                                   MAIL
MEMOS                                   WASTEBASKET
```
Lists the folders in the file MAIL.MAI;1, beginning with the folder named DEMOS.

EDIT filename

By default, the EDIT command invokes the EDT editor, allowing you to edit a file before you send it. If you have copied MAILEDIT.COM from SYS$SYSTEM and have redefined MAIL$EDIT to invoke another editor (see Section 3.10.1.3), the EDIT command invokes the other editor. (See Chapter 7 for information about the EDT editor.)

PARAMETERS

filename
> The name of the file you want to edit. If you do not specify a file name, MAIL prompts you for one.

QUALIFIERS

/COMMAND=file-spec (default)
/NOCOMMAND

Indicates the name of a startup command file executed before the editing session begins. The default (for the EDT editor) is the EDTINI.EDT command file.

/CREATE (default)
/NOCREATE

Determines whether the editor creates a new file when the specified input file is not found. (MAIL prompts you for a file name when you do not specify one on the EDIT command line.)

/JOURNAL=file-spec (default)
/NOJOURNAL

Determines whether the editor keeps a journal file during an editing session, and when it does, determines the specification of that journal file. The default (for the EDT editor) is /JOURNAL=filename.JOU, where filename is the name of the file being edited.

/OUTPUT=file-spec (default)
/NOOUTPUT

Determines whether the editor creates an output file during the editing session and specifies the name of the output file. The default is /OUTPUT=input-file-spec, in which the version number becomes the highest for that file specification.

/READ_ONLY
/NOREAD_ONLY (default)

Determines whether both an output file and journal file are created. With the default, /NOREAD_ONLY, the editor maintains the journal file from which you can recover your edits if an interruption occurs and creates an output file when the EXIT command is entered. Use the /READ_ONLY qualifier when you are merely reading a file and do not intend to make changes to the file. When you use the /READ_ONLY qualifier, enter the QUIT command; you must provide a file specification if you want to use the EXIT command to save any changes you have made to the file.

/RECOVER
/NORECOVER (default)

Determines whether a journal file is executed before the editing session begins. If the name of the journal file is different from that of the input file, you must specify it with the /JOURNAL qualifier.

EXAMPLE

MAIL> EDIT/OUTPUT=STATUS_2.DAT STATUS.DAT

Invokes the editor to edit the file STATUS.DAT and names the output file
STATUS_2.DAT.

ERASE

Clears your screen and issues the MAIL> prompt.

EXIT

Returns you to DCL command level. (You may also exit from MAIL by pressing
CTRL/Z.)

EXTRACT file-spec

Places a copy of the current message into the specified sequential file.

PARAMETERS

file-spec

> The name of the output file to which the message is copied. The default file type
> is TXT. By default, the device and the directory will match your current default
> device and directory.

QUALIFIERS

/ALL

> Copies all the messages in the currently selected folder to the specified output
> file, separating them with form feeds.

/APPEND

> Adds the current message to the end of the specified file. If the file does not
> exist, it is created.

/HEADER (default)
/NOHEADER

> Either includes or removes the header information (From: To: Subject:) from the
> mail message.

/MAIL

> Specifies that the output file be a sequential mail file with a default file type of
> MAI and a protection code of (S:RW,O:RW,G,W). By default, the device and
> directory will match your current mail file directory. Like /APPEND, /MAIL
> adds the selected message to the end of the specified file.

EXAMPLE

```
MAIL>2

     #2              3-APR-1986 10:24:16                          MAIL
From:   MEADOW::SMITH
To:     BRUTUS::OSGOODE
Subj:   Product Demo

There will be a demonstration of our new product in the Main Lobby
at 3:30 on Friday.  Please try to attend.
MAIL> EXTRACT/NOHEADER DEMOS.DAT

%MAIL-I-CREATED, WORKDISK:[OSGOODE]DEMOS.DAT;1 created
```

Places a copy of message number 2 (of the MAIL folder) in the sequential file called DEMOS.DAT. The /NOHEADER qualifier prevents the header information from being copied.

FILE foldername [filename]

Moves the message most recently read to the specified folder and deletes it from the current folder. Enter CTRL/C to cancel the FILE operation without exiting from MAIL. (FILE is interchangeable with MOVE.)

PARAMETERS

foldername

   The name of the folder to which the current message is moved. If the specified folder does not exist, you are asked whether you want to create it. A folder name can be 1 to 39 characters in length. Valid characters for folder names are A through Z, a through z, $, _, and 0 through 9.

filename

   The name of the file to which the current message is moved. If the file name is omitted, the message is moved to the specified folder in the current file.

QUALIFIERS

/ALL

   Moves all the currently selected messages to the specified folder.

/CONFIRM (default)
/NOCONFIRM

   Determines whether or not you will be queried about creating a new folder.

EXAMPLE

```
MAIL>2

     #2              3-APR-1986 10:24:16                    MAIL
From:   MEADOW::SMITH
To:     BRUTUS::OSGOODE
Subj:   Product Demo

There will be a demonstration of our new product in the Main Lobby
at 3:30 on Friday.  Please try to attend.
MAIL> FILE DEMOS

Folder DEMOS does not exist.
Do you want to create it (Y/N, default is N)? Y

%MAIL-I-NEWFOLDER, folder DEMOS created
```

Moves message number 2 from the MAIL folder to the newly created DEMOS folder in the current MAIL file.

FIRST

Displays the first message in the currently selected folder.

QUALIFIERS

/EDIT

Invokes the editor. You can use the editor to peruse the first message (enter the QUIT command when finished) or you can edit the first message and save the new version in a sequential file (enter the EXIT command and supply a file name).

FORWARD

Sends a copy of the message most recently read to the specified user or users. MAIL prompts you for the name of the user(s) to whom you want to forward the message. Enter CTRL/C to cancel the FORWARD operation without exiting from MAIL.

QUALIFIERS

/EDIT

Invokes the editor to edit the message you are forwarding.

/HEADER (default)
/NOHEADER

Either includes or removes the header information (From: To: Subj:) from the message you are forwarding.

EXAMPLE

MAIL> 2

```
    #2              3-APR-1986 10:24:16                          MAIL
From:   MEADOW::SMITH
To:     BRUTUS::OSGOODE
Subj:   Product Demo

There will be a demonstration of our(new product in the Main Lobby
at 3:30 on Friday.  Please try to attend.
```

MAIL> FORWARD/NOHEADER
```
To:     BRUTUS::WILSON
Subj:   FYI
```
Forwards mail message #2, with the original header information removed, to user
Wilson on node BRUTUS.

HELP [topic [subtopic]...]

Displays information about MAIL commands or topics.

PARAMETERS

topic

The topic about which you want information. To display a list of MAIL topics on
which HELP is available, type HELP after the MAIL> prompt.

EXAMPLE

MAIL> HELP EXTRACT /APPEND

Displays information about the /APPEND qualifier for the MAIL command
EXTRACT.

LAST

Displays the last message in the currently selected folder.

QUALIFIERS

/EDIT

Invokes the editor. You can use the editor to peruse the last message (enter
the QUIT command when finished) or you can edit the last message and save
the new version in a sequential file (enter the EXIT command and supply a file
name).

MAIL [file-spec]

Sends a message (or file) to another user or users. MAIL prompts you first for the name of the user(s) to whom you are sending the message. You enter the username(s) and/or the file name of the distribution list file(s) in the following format:

[NODENAME::USERNAME,...][,@LISTNAME]

Next, MAIL prompts you for the subject of the message. If you include a file specification in the MAIL command, the text of that file is sent to the specified user(s). If you do not specify a file, MAIL prompts you for the text of your message. The message is sent when you press CTRL/Z, or it is canceled when you press CTRL/C. (MAIL is interchangeable with SEND.)

PARAMETERS

file-spec
> The name of the file to be sent.

QUALIFIERS

/EDIT
/NOEDIT (default)
> Invokes the editor to edit the message you are sending. The EXIT command completes the MAIL operation; the QUIT command cancels the MAIL operation. The /NOEDIT qualifier overrides the MAIL/EDIT default established with the DCL command MAIL/EDIT.

/LAST
> Uses the last message you sent as the text for the message you are currently sending. The /LAST qualifier cannot be used in conjunction with other qualifiers for the MAIL command or a file specification.

/SELF
/NOSELF (default)
> Determines whether or not MAIL sends you a copy of the message you are sending. The /NOSELF qualifier overrides the SET COPY_SELF command.

/SUBJECT="subject-text"
> Specifies the subject of the mail message to be sent. The text of the subject must be enclosed in quotation marks.

EXAMPLE

MAIL> MAIL/SELF

To: BRUTUS::WILSON
Subj: DEADLINES
Enter your message below. Press CTRL/Z when complete or CTRL/C to quit:
What is the deadline on the DAWN project report? CTRL/Z
Sends a message to user WILSON and sends you a copy of that message.

MOVE foldername [filename]

Moves the current message to the specified folder. (MOVE is interchangeable with FILE.)

PARAMETERS

foldername

> The name of the folder to which the current message is moved. If the specified folder does not exist (and you have not entered the qualifier /NOCONFIRM), you are asked whether you want to create it. A folder name can be 1 to 39 characters in length. Valid characters for folder names are A through Z, a through z, $, _, and 0 through 9.

filename

> The name of the file to which the current message is moved. If the specified file does not exist, it is created. If the file name is omitted, the message is moved to the specified folder in the current file.

QUALIFIERS

/ALL

> Moves all the currently selected messages to the specified folder.

/CONFIRM (default)
/NOCONFIRM

> Determines whether or not you will be queried about creating a new folder.

NEXT

Displays the next message.

QUALIFIERS

/EDIT

Invokes the editor. You can use the editor to peruse the next message (enter
the QUIT command when finished) or you can edit the next message and save
the new version in a sequential file (enter the EXIT command and supply a file
name).

PRINT

Requires the Secure User Environment Option.

Queues a copy of the most recently read message for printing. The files created by
the PRINT command are not actually released to the print queue until you exit from
MAIL so that multiple messages will be concatenated into one print job.

QUALIFIERS

/ALL

Queues for printing all messages in the current folder.

/COPIES=n

Indicates the number of copies to be printed.

/NOTIFY

Indicates that you will be notified by a broadcast message when the files have
been printed.

/PRINT

Releases all messages previously queued with the PRINT command to the print
queue. If you do not specify the /PRINT qualifier, messages are not released
to the print queue until you exit from MAIL. The only qualifier you can specify
with /PRINT is /NOTIFY.

/QUEUE=queue-name

Specifies the queue to which a message is to be sent. The default is the last
queue name specified (or, if no queue name has been specified, SYS$PRINT).
If you want file separation pages between each MAIL message that you print,
send the messages to an execution queue with appropriate default file separation
pages. If no queue name is specified, file separation pages are not generated
between each MAIL message.

EXAMPLE

MAIL>2

    #2   3-APR-1986 10:24:16   MAIL
From: MEADOW::SMITH
To: BRUTUS::OSGOODE
Subj: Product Demo

There will be a demonstration of our new product in the Main Lobby
at 3:30 on Friday. Please try to attend.

MAIL> PRINT/QUEUE=LMNO

MAIL> EXIT
   Job 434 entered on queue FAST_PRINT
Prints message number 2 on printer LMNO.

PURGE

Deletes all the messages in the WASTEBASKET folder. When you exit from
MAIL or issue the SET FILE command, an automatic PURGE is done to empty
the WASTEBASKET folder.

QUALIFIERS

/RECLAIM

Releases deleted message space for reuse. If the /RECLAIM qualifier is omitted,
an automatic PURGE/RECLAIM is done when the amount of deleted space in a
MAIL file exceeds the maximum limit.

/STATISTICS

Provides a short statistics display indicating the amount of released message
space when you use the PURGE/RECLAIM command.

EXAMPLE

MAIL>PURGE/RECLAIM/STATISTICS

Reclaim Statistics:
        Data buckets scanned: 14
        Data buckets reclaimed: 0
        Index buckets reclaimed: 0
        Total Buckets reclaimed: 0
Deletes all the messages from the WASTEBASKET folder, releases the deleted
message space for reuse, and displays information about the deleted message space.

QUIT

Returns you to DCL command level without deleting any messages that you
have previously marked for deletion. Thus, if you accidentally issue the DELETE
command, use the QUIT command in place of the EXIT command to exit from
MAIL. (The messages you marked for deletion will remain in the WASTEBASKET
folder.

READ [foldername] [message-number]

Displays a message. READ is the default command for the Mail Utility. Pressing
RETURN in response to the MAIL> prompt issues the READ command without
parameters. Entering just a number issues the READ command with the message-
number parameter. (Pressing RETURN while you are reading a message of several
pages displays the next page of the message.) If you issue the READ command
after invoking MAIL, MAIL displays the first page of the oldest unread message in
your NEWMAIL folder. If there are no unread messages, MAIL displays the oldest
message in the MAIL folder. To display a mail message that arrives while you are
using the Mail Utility interactively, type:

MAIL> READ/NEW

PARAMETERS

foldername

> The name of the folder containing the message to be read. If no folder name is
> specified, MAIL displays a message from the current folder.

message-number

> The number of the message to be read. The message number represents the
> position of a message in a folder. If you specify a number greater than the
> number of messages in a folder, MAIL displays the last message in the folder.

QUALIFIERS

/BEFORE=date

> Displays all the mail messages received before the specified date. Specify the
> date as DD-MMM-YYYY or specify one of the following keywords: TODAY,
> TOMORROW, or YESTERDAY. The default is the current date ("today").

/EDIT

> Invokes the editor. You can use the editor to peruse the current message (enter
> the QUIT command when finished) or you can edit the current message and save
> the new version in a sequential file (enter the EXIT command and supply a file
> name).

/NEW

Displays new mail messages received while you are in MAIL. If there are no new messages, the message "No new messages" will be displayed.

/SINCE=date

Displays all mail messages received on or after the specified date. Specify the date as DD-MMM-YYYY or specify one of the following keywords: TODAY, TOMORROW, or YESTERDAY. The default is the current date ("today").

EXAMPLE

```
MAIL> DEMOS 2

        #2              3-APR-1986 10:24:16                    DEMOS
From:    MEADOW::SMITH
To:      BRUTUS::OSGOODE
Subj:    Product Demo

There will be a demonstration of our new product in the Main Lobby
at 3:30 on Friday.  Please try to attend.
```
Displays message #2 in the folder named DEMOS.

REPLY [file-spec]

Sends a response to the message you have just read. If you include a file specification, the specified file is sent as your response; otherwise, you will be prompted for the text of your reply. If you change your mind about replying to a message after you have already entered the REPLY command, enter CTRL/C to cancel the REPLY operation without exiting from MAIL.

PARAMETERS

file-spec

The specification of the file to be sent as a reply.

QUALIFIERS

/EDIT
/NOEDIT (default)

Invokes the editor to create or edit the message you are sending. The EXIT command completes the REPLY operation; the QUIT command cancels the REPLY operation. The /NOEDIT qualifier overrides the REPLY/EDIT default established with the DCL command MAIL/EDIT.

/EXTRACT

Enables you to use the editor to edit the message you have received rather than starting a new message.

/LAST

> Inserts the message most recently sent as text for the reply. The /LAST qualifier cannot be used with any of the other qualifiers for the REPLY command or with a file specification.

/SELF
/NOSELF (default)

> Determines whether or not MAIL sends you a copy of your response. The default is /NOSELF, unless you have used the SET COPY_SELF command to specify that copies be sent to you automatically.

EXAMPLE

```
MAIL> 2

      #2                3-APR-1986 10:24:16                          MAIL
From:    MEADOW::SMITH
To:      BRUTUS::OSGOODE
Subj:    Product Demo

There will be a demonstration of our new product in the Main Lobby
at 3:30 on Friday.  Please try to attend.

MAIL> REPLY

To:      MEADOW::SMITH
Subj:    RE: Product Demo
Enter your message below. Press CTRL/Z when complete or CTRL/C to quit:
Have the programs arrived yet? CTRL/Z
```
Responds to the sender of message #2.

SEARCH [search-string]

Displays the first message in the current folder that contains the first occurrence of the specified text string. (The entire message is searched, including responses to the From:, To:, and Subj: prompts.)

PARAMETERS

search-string

> The text string that MAIL searches for in the current folder. The search starts with the first message in the current folder. If a search string is not specified, a search is made for the previously specified string, starting after the message you have just read. Uppercase and lowercase differences in the search string are ignored.

EXAMPLE

MAIL> SEARCH Main Lobby

```
    #2              3-APR-1986 10:24:16                        MAIL
From:   MEADOW::SMITH
To:     BRUTUS::OSGOODE
Subj:   Product Demo

There will be a demonstration of our new product in the Main Lobby
at 3:30 on Friday.  Please try to attend.
```

Searches for the string "Main Lobby" in the current folder.

SELECT foldername

Establishes a set of messages that you can affect as a group with the following commands:

COPY
DELETE
DIRECTORY
EXTRACT
MOVE
READ
SEARCH

You can also use SELECT to move from one folder to another by specifying a folder name. If you select a folder that does not exist, MAIL displays the following message:

`%MAIL-E-NOTEXIST, folder foldername does not exist`

PARAMETERS

foldername

The name of the folder to be selected. If no folder name is specified, the MAIL folder is selected.

QUALIFIERS

/BEFORE=date

Selects mail messages dated before the specified date. Specify the date as DD-MMM-YYYY or specify one of the following keywords: TODAY, TOMORROW, or YESTERDAY. The default is the current date (TODAY).

/NEW

Selects new (unread) mail messages. When a mail file other than your default mail file is open, MAIL closes that file and opens your default mail file.

/SINCE=date

> Selects mail messages dated on or after the specified date. Specify the date as DD-MMM-YYYY or specify one of the following keywords: TODAY, TOMORROW, or YESTERDAY. The default is the current date ("today").

EXAMPLE

MAIL> SELECT DEADLINE

%MAIL-I-SELECTED, 4 messages selected

MAIL> DIRECTORY

```
                                                          DEADLINE
   # From                  Date              Subject

   1 UTOPIA::SABIN         10-SEP-1986       REVIEW DATE
   2 BRUTUS::OSGOODE       11-NOV-1986       APPENDIX A
   3 PORTIA::RIPLEY        12-NOV-1986       DEADLINES
   4 UTOPIA::BARBER         3-DEC-1986       A REMINDER
```
Selects the DEADLINE folder and displays its contents.

SEND [file-spec]

Sends a message (or file) to another user or users. MAIL prompts you first for the name of the user(s) to whom you are sending the message. You enter the username(s) and/or the file name of a distribution list file in the following format:

[nodename::username,...][,@listname,...]

Next, MAIL prompts you for the subject of the message. If you include a file specification in the SEND command, the text of that file is sent to the specified user(s). If you do not specify a file, MAIL prompts you for the text of your message. The message is sent when you press CTRL/Z, or it is canceled when you press CTRL/C. (SEND is interchangeable with MAIL.)

PARAMETERS

file-spec

> The name of the file to be sent.

QUALIFIERS

/EDIT
/NOEDIT (default)

> Invokes the editor to edit the message you are sending. The EXIT command completes the SEND operation; the QUIT command cancels the SEND operation. The /NOEDIT qualifier overrides the SEND/EDIT default established with the DCL command MAIL/EDIT.

/LAST
   Uses the last message you sent as the text for the message you are currently sending. The /LAST qualifier cannot be used with other qualifiers for the SEND command or with a file specification.

/SELF
/NOSELF (default)
   Determines whether or not MAIL sends you a copy of the message you are sending. The /NOSELF qualifier overrides the SET COPY_SELF command.

/SUBJECT="subject-text"
   Specifies the subject of the mail message to be sent. The text of the subject must be enclosed in quotation marks.

EXAMPLE

MAIL> SEND/EDIT DAWN.DAT

To: BRUTUS::WILSON
Subj: PROJECT DAWN
           .
           .
           .
        CTRL/Z
        *EXIT

Sends a file, invoking the editor to edit the file before sending it. The EXIT command completes the SEND operation.

SET [NO]AUTO_PURGE

Determines whether or not MAIL automatically empties the WASTEBASKET folder when you enter the EXIT or SET FILE commands. The condition you establish with the SET AUTO_PURGE command remains in effect until you issue the SET NOAUTO_PURGE command. When you establish the SET NOAUTO_PURGE condition, you must enter the PURGE command periodically to delete the messages in the WASTEBASKET folder. The default is SET AUTO_PURGE.

SET COPY_SELF command [,command]

PARAMETERS

command
   One of the following MAIL commands: SEND, REPLY, NOSEND, NOREPLY.

EXAMPLE

MAIL> SET COPY_SELF SEND

Enables copies of the mail messages you send to be sent to you.

SET FILE filename

Opens the file specified by *filename* as the current mail file. Your default mail file is MAIL.MAI. If you have created other mail files with the COPY, FILE, or MOVE commands, you can then use the SET FILE command to open those files. When you enter the SET FILE command, the WASTEBASKET folder of the current mail file is emptied, the file is closed, and the specified (alternate) file is opened.

PARAMETERS

filename

The name of the mail file you are opening.

EXAMPLE

```
MAIL> 7
      #7              1-APR-1986 12:22:12                        MAIL
From:    EMEER::FRANK
To:      BRUTUS::OSGOODE
Subj:    Dinner at our place

My wife and I are having a small group over for dinner this Saturday
evening; would you care to join us?  R.S.V.P. appreciated.
                                                      - Stanley

MAIL> COPY FRANK SOCIAL

%MAIL-S-CREATED, WORKDISK:[OSGOODE]SOCIAL.MAI;1 created
Folder FRANK does not exist.
Do you want to create it (Y/N, default is N)? Y
%MAIL-I-NEWFOLDER, folder FRANK created

MAIL> SET FILE SOCIAL

MAIL> DIRECTORY FRANK

                                                              FRANK
  # From                    Date              Subject

  1 EMEER::FRANK            1-APR-1986        Dinner at our place
```

Reads message number 7 in the MAIL folder; uses the COPY command to create a new file (SOCIAL) and a new folder (FRANK) within that file; opens the mail file named SOCIAL.MAI with the SET FILE command; and lists the contents of the folder named FRANK.

SET FOLDER [foldername]

Establishes a set of messages that you can affect with the following commands:

COPY
DELETE
DIRECTORY
EXTRACT
MOVE
READ
SEARCH

You can also use the SET FOLDER command to move from one folder to another. (SET FOLDER is interchangeable with SELECT.)

PARAMETERS

foldername

The name of the folder to be selected. If no folder name is specified, the MAIL folder is selected.

QUALIFIERS

/BEFORE=date

Selects mail messages dated before the specified date. Specify the date as DD-MMM-YYYY or specify one of the following keywords: TODAY, TOMORROW, or YESTERDAY. The default is the current date ("today").

/NEW

Selects new (unread) mail messages. When a mail file other than your default mail file is open, MAIL closes that file and opens your default mail file.

/SINCE=date

Selects mail messages dated on or after the specified date. Specify the date as DD-MMM-YYYY or specify one of the following keywords: TODAY, TOMORROW, or YESTERDAY. The default is the current date ("today").

SET [NO]FORWARD address

Sets the forwarding address for your mail to the address you specify. The default you establish with the SET FORWARD command remains in effect until you enter the SET NOFORWARD command. The default is SET NOFORWARD.

PARAMETERS

address
    The address (NODE::USERNAME) to which your mail is forwarded.

QUALIFIERS

/USER=username
    Indicates the name of another user for whom you are setting a forwarding
    address. You must have SYSNAM privilege to use the /USER qualifier.

EXAMPLE
MAIL> SET FORWARD MEADOW::SMITH
Establishes a forwarding address for user SMITH on node MEADOW.

SET [NO]MAIL‗DIRECTORY [.subdirectory-name]

Specifies that all your MAI files be moved from your previous mail directory (which
by default is SYS$LOGIN:) to the specified subdirectory. The SET
NOMAIL‗DIRECTORY command specifies that all MAI files be moved from the
subdirectory back to your mail directory (which by default is SYS$LOGIN:).

PARAMETERS

subdirectory-name
    The name of the subdirectory in your SYS$LOGIN: directory to which all the
    MAI files are to be moved. The subdirectory name must be preceded by a period.

QUALIFIERS

/LOG
    Displays a listing of the MAI files moved from the previous directory to the
    specified subdirectory.

EXAMPLE
$ SHOW TRANSLATION SYS$LOGIN

 SYS$LOGIN = "WORKDISK:[OSGOODE]"   (LNM$PROCESS_TABLE)
$ MAIL

MAIL> SET MAIL_DIRECTORY [.MESSAGES]

%MAIL-I-CREATED, WORKDISK:[OSGOODE.MESSAGES] created

Enters the DCL command SHOW TRANSLATION SYS$LOGIN to display the
current default directory; issues the DCL command MAIL to enter the interactive
Mail Utility; and then creates a subdirectory named OSGOODE.MESSAGES for user
Osgoode containing all the MAI files that were previously located in the default
directory named OSGOODE.

SET [NO]PERSONAL_NAME "text-string"

Enables you to append the specified text string to the end of the "From:" field of mail messages you send. You can fill this field with your full name or any other information. The SET NOPERSONAL_NAME command clears any name you previously specified with the SET PERSONAL_NAME command.

PARAMETERS

text-string

A string of up to 127 characters enclosed in quotation marks. You must begin the string with an alphanumeric character and avoid two consecutive embedded spaces within the string.

EXAMPLE

```
MAIL> SET PERSONAL_NAME "Product Design Division"

MAIL> SEND/SELF

To:     EMEER::FRANK
Subj:   R.S.V.P.
Enter your message below. Press CTRL/Z when complete or CTRL/C to quit:
I would be happy to join you and Janice for dinner. CTRL/Z

New mail on node BRUTUS from BRUTUS::OSGOODE "Product Design Division"
```
Sets the personal name for user OSGOODE to "Product Design Division".

SET WASTEBASKET_NAME foldername

Enables you to change the name of the WASTEBASKET folder, which contains messages that you have selected for deletion. When you change the name of the WASTEBASKET folder while it contains deleted messages, these deleted messages move to the newly named WASTEBASKET folder.

PARAMETERS

foldername

The name that replaces "WASTEBASKET" for the folder containing deleted messages. The folder name can be any alphanumeric string 1 to 39 characters in length except MAIL or NEWMAIL. Valid characters for folder names are A through Z, a through z, $, _, and 0 through 9.

SHOW ALL

Displays detailed information about the state of MAIL.

EXAMPLE

MAIL> SHOW ALL

Your mail file directory is WORKDISK:[OSGOODE].
Your current mail file is WORKDISK:[OSGOODE.NEWMAIL]MAIL.MAI;1.
Your current mail folder is MAIL.
The wastebasket folder name is GARBAGE.
Mail file WORKDISK:[OSGOODE.NEWMAIL]MAIL.MAI;1
        contains 0 deleted message bytes.

You have 3 new messages.

You have not set a forwarding address.
Your personal name is "John Osgoode, Marketing Representative"
Automatic copies to yourself are enabled.
Automatic deleted message purge is disabled.
Displays information about MAIL for a user named John Osgoode.

SHOW AUTO_PURGE

Displays whether or not MAIL automatically empties the WASTEBASKET folder when you enter the EXIT or FILE command.

SHOW COPY_SELF

Displays whether or not the SEND or REPLY command returns a copy of the message to you.

SHOW DELETED

Displays the amount of deleted message space in the current mail file.

EXAMPLE

MAIL> SHOW DELETED

Mail file WORKDISK:[OSGOODE]MAIL.MAI;1
        Contains 2452 deleted message bytes
Displays the number of deleted message bytes for a user named Osgoode.

SHOW FILE

Displays the name of the mail file that is currently open.

SHOW FOLDER

Displays the name of the current folder.

SHOW FORWARD

Displays the names of the specified forwarding addresses.

QUALIFIERS

/USER=username
Indicates the name of the user whose forwarding address you are displaying. You must have SYSNAM privilege to use the /USER qualifier.

SHOW KEY [key-name]

Displays the key definitions created by the DEFINE/KEY command.

PARAMETERS

key-name
The name of the key whose definition you want displayed. See the DEFINE/KEY command for a list of the valid key names.

QUALIFIERS

/ALL
Displays all the key definitions in the specified state or states.

/BRIEF
Displays only the key definition. (By default, you see all the qualifiers associated with the key definition, including any specified state.)

/DIRECTORY
Displays the names of all the states for which keys have been defined. If you have not defined any keys, SHOW KEY/DIRECTORY displays the DEFAULT and GOLD states (for the default and GOLD key definitions on the MAIL keypad).

/STATE=(state-name,state-name...)
Specifies the name of the state for which the specified key definition(s) are to be displayed. If you specify two or more state names, separate them with commas and enclose the list in parentheses.

EXAMPLE

MAIL> `SHOW KEY MINUS`

```
DEFAULT keypad definitions:
  MINUS = "READ/NEW" (echo,terminate)
```
Displays the definition of the minus keypad key. When the minus key was defined, the qualifiers /ECHO (the default) and /TERMINATE were specified.

SHOW MAIL_DIRECTORY

Displays the name of the device and directory containing all your MAI files.

EXAMPLE

MAIL> `SHOW MAIL_DIRECTORY`

```
Your mail file directory is WORKDISK:[OSGOODE]
```
Displays the name of the device and directory containing all the MAI files for user OSGOODE.

SHOW NEW_MAIL_COUNT

Displays the number of new (unread) messages.

SHOW PERSONAL_NAME

Displays the personal name set with the SET PERSONAL_NAME command.

QUALIFIERS

/USER=username

> Shows the personal name for the specified user. You must have SYSNAM privilege to use the /USER qualifier.

SHOW WASTEBASKET_NAME

Displays the name of the WASTEBASKET folder.

SPAWN [command]

Creates a subprocess of the current process. You can use the SPAWN command to leave MAIL temporarily, perform other functions, and then return to MAIL. The context of the subprocess is copied from the current process.

PARAMETERS

command

    The DCL command string that executes in the context of the created subprocess. When the command completes, the subprocess terminates and control is returned to the parent process. If you do not specify a DCL command, a subprocess is created, transferring control to the DCL command level.

QUALIFIERS

/INPUT=file-spec

    Specifies an input file containing one or more DCL command strings to be executed by the spawned subprocess. If you specify a command string along with an input file, the command string is processed before the commands in the input file. Once processing is complete, the subprocess is terminated.

/LOGICAL_NAMES (default)
/NOLOGICAL_NAMES

    Specifies whether the logical names of the parent process will be copied to the subprocess.

/OUTPUT=file-spec

    Identifies the output file to which the results of the SPAWN operation are to be written. If you omit the /OUTPUT qualifier, output is written to the current SYS$OUTPUT device. (You should specify an output file other than SYS$OUTPUT whenever you specify /NOWAIT to prevent output from both processes being displayed simultaneously.)

/PROCESS=subprocess-name

    Specifies the name of the subprocess to be created. The default name of the subprocess is username_n.

/SYMBOLS (default)
/NOSYMBOLS

    Determines whether the system passes DCL global and local symbols to the subprocess.

/WAIT (default)
/NOWAIT

    Controls whether the system waits until the subprocess has completed before allowing more commands to be specified. The /NOWAIT qualifier allows you to specify new commands while the specified subprocess is running. (You should use the /OUTPUT qualifier with /NOWAIT to prevent output from both processes being displayed simultaneously.)

EXAMPLE

MAIL> SPAWN/NOWAIT/OUTPUT=LOG.DAT DIFFERENCES OLD.DAT NEW.DAT

Spawns a subprocess to enter the DCL command DIFFERENCES, writing the output from the DIFFERENCES command to the file LOG.DAT. The /NOWAIT qualifier enables you to enter other commands while the subprocess is running.

MAIL.3   MAIL Keypad

The MAIL keypad allows you to enter MAIL commands by pressing the appropriate keypad key. The command you enter appears on your terminal screen after the MAIL> prompt.

MAIL.3.1 MAIL Keypad Diagram

By default, the keypad keys on the VT200 and VT100 series terminals are defined to execute the following MAIL commands:

PF1 GOLD	PF2 HELP DIR/FOLDER	PF3 EXTRACT/MAIL EXTRACT	PF4 ERASE SELECT/MAIL
7 SEND SEND/EDIT	8 REPLY REP/EDIT/EXT	9 FORWARD FORWARD/EDIT	▬ READ/NEW SHOW/NEW
4 CURRENT CURRENT/EDIT	5 FIRST FIRST/EDIT	6 LAST LAST/EDIT	, DIR/NEW DIR MAIL
1 BACK BACK/EDIT	2 PRINT PRINT/PR/NOT	3 DIR DIR/ST=99999	ENTER SELECT
0 NEXT NEXT/EDIT		• FILE DELETE	

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MAIL.3.2 MAIL Keypad Commands

The diagram above the command description represents the keypad shown in
Section MAIL.3.1. MAIL keypad commands execute immediately when you press
the keypad key, except for those commands for which the /NOTERMINATE qualifier
is specified.

BACK
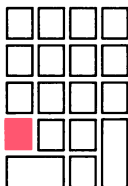
Displays the previous message.

BACK/EDIT
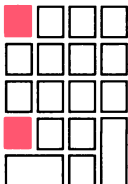
Invokes the editor and displays the previous message.

CURRENT
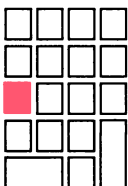
Displays the beginning of the message you are currently reading.

CURRENT/EDIT
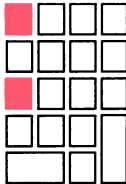
Invokes the editor and displays the beginning of the message you are currently reading.

DELETE/NOTERMINATE
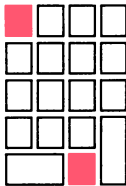
Enters the DELETE command but does not execute it until you press the RETURN key. (Entering CTRL/C will cancel the DELETE operation and keep you within MAIL.)

DIRECTORY
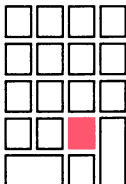
Displays a list of the messages contained in the current folder, listing message number, sender's name and node, date, and subject.

DIRECTORY MAIL

Displays the contents of the MAIL folder.

MAIL
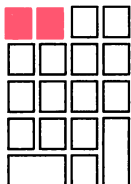
DIRECTORY/FOLDER

Lists all the folders contained in the current mail file.

DIRECTORY/NEW
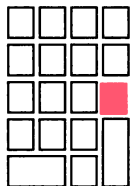
Lists any new (unread) messages.

DIRECTORY/START=99999
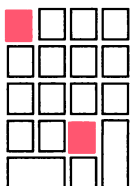
Displays a listing of the messages in the current folder beginning with message number 99,999. This command usually lists the last messages in the folder because you seldom have 99,999 messages in a folder.

ENTER
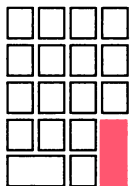
Enters MAIL commands. (ENTER is interchangeable with RETURN.)

ERASE/NOECHO
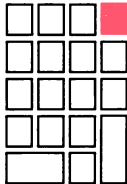
Clears your screen and issues the MAIL> prompt.

EXTRACT
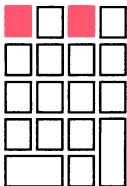
Places a copy of the current message into the specified sequential file. (MAIL prompts you for the name of the file.) You must press RETURN to execute the EXTRACT command.

EXTRACT/MAIL
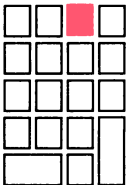
Places a copy of the current message at the end of the specified mail file. (MAIL prompts you for the name of the file, which has a default file type of MAI.) You must press RETURN to execute the EXTRACT/MAIL command.

FILE
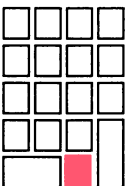
Moves the current message to the specified folder. (MAIL prompts you for the folder name.) You must press RETURN to execute the FILE command.
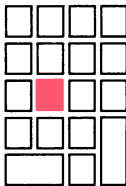
FIRST

Displays the first message in the currently selected folder.

FIRST/EDIT
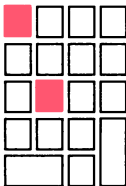
Invokes the editor and displays the first message in the current folder.

FORWARD
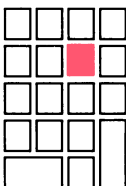
Sends a copy of the most recently read message to the specified users. MAIL prompts you for the names of the users to whom you want to forward the message.

FORWARD/EDIT
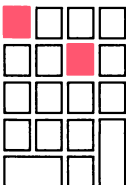
Invokes the editor to edit the most recently read message before forwarding it to the specified users. The EXIT command completes the FORWARD operation; the QUIT command cancels the FORWARD operation.

GOLD
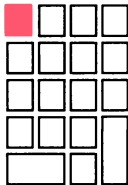
When pressed before another keypad key, specifies that key's alternate function. GOLD can be used to redefine keypad keys and certain keyboard keys (See the DEFINE/KEY command in Section MAIL.2.1).

HELP
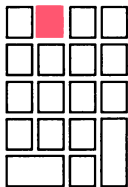
Displays a list of all the mail commands and topics on which HELP is available.

LAST
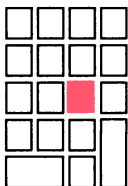
Displays the last message in the currently selected folder.

LAST/EDIT
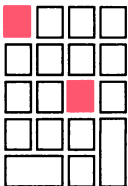
Invokes the editor and displays the last message in the currently selected folder.
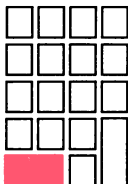
NEXT

Displays the next message in the currently selected folder.

NEXT/EDIT
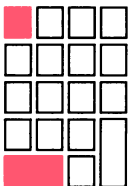
Invokes the editor and displays the next message in the currently selected folder.

PRINT
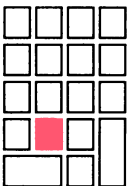
Requires the Secure User Environment Option.

Queues a copy of the most recently read message for printing. The files created by the PRINT command are not actually released to the print queue until you exit from MAIL, so that multiple messages will be concatenated into one print job.

PRINT/PRINT/NOTIFY
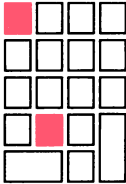
Requires the Secure User Environment Option.

Immediately releases all messages previously queued to the print queue with the PRINT command and notifies you by a broadcast message when the files have been printed.

READ/NEW
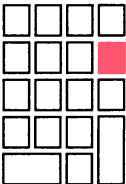
Displays new messages received while you are in MAIL. If there are no new messages, the message "No new messages" will be displayed.

REPLY
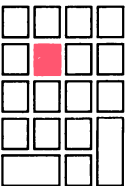
Enters the REPLY command and then prompts you for the text of your reply. (CTRL/C cancels the reply operation and returns you to the MAIL> prompt.)

REPLY/EDIT
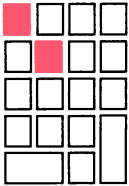
Enters the REPLY command and then invokes the editor for you to enter the text of your reply. The EXIT command completes the REPLY operation; the QUIT command cancels the REPLY operation.

SELECT/NOTERMINATE
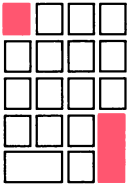
Enters the SELECT command so that you may then enter the name of the folder containing the messages you want to select. You must press RETURN to execute the SELECT command.

SELECT MAIL
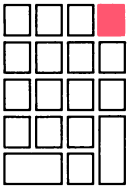
Selects and moves to the MAIL folder.

SEND
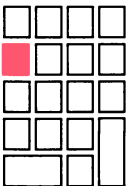
Enters the SEND command and then prompts you for the name of the user to whom you are sending the message, the subject of the message, and the text of the

message. The message is sent when you press CTRL/Z, or it is canceled when press CTRL/C.

SEND/EDIT
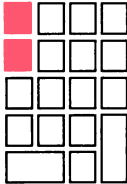
Enters the SEND command, prompting you for the name of the user to whom you are sending the message and the subject of the message, and then invokes the editor for you to enter your message. The EXIT command sends the message; the QUIT command cancels the message.

SHOW NEW_MAIL_COUNT
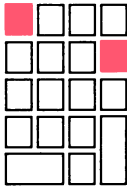
Displays the number of new (unread) messages.

Appendix VAXTPU

VAXTPU Editing Interfaces

Requires the Common Utilities Option.

The VAX Text Processing Utility (VAXTPU) has two editing interfaces: the Extensible VAX Editor (EVE) and the EDT Keypad Emulator. The following appendix lists the specification of the DCL command EDIT/TPU, which invokes either the EVE or the EDT Keypad Emulator interface; compares the keypad commands and control key sequences of the EDT Keypad Emulator to their EDT editor counterparts; lists the EDT line editing commands that the EDT Keypad Emulator supports; and provides a list of EVE commands.

VAXTPU.1   EDIT/TPU Command

EDIT/TPU [file-spec]

Requires the Common Utilities Option.

Invokes the VAX Text Processing Utility (VAXTPU) with the Extensible VAX Editor (EVE) interface. To invoke VAXTPU with the EDT Keypad Emulator interface, define the logical TPUSECINI to point to the section file for that interface as follows:

```
$ DEFINE TPUSECINI EDTSECINI
```

PARAMETERS

file-spec
>Specification of the file being edited. If you do not supply a file specification and you modify a buffer, VAXTPU prompts you for a file specification when you leave the utility.

QUALIFIERS

/COMMAND[=file-spec] (default)
/NOCOMMAND

Determines whether VAXTPU executes a command file before the editing session begins. File-spec defaults to TPUINI.TPU in your default directory. You can override the default, by defining the logical name TPUINI to point to a different file, or by specifying a different file-spec after /COMMAND.

/CREATE (default)
/NOCREATE

Determines whether VAXTPU provides a buffer in which to create a new file when the specified input file is not found. The interface layered on VAXTPU is responsible for processing this qualifier.

/DISPLAY[=file-spec] (default)
/NODISPLAY

Determines whether a VAXTPU session is run from a supported terminal and uses terminal functions such as the screen display and keyboard. By default your VAXTPU session is run with the screen management file TPU$CCTSHR.EXE, for terminals that respond to ANSI control functions and that operate in ANSI mode. Use /NODISPLAY when running VAXTPU procedure in batch, or when using VAXTPU on an unsupported terminal.

/JOURNAL[=file-spec] (default)
/NOJOURNAL

Determines whether VAXTPU keeps a journal file during an editing session. The default is /JOURNAL=filename.TJL, where filename is the name of the file being edited. If no file name is specified with EDIT/TPU, file-spec defaults to TPU.TJL. The interface layered on VAXTPU is responsible for processing this qualifier.

/OUTPUT[=file-spec] (default)
/NOOUTPUT

Determines whether VAXTPU creates an output file at the end of an editing session. The default is /OUTPUT=input-file-spec, where the file name and the file type remain unchanged and the version number is one higher than the highest existing version of the input file. The interface layered on VAXTPU is responsible for processing this qualifier.

/READ_ONLY
/NOREAD_ONLY (default)

Determines whether both an output file and a journal file are created. With /NOREAD_ONLY, VAXTPU maintains a journal file (in case you modify the main buffer and an interruption occurs), and creates an output file when the command EXIT is issued. Use the qualifier /READ_ONLY when you want the main buffer set to NO_WRITE, for example, when you want to look at a file

but you do not intend to make any changes to it. When you use the qualifier /READ_ONLY, enter the command QUIT to leave VAXTPU. You can use the command WRITE FILE in EVE, or the built-in procedure WRITE_FILE in the EDT Keypad Emulator to write out a buffer that is set to NO_WRITE.

/RECOVER
/NORECOVER (default)

Determines whether a journal file is executed before the editing session begins. If the name of the journal file is different from that of the input file, you must use both /RECOVER and /JOURNAL and you must specify the name of the journal file with the qualifier /JOURNAL.

/SECTION[=file-spec] (default)
/NOSECTION

Determines whether VAXTPU reads an initialization file that is stored in binary form. A section file must have been compiled by running the source code version through VAXTPU and then using the built-in procedure SAVE. File-spec defaults to SYS$LIBRARY:TPUSECINI.TPU$SECTION, the section file that creates the EVE editing interface. You can specify a different file for initialization purposes by defining the logical name TPUSECINI to point to a section file. This is the preferred method. However, you can also supply a full file specification for /SECTION.

EXAMPLES

```
$ EDIT/TPU CHAP.TXT
```
Invokes VAXTPU with the EVE interface to edit the highest version of the file CHAP.TXT. VAXTPU tries to read the command file TPUINI.TPU in your default directory. VAXTPU creates a journal file, and if you modify the main buffer and then use the command EXIT, VAXTPU creates an output file named CHAP.TXT with the highest version number for that file.

```
$ EDIT/TPU/SECTION=EDTSECINI OLDFILE.TXT
```
Invokes VAXTPU with the EDT Keypad Emulator editing interface. VAXTPU makes a copy of the file OLDFILE.TXT available for editing. If you modify the main buffer, when you use the command EXIT to leave the editing session, VAXTPU creates a new version of the file with a version number one higher than the highest existing version number for that file.

```
$ EDIT/TPU/NOCOMMAND OLDFILE.DAT/OUTPUT=NEWFILE.DAT
```
Invokes VAXTPU to edit the highest version of the file OLDFILE.DAT, prevents VAXTPU from attempting to read a command file, and creates an output file with the name NEWFILE.DAT if you use the command EXIT to leave the editor.

```
$ EDIT/TPU/READ_ONLY OLDFILE.DAT
```
Invokes VAXTPU to read the file OLDFILE.DAT without creating a journal file and without creating an output file from the contents of the main buffer.

$ `EDIT/TPU/RECOVER CHAP.TXT`

Invokes VAXTPU to recover edits made during a previously interrupted editing session. VAXTPU reads and executes the editing commands in the journal file CHAP.TJL. When the editor finishes processing CHAP.TJL, it returns control to the user.

VAXTPU.2   EDT Keypad Emulator Commands

The EDT Keypad Emulator imitates all keypad commands and a subset of the line editing commands of the EDT editor. The following section contains tables illustrating differences between EDT Keypad Emulator and EDT editor keypad commands. Section VAXTPU.3.2 completely describes each line editing command supported by the EDT Keypad Emulator.

VAXTPU.2.1   Keypad Editing Commands

In keypad editing, you use keypad keys and control keys to perform editing functions. By default, an EDT Keypad Emulator editing session begins in keypad editing mode, while EDT editing sessions begin in line editing mode.

EDT Keypad Emulator keypad commands are very similar to EDT keypad commands. The following table lists the two keypad commands that work differently in the EDT Keypad Emulator.

Command Name	Keys to Press	EDT Keypad Emulator Function	EDT Editor Function
COMMAND	PF1 and 7	Invokes the prompt **TPU Command:** at which you can enter VAXTPU commands and one-line VAXTPU programs but not EDT Keypad Emulator line editing commands. Press CTRL/Z to invoke the asterisk prompt (∗) at which you can enter EDT Keypad Emulator line editing commands.	Invokes the prompt **Command:** at which you can enter EDT line editing commands
HELP	PF1 and PF2	Invokes the prompt **Topic:** for help, at which you can enter a question mark (?) for a list of the Help Utility topics.	Invokes the first level of help text for the EDT editor.

The EDT Keypad Emulator uses the same control key sequences as the EDT editor, with one addition, CTRL/F. The following table lists the control key sequences that work differently in the EDT Keypad Emulator.

Control Key	EDT Keypad Emulator Function	EDT Editor Function
CTRL/C	Stops execution of an EDT Keypad Emulator command and invalidates the journal file.	Stops execution of an EDT command.
CTRL/F	Resumes an editing session after you press CTRL/Z to exit from help.	None.
CTRL/K	Executes the DEFINE KEY command using VAXTPU syntax, first prompting for the key definition and then for the key to define.	Executes the DEFINE KEY command using EDT syntax, first prompting for the key to define and then for the key definition.
CTRL/T	Causes a line of information about your current process to appear in the MESSAGE_BUFFER at the bottom of the screen.	Causes a line of information about the current process to appear in a random location on your screen.
CTRL/Z	The only way to invoke a prompt at which you can enter EDT emulator line editing commands; also used to exit from help.	One way to invoke a prompt at which you can enter EDT line editing commands; the other way is to press PF1 and 7 on the editing keypad.

VAXTPU.2.2 Line Editing Commands

The EDT Keypad Emulator provides a subset of the line editing commands offered by EDT. To enter an EDT Keypad Emulator line editing command, first press CTRL/Z. The cursor moves to the asterisk prompt (*), which appears at the lower left portion of your screen. Type the command and press RETURN or ENTER. (You must press ENTER to execute an EDT line editing command.) To return to keypad editing, type C, for CHANGE MODE, and press RETURN. The cursor returns to its previous location in the text.

You can extend or enhance the EDT Keypad Emulator's line editing commands using the VAXTPU programming language, described in the *VAX Text Processing Utility Reference Manual*.

If you abbreviate EDT Keypad Emulator line editing commands, you must provide a unique abbreviation. In the command descriptions, the underlined letters constitute the minimum abbreviations for command names.

The following line editing commands are available in the EDT Keypad Emulator.

CHANGE

Shifts the editing mode from line to keypad mode, moving the cursor to its previous location in the text.

EXIT [file-spec]

Ends an editing session, writing the contents of the MAIN_BUFFER to an output file. The EDT Keypad Emulator creates a new file from the asterisk prompt (∗).

PARAMETER

[file-spec]

The file specification of the output file. The default is the file specified when you invoked the EDT Keypad Emulator, with the version number incremented by 1.

QUALIFIER

/SAVE

Saves the journal file, which has the file type TJL and the file name of the input file (unless you used /JOURNAL with a file name in the EDIT/TPU command line).

EXAMPLE

```
*EXIT
%TPU-S-FILEOUT, 3 lines written to file WORKDISK:[USER]OLDFILE.DAT;3
$
```

Saves the contents of the MAIN_BUFFER in an output file named OLDFILE.DAT;3 and returns you to DCL command level.

HELP [topic [subtopic]]

Provides information on how to use online HELP from the EDT Keypad Emulator and displays a list of topics for which you can obtain information.

PARAMETERS

topic

The topic for which you wish to obtain information.

subtopic

The subtopic for which you wish to obtain information.

EXAMPLE
*HELP EXIT/SAVE
Displays information about the /SAVE qualifier of the EDT Keypad Emulator
command EXIT.

INCLUDE file-spec [=buffer]

Copies the specified file to a text buffer, placing it immediately before the line in
which the cursor last appeared.

PARAMETERS

file-spec
> Specification of the file to be included.

buffer
> Buffer name in which to include the file; the default is the current buffer. If you
> supply a buffer name, it becomes the new current buffer.

EXAMPLES
*INCLUDE CHAP1.TXT
Copies the contents of the file named CHAP1.TXT into the current buffer just before
the line in which the cursor currently appears.

QUIT

Ends an editing session without saving the edits made during the session. If you
have modified the text, the following prompt appears at the bottom of the screen:
Buffer modifications will not be saved, continue quitting (Y or N)?

To abort the quit operation, type N (uppercase or lowercase); to continue the quit
operation, type Y (uppercase or lowercase).

QUALIFIER

/SAVE
> Saves the journal file, which has the file type TJL and the file name of the input
> file (unless you used /JOURNAL with a file name in the EDIT/TPU command
> line).

EXAMPLE
*QUIT
Buffer modifications will not be saved, continue quitting (Y or N)? Y
Terminates the editing session without saving your edits and returns you to DCL
command level.

SET CURSOR top:bottom

Determines the lines at which scrolling begins: top is the upper limit and bottom is the lower. The EDT Keypad Emulator scrolls the display when the cursor reaches either limit.

PARAMETERS

top

> The number of lines from the top of the screen to the cursor. The allowable limits for top are 1 through 21; the default is top=7.

bottom

> The number of lines from the top of the screen to the cursor. The allowable limits for bottom are 1 through 21; the default is bottom=14.

EXAMPLE

∗SET CURSOR 1:7

Set the scrolling region to the first seven lines on the screen. If you try to move the cursor beyond either limit, the EDT Keypad Emulator scrolls the display.

SET SCREEN width

Sets the maximum number of characters that the EDT Keypad Emulator displays in a line of text on the screen.

PARAMETER

width

> A positive integer that specifies the number of characters that can be displayed on a line; the default is 80 characters. The EDT Keypad Emulator displays a solid diamond at the end of a line if you have inserted more characters than the current width setting allows. In general, the maximum screen width is 132. For VT100-series terminals without the advanced video option, the maximum screen width is 80.

EXAMPLE

∗SET SCREEN 132

Specifies that 132 characters can be displayed on a line.

SET SEARCH setting

Determines how the EDT Keypad Emulator performs searches using the FIND keypad command.

PARAMETER

setting

> The characteristics that determine how a search is conducted. Possible values for *setting* are:

> | | |
> |---|---|
> | GENERAL (default) or EXACT | Determines whether the EDT emulator disregards the case (uppercase or lowercase) and diacritical marks (accents) of alphabetic characters. |
> | BEGIN (default) or END | Determines whether the EDT Keypad Emulator positions the cursor on the first character of the found string or on the character immediately after the found string. |

EXAMPLE

```
* SET SEARCH EXACT
* CHANGE
```

Causes the EDT Keypad Emulator to match exactly the case (uppercase or lowercase) and diacritical marks (accents) in search strings specified with the FIND keypad command.

SET TAB number

Specifies the column number at which the first tab stop is set. The EDT Keypad Emulator moves the cursor to this column number only if the cursor appears at the left margin of the screen when the TAB key is pressed. Only the initial tab stop is affected; the remaining tab stops, multiples of 8, are unchanged. By default, the first tab stop is set 8 columns from the left margin. If the cursor is not located at the left margin, pressing the TAB key always moves the cursor to the column number that is the next multiple of 8.

PARAMETER

number

> A positive integer that specifies the first tab setting from the left margin. Possible values for *number* are 0 through 255.

EXAMPLE

```
* SET TAB 14
```

Set the first tab stop to column 14. By default, tab stops are set in every 8 columns. The SET TAB 14 command negates the default tab setting in column 8, and sets the first tab stop at column 14. The second tab stop is set at column 16—the next multiple of 8 after the SET TAB value.

SET WRAP number

Specifies a right margin at which the EDT Keypad Emulator wraps the next full word
to the next line. The EDT Keypad Emulator uses this right margin during text entry
and when the FILL keypad command is executed.

PARAMETER

number

>   A positive integer that specifies the right margin. Possible values for *number* are
>   0 through 255. Specifying 0 will turn off WRAP.

EXAMPLE

```
* SET WRAP 60
```

Causes the EDT Keypad Emulator to wrap words to the next line at column
number 60.

SHOW BUFFER

Lists the buffers in use during the current editing session, the number of lines of
text in each buffer, and the file (if any) associated with a buffer. The HELP, SHOW,
PASTE, MESSAGE and MAIN buffers are always displayed in response to this
command. The current buffer is marked by an equal sign before the buffer's name.

SHOW CURSOR

Displays the cursor's current scrolling range. The SET CURSOR command sets the
scrolling range.

SHOW SCREEN

Shows the current setting for the number of characters that can be displayed on a
line. The SET SCREEN command defines line length.

SHOW SEARCH

Displays the current search settings that the EDT Keypad Emulator uses with
the FIND keypad command. Search settings are defined using the SET SEARCH
command.

SHOW VERSION

Displays the version numbers of VAXTPU and the EDT Keypad Emulator.

SHOW WRAP

Displays the current setting of the right margin at which the EDT Keypad Emulator wraps the next full word to the next line.

SUBSTITUTE /oldstring/newstring/[WHOLE]

Replaces occurrences of oldstring with newstring. Use the slash character (/) to delimit the strings. If you do not specify *WHOLE*, the EDT Keypad Emulator replaces only the first occurrence of the string in the current line.

PARAMETERS

oldstring
> The string to be replaced; it can be from 0 to 64 characters.

newstring
> The replacement string; it can be from 0 to 64 characters.

WHOLE
> Specifies that the entire current buffer is the range for substitution; the EDT Keypad Emulator displays the number of substitutions made. At the end of the substitution, the cursor remains in the place where the last substitution occurred.

EXAMPLE

*SUBSTITUTE\INADVERTANT\INADVERTENT\WHOLE

Substitutes "inadvertent" for each occurrence of "inadvertant" in the buffer. The EDT Keypad Emulator displays the number of substitutions made.

WRITE file-spec [SELECT/WHOLE=buffer]

Copies text from a buffer to the specified file.

PARAMETERS

file-spec
> The file to which the EDT Keypad Emulator writes the text.

SELECT

If *SELECT* is specified, the EDT Keypad Emulator writes the text that you have highlighted with the SELECT keypad command to the specified file. After the selected text is copied to the file, the select range is reset; the highlighting no longer appears on your screen.

WHOLE

If *WHOLE* is specified, the EDT Keypad Emulator writes the entire buffer to the specified file.

buffer

The name of the buffer to be written to the specified file; the default is the current buffer.

EXAMPLE

```
*WRITE NEWCHAP.TXT
%TPU-S-FILEOUT, 6 lines written to file WORKDISK:[USER]NEWCHAP.TXT;1
```

Copies the entire contents of the current buffer to the file NEWCHAP.TXT. The EDT Keypad Emulator displays the specification of the new file and the number of lines written to the file.

VAXTPU.3   EVE Commands

The following line editing commands for the Extensible VAX Editor (EVE) are entered by first pressing the DO key (VT200 series) or PF4 key (VT100 series) and then entering the command at the Command: prompt. Command names may be abbreviated.

Some line-editing commands may be entered simply by pressing a key. These automatically defined keys are designated throughout the appendix by the Key: information line below the command name. This information line lists the defined keys for both the VT100- and VT200-series terminals.

For more information on these commands, see Chapter 8.

ATTACH

Suspends the current EVE session that was created using the DCL command
SPAWN, and reconnects the terminal to the parent process. Use the ATTACH
command only after creating a subprocess with the DCL command SPAWN.
SPAWN assigns a name to all created subprocesses. Use the DCL command SHOW
PROCESS/SUBPROCESS to determine the names of your subprocesses. Return to
the EVE session by entering the following command line:

$ ATTACH subprocess_name

EXAMPLE

```
$   SPAWN EDIT/TPU TESTFILE.TXT
%DCL-S-SPAWNED, process Smith_1 spawned
%DCL-S-ATTACHED, terminal now attached to process Smith_1
     .
     .           [ TESTFILE.TXT buffer (subprocess SMITH_1) ]
     .
Command: ATTACH
%DCL-S-RETURNED,control returned to parent process Smith
 $
     .
     .           [ at DCL level (process SMITH) ]
     .
$ ATTACH SMITH_1
     .
     .           [ TESTFILE.TXT buffer (subprocess SMITH_1) ]
     .
```

The SPAWN command creates subprocess SMITH_1 at the DCL level. While in
the TESTFILE.TXT buffer, the ATTACH command returns control to process SMITH.
After completing work at the DCL level, the DCL command ATTACH SMITH_1
resumes the TESTFILE.TXT editing session.

BOTTOM

Moves the cursor to the end of the current buffer.

BUFFER buffer-name

Places the specified buffer in the current window and moves the cursor to the
specified buffer. The cursor returns to the last remembered position. If the specified
buffer does not exist, EVE creates a new buffer and places the cursor at the top of
that buffer.

PARAMETER

buffer-name
    The name of the buffer.

EXAMPLE
Command: BUFFER TESTFILE
Places the cursor in the buffer named TESTFILE.

CAPITALIZE WORD

Makes the first letter of the current word uppercase (and the rest of the word lowercase), and moves the cursor to the first letter of the next word. If the cursor is between words, the first letter of the next word is capitalized.

CENTER LINE

Centers the current line between the left and right margins.

CHANGE DIRECTION

    KEY : F11 (VT200), PF3 (VT100) keypad

Switches the current direction of the cursor. The current direction is displayed in the status line and is either forward or reverse.

CHANGE MODE

    KEY : F14 (VT200), ENTER (VT100) keypad

Switches the current editing mode to insert or overstrike and displays the current mode in the status line. In insert mode, text is inserted to the left of the cursor. In overstrike mode, typing a character replaces the character at the current cursor position.

DCL dcl-command

Executes a DCL command from EVE's command line. After you enter the DCL command, EVE creates a second window that displays the DCL command and its output. You can move this output into a text file. Since the cursor remains in the window it was in before you issued the DCL command, use the OTHER WINDOW command to move the cursor between windows, and use the ONE WINDOW command to return the screen to one window.

PARAMETER

dcl-command
The DCL command to be executed.

EXAMPLE

Command: DCL
DCL command: DIRECTORY
Splits the screen and displays the DCL command DIRECTORY and its output (the directory listing) in the second window. The cursor remains in the first window.

DEFINE KEY

Assigns an EVE line command to a single key or control key sequence. Key definitions are discarded at the end of an EVE editing session, unless you use the SAVE EXTENDED TPU command. Keys may be redefined to change or cancel a key definition.

EVE does not allow you to define the DO key, the RETURN key (CTRL/M), the space bar, and all printing keys on the main keyboard. DIGITAL also recommends that you do not define the following keys and control key sequences:

DELETE <X]
F6 (VT200)
HELP (VT200), PF2 (VT100)
CTRL/C
CTRL/R
CTRL/S
CTRL/T
CTRL/U
CTRL/Q
CTRL/X
CTRL/Y

You can define all other keys, including control key sequences.

EXAMPLE

Command: DEFINE KEY
Eve command: SPAWN
Press the key that you want to define: F20
Key defined
Assigns the EVE command SPAWN to the F20 key.

DELETE

KEY : ◁X] (VT200), DELETE (VT100)

Erases the character preceding the cursor. In insert mode, the remainder of the line moves left one character to close the space. In overstrike mode, the character preceding the cursor is replaced by a blank space. When the cursor is at the left margin, the carriage return of the previous line is deleted, and the text on the current line moves to the end of the previous line.

DO

KEY : DO (VT200), PF4 (VT100) keypad

Precedes all EVE line commands. Press the DO key, type the EVE command at the Command: prompt, and then press RETURN. You can repeat the last command entered by pressing the DO key twice. Command names may be abbreviated on the command line.

END OF LINE

KEY : CTRL/E (VT200), (VT100)

Moves the cursor to the end of the current line.

ERASE CHARACTER

Deletes the character the cursor is on. In insert mode, the line moves left one character to close up the space. In overstrike mode, a blank space replaces the character. When the cursor is at the end of a line, the carriage return is deleted and the next line moves to the end of the current line.

ERASE LINE

Deletes from the cursor to the end of the current line, and appends the next line to the current line. If the cursor is at the beginning of a line, the entire line is erased and replaced by the next line.

ERASE PREVIOUS WORD

Deletes the previous word when the cursor is between words or at the start of a word, and shifts the following text left. If the cursor is in the middle of the word, that word is erased and the cursor moves to the first letter of the next word.

ERASE START OF LINE

KEY : [CTRL/U] (VT200), (VT100)

Deletes all characters on the current line preceding the cursor and shifts the remaining text to the left.

ERASE WORD

KEY : [F13] (VT200), [,] (VT100) keypad

Deletes the current word. If the cursor is between words, the following word is erased. If the cursor is at the end of a line, the next line is appended to the current line.

EXIT

KEY : [F10] (VT200), [CTRL/Z] (VT200), (VT100)

Terminates an EVE editing session. If your current buffer was modified, EVE saves your edits in a new version of the file. If other modified buffers exist, EVE asks you, buffer by buffer, whether you want to save them.

FILL PARAGRAPH

Reformats the text in the current paragraph so that the maximum number of words fits between the left and right margins, and moves the cursor to the end of the paragraph. Blank lines and DIGITAL Standard Runoff (DSR) commands are treated as paragraph boundaries.

FIND search-string

KEY : [FIND] (VT200), [PF1] (VT100) keypad

Searches through the current file for the search string, and, if found, moves the cursor to the first letter of the string. If the search string is in the reverse direction of the current buffer, EVE asks whether you wish to change direction. You can repeat the last command entered by pressing the FIND key twice.

If the search string is entered in all lowercase letters, EVE finds the string whether it is in lowercase, uppercase, or a combination of the two (it is also insensitive to diacritical marks). If the string is entered in all uppercase letters, EVE finds the string only if it is all uppercase letters. If the string is entered in a combination of the two, EVE finds only those occurrences that are exactly the same as the search string.

PARAMETER

search-string
  The string of text you wish to find.

FORWARD

  KEY : F11 (VT200), PF3 (VT100) keypad

Sets the cursor direction in the current buffer to forward, and displays the direction in the status line.

GET FILE file-spec

Creates a new buffer that contains the text of the specified file (or an empty buffer if you specify a file that does not exist), places the new buffer in the current window, and places the cursor at the beginning of the new buffer. If you specify the same file name and file type with a different device or directory name during an editing session, EVE prompts you for a buffer name into which to read the file. Wildcard characters may be used in the file specification. If there are multiple matches, EVE displays all the choices and prompts you for the one you wish to select.

PARAMETER

file-spec
  The specification of the file being created.

EXAMPLE
Command: GET FILE WORKDISK:[USER]TESTFILE.TXT
Reads the file TESTFILE.TXT into a buffer named TESTFILE.TXT and places the cursor at the top of that buffer.

GO TO mark-name

Moves the cursor to the location previously labeled with the MARK command. If the mark is in a buffer that is not mapped to the current window, the buffer that contains the marked text is mapped to the current window.

PARAMETER

mark-name
  A character or word previously specified with the MARK command.

EXAMPLE

Command: `GO TO HERE`

Moves the cursor to the position previously labeled HERE with the MARK command.

HELP [command-name]

Displays a list of all EVE commands; or, if you specify a command, displays information about that command.

PARAMETER

command-name

    The EVE command for which you want to display information.

EXAMPLE

Command: `HELP bottom`

Displays information about the BOTTOM command.

INCLUDE FILE file-spec

Reads a copy of the specified file from your directory into the current buffer, positioning it before the current line. The file you copied also remains in your directory in its original form. When you enter the file to be included, you may use any wildcard character. If there are multiple matches, EVE displays all the choices and prompts you for the one you wish to select.

PARAMETER

file-spec

    The specification of the file being included. Wildcard characters are also allowed.

EXAMPLE

Command: `INCLUDE FILE TESTFILE.TXT`

Reads a copy of the file TESTFILE.TXT into the current buffer.

INSERT HERE

    KEY : INSERT HERE (VT200), 9 (VT100) keypad

Places text removed using the SELECT and REMOVE keys at the current cursor position. Only the most recently removed text is held in the Insert Here buffer. You can use this command to move text between windows and between buffers.

INSERT MODE

    KEY : F14 (VT200), ENTER (VT100) keypad

Sets the editing mode of the current buffer to insert, and displays the current mode
in the status line. In insert mode, typed characters are inserted to the left of the
current cursor position.

LEARN

Assigns a sequence of keystrokes, called a learn sequence, to a single key or control
key sequence. Learn sequences allow you to enter the same series of keystrokes in
your buffer any number of times, simply by pressing one key. All learn sequences
are discarded when you terminate an EVE editing session.

EXAMPLE
Command: LEARN
Press keystrokes to be learned. Press CTRL/R to remember these keystrokes.
FILL CTRL/R
Press the key that you want to use to do what was just learned: F20
Key sequence remembered
Initializes the learn sequence, and records the series of keystrokes. The CTRL/R
(REMEMBER) command terminates the learn sequence and EVE assigns the editing
command FILL to the F20 key.

LINE n

Moves the cursor to the beginning of the specified line.

PARAMETER

n

    An integer that specifies a line in your file.

EXAMPLE
Command: LINE 14
Moves the cursor to the beginning of line 14.

LOWERCASE WORD

Changes the entire current word to lowercase letters, and moves the cursor to the
next word. If the cursor is between words, the next word is changed.

MARK mark-name

Labels a location in your file to which the GO TO command can return the cursor.

PARAMETER

mark-name
   A character or word that marks a location in your file.

EXAMPLE
Command: MARK HERE
Labels the current cursor location with the mark-name HERE. This cursor location can be found later by entering the command GO TO HERE.

MOVE BY WORD

Moves the cursor one word in the current direction (depending on whether forward or reverse is set). If the current cursor direction is reverse and the cursor is not at the beginning of a word, MOVE BY WORD moves the cursor to the beginning of the current word.

MOVE DOWN

   KEY : ⬇ (VT200), 2 (VT100) keypad

Moves the cursor down one line.

MOVE LEFT

   KEY : ← (VT200), 1 (VT100) keypad

Moves the cursor left one character.

MOVE RIGHT

   KEY : → (VT200), 3 (VT100) keypad

Moves the cursor right one character.

MOVE UP

   KEY : ⬆ (VT200), 5 (VT100) keypad

Moves the cursor up one line.

NEXT SCREEN

KEY : `NEXT SCREEN` (VT200), `0` (VT100) keypad

Moves the cursor through a buffer one screen at a time.

ONE WINDOW

Returns a split screen to a single window that displays the current buffer.

OTHER WINDOW

Moves the cursor from one window to the other so you can perform editing functions in the desired window.

OVERSTRIKE MODE

KEY : `F14` (VT200), `ENTER` (VT100) keypad

Sets the mode of the current buffer to overstrike, and displays the current mode in the status line. In overstrike mode, a typed character replaces the character at the current cursor position.

PREVIOUS SCREEN

KEY : `PREV SCREEN` (VT200), `.` (VT100) keypad

Moves the cursor backward through a file one screen at a time, and displays the previously entered text. You may scroll backward until you reach the top of the buffer.

QUIT

Terminates EVE without saving your edits. If you modify a file and exit using QUIT, EVE prompts you for confirmation.

EXAMPLE
```
Command: QUIT
Buffer modifications will not be saved, continue quitting (Y or N? )Y
```
Terminates EVE without saving modifications made during the editing session.

QUOTE

KEY : CTRL/V (VT200), (VT100)

Inserts a special character into the buffer. You may insert form feeds or nonprinting characters such as control characters. QUOTE also allows you to insert printing characters, such as letters and punctuation marks, that are bound or programmed to other keys.

You can use CTRL/V when using the FIND command to search for a special character.

RECALL

KEY : CTRL/B (VT200), (VT100)

Places the most recent command (issued using DO or RECALL) on the command line. Press RETURN to execute a recalled command.

REFRESH

KEY : CTRL/W (VT200), (VT100)

Clears and redraws the screen display. Any extraneous characters or messages in the message window are erased, and the cursor remains in the same location.

REMEMBER

KEY : CTRL/R (VT200), (VT100)

Terminates a learn sequence so that a series of keystrokes is assigned to one key.

REMOVE

KEY : REMOVE (VT200), 8 (VT100) keypad

Erases text selected with the SELECT command and places it in the Insert Here buffer, where it remains until it is replaced or the editing session ends.

REPEAT n

Reiterates the next character or command a specified number of times.

PARAMETER

n
    An integer that specifies the number of times to repeat a character or command.

EXAMPLE
Command: REPEAT 5
Command: ERASE CHARACTER
Repeats the ERASE CHARACTER command five times.

REPLACE "old_string" "new_string"

Removes an old string of text and replaces it with a new string of text. EVE highlights each occurrence of the old string and prompts you for the action to be taken. At the end of the REPLACE session, EVE displays the total number of replacements made.

Place quotes around strings that are entered on the command line following the REPLACE command. If EVE prompts you for the strings, you do not need quotes. There are five possible responses: yes, no, all, last, or quit.

Response	EVE's Action
yes	Replaces the string and attempts to locate another occurrence of the string in the current direction. If found, the cursor moves to the next occurrence.
no	Does not replace the string, and attempts to locate another occurrence of the string in the current direction. If found, the cursor moves to the next occurrence.
all	Replaces the string and all other occurrences of the string in the current direction. The cursor moves to the position where the last replacement occurred.
last	Replaces this occurrence of the string and stops the REPLACE procedure; the cursor does not move.
quit	Does not replace this occurrence of the string and stops the REPLACE procedure; the cursor does not move.

PARAMETER

old_string
    The old string of text you wish to remove.

new_string
    The new string of text that will replace the old string.

EXAMPLE

```
Command: REPLACE "least" "fewest"
Replace? Type yes, no, all, last, or quit: ALL
Replaced 8 occurrences
```

Replaces all occurrences of the string "least" with the string "fewest". A total of eight string replacements were made.

RESTORE

Restores the text last erased with an EVE command or editing key. The text is inserted at the current cursor position.

RETURN

>   **KEY :** RETURN (VT200), (VT100)

Terminates a line at the current cursor position and moves the cursor and any remaining text to the next line.

REVERSE

Sets the current direction of the cursor to reverse, and displays the direction in the status line.

SELECT

>   **KEY :** SELECT (VT200), 7 (VT100) keypad

Marks the current cursor position as the beginning of the range of selected text, and highlights the text as the cursor is moved to the end of the range.

SET LEFT MARGIN n

Aligns the left margin of text that you subsequently enter with the specified column. The default left margin is 1.

PARAMETER

n
>   An integer that specifies the left margin.

SET RIGHT MARGIN n

Aligns the right margin of subsequently entered text with the specified column. The cursor moves to the start of the next line if it is less than eight spaces away from the right margin. To prevent text from wrapping, set the right margin to at least eight columns more than the length of the longest line in the file. By default, the right margin is one character less than the width of the screen.

PARAMETER

n

> An integer that specifies the right margin.

SET SHIFT KEY

Allows you to define a key to act as a shift key (not to be confused with the key marked Shift on your keyboard). Used prior to the DEFINE KEY command, the SET SHIFT KEY command enables you to assign two commands to one key: one command to be used when the key is pressed by itself, and one when the key is pressed after the defined shift key.

If you wish to change a previously defined shift key, you must use the VAXTPU UNDEFINE_KEY built-in procedure. For example, if your old shift key was the 7 key on the numeric keypad, you have to use the TPU UNDEFINE_KEY (KP7) command to change it. If more than one shift key is defined, results are unpredictable.

EXAMPLE
```
Command: SET SHIFT KEY
Press the key that you want to use as the shift key: 4 {noecho}
Shift key set
```
Sets the 4 key on the numeric keypad as the shift key.

SET TABS AT n [n...]

Sets tab stops at the columns specified as a sequence of integers separated by spaces. Default tab stops are set at every eight characters. This command does not affect the hardware tab settings of your terminal. If you use terminals or printers that have tab settings different from those you specified, the file will not appear the same as it does during an EVE editing session.

PARAMETER

n

> An integer that specifies the column of the tab. Multiple tabs should be separated by spaces.

EXAMPLE

Command:SET TABS AT
Set tabs at:5 10 15
Sets tabs at columns 5, 10, and 15.

SET TABS EVERY n

Sets tab stops at equal intervals specified by an integer. Default tab stops are set at every eight characters. This command does not affect the hardware tab settings of your terminal.

PARAMETER

n

> A single integer that specifies the intervals between tab stops.

EXAMPLE

Command:SET TABS EVERY 5
Sets tabs at regular intervals of five characters.

SET WIDTH n

Sets the width of lines for screen display to the specified integer. Lines larger than the value of n are indicated by a diamond at the end of the line. SET WIDTH will not change the existing left and right margin settings.

PARAMETER

n

> An integer that specifies the width of the lines. If the width specified is greater than 80, EVE sets the terminal to 132-character mode. Do not use a width greater than 80 on VT100-series terminals without the Advanced Video Option (AVO). When the terminal is switched from 80-character mode to 132-character mode, or vice versa, the screen is refreshed.

EXAMPLE

Command:SET WIDTH 132
Sets the width of the lines to 132 characters and refreshes the screen.

SHIFT LEFT n

Moves the window horizontally to the left a specified number of columns, and displays that number as long as the command is in effect. The total number of shifted columns is affected by both current and previous SHIFT commands. SHIFT LEFT can only be used to reverse the effect of SHIFT RIGHT.

PARAMETER

n

An integer representing the number of columns to be displayed.

EXAMPLE

Command: SHIFT LEFT 5

Shifts the window left five columns, allowing you to see beyond the current screen width, and displays the total number of shifted columns.

SHIFT RIGHT n

Moves the window horizontally to the right a specified number of columns, and displays that number as long as the command is in effect. The total number of shifted columns is affected by both current and previous SHIFT commands.

PARAMETER

n

An integer representing the number of columns to be shifted.

EXAMPLE

Command: SHIFT RIGHT 10

Shifts the window right 10 columns, allowing you to see beyond the current screen width, and displays the total number of shifted columns.

SHOW

Displays information about the current buffer, such as input and output file names, margin and tab settings, number of lines, current direction and mode, and the names of marks associated with the buffer. If you have more than one buffer in your editing session, SHOW will ask you whether you wish to see the additional information. Press the DO key to see this information.

SPACE

> **KEY :** SPACE (VT200), (VT100)

Inserts or overstrikes a space character, depending on the current mode of the buffer. The SPACE command will also place the cursor at the start of the next line if the cursor is less than eight spaces away from the right margin. If the current word extends beyond the right margin, that word will be moved to the next line.

SPAWN

Suspends the current EVE session and connects the terminal to a new VAX/VMS subprocess at the DCL level. To resume the EVE session, log out of the VAX/VMS subprocess. The SPAWN command is useful for running VAX/VMS utilities or executing DCL commands without ending the current EVE session.

EXAMPLE
```
Command: SPAWN
 $
 $ mail
 .
 .
 .
MAIL> exit
$ logout
```
The SPAWN command suspends the current EVE session and creates a new subprocess at the DCL level. After completing work in the Mail Utility, the DCL command LOGOUT terminates the subprocess and resumes the current EVE editing session.

START OF LINE

> **KEY :** CTRL/H (VT200), BACKSPACE (VT100) keypad

Moves the cursor to the start of the current line.

TAB

> **KEY :** TAB (VT200), (VT100)

Inserts a TAB character at the current cursor position, whether the current mode is insert or overstrike.

TOP

Moves the cursor to the beginning of the current buffer.

TWO WINDOWS

Splits the screen into two sections, making it possible to view different parts of one file or two different files. When one file is displayed in both windows, edits made in one window are simultaneously made in the other window.

UPPERCASE

Changes the entire current word to uppercase letters, and moves the cursor to the beginning of the next word. If the cursor is between words, the next word is changed.

WRITE FILE [file-spec]

Writes the contents of the current buffer to a specified file. If you do not provide a file specification, EVE writes the file to your current default directory and uses the buffer name as the file name. If there is no ouput file associated with a buffer (for example, if this is the first write file in a buffer created with the BUFFER command), EVE prompts you for a file specification.

PARAMETER

file-spec
    The file in which you wish to place the contents of the current buffer.

EXAMPLE
Command: WRITE FILE TESTFILE.TXT
Places the contents of the current buffer in the file TESTFILE.TXT.

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