VMS DCL Dictionary : Part II

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This manual provides detailed reference information and examples for all VMS DCL commands and lexical functions.

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Contents

PART I

PREFACE xiii

= (ASSIGNMENT STATEMENT) DCL1–1
:= (STRING ASSIGNMENT) DCL1–5
@ (EXECUTE PROCEDURE) DCL1–9
ACCOUNTING DCL1–14
ALLOCATE DCL1–15
ANALYZE/AUDIT DCL1–18
ANALYZE/CRASH_DUMP DCL1–19
ANALYZE/DISK_STRUCTURE DCL1–20
ANALYZE/ERROR_LOG DCL1–21
ANALYZE/IMAGE DCL1–22
ANALYZE/MEDIA DCL1–25
ANALYZE/OBJECT DCL1–26
ANALYZE/PROCESS_DUMP DCL1–30
ANALYZE/RMS_FILE DCL1–32
ANALYZE/SYSTEM DCL1–33
APPEND DCL1–34
ASSIGN DCL1–39
ASSIGN/MERGE DCL1–46
ASSIGN/QUEUE DCL1–47
ATTACH DCL1–49
BACKUP DCL1–51
CALL DCL1–52
CANCEL DCL1–56
CLOSE DCL1–58
CONNECT DCL1–60
CONTINUE DCL1–63
CONVERT DCL1–65
CONVERT/DOCUMENT DCL1–66
CONVERT/RECLAIM DCL1–73
COPY DCL1–74
CREATE DCL1–84
CREATE/DIRECTORY DCL1–89
CREATE/FDL DCL1–92
CREATE/NAME_TABLE DCL1–93

CREATE/TERMINAL	DCL1–97
DEALLOCATE	DCL1–103
DEASSIGN	DCL1–104
DEASSIGN/QUEUE	DCL1–109
DEBUG	DCL1–110
DECK	DCL1–111
DEFINE	DCL1–114
DEFINE/CHARACTERISTIC	DCL1–120
DEFINE/FORM	DCL1–122
DEFINE/KEY	DCL1–126
DELETE	DCL1–131
DELETE/CHARACTERISTIC	DCL1–135
DELETE/ENTRY	DCL1–136
DELETE/FORM	DCL1–139
DELETE/INTRUSION_RECORD	DCL1–140
DELETE/KEY	DCL1–141
DELETE/QUEUE	DCL1–143
DELETE/SYMBOL	DCL1–145
DEPOSIT	DCL1–147
DIFFERENCES	DCL1–151
DIRECTORY	DCL1–159
DISCONNECT	DCL1–168
DISMOUNT	DCL1–170
DUMP	DCL1–174
EDIT/ACL	DCL1–179
EDIT/EDT	DCL1–180
EDIT/FDL	DCL1–184
EDIT/SUM	DCL1–185
EDIT/TECO	DCL1–186
EDIT/TPU	DCL1–189
ENDSUBROUTINE	DCL1–205
EOD	DCL1–206
EOJ	DCL1–208
EXAMINE	DCL1–209
EXCHANGE	DCL1–212
EXCHANGE/NETWORK	DCL1–213
EXIT	DCL1–222
FONT	DCL1–226
GOSUB	DCL1–227
GOTO	DCL1–229
HELP	DCL1–231
IF	DCL1–237

INITIALIZE	DCL1–240
INITIALIZE/QUEUE	DCL1–249
INQUIRE	DCL1–262
INSTALL	DCL1–265
JOB	DCL1–266
LEXICAL FUNCTIONS	DCL1–272
F$CONTEXT	DCL1–275
F$CSID	DCL1–280
F$CVSI	DCL1–282
F$CVTIME	DCL1–284
F$CVUI	DCL1–286
F$DEVICE	DCL1–287
F$DIRECTORY	DCL1–289
F$EDIT	DCL1–290
F$ELEMENT	DCL1–292
F$ENVIRONMENT	DCL1–294
F$EXTRACT	DCL1–297
F$FAO	DCL1–299
F$FILE_ATTRIBUTES	DCL1–306
F$GETDVI	DCL1–309
F$GETJPI	DCL1–322
F$GETQUI	DCL1–328
F$GETSYI	DCL1–344
F$IDENTIFIER	DCL1–349
F$INTEGER	DCL1–351
F$LENGTH	DCL1–352
F$LOCATE	DCL1–353
F$MESSAGE	DCL1–355
F$MODE	DCL1–356
F$PARSE	DCL1–358
F$PID	DCL1–361
F$PRIVILEGE	DCL1–363
F$PROCESS	DCL1–364
F$SEARCH	DCL1–365
F$SETPRV	DCL1–368
F$STRING	DCL1–372
F$TIME	DCL1–373
F$TRNLNM	DCL1–374
F$TYPE	DCL1–378
F$USER	DCL1–380
F$VERIFY	DCL1–381
LIBRARY	DCL1–383

LICENSE	DCL1–384
LINK	DCL1–385
LOGIN PROCEDURE	DCL1–392
LOGOUT	DCL1–396
MACRO	DCL1–398
MAIL	DCL1–404
MERGE	DCL1–405
MESSAGE	DCL1–406
MONITOR	DCL1–407
MOUNT	DCL1–408

INDEX

PART II

PREFACE xiii

NCS	DCL2–1
ON	DCL2–2
OPEN	DCL2–5
PASSWORD	DCL2–9
PATCH	DCL2–11
PHONE	DCL2–12
PRINT	DCL2–13
PSWRAP	DCL2–23
PURGE	DCL2–24
READ	DCL2–28
RECALL	DCL2–32
RENAME	DCL2–34
REPLY	DCL2–38
REQUEST	DCL2–47
RETURN	DCL2–49
RUN (IMAGE)	DCL2–51
RUN (PROCESS)	DCL2–53
RUNOFF	DCL2–63
RUNOFF/CONTENTS	DCL2–73
RUNOFF/INDEX	DCL2–77
SEARCH	DCL2–81
SET	DCL2–88
SET ACCOUNTING	DCL2–91

SET ACL	DCL2–93
SET AUDIT	DCL2–100
SET BROADCAST	DCL2–112
SET CARD_READER	DCL2–114
SET CLUSTER/EXPECTED_VOTES	DCL2–115
SET COMMAND	DCL2–117
SET CONTROL	DCL2–118
SET DAY	DCL2–120
SET DEFAULT	DCL2–121
SET DEVICE	DCL2–123
SET DEVICE/SERVED	DCL2–125
SET DIRECTORY	DCL2–126
SET DISPLAY	DCL2–129
SET ENTRY	DCL2–136
SET FILE	DCL2–144
SET HOST	DCL2–149
SET HOST/DTE	DCL2–152
CLEAR	DCL2–158
EXIT	DCL2–159
QUIT	DCL2–160
SAVE	DCL2–161
SEND BREAK	DCL2–162
SET DTE	DCL2–163
SHOW DTE	DCL2–168
SPAWN	DCL2–169
SET HOST/DUP	DCL2–171
SET HOST/HSC	DCL2–173
SET KEY	DCL2–175
SET LOGINS	DCL2–176
SET MAGTAPE	DCL2–177
SET MESSAGE	DCL2–179
SET ON	DCL2–182
SET OUTPUT_RATE	DCL2–183
SET PASSWORD	DCL2–184
SET PRINTER	DCL2–187
SET PROCESS	DCL2–191
SET PROMPT	DCL2–195
SET PROTECTION	DCL2–196
SET PROTECTION/DEFAULT	DCL2–199
SET PROTECTION/DEVICE	DCL2–200
SET QUEUE	DCL2–203
SET RESTART_VALUE	DCL2–210
SET RIGHTS_LIST	DCL2–212

SET RMS_DEFAULT	DCL2–214
SET SYMBOL	DCL2–218
SET TERMINAL	DCL2–221
SET TIME	DCL2–234
SET UIC	DCL2–236
SET VERIFY	DCL2–237
SET VOLUME	DCL2–240
SET WORKING_SET	DCL2–244
SHOW	DCL2–246
SHOW ACCOUNTING	DCL2–248
SHOW ACL	DCL2–250
SHOW AUDIT	DCL2–251
SHOW BROADCAST	DCL2–255
SHOW CLUSTER	DCL2–257
SHOW CPU	DCL2–258
SHOW DEFAULT	DCL2–262
SHOW DEVICES	DCL2–264
SHOW DEVICES/SERVED	DCL2–269
SHOW DISPLAY	DCL2–272
SHOW ENTRY	DCL2–275
SHOW ERROR	DCL2–279
SHOW INTRUSION	DCL2–280
SHOW KEY	DCL2–283
SHOW LICENSE	DCL2–285
SHOW LOGICAL	DCL2–288
SHOW MEMORY	DCL2–292
SHOW PRINTER	DCL2–300
SHOW PROCESS	DCL2–302
SHOW PROTECTION	DCL2–308
SHOW QUEUE	DCL2–309
SHOW QUEUE/CHARACTERISTICS	DCL2–313
SHOW QUEUE/FORM	DCL2–315
SHOW QUOTA	DCL2–317
SHOW RMS_DEFAULT	DCL2–318
SHOW STATUS	DCL2–319
SHOW SYMBOL	DCL2–320
SHOW SYSTEM	DCL2–322
SHOW TERMINAL	DCL2–326
SHOW TIME	DCL2–328
SHOW TRANSLATION	DCL2–329
SHOW USERS	DCL2–331
SHOW WORKING_SET	DCL2–335

SHOW ZONE	DCL2–336
SORT	DCL2–337
SPAWN	DCL2–338
START/CPU	DCL2–343
START/QUEUE	DCL2–345
START/QUEUE/MANAGER	DCL2–355
START/ZONE	DCL2–357
STOP	DCL2–358
STOP/CPU	DCL2–361
STOP/QUEUE	DCL2–363
STOP/QUEUE/ABORT	DCL2–365
STOP/QUEUE/ENTRY	DCL2–367
STOP/QUEUE/MANAGER	DCL2–369
STOP/QUEUE/NEXT	DCL2–370
STOP/QUEUE/REQUEUE	DCL2–371
STOP/QUEUE/RESET	DCL2–374
STOP/ZONE	DCL2–375
SUBMIT	DCL2–376
SUBROUTINE	DCL2–386
SYNCHRONIZE	DCL2–387
TYPE	DCL2–389
UNLOCK	DCL2–395
VIEW	DCL2–396
WAIT	DCL2–397
WRITE	DCL2–399

INDEX

FIGURES

DCL2–1	Running Remote and Local Applications	DCL2–130
DCL2–2	Default Characteristics for Terminals	DCL2–222

TABLES

DCL1–1	CPU Time Limit Specifications and Actions	DCL1–254
DCL1–2	Working Set Default, Extent, and Quota Decision	DCL1–261
DCL1–3	Summary of Lexical Functions	DCL1–272
DCL1–4	Summary of FAO Directives	DCL1–301
DCL1–5	F$FILE_ATTRIBUTES Items	DCL1–306

DCL1–6	F$GETDVI Items	DCL1–310
DCL1–7	Values Returned by the DEVCLASS Item	DCL1–316
DCL1–8	Values Returned by the DEVTYPE Item	DCL1–317
DCL1–9	F$GETJPI Items	DCL1–323
DCL1–10	F$GETQUI Items	DCL1–331
DCL1–11	F$GETSYI Items for the Local Node Only	DCL1–345
DCL1–12	F$GETSYI Items for the Local Node or for Other Nodes in the VAXCluster	DCL1–346
DCL1–13	Context Symbol Types	DCL1–378
DCL2–1	SET Command Options	DCL2–88
DCL2–2	SET ACCOUNTING Keywords for Event Types	DCL2–91
DCL2–3	SET ACCOUNTING Keywords for Process Types	DCL2–92
DCL2–4	Working Set Default, Extent, and Quota Decision	DCL2–209
DCL2–5	SHOW Command Options	DCL2–246
DCL2–6	Working Set Default, Extent, and Quota Decision	DCL2–354

Preface

Intended Audience

This manual is intended for all users of the VMS operating system. It includes descriptions of all Digital Command Language (DCL) commands and lexical functions. If a command has any restrictions or requires special privileges, they are noted in reference information for that command.

Readers of this manual should be familiar with the material covered in the *VMS DCL Concepts Manual*. Furthermore, while familiarity with the *Guide to Using VMS Command Procedures* is not a requirement for using this manual, it does help clarify some of the examples involving command procedures.

Document Structure

This manual contains detailed descriptions of each command and lexical function. The commands are listed in alphabetical order, with the command name appearing at the top of every page. The lexical functions are grouped under the heading "Lexical Functions" (after the JOB command description) and are listed alphabetically within that grouping; the lexical function name appears at the top of each page.

The *VMS DCL Dictionary* is a two-part manual. Part I contains commands beginning with the letters A to M (including the lexical functions); Part II contains commands beginning with the letters N to Z. The Table of Contents and Index are comprehensive: they include both parts.

The commands that invoke language compilers and other VAX optional software products are not included in this manual; they are included in the documentation provided with those products.

Associated Documents

This manual is Part II of a two-part manual; it contains DCL commands beginning with the letters N to Z. For the remaining commands and the lexical functions, see Part I.

For an introduction to the VMS operating system and for information on using DCL, see the *Introduction to VMS*. This manual is especially recommended for novice users or users lacking experience with interactive computer systems.

The *VMS DCL Concepts Manual* provides an overview of DCL command language concepts.

The *Guide to Using VMS Command Procedures* defines and illustrates good practices in constructing command procedures with DCL commands and lexical functions.

The various VMS utilities reference manuals document major VMS utilities. These manuals describe the DCL commands that invoke the various utilities, describe any commands that you can enter while running a utility, and provide reference information. For all utilities documented in these volumes, the *VMS DCL Dictionary* provides only a brief description and format information.

The *VMS System Messages and Recovery Procedures Reference Manual* explains what the messages mean and, where applicable, suggests actions for you to take.

The *Overview of VMS Documentation* describes the new organization of the VMS document set. This manual shows how the individual manuals fit together and relate to each other.

Conventions

The following conventions are used in this manual:

mouse	The term *mouse* is used to refer to any pointing device, such as a mouse, a puck, or a stylus.
MB1, MB2, MB3	MB1 indicates the left mouse button, MB2 indicates the middle mouse button, and MB3 indicates the right mouse button. (The buttons can be redefined by the user.)
Ctrl/x	A sequence such as Ctrl/x indicates that you must hold down the key labeled Ctrl while you press another key or a pointing device button.
PF1 x	A sequence such as PF1 x indicates that you must first press and release the key labeled PF1, then press and release another key or a pointing device button.
Return	A key name is shown enclosed to indicate that you press a key on the keyboard.
. . .	In examples, a horizontal ellipsis indicates one of the following possibilities: • Additional optional arguments in a statement have been omitted. • The preceding item or items can be repeated one or more times. • Additional parameters, values, or other information can be entered.
. . .	A vertical ellipsis indicates the omission of items from a code example or command format; the items are omitted because they are not important to the topic being discussed.
()	In format descriptions, parentheses indicate that, if you choose more than one option, you must enclose the choices in parentheses.

[]	In format descriptions, brackets indicate that whatever is enclosed is optional; you can select none, one, or all of the choices.
{}	In format descriptions, braces surround a required choice of options; you must choose one of the options listed.
red ink	Red ink indicates information that you must enter from the keyboard or a screen object that you must choose or click on. For online versions, user input is shown in **bold**.
boldface text	Boldface text represents the introduction of a new term or the name of an argument, an attribute, or a reason.
italic text	Italic text represents information that can vary in system messages (for example, Internal error *number*).
UPPERCASE TEXT	Uppercase letters indicate that you must enter a command (for example, enter OPEN/READ).
UPPERCASE TEXT	Uppercase letters indicate the name of a routine, the name of a file, the name of a file protection code, or the abbreviation for a system privilege.
-	Hyphens in coding examples indicate that additional arguments to the request are provided on the line that follows.
numbers	Unless otherwise noted, all numbers in the text are assumed to be decimal. Nondecimal radixes—binary, octal, or hexadecimal—are explicitly indicated.

NCS

Invokes the VMS National Character Set (NCS) Utility, which provides a convenient method of implementing alternative (non-ASCII) string collating sequences, typically using subsets of the DEC Multinational Character Set. NCS also facilitates the implementation of string conversion functions.

For a complete description of the NCS utility, see the *VMS National Character Set Utility Manual*.

FORMAT

NCS *[filespec[,...]]*

ON

Performs a specified action when a command or program executed within a command procedure encounters an error condition or is interrupted by Ctrl /Y. The specified actions are performed only if the command interpreter is enabled for error checking or Ctrl/Y interrupts (the default conditions). Use the ON command only in a command procedure.

FORMAT

ON *condition* **THEN** *[$] command*

PARAMETERS

condition

Specifies either the severity level of an error or a CTRL/Y interrupt. Specify one of the following keywords, which may be abbreviated to one or more characters:

WARNING	Return status of warning occurs ($SEVERITY equals 0).
ERROR	Return status of error occurs ($SEVERITY equals 2).
SEVERE_ERROR	Return status of error occurs ($SEVERITY equals 4).
CONTROL_Y	CTRL/Y character occurs on SYS$INPUT.

The default error condition is ON ERROR THEN EXIT.

command

Specifies the DCL command line to be executed. Optionally, you can precede the command line with a dollar sign ($).

If you specified an error condition as the condition parameter, the action is taken when errors equal to or greater than the specified level of error occur.

DESCRIPTION

During the execution of a command procedure, the command interpreter checks the condition code returned from each command or program that executes. With the ON command, you can establish a course of action for the command interpreter to take based on the result of the check.

The system places condition codes in the global symbol $STATUS. The severity of the condition code is represented in the first 3 low-order bits of $STATUS. This severity level is also represented by the global symbol $SEVERITY. See the description of the EXIT command for information on severity level values.

If an ON command action specifies the severity level of an error, the command interpreter executes the ON command action for errors at the specified severity level or greater. For example, the following command causes a procedure to exit on warnings, errors, or severe errors:

```
$ ON WARNING THEN EXIT
```

The default action is as follows:

```
$ ON ERROR THEN EXIT
```

That is, the command interpreter continues when a warning occurs, and executes an EXIT command when an error or severe error occurs. An ON command action that specifies a severity level is executed only once; after the ON command action is taken, the default ON action is reset. There is an exception to the default ON action. If you use the GOTO command and specify a label that does not exist in the current command procedure, the procedure issues a warning message and exits.

The action specified by an ON command applies only within the command procedure in which the command is executed. Therefore, if you execute an ON command in a procedure that calls another procedure, the ON command action does not apply to the nested procedure. An ON command executed at any command procedure level does not affect the error condition handling of procedures at any other level.

To disable error checking with the ON command, use the SET NOON command. You can enable error checking with the SET ON command, or by entering another ON command.

The ON command also provides a way to define an action routine for a CTRL/Y interrupt that occurs during execution of a command procedure. The default CTRL/Y action is to prompt for command input at the CTRL/Y command level. The CTRL/Y command level is a special command level where you can enter DCL commands. If you enter a command that is executed within the command interpreter, you can resume execution of the procedure with the CONTINUE command. (For a list of commands that are executed within the command interpreter, see the *VMS DCL Concepts Manual*.)

If you enter any other DCL command, the command interpreter returns to command level 0 and executes the image invoked by the command. If you interrupt the command procedure while it is executing an image that contains an exit handler, the exit handler is allowed to execute before the new command (image) is executed. (However, if you enter the STOP command after you interrupt a command procedure by pressing Ctrl/Y, exit handlers declared by the interrupted image are not executed.)

You can use the ON command to change the default action for a CTRL/Y interrupt. If you change the default CTRL/Y action, the execution of a CTRL/Y interrupt does not automatically reset the default CTRL/Y action. A CTRL/Y action remains in effect until one of the following occurs:

- The procedure terminates (as a result of an EXIT or STOP command, or as a result of a default error condition handling action).
- Another ON CONTROL_Y command is executed.
- The procedure executes the SET NOCONTROL=Y command.

A CTRL/Y action can be specified for each active command level; the CTRL/Y action specified for the currently executing command level overrides actions specified for previous levels.

Note: The ON CONTROL_Y and SET NOCONTROL=Y commands are intended for special applications. Digital does not recommend, in general, that you disable CTRL/Y interrupts. For example, if a procedure that disables CTRL/Y interrupts begins to loop

uncontrollably, you cannot gain control to stop the procedure from your terminal.

EXAMPLES

1
```
$ ON SEVERE_ERROR THEN CONTINUE
```

A command procedure that contains this statement continues to execute normally when a warning or error occurs during execution. When a severe error occurs, the ON statement signals the procedure to execute the next statement anyway. Once the statement has been executed as a result of the severe error condition, the default action (ON ERROR THEN EXIT) is reinstated.

2
```
$ ON ERROR THEN GOTO BYPASS $ RUN A $ RUN B
   .
   .
   .
$ EXIT
$ BYPASS:
$      RUN C
```

If either program A or program B returns a status code with a severity level of error or severe error, control is transferred to the statement labeled BYPASS and program C is run.

3
```
$ ON WARNING THEN EXIT
   .
   .
   .
$ SET NOON
$ RUN [SSTEST]LIBRA
$ SET ON
   .
   .
   .
```

The ON command requests that the procedure exit when any warning, error, or severe error occurs. Later, the SET NOON command disables error checking before executing the RUN command. Regardless of any status code returned by the program LIBRA.EXE, the procedure continues. The next command, SET ON, reenables error checking and reestablishes the most recent ON condition.

4
```
$ ON CONTROL_Y THEN GOTO CTRL_EXIT
   .
   .
   .
$ CTRL_EXIT:
$ CLOSE INFILE
$ CLOSE OUTFILE
$ EXIT
```

The ON command specifies action to be taken when Ctrl/Y is pressed during the execution of this procedure: the GOTO command transfers control to the line labeled CTRL_EXIT. At CTRL_EXIT, the procedure performs cleanup operations (in this example, closing files and exiting).

OPEN

Opens a file for reading, writing, or both; assigns a logical name to a file; and places the name in the process logical name table.

See the qualifier descriptions for restrictions.

FORMAT

OPEN *logical-name[:] filespec*

PARAMETERS

logical-name[:]

Specifies the logical name and a character string to be assigned to the file.

filespec

Specifies the name of the file or device being opened for input or output. The file type defaults to DAT. Wildcard characters are not allowed.

To create a new, sequential file, specify the /WRITE qualifier. See the description of the /WRITE qualifier for more information.

DESCRIPTION

A file can be opened for either reading or writing, or for both reading and writing. After the file is opened, it is available for input or output at the command level with the READ and WRITE commands.

The OPEN command opens files as process permanent. Therefore, these files remain open until you close them with the CLOSE command, or until you log out. If a command procedure that opens a file terminates without closing an open file, the file remains open; the command interpreter does not automatically close it. The OPEN command uses VAX–11 RMS to open files, and is subject to RMS restrictions on using process-permanent files. The OPEN command opens sequential, relative, or indexed sequential files.

The logical devices SYS$INPUT, SYS$OUTPUT, SYS$COMMAND, and SYS$ERROR do not have to be opened explicitly before they can be read or written at the command level. All other files must be opened explicitly.

Do not use the same logical name when you open different files. If you specify a logical name with the OPEN command and the logical name is currently assigned to another file, no warning message is issued. However, the file is not opened, and the next READ request will access the file to which the logical name was originally assigned.

You can enter more than one OPEN command for the same file and assign it different logical names if you use the /SHARE qualifier the first time the file is opened. Also, if you open the file by using the /SHARE=READ or the /SHARE=WRITE qualifier, other users may access the file with the TYPE or the SEARCH command.

QUALIFIERS

/APPEND

Opens an existing file for writing and positions the record pointer at the end-of-file (EOF). New records are added to the end of the file.

Only sequential files allow more than one user to append records concurrently.

Use the /APPEND qualifier only to add records to an existing file. The /APPEND and the /WRITE qualifiers are mutually exclusive.

/ERROR=label

Transfers control to the location specified by the label keyword (in a command procedure) if the open operation results in an error. The error routine specified for this qualifier overrides any ON condition action specified. If the /ERROR qualifier is not specified, the current ON condition action is taken.

If an error occurs and the target label is successfully given control, the global symbol $STATUS retains the code for the error that caused the error path to be taken.

/READ (default)

Opens the file for reading. If you specify the /READ qualifier without the /WRITE qualifier, you must specify an existing file.

/SHARE[=option]

Opens the specified file as a shareable file to allow other users read or write access. If you specify the /SHARE=READ qualifier, other users are allowed read (R) access to the file, but not write (W) access. If you specify the /SHARE=WRITE or the /SHARE qualifier with no option, users are allowed read and write access to the specified file.

If the /SHARE qualifier is not present, other users are not allowed any access to the specified file.

/WRITE

Opens the file for writing. The following restrictions apply to the /WRITE qualifier:

- Use the /WRITE qualifier to open and create a new, sequential file. If the file specification on an OPEN/WRITE command does not include a file version number, and if a file with the specified file name and file type already exists, a new file with a version number one greater than the existing file is created.
- Use the /READ qualifier with the /WRITE qualifier to open an existing file. When the file is opened, the pointer is positioned to the beginning of the file. (This differs from OPEN/APPEND, which positions the pointer at the end of the file.) You cannot use OPEN/READ/WRITE to create a new file.
- The /WRITE and the /APPEND qualifiers are mutually exclusive.

EXAMPLES

1

```
$ OPEN INPUT_FILE AVERAGE.DAT
$ READ_LOOP:
$ READ/END_OF_FILE=ENDIT  INPUT_FILE  NUM
   .
   .
   .
$ GOTO READ_LOOP
$ ENDIT:
$ CLOSE INPUT_FILE
```

The OPEN command opens the file named AVERAGE.DAT as an input file and assigns it the logical name INPUT_FILE. The file is opened with read access because the /READ qualifier is present by default. The READ command reads a record from the logical file INPUT_FILE into the symbol named NUM. The procedure executes the lines between the labels READ_LOOP and ENDIT until the end of the file is reached. At the end of the file, the CLOSE command closes the file.

2

```
$ OPEN/WRITE/ERROR=OPEN_ERROR  OUTPUT_FILE  TEMP.OUT
$ COUNT = 0
$ WRITE_LOOP:
$ COUNT = COUNT + 1
$ IF COUNT .EQ. 11 THEN GOTO ENDIT
$ WRITE OUTPUT_FILE "Count is ''COUNT'."
   .
   .
   .
$ GOTO WRITE_LOOP
$ ENDIT:
$ CLOSE OUTPUT_FILE
$ EXIT
$
$ OPEN_ERROR:
$ WRITE SYS$OUTPUT "Cannot open file TEMP.OUT"
$ EXIT
```

The OPEN command with the /WRITE qualifier creates the file TEMP.OUT and assigns it the logical name OUTPUT_FILE. TEMP.OUT is a sequential file.

The /ERROR qualifier specifies that if any error occurs while opening the file, the command interpreter should transfer control to the line at the label OPEN_ERROR. The command procedure writes records to the file TEMP.OUT until the symbol COUNT equals 11.

3

```
$ OPEN/READ INPUT_FILE TRNTO::DBA0:[COST]INVENTORY.DAT
$ READ_LOOP:
$ READ/END_OF_FILE=ENDIT  INPUT_FILE  NUM
$ FIRST_CHAR = F$EXTRACT(0,1,NUM)
$ WRITE SYS$OUTPUT FIRST_CHAR
$ GOTO READ_LOOP
$ ENDIT:
$ CLOSE INPUT_FILE
```

This command procedure opens the file INVENTORY.DAT located at remote node TRNTO as an input file, and assigns it the logical name INPUT_FILE. The READ command reads a record from the logical file

INPUT_FILE into the symbol named NUM. The next two commands extract the first character from the record and write the character to the SYS$OUTPUT device. These two steps occur for all records in the file until the procedure reaches the end-of-file (EOF). At this point, the CLOSE command closes the file and deassigns the logical name INPUT_FILE.

PASSWORD

Provides the password associated with the user name that you specify with the JOB card when you submit a batch job through a card reader. Although the PASSWORD card is required, the password on the card is optional if the account has a null password.

The PASSWORD command is valid only in a batch job submitted through a card reader and requires that a dollar sign ($) precede the PASSWORD command on the card.

FORMAT

$ PASSWORD *[password]*

PARAMETER

password

Specifies the password associated with the user name specified with the JOB command. The password can be 1 to 31 characters long.

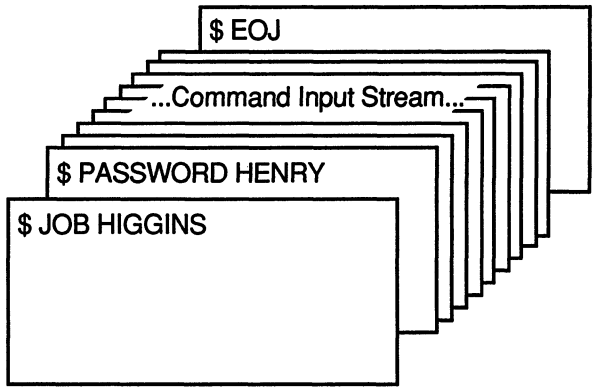
If you are submitting the job from an account with a null password, omit the password specifier on the PASSWORD card.

DESCRIPTION

The PASSWORD command is used in conjunction with the JOB command. The JOB card identifies the user submitting the batch job through a card reader and is followed by a PASSWORD card giving the password. The password is checked by the system to verify that it matches the password associated with the user name on the JOB card. If the passwords do not match, the job is rejected.

Note that you might want to suppress printing when you originally keypunch the PASSWORD card to prohibit other users from seeing the password when the PASSWORD card is in use.

EXAMPLE



ZK–0786–GE

The JOB and PASSWORD commands precede a batch job submitted from the card reader. An EOJ command marks the end of the job.

PATCH

Invokes the Patch Utility, which patches an executable image, a shareable image, or a device driver image. For a complete description of the Patch Utility, see the *VMS Patch Utility Manual.*

FORMAT

PATCH *filespec*

PHONE

Invokes the Phone Utility, which lets you communicate with other users on your system or any other VMS system connected to your system by DECnet–VAX. For a complete description of the Phone Utility, see the *VMS Phone Utility Manual*.

FORMAT

PHONE *[phone-command]*

PRINT

Queues one or more files for printing to an output queue.

Requires OPER (operator) privilege or execute (E) or write (W) access to the queue.

FORMAT

PRINT *filespec[,...]*

PARAMETER

filespec[,...]

Specifies one or more files to be printed. Wildcard characters (* and %) are allowed in the directory specification, file name, file type, and version number fields. The default file type is that of the preceding file. If no previous file specification contains an explicit file type, the default file type is LIS.

If you specify more than one file, separate the file specifications with either commas (,) or plus signs (+).

If you specify a node name, you must use the /REMOTE qualifier.

DESCRIPTION

The PRINT command places the specified files in an output queue for printing. By default, this queue is SYS$PRINT. All files queued by a single PRINT command are processed serially as one job. By default, the name of the print job is the name of the first file specified in the PRINT command.

The system assigns a unique **entry number** to each print job in the queue. When you enter the PRINT command, by default, the system displays the job name, the queue name, the entry number, and the job status.

The system automatically creates or updates the local symbol $ENTRY when a PRINT or SUBMIT command is completed successfully. The value of $ENTRY is a string that identifies the entry number of the most recently queued job. If you want to refer to a job's entry number later, store the value of $ENTRY in another symbol.

After you queue a print job, the version of the file submitted is printed, even if a newer version of the file is created before the print job runs. Also, another file with the same name and version number as the file queued cannot be substituted for the file that was queued.

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.

For complete information on specifying time values, see the *VMS DCL Concepts Manual.*

/BACKUP
/NOBACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]
/NOBEFORE

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual.*

/BURST[=keyword]
/NOBURST

Positional qualifier.

Controls whether two file flag pages with a burst bar between them are printed preceding a file. If the /BURST qualifier is specified between the PRINT command and the file specifications, it can take either of the following keywords:

ALL	Prints the flag pages and a burst bar before each file in the job.
ONE	Prints the flag pages and a burst bar before the first file in the job.

If you want the /BURST qualifier to apply to individual files in a multifile job, place the qualifier directly after each file that you want to have the flag pages and a burst bar.

Use the /[NO]BURST qualifier to override the /DEFAULT options that have been set for the output queue you are using. The /[NO]BURST qualifier does not override the /SEPARATE options set for the queue.

When you specify the /BURST qualifier for a file, the /[NO]FLAG qualifier does not add or subtract a flag page from the two flag pages that are printed preceding a file.

/BY_OWNER[=uic]
/NOBY_OWNER

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual.*

/CHARACTERISTICS=(characteristic[,...])

Specifies the name or number of one or more characteristics to be associated with the job. Characteristics can refer to such things as color of ink. If you specify only one characteristic, you can omit the parentheses.

A characteristic's number must range from 0 to 127. To see which characteristics have been defined for your system, use the SHOW QUEUE/CHARACTERISTICS command. To see which characteristics are associated with a particular queue, use the SHOW QUEUE/FULL command.

A print job can be processed on an execution queue if none, some, or all of the characteristics associated with the queue also are associated with the job. That is, the job's characteristics must be a subset of the queue's characteristics. However, if any of the characteristics associated with the job are not associated with the queue, the job remains pending until one or more of the following occurs:

- The characteristics specified with the queue are changed to make the job's characteristics a subset of the queue's characteristics (using, for example, the SET QUEUE/CHARACTERISTICS command).
- The characteristics specified with the job are changed to make the job's characteristics a subset of the queue's characteristics (using, for example, the SET ENTRY/CHARACTERISTICS command).
- The job is moved to a queue on which all the job's characteristics have been specified (using, for example, the SET ENTRY/REQUEUE command).
- The job is deleted (using, for example, the DELETE/ENTRY command).

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each file is queued for printing to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/COPIES=n

Positional qualifier.

Specifies the number of copies to print. The value of the parameter *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 the /COPIES qualifier following a file specification, only that file is printed the specified number of times.

/CREATED (default)
/NOCREATED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED 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 the /DELETE qualifier after a file specification, only that file is deleted after it is printed.

The protection applied to the file must allow delete access to the current UIC.

/DEVICE=queue-name[:]

Places the print job in the specified queue (rather than the default queue SYS$PRINT). This qualifier is synonymous with the /QUEUE qualifier, except that the /DEVICE qualifier is reserved for special use by Digital. Its usage, therefore, is not recommended.

/EXCLUDE=(filespec[,...])
/NOEXCLUDE

Excludes the specified files from the print operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRED
/NOEXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/FEED
/NOFEED

Positional qualifier.

Controls whether form feeds are inserted into the print job when the printer reaches the bottom margin of the form in use. You can suppress this automatic form feed (without affecting any of the other carriage control functions that are in place) by using the /NOFEED qualifier. The /[NO]FEED qualifier does not affect user-formatted files and can be used to override the installation-defined defaults that have been set for the output queue you are using.

/FLAG[=keyword]
/NOFLAG

Positional qualifier.

Controls whether a file 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 the following keywords:

ALL	Prints a file flag page before each file in the job.
ONE	Prints a file flag page before the first file in the job.

If you want the /FLAG qualifier to apply to individual files in a multifile job, place the qualifier directly after each file that you want to have a flag page.

Use the /[NO]FLAG qualifier to override the /DEFAULT=[NO]FLAG option that has been set for the output queue you are using. The /[NO]FLAG qualifier does not override the /SEPARATE=[NO]FLAG option set for the queue.

When you specify the /BURST qualifier for a file, the /[NO]FLAG qualifier does not add or subtract a flag page from the two flag pages that are printed preceding the file.

/FORM=form

Specifies the name or number of the form to be associated with the print job. If you omit the /FORM qualifier, the default form for the execution queue is associated with the job.

Forms have attributes such as print image width and length or paper stock, which the print symbiont associates with a job when the job is processed. To see which forms have been defined for your system, use the SHOW QUEUE/FORM command. To find out which form is mounted currently on a particular queue and which form is specified as that queue's default form, use the SHOW QUEUE/FULL command.

The stock of the form associated with the job must match the stock of the form mounted on the execution queue on which you want the job to be processed. If the stocks do not match, the job remains pending until one or more of the following occurs:

- A form with the same stock as the job's form is mounted on the queue (using, for example, the SET QUEUE/FORM_MOUNTED command).

- A form with the same stock as the queue's mounted form is specified with the job (using, for example, the SET ENTRY/FORM command).
- The job is moved to a queue on which the stock of the mounted form matches the stock of the job's form (using, for example, the SET ENTRY/REQUEUE command).
- The job is deleted (using, for example, the DELETE/ENTRY command).

/HEADER
/NOHEADER (default)

Positional qualifier.

Controls whether a heading line is printed at the top of each page.

/HOLD
/NOHOLD (default)

Controls whether a job is available for printing immediately. The /HOLD qualifier holds the job until released by a SET ENTRY/RELEASE or SET ENTRY/NOHOLD command.

/IDENTIFY (default)
/NOIDENTIFY

Displays the job name, queue name, entry number, and status of the job when it is queued.

/JOB_COUNT=n

Prints the job *n* times. The value of the parameter *n* can be from 1 to 255 and defaults to 1.

/LOWERCASE
/NOLOWERCASE (default)

Indicates whether the print job must be printed on a printer that can print both lowercase and uppercase letters. The /NOLOWERCASE qualifier means that files can be printed on printers supporting only uppercase letters. If all available printers can print both uppercase and lowercase letters, you do not need to specify the /LOWERCASE qualifier.

/MODIFIED
/NOMODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/NAME=job-name

Names the job. The name consists of 1 to 39 alphanumeric characters. If characters other than alphanumerics, underscores (_), or dollar signs ($) are used in the name, enclose the name in quotation marks (" "). The default is the name of the first (or only) file in the job. The job name appears in the SHOW ENTRY and SHOW QUEUE command display and is printed on the flag page for 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)

Controls whether a message is broadcast to your terminal session when the job is printed or aborted.

/OPERATOR=string

Specifies a message of up to 255 characters to be sent to the operator when the job begins to print.

/PAGES=([lowlim,]uplim)

Positional qualifier.

Specifies the number of pages to print for the specified job. You can use the /PAGES qualifier to print portions of long files. By default, all pages of the file are printed.

The *lowlim* specifier refers to the first page in the group of pages that you want printed for that file. If you omit the *lowlim* specifier, the printing starts on the first page of the file.

The *uplim* specifier refers to the last page of the file that you want printed. If you want to print to the end of the file, but do not know how many pages the file contains, use two consecutive quotation marks ("") as the *uplim* specifier. You can omit the parentheses if you are including only a specific value for the *uplim* specifier. For example, /PAGES=10 prints the first ten pages of the file; /PAGES=(5,10) prints pages five through 10; /PAGES=(5,"") starts printing at page 5 in the file and continues until the end of the file is reached.

/PARAMETERS=(parameter[,...])

Specifies from 1 to 8 optional parameters to be passed to the job; each parameter can contain up to 255 characters. If you specify only one parameter, you can omit the parentheses. Enclose parameters containing lowercase letters, blanks, or other nonalphanumeric characters (including spaces) in 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. All qualifiers affecting formatting, as well as the /HEADER, /PAGES, and /SETUP qualifiers, are ignored.

If the /PASSALL qualifier is placed between the PRINT command and any file specifications, all files are printed in PASSALL mode. To specify the /PASSALL qualifier for only some files in the job, place the qualifier after each file that you want printed in PASSALL mode.

/PRIORITY=n

Requires OPER (operator) or ALTPRI (alter priority) privilege to raise the priority above the SYSGEN parameter MAXQUEPRI.

Specifies the job-scheduling priority of the print job. The value of the parameter *n* can be from 0 through 255, where 0 is the lowest priority and 255 is the highest. The default value of *n* is the value of the SYSGEN parameter DEFQUEPRI. No privilege is needed to set the priority lower than the MAXQUEPRI value.

/QUEUE=queue-name[:]

Queues the job to the specified output queue. The default queue is SYS$PRINT. This qualifier is synonymous with the /DEVICE qualifier.

/REMOTE

Queues the job to SYS$PRINT on the remote node specified in the file specification; the file *must* exist on the remote node. When you use the /REMOTE qualifier, you *must* include the node name in the file specification.

You can specify only the following qualifiers with /REMOTE: /BACKUP, /BEFORE, /BY_OWNER, /CONFIRM, /CREATED, /EXCLUDE, /EXPIRED, /MODIFIED, and /SINCE.

Note that, unlike the printing on the local node, multiple files queued by a single PRINT/REMOTE command are considered separate jobs.

/RESTART (default)
/NORESTART

Indicates whether a job restarts after a system failure or after a STOP /QUEUE/REQUEUE command.

/SETUP=module[,...]

Extracts the specified modules from the device control library (containing escape sequence modules for programmable printers) and copies the modules to the printer before a file is printed. By default, no device control modules are copied.

Note that the module names are not checked for validity until the time that the file is actually printed. Therefore, PRINT/SETUP is susceptible to typing errors and other mistakes. It is recommended only for experimental setups.

For production setups, see DEFINE/FORM/SETUP.

/SINCE[=time]
/NOSINCE

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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/SPACE
/NOSPACE (default)

Positional qualifier.

Controls whether print job output is double-spaced. The default is single-spaced output.

/TRAILER[=keyword]
/NOTRAILER

Positional qualifier.

Controls whether a file 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 the following keywords:

ALL	Prints a file trailer page after each file in the job.
ONE	Prints a file trailer page after the last file in the job.

If you want the /TRAILER qualifier to apply to individual files in a multifile job, place the qualifier directly after each file that you want to have a trailer page.

Use the /[NO]TRAILER qualifier to override the /DEFAULT=[NO]TRAILER option that has been set for the output queue you are using. The /[NO]TRAILER qualifier does not override the /SEPARATE=[NO]TRAILER option set for the queue.

/USER=username

Requires the CMKRNL (change mode to kernel) privilege and read (R) and write (W) access to the user authorization file (UAF).

Allows you to print a job on behalf of another user. The print job runs exactly as if that user had submitted it. The print job runs under that user's user name and user identification code (UIC), and accounting information is logged to that user's account. By default, the user identification comes from the requesting process. The user name qualifier value can be any user name that is valid on your system. The name must be 1 to 12 alphanumeric characters.

EXAMPLES

1
```
$ PRINT/QUEUE=LPB0/COPIES=10/AFTER=20   RESUME
  Job RESUME (queue LPB0, entry 239) holding until 19-APR-1990 20:00
```

The PRINT command in this example queues 10 copies of the file RESUME.LIS to printer LPB0, but requests that the copies not be printed until after 8:00 P.M.

2
```
$ PRINT  ALPHA.TXT + BETA/FLAG + GAMMA/FLAG + *.LIS/FLAG
  Job ALPHA (queue SYS$PRINT, entry 237) pending
```

The PRINT command in this example submits the files ALPHA.TXT, BETA.TXT, GAMMA.TXT, and the highest versions of all files with the file

type LIS as a single print job. Flag pages separate the individual files. Notice that the file type for BETA and GAMMA is TXT, the file type of the first file in the list.

```
3   $ PRINT/LOWERCASE   ALPHA.TXT/COPIES=2, -
    _$ BETA.DOC/COPIES=3
      Job ALPHA (queue SYS$PRINT, entry 240) pending
```

The print job queued by the PRINT command in this example consists of two copies of ALPHA.TXT followed by three copies of BETA.DOC. This job must be printed on a printer that can print lowercase letters. If no such printer is available, the job waits in the queue.

```
4   $ PRINT/JOB_COUNT=3   ALPHA.TXT,BETA/NOIDENTIFY
```

The PRINT command in this example concatenates the files ALPHA.TXT and BETA.TXT into a single print job and prints three copies of the job. The /NOIDENTIFY qualifier requests that the job entry number and queue name not be displayed.

```
5   $ COPY REPORT.MEM BOSTON::
    $ PRINT/REMOTE BOSTON::REPORT.MEM
```

In this example, the two commands are entered at a node other than BOSTON. The COPY command copies the file REPORT.MEM from the current node to the BOSTON node. The PRINT command queues the file REPORT.MEM located on the BOSTON node for printing at the BOSTON node. The job entry number and queue name are not displayed when the /REMOTE qualifier is used.

```
6   $ PRINT/HOLD   MASTER.DOC
      Job MASTER (queue SYS$PRINT, entry 540) holding
       .
       .
       .
    $ SET ENTRY 540/RELEASE
```

The PRINT command in this example queues a copy of the file MASTER.DOC to the default printer in a hold status. Later, the SET ENTRY command releases the hold status on the file and makes it available for printing.

```
7   $ PRINT TEST.TXT
      Job TEST.TXT (queue SYS$PRINT, entry 867) started on LPA0
    $ SHOW ENTRY '$ENTRY'
      Jobname     Username     Entry     Blocks    Status
      -------     --------     -----     ------    ------
      TEST.TXT    Gibbons        867        135    Printing
                  on printer queue LPA0
```

The PRINT command in this example queues a copy of the file TEST.TXT to the default printer. It also creates the local symbol $ENTRY to store the job entry number. The SHOW ENTRY command requests a display of the entry using the symbol $ENTRY to identify it.

PSWRAP

Invokes the *pswrap* translator, which converts procedures written in the PostScript® language into routines that can be called from applications. The *pswrap* translator is available with the DECwindows Display PostScript® system, which is an extension to the DECwindows programming environment. For more information on using the *pswrap* translator and the PSWRAP command and its qualifiers, refer to the *VMS DECwindows Display PostScript System Programming Supplement.*

FORMAT

PSWRAP *file-spec*

® PostScript is a registered trademark of Adobe Systems Incorporated.

® Display PostScript is a registered trademark of Adobe Systems Incorporated.

PURGE

Deletes all but the highest numbered versions of the specified files.

FORMAT

PURGE *[filespec[,...]]*

PARAMETER

filespec[,...]

Specifies one or more files to be purged. If you specify more than one file, separate the file specifications with either commas (,) or plus signs (+). Wildcard characters (* and %) are allowed in the directory, file name, and file type fields; however, no version number can be specified. As a default, the PURGE command purges all files in the current directory. There are no file name or file type defaults with the PURGE command.

DESCRIPTION

The PURGE command deletes earlier versions of files. The PURGE command never deletes all versions of any file. By default, the PURGE command keeps only the highest version of a file. If you do not include a file specification with the PURGE command, all files in the current directory are affected by the purge.

QUALIFIERS

/BACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

See the *VMS DCL Concepts Manual* for complete information on specifying time values.

/BY_OWNER[=uic]

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each purge operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED (default)

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/ERASE
/NOERASE (default)

Erases the specified files from the disk so that the purged data no longer exists physically on the deallocated disk blocks.

When you delete a file, the area in which the file was stored is returned to the system for future use. The data that was stored in that location still exists in the system until new data is written over it. When the /ERASE qualifier is specified, the storage location is overwritten with a system-specified pattern so that the data no longer exists.

/EXCLUDE=(filespec[,...])

Excludes the specified files from the purge operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/KEEP=number-of-versions

Specifies the maximum number of versions of the specified files to be retained in the directory. If you do not include the /KEEP qualifier, all but the highest numbered version of the specified files are deleted from the directory.

/LOG
/NOLOG (default)

Controls whether file specifications are displayed as the files are deleted.

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

EXAMPLES

1
```
$ PURGE
```

The PURGE command in this example deletes all but the highest numbered version of all files in the default directory.

2
```
$ PURGE *.COM
```

The PURGE command in this example deletes all but the highest numbered version of each file with a file type of COM.

3
```
$ PURGE/KEEP=3  [WILDER.JOB308]ACCOUNT.COB
```

The PURGE command in this example deletes all but the three highest numbered versions of the file ACCOUNT.COB in the subdirectory [WILDER.JOB308].

4
```
$ PURGE/ERASE/SINCE=YESTERDAY [.MEMOS]
```

The PURGE command in this example purges all files in the MEMOS subdirectory that have been created or modified since yesterday and erases the storage locations so that the purged data no longer exists.

5
```
$ PURGE [MAL.TESTFILES]/LOG
%PURGE-I-FILPURG, DISK1:[MAL.TESTFILES]AVE.OBJ;1 deleted (3 blocks)
%PURGE-I-FILPURG, DISK1:[MAL.TESTFILES]BACK.OBJ;2 deleted (5 blocks)
%PURGE-I-TOTAL, 2 files deleted (8 blocks)
```

The PURGE command in this example purges all files cataloged in the subdirectory named [MAL.TESTFILES]. The /LOG qualifier requests the PURGE command to display the specification of each file it has deleted as well as the total number of files that have been deleted.

6
```
$ PURGE/KEEP=2 TAMPA::DISK1:[EXAMPLE]*.LIS
```

The PURGE command in this example deletes all but the two highest numbered versions of each file with the file type LIS in the directory EXAMPLE on remote node TAMPA.

READ

Reads a single record from a specified input file and assigns the record's contents to a specified symbol name.

FORMAT

READ *logical-name[:] symbol-name*

PARAMETERS

logical-name[:]

Specifies the logical name of the input file from which a record is to be read. Use the logical name assigned by the OPEN command when the file was opened. (The OPEN command assigns a logical name to a file and places the name in the process logical name table.)

In addition, you can specify the process-permanent files identified by the logical names SYS$INPUT, SYS$OUTPUT, SYS$ERROR, and SYS$COMMAND.

symbol-name

Specifies the name of a symbol to be equated to the contents of the record. The name must be 1 to 255 alphanumeric characters and must start with an alphabetic letter, an underscore (_), or a dollar sign ($).

When you specify a symbol name for the READ command, the command interpreter places the symbol name in the local symbol table for the current command level. If the symbol has already been defined, the READ command redefines it to the new value being read.

DESCRIPTION

The READ command can read data from sequential, relative, or indexed files. After each record is read from the specified file, the READ command positions the record pointer at the next record in the file. However, if you are reading an indexed file, you can use the /INDEX and /KEY qualifiers to read records randomly.

The maximum size of any record that can be read in a single READ command is 2048 bytes.

To read a file, the file must be opened by using the /READ qualifier with the OPEN command. The process-permanent files identified by the logical names SYS$INPUT, SYS$OUTPUT, SYS$ERROR, and SYS$COMMAND do not have to be opened explicitly to be read.

If the READ command is executed interactively and the logical name is specified as one of the process-permanent files, SYS$INPUT, SYS$OUTPUT, SYS$COMMAND, or SYS$ERROR, the command interpreter prompts for input data. The READ command accepts data exactly as you enter it. The READ command does not convert characters to uppercase, remove extra spaces and tabs, or remove quotation marks (" "). Also, the READ command does not perform symbol substitution. See the /PROMPT qualifier for more information on issuing prompts with the READ command.

QUALIFIERS

/DELETE

Deletes a record from an indexed file after it has been read. An indexed file must be opened with the /READ and /WRITE qualifiers in order to use the READ/DELETE command.

/END_OF_FILE=label

Transfers control to the location specified by the *label* keyword (in the current command procedure) when the end of the file is reached. When the last record in the file is read, the VMS Record Management Services (VMS RMS) returns an error condition indicating the end-of-file (EOF). If the /END_OF_FILE qualifier is specified, the command interpreter transfers control to the command line at the specified label.

If the /END_OF_FILE qualifier is not specified, control is given to the error label specified with the /ERROR qualifier when the end of the file is reached. If neither the /ERROR nor the /END_OF_FILE qualifier is specified, then the current ON condition action is taken.

/ERROR=label

Transfers control to the location specified by the *label* keyword (in the current command procedure) when a read error occurs. If no error routine is specified and an error occurs during the reading of the file, the current ON condition action is taken.

Overrides any ON condition action specified.

If an error occurs and the target label is successfully given control, the reserved global symbol $STATUS retains the error code.

/INDEX=n

Specifies the index (*n*) to be used to look up keys when reading an indexed file.

If you do not specify the /INDEX qualifier, the primary index is used (/INDEX=0). If you specify the /INDEX qualifier without a value, the default is the most recent value that was explicitly specified.

/KEY=string

Reads a record with the key that matches the specified character string. Binary and integer keys are not allowed. This qualifier, when used together with the /INDEX qualifier, allows you random access to indexed files.

Key matches are made by comparing the characters in the /KEY string to characters in the record key.

To read records at random in an indexed file, you must specify the /KEY qualifier. Once a record is read randomly, all subsequent reads without the /KEY qualifier access records in the indexed file sequentially.

/MATCH=option

Specifies the key match algorithm to be used when searching for matching keys. Specify one of the following options:

EQ	Selects keys equal to the match value (default).
GE	Selects keys greater than or equal to the match value.

GT Selects keys greater than the specified key.

If you are reading indexed files and you do not use the /MATCH qualifier, the default is /MATCH=EQ.

/NOLOCK

Specifies that the record to be read 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=string

Specifies an alternate prompt string to be displayed when reading from the terminal. The default prompt string is DATA:.

/TIME_OUT=n
/NOTIME_OUT (default)

Specifies the number of seconds after which the READ command is terminated if no input is received. If you enter the /TIME_OUT qualifier, you must specify a value from 0 to 255.

If you enter both the /ERROR=label and /TIME_OUT qualifiers, and the time limit expires, the error branch is taken.

EXAMPLES

1
```
$ OPEN IN NAMES.DAT
$ LOOP:
$ READ/END_OF_FILE=ENDIT IN NAME
    .
    .
    .
$ GOTO LOOP
$ ENDIT:
$ CLOSE IN
```

The OPEN command opens the file NAMES.DAT for input and assigns it the logical name of IN. The READ command reads records from the file IN and places the contents into the symbol NAME. The READ command specifies the label ENDIT to receive control when the last record in the file has been read. The procedure loops until all records in the file have been processed.

2
```
$ READ/ERROR=READERR/END_OF_FILE=OKAY  MSGFILE  CODE
    .
    .
    .
$ READERR:
$ CLOSE MSGFILE
    .
    .
    .
$ OKAY:
$ CLOSE MSGFILE
$ EXIT
```

The READ command reads records from the file MSGFILE and places the contents into the symbol CODE. The READ command also uses the /ERROR and /END_OF_FILE qualifiers to specify labels to receive control at the end-of-file (EOF) and on error conditions. At the EOF, control is transferred to the label OKAY. On other read errors, control is transferred to the READERR label.

```
3   $ READ SYS$COMMAND  DATA_LINE
    $ WRITE  OUTPUT_FILE  DATA_LINE
        .
        .
        .
```

The READ command requests data from the current SYS$COMMAND device. If the command procedure containing these lines is executed interactively, the command issues a prompt to the terminal, accepts a line of data, and equates the data entered to the symbol name DATA_LINE.

Then the WRITE command writes the value of the symbol DATA_LINE to the file identified by the logical name OUTPUT_FILE.

```
4   $ OPEN/READ INPUT_FILE TRNTO::INVENTORY.DAT
    $ OPEN/APPEND OUTPUT_FILE RECEIVE.DAT
    $ READ INPUT_FILE DATA_LINE
    $ WRITE OUTPUT_FILE DATA_LINE
```

The OPEN/READ command opens the file INVENTORY.DAT at the remote node TRNTO for reading and assigns it the logical name INPUT_FILE. The OPEN/APPEND command opens the file RECEIVE.DAT in the current default directory. The READ command requests data from the file INVENTORY.DAT at the remote node TRNTO. The WRITE command writes the value of the symbol DATA_LINE to the end of the local file RECEIVE.DAT.

RECALL

Displays previously entered commands on the screen for subsequent execution.

FORMAT

RECALL *[command-specifier]*

PARAMETER

command-specifier

Specifies the number or the first several characters of the command you want to recall.

The specified characters should be unique. If they are not unique, the RECALL command displays the most recently entered command line that matches those characters. For example, suppose you enter a SHOW STATUS command and later enter a SHOW TIME command. If you then type RECALL S, the SHOW TIME command is recalled. You must type RECALL SHOW S to recall the SHOW STATUS command. The number of the command can be from 1 to 20 (where 1 is the last command entered).

The RECALL command itself is never assigned a number. If no command specifier is entered, the RECALL command recalls the most recently entered command. You can use the /ALL qualifier to have the system display all the commands in the RECALL buffer, along with their command numbers, to verify the number of the command you want to recall.

DESCRIPTION

When you enter commands to the system, they are stored in a RECALL buffer for later use with the RECALL command. Input to the INQUIRE command in command procedures is also placed in the RECALL buffer. The RECALL command itself is never stored in the RECALL buffer.

The RECALL buffer can hold up to 20 commands or 1025 characters. You can use continuation characters with the commands to be recalled, but only 255 characters can be read at a time.

When you use the RECALL command, the system displays the command but does not process it. If you want it processed as it appears, press the Return key. You can use the command line editing facility to make minor changes in the command line and then press the Return key to process the revised version of the command.

QUALIFIERS

/ALL

Displays all the commands (and their numbers) available for recall. Remember that the RECALL command is never stored in the RECALL buffer.

/ERASE

Erases the contents of the recall buffer.

EXAMPLES

1

```
$ RECALL T
```

The RECALL command in this example recalls the last command entered that begins with the letter *T*.

2

```
$ SHOW DEFAULT
  DISK3:[SMITH]
$ DIRECTORY SEPT*
  %DIRECT-W-NOFILES, no files found
$ SET DEFAULT [SMITH.LETTERS]
$ RECALL/ALL
  1 SET DEFAULT [SMITH.LETTERS]
  2 DIRECTORY SEPT*
  3 SHOW DEFAULT
$ RECALL 2
$ DIRECTORY SEPT*
  %DIRECT-W-NOFILES, no files found
$ RECALL 2
$ SET DEFAULT [SMITH.LETTERS]
  <edit command line>
$ SET DEFAULT [SMITH.MEMOS]
$ RECALL 2
$ DIRECTORY SEPT*
```

This example starts with a SHOW DEFAULT and a DIRECTORY command. After not finding the file you want, enter the SET DEFAULT command to move to the LETTERS subdirectory. Next use the RECALL /ALL command to see the list of commands you have entered. Enter the RECALL 2 command to repeat the DIRECTORY command in the LETTERS subdirectory. Because you still have not found the file you want, enter the RECALL 2 command again to recall the SET DEFAULT command. (With the entry of the latest DIRECTORY command, SET DEFAULT becomes command 2 in the RECALL list.) Edit the command line so that the system sets the default to the MEMOS subdirectory. Finally, recall the DIRECTORY command to try once more to find the file.

RENAME

Changes all or part of a file specification of an existing disk file or disk directory.

FORMAT

RENAME *input-filespec[,...] output-filespec*

PARAMETERS

input-filespec[,...]

Specifies the name of one or more files whose specifications are to be changed. Wildcard characters (* and %) are allowed in the directory specification, file name, file type, or version number fields of the file specification. When wildcard characters are used, all files whose specifications satisfy the wildcard fields are renamed.

output-filespec

Provides the new file specification to be applied to the input file. The RENAME command uses the device, directory, file name, and file type of the input file as defaults for fields in the output file that are either unspecified, or are indicated by a wildcard character. Wildcard characters in corresponding fields of the input and output file specification result in multiple rename operations. The RENAME command supplies output file version numbers in the following ways:

- If the output file specification contains an explicit version number, that version number is used.
- If the output file specification contains a wildcard as the version number, the version number of the input file is used.
- If the input file specification contains a wildcard as the version number, the version number of each input file names a corresponding output file.
- If no file exists with the same file name and type as the output file, the new file is assigned a version number of 1.
- If a file already exists with the same file name and type as the output file, the next higher version number is used (unless the /NONEWVERSION qualifier is specified).

DESCRIPTION

The RENAME command changes the directory name, file name, file type, or version number of a file. The node and disk designation for the input file specification must be the same as that for the output file specification. In addition, you must have delete (D) access privileges to a file to rename the file. You cannot rename a file across a network.

QUALIFIERS

/BACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the

/CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BY_OWNER[=uic]

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each rename operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED (default)

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/EXCLUDE=(filespec[,...])

Excludes the specified files from the rename operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use

relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) This qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/LOG
/NOLOG (default)

Displays the file specification of each file as it is renamed.

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/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. A wildcard appearing in the version field of an input or output file overrides these qualifiers.

/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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

EXAMPLES

1
```
$ RENAME  AVERAGE.OBJ  OLDAVERAGE
```

The RENAME command in this example renames the highest existing version of the file AVERAGE.OBJ to OLDAVERAGE.OBJ. If no file named OLDAVERAGE.OBJ currently exists, the new file is assigned a version number of 1.

2
```
$ RENAME/NONEW_VERSION  SCANLINE.OBJ;2   BACKUP.OBJ
```

The RENAME command in this example renames the file SCANLINE.OBJ;2 to BACKUP.OBJ;2. The /NONEW_VERSION qualifier ensures that, if BACKUP.OBJ;2 already exists, the RENAME command does not rename the file, but instead reports the error.

3
```
$ RENAME  *.TXT;*   *.OLD;*
```

The RENAME command in this example renames all versions of all files with the file type TXT to have the file type OLD. The file names and version numbers are not changed.

4
```
$ RENAME WATER.TXT [.MEMOS]
```

The RENAME command in this example changes the directory name of WATER.TXT from your default directory to the MEMOS subdirectory. (The RENAME command moves the file to another directory.)

5
```
$ RENAME  [MALCOLM.TESTFILES]SAVE.DAT  []TEST
```

The RENAME command in this example renames the file SAVE.DAT in the directory MALCOLM.TESTFILES to TEST.DAT. The new file is moved to the current default directory.

6
```
$ RENAME/LOG
$_From:       DATA.*,INFO.*
$_To:         NEW
%RENAME-I-RENAMED, _DISK0:[SYSTEM]DATA.AAA;1 renamed to _DISK0:[SYSTEM]NEW.AAA;1
%RENAME-I-RENAMED, _DISK0:[SYSTEM]DATA.BBB;1 renamed to _DISK0:[SYSTEM]NEW.BBB;1
%RENAME-I-RENAMED, _DISK0:[SYSTEM]DATA.CCC;1 renamed to _DISK0:[SYSTEM]NEW.CCC;1
%RENAME-I-RENAMED, _DISK0:[SYSTEM]INFO.001;1 renamed to _DISK0:[SYSTEM]NEW.001;1
%RENAME-I-RENAMED, _DISK0:[SYSTEM]INFO.002;1 renamed to _DISK0:[SYSTEM]NEW.002;1
%RENAME-I-RENAMED, _DISK0:[SYSTEM]INFO.003;1 renamed to _DISK0:[SYSTEM]NEW.003;1
$
```

In this example, three files exist with the file name of DATA, and three files have the file name of INFO. This RENAME command illustrates wildcard characters in the input file names and the use of temporary default file types and version numbers on the output files. The result is the renaming of all six files as displayed by the /LOG qualifier.

7
```
$ RENAME NODE1::DISK2:[SMITH]ASSEMSHT.EXE NODE1::DISK3:[JONES]ASSEMBLYSHEET.EXE
```

The RENAME command in this example renames the file ASSEMSHT.EXE in the SMITH directory on remote node NODE1 and disk DISK3 to ASSEMBLYSHEET.EXE in the JONES directory on the same remote node and disk. You can rename a file on another node and disk only if the new file resides on that same node and disk.

REPLY

Broadcasts a message to a terminal or terminals.

See the qualifier descriptions for restrictions.

FORMAT

REPLY *[message-text]*

PARAMETER

message-text

Specifies the text of the message. The text must be 1 to 128 characters. Enclose the text in quotation marks (" ") if it contains spaces, special characters, or lowercase characters.

DESCRIPTION

All users with OPER (operator) privilege can use the REPLY command to communicate with system users. The REPLY command does the following:

- Displays messages at users' terminals.
- Responds to user requests.
- Responds to magnetic tape file system requests.
- Enables and disables operator status on a terminal (if the operator communication process [OPCOM] is running).
- Closes the operator's log file and opens a new one (if OPCOM is running).

You must always use one or more qualifiers with the REPLY command in order for it to be meaningful. If you use the REPLY command without using any qualifiers, an error message is returned. When you use the REPLY command for any purpose other than displaying messages at users' terminals, you must also use the /ENABLE=keyword qualifier. See the description of the /ENABLE qualifier to determine the appropriate keyword (or keywords) for your purpose.

Displaying Messages at Users' Terminals

To contact one or more system users, the operator enters one of the following REPLY commands:

- REPLY/ALL *message-text*
- REPLY/TERMINAL=(terminal-name[,...]) *message-text*
- REPLY/USERNAME[=(username[,...])] *message-text*

The /ALL qualifier sends a message to all terminals that are on line and are connected to the VMS system or VAXcluster. Generally, when an important message is to be broadcast, such as information about a system shutdown, you should use the /ALL qualifier.

The /TERMINAL qualifier sends a message to one or more specific terminals on the system or VAXcluster.

The /USERNAME qualifier sends a message to terminals at which one or more system or VAXcluster users are logged in.

Note that the /TO qualifier is *not* used under these three circumstances, because the operator is not replying to a specific request from either the file system or a user.

To broadcast to a terminal other than your own, you must have OPER privilege. The REPLY command is not complete until all terminals you are broadcasting to have received the message.

Responding to User Requests

When a user enters the REQUEST/REPLY command, the process associated with the requesting user's terminal is put in a wait state until the operator responds by using one of the following REPLY commands:

- REPLY/ABORT=identification-number *message-text*
- REPLY/PENDING=identification-number *message-text*
- REPLY/TO=identification-number *message-text*

The /ABORT qualifier indicates that the user's request has been canceled.

The /PENDING qualifier sends a message to the user and keeps the user's process in a wait state until the request can be fulfilled or aborted.

The /TO qualifier indicates that the user's request has been fulfilled.

When a user enters the REQUEST/REPLY command, the message is displayed at the system console terminal. For example:

```
%OPCOM, 19-APR-1990 09:49:24.47, request 3, from user SYSTEM
_TTB6:, This is a sample request
```

The user cannot enter any further commands until the operator responds using the /ABORT or the /TO qualifier, or until the user aborts the request. If the operator does not respond and the user does not abort the request, the request is repeated at 5-minute intervals on the operator's terminal until the operator replies.

The REPLY command is an essential part of the procedures that operators must use in order for users to gain access to tape and disk volumes.

Responding to File System Requests

When a multivolume tape volume reaches the end-of-tape (EOT) mark, the magnetic tape file system suspends processing and sends a message to the operator to mount the next tape. The operator responds using one of the following REPLY commands:

- REPLY/TO=identification-number *label*
- REPLY/INITIALIZE_TAPE=identification-number *label*
- REPLY/BLANK_TAPE=identification-number *label*

- REPLY/ABORT=identification-number

The /TO qualifier indicates that the file system request has been fulfilled. When the request from the magnetic tape file system specifies a volume label, the operator mounts the specified tape and enters the REPLY/TO command. However, if the file system requests a new volume, the operator can reuse a scratch volume by mounting it and by entering the REPLY /INITIALIZE_TAPE command. The operator also can mount a blank volume and then enter the REPLY/BLANK_TAPE command. In any case, the operator may add the message "label" to the REPLY command to specify the volume's label. The quotation marks (" ") are required syntax.

If the request is "REMOUNT" or "MOUNT NEW", the label is required in the message text. If the request is "MOUNT", no label is needed.

The /ABORT qualifier indicates that the file system request has been canceled.

Enabling and Disabling Operator Status on a Terminal

Any terminal connected to the VMS operating system can be established as an operator's terminal if OPCOM is running. When an operator who is logged in to an account with OPER (operator) privilege enters the REPLY /ENABLE command at the designated terminal, that terminal can be used to respond to user requests and to monitor device status. Such a terminal retains operator status until it is specifically disabled, or until the end of the current interactive session, if it was established as a temporary operator's terminal (see the description of the /TEMPORARY qualifier).

Operator messages are printed on the system console terminal unless that terminal is explicitly disabled as an operator's terminal.

When the operator enters the REPLY/ENABLE command, OPCOM confirms that the terminal has been enabled. For example:

```
$  REPLY/ENABLE

%OPCOM, 19-APR-1990 10:22:19.75, operator status for operator OPA0
CENTRAL, PRINTER, TAPES, DISKS, DEVICES, CARDS, NETWORK, CLUSTER,
OPER1, OPER2, OPER3, OPER4, OPER5, OPER6, OPER7, OPER8, OPER9, OPER10,
OPER11, OPER12
```

When the operator enters the REPLY/DISABLE command, OPCOM uses the following message to confirm that the terminal is no longer an operator terminal:

```
%OPCOM, 19-APR-1990 10:03:23.48, operator disabled, operator OPA0
```

To grant specific operator status on a particular terminal, the operator includes one or more keywords after the /ENABLE qualifier. For example, to establish a terminal as an operator terminal that can receive messages pertaining to mounting and dismounting tapes and disks, the operator enters the following:

```
$  REPLY/ENABLE=(DISKS,TAPES)

%OPCOM, 19-APR-1990 10:04:00.18, operator enabled, operator OPA0
$
%OPCOM, 19-APR-1990 10:04:00.47, operator status for operator OPA0
TAPES, DISKS
```

OPCOM confirms that the terminal has operator status for tape and disk messages.

To discontinue specific operator status, the operator includes one or more keywords after the /DISABLE qualifier. For example, to inhibit an operator terminal from receiving messages pertaining to mounting and dismounting disks, the operator enters the following command:

```
$ REPLY/DISABLE=DISKS

%OPCOM, 19-APR-1990 10:04:30.83, operator status for operator OPA0
TAPES
```

Note that OPCOM lists the specific operator status still assigned to the terminal.

When an operator disables operator status on all terminals, including the system console terminal, OPCOM records all subsequent messages in the operator log file, except user requests and messages requiring an operator reply.

```
%OPCOM-S-OPRNOTIF, operator notified, waiting. 10:06:03.25
%OPCOM-S-OPREPLY, %OPCOM 19-APR-1990 10:06:03:25, no operator coverage
```

To determine the operator status and to obtain a list of pending requests for a particular terminal, the operator enters the following command:

```
$ REPLY/STATUS
```

This command also shows all outstanding requests for this operator.

Closing the Operator's Log File and Opening a New One

To close the current operator's log file and open a new one, the operator enters the REPLY/LOG command. If OPCOM is running, all subsequent messages are recorded in the new log file. To close the current log file without opening a new one, the operator enters the REPLY/NOLOG command. All subsequent messages are not recorded until the operator enters the REPLY/LOG command.

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 (operator) privilege.

Broadcasts a message to all terminals that are attached to the system or VAXcluster. These terminals must be turned on and have broadcast-message reception enabled. The /ALL qualifier is incompatible with the /USERNAME and /TERMINAL qualifiers.

/BELL

Rings a bell at the terminal receiving a message when entered with the /ALL, the /TERMINAL, or the /USERNAME qualifier; two bells when entered with the /URGENT qualifier; and three bells when entered with the /SHUTDOWN qualifier.

/BLANK_TAPE=identification-number

Requires VOLPRO (volume protection) 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 (operator) privilege. Requires OPER and SECURITY privileges for security messages.

If the operator communication process (OPCOM) is running, restores to normal (that is, nonoperator) status the terminal at which the command is entered. The /DISABLE qualifier cannot be entered from a batch job. To restrict the types of messages displayed on an operator's terminal, specify one of the following keywords:

CARDS	Inhibits messages sent to the card readers.
CENTRAL	Inhibits messages sent to the central system operator.
CLUSTER	Inhibits messages from the connection manager pertaining to cluster state changes.
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 to OPER12	Inhibits messages sent to operators identified as OPER1 to OPER12.
PRINTER	Inhibits messages pertaining to print requests.
SECURITY	Inhibits messages pertaining to security events; requires SECURITY privilege.
TAPES	Inhibits messages pertaining to mounting and dismounting tape volumes.

When an operator logs out from a remote or a dial-in terminal, the operator terminal is automatically disabled.

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

Requires OPER (operator) privilege. Requires OPER and SECURITY privileges for security messages.

Designates as an operator's terminal the terminal at which the REPLY command is entered, if OPCOM is running. The /ENABLE qualifier cannot be entered from a batch job. To enable the following types of messages displayed on an operator's terminal, specify one of the following keywords:

CARDS	Displays messages sent to the card readers.
CENTRAL	Displays messages sent to the central system operator.

CLUSTER	Displays messages from the connection manager pertaining to cluster state changes.
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 to OPER12	Displays messages sent to operators identified as OPER1 to OPER12.
PRINTER	Displays messages pertaining to print requests.
SECURITY	Allows messages pertaining to security events; requires SECURITY privilege.
TAPES	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.

If the tape drive cannot read the volume, the mount fails and an error message is returned. Use the /BLANK_TAPE qualifier to override the checking of information on a volume label.

/LOG
/NOLOG

Requires OPER (operator) privilege.

Closes the current operator's log file and opens a new one, if OPCOM is running. The /NOLOG qualifier closes the current log file, but does not open a new log file. The current terminal must be enabled as an operator terminal. The operator can then examine the contents of the previous log file.

/NODE[=(node-name[,...])]

Sends a message to the local VAXcluster node only. The optional parameter list allows you to specify which nodes will receive the message. Default sends messages to all cluster nodes.

/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 the /BELL qualifier, rings three bells at terminals receiving the message.

/STATUS
Requires OPER (operator) 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 entered 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 (operator) privilege.

Broadcasts the message to specified terminals, where the *terminal-name* parameter is the device name of the terminal. Incompatible with the /ALL and /USERNAME qualifiers.

/TO=identification-number
Requires OPER (operator) 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.

Note that you can also use a variation of the REPLY/TO command in response to a MOUNT/ASSIST command where you redirect the mount operation to another device. Whenever you must substitute a device, load the user's volume on the alternate device and prepare the device for connection before entering the REPLY command. Use the following syntax:

REPLY/TO=identification-number "SUBSTITUTE *device-name*"

You can abbreviate the word SUBSTITUTE to S and can use uppercase or lowercase characters. After a space, use the remainder of the *message-text* space to name the substituted device.

/URGENT
Sends a message beginning "URGENT..."; if used with the /BELL qualifier, rings two bells at terminals receiving the message.

/USERNAME[=(username[,...])]
Requires OPER (operator) privilege.

Broadcasts a message to all terminals at which users are logged in to the system (or VAXcluster), or only to the terminals of the specified users. Incompatible with the /ALL and /TERMINAL qualifiers.

/WAIT
Sends a message synchronously and then waits. The default is to send a message to OPCOM, which does the actual I/O. On a VAXcluster, the message is sent to the local node.

EXAMPLES

1
```
$ REPLY/ALL/BELL "SYSTEM GOING DOWN FOR BACK-UP. PLEASE LOG OFF."
```

The REPLY command in this example broadcasts a message to all terminals on the system. When the message appears at the user's terminal, it is prefixed with the terminal name, the user name of the sender, and (when DECnet–VAX is installed) the node name. The bell sounds at the terminal as the message is displayed.

2
```
$ REPLY/ENABLE=DISKS
%OPCOM, 19-APR-1990, 10:17:09.02, operator enabled, operator OPA0
$
%OPCOM, 19-APR-1990 10:17:10.30, operator status for operator OPA0
DISKS
```

The REPLY/ENABLE command in this example designates the terminal OPA0 as an operator terminal that can receive messages pertaining to mounting and dismounting disks. The OPCOM message confirms that terminal OPA0 is established as an operator's terminal.

3
```
%OPCOM, 19-APR-1990 10:19:33.21, request 5, from user SYSTEM
OPA0, Please mount OPGUIDE on DBA3:
$ REPLY/PENDING=5 "YOU'LL HAVE TO WAIT-THERE ARE SEVERAL REQUESTS BEFORE YOURS"
    . .
    .
    .
$ REPLY/TO=5
 19-APR-1990 10:20:25.50, request 5 completed by operator OPA0
```

In this example the OPCOM message indicates that a user wants the operator to place the disk volume labeled OPGUIDE on the disk drive DBA3 and prepare the device for connection. The REPLY/PENDING command indicates that the operator can perform the task but not immediately; the /PENDING qualifier prevents the user from entering other commands until the operator fulfills or aborts the request. After mounting the disk on the drive the operator sends a message indicating that the request has been fulfilled. When no message is specified, OPCOM sends a standard message indicating that the task has been performed.

4
```
%%%%%%%%%%  OPCOM, 19-APR-1990 10:20:50.39  %%%%%%%%%%
request 5 from user ROBINSON
Please mount volume GRAPHIC_FILES in device _DUA11:
Shelf 4 - slot B
$ REPLY/TO=5 "SUBSTITUTE  DUA4"
```

The REPLY/TO command with the SUBSTITUTE syntax in this example is used in response to a MOUNT/ASSIST command entered by user ROBINSON. The MOUNT device is switched to DUA4, and the user is notified.

5
```
$ REPLY/STATUS
%OPCOM, 19-APR-1990 10:20:50.39, operator status for operator OPA0
DISKS
```

The REPLY/STATUS command in this example requests that the operator terminal status for terminal OPA0 be displayed. The response from OPCOM indicates that terminal OPA0 is enabled to receive messages from disk devices.

6
```
$ REPLY/BELL/TERMINAL=TTC1: "YOUR FILE HAS COMPLETED PRINTING. BOB S."
```

The REPLY command in this example sends a message to the user logged in at terminal TTC1. When the message is displayed, a bell rings at that terminal.

7
```
$ REPLY/ENABLE
%OPCOM, 19-APR-1990 10:22:19.75, operator status for operator OPA0
CENTRAL, PRINTER, TAPES, DISKS, DEVICES, CARDS, NETWORK, CLUSTER,
OPER11, OPER12
    .
    .
    .
$ REPLY/DISABLE=(PRINTER, TAPES)
%OPCOM, 19-APR-1990 10:22:26.07, operator disabled, operator OPA0
```

The REPLY/ENABLE command in this example designates terminal OPA0 to receive messages from all facilities. Later, the REPLY/DISABLE command selectively disables OPA0 from receiving messages pertaining to print devices and tapes.

REQUEST

Displays a message at a system 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.

To use this command, you must start the operator communication process (OPCOM) at boot time by specifying the DCL command @SYS$SYSTEM:STARTUP OPCOM in the site-specific startup command file, SYS$MANAGER:SYSTARTUP.COM.

FORMAT

REQUEST *message-text*

PARAMETER

message-text

Specifies 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 (" ").

DESCRIPTION

When you use the REQUEST command to send a message to an operator, the message is displayed at the operator terminals specified with the /TO qualifier.

If you specify the /REPLY qualifier, the message is assigned an identification number, so the operator can respond to the message. The system displays the following message:

```
%OPCOM-S-OPRNOTIF, operator notified, waiting...hh:mm:ss
```

When the operator responds to your request, the system displays a message such as the following:

```
%OPCOM-S-OPREPLY, message text entered by operator
```

If you request a reply, you cannot enter any commands until the operator responds. If you press Ctrl/C, the system displays the following message:

```
REQUEST - Enter message or cancel with ^Z
REQUEST - Message?
```

At this time, you can either enter another message, or press Ctrl/Z to cancel the request. If you enter another message, that message is sent to the operator, and you must continue to wait for a reply.

All messages are logged at the central operator's console and in the system operator's log file, if that file is initialized.

QUALIFIERS

/REPLY

Requests a reply to the message and issues a unique identification number to which the operator sends the response. The system displays 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 want to send the message. Possible keywords are as follows:

CARDS	Sends the message to operators designated to respond to card reader requests.
CENTRAL	Sends the message to the central system operator.
CLUSTER	Sends the message to operators designated to respond to cluster-related requests.
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 to OPER12	Sends the message to operators identified as OPER1 to 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.

EXAMPLES

1

```
$ PRINT/COPIES=2/QUEUE=LQ_PRINT  REPORT.OUT/FORM=LETTER
  Job REPRT (queue LQA1, entry 401) pending
$ REQUEST/REPLY/TO=PRINTER -
_$ "Have queued job 401 as FORM=LETTER;  can you print it?"
%OPCOM-S-OPRNOTIF, operator notified, waiting...10:42:16.10
%OPCOM-S-OPREPLY, AFTER 11:00
 19-APR-1990 10:25:32.40, request 3 completed by operator OPA0
```

In this example the PRINT command requests that multiple copies of a file be printed using a special paper (/FORM=LETTER). After queueing the job to the printer, the REQUEST command sends a message to the system operator.

The operator sends a reply after completing the request.

2

```
$ REQUEST/REPLY  "Are you there?"
%OPCOM-S-OPRNOTIF, operator notified, waiting...14:54:30.33
Ctrl/C
REQUEST-Enter message or cancel request with ^Z
REQUEST-Message? Ctrl/Z
%OPCOM-S-OPRNOTIF, operator notified, waiting... 14:59:01.38
%OPCOM-F-RQSTCAN, request was canceled
```

In this example the REQUEST command issues a message and requests a response. When no operator replies to the question, Ctrl/C is used to interrupt the request; then Ctrl/Z is used to cancel it.

RETURN

Terminates a GOSUB subroutine procedure and returns control to the command following the calling GOSUB command.

FORMAT

RETURN *[status-code]*

PARAMETER

status-code

Defines a longword (integer) value or expression equivalent to an integer value that gives the exit status of the subroutine by defining a numeric value for the reserved global symbol $STATUS. The value can be tested by the next outer command level. The low-order 3 bits of the longword integer value change the value of the reserved global symbol $SEVERITY. If you specify a status code, DCL interprets the code as a condition code. Note that even numeric values produce warning, error, and fatal error messages, and that odd numeric values produce either no message or a success or informational message.

If you do not specify a status code, the current value of $STATUS is saved. When control returns to the outer command level, $STATUS contains the status of the most recently executed command or program.

DESCRIPTION

The RETURN command terminates the GOSUB subroutine and returns control back to the command following the calling GOSUB command.

When a DCL command, user program, or command procedure completes execution, the command interpreter saves the condition code value in the global symbol $STATUS. The system maintains this value in hexadecimal. If a RETURN command does not explicitly set a value for $STATUS, the command interpreter uses the current value of $STATUS to determine the error status.

The low-order 3 bits of the status value contained in $STATUS represent the severity of the condition. The reserved global symbol $SEVERITY contains this portion of the condition code. Severity values range from 0 to 4, as shown in the following table:

Value	Severity
0	Warning
1	Success
2	Error
3	Information
4	Severe (fatal) error

Note that the success and information codes have odd numeric values, and that warning and error codes have even numeric values.

EXAMPLE

```
$ SHOW TIME
  19-APR-1990 14:25:42
$ GOSUB SYMBOL
$ EXIT
$ SYMBOL:
$     SHOW SYMBOL RED
      RED = "SET DEFAULT [JONES.DCL]"
$     RETURN 1
```

The GOSUB command transfers control to the subroutine labeled SYMBOL. After the subroutine is executed, the RETURN command transfers control back to the command following the calling GOSUB statement, giving $STATUS and $SEVERITY a value of 1. The procedure then exits.

RUN (Image)

Executes an image within the context of your process. You can abbreviate the RUN command to a single letter, R.

If you specify an image name in the command line with an explicit version number (or a semicolon [;]), the image runs with current process privileges. If you do not specify an explicit version number (or semicolon), the image runs with any privileges with which it was installed. If you have DECnet software installed and want to execute an image over the network, you must have read (R) access to the file.

FORMAT

RUN *filespec*

PARAMETER

filespec

Specifies an executable image to be executed. The file type defaults to EXE. Wildcard characters are not allowed.

QUALIFIER

/DEBUG
/NODEBUG

Executes the image under control of the debugger. The default is the /DEBUG qualifier if the image is linked with the /DEBUG qualifier and the /NODEBUG qualifier if the image is linked without the /DEBUG qualifier. The /DEBUG qualifier is invalid if the image is linked with the /NOTRACEBACK qualifier. The /NODEBUG qualifier overrides the effect of the LINK/DEBUG command. If the image was linked with the /TRACEBACK qualifier, traceback reporting is performed when an error occurs.

If the image was not linked with the debugger, you can specify the /DEBUG qualifier to request the debugger at execution time. However, if the /NOTRACEBACK qualifier was specified when the image was linked, the /DEBUG qualifier is invalid.

EXAMPLES

1

```
$ RUN LIBRA
```

The image LIBRA.EXE starts executing in the process. If the image LIBRA has been installed with amplified privileges, it runs with those privileges because you have not explicitly specified a version number or a semicolon. Alternatively, the image LIBRA.EXE still runs with its amplified privileges, if you enter the RUN command as follows:

```
$ RUN LIBRA.EXE
```

2
```
$  MACRO/ENABLE=DEBUG ORION
$  LINK/DEBUG ORION
$  RUN ORION

     VAX DEBUG Version 5.4

%DEBUG-I-INITIAL, language is MACRO, module set to 'ORION'
DBG>
    .
    .
    .
$  RUN/NODEBUG ORION
```

A program is compiled, linked, and run with the debugger. Subsequently, a RUN/NODEBUG command requests that the debugger, which is present in the image, not issue a prompt. If an error occurs while the image executes, the debugger can perform traceback and report on the error.

3
```
$  RUN AQUARIUS.EXE;1
```

The image AQUARIUS.EXE starts executing in the process. If the image AQUARIUS has been installed with amplified privileges, it does not run with those privileges because you have specified a version number. Instead, the image runs with current process privileges only. When you specify a version number (or even just a semicolon), the image activator does not search its list of special images that have been installed with privileges. The process AQUARIUS still runs with only normal process privileges if you enter the RUN command as follows:

```
$  RUN AQUARIUS.EXE;
```

In this case, however, the highest version of the image AQUARIUS runs.

RUN (Process)

Creates a subprocess or a detached process to run an image and deletes the process when the image completes execution. A subprocess is created if any of the qualifiers except the /UIC or the /DETACHED qualifier is specified. A detached process is created if the /UIC qualifier is specified and you have the DETACH user privilege.

FORMAT

RUN *filespec*

PARAMETER

filespec

Specifies the file name of an executable image to be executed in a separate process. The default file type is EXE. Wildcard characters are not allowed in the file specification.

DESCRIPTION

The RUN command creates a process to execute the specified image. If you specify the /UIC qualifier, the RUN command creates a detached process. Otherwise, the RUN command creates a subprocess.

When you specify any qualifiers with the RUN command, the RUN command creates a process and displays the process identification (PID) code in SYS$OUTPUT. The newly created process executes the image named in the file specification. When the image has finished executing, the system deletes the process that was running that image.

By default, the RUN command creates a subprocess with the same user identification code (UIC), current disk and directory defaults, privileges, and priority as the current process.

Both the /DETACHED and the /UIC qualifiers request the RUN command to create a detached process. You must have the user privilege DETACH to create a detached process with a different UIC. When you create a detached process, the resource quotas are the same as those of the current process. However, if you have DETACH privilege, you can specify any quotas for the detached process.

Input, Output, and Error Streams

Use the following qualifiers to assign equivalence names for the logical names SYS$INPUT, SYS$OUTPUT, and SYS$ERROR for the process:

/INPUT
/OUTPUT
/ERROR

The equivalence names you specify for these process-permanent files are interpreted within the context of the process you are creating. For example, file type defaults, and logical name use and translation are image- and language-dependent.

Defining Process Attributes

Use the following qualifiers to override the default attributes for a process:

/ACCOUNTING
/DUMP
/PRIORITY
/PRIVILEGES
/PROCESS_NAME
/SERVICE_FAILURE
/SWAPPING

Assigning Resource Quotas

When you enter a RUN command to create a process, you can define quotas to restrict the amount of various system resources available to the process. The following resource quota is deductible when you create a subprocess; that is, the value you specify is subtracted from your current quota and given to the subprocess:

Qualifier	Quota
/TIME_LIMIT	CPUTIME

The quota amount is returned to your current process when the subprocess is deleted.

The system defines minimum values for each specifiable quota. If you specify a quota that is below the minimum, or if you specify a deductible quota that reduces your current quota below the minimum, the RUN command cannot create the process. To determine your current quotas, enter the SHOW PROCESS/QUOTAS command.

You can also specify limits for nondeductible quotas. Nondeductible quotas are established and maintained separately for each process and subprocess. The following qualifiers specify nondeductible quotas:

Qualifier	Quota
/AST_LIMIT	ASTLM
/EXTENT	WSEXTENT
/IO_BUFFERED	BIOLM
/IO_DIRECT	DIOLM
/MAXIMUM_WORKING_SET	WSQUOTA
/WORKING_SET	WSDEFAULT

A third type of quota treatment is pooling. Pooled quotas are established when a detached process is created. They are shared by that process and all its descendent subprocesses. Charges against pooled quota values are subtracted from the current available totals as they are used and are added back to the total when they are not being used. The following qualifiers specify pooled quotas:

Qualifier	Quota
/BUFFER_LIMIT	BYTLM
/ENQUEUE_LIMIT	ENQLM
/FILE_LIMIT	FILLM
/PAGE_FILE	PGFLQUOTA
/QUEUE_LIMIT	TQELM
/SUBPROCESS_LIMIT	PRCLM

Hibernation and Scheduled Wakeup Requests

Use the following qualifiers to schedule execution of the image:

/DELAY
/INTERVAL
/SCHEDULE

If you specify any of these qualifiers, the RUN command creates the process and places it in hibernation. The process cannot execute the image until it is awakened. Time values specified with these three qualifiers control when the process is awakened to execute the specified image.

You can schedule wakeup requests for a specified delta time (/DELAY qualifier) or an absolute time (/SCHEDULE qualifier). You can also schedule wakeup requests for recurrent intervals with the /INTERVAL qualifier. If you specify an interval time, the created process is awakened to execute the specified image at fixed time intervals. If the image terminates normally (for example, by a RET instruction), the process returns to a state of hibernation, awaiting the next scheduled wakeup time and user-mode exit handlers are not called. At the next wakeup time, the image is recalled at its entry point; the image is not reactivated. If the image terminates abnormally, or by an $EXIT command, or by a $FORCEX command, the process does not return to hibernation, further scheduling requests are terminated, user-mode exit handlers are called, the image exits, and the created process is deleted.

Use the /PROCESS_NAME qualifier to give the created process a name. You can use this process name in a subsequent STOP or CANCEL command. A STOP command terminates execution of the image in the process and causes the process to be deleted. The CANCEL command cancels wakeup requests that are scheduled but have not yet been delivered.

QUALIFIERS

/ACCOUNTING (default)
/NOACCOUNTING

Requires ACNT (accounting) privilege to disable accounting.

Logs accounting records in the system accounting file for the created process.

/AST_LIMIT=quota

Specifies the maximum number of asynchronous system traps (ASTs) that the created process can have outstanding.

If you do specify an AST limit quota, the default quota established at system generation time is used. The minimum required for any process to execute is 2. A value of 10 is typical.

The AST limit quota is nondeductible.

/AUTHORIZE
/NOAUTHORIZE (default)

Requires DETACH privilege.

When the image to be executed is the system login image (LOGINOUT.EXE), this qualifier searches the user authorization file (UAF) to validate a detached process. The /NOAUTHORIZE qualifier creates a detached process that runs under the control of the command interpreter.

Specify the /AUTHORIZE qualifier if you want the login image to check the UAF whenever a detached process is created. The process-permanent files specified by the /INPUT and /OUTPUT qualifiers are made available to the command interpreter for input and output.

Any nonspecified attributes of the created process default to those of the current process.

/BUFFER_LIMIT=quota

Specifies the maximum amount of memory, in bytes, that the process can use for buffered I/O operations or for temporary mailbox creation.

If you do not specify a buffered I/O quota, the default value established at system generation time is used. The minimum amount required for any process to execute is 1024 bytes. A value of 10,240 is typical.

The buffer limit quota is pooled.

/DELAY=delta-time

Places the created process in hibernation and awakens it after a specified time interval.

Specify the delta time according to the rules for entering delta times given in the *VMS DCL Concepts Manual*.

If you specify both the /DELAY and /INTERVAL qualifiers, the first wakeup request occurs at the time specified by the /DELAY qualifier. All subsequent wakeup requests occur at the interval specified by the /INTERVAL qualifier.

/DETACHED
/NODETACHED

Creates a detached process with the same user identification code (UIC) as the current process. (To create a detached process with a different UIC, use the /UIC qualifier.) By default, the created process is not a detached process.

By default, the detached process has the same resource quotas as the current process; the DETACH privilege allows you to specify any quotas you need for the detached process. Unless you have the DETACH privilege, the maximum number of detached processes that you can create is limited to the quota defined by MAX_DETACH in your UAF.

/DUMP
/NODUMP (default)

When an image terminates because of an unhandled error, the /DUMP qualifier causes the contents of the address space to be written to the file named *image-name*.DMP in the process's default device and directory. You can then use the Analyze/Process_Dump Utility to analyze the dump.

/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. A value of 6 is typical.

/ERROR=filespec

Defines an equivalence name string of 1 to 63 alphanumeric characters for the logical device name SYS$ERROR. The logical name and equivalence name are placed in the process logical name table for the created process. (The /ERROR qualifier is ignored if you are running SYS$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. A value in the range of 400 to 2000 is typical. 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 the quota established at system generation time. The minimum amount required for any process to execute is 2. A value of 20 is typical. The file limit quota is pooled.

/INPUT=filespec

Defines an equivalence name string of 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 be awakened at regularly scheduled intervals.

Specify the delta time according to the rules given in the *VMS DCL Concepts Manual*.

If you specify the /DELAY or the /SCHEDULE qualifier with the /INTERVAL qualifier, the first wakeup request occurs at the time specified by the /DELAY or the /SCHEDULE qualifier; all subsequent wakeup requests occur at intervals specified by the /INTERVAL qualifier. If you specify neither the /DELAY nor the /SCHEDULE qualifier with the /INTERVAL qualifier, the first wakeup request 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 the quota established at system generation time. The minimum required for any process to execute is 2. A value of 6 is typical. 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 the quota established at system generation time. The minimum required for any process to execute is 2. A value of 6 is typical. The direct I/O quota is nondeductible.

/JOB_TABLE_QUOTA=quota

Allows you to specify a quota for a detached process's jobwide logical name table.

A value of 0 has a special meaning. It means that the table, for all practical purposes, has infinite quota because its quota is pooled with that of its parent table, the system directory table.

Note that the /JOB_TABLE_QUOTA qualifier is relevant only for detached processes. If the /JOB_TABLE_QUOTA qualifier is specified in a RUN command that results in the creation of a subprocess, it is 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 when the subprocess or detached process has been deleted.

/MAXIMUM_WORKING_SET=quota

Specifies the maximum size to which the image being executed in the process can increase its working set size. An image can increase its working set size by calling the $ADJWSL (Adjust Working Set Limit) system service.

The default quota is the quota established at system generation time. The minimum value required for any process to execute is 10 pages. A value of 200 is typical.

The maximum working set quota is nondeductible.

/OUTPUT=filespec

Defines an equivalence name string of 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 paging file quota is the amount of secondary storage available during execution of the image.

The default quota is the quota established at system generation time. The minimum value required for a process to execute is 256 pages. A value of 10,000 pages is typical. The paging file quota is pooled.

/PRIORITY=n

Requires ALTPRI (alter priority) privilege to set the priority higher than your current process.

Specifies the base priority at which the created process executes.

The value of the parameter *n* is a decimal number from 0 to 31, where 31 is the highest priority and zero is the lowest. Normal priorities range from 0 to 15; real-time priorities range from 16 to 31.

The default priority is that of the current process.

/PRIVILEGES=(privilege[,...])

Requires SETPRV (set privilege) privilege to specify privileges that you do not have.

Defines user privileges for the created process. You can extend any privilege you possess to a process you create. By default, the created process has the same privileges as its creator. If you specify only one privilege, you can omit the parentheses.

For a list of process privileges, see the *VMS DCL Concepts Manual.*

You can also use the keyword NOSAME as the *privilege parameter.* If you specify /PRIVILEGES=NOSAME, the created process has no privileges.

If you specify a version number (or semicolon [;]) in the *filespec* parameter, the current process privileges are used, overriding any privileges specified with the /PRIVILEGES qualifier.

/PROCESS_NAME=process-name

Specifies a name of 1 to 15 characters for the created process. The process name is implicitly qualified by the group number of the process's user identification code (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. This number includes timer requests and scheduled wakeup requests.

The default quota is the quota established at system generation time. A process does not require any timer queue quota in order to execute. A value of 8 is typical.

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.

If you specify the /NORESOURCE_WAIT qualifier, the process receives 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.

Specify the absolute time value according to the rules for entering absolute time values given in the *VMS DCL Concepts Manual.*

/SERVICE_FAILURE
/NOSERVICE_FAILURE (default)

Enables or disables an exception condition notification if an error occurs during a system service request. By default, an error status code is returned to the process.

If you specify the /SERVICE_FAILURE qualifier and an error occurs during a system service request, the process encounters an exception condition.

/SUBPROCESS_LIMIT=quota

Specifies the maximum number of subprocesses that the created process is allowed to create.

The default quota is the quota established at system generation time. A process does not require any subprocess quota in order to execute. A value of 8 is typical.

The subprocess limit quota is pooled.

/SWAPPING (default)
/NOSWAPPING

Requires PSWAPM (process swap mode) privilege to inhibit process swapping.

Permits the process to be swapped. The default allows a process to be swapped from the balance set in physical memory to allow other processes to execute.

With /NOSWAPPING in effect, the process is not swapped out of the balance set when it is in a wait state. By default, a process may be swapped out of the balance set whenever it is in a wait state.

/TIME_LIMIT=limit

Specifies the maximum amount of CPU time (in delta time) a created process can use. CPU time is allocated to the created process in units of 10 milliseconds. When it has exhausted its CPU time limit quota, the created process is deleted.

If this quota is not specified and the created process is a detached process, the detached process receives a default value of zero, that is, unlimited CPU time.

If this quota is not specified and the created process is a subprocess, the subprocess receives half the CPU time limit quota of the creating process.

If this quota is specified as zero, the created process has unlimited CPU time providing that the creating process also has unlimited CPU time. If, however, the creating process does not have unlimited CPU time, the created process receives half the CPU time limit quota of the creating process.

The CPU time limit quota is a consumable quota; that is, the amount of CPU time used by the created process is not returned to the creating process when the created process is deleted.

If you restrict CPU time for a process, specify the time limit according to the rules for specifying delta time values, as given in the *VMS DCL Concepts Manual*.

/UIC=uic

Specifies that the created process be a detached process and assigns it a user identification code (UIC). Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/WORKING_SET=default

Specifies the number of pages in the working set of the created process.

The default working set size is the size 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. A value of 200 pages is typical.

The maximum working set quota is nondeductible.

EXAMPLES

1
```
$ RUN/PROCESS_NAME=SUBA   SCANLINE
%RUN-S-PROC_ID, identification of created process is 00010044.
```

In this example, the RUN command creates a subprocess named SUBA to run the image SCANLINE.EXE. The system gives the subprocess an identification number of 00010044.

2
```
$ RUN/DELAY=3:30/OUTPUT=BALANCE.OUT BALANCE
```

In this example, the RUN command creates a subprocess to run the image BALANCE.EXE 3 hours and 30 minutes from now; output is written to the file BALANCE.OUT.

3
```
$ RUN/INTERVAL=1:40/PROCESS_NAME=STAT   STATCHK
%RUN-S-PROC_ID, identification of created process is 00050023
    .
    .
    .
$ CANCEL STAT
```

In this example, the RUN command creates a subprocess named STAT to execute the image STATCHK.EXE. The process is scheduled to execute the image at intervals of 1 hour and 40 minutes. The process hibernates; however, because neither the /DELAY nor the /SCHEDULE qualifier is specified, the first wakeup request occurs immediately.

The CANCEL command subsequently cancels the wakeup requests posted by the /INTERVAL qualifier. If the process is currently executing the image, it completes the execution and hibernates.

4
```
$ RUN/PROCESS_NAME=LYRA  LYRA -
_$ /OUTPUT=_TTB3: -
_$ /ERROR=_TTB3:
%RUN-S-PROC_ID, identification of created process is 000A002F
```

In this example, the RUN command creates a subprocess named LYRA to execute the image LYRA.EXE. The /OUTPUT and /ERROR qualifiers assign equivalences to the logical names SYS$OUTPUT and SYS$ERROR for the subprocess. Any messages the subprocess writes to its default output devices are displayed on the terminal TTB3.

5
```
$  RUN/UIC=[100,4]/PRIVILEGES=(SAME,NOPSWAPM) -
_$ /NORESOURCE_WAIT   OVERSEER
%RUN-S-PROC_ID, identification of created process is 0001002C
```

In this example, the RUN command creates a detached process to execute under the UIC [100,4]. The image OVERSEER.EXE is executed. The RUN command gives the process all the privileges of the current process, except the ability to alter its swap mode. The /NORESOURCE_WAIT qualifier disables resource wait mode for the process.

6
```
$  DEFINE/GROUP  TEST [MALCOLM.TESTFILES]
$  RUN/PROCESS=SUB  WATCH -
_$ /INPUT=TEST:OUT1 -
_$ /OUTPUT=F$LOGICAL("SYS$OUTPUT")
%RUN-S-PROC_ID, identification of created process is 0001002E
```

In this example, the DEFINE command creates an entry in the group logical name table for the logical name TEST. The RUN command creates a subprocess to execute the image WATCH.EXE.

The /INPUT qualifier defines SYS$INPUT for the subprocesses. The logical name TEST defines the directory for the file OUT1.DAT. Because the logical name TEST is in the group logical name table, the logical name can be translated and referred to by the image WATCH.EXE.

The /OUTPUT qualifier uses the lexical function F$LOGICAL to translate the logical name of the current process's SYS$OUTPUT device. The equivalence name string is equated to the device SYS$OUTPUT for the subprocess.

RUNOFF

Invokes the DIGITAL Standard Runoff (DSR) text formatter to format one or more ASCII files. 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.

For a complete description of the DSR formatter, including more information about the RUNOFF command, see the *VAX DIGITAL Standard Runoff Reference Manual*. For information about the DCL commands RUNOFF /CONTENTS and RUNOFF/INDEX, see the DCL command descriptions.

FORMAT

RUNOFF *filespec[,...]*

PARAMETER

filespec[,...]

Specifies one or more ASCII files (containing text and DSR commands) to be formatted by the RUNOFF command. The input file type defaults to RNO; you must specify the file type for RNT and RNX files. Wildcard characters are not allowed in the file specification.

DSR produces an output file having the same file name as the input file. The output file type depends on the input file type. The default output file type is MEM. For a list of input file types and the associated output file types, see the *VAX DIGITAL Standard Runoff Reference Manual*.

Specify SYS$INPUT to type the input from your terminal or a command procedure; terminate input from the terminal by pressing Ctrl/Z.

DESCRIPTION

The RUNOFF command allows you to do the following:

- Adjust the amount of text on a page.
- Control the position of text on a page.
- Control underlining, overwriting, and bolding of text.
- Override some DSR commands and flags in your input file.
- Process all or part of your input file.
- Create an intermediate file for indexes or tables of contents.

QUALIFIERS

/BACKSPACE

Positional qualifier.

Controls whether DSR uses the ASCII backspace character to perform character-by-character overprinting. By default, DSR performs line-by-line overprinting.

/BOLD[=n]
/NOBOLD

Positional qualifier.

Specifies the number of times characters are overstruck in a bolding operation. You can specify the number of times DSR overprints flagged text by stating a value for *n*. The value *n* must be 0 or a positive integer and defaults to 1. A specification of /BOLD=0 or /NOBOLD disables all boldface printing, even if the appropriate flags are recognized and enabled.

/CHANGE_BARS[=character]
/NOCHANGE_BARS

Positional qualifier.

Controls whether DSR generates change bars in the formatted file. The default change bar character is the vertical bar (|). The change bars appear 3 spaces to the left of the lines of text that you have marked for change bars.

See the .BEGIN BAR and .END BAR commands in the *VAX DIGITAL Standard Runoff Reference Manual.*

You can replace the default change bar character by supplying a substitute character for the /CHANGE_BARS[=character] qualifier. You must specify the replacement character as either a character enclosed in quotation marks (" ") or as an octal, decimal, or hexadecimal value for the desired character.

The /CHANGE_BARS qualifier without a value uses the default change bar character (|). The /NOCHANGE_BARS qualifier overrides any change bar commands in the input file and disables the output of change bars.

/DEBUG[=(option[,...])]
/NODEBUG (default)

Positional qualifier.

Traces certain operations by placing the DSR commands in the output file. The options are as follows:

ALL	Specifies all five options (CONDITIONALS, CONTENTS, FILES, INDEX, and SAVE_RESTORE).
CONDITIONALS	Causes DSR to ignore all conditional processing commands (.IF, .IFNOT, .ELSE, .ENDIF) in the input file. DSR includes both true and false conditional information in the output file along with formatted text. For further details on the .IF, .IFNOT, .ELSE, .ENDIF, and .VARIABLE commands and the /VARIANT qualifier, see the *VAX DIGITAL Standard Runoff Reference Manual.*
CONTENTS	Causes DSR to output all .SEND TOC commands along with the text being sent to the table of contents.

FILES	Causes DSR to output all .REQUIRE commands as well as the text of the require files.
INDEX	Causes DSR to output the indexing commands, .INDEX and .ENTRY, in addition to the text to which they refer.
SAVE_RESTORE	Causes DSR to output all .SAVE and .RESTORE commands.

If you specify only one option, you can omit the parentheses. If you specify /DEBUG without specifying any options, ALL is assumed.

/DEVICE=(option[,...])

Positional qualifier.

Controls whether DSR generates an output file (LNI) that is suitable for printing on an LN01, an LN01E, or an LN03 laser printer.

If you do not get the output that you expect when you print an LNI file on an LN01 or an LN01E printer, check with your system manager. The *VAX DIGITAL Standard Runoff Reference Manual* contains information for system managers about setting LN01 and LN01E laser printers to print LNI files.

You can choose options from the following list to indicate output device, page orientation, and type of emphasis for flagged characters in your LNI file:

LN01	Produces an output file suitable for printing on an LN01 laser printer; the default paper size is 8 1/2 by 11 inches; the default mode is PORTRAIT. The output file name is the same as the input file name; the default file type is LNI. This option is incompatible with the LN01E option.
LN01E	Produces an output file suitable for printing on an LN01E laser printer using the standard European paper size (A4). The output file name is the same as the input file name. The default file type is LNI; the default mode is PORTRAIT. This option is incompatible with the LN01 option.
LN03	Produces an output file suitable for printing on an LN03 laser printer; the default paper size is 8 1/2 by 11 inches. The output file name is the same as the input file name. The default file type is LNI; the default mode is PORTRAIT.
LANDSCAPE	Causes the appropriate fonts for landscape mode to be loaded into an LN01 printer; pages are printed with the long dimension at the top and use a smaller type size. (The page is 11 inches wide and 8 1/2 inches long.) Allowable page dimensions are 0 to 73 lines per page and 0 to 132 characters per line. This option is incompatible with the PORTRAIT option.

PORTRAIT (default)	Causes the appropriate fonts for portrait mode to be loaded into an LN01 printer; pages are printed with the short dimension at the top and use a larger type size. (The page is 8 1/2 inches wide and 11 inches long.) Allowable page dimensions are 0 to 66 lines per page and 0 to 80 characters per line. This option is incompatible with the LANDSCAPE option. PORTRAIT mode is the default when you specify /DEVICE=LN01, /DEVICE=LN01E, or /DEVICE=LN03.
ITALIC (default)	Causes the italic and bold-italic fonts to be loaded into an LN01 printer, and makes characters flagged for underlining appear in italic type. Italicized characters can also appear in boldface type, depending on the type of emphasis you specify in your input file. The LN03 printer requires no loading of fonts, because default fonts are present. Text flagged for emphasis is printed in italic type if the current font has the ITALIC attribute; otherwise the flagged text is underlined.
UNDERLINE	Causes the text and bold fonts to be loaded into an LN01 printer, and underlines characters flagged for underlining. The LN01 printer allows only 63 consecutive characters (counting a space as a character) to be underlined per line. If you want to underline individual words and not the spaces between them, you will be able to underline only 63 words per line. This option is incompatible with the ITALIC option. DSR does not report an error if the user exceeds this limit of the hardware. On an LN03 printer, the flagged text is underlined if you have specified the UNDERLINE option. The printer does not default to italic even if the current font has the ITALIC attribute.

/DOWN[=n]
/NODOWN (default)

Positional qualifier.

Controls whether DSR inserts a specified number of blank lines at the top of each page. These blank lines precede any header information. The number of blank lines you specify (*n*) does not affect the number of text lines on a page.

For example, if you specify /DOWN=10 with a .PAGE SIZE of 58 lines, up to 58 lines of text will be output after 10 blank lines.

If you specify the /DOWN qualifier without a value, five blank lines are inserted. If you specify /DOWN=0 or omit the qualifier, no blank lines are inserted, except those associated with the print device or header layout.

/FORM_SIZE=n

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)
11.66	70	Portrait (LN01E default)
12.33	74	Portrait
13.00	78	Portrait
14.00	84	Portrait

When used with the /SIMULATE qualifier, the /FORM_SIZE qualifier controls the physical size of the page by putting out line feeds to match the number specified by the value *n*. When used with the /NOSIMULATE qualifier, the /FORM_SIZE=n qualifier causes DSR to suppress the form feed that DSR would normally insert at the line number specified by the value *n*. If the number of lines that DSR is going to put on any given page does not match the value *n*, a form-feed character is written into the output file.

The default value for the value *n* is derived from the VMS Run-Time Library (RTL) routine LIB$LP_LINES. This defaults to 66 unless the logical SYS$LP_LINES is defined, in which case the assigned value is used. To change the default value, specify a different value for the /FORM_SIZE=n qualifier.

/INTERMEDIATE[=filespec]
/NOINTERMEDIATE (default)

Positional qualifier.

Controls whether DSR generates an intermediate output file that can be used as input to the DSR table of contents utility and the DSR indexing utility. For more information on producing tables of contents and indexes, see the descriptions of the RUNOFF/CONTENTS and RUNOFF/INDEX commands.

If you specify the /INTERMEDIATE qualifier, DSR creates an output file that has the same file name as the input file and a file type of BRN. To rename the output file, supply a file specification that is different from the default values.

/LOG
/NOLOG (default)

Controls whether a termination message is displayed at the terminal after successful completion of the DSR operation. 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 you specify the /INTERMEDIATE qualifier, the message also includes the number of index records produced and the number of table of contents records produced.

If there are errors in processing, DSR displays a message on the terminal even if the /NOLOG qualifier is specified.

/MESSAGES=(option[,...])

Positional qualifier.

Specifies the destination of all DSR error messages. To indicate a specific destination, use one or both of the following options:

OUTPUT	Messages are sent to the output MEM file.
USER	Messages are displayed on the terminal (SYS$ERROR).

If you specify both options, separate them with commas and enclose the list in parentheses.

The default, /MESSAGES=(OUTPUT,USER), sends messages to the output MEM file and displays them on the terminal.

/OUTPUT[=filespec]
/NOOUTPUT

Positional qualifier.

Specifies that an output file is to be produced and optionally names it. If you specify the /OUTPUT qualifier without a file specification, or if you omit the qualifier, the directory and file name default to that of the DSR file. If you specify the /NOOUTPUT qualifier, no output file is produced. The output file type depends on the input file type. The default input file type is RNO and the default output file type is MEM.

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 qualifier 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

For a complete list of input file types and the associated output file types, see the *VAX DIGITAL Standard Runoff Reference Manual.*

To change the name of the output file, supply a file specification for the value *filespec*.

The /OUTPUT=SYS$OUTPUT qualifier causes output to be sent to the terminal rather than to a disk file. You can use the value SYS$OUTPUT when you are logged in to a hardcopy terminal device that uses a daisy wheel.

The /NOOUTPUT qualifier suppresses the creation of an output file. Using the /NOOUTPUT qualifier with the /INTERMEDIATE qualifier causes DSR to produce only an intermediate BRN file and not a formatted output file.

You can also use the /NOOUTPUT qualifier to check an input file for errors without using system resources to generate a formatted output file.

/PAGES=string

Positional qualifier.

Specifies that only the pages within the specified range be generated as output. By default, DSR generates output for all pages. Specify the range as follows:

```
start-page-number:end-page-number,...
```

You can specify up to five ranges (for example, /PAGES="2-9:2-12, 4-1:4-10, 5-9:5-9, A-1:A-3, and Index-1:Index-5"). You can omit the colon (:) and the end page number on the last range. 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.

If you specify only a starting page number, output begins at the specified page and continues to the end of the file. To output a single page, the start range and end range must be the same (for example, /PAGES=5:5).

For an entire appendix, only a letter is required (for example, /PAGES=A). For an entire index, only the word INDEX is required (/PAGES=INDEX). You can refer to specific appendix or index pages with a numeric suffix such as INDEX-10.

Note that the /PAGES qualifier does not recognize any display modes. You must specify the default form of page numbers (5-15) rather than any special form you may have specified with the .DISPLAY NUMBER command (for example, V-15). For details on the .DISPLAY NUMBER command, see the *VAX DIGITAL Standard Runoff Reference Manual*.

/PAUSE
/NOPAUSE (default)

Controls whether DSR pauses after printing each page of output.

You can use the /PAUSE qualifier to insert single sheets of paper or reproduction masters into hardcopy output devices. When output is halted, the terminal bell rings to remind you to insert a new form. Press the space bar to resume processing.

Do not use this qualifier in a batch job.

/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 line feed, and finally prints the underscores to underline the flagged text. If you view your file on the terminal, the flagged text is overwritten by the underline character.

/RIGHT[=n]
/NORIGHT (default except for LN01)

Positional qualifier.

Causes the text on each page (including header information) to be shifted to the right the number of columns specified by *n*. This qualifier does not affect the page width. If you specify the /RIGHT qualifier without specifying a number, text is shifted five spaces to the right. If you specify a value of zero or omit the qualifier, no shift occurs.

The defaults (if the /RIGHT qualifier 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 as a number preceded by a radix indicator (%D, %O, or %X) to represent the ASCII value of a printable or nonprintable character.

This qualifier is incompatible with the /[NO]UNDERLINE_CHARACTER qualifier.

/SEQUENCE
/NOSEQUENCE (default)

Positional qualifier.

Controls whether DSR precedes the lines in the output file with the line numbers of the corresponding lines in the DSR file.

For editors that generate line numbers in the input file, the /SEQUENCE qualifier causes similar numbering to appear in the output file. The line numbers appear in the left margin at the beginning of each line of output.

If the text editor does not generate sequential numbers in the input file, sequential numbers are still generated in the output file, but without leading zeros.

/SIMULATE
/NOSIMULATE (default)

Controls whether DSR uses line feeds or form feeds to advance to the top of each page.

For devices that do not have a form-feed capability, use the /SIMULATE qualifier to generate enough blank lines to cause a skip to the top of each new page. The /SIMULATE qualifier also causes a pause before the first page of output. To continue after the pause, press the space bar.

/UNDERLINE_CHARACTER[="character"]
/NOUNDERLINE_CHARACTER

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 (enclosed in quotation marks) or as 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.

This qualifier is incompatible with the /SEPARATE_UNDERLINE qualifier.

/VARIANT="string[,...]"

Positional qualifier.

Controls the processing of the conditional commands (.IF, .IFNOT, .ELSE, and .ENDIF) by specifying the names of the segments to be processed. For descriptions of the conditional commands, see the *VAX DIGITAL Standard Runoff Reference Manual*.

You must name conditional structures introduced by the .IF command to process them. You must name conditional structures introduced by the .IFNOT command to exclude them. You must not name conditional structures introduced by the .ELSE command to process them. If you specify only one name in a string, you can omit the quotation marks (" ").

EXAMPLES

1
```
$  RUNOFF CHAPT1.RNO
```

The RUNOFF command in this example takes the input file, CHAPT1.RNO, and writes formatted output to the file CHAPT1.MEM.

2
```
$ RUNOFF CHAPT1/RIGHT=10,CHAPT2
```

The RUNOFF command in this example produces a CHAPT1.MEM file with margins 10 spaces to the right of the margins specified in the input file CHAPT1.RNO. It also generates a CHAPT2.MEM file whose margins are not affected by the /RIGHT=10 qualifier.

3
```
$ RUNOFF/OUTPUT=SYS$OUTPUT TEXT.DAT,INTRO
```

The RUNOFF command in this example sends output to the terminal rather than to a disk file. The qualifier applies to both the input files, TEXT.DAT and INTRO.RNO.

```
4   $ RUNOFF/NOOUTPUT/INTERMEDIATE -
    _$ CHAPT1,CHAPT2,CHAPT3,CHAPT4,CHAPT5/LOG
```

The RUNOFF command in this example generates intermediate BRN files for each of the input files. The BRN files are used as input for the DSR table of contents utility, and for the DSR indexing utility. The /NOOUTPUT qualifier suppresses the generation of formatted text files for each input file. The /LOG qualifier produces a termination message after DSR processes each file.

RUNOFF/CONTENTS

Invokes the DIGITAL Standard Runoff (DSR) Table of Contents Utility to create an RNT file that can be processed by DSR to make a table of contents. The input file for this command is an intermediate binary file (BRN) that is produced with the RUNOFF command and the /INTERMEDIATE qualifier (see the RUNOFF command).

For a complete description of the DSR Table of Contents Utility, see the *VAX DIGITAL Standard Runoff Reference Manual.*

FORMAT

RUNOFF/CONTENTS *filespec[,...] or filespec[+...]*

PARAMETER

filespec[,...] or filespec[+...]

Specifies one or more intermediate binary files (BRN) that contain information (chapter titles, header levels, sections, and so on) for making a table of contents. To create a BRN file, use the RUNOFF command with the /INTERMEDIATE qualifier. See the RUNOFF command for more information on the /INTERMEDIATE qualifier.

If you omit the input file type, the DSR Table of Contents Utility uses a default file type of BRN. The RUNOFF/CONTENTS command also processes BTC files that the previous version of DSR produced.

For single input files, the DSR Table of Contents Utility produces an output file with the same file name as the input file. The output file type is RNT.

If you separate multiple input files with commas (,), separate RNT files for each input file are created. If you separate multiple input files with plus signs (+), a single RNT file that contains table of contents information for all of the input files is created. The default output file name is the same as the first input file name; the default file type is RNT. Wildcard characters are not allowed in the file specification.

DESCRIPTION

The RUNOFF/CONTENTS command allows you to create an RNT file that can be processed by DSR to produce a table of contents. Qualifiers to this command allow you to specify the following characteristics for table of contents entries:

- Using boldface type or underlining for entries
- Deepest header level to be included
- Running page numbers or chapter-oriented page numbers
- Displaying or not displaying section numbers

QUALIFIERS

/BOLD
/NOBOLD (default)

Controls whether the boldface type specified in chapter and header titles in the input file appears in the table of contents.

If you specify the /BOLD qualifier, the text flagged for boldface type in the body of the document is marked for overprinting in the finished table of contents.

If you specify the /NOBOLD qualifier, the text flagged for boldface type in the document is not overprinted in the table of contents.

/DEEPEST_HEADER=n

Controls how many levels of header levels are output in the table of contents. You can specify any number of header levels (up to six) to be displayed by changing the value of *n*.

The default is /DEEPEST_HEADER=6.

/IDENTIFICATION
/NOIDENTIFICATION (default)

Controls whether the current version number of the DSR table of contents utility is reported.

/INDENT
/NOINDENT (default)

Controls how many spaces the header levels after level 1 are indented in the table of contents.

If you omit this qualifier, or if you specify the /NOINDENT qualifier, all header levels after header level 1 are indented 2 spaces.

If you specify the /INDENT qualifier, each header level after header level 1 is indented 2 spaces beyond the preceding header level.

/LOG
/NOLOG (default)

Controls whether the DSR Table of Contents Utility displays the name of each input file as it is processed and after it is processed. The name of each output file created may also be displayed. If there are any errors in processing, the DSR Table of Contents Utility sends messages to the terminal even if the /NOLOG qualifier is in effect.

/OUTPUT[=filespec]
/NOOUTPUT

Specifies that an output file is to be produced and optionally names it. If you specify the /OUTPUT qualifier without a file specification, or if you omit the qualifier entirely, the output file name matches the input file name. The default file type is RNT.

You can change the name of the output file by supplying a file specification for the value *filespec*.

The /NOOUTPUT qualifier suppresses the creation of an output file. You can use the /NOOUTPUT qualifier to check an input file for errors without using system resources to generate an output file.

/PAGE_NUMBERS=(option[,...])

Controls whether the page number references in the table of contents are running page numbers or chapter-oriented page numbers; also controls how many levels of headers have page references listed in the table of contents. To specify these options, select from the following list:

Option	Purpose
LEVEL=n	Specifies that header levels up to and including header level *n* have page numbers listed in the table of contents. The default is to display page numbers for six levels of headers.
NORUNNING	Specifies chapter-oriented page numbers (such as 1-3, 10-42). You can specify chapter-oriented numbers for the table of contents even if the document does not have chapter-oriented numbers. NORUNNING is the default.
RUNNING	Specifies running page numbers (such as 3, 42). You can specify running page numbers for the table of contents even if the document does not have running page numbers.

If you supply more than one option, separate them with commas and enclose the list in parentheses.

/REQUIRE=filespec
/NOREQUIRE (default)

Allows you to change or delete the heading on the first page of a table of contents. The default heading is the word CONTENTS centered on the page and followed by one blank line. You can either substitute another word as a heading, or have no heading.

To change the heading, do one of the following:

- If you do not want any heading, specify a null file as the file specification for /REQUIRE.

```
$ RUNOFF/CONTENTS/REQUIRE=nl:
```

- If you want to use a different heading, create or edit a file that specifies the heading that you want. Use the file that you create as the file specification for the /REQUIRE qualifier.

When you use the /REQUIRE qualifier, the default heading for the first page of the contents is not generated. The file that you are "requiring" must provide the heading. The file can contain both DSR commands that change the format of the first page and the text that you want to appear at the top of the page. Or the file can contain only DSR commands to format the first page of the contents. For example, you can put the command .FIGURE 10 in the file. This command generates 10 blank lines at the top of the first page of the table of contents. You can use these blank lines for later pasteup.

/SECTION_NUMBERS (default)
/NOSECTION_NUMBERS

Controls whether the DSR Table of Contents Utility displays section numbers in the table of contents. The /SECTION_NUMBERS qualifier displays section numbers for all header levels in the table of contents.

The /NOSECTION_NUMBERS qualifier suppresses the display of section numbers for all header levels.

/UNDERLINE
/NOUNDERLINE (default)

Controls whether the underlining specified in chapter and header titles in the input file appears in the table of contents.

If you specify the /UNDERLINE qualifier, the text flagged for underlining in the body of the document is underlined in the table of contents.

If you specify the /NOUNDERLINE qualifier, the text flagged for underlining in the body of the document is not underlined in the table of contents.

EXAMPLES

1
```
$ RUNOFF/INTERMEDIATE CHPT1,CHPT2,CHPT3
```

Before using the RUNOFF/CONTENTS command, you must use the RUNOFF/INTERMEDIATE command to create a BRN file as input for the DSR Table of Contents Utility. The command line in this example creates three separate files: CHPT1.BRN, CHPT2.BRN, and CHPT3.BRN.

2
```
$ RUNOFF/CONTENTS CHPT1.BRN
```

In this example, the RUNOFF/CONTENTS command takes the file CHPT1.BRN as input and creates CHPT1.RNT, which can be processed by DSR to produce a final table of contents for Chapter 1.

3
```
$ RUNOFF/CONTENTS/INDENT/NOSECTION_NUMBERS CHPT2
```

The command in this example takes the file CHPT2.BRN as input and creates CHPT2.RNT. When processed with the RUNOFF command, the RNT file will produce a table of contents in which each header level after header level 1 is indented 2 spaces beyond the preceding header level. The table of contents will not have section numbers listed. See the following example for a sample command line for processing RNT files.

4
```
$ RUNOFF/LOG CHPT2.RNT
```

The command in this example produces CHPT2.MEC, which is a formatted table of contents. You can use the TYPE or the PRINT command to view the table of contents.

RUNOFF/INDEX

Invokes the DIGITAL Standard Runoff (DSR) Indexing Utility to create an RNX file that can be processed by DSR to create an index. The input file for this command is an intermediate binary file (BRN) that is produced with the RUNOFF command and the /INTERMEDIATE qualifier (see the RUNOFF command). For a complete description of the DSR Indexing Utility, see the *VAX DIGITAL Standard Runoff Reference Manual.*

FORMAT

RUNOFF/INDEX *filespec[,...] or filespec[+...]*

PARAMETER

filespec[,...] or filespec[+...]

Specifies one or more intermediate binary files (BRN) that contain information (index entries, page number references, and so on) for making an index. To create a BRN file, use the RUNOFF command with the /INTERMEDIATE qualifier. See the RUNOFF command for more information on the /INTERMEDIATE qualifier.

If you omit the input file type, the DSR Indexing Utility uses a default file type of BRN. The RUNOFF/INDEX command also processes BIX files that the previous version of DSR produced.

For single input files, the DSR Indexing Utility produces an output file with the same file name as the input file. The output file type is RNX.

If you separate multiple input files with commas (,), separate RNX files for each input file are created. If you separate multiple input files with plus signs (+), a single RNX file that contains indexing information for all of the input files is created. The default output file name is the same as the first input file name; the default file type is RNX. Wildcard characters are not allowed in the file specification.

DESCRIPTION

The RUNOFF/INDEX command creates an RNX file that can be processed by DSR to produce an index. The formatted index is a 2-column index with balanced columns on each page. This index can be used for draft copies or for final production. Qualifiers to this command allow you to specify the following characteristics for index entries:

- Running page numbers or chapter-oriented page numbers
- The number of lines of index entries per page
- Special text and heading on the first page of the index

QUALIFIERS

/IDENTIFICATION
/NOIDENTIFICATION (default)

Reports the current version number of the DSR Indexing Utility.

/LINES_PER_PAGE=n

Specifies, with the value *n*, the number of lines of index entries on each page of the finished index. This number does not include the number of lines required for running heads and feet.

The default is 55 lines. This value is designed to work properly in the default formatting environment of DSR. You must calculate the value *n* if you change the default environment in any of the following ways:

- If you use subtitles in the document that requires the RNX file.
- If you make the page length for the document anything other than 58 lines per page.
- If you use any .LAYOUT command other than zero.

To calculate the correct value for the /LINES_PER_PAGE qualifier, use the following formula:

```
/LINES_PER_PAGE=n
n = .PAGE SIZE ( the first parameter is length value)
    minus 4 if subtitles are used, minus 3 if no subtitles
    minus the number of lines reserved for .LAYOUT 1,
          .LAYOUT 2, or .LAYOUT 3.
```

/LOG
/NOLOG (default)

Controls whether the DSR Indexing Utility displays the name of each input file as it is processed and after it is processed, as well as the name of each output file created. If there are any errors in processing, the RUNOFF/INDEX command sends messages to the terminal even if the /NOLOG qualifier is in effect.

/OUTPUT[=filespec]
/NOOUTPUT

Specifies that an output file is to be produced and optionally names it. If you specify the /OUTPUT qualifier without a file specification, or if you omit the qualifier entirely, the output file name matches the input file name. The default file type is RNX.

You can change the name of the output file by supplying a file specification for the value *filespec*.

The /NOOUTPUT qualifier suppresses the creation of an output file. You can use the /NOOUTPUT qualifier to check an input file for errors without using system resources to generate an output file.

/PAGE_NUMBERS=option

Controls whether the page number references in the index are running page numbers or chapter-oriented page numbers. To specify the type of page numbers you want, select from the following options:

Option	Purpose
NORUNNING	Specifies chapter-oriented page numbers (such as 1-3, 10-42). You can specify chapter-oriented numbers for an index even if they do not appear in the document. The NORUNNING option is the default.
RUNNING	Specifies running page numbers (such as 1, 50, 230). You can specify running page numbers for an index even if the document does not display running page numbers.

/REQUIRE=filespec
/NOREQUIRE (default)

Allows you to change the heading on the first page of an index. The default heading is the word INDEX centered on the page and followed by three blank lines. The substitute heading is contained in the file you specify, which can contain DSR commands and text.

To change the heading:

1. Create or edit a file that specifies the format and the text that you want as the heading on the first index page.
2. Use the file you create as the *filespec* parameter for the /REQUIRE qualifier.

When you use the /REQUIRE qualifier, the default heading for the first page of the index is not generated. Your file must provide the heading. The file can contain DSR commands and text that you want to appear at the top of the first page of the index, or it can contain only DSR commands. For example, you can put the DSR command .FIGURE 10 in the file. This command generates 10 lines of white space at the top of the first page of the index. You can use these blank lines for later pasteup. For a sample file that changes the index heading, see the *VAX DIGITAL Standard Runoff Reference Manual*.

If you are adding lines of text or white space to the heading on the first page of the index, you must allow space for this addition. Use the /RESERVE=n qualifier to provide the space you need.

See the /RESERVE qualifier for more information.

/RESERVE=n
/NORESERVE (default)

Allows you to reserve space at the top of the first page of the index for text or white space that you want to include with the /REQUIRE=filespec qualifier. Determine how many lines of text or white space you are adding to the top of the first page of the index. Use this number as the value *n* for the /RESERVE qualifier.

EXAMPLES

1
```
$ RUNOFF/INTERMEDIATE CHPT1,CHPT2,CHPT3
```

Before using the RUNOFF/INDEX command, you must create a BRN file as input for the DSR Indexing Utility. The command in this example creates three separate files: CHPT1.BRN, CHPT2.BRN, and CHPT3.BRN.

2 $ RUNOFF/INDEX CHPT1.BRN

In this example, the RUNOFF/INDEX command takes the file CHPT1.BRN as input and creates CHPT1.RNX, which can be processed by DSR to produce an index for Chapter 1.

3 $ RUNOFF/INDEX/LINE_PER_PAGE=52 CHPT2

In this example, the RUNOFF/INDEX command takes the file CHPT2.BRN as input and creates CHPT2.RNX. The RNX file produces an index with 52 lines of index entries per page. The lines per page had to be adjusted because the writer used a page layout with the page numbers centered at the bottom of the page (.LAYOUT 1, .LAYOUT 2, .LAYOUT 3). This page layout takes up three more spaces than .LAYOUT 0, which is the default for DSR. To produce the final index, you must use the RNX file as input to DSR. See the following example.

4 $ RUNOFF CHPT2.RNX

In this example, the RUNOFF command produces CHPT2.MEX, which is a formatted index. You can type or print this file to view the index.

SEARCH

Searches one or more files for the specified strings and displays those lines containing those strings.

FORMAT

SEARCH *filespec[,...] search-string[,...]*

PARAMETERS

filespec[,...]

Specifies one or more files to be searched. You must specify at least one file name. If you specify more than one file name, separate the file specifications with commas (,).

Wildcard characters (* and %) are allowed in the file specification.

search-string[,...]

Specifies the character string to be located in the specified files. Enclose strings containing lowercase letters, blanks, or other nonalphanumeric characters (including spaces) in quotation marks (" ").

You can use the /MATCH and /EXACT qualifiers to alter the way that SEARCH matches search strings.

DESCRIPTION

The SEARCH command searches through files for specific character strings; all lines containing occurrences of the strings are displayed. Use the SEARCH qualifiers to tailor the search operation to your specific needs.

The SEARCH command opens the file with shared read (R) and write (W) access. Therefore, any file that has its attributes set to shared write is searched even if it is currently opened by other users.

QUALIFIERS

/BACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BY_OWNER[=uic]

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each search operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED (default)

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/EXACT
/NOEXACT (default)

Controls whether the SEARCH command matches the search string exactly or treats uppercase and lowercase letters as equivalents. By default, SEARCH ignores case differences in letters.

Specifying the /EXACT qualifier causes the system to use less CPU time. Therefore, if you are sure of the case of the letters in the string, it is more efficient to use the /EXACT qualifier.

/EXCLUDE=(filespec[,...])

Excludes the specified files from the search operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/FORMAT=option

Formats output in one of the following five ways:

DUMP	Displays all control characters (including <HT>, <CR>, and <LF>) and nonprintable characters as ANSI mnemonics.
NOFF	Replaces control characters in text with ANSI mnemonics (for example, Ctrl/C is replaced with <ETX>). The terminal formatting characters <HT>, <CR>, <LF>, <VT> are passed without change. Form feed characters are replaced with <FF>.
NONULLS	Same as DUMP, but removes all null characters from the input file before reformatting. (In dump mode, the null character is displayed as <NUL>.) NONULLS is convenient when you are searching binary format files, such as EXE or OBJ files, that generally contain many zero bytes.
PASSALL	Moves control and nonprintable characters to the output device without translating them. The terminal driver cannot send 8-bit characters to the terminal unless either SET TERMINAL/PASSALL or SET TERMINAL /EIGHT_BIT is already in effect. You can use /FORMAT=PASSALL whenever you do not want the SEARCH command to substitute the ANSI mnemonic for control characters (for example, <BEL> for Ctrl/G).
TEXT	Replaces control characters in text with ANSI mnemonics (for example, Ctrl/C is replaced with <ETX>). The terminal formatting characters <HT>, <CR>, <LF>, <VT>, and <FF> are passed without change. TEXT is the default format.

/HEADING (default)
/NOHEADING

Includes file names in the output file and displays a line of 30 asterisks (*) as a window separator between groups of lines that belong to different files. With the default heading format, file names are printed only when more than one file is specified or when wildcard characters are used.

The /WINDOW qualifier displays a line of 15 asterisks to separate each window within a file.

/HIGHLIGHT
/HIGHLIGHT(=option)
/HIGHLIGHT=BOLD (default on ANSI video terminals with advanced video)
/HIGHLIGHT=REVERSE (default on ANSI video terminals without advanced video)
/NOHIGHLIGHT (default for all other output)

Controls whether the actual strings that are matched are emphasized in the output. The emphasis, or highlighting, can be one of several options:

BLINK	The matched strings are highlighted using the ANSI blink character attribute (advanced video only).
BOLD	The matched strings are highlighted using the ANSI bold character attribute (advanced video only). If the /HIGHLIGHT qualifier is used without an option, BOLD is assumed.
REVERSE	The matched strings are highlighted with the ANSI underline video attribute (possible without advanced video).
UNDERLINE	The matched strings are highlighted with the ANSI underline video attribute (possible without advanced video). Without the advanced video option, either REVERSE or UNDERLINE will appear depending on whether the cursor is selected as block or underline. The two options REVERSE and UNDERLINE have the same effect.
HARDCOPY(=option)	This specifies that the strings should be highlighted in a manner suitable for most hardcopy printers. Hardcopy highlighting has two options: OVERSTRIKE and UNDERLINE. With overstrike highlighting, matched strings are double-printed, so that they appear darker. The matched strings are underlined with the underscore character. Hardcopy printing is accomplished by adding a carriage return and spacing back over the line to overprint the string or underlines. Note that this can as much as double the length of the line, and perhaps lead to truncation if the device buffer size is too small. Digital recommends that you use the /HIGHLIGHT=UNDERLINE qualifier with the Digital LN01 printer rather than using the /HIGHLIGHT=HARDCOPY=UNDERLINE qualifier. The LN01 printer ignores OVERSTRIKE highlighting. Digital recommends that you use either the /HIGHLIGHT=BOLD or the /HIGHLIGHT=UNDERLINE qualifier with the Digital LN03 printer rather than using the /HIGHLIGHT=HARDCOPY=UNDERLINE qualifier. The LN03 printer ignores OVERSTRIKE highlighting.

/LOG
/NOLOG (default)

Outputs a message to the current SYS$OUTPUT device 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 and matches 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.

When only one search string is specified, the OR and AND options produce identical results. Similarly, NOR and NAND produce identical results for a single search string.

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/NUMBERS
/NONUMBERS (default)

Controls whether the source line number is displayed at the left margin of each line in the output.

/OUTPUT[=filespec]
/NOOUTPUT

Controls whether the results of the search are output to a specified file. The output is sent to the current default output device (SYS$OUTPUT) if you omit the /OUTPUT qualifier or omit the file specification with the qualifier. The /NOOUTPUT qualifier means that no matching records are output as a result of the SEARCH command.

/REMAINING
/NOREMAINING (default)

Includes in the output all records from the first matched record to the end of the file. This qualifier overrides the value *n2* in the /WINDOW qualifier, but allows the qualifier /WINDOW=n1.

/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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/STATISTICS
/NOSTATISTICS (default)

Controls whether the following statistics about the search are displayed:

- Number of files searched
- Number of records searched
- Number of characters searched
- Number of records matched
- Number of lines printed
- Buffered I/O count
- Direct I/O count
- Number of page faults
- Elapsed CPU time
- Elapsed time

/WINDOW[=(n1,n2)]
/NOWINDOW (default)

Specifies the number of lines to be displayed with the search string.

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. Either of these numbers can be zero.

If you specify the /WINDOW qualifier without the values *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 the /WINDOW qualifier 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 *n1* is even, one line is added to the lines following the matched search string.)

For example, if you specify /WINDOW=10, nine additional lines are listed along with the line containing the search string. Four lines are listed above the line containing the search string and five lines are listed below it, for a total of 10 lines.

If you specify /WINDOW=0, the file name of each file containing a match (but no records) is included in the output. This specification creates a file (using the /OUTPUT qualifier) that can be inserted into a command file to manipulate the files containing matches.

If you omit the /WINDOW qualifier, only the line containing a match is displayed.

The /WINDOW qualifier displays a line of 15 asterisks to separate each window within a file.

EXAMPLES

1
```
$ SEARCH CABLE.MEM,JOYNER.MEM "MANUAL TITLE"
```

This command searches the files CABLE.MEM and JOYNER.MEM for occurrences of the character string MANUAL TITLE. Each line containing the string is displayed at the terminal. It is necessary to enclose the string in quotation marks because it contains a space character.

2
```
$ SEARCH/OUTPUT=RESULTS.DAT/WINDOW=9 DISLIST.MEM NAME
```

The SEARCH command searches the file DISLIST.MEM for occurrences of the character string NAME and sends the output to the file RESULTS.DAT. The four lines preceding and following each occurrence of NAME are included in the output.

3
```
$ SEARCH/OUTPUT=ALLSUB.COM/WINDOW=5000 *.COM SUBMIT
```

The SEARCH command searches all command files in the current directory for the string SUBMIT. If a match is found, SEARCH effectively copies the entire command file to the output file, because the window is so large.

4
```
$ SEARCH/OUTPUT=COLUMBUS.OH/WINDOW=(3,0)/NOHEAD/MATCH=AND -
_$ *.DAT COLUMBUS,OH
```

The SEARCH command searches all files of type DAT for lines containing both COLUMBUS and OH. When a match is found, the three previous lines (containing blank line, name, and street address) are copied to the new file. The new file COLUMBUS.OH is ready to use, because it does not contain headings and window separators.

5
```
$ SEARCH/OUTPUT=SWAP.LIS/FORMAT=PASSALL/NUMBERS/EXACT -
_$ /WINDOW=10000 SWAP.PAS SWAP
```

This SEARCH command produces a listing file with the line numbers at the left margin. The /FORMAT=PASSALL qualifier is specified so that form-feed characters in the source are passed through. The /EXACT qualifier is specified for efficiency (because it is known that the name SWAP in the program statement is always in uppercase). The /WINDOW qualifier is entered so that the entire file is copied to the output file SWAP.LIS.

6
```
$ SEARCH/REMAINING CABLE.LOG FORTRAN
```

The SEARCH command displays all the lines in the CABLE.LOG file that follow the first occurrence of the string FORTRAN.

7
```
$ SEARCH OMAHA::DISK1:[EXP]SUB.DAT,DATA.LIS VAX
```

The SEARCH command searches through the files SUB.DAT and DATA.LIS at remote node OMAHA for all occurrences of the string VAX. The list of all records containing the string VAX is displayed at the local terminal.

SET

Defines or changes, for the current terminal session or batch job, characteristics associated with files and devices owned by the process.

FORMAT

SET *option*

DESCRIPTION

The SET command options are described individually in this manual. Table DCL2–1 lists all the SET command options, including those generally reserved for use by system operators and managers.

Table DCL2–1 SET Command Options

Option	Function
ACCOUNTING	Initializes the accounting log file.
ACL	Associates an access control list (ACL) with one or more system objects.
AUDIT	Enables or disables forms of security auditing.
BROADCAST	Determines which messages will be broadcast to SYS$OUTPUT.
CARD_READER	Defines the default ASCII translation mode for a card reader.
COMMAND	Adds commands that are defined in a command description file to your process command set or a command tables file.
[NO]CONTROL	Enables or disables interrupts caused by CTRL/T or CTRL/Y.
DAY	Overrides the default day type specified in the user authorization file (UAF).
DEFAULT	Establishes a device and directory as the current default for file specifications.
DEVICE	Defines device characteristics.
DEVICE/SERVED	Lets you make a disk on a local node available to all the nodes on a VAXcluster.
DIRECTORY	Modifies the characteristics of one or more directories.
DISPLAY	Redirects the output of a DECwindows application.
FILE	Modifies the characteristics of one or more files.
HOST	Connects your terminal to a remote VAX processor by way of the current host processor.
HOST/DTE	Connects your system to a remote system by way of an outgoing terminal line.

(continued on next page)

Table DCL2–1 (Cont.) SET Command Options

Option	Function
HOST/DUP	Connects your terminal to a storage controller through the appropriate bus for that controller.
HOST/HSC	Connects your terminal to a remote HSC50 disk and tape controller through the computer interconnect (CI) bus.
HOST/LAT	Connects your terminal to a specified service available in the local area network (LAN), establishing one session for communication between your terminal and that service.
KEY	Changes the current keypad state setting.
LOGINS	Allows or disallows users to log in to the system.
MAGTAPE	Defines characteristics of a magnetic tape device.
MESSAGE	Overrides or supplements system messages.
[NO]ON	Controls whether the command interpreter checks for an error condition following the execution of commands in a command procedure.
OUTPUT_RATE	Sets the rate at which output is written to a batch job log file.
PASSWORD	Lets users change their own passwords; lets system managers change the system password.
PRINTER	Defines printer characteristics.
PROCESS	Defines execution characteristics of the current process.
PROMPT	Defines the DCL prompt.
PROTECTION	Defines the protection status of a file or group of files.
PROTECTION/DEFAULT	Establishes the default protection to be applied to all files subsequently created.
PROTECTION/DEVICE	Establishes the protection to be applied to a specific non-file-structured device.
QUEUE	Changes the current status or attributes of the specified queue.
RESTART_VALUE	Establishes a test value for restarting portions of batch jobs.
RIGHTS_LIST	Lets users modify the process rights list; lets privileged users modify the system rights list.
RMS_DEFAULT	Provides default multiblock and multibuffer count values to be used by RMS for file operations.
SYMBOL	Controls access to local and global symbols in command procedures.
TERMINAL	Defines terminal characteristics.
TIME	Resets the system clock to the specified value.

(continued on next page)

Table DCL2–1 (Cont.) SET Command Options

Option	Function
UIC	Changes the user identification code (UIC) of the current process.
[NO]VERIFY	Controls whether the command interpreter displays lines in command procedures as it executes them.
VOLUME	Modifies the characteristics of one or more Files–11 volumes.
WORKING_SET	Changes the current working set limit or quota.

SET ACCOUNTING

Enables or disables the logging of various activities in the accounting log file SYS$MANAGER:ACCOUNTNG.DAT. You can also use the SET ACCOUNTING command to close the current accounting log file and open a new one with a version number incremented by one.

Requires OPER (operator) privilege.

FORMAT

SET ACCOUNTING

PARAMETERS

None.

DESCRIPTION

Disables or enables the logging of the specified activities recorded in the accounting log file. If you specify only the /DISABLE qualifier, the logging of all activities is disabled. If you specify only the /ENABLE qualifier, the logging of all activities is enabled.

For a detailed description of the accounting log file records, see the *VMS Accounting Utility Manual.*

QUALIFIERS

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

Disables the logging of the specified activities in the accounting log file. To disable specific activities, include one or more keywords with the /DISABLE qualifier. If you specify only one keyword, you can omit the parentheses. If you use the /DISABLE qualifier with no keywords, the SET ACCOUNTING command disables the logging of all the accounting events shown in Table DCL2–2. It does not disable the logging of system initialization events (you cannot disable these accounting events).

Table DCL2–2 lists the keywords that specify the various types of accounting event you can disable.

Table DCL2–2 SET ACCOUNTING Keywords for Event Types

Keyword	Type of Accounting Event
IMAGE	Image terminated
LOGIN_FAILURE	Login attempt failed
MESSAGE	User sent an accounting message using the $SNDJBC or the $SNDACC system service
PRINT	Print job terminated
PROCESS	Process terminated

When process or image termination events are enabled, you can use the keywords shown in Table DCL2–3 to disable the logging of these events

for particular types of processes. The keywords in Table DCL2–3 have no effect when both process and image termination events are disabled.

Table DCL2–3 SET ACCOUNTING Keywords for Process Types

Keyword	Type of Process
BATCH	Batch process
DETACHED	Detached process
INTERACTIVE	Interactive process
NETWORK	Network process
SUBPROCESS	Subprocess

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

Enables the logging of all activities in the accounting file. To enable specific activities, you include one or more keywords with the /ENABLE qualifier. Use the same keywords with the /ENABLE qualifier that you use with the /DISABLE qualifier. If you specify only one keyword, you can omit the parentheses.

/NEW_FILE

Closes the current accounting file and opens a new version of that file.

EXAMPLES

1
```
$ SET ACCOUNTING/ENABLE=(BATCH,INTERACTIVE)
```

The command in this example requests that all batch and interactive jobs be recorded in the accounting file at job termination.

2
```
$ SET ACCOUNTING/NEW_FILE
```

The command in this example closes the current accounting file and creates a new version of it.

SET ACL

Allows you to create or modify the access control list (ACL) of an object.

FORMAT

SET ACL *object-name*

PARAMETER

object-name

Specifies the object whose access control list (ACL) is being modified. Wildcard characters (* and %) are allowed in object names only if the object type is FILE. Each file must be a disk file on a Files–11 On-Disk Structure Level 2 formatted volume. If the object type is FILE, directory names in UIC format (for example, [0,0]) are not allowed. Logical name tables must be system logical name tables.

DESCRIPTION

The SET ACL command enables you to manipulate an entire access control list (ACL) of an object, or to create, modify, or delete access control entries (ACEs) in the ACL of an object. (For information on the format of ACEs and ACLs, see the *VMS Access Control List Editor Manual*.) To use the SET ACL command, specify the object name of the object whose ACL you want to manipulate.

By default, the ACL editor assumes that the object whose ACL is being edited is a file. If the object is not a file, the /OBJECT_TYPE qualifier is required.

The SET ACL command is used to add ACEs to an ACL by specifying the ACEs with the /ACL qualifier. For example, the following command adds an ACE to the ACL of the file SALARY85.DAT so that all users associated with the identifier PERSONNEL are allowed read (R) access to the file:

```
$ SET ACL/ACL=(IDENTIFIER=PERSONNEL,ACCESS=READ) SALARY85.DAT
```

If the object specified with the SET ACL command does not have an ACL, one is created.

The SET ACL command provides the following qualifiers to manipulate ACEs and ACLs in various ways:

/AFTER
/DELETE
/LIKE
/NEW
/REPLACE

You can delete ACEs from an ACL by including the /DELETE qualifier and by specifying the ACEs with the /ACL qualifier. To delete all the ACEs except those with the PROTECTED option, include the /DELETE qualifier and specify the /ACL qualifier without specifying any ACEs. To delete all the ACEs including those with the PROTECTED option, include the /DELETE=ALL qualifier and specify the /ACL qualifier without specifying any ACEs.

You can copy an ACL from one object to another by using the /LIKE qualifier. When using the /LIKE qualifier, you must specify the object type and object name. The ACL of the object specified with the /LIKE qualifier replaces the ACL of the object given with the command.

You can replace existing ACEs in the ACL of the object specified with the command by using the /REPLACE qualifier. Any ACEs specified with the /ACL qualifier are deleted and replaced by those specified with the /REPLACE qualifier.

The /NEW qualifier is used to delete all ACEs (including those with the PROTECTED option) before adding any ACEs specified by the /ACL, the /LIKE, or the /REPLACE qualifier.

When referring to existing ACEs with the /DELETE, the /REPLACE, or the /AFTER qualifier, the existing ACE may be abbreviated.

By default, any ACEs (except security alarm ACEs) added to an ACL are placed at the top of the ACL. Security alarm ACEs are always positioned at the top of the ACL, regardless of positioning qualifiers. Whenever the system receives a request for access to an object that has an ACL, the system searches each entry in the ACL from the first to the last for the first match it can find. If another match occurs further down in the ACL, it has no effect. Because the position of an ACE in an ACL is so important, you can use the /AFTER qualifier to correctly position an ACE. When you use the /AFTER qualifier, any additional ACEs are added after the specified ACE.

The SET ACL command can also be used with the /EDIT qualifier to invoke the ACL editor. When the /EDIT qualifier is specified, only one object name is allowed. The following qualifiers can be used only when the /EDIT qualifier has been specified:

/JOURNAL
/MODE
/RECOVER

For more information on these qualifiers and the ACL editor in general, see the *VMS Access Control List Editor Manual*.

QUALIFIERS

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

Specifies one or more access control entries (ACEs) to be modified. When no ACE is specified, the entire access control list (ACL) is affected. Separate multiple ACEs with commas (,). The specified ACEs are inserted at the top of the ACL unless the /AFTER qualifier is given. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

/AFTER=ace

Indicates that all access control entries (ACEs) specified with the /ACL qualifier will be added after the ACE specified with the /AFTER qualifier. By default, any ACEs added to the ACL are always placed at the top of the list. (Note that security alarm ACEs are always placed at the beginning of the ACL.)

This qualifier cannot be used with the /EDIT qualifier.

/BACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

This qualifier cannot be used with the /EDIT qualifier and can be used only with an object that is a file.

/BY_OWNER[=uic]

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

This qualifier cannot be used with the /EDIT qualifier and can be used only with an object that is a file.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before the ACL of an object is modified to confirm that the operation should be performed on that object. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

This qualifier cannot be used with the /EDIT qualifier.

/DEFAULT

Creates an ACL for the specified files as if the files were newly created. For a directory file, the /DEFAULT qualifier propagates the entire ACL (except 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.

The /DEFAULT qualifier uses the ACL of the parent directory of the specified file, not the current default directory.

This qualifier cannot be used with the /EDIT qualifier and can be used only with an object that is a file.

/DELETE[=ALL]

Indicates that the access control entries (ACEs) specified with the /ACL qualifier are to be deleted. If no ACEs are specified with the /ACL qualifier, the entire access control list (ACL) is deleted (except those with the PROTECTED option). If you specify an ACE that was not specified with the /ACL qualifier, you are notified that the ACE does not exist, and the delete operation continues. If no ACEs are specified with the /ACL qualifier, the qualifier /DELETE=ALL deletes all ACEs, including those with the PROTECTED option.

/EDIT

Invokes the ACL editor and allows you to use the /JOURNAL, the /MODE, or the /RECOVER qualifier. Any other qualifiers specified with /EDIT are ignored.

For more information on the ACL editor, see the *VMS Access Control List Editor Manual*.

/EXCLUDE=(filespec[,...])

Excludes the specified files from the SET ACL operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

This qualifier cannot be used with the /EDIT qualifier and can be used only with an object that is a file.

/EXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select

files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/JOURNAL[=filespec]
/NOJOURNAL

Controls whether a journal is created from the editing session. By default, a journal is created if the editing session ends abnormally.

If you omit the file specification, the journal has the same name as the input file and a file type of JOU. You can use the /JOURNAL qualifier to specify a journal name that is different from the default. No wildcard characters are allowed in the /JOURNAL *filespec* parameter.

You must specify the /EDIT qualifier in order to use this qualifier.

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

Deletes the ACL of the specified object and replaces it with the ACL of the object specified with the /LIKE qualifier. Any existing ACEs (including those with the PROTECTED option) are deleted before the ACL specified by the /LIKE qualifier is copied. ACEs with the NOPROPAGATE option are not copied.

You can specify the following keywords for OBJECT_TYPE:

DEVICE
FILE
GROUP_GLOBAL_SECTION
LOGICAL_NAME_TABLE
QUEUE
SYSTEM_GLOBAL_SECTION

The *object-name* parameter is specified as it is specified for the command. No wildcard characters are allowed in the /LIKE qualifier parameters.

If the object type is FILE, only the OBJECT_NAME parameter is required.

This qualifier cannot be used with the /EDIT qualifier.

/LOG
/NOLOG (default)

Controls whether the SET ACL command displays the object name of the object that has been affected by the command.

This qualifier cannot be used with the /EDIT qualifier.

/MODE=[NO]PROMPT

Determines whether the ACL editor prompts for field values. By default, the ACL editor selects prompt mode.

You must specify the /EDIT qualifier to use this qualifier.

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to

select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/NEW

Indicates that any existing ACE in the ACL of the object specified with SET ACL (including those with the PROTECTED option) is to be deleted. To use the /NEW qualifier, you must specify a new ACL or ACE with the /ACL, the /LIKE, or the /REPLACE qualifier.

This qualifier cannot be used with the /EDIT qualifier.

/OBJECT_TYPE=type

Specifies the type of the object whose ACL is being edited. By default, the ACL editor assumes that the object whose ACL is being edited is a file. The following keywords are used to specify the object type:

CAPABILITY	The object is a system capability, such as the ability to process vector instructions. Currently, the only defined object name for the CAPABILITY type is VECTOR, which governs the ability of a subject to access a vector processor on the system. Note that you must supply the capability name (for example, VECTOR) as the *object-name* parameter in the SET ACL command. Manipulating the ACL on a capability requires SYSTEM privilege.
DEVICE	The object is a device.
FILE (default)	The object is a Files–11 disk file (includes directory files).
GROUP_GLOBAL_SECTION	The object is a group global section.
LOGICAL_NAME_TABLE	The object is a system logical name table.
QUEUE	The object is a batch or device (terminal, server, or printer) queue.
SYSTEM_GLOBAL_SECTION	The object is a system global section.

/RECOVER[=filespec]
/NORECOVER (default)

Specifies the name of the journal to be used in a recovery operation. If the file specification is omitted with the /RECOVER qualifier, the journal is assumed to have the same name as the input file and a file type of JOU. No wildcard characters are allowed with the /RECOVER qualifier *filespec* parameter.

You must specify /EDIT in order to use this qualifier.

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

Deletes the access control entries (ACEs) specified with the /ACL qualifier and replaces them with those specified with the /REPLACE qualifier. Any ACEs specified with the /ACL qualifier must exist and must be specified in the order in which they appear in the ACL.

This qualifier cannot be used with the /EDIT qualifier.

/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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

This qualifier cannot be used with the /EDIT qualifier and can be used only with an object that is a file.

EXAMPLES

1

```
$ SET QUEUE/PROTECTION=WORLD LN03_PRINT
$ SET ACL/OBJECT_TYPE=QUEUE/ACL=(IDENTIFIER=SECRETARIES,ACCESS=WRITE) -
_$ LN03_PRINT
```

This example shows how you can use ACLs to limit access to specific queues on the system. (By default, all users can submit jobs to any queues on the system.) The first command in the example removes world write (W) access to the LN03_PRINT print queue, prohibiting all users from submitting jobs to the queue. The second command adds an ACL to the queue allowing write (W) access only to users who hold the SECRETARIES identifier.

2

```
$ SET ACL/LIKE=(OBJECT_NAME=USER.LIS) ACCOUNTS.LIS
```

This example replaces the ACL of the file ACCOUNTS.LIS with the ACL for the file USER.LIS. Since the object is a file, the OBJECT_TYPE keyword is assumed by default.

SET AUDIT

Enables or disables security auditing on a VMS system. The SET AUDIT command is also used to modify the characteristics of the audit server process, to set up long-term journaling (*archiving*) of audit events, and to monitor resource consumption on the system.

Requires the SECURITY privilege.

FORMAT SET AUDIT

PARAMETERS

None.

DESCRIPTION

The SET AUDIT command enables security auditing to send alarms to terminals that have been enabled as security operators and to make an entry in the system audit log file whenever specified events are detected by the system. (For details on how to enable a terminal for security alarms, see the REPLY/ENABLE command.) For example, you can use a SET AUDIT command to cause an alarm message to occur if break-in attempts are observed or if the system user authorization file (UAF) or network proxy file is modified.

When enabling or disabling security auditing and when using the /FAILURE_MODE qualifier, you must specify the /ALARM qualifier.

Note: **All security events are propagated both as alarm messages at security terminals and as system audits written to the system security audit log file. Digital intends to remove this restriction in a future version of the VMS operating system and allow you to control whether classes of security events generate alarms, audits, or both.**

The primary purpose of the system security audit log file is to capture details about who or what performed an action that might have significance for system security, and at what time. From this historical record, it may be possible to draw conclusions about attacks on the system and how to counteract them. The procedures for properly handling and maintaining the audit log files are described in the *VMS Audit Analysis Utility Manual*. The log files can be inspected, and their data analyzed, with the DCL command ANALYZE/AUDIT.

In addition to enabling or disabling security auditing on the system, the SET AUDIT command can be used to change the default characteristics of the audit server, to set up long-term journaling (archiving) of audit events, and to monitor resource consumption on the system. For information about the audit server, the security archive file, and resource monitoring, see the *Guide to VMS System Security*.

To display the results of a SET AUDIT command, enter the DCL command SHOW AUDIT/ALL.

Because the security auditing features entail a certain amount of system overhead, you should be careful in selecting the features that will provide the most benefit in your work environment. In particular, be aware that enabling alarms for all events can result in a large number of alarm messages being sent to a security terminal. This situation affects the use of the security terminal, because alarm messages have priority over any other I/O from a terminal.

Also, audit log file entries can consume significant disk storage. Enable only the auditing of information you know you will examine and analyze regularly. Any other collection of data is likely to be wasteful.

EVENT DEFINITION QUALIFIERS

/ALARM

Causes alarm messages to be sent to all terminals enabled as security operators. See the description of the DCL command REPLY/ENABLE for details on how to enable terminals as security operators. The /ALARM qualifier is required when enabling or disabling security auditing with the /ENABLE or the /DISABLE qualifier, or when specifying a failure mode with the /FAILURE_MODE qualifier.

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

Disables security auditing for the specified events. To disable alarms for all events, specify the keyword ALL. You can also specify the appropriate keywords to selectively disable alarms for from one to all events that are currently enabled. You must specify at least one keyword. See the /ENABLE qualifier description for a list of the keywords to use with the /DISABLE qualifier.

In processing the SET AUDIT command, the system processes the /DISABLE qualifier last. If you accidentally specify both the /ENABLE and /DISABLE qualifiers in the same command, the /DISABLE qualifier prevails.

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

Enables security auditing for the specified events. To enable alarms for all events, specify the keyword ALL. You can also specify the appropriate keywords to selectively enable alarms for from one to all events that are currently enabled. You must specify at least one keyword.

The keywords that you can specify with either the /ENABLE or the /DISABLE qualifier are as follows:

Keyword	Description
ACL	Specifies an event requested by an access control list (ACL) item, including ACLs on files and global sections.
ALL	Specifies all possible events.
AUTHORIZATION	Specifies the modification of any portion of the system user authorization file (SYSUAF) or network proxy authorization file (NETPROXY), including any password changes; also specifies the modification of any portion of the rights database (RIGHTSLIST).

Keyword	Description
BREAKIN=(keyword[,...])	Specifies the occurrence of one or more of the following classes of break-in attempts, as specified by one or more of the following keywords: ALL — All possible sources of break-ins, as defined by the remaining keywords DETACHED — Detached process break-in attempt DIALUP — Dialup break-in attempt LOCAL — Local break-in attempt NETWORK — Network server break-in attempt REMOTE — Remote break-in attempt
FILE_ ACCESS=(keyword[,...])	Specifies the occurrence of file and global section access events (regardless of the value given in the object's access control list [ACL], if any). Use one or more of the following keywords to specify the object access event to be noted: ALL — All types of object access events, as defined by the remaining keywords BYPASS [:access [,...]] — Successful object access due to the use of the BYPASS privilege FAILURE [:access [,...]] — Unsuccessful object access GRPPRV [:access [,...]] — Successful object access due to the use of the GRPPRV (group privilege) privilege READALL [:access [,...]] — Successful object access due to the use of the READALL privilege SUCCESS [:access [,...]] — Successful object access SYSPRV [:access [,...]] — Successful object access due to the use of the SYSPRV (system privilege) privilege Most of these keywords permit you to specify the type of object access that was obtained with the following keywords: ALL (default) — All types of object access events, as defined by the remaining keywords READ — Read (R) access WRITE — Write (W) access EXECUTE — Execute (E) access DELETE — Delete (D) access CONTROL — Owner access
INSTALL	Specifies the occurrence of any INSTALL operations.

Keyword	Description	
LOGFAILURE=(keyword[,...])	Specifies the occurrence of one or more classes of login failures, as specified by the following 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 login failure
LOGIN=(keyword[,...])	Specifies the occurrence of one or more classes of login attempts, as specified by the following 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 login
LOGOUT=(keyword[,...])	Specifies the occurrence of one or more classes of logouts, as specified by the following 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
	SUBPROCESS	Subprocess or detached process logout
	REMOTE	Logout of a process that logged in interactively from another network node
MOUNT	Specifies the issuance of a mount or dismount request.	

/FAILURE_MODE[=keyword]

Specifies how the VMS operating system proceeds following a failed attempt to write a security alarm to the operator communication process's (OPCOM's) mailbox. Specify one of the following keywords with the /FAILURE_MODE qualifier:

Option	Description
CRASH	Forces a system failure if security alarms cannot be written.
IGNORE	Indicates that failing security alarms are to be ignored. The first failed alarm causes an error message to be written to the operator console and log file. The system maintains a count of the lost alarms, which can be displayed with the SHOW AUDIT command.
WAIT	Indicates that processes are placed in the MWAIT state to wait until the resource is available. This is the default.

The /ALARM qualifier is required when specifying an audit failure mode.

/VERIFY (default)
/NOVERIFY

Specifies that control is not returned to the user (at the DCL command level) until the audit server has completed the request.

AUDIT JOURNAL QUALIFIERS

/DESTINATION=filespec

Specifies the name and location of the security audit log file in the audit server database. The device, if part of the file specification, must be a disk volume. Because the system security log file is created automatically when the system is first installed and restored each time the system boots, this qualifier is required only when you want to move the log file.

Once you have updated the audit server database, execute the command SET AUDIT/SERVER=NEW_LOG to make the new location of the log file known to all audit server processes in the cluster. The previous audit log file is closed, and all subsequent audit event messages generated on the cluster are redirected to the new audit log file.

The /JOURNAL=SECURITY qualifier is required when redirecting the system security audit log file with the /DESTINATION qualifier.

/JOURNAL[=journal-name]

Specifies the name of the audit journal. The default, /JOURNAL=SECURITY, represents the system security audit log file, and is currently the only supported audit journal type. The /JOURNAL qualifier is required when changing the location of the audit log file with the /DESTINATION qualifier.

/VERIFY (default)
/NOVERIFY

Specifies that control is not returned to the user (at the DCL command level) until the audit server has completed the request.

AUDIT SERVER QUALIFIERS

/INTERVAL=(option-keyword[,...])

Specifies the delta times to be used for regular audit server operations. For information about specifying delta times, see the *VMS DCL Concepts Manual.*

The following table describes the option keywords for the /INTERVAL qualifier. In most cases, the defaults noted should be sufficient.

Option Keyword	Description
ARCHIVE_FLUSH=time	Specifies the period of time the audit server waits before flushing information to be archived. The default is 1 minute.
JOURNAL_FLUSH=time	Specifies the period of time the audit server waits before flushing information in the various audit journal buffers. The default is 5 minutes.
RESOURCE_SCAN=time	Specifies the period of time the audit server waits before monitoring the volume containing the audit journal for resource exhaustion. Resource exhaustion occurs when the volume has no free disk space. The default is 5 minutes.
RESUME_SCAN=time	Specifies the period of time the audit server waits before reviewing an existing resource exhaustion condition. The default is 15 minutes.

/LISTENER=device
/NOLISTENER

Specifies the name of a mailbox device that receives a copy of all security audit events. The user-defined mailbox can be used for processing of system security events as they occur, rather than logging events to the system security audit log file for inspection at a later time. For a description of the message formats written to the listener mailbox, see the *VMS Audit Analysis Utility Manual.*

Specify the SET AUDIT/NOLISTENER command to remove a listener device from the system.

/SERVER=option-keyword[,...]

Specifies the audit server characteristics to be modified.

The following table describes the option keywords for the /SERVER qualifier. In most cases, the defaults noted should be sufficient.

Option Keyword	Description
CREATE_SYSTEM_LOG	Causes the audit server to create a new local system security audit log file. Other audit servers in the cluster are not affected. This keyword may be used by sites operating a multienvironment cluster where it may be necessary to create a new log file on a specific node in the cluster. CREATE_SYSTEM_LOG is synonymous with NEW_LOG for nonclustered systems.
EXIT	Initiates an audit server shutdown. This is the only method for removing the audit server process from the system; the audit server cannot be deleted or suspended.
FINAL_ACTION=action	Specifies the action taken by the audit server when resource exhaustion conditions have been met. Resource exhaustion occurs when the audit server attempts to buffer audit messages and runs out of virtual memory. (For more information about resource monitoring, see the *Guide to VMS System Security*.) Specify one of the following values: CRASH — Crashes the system if the system runs out of virtual memory. This is the default. IGNORE_NEW — Ignores new event messages until resources are available. Events messages leading up to the resource condition are saved; new messages are lost. PURGE_OLD — Removes old event messages until resources are available in order to save the most current messages.
FLUSH	Copies all buffered audit and archive records to the audit log file and security archive file, respectively.
NEW_LOG	Creates a new clusterwide audit log file. The audit log file is created by the audit server process running on the local system and is opened by all audit servers in the cluster. (Typically, this is used daily to generate a new version of the audit log file.)
REDIRECT_SYSTEM_LOG	Causes the audit server on the local node to redirect security event messages to a new audit log file, whose location was defined previously by the /DESTINATION qualifier. Audit server processes (and log files) on other nodes in the cluster are unaffected.

Option Keyword	Description
RESUME	Requests the audit server process to resume normal activity on the system, if adequate disk space is available. Normally, once a resource monitoring action threshold has been reached, the audit server process suspends most system activity and waits 15 minutes before attempting to resume normal system activity.
START	Starts the audit server process on the system.

/VERIFY (default)
/NOVERIFY

Specifies that control is not returned to the user (at the DCL command level) until the audit server has completed the request.

ARCHIVING QUALIFIERS

/ARCHIVE=option-keyword[,...]

Specifies the classes of audit messages events to be written to the security archive file. Specify one or more of the following keywords:

Option Keyword	Description
NONE	Disables archiving on the system. By default, archiving is disabled on the system.
[NO]ALL	Enables or disables archiving of all system security events.
SYSTEM_ALARM	Enables archiving of all system-generated alarm events.
SYSTEM_AUDIT	Enables archiving of all system-generated audit events. Reserved for future use.
USER_ALARM	Enables archiving of all user-generated alarm events. Reserved for future use.
USER_AUDIT	Enables archiving of all user-generated audit events. Reserved for future use.

/DESTINATION=filespec

Specifies the name of the archive log file. Events may be archived to a local or remote file on any file-structured disk device. For information about creating a security archive file, see the *Guide to VMS System Security*.

/VERIFY (default)
/NOVERIFY

Specifies that control is not returned to the user (at the DCL command level) until the audit server has completed the request.

RESOURCE MONITORING QUALIFIERS

/EXCLUDE=process-id
/NOEXCLUDE=process-id

Adds a process identification (PID) to the audit server process exclusion list. The process exclusion list contains those processes that will not be suspended by the audit server process if a resource exhaustion reaches the action threshold. By default, the following processes are always contained in the process exclusion list and are never candidates for process suspension:

CACHE_SERVER
CLUSTER_SERVER
CONFIGURE
JOB_CONTROL
OPCOM
SWAPPER
VWS$DISPLAYMGR
VWS$EMULATORS

Use the SET AUDIT/NOEXCLUDE=process-id command to remove a process from the process exclusion list. (PIDs are not automatically removed from the process exclusion list when processes log out of the system.)

/JOURNAL[=journal-name]

Specifies the name of the audit journal. The default, /JOURNAL=SECURITY, represents the system security audit log file, and is currently the only supported audit journal type. The /JOURNAL qualifier is required when specifying resource monitoring characteristics with the /RESOURCE or the /THRESHOLD qualifier.

/RESOURCE=option-keyword[,...]

Controls whether resource monitoring is in effect on the system, specifies the method used to monitor available resources, and determines the action the audit server will take if the available resources are depleted. The /JOURNAL qualifier is required when specifying resource monitoring with the /RESOURCE qualifier. For more information about resource monitoring, see the *Guide to VMS System Security*. The option keywords for the /RESOURCE qualifier are listed in the following table:

Option Keyword	Description
DISABLE	Disables resource monitoring on the security audit log file.
ENABLE	Enables resource monitoring on the security audit log file. By default, resource monitoring is enabled.

Option Keyword	Description	
MONITOR_MODE=mode	Specifies the method the audit server uses to monitor available resources. Specify one of the following keywords:	
	COUNT	Controls whether resource monitoring is based on the amount of free disk space required to store a fixed number of event messages.
	PERCENTAGE	Controls whether resource monitoring is based on the percentage of the disk volume or volume set available.
	SPACE	Controls whether resource monitoring is based on the number of free blocks on the disk. The is the default method used for resource monitoring.
	TIME	Controls whether resource monitoring is based on the amount of free disk space needed to store events which occur over a fixed period of time (in seconds).

/THRESHOLD=type

Specifies the thresholds the audit server uses for resource monitoring. The values that may be specified for each of the thresholds described depend on the mode of resource monitoring enabled on the system (see /RESOURCE=MONITOR_MODE). The /JOURNAL qualifier is required when modifying audit server thresholds with the /THRESHOLD qualifier. The option keywords for the /THRESHOLD qualifier are listed in the following table:

Threshold Type	Meaning
WARNING=value	Specifies the threshold at which the audit server notifies all security operator terminals that resource exhaustion has occurred.
ACTION=value	Specifies the threshold at which the audit server suspends normal system activity.
RESUME=value	Specifies the threshold at which the audit server resumes normal system activity.

The following table lists the default warning, action, and resume thresholds for each resource monitor mode. Normally, the defaults listed should be sufficient.

	Resource Monitoring Thresholds		
Monitor Mode	Warning	Action	Resume
SPACE (blocks)	1000	250	750
PERCENTAGE (of volume)	1	0	1

Monitor Mode	Resource Monitoring Thresholds		
	Warning	Action	Resume
COUNT (number of messages)	5000	1250	3750
TIME (seconds)	1000	250	750

/VERIFY (default)
/NOVERIFY

Specifies that control is not returned to the user (at the DCL command level) until the audit server has completed the request.

EXAMPLES

1

```
$ SET AUDIT/ALARM/ENABLE=(ACL,MOUNT,AUTHORIZATION)
$ SET AUDIT/ALARM/ENABLE=(BREAKIN:ALL,LOGFAIL:ALL)
$ SHOW AUDIT
Security alarm failure mode is set to:
    WAIT        Processes will wait for resource

Security alarms currently enabled for:
    ACL
    MOUNT
    AUTHORIZATION
    BREAKIN:      (DIALUP,LOCAL,REMOTE,NETWORK,DETACHED)
    LOGFAILURE:   (BATCH,DIALUP,LOCAL,REMOTE,NETWORK,SUBPROCESS,DETACHED)
```

The SET AUDIT commands in this example enable security alarms and audit journal messages for a number of security events; the display from the SHOW AUDIT command identifies the possible events. Note that, by default, VMS places processes in the MWAIT state to wait for resources if an attempt to write a security alarm to the OPCOM mailbox fails.

2

```
$ SET AUDIT/ALARM/FAILURE_MODE=IGNORE
```

The SET AUDIT command in this example directs the VMS operating system to ignore security alarms if they cannot be written and to maintain a count of the lost security alarms. Enter the command SHOW AUDIT to display the number of lost alarm messages.

3

```
$ SET AUDIT/ARCHIVE=ALL -
_$ /DESTINATION=SECURE::SYS$MANAGER:ARCHIV_001.DAT
```

The SET AUDIT command in this example enables archiving of system security event messages to a file named ARCHIV_001.DAT in the SYS$MANAGER directory on remote node SECURE. You must ensure that the audit server process has been granted proxy access to the remote node, as described in the *Guide to VMS System Security*, *before* enabling remote archiving.

In the current version of the security auditing facility, all security event classes enabled on the system generate both a security alarm message on the system console and an entry in the system security audit journal. For this reason, the /ARCHIVE=ALL qualifier is synonymous with the

/ARCHIVE=SYSTEM_ALARM qualifier and is the only type of archiving currently supported.

4
```
$ SET AUDIT/ALARM/DISABLE=ALL
```

The SET AUDIT command in this example disables all security alarms and audit journal messages.

5
```
$ SET AUDIT/JOURNAL=SECURITY -
_$  /DESTINATION=AUDIT$:[AUDIT]SECURITY_AUDIT.LOG
$ SET AUDIT/SERVER=NEW_LOG
```

The first SET AUDIT command in this example updates the audit server database with the new name and location of the system security audit log file. The second command in the example causes all audit server processes in the cluster to open the new log file.

6
```
$ SET AUDIT/ALARM/ENABLE=ALL/DISABLE=FILE:ALL
```

The SET AUDIT command in this example enables all classes of security events except file access alarms.

SET BROADCAST

Enables you to selectively screen out various kinds of messages from being broadcast to your terminal.

FORMAT

SET BROADCAST=*(class-name[,...])*

PARAMETER

class-name[,...]

Specifies the class of message that you want to enable or disable for broadcast to your terminal. If you specify only one class, you can omit the parentheses. The class names are as follows:

ALL	Enables all message classes.
[NO]DCL	Specifies Ctrl/T and SPAWN/NOTIFY messages.
[NO]GENERAL	Specifies ll normal REPLY messages or messages from $BRDCST.
[NO]MAIL	Specifies notification of mail.
NONE	Disables all message classes.
[NO]OPCOM	Specifies messages issued by the operator communication process (OPCOM).
[NO]PHONE	Specifies messages from the Phone Utility.
[NO]QUEUE	Specifies messages referring to print or batch jobs issued by the queue manager.
[NO]SHUTDOWN	Specifies messages issued from the REPLY /SHUTDOWN command.
[NO]URGENT	Specifies messages issued from the REPLY /URGENT command.
[NO]USER1 to [NO]USER16	Specifies messages from specific user groups. (For information on setting up user-written broadcast messages, see the description of the $BRKTHRU system service in the *VMS System Services Reference Manual.*)

DESCRIPTION

The SET BROADCAST command enables you to receive certain kinds of messages at your terminal, but not others. By default, you receive all messages at your terminal (SET BROADCAST=ALL). SET BROADCAST=NONE screens out all messages.

After you have used the SET BROADCAST command to screen out some classes of messages (for example, SET BROADCAST=NOPHONE), you can use the command to restore that class (SET BROADCAST=PHONE).

Use the SHOW BROADCAST command to see which message classes are currently being screened out.

Note: SYS$COMMAND must be a terminal.

EXAMPLES

1

```
$ SET BROADCAST=(NOMAIL, NOPHONE)
    .
    .
    .
$ SET BROADCAST=MAIL
```

In this example, the first SET BROADCAST command screens out all mail and phone messages. Later the second SET BROADCAST command restores mail messages. Phone messages are still screened.

2

```
$ SET BROADCAST=NONE
    .
    .
    .
$ SET BROADCAST=(SHUTDOWN, URGENT, DCL, OPCOM)
```

In this example, the first SET BROADCAST command screens out all messages. Later the second SET BROADCAST command restores shutdown, urgent, DCL, and OPCOM messages. General, phone, mail, queue, and user messages are still screened.

SET CARD_READER

Defines the default translation mode for cards read from a card reader. All subsequent input read from the specified card reader is converted using the specified mode.

FORMAT

SET CARD_READER *device-name[:]*

PARAMETER

device-name[:]
Specifies the name of the card reader for which the translation mode is to be set. The device must not be currently allocated to any other user.

DESCRIPTION

When the system is bootstrapped, the translation mode for cards read into all card readers is set at 029. If you do not specify either of the command qualifiers, the SET CARD_READER command has no effect; that is, the current translation mode for the device remains the same.

QUALIFIERS

/026
Sets the card reader for cards punched on an 026 punch.

/029
Sets the card reader for cards punched on an 029 punch.

/LOG
/NOLOG (default)
Controls whether log information is displayed at the terminal to confirm that the card reader is set.

EXAMPLE

```
$ ALLOCATE CR:
  _CRA0: ALLOCATED
$ SET CARD_READER CRA0:/029
$ COPY  CRA0: [MALCOLM.DATAFILES]CARDS.DAT
```

The ALLOCATE command requests the allocation of a card reader by specifying the generic device name. When the ALLOCATE command displays the name of the device, the SET CARD_READER command sets the translation mode at 029. Then the COPY command copies all the cards read by the card reader CRA0 into the file CARDS.DAT in the directory [MALCOLM.DATAFILES].

SET CLUSTER/EXPECTED_VOTES

Sets the total expected votes in the cluster to a value that you specify or, if no value is specified, sets the total votes to a value determined by the system.

Requires OPER (operator) privilege.

FORMAT

SET CLUSTER/EXPECTED_VOTES*[=value]*

PARAMETER

value
Specifies the total number of expected votes in the cluster.

DESCRIPTION

The SET CLUSTER/EXPECTED_VOTES command enables you to adjust the total number of expected votes in the cluster. Set this value equal to the number of votes contributed by each node in the cluster plus the number of votes contributed by the cluster quorum disk. The system will automatically calculate the value of the cluster quorum from the total number of expected votes in the cluster.

You can specify the expected total votes value as part of the SET CLUSTER/EXPECTED_VOTES command string. If you enter the SET CLUSTER/EXPECTED_VOTES command without specifying a value for expected votes, the system calculates the value for you, using the following formula:

```
EXPECTED_VOTES = (NODE1_VOTES + NODE2_VOTES + ...) + QUORUM_DISK_VOTES
```

NODE*n*_VOTES is the value of the SYSGEN parameter VOTES for each node in the cluster and QUORUM_DISK_VOTES is the value of the SYSGEN parameters QDSKVOTES.

When you enter the SET CLUSTER/EXPECTED_VOTES command without specifying a value, the system assumes that all nodes that are expected to be in the cluster are currently members.

In general, you use the SET CLUSTER/EXPECTED_VOTES command only when a node is leaving the cluster for an extended period of time. Under normal circumstances, quorum is not reduced when a node leaves the cluster, because it is assumed that the node may be rebooted and rejoin the cluster. If a node is removed from the cluster and is unable to rejoin the cluster within a reasonable period of time (for example, if a node crashes due to a hardware problem and cannot rejoin the cluster for several days), the quorum for the cluster can safely be reduced by lowering the total expected votes until that node rejoins.

The purpose of a cluster quorum is to eliminate any possibility of the cluster partitioning into separate clusters and simultaneously accessing the same resources (such as HSC50 disks). If the sum of the votes of all members of the cluster is smaller than the cluster quorum, all nodes in the cluster will block activity until new nodes join to increase the vote total. Lowering the quorum value (by reducing the value of the total expected

votes) when one or more nodes leave the cluster for long periods of time reduces this possibility.

When you enter the SET CLUSTER/EXPECTED_VOTES command, either with or without an expected votes value specified, the system responds with a message indicating the new value that was actually set. Note that you need only enter this command on one node in the cluster, because the new value for total expected votes is propagated through the cluster. This new expected votes value should then be stored in the SYSGEN parameter EXPECTED_VOTES on each cluster node, so that it remains in effect after the nodes reboot.

When a node that was previously a member of the cluster is ready to rejoin, you should increase the SYSGEN parameter EXPECTED_VOTES to its original value before bringing the node back to the cluster. Note that you do not need to use the SET CLUSTER/EXPECTED_VOTES command to increase the number of expected votes, because the expected votes value will be increased automatically when the node rejoins the cluster.

EXAMPLES

1 `$ SET CLUSTER/EXPECTED_VOTES`

The SET CLUSTER command in this example instructs the system to calculate the total expected votes value for you, because no value is specified as part of the command string. The system uses the NODEn_VOTES + QUORUM_DISK_VOTES formula.

2 `$ SET CLUSTER/EXPECTED_VOTES=9`

The SET CLUSTER command in this example sets the total expected votes to 9, which is the value specified in the command string.

SET COMMAND

Invokes the Command Definition Utility, which adds commands to your process command table or to a specified command table file. For a complete description of the Command Definition Utility, see the *VMS Command Definition Utility Manual*.

FORMAT SET COMMAND *[filespec[,...]]*

SET CONTROL

Enables or disables the CTRL/Y or the CTRL/T function. Pressing Ctrl/Y interrupts a command and returns you to the DCL command level. Pressing Ctrl/T momentarily interrupts a command to print a line of statistics.

SET CONTROL=T requires that SET TERMINAL/BROADCAST be set for the information to be displayed at your terminal.

FORMAT

SET [NO]CONTROL*[=(T,Y)]*

PARAMETER

(T,Y)
Specifies that T (CTRL/T) or Y (CTRL/Y) be enabled or disabled. If you specify only one character, you can omit the parentheses. If you do not specify either T or Y, Y is the default.

DESCRIPTION

The CTRL/Y function provides a general-purpose escape from the current operation. The CTRL/Y function can generally be used during an interactive terminal session to interrupt the current command, command procedure, or program image.

The SET NOCONTROL=Y command can be used for special application programs. When the SET NOCONTROL=Y command is executed in a system-specified command procedure for a particular user at login, that user can communicate only with the application program that controls the terminal.

When you press Ctrl/Y and SET NOCONTROL=Y is in effect, the INTERRUPT message is displayed, but no interruption takes place.[1]

SET NOCONTROL=Y also disables the Ctrl/C cancel function for all commands and programs that do not have special action routines responding to the CTRL/C function.

The CTRL/T function displays a single line of statistical information about the current process. When you press Ctrl/T during an interactive terminal session, it momentarily interrupts the current command, command procedure, or image to display statistics. The statistical information includes the node and user names, the current time, the current process, CPU usage, number of page faults, level of I/O activity, and memory usage. For example:

```
BOSTON::SMITH  16:21:04 EDT       CPU=00:00:03.33 PF=778 IO=296 MEM=277
```

When SET NOCONTROL=T (the default) is in effect, pressing Ctrl/T does not cause any statistics to be displayed.

[1] Note that DCL maintains a pending CTRL/Y asynchronous system trap (AST) to the terminal driver. This affects captive command procedures when using the SET HOST command. For more information, see the description of the SET HOST command.

EXAMPLES

```
1  $ SET NOCONTROL=Y
```

The SET CONTROL command in this example disables the CTRL/Y function as well as most CTRL/C functions.

```
2  $ SET CONTROL=T
```

The SET CONTROL command in this example enables the CTRL/T function.

```
3  $ SET NOCONTROL=(T,Y)
```

The SET CONTROL command in this example disables both the CTRL/T and CTRL/Y functions.

```
4  $ Ctrl/T
NODE22::SMITH  16:21:04  (DCL)   CPU=00:03:29.39 PF=14802 IO=18652 MEM=68
$ SET NOCONTROL=T
$ Ctrl/T
```

As shown in this example, when you press Ctrl/T, the system displays the appropriate information. The SET NOCONTROL=T command disables the CTRL/T function. Now when you press Ctrl/T, no information is displayed.

SET DAY

Sets the default day type specified in the user authorization file (UAF) for the current day.

Requires OPER (operator) privilege.

FORMAT

SET DAY

PARAMETERS

None.

DESCRIPTION

The SET DAY command overrides the default primary and secondary day types that are used to control daily logins. These default day types are defined by the system manager in the user authorization file (UAF).

The SET DAY command is useful when you need to override the day type because of a change in the work days of a particular week. For example, Monday, which is normally a work day, is occasionally a holiday. You can use the SET DAY command to override the normal day type for Monday and set it to a different day type.

QUALIFIERS

/DEFAULT

Overrides any previous SET DAY specification and specifies that the normal UAF defaults are to be used to determine today's day type.

/LOG
/NOLOG (default)

Controls whether log information is displayed at the terminal to confirm that the new SET DAY information has been set.

/PRIMARY

Sets today until midnight to a primary day.

/SECONDARY

Sets today until midnight to a secondary day.

EXAMPLES

1
```
$ SET DAY/PRIMARY
```

The SET DAY command in this example overrides the current default day type and sets today until midnight to a primary day.

2
```
$ SET DAY/DEFAULT
```

The SET DAY command in this example overrides the previous SET DAY command and sets today's day type to the UAF-defined default.

SET DEFAULT

Sets your default device and directory specifications. The new default is applied to all subsequent file specifications that do not explicitly include a device or directory name.

When you change the default device assignment, the system equates the specified device with the logical name SYS$DISK.

FORMAT

SET DEFAULT *[device-name[:]][directory-spec]*

PARAMETERS

device-name[:]

Specifies the name of the device you want to go to.

directory-spec

Specifies the name of the directory you want to go to. A directory name must be enclosed in brackets ([ ]). Use the minus sign (-) to specify the next higher directory from the current default.

You must specify either the *device-name* parameter or the *directory-spec* parameter. If you specify only the device name, the current directory is the default for the *directory-spec* parameter. If you specify only the directory name, the current device is the default for the *device-name* parameter.

You can use a logical name but it must constitute at least the device part of the specification. When you use a search list logical name as the parameter, the logical name is not translated by the SET DEFAULT command. Instead, the SET DEFAULT command retains the logical name so that VMS Record Management Services (VMS RMS) is able to access the entire search list. If you enter the SHOW DEFAULT command, the search list logical name is displayed as the default device, along with its equivalence strings.

EXAMPLES

1
```
$ SET DEFAULT [CARPENTER]
```

The SET DEFAULT command in this example changes the default directory to [CARPENTER]. The default disk device does not change.

2
```
$ SET DEFAULT $FLOPPY1:[WATER.MEMOS]
```

The SET DEFAULT command in this example sets your default to the WATER.MEMOS subdirectory on $FLOPPY1.

3
```
$ SET DEFAULT $FLOPPY1:
```

The SET DEFAULT command in this example sets the default device to $FLOPPY1. The directory name does not change.

```
4   $ SET DEFAULT [-]
```

The SET DEFAULT command in this example changes the default directory to the parent directory of the one you are currently in. For example, if the current directory is $FLOPPY1:[WATER.MEMOS], this command sets your default to $FLOPPY1:[WATER]. If you are in $FLOPPY1:[WATER], this command sets your default to the master directory on the disk—$FLOPPY1:[000000].

```
5   $ SAVEDEF = F$ENVIRONMENT("DEFAULT")
    $ SET DEFAULT [122001.JONES.APP10]
        .
        .
        .
    $ SET DEFAULT  'SAVEDEF'
```

The command procedure in this example uses the F$ENVIRONMENT lexical function to save the current default directory in the symbol named SAVEDEF. The SET DEFAULT command changes the default directory 122001.JONES.APP10. Later, the symbol SAVEDEF is used to restore the original default directory.

```
6   $ SHOW DEFAULT
    $ DEFINE X WORK:[TOP.SUB1],WORK:[TOP.SUB2]
    $ SET DEFAULT X
    $ SHOW DEFAULT
    X:[TOP]
     =    WORK:[TOP.SUB1]
     =    WORK:[TOP.SUB2]
    $ DIRECTORY

    Directory WORK:[TOP.SUB1]

    FOO.TMP;1

    Total of 1 file.

    Directory WORK:[TOP.SUB2]

    FOO.TMP;1

    Total of 1 file.

    Grand total of 2 directories, 2 files.
    $ DIRECTORY []

    Directory WORK:[TOP]

    FOO.TMP;1           NETSERVER.LOG;2

    Total of 2 files.
```

In this example, the default directory is WORK:[TOP]. X is then defined to be a search list consisting of two subdirectories. When the SET DEFAULT X command is entered, the search list (X) is equated with the logical name SYS$DISK and is entered into the disk field. The subsequent SHOW DEFAULT command shows both the search list and the current default directory, followed by the expanded search list.

If a DIRECTORY command is entered, the directories searched are those contained in the logical name X. However, if the current default directory specification ([ ]) is explicitly entered, the current default directory, rather than SYS$DISK, is searched.

SET DEVICE

Establishes a print device or terminal as a spooled device or establishes the operational status for a device.

Requires OPER (operator) privilege.

FORMAT

SET DEVICE *device-name[:]*

PARAMETER

device-name[:]

Specifies the name of the device whose spooling or operational status is to change. The device must be a print device or a terminal if you want to change the spooling status; the device must be a disk or magnetic tape if you want to change the operational status.

DESCRIPTION

When you specify the /SPOOLED qualifier, program output that uses VMS Record Management Services (VMS RMS) or file control system (FCS) and that specifies the print device name is written onto an intermediate disk rather than written directly to the print device or terminal.

When you specify the /AVAILABLE, the /DUAL_PORT, or the /ERROR_LOGGING qualifier, the operational status of the drive is changed.

QUALIFIERS

/AVAILABLE
/NOAVAILABLE

Controls whether the specified disk or magnetic tape is to be considered available. You must dismount the specified disk or magnetic tape before entering the SET DEVICE/[NO]AVAILABLE command. If you specify the /NOAVAILABLE qualifier, any attempt to allocate or mount the specified disk or magnetic tape is prevented.

/DUAL_PORT
/NODUAL_PORT

Controls whether the port seize logic in the device driver of the specified disk is to be enabled. This qualifier should be used only on disks that contain a dual port kit and have been dismounted.

/ERROR_LOGGING
/NOERROR_LOGGING

Controls whether device errors are logged in the error log file. When you specify the /ERROR_LOGGING qualifier, all error messages reported by the device on which error logging is enabled are recorded in the error log file. Use the SHOW DEVICE/FULL command to find out the current status.

/LOG
/NOLOG (default)

Controls whether log information is displayed at the terminal.

/SPOOLED[=(queue-name[:],intermediate-disk-name[:])]
/NOSPOOLED

Controls whether files are spooled to an intermediate disk.

The queue name indicates the printer queue to which a file is queued. If a queue name is not supplied, the default is the name of either the printer or terminal.

The intermediate disk name identifies the disk to which the spooled files are written. If the intermediate disk name is not supplied, the default is SYS$DISK (the current default disk). The intermediate disk must be mounted before files can be written to it.

Once the device has been set spooled to a disk, that disk cannot be dismounted until the spooled device is set to /NOSPOOLED. All channels must be deassigned from a print device before its spooling characteristics can be changed. Also, the queue that is assigned to the device must be stopped.

EXAMPLES

1
```
$ SET DEVICE/SPOOLED=(LPA0)  LPA0:
```

In this example, the /SPOOLED qualifier requests that the printer queue LPA0 be spooled to an intermediate disk before files directed to the disk are printed. Because no intermediate disk was specified, the intermediate disk defaults to SYS$DISK.

2
```
$ SET DEVICE/ERROR_LOGGING  DBB2:
```

The SET DEVICE command in this example requests that all device errors reported on device DBB2 be logged in the error log file.

3
```
$ SET DEVICE/NOAVAILABLE DRA0:
```

The SET DEVICE command in this example prevents any attempt to mount a disk on device DRA0.

4
```
$ SET DEVICE/DUAL_PORT DRA0:
```

The SET DEVICE command in this example enables the dual port seize logic in device DRA0.

SET DEVICE/SERVED

Allows you to make a disk on a local node available to all the nodes in a cluster. The /SERVED qualifier is required.

Applies only to VAXcluster environments.

FORMAT

SET DEVICE/SERVED *node-name$DDcu:*

PARAMETER

node-name$DDcu:
Specifies the device name of the device that you want to make available to the cluster.

DESCRIPTION

The SET DEVICE/SERVED command is used in conjunction with the mass storage control protocol (MSCP) server to make a disk on a local node available to all nodes on the cluster. The local node must be a member of a VAXcluster, and the local MSCP server must have been invoked by the System Generation Utility (SYSGEN).

Note: Unless the disk device that you intend to make available to the cluster is a system disk, it must not already be mounted when you enter the SET DEVICE/SERVED command.

The SET DEVICE/SERVED command string can be included as part of the local startup command file, and entered before the Mount Utility mounts the disk to be served (made available to the entire cluster).

EXAMPLE

```
$ SET DEVICE/SERVED DRA4:
```

The SET DEVICE/SERVED command in this example instructs the MSCP server to make the disk device DRA4 on your local node available to all other processors on your cluster.

SET DIRECTORY

Modifies the characteristics of one or more directories.

See the qualifier descriptions for restrictions.

FORMAT

SET DIRECTORY *[device-name[:]]directory-spec[,...]*

PARAMETERS

device-name[:]

Specifies the device on which the directory that you want to modify is located. The device name parameter is optional.

directory-spec[,...]

Specifies one or more directories to be modified. If you specify more than one directory, separate the directory specifications with commas (,). Wildcard characters (* and %) are allowed.

QUALIFIERS

/BACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects directories according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select directories according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]

Selects only those directories dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BY_OWNER[=uic]

Selects only those directories whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each SET DIRECTORY operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED (default)

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects directories based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select directories according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/EXCLUDE=(filespec[,...])

Excludes the specified directories from the SET DIRECTORY operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one directory, you can omit the parentheses.

/EXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects directories according to their expiration dates. (The expiration date is set with the SET FILE /EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select directories according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/LOG
/NOLOG (default)

Controls whether the system displays the directory specification of each directory that is modified as the command executes.

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects directories according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select directories according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/OWNER_UIC[=uic]

Requires SYSPRV (system privilege) privilege to specifiy a user identification code (UIC) other than your own.

Specifies an owner UIC for the directory. The default UIC is that of the current process.

/SINCE[=time]

Selects only those directories 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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/VERSION_LIMIT[=n]

Specifies the total number of versions that a file in the specified directory can have. If you do not specify a version limit, a value of 0 is used, indicating that the number of versions of a file is limited only to the Files–11 architectural limit—32,767. If you change the version limit for the directory, the new value applies only to files created after the change has been made.

The SET DIRECTORY version limit value refers to the number of files with the same file name and type that can exist in the directory at one time. It has no effect on the version number field of a particular file specification. Use the SET FILE command to set limits on file version numbers.

To find out the current version limit for a directory, you must use the DUMP/HEADER command. Specify the /FORMATTED qualifier to format the output and the /BLOCKS=COUNT:0 qualifier to avoid dumping the entire directory contents. For example:

```
DUMP/HEADER/FORMATTED/BLOCKS=COUNT:0 directory-spec
```

EXAMPLES

1

```
$ SET DIRECTORY/VERSION_LIMIT=5/CONFIRM [SMITH...]
```

The SET DIRECTORY command in this example sets a version limit of five for all files in the SMITH directory and all subdirectories of [SMITH]. The /CONFIRM qualifier requests that you confirm whether the specified directory should actually be modified. Note that it affects only the files created after the command is entered.

2

```
$ SET DIRECTORY/OWNER_UIC=[360,020] [DAVIDSON],[USERS]
```

The SET DIRECTORY command in this example modifies both the [DAVIDSON] and [USERS] directories, changing their owner UICs. Using the OWNER_UIC qualifier requires SYSPRV (system privilege).

SET DISPLAY

Directs the output of a VMS DECwindows application. Output can be directed from any VAX processor running a DECwindows application, including workstations, to any DECwindows workstation.

Both source and destination nodes must be part of the same network.

FORMAT

SET DISPLAY *[display-device]*

PARAMETERS

display-device

Specifies a logical name for the workstation display you are creating or modifying. If you are directing application output to multiple workstation displays, you can use different logical names to point to each display. If you do not specify a *display-device* parameter, the logical name DECW$DISPLAY is used. This means that, by default, application output will be displayed on the workstation display device referred to by DECW$DISPLAY.

By entering the command SHOW DISPLAY, you can see the workstation node where applications will be displayed by default. If you specified your own logical name in the SET DISPLAY/CREATE command, include that logical name in the SHOW DISPLAY command.

DESCRIPTION

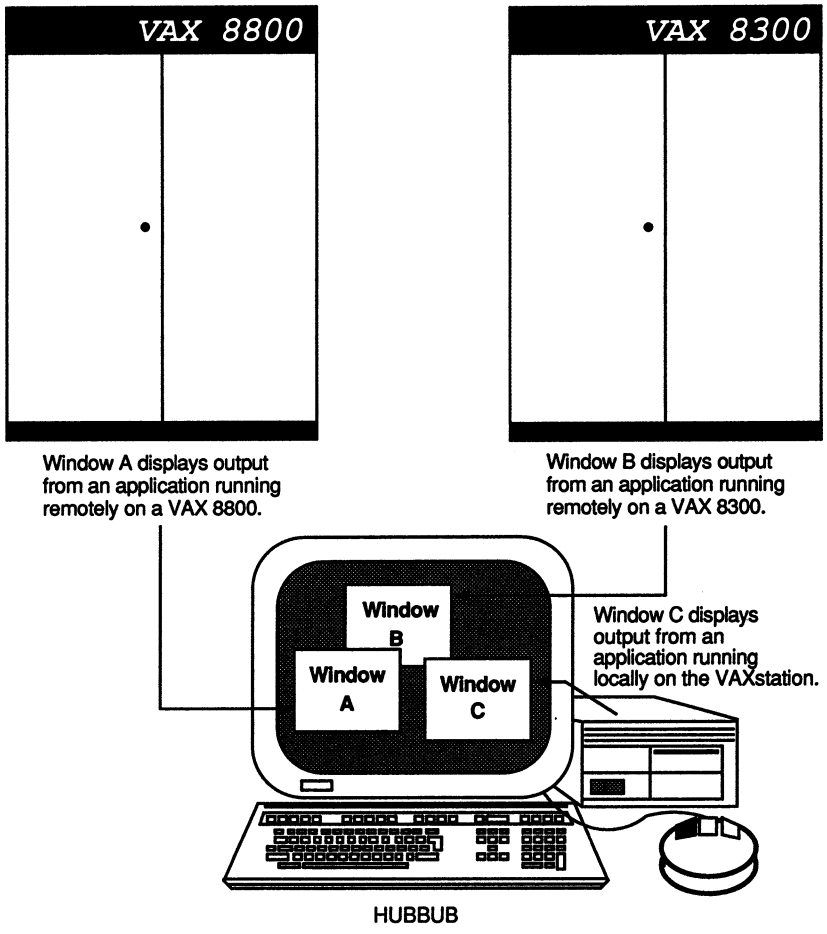
DECwindows gives you the ability to run applications across a network. The SET DISPLAY command gives you the ability to perform the following tasks:

- Direct the output from applications running on your workstation to another workstation.
- Direct the output from applications running on *remote* processors to your workstation. Although the application runs on another processor, it looks the same as any other application running *locally* on your workstation.

By running applications on a remote processor for local display on your workstation monitor, you can take advantage of larger computers that might be better suited to a specific computing task. By default, applications running on your workstation are displayed on your workstation. While DECwindows must be available on both nodes, only the display node must be a workstation.

The SET DISPLAY command affects only those applications running from the process from which you enter the command. This means that although you might be running one application on your workstation and displaying it on another workstation, you can continue to run applications on your workstation for display in other windows on your workstation as illustrated in Figure DCL2–1.

Figure DCL2–1 Running Remote and Local Applications



To initially direct application output to another DECwindows workstation, enter a DCL command in the following form:

```
SET DISPLAY/CREATE/NODE=workstation_display/TRANSPORT=DECNET
```

Subsequently, you can redirect the display to other workstation devices by entering a DCL command in the following form:

```
SET DISPLAY/NODE=workstation_display
```

By default, you are authorized to run applications locally on your workstation. You cannot log in to another node and direct applications to display on your workstation unless you explicitly authorize yourself to do so. This prevents unauthorized users on other nodes in the network from directing output to or receiving input from your workstation without your specific permission.

Make sure the node name you use in the SET DISPLAY command matches the node name from which you are authorized to display applications. For example, if you specify SET DISPLAY/CREATE/NODE=HUBBUB from your node ZEPHYR, and are not authorized to display applications on the DECwindows workstation HUBBUB, DECwindows reports that you are not authorized to use that display. For information about displaying applications on other workstation nodes and using the DECwindows Session Manager to authorize remote connections, see the *VMS DECwindows User's Guide*.

By using one of the following qualifiers: /EXECUTIVE_MODE, /SUPERVISOR_MODE, or /USER_MODE, you can specify the mode of the device you are creating. The default is the /SUPERVISOR_MODE qualifier.

See also the description of the SHOW DISPLAY command for more information.

QUALIFIERS

/CREATE

Creates the workstation display device (WSA*n*:) on which a DECwindows application is displayed. You must specify the /CREATE qualifier the first time you use the SET DISPLAY command, but you need not respecify it if you continue to redirect output from applications to other workstations with subsequent SET DISPLAY commands.

When you specify the /CREATE qualifier without the /NODE qualifier, the workstation device defaults to the current node.

/DELETE

Cancels the redirected display by deassigning the logical name DECW$DISPLAY and deleting the created display device. If you specified a logical name as the *display-device* parameter with the SET DISPLAY /CREATE command, entering the SET DISPLAY/DELETE *display-device* command cancels the redirected display by deassigning the logical name you specified and deleting the created display device.

The DECwindows Session Manager defines DECW$DISPLAY in your job logical name table when you open a terminal (DECterm) window. When you redirect application output to another workstation with the SET DISPLAY/CREATE command, an additional DECW$DISPLAY logical name is defined in your process logical name table. This definition supersedes the definition in the job logical name table. Output from applications run from the process in which you executed the SET DISPLAY /CREATE command will be displayed on the workstation referred to by the definition of DECW$DISPLAY in the process logical name table. Enter the SHOW DISPLAY command to see where this application will be displayed. To see whether multiple definitions for DECW$DISPLAY exist, enter the command SHOW LOGICAL DECW$DISPLAY.

If DECW$DISPLAY is still defined (for example, in the job logical name table) after you specify the /DELETE qualifier, any DECwindows applications run from this process will be displayed on the workstation device to which output is now directed. Enter the SHOW DISPLAY command if you are unsure of the node to which DECW$DISPLAY refers.

Caution: If you modify or delete the definition of DECW$DISPLAY from the job logical name table, you will be unable to start another session. Be careful not to specify the /DELETE qualifier without having first redirected the display with the SET DISPLAY/CREATE command.

You cannot specify the /DELETE and /CREATE qualifiers on the same command line.

/EXECUTIVE_MODE

Creates an executive-mode device and assigns the logical name DECW$DISPLAY to point to it. This qualifier must be used with the /CREATE qualifier. Devices created with the /EXECUTIVE_MODE qualifier are deleted only in the following situations:

- They are explicitly deleted with the /DELETE qualifier.
- The system is rebooted.

To modify or delete executive-mode devices, you must have SYSNAM (system logical name) privilege.

/NODE=workstation_display

Defines the workstation on which you want to display DECwindows applications. The node name you provide cannot be a cluster alias (a name that represents multiple nodes configured in a VAXcluster), but must instead identify an actual node.

You must create a workstation display device with the /CREATE qualifier before you can redirect the output from applications to other workstations. Do not enter the SET DISPLAY/NODE=workstation_display command without having previously specified the /CREATE qualifier.

When you specify the /CREATE qualifier without the /NODE qualifier, the workstation defaults to the current node.

Make sure that you are authorized to display applications on the workstation you specify. For more information about using the DECwindows Session Manager to authorize yourself to display applications from other nodes, see the *VMS DECwindows User's Guide*.

Each node, both source and destination, must be defined in the other's network node database. For example, to display applications on node HUBBUB from ZEPHYR, HUBBUB must be entered in ZEPHYR's network node database, and ZEPHYR must be entered in HUBBUB's network node database. In addition, users on ZEPHYR must be authorized in the DECwindows Session Manager to display applications on HUBBUB. For information about entering nodes in a network node database, see the *VMS Networking Manual* and the *VMS Network Control Program Manual*.

/SCREEN=screen-number

Defines the screen to be associated with this display device. In some hardware configurations, the system supports more than one screen. In such a configuration, you can specify the screen to which the application is directed.

Currently, the *screen-number* value must be zero.

/SERVER=server-number

Defines the server to be associated with the display device indicated by the *display-device* parameter to the SET DEVICE command. Using the transport mechanism, the server passes data between the user and the application. In some hardware configurations, the system supports more than one server. In such a configuration, you can specify the server to which the application is directed. If you do not specify the *display-device* parameter, the SET DISPLAY/SERVER command associates the server with the display device indicated by the logical name DECW$DISPLAY.

Currently, the *server-number* value must be zero.

/SUPERVISOR_MODE (default)

Creates a supervisor-mode device and assigns the logical name DECW$DISPLAY to point to it. This qualifier must be used with the /CREATE qualifier. When the user logs out, the device is deleted.

/TRANSPORT=transport-name

Defines the mechanism, for example, DECNET or LOCAL, that passes information between the application and the workstation. The transport mechanism is used to send input from the user to the application and output from the application to the display. If you specify the /CREATE qualifier, the default transport is DECNET.

Use the /TRANSPORT=LOCAL qualifier to optimize the performance of applications running and displaying on the same node.

/USER_MODE

Creates a user-mode display device and assigns the logical name DECW$DISPLAY to point to it. This qualifier must be used with the /CREATE qualifier. The lifetime of a user-mode device is one DECwindows image: when the next DECwindows image exits, the device is deleted.

EXAMPLES

1
```
$ SHOW DISPLAY   [super]
   Device:      WSA1:
   Node:        0
   Transport:   LOCAL
   Server:      0
   Screen:      0

$ SET DISPLAY/CREATE/NODE=ZEPHYR/EXECUTIVE_MODE
$ SHOW DISPLAY   [exec]
   Device:      WSA2:
   Node:        ZEPHYR
   Transport:   DECNET
   Server:      0
   Screen:      0
$ SPAWN/NOWAIT/INPUT=NL: RUN SYS$SYSTEM:DECW$CLOCK

$ SET DISPLAY/DELETE

$ SHOW DISPLAY   [super]
   Device:      WSA1:
   Node:        0
   Transport:   LOCAL
   Server:      0
   Screen:      0
```

In this example, you are logged in to your workstation (device WSA1:), here referred to as node 0. (0 is the standard shorthand notation for representing your node.) You want to run the DECwindows Clock on your workstation and display it on another workstation, ZEPHYR.

Assuming you are authorized to display applications on ZEPHYR, you redirect the application's output to ZEPHYR with the SET DISPLAY command. The device created on ZEPHYR is an executive-mode device. You enter the SHOW DISPLAY command to verify the location of the redirected display. You then run Clock. When you finish running Clock, you disable the redirected display by entering the SET DISPLAY/DELETE command. Finally, you enter the SHOW DISPLAY command to verify that any applications subsequently run on your node will also be displayed there.

Note that a new workstation display device, WSA2, is created when you enter the SET DISPLAY/CREATE command. When you cancel the redirected display with the SET DISPLAY/DELETE command, application output is once again displayed on the workstation display device referred to by WSA1.

2
```
$ SET DISPLAY/CREATE/NODE=FLOPSY RABBIT
$ SHOW DISPLAY RABBIT   [super]

  Device:    WSA2:
  Node:      FLOPSY
  Transport: DECNET
  Server:    0
  Screen:    0

$ RUN/DETACHED/OUTPUT=WSA2: SYS$SYSTEM:DECW$CLOCK

$ SET DISPLAY/CREATE/NODE=ZEPHYR ZNODE
$ SHOW DISPLAY ZNODE   [super]

  Device:    WSA3:
  Node:      ZEPHYR
  Transport: DECNET
  Server:    0
  Screen:    0

$ RUN/DETACHED/OUTPUT=WSA3: SYS$SYSTEM:DECW$CALENDAR

$ RUN SYS$SYSTEM:DECW$BOOKREADER
$ SHOW DISPLAY   [super]

  Device:    WSA1:
  Node:      0
  Transport: LOCAL
  Server:    0
  Screen:    0
```

In this example, you are logged in to your node (device WSA1:), and want to direct the output from applications to several workstation displays in the same session. By specifying different logical names in the SET DISPLAY command, you can redirect the output without changing the logical name definition for DECW$DISPLAY. This allows you to display the output from most applications on your default display but occasionally display output on another workstation. You can also continue to run and display applications on your node. In this example, Clock is displayed on

node FLOPSY, Calendar is displayed on node ZEPHYR, and Bookreader is displayed on your workstation.

Note that to run your applications with the DCL command RUN/DETACHED, you must use the device name that equates to the logical display device name you specified in the SET DISPLAY command. Use the SHOW DISPLAY command to obtain this device name.

SET ENTRY

Changes the current status or attributes of a job that is not currently executing in a queue.

Requires OPER (operator) privilege, execute (E) access to the queue, or delete (D) access to the specified jobs.

FORMAT

SET ENTRY *entry-number[,...]*

PARAMETER

entry-number[,...]

Specifies the entry number of the job you want to change. If you specify more than one entry, separate the entry numbers with commas (,).

The system assigns a unique entry number to each queued print or batch job in the system. By default, the PRINT and SUBMIT commands display the entry number when they successfully queue a job for processing. These commands also create or update the local symbol $ENTRY to reflect the entry number of the most recently queued job. To find a job's entry number, enter the SHOW ENTRY or the SHOW QUEUE command.

DESCRIPTION

The SET ENTRY command allows you to change the status or attributes of one or more jobs , as long as the jobs are not executing currently. You cannot affect individual files within a multifile job with the SET ENTRY command.

The qualifiers enable you to specify different attributes or delete attributes. Some qualifiers apply to both batch and print jobs. Others are restricted to either batch jobs or print jobs. The defaults for all the SET ENTRY qualifiers are the attributes and status that the job has before you enter the SET ENTRY command.

QUALIFIERS

/AFTER=time
/NOAFTER

Requests that the specified job be held until after a specific time. If the specified time has already passed, the job is queued for immediate processing.

You can specify either an absolute time or a combination of absolute and delta times. For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BURST
/NOBURST

Controls whether two file flag pages with a burst bar between them are printed preceding each file in a job.

Use the /[NO]BURST qualifier to override the /DEFAULT qualifier options that have been set for the output queue you are using. The /[NO]BURST qualifier does not override the /SEPARATE qualifier options set for the queue.

When you specify the /BURST qualifier for a file, the /[NO]FLAG qualifier does not add or subtract a flag page from the two flag pages that are printed preceding a file.

/CHARACTERISTICS=(characteristic[,...])
/NOCHARACTERISTICS

Specifies the name or number of one or more characteristics to be associated with the job. Characteristics can refer to such things as color of ink. If you specify only one characteristic, you can omit the parentheses.

A characteristic's number must range from 0 to 127. To see which characteristics have been defined for your system, use the SHOW QUEUE/CHARACTERISTICS command. To see which characteristics are associated with a particular queue, use the SHOW QUEUE/FULL command.

A print job can be processed on an execution queue if none, some, or all of the characteristics associated with the queue also are associated with the job. That is, the job's characteristics must be a subset of the queue's characteristics. However, if any of the characteristics associated with the job are not associated with the queue, the job remains pending until one or more of the following occurs:

- The characteristics specified with the queue are changed to make the job's characteristics a subset of the queue's characteristics (using, for example, the SET QUEUE/CHARACTERISTICS command).
- The characteristics specified with the job are changed to make the job's characteristics a subset of the queue's characteristics (using, for example, the SET ENTRY/CHARACTERISTICS command).
- The job is moved to a queue on which all the job's characteristics have been specified (using, for example, the SET ENTRY/REQUEUE command).
- The job is deleted (using, for example, the DELETE/ENTRY command).

/CLI=filename

Specifies the name of a command language interpreter (CLI) to use in processing the batch job. The file name specifies that the CLI be SYS$SYSTEM:filename.EXE. If you do not specify the /CLI qualifier, the job is run by the CLI specified in the user authorization file (UAF), or whatever CLI was specified when the job was originally submitted to the queue.

/COPIES=n

Specifies the number of copies to print. The value of *n* can be any number from 1 to 255. When you use the /COPIES qualifier with the SET ENTRY command, the number of copies can apply only to the entire print job. You cannot use this qualifier to specify different numbers of copies for individual files within a multifile job.

/CPUTIME=time

Specifies a CPU time limit for the batch job. You can specify the *time* parameter as delta time, the value 0, INFINITE, or NONE. If the queue on which the job executes has a defined CPUMAXIMUM value, the smaller of the specified job and queue values is used. If the queue on which the job executes does not have a specified maximum CPU time limit, the smaller of the SUBMIT command and user authorization file (UAF) values is used. If the queue on which the job executes does not have a specified maximum CPU time limit and the UAF has a specified CPU time limit of NONE, either the value 0 or the keyword INFINITE allows unlimited CPU time. If you specify NONE, the specified queue or UAF value is used. CPU time values must be greater than or equal to the number specified by the SYSGEN parameter PQL_MCPULM.

For more information on specifying CPU time limits, see the Table DCL1–1. For information on specifying time values, see the *VMS DCL Concepts Manual*.

/FEED
/NOFEED

Controls whether form feeds are inserted into the print job when the printer reaches the bottom margin of the form in use. You can suppress this automatic form feed (without affecting any of the other carriage control functions that are in place) by using the /NOFEED qualifier.

When you use the /FEED qualifier with the SET ENTRY command, the qualifier applies to all files in the print job. You cannot use this qualifier to specify form feeds for individual files within a multifile job.

/FLAG
/NOFLAG

Controls whether a flag page is printed preceding each file in a print job. The flag page contains the name of the user submitting the job, the job entry number, and other information about the file being printed.

Use the /[NO]FLAG qualifier to override the installation-defined defaults that have been set for the output queue you are using or to override the qualifier specified in the PRINT command that queued the job.

/FORM=form

Specifies the name or number of the form to be associated with the print job. If you omit the /FORM qualifier, the default form for the execution queue is associated with the job.

Forms have attributes such as print image width and length or paper stock, which the print symbiont associates with a job when the job is processed. To see which forms have been defined for your system, use the SHOW QUEUE/FORM command. To find out which form is mounted currently on a particular queue and which form is specified as that queue's default form, use the SHOW QUEUE/FULL command.

The stock of the form associated with the job must match the stock of the form mounted on the execution queue on which you want the job to be processed. If the stocks do not match, the job remains pending until one or more of the following occurs:

- A form with the same stock as the job's form is mounted on the queue (using, for example, the SET QUEUE/FORM_MOUNTED command).

- A form with the same stock as the queue's mounted form is specified with the job (using, for example, the SET ENTRY/FORM command).
- The job is moved to a queue on which the stock of the mounted form matches the stock of the job's form (using, for example, the SET ENTRY/REQUEUE command).
- The job is deleted (using, for example, the DELETE/ENTRY command).

/HEADER
/NOHEADER

Controls whether a heading line is printed at the top of each output page in a print job.

/HOLD
/NOHOLD

Controls whether the job is to be made available for immediate processing or held for processing later. If you specify the /HOLD qualifier, the job is not released for processing until you enter SET ENTRY/NOHOLD or SET ENTRY/RELEASE. You can use the SET ENTRY command to release a job that was submitted previously with a /HOLD qualifier, or you can place a job on hold so that it will run later.

You can use the /NOHOLD qualifier to release jobs that have been held for the following reasons:

- A job was submitted with the /HOLD qualifier.
- A completed job is being held in a queue that has the /RETAIN qualifier specified.
- A user-written symbiont has refused a job.

/JOB_COUNT=n

Requests that an entire print job be printed n times, where *n* is a decimal integer from 1 to 255. This qualifier overrides the /JOB_COUNT qualifier with the PRINT command.

/KEEP
/NOKEEP

Controls whether the batch job log file is deleted after it is printed.

/LOG_FILE[=filespec]
/NOLOG_FILE

Creates a log file with the specified file specification. You can specify a different 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 ENTRY command.

If you omit the /LOG_FILE qualifier and specify the /NAME qualifier, the log file is written to a file having the same file name as that specified by the /NAME qualifier; the file type is LOG. When you omit the /LOG_FILE qualifier, the job-name value used with the /NAME qualifier must be a valid file name.

/LOWERCASE
/NOLOWERCASE

Indicates whether the print job must be printed on a printer that can print both uppercase and lowercase letters. The /NOLOWERCASE qualifier means that files can be printed on printers that print only uppercase letters. If all available printers can print both uppercase and lowercase letters, you do not need to specify the /LOWERCASE qualifier.

/NAME=job-name

Names the job. The job name must be 1 to 39 alphanumeric characters. The SHOW ENTRY and SHOW QUEUE commands display the job name. For batch jobs, the job name is also used for the batch job log file. For print jobs, the job name is also used on the flag page of the printed output.

The default job name is the name of the first file in the job.

/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 you did not specify the /DELETE qualifier when the job was originally submitted to the queue, you cannot use the SET ENTRY command to establish file deletion at a later time. You cannot use the /NODELETE qualifier to cancel deletion of individual files in a multifile job.

/NOTE=string

Specifies a message of up to 255 characters to appear on the flag page of the print job. Enclose messages containing lowercase letters, blanks, or other nonalphanumeric characters (including spaces) in quotation marks (" ").

/NOTIFY
/NONOTIFY

Controls whether a message notifies you when your job has been completed or aborted. Notification is sent to any terminal session on the same cluster at which you are logged in.

/OPERATOR=string

Specifies a message string of up to 255 characters to be sent to the operator just before the print job begins to print. Enclose the message in quotation marks ("") if it contains spaces, special characters, or lowercase characters.

/PAGES=([lowlim,]uplim)

Specifies the number of pages to print for the specified job. You can use the /PAGES qualifier to print portions of long files. By default, all pages of the file are printed. When you use the /PAGES qualifier with the SET ENTRY command, the qualifier can apply only to an entire job. You cannot use this qualifier to specify different numbers of pages to be printed for individual files within a multifile job.

The *lowlim* specifier refers to the first page of the file that you want to print. If you omit the *lowlim* specifier, the printing starts on the first page of the file.

The *uplim* specifier refers to the last page of the file that you want to print. When you want to print to the end of the file but do not know how many pages are in the file, use two consecutive quotation marks ("") as the *uplim* specifier.

You can omit the parentheses when you specify only a value for the *uplim* specifier. For example, /PAGES=10 prints the first 10 pages of the file; /PAGES=(5,10) prints pages 5 to 10; /PAGES=(5,"") starts printing at page 5 and continues until the end of the file is reached.

/PARAMETERS=(parameter[,...])

Specifies from one to eight optional parameters to be passed to the job. Each parameter can have as many as 255 characters. If you specify only one parameter, you can omit the parentheses. To specify a parameter that contains any special characters or delimiters, enclose the parameter in quotation marks.

For batch jobs, the parameters define values to be equated to the symbols named P1 to P8 in each command procedure in the job. The symbols are local to the specified command procedures.

/PASSALL
/NOPASSALL

Specifies whether the symbiont bypasses all formatting of the print job 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, are ignored.

When you use the /PASSALL qualifier with the SET 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 file for printing when the job is completed. The default output queue for the log file is SYS$PRINT. The /PRINTER qualifier allows you to specify an output queue. The /NOPRINTER qualifier assumes the /KEEP qualifier.

/PRIORITY=n

Requires OPER (operator) or ALTPRI (alter priority) privilege to raise the priority above the value of the SYSGEN parameter MAXQUEPRI.

Specifies the job-scheduling priority of the job. The value of *n* is an integer in the range of 0 to 255, where 0 is the lowest priority and 255 is the highest.

The default value for the /PRIORITY qualifier is the value of the SYSGEN parameter DEFQUEPRI. No privilege is needed to set the priority lower than the MAXQUEPRI value.

/RELEASE

Releases for processing jobs submitted with the /HOLD qualifier or the /AFTER qualifier, jobs held in a queue with the /RETAIN qualifier, and jobs refused by a user-written symbiont.

/REQUEUE=queue-name[:]

Requests that the job be moved from the original queue to the specified queue.

/RESTART
/NORESTART

Specifies whether a batch or print job is restarted after a system failure or a STOP/QUEUE/REQUEUE command.

/SETUP=module[,...]

Extracts the specified modules from the device control library (containing escape sequence modules for programmable printers) and copies the modules to the printer before each file in a print job is printed.

When you use the /SETUP qualifier with the SET ENTRY command, the qualifier applies to the entire print job. You cannot use this qualifier to specify different setup modules for individual files within a multifile job.

/SPACE
/NOSPACE

Controls whether the output of a print job is double-spaced. Specifying the /NOSPACE qualifier causes the output to be single-spaced. When you use the /SPACE qualifier with the SET ENTRY command, the qualifier applies to the entire job. You cannot use this qualifier to specify different spacing for individual files within a multifile job.

/TRAILER
/NOTRAILER

Controls whether a trailer page is printed at the end of each file in a print job. The trailer page displays the entry number, as well as information about the user submitting the job and the files being printed.

When you use the /TRAILER qualifier with the SET ENTRY command, trailer pages are placed at the end of each file in a multifile job.

Use the /[NO]TRAILER qualifier to override the installation-defined defaults that have been set for the output queue you are using or the qualifier specified in the PRINT command that queued the job.

/WSDEFAULT=n

Defines for a batch job a working set default, the default number of physical pages that the job can use.

If the queue on which the job executes has a nonzero default working set, the smaller of the specified job and queue values is used. If the queue on which the job executes has a working set default of zero, the smaller of the specified job value and the value established in the user authorization file (UAF) is used. If you specify zero or NONE, the specified queue or UAF value is used. Working set default values must range between the numbers specified by the SYSGEN parameters PQL_MWSDEFAULT and WSMAX.

/WSEXTENT=n

Defines for the batch job a working set extent, the maximum amount of physical memory that the job can use. The job uses the maximum amount of physical memory only when the system has excess free pages. If the queue on which the job executes has a nonzero working set extent, the smaller of the specified job and queue values is used. If the queue on which the job executes has a working set extent of zero, the smaller of the specified job value and the value established in the user authorization file (UAF) is used. If you specify zero or NONE, the specified queue or UAF value is used. Working set extent values must range between the numbers specified by the SYSGEN parameters PQL_MWSEXTENT and WSMAX.

/WSQUOTA=n

Defines for the batch job a working set quota, the amount of physical memory that the job is guaranteed. If the queue on which the job executes has a nonzero working set quota, the smaller of the specified job and queue values is used. If the queue on which the job executes has a working set quota of zero, the smaller of the specified job value or the value established in the user authorization file (UAF) is used. If you specify zero or NONE, the specified queue or UAF value is used. Working set quota values must range between the numbers specified by the SYSGEN parameters PQL_MWSQUOTA and WSMAX.

EXAMPLES

1

```
$ PRINT/HOLD   MYFILE.DAT
  Job MYFILE (queue SYS$PRINT, entry 112) holding
$ SET ENTRY 112/RELEASE/JOB_COUNT=3
```

The PRINT command in this example requests that the file MYFILE.DAT be queued to the system printer, but placed in a hold status. The SET ENTRY command releases the job for printing and requests that three copies of the job be printed.

2

```
$ SUBMIT CLIMATE
  Job CLIMATE (queue SYS$BATCH, entry 211) pending
$ SET ENTRY 211/HOLD/NAME=TEMP
```

The SUBMIT command in this example queues the command procedure CLIMATE.COM for processing as a batch job. The SET ENTRY command places the job in a hold state and changes the job name to TEMP, assuming that the job has not yet begun execution.

3

```
$ PRINT/FLAG=ALL/AFTER=20:00 MEMO.MEM, LETTER.MEM, REPORT.MEM/SPACE
  Job MEMO (queue SYS$PRINT, entry 172) holding until 20:00
$ SET ENTRY 172 /BURST/NOSPACE/HEADER
```

The PRINT command in this example requests that three files be printed after 8:00 P.M. on the default printer with flag pages preceding each file. It also requests that the file REPORT.MEM be double-spaced. Later a SET ENTRY command calls for a burst page at the beginning of each file and requests that all files in the job be single-spaced. This command also requests that headers be printed on each page of each file in the job.

SET FILE

Modifies the characteristics of one or more files.

See the qualifier descriptions for restrictions.

FORMAT

SET FILE *filespec[,...]*

PARAMETER

filespec[,...]

Specifies one or more files to be modified. If you specify more than one file, separate the file specifications with commas (,). Wildcard characters (* and %) are allowed.

DESCRIPTION

The SET FILE command modifies a number of file characteristics.

QUALIFIERS

/BACKUP
/NOBACKUP

Specifies that the Backup Utility (BACKUP) records the contents of the file. The /NOBACKUP qualifier causes BACKUP to record the attributes of the file but not its contents. This qualifier is valid only for Files–11 Structure On-Disk Level 2 files.

The /NOBACKUP qualifier is useful for saving files that contain unimportant data, such as SWAPFILES.

/BEFORE[=time]

Selects only those files dated prior to 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. Specify the /CREATED or the /MODIFIED qualifier to indicate the time attribute to be used as the basis for selection. The /CREATED qualifier is the default.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BY_OWNER[=uic]

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each SET FILE operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of upper- and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED (default)

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /MODIFIED qualifier, which also allows you to select files according to time attributes. The /CREATED qualifier is the default qualifier.

/DATA_CHECK[=([NO]READ,[NO]WRITE)]

Specifies whether a read data check (rereading each record), a write data check (reading each record after it is written), or a combination of the two is performed on the file during transfers. By default, a write data check is performed.

/END_OF_FILE

Resets the end-of-file (EOF) mark to the highest block allocated.

/ENTER=new-filespec

Use with caution.

Assigns an additional name to a single file so that the file has a second name, or alias. However, both the original name and the alias reference the same file. For this reason, take care when deleting files that have aliases. To keep the file, but to remove one of its names, use the /REMOVE qualifier with SET FILE.

No wildcards are allowed in the file specification.

/ERASE_ON_DELETE

Specifies that the specified files are erased from the disk (not just merely written over) when the DELETE or PURGE command is issued for the files. See DELETE/ERASE for more information.

/EXCLUDE=(filespec[,...])

Excludes the specified file from the SET FILE operation. You can include a directory name but not a device name in the file specifications. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRATION_DATE=date
/NOEXPIRATION_DATE

Requires ownership of the file or access control.

Controls whether an expiration date is assigned to the specified files.

Specify the date according to the rules described in the *VMS DCL Concepts Manual*. Absolute date keywords are allowed. If you specify zero as the date, today's date is used.

/EXTENSION[=n]

Sets the extend quantity default for the file. The value of the parameter *n* can range from 0 to 65,535. If you omit the value specification or specify a value of 0, VMS Record Management Services (VMS RMS) calculates its own value for the /EXTENSION qualifier.

See the SET RMS_DEFAULT command for a description of the /EXTEND_QUANTITY qualifier.

/GLOBAL_BUFFER=n

Sets the VMS Record Management Services (VMS RMS) global buffer count (the number of buffers that can be shared by processes accessing the file) for the specified files. The value *n* must be an integer in the range 0 to 32,767. A value of 0 disables buffer sharing.

/LOG
/NOLOG (default)

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

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /CREATED qualifier, which also allows you to select files according to time attributes. If you do not specify the /MODIFIED qualifier, the default is the /CREATED qualifier.

/NODIRECTORY

Use with extreme caution.

Removes the directory attributes of a file and allows you to delete the corrupted directory file even if other files are contained in the directory. When you delete a corrupted directory file, the files contained within it are lost.

Use ANALYZE/DISK_STRUCTURE/REPAIR to place the lost files in [SYSLOST]. You can then copy the lost files to a new directory. This qualifier is valid only for Files–11 On-Disk Structure Level 2 files. For more information about the Verify Utility, see the *VMS Analyze/Disk_Structure Utility Manual*.

/OWNER_UIC[=uic]

Requires GRPPRV (group privilege) to set the owner to another member of the same group. Requires SYSPRV (system privilege) to set the owner to any user identification code (UIC) outside your group.

Specifies an owner UIC for the file. The default is the UIC of your process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

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

Cannot be used to change the protection on a file via DECnet software.

Enables you to change or reset the protection for one or more of your files. Specify the *ownership* parameter as system (S), owner (O), group (G), or world (W) and the *access* parameter as read (R), write (W), execute (E), or delete (D). If you specify the /PROTECTION qualifier without an ownership and access code, the file protection is set according to the current default protection.

For more information on specifying protection codes, see the *VMS DCL Concepts Manual*.

/REMOVE

Use with caution.

Enables you to remove one of the names of a file that has more than one name, without deleting the file. If you have created an additional name for a file with the /ENTER qualifier of SET FILE, you can use the /REMOVE qualifier to remove either the original name or the alias. The file still exists and can be accessed by whatever name or names remain in effect.

However, if you accidentally remove the name of a file that has only one name, you cannot access that file with most DCL commands; use the ANALYZE/DISK_STRUCTURE Utility to retrieve the file.

/SEMANTICS=semantics-tag
/NOSEMANTICS

Use the /SEMANTICS qualifier to create or change a semantics tag. Use the /NOSEMANTICS qualifier to remove a semantics tag from a file. For more information, see the *Guide to VMS File Applications*.

/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. Specify the /CREATED or the /MODIFIED qualifier to indicate the time attribute to be used as the basis for selection. The /CREATED qualifier is the default.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/STATISTICS
/NOSTATISTICS (default)

Enables the gathering of RMS statistics on the specified file. These statistics can be viewed subsequently by using the Monitor Utility, which is invoked with the DCL command MONITOR.

/TRUNCATE

Truncates the file at the end of the block containing the end-of-file (EOF) marker, that is, the qualifier releases allocated but unused blocks of the file.

/UNLOCK

Makes one or more improperly closed files accessible.

/VERSION_LIMIT[=n]

Specifies the maximum number of versions for the specified file. If you do not specify a version limit, a value of 0 is used, indicating that the number of versions of a file is limited only to the Files–11 architectural limit of 32,767. When you exceed that limit, the earliest version of the file is deleted from the directory without notification to the user. For example, if you set the version limit to three when there are already five versions of that file in your directory, there will continue to be five versions of the file unless you specifically delete some or purge the directory. Once the number of versions is equal to or less than the current version limit, the version limit is maintained.

EXAMPLES

1
```
$ SET FILE/EXPIRATION_DATE=19-APR-1990:11:00 BATCH.COM;3
```

The SET FILE command requests that the expiration date of the file BATCH.COM;3 be set to 11:00 A.M., April 19, 1990.

2
```
$ SET FILE/BEFORE=31-DEC/ERASE_ON_DELETE PERSONNEL*.SAL
```

This SET FILE command calls for all files that match the file specification PERSONNEL*.SAL and are dated before December 31 of the current year to have their disk locations erased whenever one of them is deleted with commands such as DELETE or PURGE.

3
```
$ SET FILE/OWNER_UIC=[360,020]/VERSION_LIMIT=100 MYFILE.DAT
```

The SET FILE command modifies the characteristics of the file MYFILE.DAT, changing the owner user identification code (UIC) and assigning a file version limit of 100. You must have system privilege (SYSPRV) to change the owner UIC.

SET HOST

Connects your terminal (through the current host processor) to another processor, called the remote processor. Both processors must be running DECnet software.[1]

- **You can use the SET HOST command only if your system is connected by DECnet software to another system.**
- **You must have an account on the remote system to log in after the SET HOST command has made the connection.**
- **The SET HOST command requires the NETMBX (network mailbox) privilege.**

FORMAT

SET HOST *node-name*

PARAMETER

node-name

Specifies the node name of the remote processor to which you will connect.

DESCRIPTION

The SET HOST command connects you to another processor on a network. (The SHOW NETWORK command lists the names of nodes accessible to your node.) Once the connection is made, the remote processor prompts for a user name and password. You must have an account on the remote processor to log in.

Once you have connected to the remote processor and have logged in, you can use DCL commands just as you would on your local processor. You can even use the SET HOST command to connect to another remote processor.

For example, if your local node is BOSTON, you can use the command SET HOST ALBANY to connect to the node ALBANY. You can then use the command SET HOST AKRON to connect (still through BOSTON and ALBANY) to the node AKRON.

Use the LOGOUT command to log out of the last processor you have logged in to and return to the previous processor. For example, when you use the LOGOUT command, you have logged out of (and disconnected from) the processor at node AKRON, but you are still logged in (and connected) to the processor at ALBANY. A second LOGOUT command logs you out of node ALBANY, and disconnects you from it. A third LOGOUT command logs you out of the local processor, BOSTON.

You can also abort operations and return directly to the original host processor, if necessary. Press Ctrl/Y at least two times in rapid succession. The following message is displayed:

```
Are you repeating ^Y to abort the remote session?
```

[1] Available under separate license.

If you respond Y or YES, control returns to the original node. Other responses, such as N or NO, do not abort the connection. This technique is useful when you want to exit quickly without entering a series of LOGOUT commands, or when part of the network becomes disconnected and you want to return to the host.

Note that SET HOST, unlike the VMS terminal driver, buffers output data from an executing program. Buffering improves performance in wide-area networks. However, in the case of programs providing output *only*, the buffering causes a discrepancy between what is happening in the remote program and what is displayed on the local terminal. That is, a program might finish executing before you see the output on the local terminal.

This discrepancy can be particularly confusing when you use the CTRL/Y or the CTRL/C function, or out-of-band abort characters to abort the execution of a program. For example, when you press Ctrl/Y or Ctrl/C (or enter out-of-band abort characters) during the execution of a captive command procedure, SET HOST immediately stops the display on the local terminal. It also aborts the current read and write operations and any pending write operations, *including all buffered write operations.*[2] Therefore, although it seems that the remote program aborts at the point in the program at which the display on the local terminal is stopped, the program might have executed beyond that point already—and might have finished executing—before you pressed Ctrl/Y.

QUALIFIERS

/BUFFER_SIZE=n

Changes the packet size of the protocol message sent between the terminal and the remote processor if a connection to the remote processor is already established. The default buffer size is 1010 bytes; however, the buffer size *n* can range from 140 bytes to 1024 bytes. The value of the parameter *n* is reset to 140 bytes if a value below 140 is specified; a value for *n* above 1024 bytes is reset to 1024.

You can force the host node to write to the terminal in smaller packets, thereby ensuring that write operations to the terminal are displayed at more frequent intervals, by setting *n* to a value just above the minimum of 140 bytes. On slow DECnet links, setting the buffer size to a smaller value may decrease pauses between write operations when large amounts of data are being scrolled to the screen.

/LOG[=filespec]
/NOLOG (default)

Controls whether a log file of the entire session is kept. If you use the /LOG qualifier without the file specification, the log information is stored in the file SETHOST.LOG.

/RESTORE
/NORESTORE

Saves current terminal characteristics before a remote terminal session is begun and restores them when the remote session is terminated.

[2] DCL always maintains an outstanding CTRL/Y asynchronous system trap (AST) to the terminal driver. When you press Ctrl/Y, the terminal driver aborts the current read and write operations and any pending write operations, including all buffered write operations.

EXAMPLES

1

```
$  SET HOST ITALIC
Username:   BROWN
Password:  <PASSWORD>
    Welcome to VAX/VMS Version 5.4 on node ITALIC
   .
   .
   .
$   LOGOUT
BROWN logged out at 19-APR-1990 15:04:25.27
%REM-S-END, Control returned to node _CASLON::
```

In this example, the name of the local node is CASLON. This SET HOST command connects the user terminal to the processor at the network node named ITALIC. The remote processor then prompts for user name and password. Use the normal login procedure to log in to the remote processor.

Once you are logged in at a remote node, you can use the SET HOST command to establish communication with another node. After logging in to node ITALIC, you could type SET HOST BODONI.

You would again be prompted for a user name and password. If you then supply a valid user name and password, you will be logged in to node BODONI.

Note that when you log out of node BODONI, control is returned to node ITALIC. You must log out of node ITALIC to return to your local node, CASLON.

2

```
$   SET TERMINAL/WIDTH=80
$   SET HOST/RESTORE GENEVA
Username:  Jones
Password:  <PASSWORD>
$   SET TERMINAL/WIDTH=132
   .
   .
   .
$   logout
JONES   logged out at 19-APR-1990 11:04:51.45
%REM-S-END, control returned to node _ORACLE
```

This example shows user JONES on node ORACLE logging in to remote node GENEVA and specifies that the original terminal screen width be restored to 80 characters when the remote session is terminated.

SET HOST/DTE

Connects your system to a remote system through an outgoing terminal line.

You must have an account on the remote system in order to log in to that system after the connection is made.

You must also have the ability to assign a channel to the terminal port specified. Your system manager can set the device protection on the terminal port to allow you access.

FORMAT

SET HOST/DTE *terminal-name*

PARAMETER

terminal-name

Specifies the name of an outgoing terminal line, which connects your system directly to another system or modem.

DESCRIPTION

The SET HOST/DTE command allows you to connect your terminal to another system. Once the connection is made, the remote system prompts for a user name and password. You must have an account on the remote system to log in.

Once you have logged in to the remote system, you can use DCL commands just as you would on your local system.

To log in on lines that expect a break rather than a carriage return, press Ctrl/*break-character* to generate the break.

While connected to the remote system, you can issue configurational commands from DTE command mode; a complete list of DTE commands is included at the end of this section. To access DTE command mode, press Ctrl/*command-character*. By default, the command character is the at sign (@). Enter the EXIT command at the DTEPAD prompt when you are ready to return to emulation mode.

To terminate a session, you should first log out of the remote system. Then quit DTEPAD by pressing Ctrl/*escape-character*. By default, the escape character is a backslash (\). Alternatively, quit DTEPAD by entering the QUIT or the CLEAR command from DTE command mode.

COMMAND QUALIFIERS

/BREAK=break-character

Selects the break character. The break character is used to generate a break on lines that expect a break rather than a carriage return. To generate a break, press Ctrl/*break-character*.

The break character can be any ASCII character between @ and z, except C, M, Q, S, Y, or the left bracket ([). You cannot select a character currently defined as either the command character (see the description of the /COMMAND=command-character qualifier) or the escape character (see the description of the /ESCAPE=escape-character qualifier).

The ASCII characters between @ and z include the alphabetic characters in both upper and lower cases, the at sign (@), the backslash (\), the right bracket (]), the circumflex (^), the underscore (_), and the grave accent (`).

By default, the break character is the right bracket (]).

/COMMAND=command-character

Selects the command character. Use the command character to access DTE command mode by pressing Ctrl/*command-character*.

The command character can be any ASCII character between @ and z, except C, M, Q, S, Y, or the left bracket ([). You cannot select a character currently defined as either the break character (see the description of the /BREAK=break-character qualifier) or the escape character (see the description of the /ESCAPE=escape-character qualifier).

The ASCII characters between @ and z include the alphabetic characters in both upper and lower cases, the at sign (@), the backslash (\), the right bracket (]), the circumflex (^), the underscore (_), and the grave accent (`).

By default, the command character is the at sign (@).

/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. The NUMBER keyword is the telephone number to be autodialed and is a required parameter.

Before you dial a new number, you must log out of the current remote system.

The MODEM_TYPE keyword is optional. It can be used to specify any of the following modem types:

- DMCL (any modem that uses the DEC Modem Command Language)
- DF03 (default)
- DF112

Each modem type requires a specific modem dialer code. Check with your system manager to see which modem dialer codes are installed on your system.

In addition, the MODEM_TYPE keyword can be used to specify a modem type other than DF03, DF112, or DMCL. A template is provided for users interested in supporting other modems with autodial capabilities (see SYS$EXAMPLES:DTE_DF03.MAR).

/ECHO
/NOECHO (default)

Determines whether the terminal input is echoed by your local system. By default, all echoing is performed by the remote system.

/EIGHT_BIT (default)
/NOEIGHT_BIT

Determines whether the outgoing terminal line supports 8-bit or 7-bit characters. By default, 8-bit characters are supported. If you specify /NOEIGHT_BIT, then 7-bit characters are supported.

/ERROR_ACTION=CONTINUE (default)
/ERROR_ACTION=EXIT

Specifies the error action by using the EXIT or the CONTINUE keyword.

When an error is detected on the outgoing terminal line, the error is reported to the local system and an error message is displayed on your terminal.

If the error action is CONTINUE, then communication with the remote system continues uninterrupted.

If the error action is EXIT, then the local system immediately exits from the remote system.

/ESCAPE=escape-character

Selects the escape character. You can use the escape character to exit from DTEPAD by pressing Ctrl/*escape-character*.

The escape character can be any ASCII character between @ and z, except C, M, Q, S, Y, or the left bracket ([ ). You cannot select a character currently defined as either the break character (see the description of the /BREAK=break-character qualifier) or the command character (see the description of the /COMMAND=command-character qualifier).

By default, the escape character is a backslash (\ ).

The ASCII characters between @ and z include the alphabetic characters in both upper and lower cases, the at sign (@), the backslash (\ ), the right bracket ( ]), the circumflex (^), the underscore (_), and the grave accent (`).

/FLOW_CONTROL (default)
/NOFLOW_CONTROL

Determines whether XON/XOFF flow control is enabled. By default, flow control is enabled.

XON/XOFF flow control is a means of preventing data-overrun errors. Incoming data is stored in receive buffers; when these buffers are full, a signal is sent to the remote system to stop transmission. Once there is sufficient space in the receive buffers, another message is sent to restart transmission.

You should disable XON/XOFF flow control when the remote system has no XON/XOFF flow control.

/INIT[=filespec] (default)
/NOINIT

Sets the configurable characteristics of DTEPAD according to values contained in the specified initialization file.

If you use qualifiers in the command line to define the values of any of the configurable characteristics, these will supersede the values contained in the initialization file.

By default, DTEPAD tries to translate the logical name DTEPAD$INI in order to find the appropriate initialization file. If you use the /INIT qualifier and omit the file specification, DTEPAD translates the logical name DTEPAD$INI and finds the appropriate file. If DTEPAD$INI is not defined, then DTEPAD uses /NOINIT as the default.

An initialization file can contain any combination of any of the following DTE commands:

- SAVE
- SEND BREAK
- SET DTE
- SPAWN

The following is an example of an initialization file:

```
SET DTE/MAX_BUFFERS=150
SET DTE/READ_DELAY=100
SEND BREAK
```

/LOG[=filespec]
/NOLOG (default)

Controls whether a log file of the session is kept.

If you use the /LOG qualifier and omit the file specification, then the log information is written to the file DTEPAD.LOG.

When used to log a modem session, the log file contains any noise that occurred on the phone line. For example, typing a file in order to get it recorded in the log file could result in noise being recorded along with the file data. Therefore, the use of a log file is not recommended for the purpose of file transfers.

Digital recommends that you use asynchronous DECnet to transfer files.

/MAX_BUFFERS=number-buffers

Specifies the maximum number of receive buffers. Receive buffers are buffers used to receive incoming data from the modem port. They are allocated as they are required.

By default, the maximum number of receive buffers is 100. The minimum number you can specify is 20.

/PARITY=NONE (default)
/PARITY=ODD
/PARITY=EVEN

Selects parity on the outgoing terminal line.

/READ_DELAY=delay

Specifies the modem port read delay in milliseconds. The modem port read delay is the time interval during which data in the modem port is transferred into receive buffers at the terminal.

By default, the modem port read delay is 50 milliseconds. This is also the minimum value.

A long modem port read delay slows the rate at which data is displayed at your terminal, and also increases the risk of data-overrun errors; however, a longer read delay requires less CPU overhead.

/SPEED=(output-rate,input-rate)

Sets the baud rate at which the terminal receives and transmits data. If the input and output rates are the same, specify the qualifier as /SPEED=rate.

Not all terminals support different input and output baud rates. For specific information on baud rates for your terminal, consult the manual for that terminal.

The default transmission rates are installation dependent.

The valid values for input and output baud rates are as follows:

300, 600, 1200, 2400, 4800, 9600, 19200

If you select an invalid or unsupported speed, then the terminal line speed will remain set at its previous value.

EXAMPLES

1
```
$ SET HOST/DTE TTA2:/DIAL=NUMBER:5551234
Username:  SMITH
Password:
```

The SET HOST/DTE command in this example connects the user terminal to the outgoing terminal line TTA2:, which is attached to a modem (type DF03 by default) set to autodial the phone number 555-1234. The remote processor then prompts for user name and password. Use the normal login procedure to log in to the remote system.

2
```
$ SET HOST/DTE/DIAL=(NUMBER:5551234#,MODEM_TYPE:DF112) TTA2:
Username:  SMITH
Password:
```

The SET HOST/DTE command in this example accomplishes the same thing as in the first example, except that it uses the DF112 modem. The number sign (#) is required to activate the autodialer in the DF112.

3
```
$ SET HOST/DTE/NOEIGHTBIT TTA2
```

In this example, the outgoing terminal port, TTA2, is set to support 7-bit characters.

4
```
$ SET HOST/DTE/NOFLOW_CONTROL TTA2
```

In this example, XON/XOFF flow control is disabled.

5
```
$ SET HOST/DTE/INIT=MYFILE.INI TTA2
```

In this example, DTEPAD is directed to the initialization file MYFILE.INI.

6 $ SET HOST/DTE/ERROR_ACTION=EXIT TTA2

In this example, the error action is set to EXIT.

7 $ SET HOST/DTE/MAX_BUFFERS=150 TTA2

In this example, the maximum number of receive buffers is set to 150.

8 $ SET HOST/DTE/ESCAPE=E TTA2

In this example, the letter E is defined as the escape character. Note that DTEPAD is not case sensitive.

9 $ SET HOST/DTE/LOG TTA2

In this example, logging of the session is enabled. Since no log file is specified, the log is written to the default log file, DTEPAD.LOG.

10 $ Ctrl/@
DTEPAD>

In this example, DTE command mode is accessed by pressing Ctrl/@, where @ is the command character.

DTE COMMANDS

DTE commands enable you to configure a SET HOST/DTE session while it is in progress. The following DTE commands are available to you:

- CLEAR
- EXIT
- QUIT
- SAVE
- SEND BREAK
- SET DTE
- SHOW DTE
- SPAWN

In order to issue DTE commands, you must be in DTE command mode: to access command mode, press Ctrl/*command character*. By default, the command character is the at sign (@). Once you are in command mode, the DTEPAD prompt will be displayed on your screen.

Enter the EXIT command at the DTEPAD prompt when you are ready to return to emulation mode.

CLEAR

Disconnects your local system from DTEPAD. This command is equivalent to the QUIT command.

FORMAT CLEAR

EXIT

Returns the session to emulation mode.

FORMAT

EXIT

DESCRIPTION

The EXIT command returns the session from DTE command mode to emulation mode. From emulation mode, you can use DCL commands just as you would on your local system.

QUIT

Disconnects your local system from DTEPAD. This command is equivalent to the CLEAR command.

FORMAT QUIT

SAVE

Saves the current configuration settings.

FORMAT

SAVE filespec

PARAMETER

filespec
Specifies the name of the file to which the configuration information is written. This is a required parameter.

DESCRIPTION

The SAVE command saves information on the current configuration settings. The current settings are written to the specified file as a series of SET DTE commands. You can later use this file as an initialization file.

EXAMPLE

```
DTEPAD>  SAVE MYFILE.INI
```

In this example, the information on the current configuration is saved in the file MYFILE.INI.

SEND BREAK

Sends a break to the remote system.

FORMAT SEND BREAK

DESCRIPTION

The SEND BREAK command sends a break to remote systems that expect a break rather than a carriage return.

SET DTE

Modifies configurable characteristics.

FORMAT

SET DTE

DESCRIPTION

The SET DTE command enables you to modify configurable characteristics of DTEPAD while in a SET HOST/DTE session.

The qualifiers are exactly equivalent to SET HOST/DTE qualifiers.

QUALIFIERS

/BREAK=break-character

Selects the break character. The break character is used to generate a break on lines that expect a break rather than a carriage return. To generate a break, press Ctrl/*break-character*.

The break character can be any ASCII character between @ and z, except C, M, Q, S, Y, or the left bracket ([). You cannot select a character currently defined as either the command character (see the description of the /COMMAND=command-character qualifier) or the escape character (see the description of the /ESCAPE=escape-character qualifier).

The ASCII characters between @ and z include the alphabetic characters in both upper and lower cases, the at sign (@), the backslash (\), the right bracket (]), the circumflex (^), the underscore (_), and the grave accent (`).

By default, the break character is the right bracket (]).

/COMMAND=command-character

Selects the command character.

You can select the command character from any ASCII character between @ and z, except C, M, Q, S, Y, or the left bracket ([). You cannot select a character currently defined as either the break character (see the description of the /BREAK=break-character qualifier) or the escape character (see the description of the /ESCAPE=escape-character qualifier).

The ASCII characters between @ and z include the alphabetic characters in both upper and lower cases, the at sign (@), the backslash (\), the right bracket (]), the circumflex (^), the underscore (_), and the grave accent (`).

By default, the command character is the at sign (@).

/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. The NUMBER keyword is the telephone number to be autodialed and is a required parameter.

Before you dial a new number, you must log out of the current remote system.

The MODEM_TYPE keyword is optional. It can be used to specify any of the following modem types:

- DMCL (any modem that uses the DEC Modem Command Language)
- DF03 (default)
- DF112

Each modem type requires a specific modem dialer code. Check with your system manager to see which modem dialer codes are installed on your system.

In addition, the MODEM_TYPE keyword can be used to specify a modem type other than DF03, DF112, or DMCL. A template is provided for users interested in supporting other modems with autodial capabilities (see SYS$EXAMPLES:DTE_DF03.MAR).

/ECHO
/NOECHO (default)

Determines whether the terminal input is echoed by your local system. By default, all echoing is performed by the remote system.

/EIGHT_BIT (default)
/NOEIGHT_BIT

Determines whether the outgoing terminal line supports 8-bit or 7-bit characters. By default, 8-bit characters are supported. If you specify /NOEIGHT_BIT, then 7-bit characters are supported.

/ERROR_ACTION=CONTINUE (default)
/ERROR_ACTION=EXIT

Specifies the error action by using the EXIT or the CONTINUE keyword.

When an error is detected on the outgoing terminal line, the error is reported to the local system and an error message is displayed on your terminal.

If the error action is CONTINUE, then communication with the remote system continues uninterrupted.

If the error action is EXIT, then the local system immediately exits from the remote system.

/ESCAPE=escape-character

Selects the escape character. You can use the escape character to exit from DTEPAD by pressing Ctrl/*escape-character*.

The escape character can be any ASCII character between @ and z, except C, M, Q, S, Y, or the left bracket ([ ). You cannot select a character currently defined as either the break character (see the description of the /BREAK=break-character qualifier) or the command character (see the description of the /COMMAND=command-character qualifier).

By default, the escape character is a backslash (\ ).

The ASCII characters between @ and z include the alphabetic characters in both upper and lower cases, the at sign (@), the backslash (\ ), the right bracket ( ]), the circumflex (^), the underscore (_), and the grave accent (`).

/FLOW_CONTROL (default)
/NOFLOW_CONTROL

Determines whether XON/XOFF flow control is enabled. By default, flow control is enabled.

XON/XOFF flow control is a means of preventing data-overrun errors. Incoming data is stored in receive buffers; when these buffers are full, a signal is sent to the remote system to stop transmission. Once there is sufficient space in the receive buffers, another message is sent to restart transmission.

You should disable XON/XOFF flow control when the remote system has no XON/XOFF flow control.

/INIT[=filespec]
/NOINIT (default)

Sets the configurable characteristics of DTEPAD according to values contained in the specified initialization file.

If you use qualifiers in the command line to define the values of any of the configurable characteristics, these will supersede the values contained in the initialization file.

By default, DTEPAD tries to translate the logical name DTEPAD$INI in order to find the appropriate initialization file. If you use the /INIT qualifier and omit the file specification, DTEPAD translates the logical name DTEPAD$INI and finds the appropriate file. If DTEPAD$INI is not defined, then DTEPAD uses /NOINIT as the default.

An initialization file can contain any combination of any of the following DTE commands:

- SAVE
- SEND BREAK
- SET DTE
- SPAWN

The following is an example of an initialization file:

```
SET DTE/MAX_BUFFERS=150
SET DTE/READ_DELAY=100
SEND BREAK
```

/LOG[=filespec]
/NOLOG (default)

Controls whether a log file of the session is kept. By default, logging is disabled.

If you use the /LOG qualifier and omit the file specification, the log information is written to the file DTEPAD.LOG.

When used to log a modem session, the log file contains any noise that occurred on the phone line. For example, typing a file in order to get it recorded in the log file could result in noise being recorded along with the file data. Therefore, the use of a log file is not recommended for the purpose of file transfers.

Digital recommends that you use asynchronous DECnet to transfer files.

/MAX_BUFFERS=number-buffers

Specifies the maximum number of receive buffers. Receive buffers are buffers used to receive incoming data from the modem port. They are allocated as they are required.

By default, the maximum number of receive buffers is 100. The minimum number you can specify is 20.

/PARITY=NONE (default)
/PARITY=ODD
/PARITY=EVEN

Selects parity on the outgoing terminal line.

/READ_DELAY=delay

Specifies the modem port read delay in milliseconds. The modem port read delay is the time interval during which data in the modem port is transferred into receive buffers at the terminal.

By default, the modem port read delay is 50 milliseconds. This is also the minimum value.

A long modem port read delay slows the rate at which data is displayed at your terminal, and also increases the risk of data-overrun errors; however, a longer read delay requires less CPU overhead.

/SPEED=(output-rate,input-rate)

Sets the baud rate at which the terminal receives and transmits data. If the input and output rates are the same, specify the qualifier as /SPEED=rate.

Not all terminals support different input and output baud rates. For specific information on baud rates for your terminal, consult the manual for that terminal.

The default transmission rates are installation dependent.

The valid values for input and output baud rates are as follows:

300, 600, 1200, 2400, 4800, 9600, 19200

If you select an invalid or unsupported speed, then the terminal line speed will remain set at its previous value.

EXAMPLES

1
```
DTEPAD> SET DTE/BREAK=G
```

In this example, the letter G is defined as the break character.

2
```
DTEPAD> SET DTE/ECHO
```

In this example, the terminal port is set so that echoing is performed by the local system.

```
3  DTEPAD> SET DTE/SPEED=4800
```

In this example, the input and output baud rates are both set to 4800.

```
4  DTEPAD> SET DTE/LOG=myfile.log
```

In this example, logging is directed to the file MYFILE.LOG.

SHOW DTE

Displays all the configurable characteristics of DTEPAD.

DESCRIPTION

The SHOW DTE command displays the current settings of all the configurable characteristics of DTEPAD. It also displays the number of bytes of data transmitted and received during the current SET HOST/DTE session and the number of errors detected by the terminal port.

EXAMPLE

```
DTEPAD>  SHOW DTE
 Port TXA0                EIGHT_BIT ECHO
 Flow control             XON/XOFF
 Parity                   NONE
 Transmit Speed           4800
 Receive Speed            4800
 Error action             CONTINUE
 Break character          B
 Escape character         \
 Command character        @
 Maximum buffers          100
 Read delay               50 milliseconds
 Log file                 MYFILE.INI
 Number dialed            12345678
 Modem type               DF03

 Bytes transmitted        75
 Bytes received           132
 Errors                   0
```

In this example, the command displays all the current settings of the configurable characteristics, the number of bytes transmitted and received, and the number of errors detected.

SPAWN

Creates a subprocess of your current local process.

The RESOURCE_WAIT state is required to spawn a process. Requires TMPMBX (temporary mailbox) or PRMMBX (permanent mailbox) privilege.

FORMAT

SPAWN [command-string]

PARAMETERS

command-string

Specifies a command string of no more 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 is returned to the parent process. If you use both a command string and the /INPUT qualifier, the specified command string executes before additional commands are obtained from the /INPUT qualifier.

DESCRIPTION

The SPAWN command creates a subprocess of your current *local* process. The command is identical to the DCL SPAWN command except that the DTE SPAWN command has fewer qualifiers.

To continue your remote SET HOST/DTE session, log out of the subprocess.

QUALIFIERS

/INPUT=filespec

Specifies an input file containing one or more DCL commands to be executed by the spawned subprocess. The default file type is COM and no wildcards are allowed in the file specification. 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 neither is specified, SYS$INPUT is assumed (in which case a SPAWN/NOWAIT command is aborted if you press Ctrl/Y to abort something running in your parent process).

/LOGICAL_NAMES (default)
/NOLOGICAL_NAMES

Copies process logical names and logical name tables to the subprocess. By default, all process logical names and logical name tables are copied to the subprocess except those explicitly marked CONFINE or created in executive or kernel mode.

/OUTPUT=filespec

Specifies the output file to which the results of the SPAWN operation are written. No wildcards can be used in the file specification. (Do not specify SYS$COMMAND as a file specification for the /OUTPUT qualifier when using 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*.

/SYMBOLS (default)
/NOSYMBOLS

Determines whether global and local symbols (except $RESTART, $SEVERITY, and $STATUS) are passed to the subprocess.

/WAIT (default)
/NOWAIT

Requires that you wait for the subprocess to terminate before you enter another DCL command. The /NOWAIT qualifier allows you to enter 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.)

SET HOST/DUP

Connects your terminal to a storage controller through the appropriate bus for that controller. The /SERVER and /TASK qualifiers are required.

For use only with storage controllers. Requires the DIAGNOSE privilege.

FORMAT

SET HOST/DUP/SERVER=server-name /TASK=task-name node-name

PARAMETER

node-name

Specifies the node name of the storage controller.

DESCRIPTION

The SET HOST/DUP command creates a virtual terminal connection and executes a utility or diagnostic program on a storage controller that uses the Diagnostic and Utilities Protocol (DUP) Standard Dialogue.

Once the connection is established, operations are performed under the control of the utility or diagnostic program.

When the utility or diagnostic program terminates, control is returned to the local system.

To abort or prematurely terminate the connection and return control to the local system, press Ctrl/\.

Further information regarding the operation of the utility and diagnostic programs available on a particular controller may be obtained from the appropriate documentation set for that controller.

Preparing for Use

To use the SET HOST/DUP facility, you must first install FYDRIVER, the DUP class driver. To load FYDRIVER, add the following commands to the SYSTARTUP.COM command procedure in the SYS$MANAGER directory:

```
$ RUN SYS$SYSTEM:SYSGEN
CONNECT FYA0/NOADAPTER
```

This operation requires CMKRNL (change mode to kernel) privilege.

QUALIFIERS

/LOG[=filespec]
/NOLOG (default)

Controls whether a log file of the entire session is kept. If you use the /LOG qualifier without the file specification, the log information is stored in the file HSCPAD.LOG.

/SERVER=server-name

Specifies the server name for the target storage controller.

This qualifier is required.

/TASK=task-name

Specifies the utility or diagnostic name to be executed on the target storage controller under direction of the server.

This qualifier is required.

EXAMPLE

```
$ SET HOST/DUP/SERVER=DUP$/TASK=DIRECT BLKHOL
%HSCPAD-I-LOCPROGEXE, Local program executing - type ^\ to exit utility
```

The SET HOST/DUP command in this example connects the user terminal to the utility program called DIRECT executing on a storage controller named BLKHOL under direction of the DUP$ server.

SET HOST/HSC

Connects your terminal to a remote HSC50 disk and tape controller through the computer interconnect (CI) bus.

Used only with remote HSC50s. Requires the DIAGNOSE privilege.

FORMAT

SET HOST/HSC *node-name*

PARAMETER

node-name
Specifies the node name of the remote HSC50.

DESCRIPTION

The SET HOST/HSC command establishes a connection to an HSC50 disk and tape controller by way of the CI bus. (The SHOW CLUSTER command lists the names of HSC50s that are accessible to your node.) No password is required to access the HSC50; however, only SHOW commands are accepted when the HSC50's Secure/Enable switch is in the Secure position.

Once the connection is made to the HSC50, operations may be performed as if you were attached to the local terminal of the HSC. However, access to ODT (Octal Debugging Tool) and offline diagnostics are not permitted.

Press Ctrl/C to obtain a prompt from the HSC50 before entering commands. To exit from the HSC50 and return to the local system, press Ctrl/\.

A description of HSC50 commands and utilities can be obtained from the *HSC User's Guide*.

Preparing for Use

To use the SET HOST/HSC facility, you must first install FYDRIVER, which is the Diagnostic and Utilities Protocol (DUP) driver associated with the CI. To load FYDRIVER, add the following commands to the SYSTARTUP.COM command procedure in the SYS$MANAGER directory:

```
$ RUN SYS$SYSTEM:SYSGEN
CONNECT FYA0/NOADAPTER
```

This operation requires CMKRNL (change mode to kernel) privilege.

QUALIFIER

/LOG[=filespec]
/NOLOG (default)
Controls whether a log file of the entire session is kept. If you use the /LOG qualifier without the file specification, the log information is stored in the file HSCPAD.LOG.

EXAMPLE

```
$  SET HOST/HSC HSC001
%HSCPAD-I-LOCPROGEXE, Local program executing - type ^\ to exit, ^Y for prompt
HSC50>
```

This SET HOST/HSC command connects the user terminal to the HSC named HSC001.

SET KEY

Sets and locks the key definition state for keys defined with the DEFINE/KEY command.

FORMAT

SET KEY

DESCRIPTION

When you define keypad keys using the DEFINE/KEY command, you can assign a specific state name to the key definition. If that state is not set when you press the key, the definition is not processed. Use the SET KEY command to change the current state to the appropriate state.

QUALIFIERS

/LOG (default)
/NOLOG

Controls whether the system displays a message indicating that the key state has been set.

/STATE=state-name
/NOSTATE

Specifies the name of the state. The state name can be any alphanumeric string. If you omit the /STATE qualifier or use the /NOSTATE qualifier, the current state is left unchanged. The default state is DEFAULT.

EXAMPLE

```
$ SET KEY /STATE=EDITING
```

The SET KEY command in this example sets the key state to the state EDITING. You can now use the key definitions that were defined for the state EDITING.

SET LOGINS

Sets the interactive limit (number of interactive users allowed on the system), or displays the interactive limit and the current number of interactive users.

Requires OPER (operator) privilege.

FORMAT SET LOGINS

PARAMETERS

None.

DESCRIPTION

The SET LOGINS command is not retroactive. All users logged in to the system before you enter the SET LOGINS command are not affected by the command. However, once the limit you set is reached, no more users can log in to the system until someone else logs out. Users with the OPER privilege are not affected by the limit.

If you do not specify a parameter value with the /INTERACTIVE=n qualifier, the SET LOGINS command displays the following information:

```
Login quotas - Interactive limit=x, Current interactive value=y
```

The value *x* represents the current interactive limit, and the value *y* represents the number of users currently logged in to the system.

QUALIFIER

/INTERACTIVE[=n]

Establishes the number of interactive users allowed to gain access to the system. If the parameter *n* is specified, the interactive limit is set to the value *n*. If the parameter *n* is not specified, the SET LOGINS command displays the current interactive limit and the number of interactive users.

EXAMPLES

1

```
$ SET LOGINS/INTERACTIVE=5
%SET-T-INTSET, login interactive limit=5, current interactive value=3
```

In this example, the SET LOGINS command specifies that only five interactive users can be logged in to the system.

2

```
$ SET LOGINS/INTERACTIVE
%SET-T-INTSET, login interactive limit=15, current interactive value=6
```

When the SET LOGINS command is entered without a parameter, as shown in this example, the /INTERACTIVE qualifier requests that the current status of the login quotas be displayed. The message returned indicates that the maximum number of interactive users allowed on the system is 15 and that the number of interactive users currently logged in is 6. No change is made.

SET MAGTAPE

Defines the default characteristics associated with a specific magnetic tape device for subsequent file operations.

The SET MAGTAPE command is valid for magnetic tape devices mounted with foreign volumes.

FORMAT

SET MAGTAPE *device-name[:]*

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

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 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 corrected by the hardware without software intervention. This qualifier affects only devices that support hardware error correction, such as the TU78 magnetic tape drive. When used with other devices, this qualifier has no effect.

/MEDIA_FORMAT=[NO]COMPACTION

Controls whether data records are automatically compacted and blocked together on a TA90E tape drive. Data compaction and record blocking increase the amount of data that can be stored on a single tape cartridge.

Note that once data compaction or non-compaction has been selected for a given cartridge, that same status applies to the entire cartridge.

/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*	Skips the specified number of blocks.
END_OF_TAPE	Positions the volume at the end-of-tape (EOT) mark.
FILES:*n*	Skips the specified number of tape marks (not files).
	The tape is positioned just past the *n*th tape mark. If *n* is negative, the tape is still positioned after the *n*th tape mark, not before it. If the tape is already positioned immediately after a tape mark, a skip of -1 results in no net movement. (The tape moves to the preceding mark, but is then repositioned to the end of the mark, where it began.) For more information on tape marks and files, see the *Guide to VMS Files and Devices*.
RECORD:*n*	Skips the specified number of records.

/UNLOAD

Requests that the volume on the specified device be rewound and unloaded.

EXAMPLES

1
```
$ MOUNT MTB1:/FOREIGN
$ SET MAGTAPE MTB1: /DENSITY=800
```

The MOUNT command in this example mounts a foreign tape on the device MTB1. The SET MAGTAPE command defines the density for writing the magnetic tape at 800 bpi.

2
```
$ MOUNT MTA0:/FOREIGN
$ SET MAGTAPE MTA0:/SKIP=FILES:4
```

The MOUNT command in this example mounts a foreign tape on the device MTA0; the SET MAGTAPE command directs the magnetic tape position to skip four files.

SET MESSAGE

Sets the format for system messages or specifies a process level message file. Lets you override or supplement the system messages.

FORMAT

SET MESSAGE *[filespec]*

PARAMETER

filespec

Specifies the 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 you do not specify this parameter, the qualifiers apply to the system message file.

DESCRIPTION

The SET MESSAGE command specifies which message fields VMS displays. The message format is as follows:

```
%FACILITY-L-IDENT, text
```

When a process is created, the default is to display all four message fields: facility, severity, identification, and text. To control which fields of a message are displayed, specify the appropriate qualifiers. For example, to omit the FACILITY field in message displays, specify SET MESSAGE /NOFACILITY.

By including the SET MESSAGE command in your login command file, you can select specific portions of the messages for your process.

Use the SET MESSAGE command, also, to override or supplement system messages. Whenever any software detects an error and invokes the $GETMSG system service, the message files are searched in the following order: image message sections first, process-permanent message files second, and the system message file last. Thus, with the SET MESSAGE command, you can introduce messages earlier in the searching order; you can either override or supplement the system messages. (Note that the new message definitions affect only your process.)

If a process-permanent message file exists when you specify the SET MESSAGE command with a file specification, the old file is removed and the new file is added.

The message definitions you specify must result from a successful compilation with the MESSAGE command. For full details on how to create your own messages with the Message Utility, see the *VMS Message Utility Manual*.

QUALIFIERS

/DELETE
Removes any process-permanent message files currently in effect. Do not specify the *filespec* parameter with the /DELETE qualifier.

/FACILITY (default)
/NOFACILITY
Formats messages so that the facility name prefix appears.

/IDENTIFICATION (default)
/NOIDENTIFICATION
Formats messages so that the message identification prefix appears.

/SEVERITY (default)
/NOSEVERITY
Formats messages so that the severity level appears.

/TEXT (default)
/NOTEXT
Formats messages so that the message text appears.

EXAMPLES

1
```
$ SET MESSAGE/TEXT/NOFACILITY/NOIDENTIFICATION/NOSEVERITY
$ SHOW DEVICES/MUONTED
unrecognized qualifier - check validity, spelling, and placement
\MUONTED\
```

The SET MESSAGE command in this example formats the error message so that only the text "MUONTED" appears.

2
```
$ TYPE XXX
%TYPE-W-OPENIN, error opening DB1:[MALCOLM]XXX.LIS; as input
-RMS-E-FNF, file not found
   .
   .
   .
$  SET MESSAGE/NOIDENTIFICATION
   .
   .
   .
$ TYPE XXX
%TYPE-W, error opening DB1:[MALCOLM]XXX.LIS; as input
-RMS-E, file not found
```

When the first TYPE command is entered in this example, the error messages include all fields. Later, the SET MESSAGE command establishes that the IDENT portion (the abbreviation for the message text) is omitted in future messages. Note the absence of the IDENT component in the two subsequent messages that result from attempting to type a file that does not exist.

```
3    $ SET MESSAGE NEWMSG
```

The SET MESSAGE command in this example specifies that the message text in NEWMSG.EXE supplements the existing system messages.

SET ON

Enables error checking by the command interpreter after the execution of each command in a command procedure. Specify SET NOON to disable error checking.

FORMAT

SET [NO]ON

PARAMETERS

None.

DESCRIPTION

During the execution of command procedures, the command interpreter normally checks the status code returned when a DCL command or program image completes and saves the numeric value of this code in the reserved symbol named $STATUS. The low-order 3 bits of this value are also saved in the reserved symbol $SEVERITY. Command procedure execution aborts when either an error or fatal error is detected.

Use the SET NOON command to override default error checking. When SET NOON is in effect, the command interpreter continues to place the status code value in $STATUS and the severity level in $SEVERITY, but does not perform any action based on the values. As a result, the command procedure continues to execute no matter how many errors are returned.

The SET ON or SET NOON command applies only at the current command level. If you use the SET NOON command in a command procedure that executes another procedure, the default, SET ON, is established while the second procedure executes.

EXAMPLE

```
$ SET NOON
$ DELETE  *.SAV;*
$ SET ON
$ COPY  *.OBJ  *.SAV
```

This command procedure routinely copies all object modules into new files with the file type SAV. The DELETE command first deletes all existing files with the SAV file type, if any. The SET NOON command ensures that the procedure continues executing even if there are no files with the SAV file type in the current directory. Following the DELETE command, the SET ON command restores error checking. Then the COPY command makes copies of all existing files with OBJ file type.

SET OUTPUT_RATE

Sets the rate at which output is written to a batch job log file.

For use only within command procedures that are submitted as batch jobs.

FORMAT

SET OUTPUT_RATE*[=delta-time]*

PARAMETER

delta-time

The time interval at which output is written from the output buffer to the batch job log file. If no delta time is specified, the information is written in the output buffer to the log file, but the output rate is not changed from the default of once per minute. Specify *delta-time* as [dddd-][hh:mm:ss.cc]. For more information on delta time, see the *VMS DCL Concepts Manual*.

DESCRIPTION

When you submit a batch job, the output to be written to the log file is stored in an output buffer. Periodically, the buffer is flushed and its contents are written to the batch job log file. By default, the buffer is flushed once a minute. Therefore, you can type the log file to determine how much of the job has completed while the job is still executing.

To change the default output rate, include the SET OUTPUT_RATE command in the command procedure that you are submitting as a batch job. When the SET OUTPUT_RATE command is executed within a batch job and a delta time is specified, DCL flushes the buffer, sets the default output rate, and starts a new output interval.

If the SET OUTPUT_RATE command is executed within a batch job and a delta time is not specified, DCL flushes the buffer but does not change the default output rate and does not start a new interval.

If you issue the SET OUTPUT_RATE command interactively, or within a command procedure that is executed interactively, then no action is performed.

EXAMPLE

```
$ SET OUTPUT_RATE=:0:30
   .
   .
   .
```

This command, when executed within a batch job, changes the default output rate from once a minute to once every 30 seconds.

SET PASSWORD

Establishes, changes, or removes a password. SET PASSWORD can be used by users to change their own passwords and by system managers to change the system password.

See the qualifier descriptions for restrictions.

FORMAT SET PASSWORD

PARAMETERS

None.

DESCRIPTION

All user accounts on a system have passwords. A password is required for logging in to the system.

To maintain secrecy, users should change their passwords from time to time. The SET PASSWORD command offers a means of making this change.

A system manager can control which users have the right to change their passwords, and can establish a minimum acceptable password length and the maximum period of time that a password can remain unchanged.

The VMS operating system automatically screens passwords against a dictionary and a history list to prevent the use of native language words or the reuse of old passwords. In addition, the system manager can screen passwords to ensure that they are not words readily associated with the site.

Systems can also have passwords (not to be confused with the password associated with the SYSTEM account). The system manager uses the SET PASSWORD/SYSTEM command to change the system password from time to time.

A password contains up to 32 alphanumeric characters. The dollar sign ($) and underscore (_) are also permitted. Uppercase and lowercase characters are equivalent. All lowercase characters are converted to uppercase before the password is encrypted. (For example, "EAGLE" is the same as "eagle.")

Use the following procedure to change your password:

1 Enter the SET PASSWORD command.

2 The system prompts you for your current password. Enter your current password.

3 The system prompts you for a new password. Enter a new password, or press the Return key to disable your current password.

4 The system prompts you to verify the password. Enter the new password to verify. (If the two entries of the new password do not match, the password does not change.)

The following guidelines are recommended to minimize the chances of passwords being discovered by trial-and-error or by exhaustive search:

- Make passwords at least 6 characters long.
- Avoid names or words that are readily associated with you.
- Change your passwords at least once every month.

To ensure that the above guidelines are met, use the /GENERATE[=value] qualifier. This qualifier generates random passwords of up to 12 characters in length. The system manager can require individual users to use the /GENERATE qualifier. For more information about this, see the description of the Authorize Utility in the *VMS Authorize Utility Manual*.

QUALIFIERS

/GENERATE[=value]

Generates a list of five random passwords. Press the Return key to repeat the procedure until a suitable password appears.

Value is a number from 1 to 10 that restricts the length of the password. For any value *n*, the SET PASSWORD command generates passwords of from *n* to (*n*+2) characters long.

If no value is specified, SET PASSWORD uses a default value of 6, and generates passwords from 6 to 8 characters long. Values greater than 10 are not accepted and produce errors.

If your system manager has established a minimum password length for your account, SET PASSWORD/GENERATE=n compares that length with the length of the optional value, and uses the larger of the two values.

/SECONDARY

Creates or allows you to replace a secondary password. The procedure is the same as setting your primary password.

Once a secondary password has been established, you will receive two PASSWORD: prompts when logging in. The primary password should be typed in first, followed by the secondary password.

Secondary passwords make it possible to set up an account that requires two different people to access it. Each person knows one of the two passwords, and both passwords are required to log in successfully.

To remove your secondary password, press the Return key when SET PASSWORD/SECONDARY prompts you for a new password and verification. After you do this, you will receive a single PASSWORD: prompt when logging in. If you remove the secondary password, your system manager must restore it.

The /SECONDARY and /SYSTEM qualifiers are incompatible.

/SYSTEM

Requires both SECURITY and CMKRNL (change mode to kernel) privileges.

Changes the system password, rather than a user password.

If a terminal line has the system password (SYSPWD) characteristic set, no terminal prompts are sent to that terminal until the system password is entered.

A system password is valid only for the node it is set on. In a VAXcluster, each node can have a different system password.

The /SYSTEM and /SECONDARY qualifiers are incompatible. For more information about the use of system passwords, see the *Guide to VMS System Security*.

EXAMPLE

```
$ SET PASSWORD
Old password:  HONCHO
New password:  BIG_ENCHILADA
Verification:  BIG_ENCHILADA
```

In response to the SET PASSWORD command, the system first prompts for the old password and then for the new password. The system then prompts again for the new password to verify it. The password changes if the user is authorized to change this account's password, if the old password is given correctly, and if the new password is given identically twice. Otherwise, an error message appears and the password remains unchanged.

In a real session, neither the old password nor the new password and its verification appear on the screen or paper.

SET PRINTER

Establishes the characteristics of a specific line printer. The default values listed for qualifiers to the SET PRINTER command are the defaults for an initially bootstrapped system.

Requires OPER (operator) privilege. If the printer is a spooled device, LOG_IO (logical I/O) privilege is required to modify its characteristics.

FORMAT

SET PRINTER *printer-name[:]*

PARAMETER

printer-name[:]

Specifies the name of a line printer to set or modify its characteristics. If the printer has been set to /SPOOLED, LOG_IO (logical I/O) privilege is required to modify its characteristics.

QUALIFIERS

/CR
/NOCR (default)

Controls whether the printer driver outputs a carriage return character. Use this qualifier for printers on which line feeds do not imply carriage returns.

Specify the /NOCR qualifier for printers where the line feed, form feed, vertical feed, and carriage return characters empty the printer buffer. The /NOCR qualifier causes carriage return characters to be held back and output only if the next character is not a form feed or vertical tab. Carriage return characters are always output on devices that have the carriage return function characteristic set.

/FALLBACK
/NOFALLBACK (default)

Determines whether the printer attempts to translate characters belonging to the DEC Multinational Character Set into 7-bit equivalent representations. If a character cannot be translated, an underscore (_) character is substituted.

If the /PASSALL qualifier is in effect, it has precedence over the /FALLBACK qualifier.

/FF (default)
/NOFF

Indicates whether the printer performs a mechanical form feed. Use the /NOFF qualifier when the printer does not automatically perform mechanical form feeds. This qualifier allows the driver to convert form feeds into multiple line feeds and to output them.

/LA11

Specifies the printer as an LA11. This qualifier provides information for the SHOW PRINTER command, which, in turn, provides the user with information about specific printers. If no printer type is specified, LP11 is assumed.

/LA180

Specifies the printer as an LA180. This qualifier provides information for the SHOW PRINTER command, which, in turn, provides the user with information about specific printers. If no printer type is specified, LP11 is assumed.

/LOG
/NOLOG (default)

Determines whether information confirming the printer setting is displayed at the terminal from which the SET PRINTER command was entered.

/LOWERCASE
/NOLOWERCASE

Indicates whether the printer prints both uppercase and lowercase letters or only uppercase. When the operator specifies the /NOLOWERCASE qualifier, all letters are translated to uppercase.

The /[NO]LOWERCASE and /[NO]UPPERCASE qualifiers are complementary; that is, the /LOWERCASE qualifier is equivalent to the /NOUPPERCASE qualifier, and the /NOLOWERCASE qualifier is equivalent to the /UPPERCASE qualifier.

/LP11 (default)

Specifies the printer as an LP11. This qualifier provides information for the SHOW PRINTER command, which, in turn, provides the user with information about specific printers. LP11 is the default printer type.

/PAGE=lines-per-page

Establishes the number of lines per page on the currently installed form; the number of lines can range from 1 to 255 and defaults to 64. The printer driver uses this value to determine the number of line feeds that must be entered to simulate a form feed.

/PASSALL
/NOPASSALL (default)

Controls whether the system interprets special characters or passes them as 8-bit binary data.

If you specify the /PASSALL qualifier, the printer driver does not expand tab characters to spaces, fill carriage return or line feed characters, or recognize control characters.

/PRINTALL
/NOPRINTALL (default)

Controls whether the line printer driver outputs printable 8-bit multinational characters.

/TAB
/NOTAB (default)

Controls how the printer handles TAB characters. The /NOTAB qualifier expands all tab characters to spaces and assumes tab stops at 8-character intervals.

Use the /TAB qualifier when you do not want the system to convert tabs to spaces, but want the printer to process the tab characters. The VMS operating system requires that printers expand tabs at 8-character intervals.

/TRUNCATE (default)
/NOTRUNCATE

Controls whether the printer truncates data exceeding the value specified by the /WIDTH qualifier. Note that the /TRUNCATE and /WRAP qualifiers are incompatible.

/UNKNOWN

Specifies the printer as nonstandard. This qualifier provides information for the SHOW PRINTER command, which, in turn, provides the user with information about specific printers. If no printer type qualifier is specified, LP11 is assumed.

/UPPERCASE
/NOUPPERCASE

Indicates whether the printer prints both uppercase and lowercase letters or only uppercase ones. When you specify the /UPPERCASE qualifier, all letters are translated to uppercase.

The /[NO]UPPERCASE and /[NO]LOWERCASE qualifiers are complementary; that is, the /UPPERCASE qualifier is equivalent to the /NOLOWERCASE qualifier, and the /NOUPPERCASE qualifier is equivalent to the /LOWERCASE qualifier.

/WIDTH=n

Establishes the number of characters per output line on currently installed forms. The width, *n*, can range from 0 to 65535 for LP11 controllers, and from 0 to 255 for DMF32 controllers. The default value is 132 characters per line.

/WRAP
/NOWRAP (default)

Controls whether the printer generates a carriage return and a line feed when it reaches the end of a line.

If the /NOWRAP qualifier is specified, the printer writes characters out in the last position on the line.

If the /WRAP qualifier is specified, the terminal generates a carriage return and a line feed whenever the end of a line is reached.

Note that the /TRUNCATE and /WRAP qualifiers are incompatible.

EXAMPLES

1
```
$ SET PRINTER/PAGE=60/WIDTH=80  LPA0:
```

The SET PRINTER command in this example establishes the size of an output page as 60 lines and the width of a line as 80 characters for printer LPA0.

2
```
$ SET PRINTER/LA11  LPB0:
```

The SET PRINTER command in this example establishes the line printer LPB0 as an LA11 printer.

3
```
$ SET PRINTER/LOWERCASE LPA0:
```

The SET PRINTER command in this example requests that lowercase printing be enabled on line printer LPA0.

SET PROCESS

Changes the execution characteristics associated with the specified process for the current terminal session or job. If no process is specified, changes are made to the current process.

Requires GROUP privilege to change other processes in the same group. Requires WORLD privilege to change processes outside your group.

FORMAT

SET PROCESS *[process-name]*

PARAMETER

process-name

Requires that you own the process or that you have GROUP privilege and that the process is in your group.

Specifies the name of the process for which the characteristics are to be changed. Process names can be up to 23 alphanumeric characters long in the following format:

[node-name::]process-name

- The node name can have as many as 6 alphanumeric characters.
- The colons (:) count for 2 characters.
- The process name can have as many as 15 characters.

A local process name can look like a remote process name. Therefore, if you specify ATHENS::SMITH, the system checks for a process named ATHENS::SMITH on the local node before checking node ATHENS for a process named SMITH.

The default process is the current process. The process name is compatible only with the /PRIORITY, /RESUME, and /SUSPEND qualifiers.

You cannot specify the process name for a process outside of your group. To change the characteristics of a process outside of your group, you must use the qualifier /IDENTIFICATION=pid. The process name parameter is ignored. If you include neither the process name nor the /IDENTIFICATION qualifier, the current process is assumed.

The process name parameter is limited to use 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.

You can then analyze the dump with the ANALYZE/PROCESS_DUMP Utility.

/IDENTIFICATION=pid

Requires GROUP or WORLD privilege for processes other than your own.

Specifies the process identification (PID) value of the process for which characteristics are to be changed. Overrides the *process-name* parameter. Compatible only with the /PRIORITY, /RESUME, and /SUSPEND qualifiers.

The PID is assigned by the system when the process is created. When you specify a PID, you can omit the leading zeros.

If you use the /IDENTIFICATION qualifier, the *process-name* parameter is ignored.

/NAME=string

Changes the name of the current process to a string of 1 to 15 characters.

/PRIORITY=n

Requires ALTPRI (alter priority) privilege to set the priority higher than the base priority of the specified process.

Changes the priority for the specified process. If you do not have the ALTPRI privilege, the value you specify is compared to your current base priority, and the lower value is always used.

/PRIVILEGES=(privilege[,...])

Requires SETPRV (set privilege) privilege to enable a privilege you do not have.

Enables privileges for the process. For a list of process privileges, see the *VMS DCL Concepts Manual*.

Use the SHOW PROCESS/PRIVILEGES command to determine what privileges are enabled currently.

/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/SUSPEND command to resume operation. The /RESUME qualifier is equivalent to the /NOSUSPEND qualifier.

/SUSPEND[=SUPERVISOR]
/SUSPEND=KERNEL
/NOSUSPEND

Requires privileges as described in text.

Temporarily stops the process's activities. The process remains suspended until another process resumes or deletes it. Use the qualifiers /NOSUSPEND and /RESUME to resume a suspended process.

Specify either of the following keywords with the /SUSPEND qualifier to produce different results:

Keyword	Result
SUPERVISOR (default)	Specifies that the named process is to be suspended to allow the delivery of asynchronous system traps (ASTs) at EXEC or KERNEL mode. Specifying this keyword is optional.
KERNEL	Specifies that the named process is to be suspended such that no ASTs can be delivered. To specify the KERNEL keyword, you must be in either KERNEL mode or EXEC mode, or have either CMKRNL (change mode to kernel) or CMEXEC (change mode to executive) privilege enabled. Note that this was the default behavior of the SET PROCESS/SUSPEND command for versions of VMS prior to Version 5.0.

Depending on the operation, the process from which you specify the /SUSPEND qualifier requires privileges. You must have GROUP privilege to suspend another process in the same group, unless that process has the same user identification code (UIC). You must have WORLD privilege to suspend any other process in the system.

Note that you can specify SET PROCESS/SUSPEND=KERNEL to override a previous SET PROCESS/SUSPEND=SUPERVISOR. SET PROCESS/SUSPEND=SUPERVISOR does not, however, override SET PROCESS/SUSPEND=KERNEL.

/SWAPPING (default)
/NOSWAPPING

Requires the PSWAPM (process swap) privilege to disable swapping for your process.

Permits the process to be swapped. By default, a process that is not currently executing can be removed from physical memory so that other processes can execute. If you specify the /NOSWAPPING qualifier, the process is not swapped out of the balance set when it is in a wait state.

EXAMPLES

```
1  $ SET PROCESS/PRIVILEGE=EXQUOTA
```

The SET PROCESS command in this example assigns the current process the privilege of exceeding quotas.

```
2  $ SET PROCESS/NORESOURCE_WAIT
```

The SET PROCESS command in this example disables resource wait mode for the current process.

```
3  $ RUN/PROCESS_NAME=TESTER  CALC
   %RUN-S-PROC_ID, identification of created process is 0005002F
   $ SET PROCESS/PRIORITY=10  TESTER
```

The RUN command in this example creates a subprocess and gives it the name TESTER. Subsequently, the SET PROCESS/PRIORITY command assigns the subprocess a priority of 10.

```
4  $  SHOW PROCESS/SUBPROCESS
   19-APR-1990 15:17:28.41  User: DAVIS Process ID:   31900218
                            Node: OCALA  Process name: "DAVIS"

   Processes in this tree:

   DAVIS *
     DAVIS_1
     DAVIS_2

   $  SET PROCESS/SUSPEND DAVIS_1
   $
```

The SET PROCESS/SUSPEND command in this example suspends the process DAVIS_1 such that ASTs can be delivered to it. Because no keyword was specified, the /SUSPEND=SUPERVISOR version is assumed.

```
5  $  SHOW PROCESS/SUBPROCESS OCALA::CHEESE
   19-APR-1990 12:17:24.45   User: CHEESE Process ID:   31400208
                             Node: OCALA  Process name: "CHEESE"

   Processes in this tree:

   CHEESE *
     CHEESE_1
     CHEESE_2
   $  SET PROCESS OCALA::CHEESE_2 /SUSPEND=KERNEL
   $
```

The SET PROCESS/SUSPEND=KERNEL command in this example suspends the process CHEESE_2 on node OCALA such that no ASTs can be delivered to it.

SET PROMPT

Replaces the default DCL prompt ($) with the specified string.

FORMAT

SET PROMPT*[=string]*

PARAMETER

string

Specifies the new prompt string. The following rules apply:

- All valid ASCII characters can be used.
- No more than 32 characters are allowed.
- To include spaces or lowercase letters, enclose the string in quotation marks (" "). Otherwise, letters are converted automatically to uppercase; leading and trailing spaces are removed.

If you do not specify the string parameter with the SET PROMPT command, the default DCL prompt ($) is restored.

DESCRIPTION

The SET PROMPT command customizes prompts for your main process or a subprocess.

When a continued command is read from the terminal or an indirect command is read from a command procedure, DCL places an underscore in front of the prompt string.

QUALIFIER

/CARRIAGE_CONTROL (default)
/NOCARRIAGE_CONTROL

Inserts carriage return and line feed characters before the prompt string. Type the qualifier after the string parameter.

EXAMPLE

```
$  SET PROMPT ="What's next?"
What's next?  SHOW TIME
 19-APR-1990 14:08:58
```

The SET PROMPT command in this example replaces the DCL prompt ($) with the phrase "What's next?". When you see the prompt on your screen, you can enter any DCL command. This example uses the SHOW TIME command.

SET PROTECTION

Establishes the protection that limits other users' access to a file or a group of files.

You can only change the protection on a file on the node you are currently logged in to.

FORMAT

SET PROTECTION*[=(code)] filespec[,...]*

PARAMETERS

code

Defines the protection to be applied to the specified files. If you omit the code, the access is set to the current default protection.

The code is made up of the following components:

- Ownership category—System (S), owner (O), group (G), or world (W). Each category can be abbreviated to its first character.
- Access category—Read (R), write (W), execute (E), or delete (D). The access category is assigned to each ownership category. A null access specification means no access.

filespec[,...]

Specifies one or more files for which the protection is to be changed. A file name and file type are required. If you omit a version number, the protection is changed only for the highest existing version of the file. Wildcard characters (* and %) are allowed.

DESCRIPTION

All disk and tape volumes have protection codes that restrict access to the volume. The protection codes for disk and tape volumes are assigned with the INITIALIZE and MOUNT commands. They cannot be changed by the SET PROTECTION command.

For disk volumes, each file on the volume, including a directory file, can have a different protection associated with it. The SET PROTECTION command and other file manipulating commands let you define the protection for individual files.

Use the SET PROTECTION command to change or reset the access for one or more files. If you include a protection code, the file access is changed to that code. However, you cannot change the protection code for a file across a network.

If you omit both the protection code and the /PROTECTION qualifier, the file access changes to the default established by the SET PROTECTION /DEFAULT command. See the SET PROTECTION/DEFAULT command for information on how to change the default file access.

A file must have read protection to allow the SET VERIFY command to set verification.

QUALIFIERS

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each file is queued for printing to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond with by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/LOG
/NOLOG (default)

Controls whether the system displays the file specification of each file for which the protection is changed as the command executes.

/PROTECTION=(code)

Filespec qualifier.

If you follow a file specification with the /PROTECTION qualifier, the code specified with the /PROTECTION qualifier overrides the command's code parameter. The /PROTECTION qualifier lets you assign different protection codes to several files with a single SET PROTECTION command.

EXAMPLES

1
```
$ DELETE INCOME.DAT;3
%DELETE-W-FILNOTDEL, error deleting DISK1:[SMITH]INCOME.DAT;3
-RMS-E-PRV, insufficient privilege or file protection violation
$ SET PROTECTION=OWNER:D INCOME.DAT;3
$ DELETE INCOME.DAT;3
```

In this example, the file INCOME.DAT;3 has been protected against deletion. The SET PROTECTION command gives the owner the ability to delete the file INCOME.DAT;3.

```
2   $ SET PROTECTION -
    _$ PAYROLL.LIS/PROTECTION=(SYSTEM:R,OWNER:RWED,GROUP:RW),-
    _$ PAYROLL.OUT/PROTECTION=(SYSTEM:RWED,GROUP:RWED,W)
```

The SET PROTECTION command in this example changes the protection codes applied to two files. To the file PAYROLL.LIS, it gives the system read (R) access; the owner read (R), write (W), execute (E), and delete (D) access; and users in the owner's group read (R) and write (W) access. To the file PAYROLL.OUT, it gives the system and group all types of access; the current access for the owner does not change, but the world category is denied all types of access.

```
3   $ SET PROTECTION A.DAT, B.DAT/PROTECTION=OWNER:RWED, C.DAT
```

The SET PROTECTION command in this example specifies that the file A.DAT receive the default protection established for your files. The existing protection for the file B.DAT is overridden, only for the owner category, to provide read (R), write (W), execute (E), and delete (D) access. Note that no protection is specified for the file C.DAT at either the command or file level. Like A.DAT, C.DAT receives the default protection.

Since no version numbers are specified, the protection settings affect only the highest versions of the three files.

```
4   $ SET PROTECTION=OWNER:D -
    _$ [MALCOLM.SUB1]SUB2.DIR/PROTECTION=GROUP:D
```

The SET PROTECTION command in this example changes the protection for the owner and group categories of the subdirectory [MALCOLM.SUB1.SUB2] to permit deletion. However, the protection for the world and system categories is not changed.

```
5   $ DIR/PROTECTION INCOME.DAT
    Directory DBA0:[SMITH]
    INCOME.DAT;2          (RWED,RWED,RWED,RWED)
    INCOME.DAT;1          (RWED,RWED,RWED,RWED)
    Total of 2 files.
    $ SET PROTECTION=(OWNER:RWE) INCOME.DAT;1
    $ PURGE
```

In this example, the file INCOME.DAT;1 has been protected against deletion by the owner. However, because the owner is also a member of the group and world categories, the file is still vulnerable to deletion. The subsequent PURGE command deletes INCOME.DAT;1.

To protect the file against deletion by you (the owner), you also need to protect the file against deletion by all outer access categories. The following command shows the proper way to do this:

```
$ SET PROTECTION=(OWNER:RWE,GROUP:RWE,WORLD:RWE) INCOME.DAT;1
```

SET PROTECTION/DEFAULT

Establishes the default protection to be applied to all files subsequently created.

FORMAT

SET PROTECTION*[=(code)]*/DEFAULT

PARAMETER

code

Defines the default protection to be applied to all files. To override this default protection use either the SET PROTECTION or the CREATE command. If you do not specify a protection code, the current default protection remains unchanged.

The code is made up of the following components:

- Ownership category—System (S), owner (O), group (G), or world (W). Each category can be abbreviated to its first character.
- Access category—Read (R), write (W), execute (E), or delete (D). The access category is assigned to each ownership category. A null access specification means no access.

EXAMPLE

```
$  SET PROTECTION=(GROUP:RWED,WORLD:R)/DEFAULT
```

The SET PROTECTION/DEFAULT command in this example sets the default protection to grant unlimited access to other users in the same group and read (R) access to all users. The default protections for system and owner are not changed.

SET PROTECTION/DEVICE

Establishes the protection to be applied to a specific non-file-structured device. The protection for a device limits the type of access available to users. The /DEVICE qualifier is required.

In general, requires OPER (operator) privilege. If the device protection characteristics have already been set, they will be used to determine access to the device. If the device protection characteristics have not been set, SYSPRV (system privilege) privilege is also required.

FORMAT

SET PROTECTION=*(ownership[:access][,...])*/**DEVICE** *device-name[:]*

PARAMETERS

ownership

Specifies an ownership category—system (S), owner (O), group (G), or world (W). Each category can be abbreviated to its first character. Any protection code category that the operator does not specify remains unchanged.

access

Specifies an access category—read (R), write (W), logical I/O (L), and physical I/O (P)—to be assigned to a specified type of owner. A null access specification means no access.

device-name[:]

Specifies the name of the non-file-structured device whose protection is to be set or modified.

DESCRIPTION

The following four user categories apply to files and to devices:

- System—All users who have octal group numbers of 0 to 10_8 and users with physical or logical I/O privilege (generally, system managers, system programmers, and operators). The octal group numbers 0 to 10 for system users are the default group numbers. The group number parameter can be changed at system generation time to any octal value from 0 to 377.
- Owner—The user identification code (UIC) of the user who "owns" the device and who is entering the SET PROTECTION command.
- Group—All users who have the same group number in their UICs as the owner of the device.
- World—All users who do not fall into the categories above.

For shareable devices (such as the LPA11-K), each user category can be allowed or denied one of the following types of access:

- Read—The right to issue read requests to the device.

- Write—The right to issue write requests to the device.
- Logical I/O—The right to issue logical I/O requests to the device.
- Physical I/O—The right to issue physical I/O requests to the device.

For nonshareable devices, such as terminals and card readers, each category of user can be either allowed or denied access to allocate and assign channels to the device. The read category controls whether a user can allocate and assign channels to the device. All other categories are not relevant for nonshareable devices.

Any combination of access types can be specified for any category of user. When the operator specifies a user access code, the code must be abbreviated to 1 character. The abbreviations are as follows:

Read	R
Write	W
Logical I/O	L
Physical I/O	P

The ownership and access categories can be specified in any order. If you specify an ownership category without including any access code, that category of user is denied all types of access. When you specify one or more access categories for a user category, that user category receives only those specified types of access. If you omit a user category, the access for that category is unchanged.

To specify a protection code, separate the user category from the access type with a colon (:). If you specify only one ownership category, you can omit the parentheses.

QUALIFIER

/OWNER_UIC=uic

Requests that the specified user identification code (UIC) be assigned ownership of the device for the purpose of access checks. The default owner is the UIC of the process entering the SET PROTECTION command.

EXAMPLES

1
```
$ SET PROTECTION=(S:RWLP,O:RWLP,G,W)/DEVICE  LAA0:
```

The command in this example requests that the protection for device LAA0 be set to allow all types of access to system processes and processes with the UIC of the current process. This command also denies access to anyone else.

2
```
$ SET PROTECTION=(S,O:RWLP,G,W)/DEVICE/OWNER_UIC=[103,4] LAB0:
```

The command in this example requests that the protection for device LAB0 be set to allow all types of access to processes with a UIC of [103,4]. This command also denies access to anyone else.

```
3    $ SET PROTECTION=(S:R,O,G,W)/DEVICE/OWNER_UIC=[1,4] TTA1:
```

The command in this example requests that the protection for the terminal TTA1 be set to allow only system processes to allocate the device. This command also denies access to anyone else. This type of protection is recommended for interactive terminals if system security is necessary. Note that the above protection code restricts which users can allocate the device, but the protection does not restrict users from logging in to the device.

SET QUEUE

Changes the attributes of the specified queue. The /QUEUE qualifier is required.

Requires OPER (operator) privilege or execute (E) access to the specified queue.

FORMAT

SET QUEUE *queue-name[:]*

PARAMETER

queue-name[:]

Specifies the name of an execution queue or a generic queue.

DESCRIPTION

After you have created a queue with the INITIALIZE/QUEUE command, use the SET QUEUE command to change the queue's status or attributes.

The defaults for the SET QUEUE qualifiers depend on the qualifiers of the queue when it was initialized. For example, the default for /JOB_LIMIT with INITIALIZE/QUEUE is 1. However, if the queue you are altering was initialized with a job limit of 3, and if you do not specify the /JOB_LIMIT qualifier with the SET QUEUE command, the job limit remains at 3 for that queue.

QUALIFIERS

/BASE_PRIORITY=n

Specifies the base process priority at which jobs are initiated from a batch execution queue. The base priority specifier can be any decimal value from 0 to 15.

You also can specify this qualifier for an output execution queue. In this context the /BASE_PRIORITY qualifier establishes the base priority of the symbiont process when the symbiont process is created.

/BLOCK_LIMIT=([lowlim,]uplim)
/NOBLOCK_LIMIT

Limits the size of print jobs that can be processed on an output execution queue. This qualifier allows you to reserve certain printers for certain size jobs. You must specify at least one of the parameters.

The *lowlim* parameter is a decimal number referring to the minimum number of blocks that are accepted by the queue for a print job. If a print job is submitted that contains fewer blocks than the *lowlim* value, the job remains pending until the block limit for the queue is changed. After the block limit for the queue is decreased sufficiently, the job is processed.

The *uplim* parameter is a decimal number referring to the maximum number of blocks that are accepted by the queue for a print job. If a print job is submitted that exceeds this value, the job remains pending until the block limit for the queue is changed. After the block limit for the queue is increased sufficiently, the job is processed.

If you specify only an upper limit for jobs, you can omit the parentheses. For example, /BLOCK_LIMIT=1000 means that only jobs with 1000 blocks or less are processed in the queue. To specify only a lower job limit, you must use two consecutive double quotation marks ("") to indicate the upper limit. For example, /BLOCK_LIMIT=(500,"") means any job with 500 or more blocks is processed in the queue. You can specify both a lower and upper limit. For example, /BLOCK_LIMIT=(200,2000) means that jobs with less than 200 blocks or more than 2000 blocks are not processed in the queue.

The /NOBLOCK_LIMIT qualifier cancels the previous block limit setting for that queue.

/CHARACTERISTICS=(characteristic[,...])
/NOCHARACTERISTICS

Specifies one or more characteristics for processing jobs on an execution queue. If a queue does not have all the characteristics that have been specified for a job, the job remains pending. If you specify only one characteristic, you can omit the parentheses. Each time you specify the /CHARACTERISTICS qualifier, all previously set characteristics are canceled. Only the characteristics specified with the qualifier are established for the queue.

Queue characteristics are installation specific. The characteristic parameter can be either a value from 0 to 127 or a characteristic name that has been defined by the DEFINE/CHARACTERISTIC command.

The /NOCHARACTERISTICS qualifier cancels any characteristics settings previously established for that queue.

/CLOSE

Prevents jobs from being entered in the queue through PRINT or SUBMIT commands or as a result of requeue operations. To allow jobs to be entered, use the /OPEN qualifier. Whether a queue accepts or rejects new job entries is independent of the queue's state (such as paused, stopped, or stalled). When a queue is marked closed, jobs executing continue to execute and jobs pending in the queue continue to be candidates for execution.

/CPUDEFAULT=time

Defines the default CPU time limit for jobs in a batch execution queue. You can specify time as delta time, 0, INFINITE, or NONE. You can specify up to 497 days of delta time.

If the queue does not have a defined CPUMAXIMUM time limit and the value established in the user authorization file (UAF) has a specified CPU time limit of NONE, either the value 0 or the keyword INFINITE allows unlimited CPU time. If you specify NONE, the CPU time value defaults to the value specified either in the UAF or by the SUBMIT command (if included). CPU time values must be greater than or equal to the number specified by the SYSGEN parameter PQL_MCPULM. The time cannot exceed the CPU time limit set by the /CPUMAXIMUM qualifier. For information on specifying delta time, see the *VMS DCL Concepts Manual*. For more information on specifying CPU time limits, see Table DCL1–1 ("CPU Time Limit Specifications and Actions") in the description of the INITIALIZE/QUEUE command.

/CPUMAXIMUM=time

Defines the maximum CPU time limit for all jobs in a batch execution queue. You can specify time as delta time, 0, INFINITE, or NONE. You can specify up to 497 days of delta time.

The /CPUMAXIMUM qualifier overrides the time limit specified in the user authorization file (UAF) for any user submitting a job to the queue. Either the value 0 or the keyword INFINITE allows unlimited CPU time. If you specify NONE, the CPU time value defaults to the value specified either in the UAF or by the SUBMIT command (if included). CPU time values must be greater than or equal to the number specified by the SYSGEN parameter PQL_MCPULM.

For information on specifying delta time, see the *VMS DCL Concepts Manual*. For more information on specifying CPU time limits, see Table DCL1–1 in the description of the INITIALIZE/QUEUE command.

/DEFAULT=(option[,...])
/NODEFAULT

Establishes defaults for certain options of the PRINT command. Defaults are specified by the list of options. If you specify only one option, you can omit the parentheses. After you set an option for the queue with the /DEFAULT qualifier, you do not have to specify that option in your PRINT commands. If you do specify these options in your PRINT command, the values specified with the PRINT command override the values established for the queue with the /DEFAULT qualifier. Possible options are as follows:

[NO]BURST[=keyword]	Controls whether two file flag pages with a burst bar between them are printed preceding output. If you specify the value ALL (default), these flag pages are printed before each file in the job. If you specify the value ONE, these flag pages are printed once before the first file in the job.
[NO]FEED	Specifies whether a form feed is inserted automatically at the end of a page.
[NO]FLAG[=keyword]	Controls whether a file flag page is printed preceding output. If you specify the value ALL (default), a file flag page is printed before each file in the job. If you specify the value ONE, a file flag page is printed once before the first file in the job.
FORM=type	Specifies the default form for an output execution queue. If a job is submitted without an explicit form definition, this form is used to process the job. See also the description of the /FORM_MOUNTED qualifier.
[NO]TRAILER[=keyword]	Controls whether a file trailer page is printed following output. If you specify the value ALL (default), a trailer page is printed with each file in the job. If you specify the value ONE, a trailer page is printed once with the last file in the job.

When you specify the BURST option for a file, the [NO]FLAG option does not add or subtract a flag page from the two flag pages that are printed preceding the file.

For information on establishing mandatory queue attributes, see the description of the /SEPARATE qualifier. For information on specifying default queue attributes, see the *Guide to Maintaining a VMS System.*

/DESCRIPTION=string
/NODESCRIPTION

Specifies a string of up to 255 characters used to provide operator-supplied information about the queue.

Enclose strings containing lowercase letters, blanks, or other nonalphanumeric characters (including spaces) in quotation marks (" ").

The /NODESCRIPTION qualifier removes any descriptive text that may have been associated with the queue.

/DISABLE_SWAPPING
/NODISABLE_SWAPPING

Controls whether batch jobs executed from a queue can be swapped in and out of memory.

/ENABLE_GENERIC
/NOENABLE_GENERIC

Specifies whether files queued to a generic queue that does not specify explicit queue names can be placed in this execution queue for processing.

/FORM_MOUNTED=type

Specifies the mounted form for an output execution queue. If the stock of the mounted form is not identical to the stock of the default form, as indicated by the /DEFAULT=FORM qualifier, all jobs submitted to this queue without an explicit form definition 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, the job enters a pending state. In both cases, jobs remain pending until the stock of the mounted form of the queue is identical to the stock of the form associated with the job.

To specify the form type, use either a numeric value or a form name that has been defined by the DEFINE/FORM command. Form types are installation-specific.

/JOB_LIMIT=n

Indicates the number of batch jobs that can be executed concurrently from the queue. Specify a number in the range 0 to 255.

/OPEN

Allows jobs to be entered in the queue through PRINT or SUBMIT commands or as the result of requeue operations. To prevent jobs from being entered in the queue, use the /CLOSE qualifier. Whether a queue accepts or rejects new job entries is independent of the queue's state (such as paused, stopped, or stalled).

/OWNER_UIC=uic

Requires OPER (operator) privilege or control (C) and execute (E) access to the queue.

Enables you to change the user identification code (UIC) of the queue. Specify the UIC by using the standard format as described in the *VMS DCL Concepts Manual.*

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

Requires OPER (operator) privilege or control (C) and execute (E) access to the queue.

Specifies the protection of the queue. Ownership categories are system (S), owner (O), group (G), or world (W); each category can be abbreviated to its first character. Access categories are read (R), write (W), execute (E), or delete (D); a null access specification means no access. If you include only one protection code, you can omit the parentheses. For more information on specifying protection codes, see the *VMS DCL Concepts Manual*. For more information on controlling queue operations through UIC-based protection, see the *Guide to Maintaining a VMS System*.

/RECORD_BLOCKING
/NORECORD_BLOCKING

Determines whether the symbiont can concatenate (or block together) output records for transmission to the output device. If you specify the /NORECORD_BLOCKING qualifier, the symbiont sends each formatted record in a separate I/O request to the output device. For the standard VMS print symbiont, record blocking can have a significant performance advantage over single-record mode.

/RETAIN[=option]
/NORETAIN

Holds jobs in the queue in a retained status after they have executed. The /NORETAIN qualifier enables you to reset the queue to the default. Possible options are as follows:

ALL	Holds all jobs in the queue after execution (default).
ERROR	Holds in the queue only jobs that complete unsuccessfully.

/SCHEDULE=[NO]SIZE

Specifies whether pending jobs in an output queue are scheduled for printing based on the size of the job. When the /SCHEDULE=SIZE qualifier is in effect, shorter jobs print before longer ones. When the /SCHEDULE=NOSIZE qualifier is in effect, jobs are printed in the order they were submitted, regardless of size.

If you enter this command while there are pending jobs in any queue, its effect on future jobs is unpredictable.

/SEPARATE=(option[,...])
/NOSEPARATE

Specifies the mandatory queue attributes or job separation options for an output execution queue. Job separation options cannot be overridden by the PRINT command.

The job separation options are as follows:

[NO]BURST	Specifies whether two job flag pages with a burst bar between them are printed at the beginning of each job.

[NO]FLAG	Specifies whether a job flag page is printed at the beginning of each job.
[NO]RESET=(module[,...])	Specifies one or more device control library modules that contain the job reset sequence for the queue. The specified modules from the queue's device control library (by default SYS$LIBRARY:SYSDEVCTL) are used to reset the device each time a job reset occurs. The RESET sequence occurs after any file trailer and before any job trailer. Thus, all job separation pages are printed when the device is in its RESET state.
[NO]TRAILER	Specifies whether a job trailer page is printed at the end of each job.

When you specify the /SEPARATE=BURST qualifier, the [NO]FLAG separation option does not add or subtract a flag page from the two flag pages that are printed preceding the job.

For information on establishing queue attributes that can be overridden, see the description of the /DEFAULT qualifier.

For more information on specifying mandatory queue attributes, see the *Guide to Maintaining a VMS System*.

/WSDEFAULT=n

Defines for a batch job a working set default, the default number of physical pages that the job can use.

The value set by this qualifier overrides the value defined in the user authorization file (UAF) of any user submitting a job to the queue.

If you specify the value 0 or NONE, the working set default value defaults to the value specified in the UAF or by the SUBMIT command (if included).

For more information about the way a working set default affects batch jobs, see Table DCL2–4.

/WSEXTENT=n

Defines for the batch job a working set extent, the maximum amount of physical memory that the job can use. The job uses the maximum amount of physical memory only when the system has excess free pages. The value set by this qualifier overrides the value defined in the user authorization file (UAF) of any user submitting a job to the queue.

If you specify the value 0 or NONE, the working set extent value defaults to the value specified in the UAF or by the SUBMIT command (if included).

For more information about the way a working set extent affects batch jobs, see Table DCL2–4.

/WSQUOTA=n

Defines for a batch job the working set quota, the amount of physical memory that is available to the job. The value set by this qualifier overrides the value defined in the user authorization file (UAF) of any user submitting a job to the queue. If you specify the value 0 or NONE,

the working set quota value defaults to the value specified in the UAF or by the SUBMIT command (if included).

A working set default size and a working set quota (maximum size) are included in each user record in the system user authorization file (UAF). You can specify a working set default and a working set quota for both individual jobs and for all jobs in a given queue. The decision table (Table DCL2–4) shows the action taken for different combinations of specifications that involve working set size and working set quota values.

Table DCL2–4 Working Set Default, Extent, and Quota Decision

Value Specified by the SUBMIT Command?	Value Specified for the Queue?	Action Taken
No	No	Use the UAF value.
No	Yes	Use the value for the queue.
Yes	Yes	Use the smaller of the two values.
Yes	No	Compare the specified value with the UAF value; use the smaller.

EXAMPLES

```
1  $ INITIALIZE/QUEUE/DEFAULT=BURST/FORM_MOUNTED=LETTER/START SYS$PRINT
     .
     .
     .
   $ STOP/QUEUE/NEXT SYS$PRINT
   $ SET QUEUE/DEFAULT=BURST/FORM_MOUNTED=MEMO SYS$PRINT
```

In this example, the queue is initialized with the INITIALIZE/QUEUE command. The queue has the following attributes: two file flag pages preceding each file in the job and the mounted form LETTER. Later the queue is stopped with the STOP/QUEUE/NEXT command so that the current job finishes processing before the queue stops. The SET QUEUE command changes the mounted form to MEMO.

```
2  $ SET QUEUE/DEFAULT=FORM=LN01_PORTRAIT LN01_PRINT
```

In this example, the SET QUEUE command changes the default form to LN01_PORTRAIT for the LN01_PRINT queue.

```
3  $ SET QUEUE/CLOSE SYS$BATCH
```

In this example, the batch queue SYS$BATCH is modified to prevent jobs from being entered in this queue.

SET RESTART_VALUE

Assigns a value to the global symbol BATCH$RESTART. This global symbol defines the location at which a batch job is restarted after its execution has been interrupted. The SET RESTART_VALUE command is meaningful only in command procedures.

FORMAT

SET RESTART_VALUE=*string*

PARAMETER

string
Specifies a string of up to 255 characters, which specifies the label at which the batch job should begin executing when it is restarted.

DESCRIPTION

Use the SET RESTART_VALUE command in restartable command procedures. (A restartable command procedure is a command procedure that is submitted to run in batch mode with the SUBMIT/RESTART command.) SET RESTART_VALUE assigns a value to the global symbol BATCH$RESTART, the location at which the batch job should be restarted after its execution has been interrupted.

When writing a restartable command procedure, begin each possible starting point in the command procedure with a label. After the label, use the SET RESTART_VALUE command to assign the symbol BATCH$RESTART to equal the label. If the batch job is interrupted by a system crash and is then restarted, the command procedure can resume execution at the label pointed to by BATCH$RESTART.

The SET RESTART_VALUE command is used in conjunction with the reserved global symbol $RESTART. $RESTART is a special symbol that is maintained by the system and cannot be deleted. $RESTART has the value TRUE if the batch job has been restarted. Otherwise, $RESTART has the value FALSE.

At the beginning of a restartable command procedure, test the value of the reserved global symbol $RESTART. If $RESTART is true, execute a GOTO statement using the symbol BATCH$RESTART as the transfer label. If a SET RESTART_VALUE command was not executed before the batch job was interrupted, the symbol BATCH$RESTART has no definition and the batch job should restart from the beginning.

Most of your process environment is not maintained when the system fails. The only symbols maintained across a system failure are $RESTART and BATCH$RESTART. Therefore, you should redefine any symbols or process logical names used in your command procedure after each SET RESTART_VALUE command.

If a command procedure has SET RESTART_VALUE commands in it, but you want the job to restart at the beginning, enter the SET ENTRY/NOCHECKPOINT command to delete the global symbol BATCH$RESTART.

EXAMPLE

```
$ IF $RESTART THEN GOTO 'BATCH$RESTART'
    .
    .
    .
$ FIRSTPART:
$ SET RESTART_VALUE = FIRSTPART
$ RUN PART1
    .
    .
    .
$ SECONDPART:
$ SET RESTART_VALUE = SECONDPART
$ RUN PART2
    .
    .
    .
```

In this example, the first command states that, if $RESTART is true, the procedure is to jump to the value contained in BATCH$RESTART. ($RESTART is true only if the job has been executed before, that is, the job is being rerun after a crash or after having been requeued.)

The first SET RESTART_VALUE command assigns the label FIRSTPART to be equal to the symbol BATCH$RESTART. The next line contains the command to run PART1.EXE.

The second SET RESTART_VALUE command assigns the label SECONDPART to be equal to the symbol BATCH$RESTART. The last line shown contains the command to run PART2.EXE.

When the job is first submitted using the SUBMIT/RESTART command, the value of $RESTART is FALSE, so the IF expression is ignored. If the job is stopped during the run of PART1.EXE, the value of BATCH$RESTART is FIRSTPART. When the job is restarted, the value of $RESTART is TRUE. Thus, the IF expression is processed and transfers control to the FIRSTPART label in the procedure. PART1.EXE is rerun.

If the job is stopped during the run of PART2.EXE, the value of BATCH$RESTART is SECONDPART. When the job is restarted, the value of $RESTART is TRUE. In this instance, the IF–GOTO command transfers control to the SECONDPART label in the procedure so that PART2.EXE can be run. PART1.EXE is not rerun.

SET RIGHTS_LIST

Allows users to modify the process or system rights list. You must specify either the /DISABLE or the /ENABLE qualifier with the SET RIGHTS_LIST command.

FORMAT

SET RIGHTS_LIST *id-name[,...]*

PARAMETER

id-name[,...]

Specifies identifiers to be added to or removed from the process or system rights list. The *id-name* parameter is a string of 1 to 31 alphanumeric characters, underscores (_), and dollar signs ($); each name must contain at least one nonnumeric character.

DESCRIPTION

The SET RIGHTS_LIST command modifies identifiers in your current process rights list, the rights list of another process on the system, or the system rights list. Use the following guidelines to determine which privileges are required for each case:

- Adding new identifiers or modifying existing identifiers in your process rights list that do not have the DYNAMIC attribute requires CMKRNL (change mode to kernel) privilege.
- Modifying the rights list of other processes on the system requires CMKRNL privilege and either GROUP or WORLD privilege.
- Modifying the system rights list requires both CMKRNL and SYSNAM (system logical name) privileges.

This command can also be used to add attributes to existing identifiers.

You must specify either the /DISABLE or the /ENABLE qualifier with the SET RIGHTS_LIST command.

QUALIFIERS

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

Specifies attributes to be associated with the identifiers. Attributes may be added to new or existing identifiers. The following are valid keywords:

[NO]DYNAMIC	Indicates whether unprivileged holders of the identifiers can add them to or remove them from the process rights list. The default is NODYNAMIC.
[NO]RESOURCE	Indicates whether holders of the identifiers can charge resources to them. The default is NORESOURCE.

/DISABLE

Removes the identifiers from the process or system rights list. You cannot use the /DISABLE qualifier with the /ENABLE qualifier.

/ENABLE

Adds the identifiers to the process or system rights list. You cannot use the /ENABLE qualifier with the /DISABLE qualifier.

/IDENTIFICATION=pid

Specifies the process identification (PID) value of the process whose rights list is to be modified. The PID is assigned by the system when the process is created. When you specify a PID, you can omit the leading zeros.

If you specify the /IDENTIFICATION qualifier, you cannot use the /PROCESS qualifier. By default, if neither the /IDENTIFICATION nor the /PROCESS qualifier is specified, the current process is assumed. You cannot use the /IDENTIFICATION qualifier with the /SYSTEM qualifier.

/PROCESS[=process-name]

Specifies the name of the process whose rights list is to be modified. The process name can contain from 1 to 15 alphanumeric characters.

If you specify the /PROCESS qualifier, you cannot use the /IDENTIFICATION qualifier. By default, if neither the /PROCESS nor the /IDENTIFICATION qualifier is specified, the current process is assumed.

You cannot use the /PROCESS qualifier with the /SYSTEM qualifier.

/SYSTEM

Specifies that the desired operation (addition or removal of an identifier) be performed on the system rights list. You cannot use the /SYSTEM qualifier with the /PROCESS or the /IDENTIFICATION qualifier.

EXAMPLES

1

```
$ SET RIGHTS_LIST/ENABLE/ATTRIBUTES=RESOURCE MARKETING
```

The SET RIGHTS_LIST command in this example adds the MARKETING identifier to the process rights list of the current process. Specifying the RESOURCE attribute allows holders of the MARKETING identifier to charge resources to it.

2

```
$ SET RIGHTS_LIST/ENABLE/SYSTEM PHYSICS101
%SYSTEM-F-NOCMKRNL, operation requires CMKRNL privilege
$ SET PROCESS/PRIVILEGES=(CMKRNL,SYSNAM)
$ SET RIGHTS_LIST/ENABLE/SYSTEM PHYSICS101
```

The SET RIGHTS_LIST command in this example adds the PHYSICS101 identifier to the system rights list. You must have both the CMKRNL (change mode to kernel) and SYSNAM (system logical name) privileges to modify the system rights list.

SET RMS_DEFAULT

Defines default values for the multiblock and multibuffer counts, network transfer sizes, prolog level, and extend quantity used by VMS Record Management Services (VMS RMS) for file operations.

If you set the default value for either the multiblock count or the multibuffer count at 0, VMS RMS tries to use the process default value or the system default value, in that order. If these are set at 0, VMS RMS uses a default value of 1. Defaults are set for sequential, relative, or indexed file organizations on a process-only basis, unless a systemwide basis is requested.

FORMAT

SET RMS_DEFAULT

PARAMETERS

None.

DESCRIPTION

Multiblocking and multibuffering of file operations can enhance the speed of I/O operations with VMS RMS. The defaults set with the SET RMS_DEFAULT command are applied for all file operations that do not specify explicit multiblock or multibuffer counts.

For more information on multiblock and multibuffer operations, see the *VMS System Services Reference Manual.*

For indexed files, the SET RMS_DEFAULT command defines default prolog level options.

For sequential files, the SET RMS_DEFAULT command defines default extensions. If a default extension is not specified in your program, the process or system default is used.

For network operations, the SET RMS_DEFAULT command defines network buffer sizes for transfer.

QUALIFIERS

/BLOCK_COUNT=count

Specifies a default multiblock count (0 to 127) for record I/O operations *only*, where *count* is the number of blocks to be allocated for each I/O buffer.

For more information on multiblock count, see the description of the RAB$B_MBC in the *VMS Record Management Services Manual.*

/BUFFER_COUNT=count

Specifies a default multibuffer count (0 to 255) for local file operations, where *count* is the number of buffers to be allocated. If you use the /SYSTEM qualifier to extend the default value systemwide, the maximum default value is 127.

When you use the /BUFFER_COUNT qualifier, you can use the /DISK, /INDEXED, /MAGTAPE, /RELATIVE, /SEQUENTIAL, and /UNIT_RECORD qualifiers to specify the types of file for which the default is to be applied. If the /BUFFER_COUNT qualifier is specified without any of these qualifiers, the /SEQUENTIAL qualifier is assumed. If file type is not specified, the default is applied to sequential files.

For more information on multibuffer count, see the description of the RAB$B_MBF field in the *VMS Record Management Services Manual*.

/DISK

Applies the specified defaults to disk file operations. Values applied using the /SEQUENTIAL qualifier take precedence over values applied using the /DISK qualifier.

/EXTEND_QUANTITY=n

Specifies the number of blocks *n* to extend a sequential file where *n* can range from 0 to 65535. If you do not specify the /EXTEND_QUANTITY qualifier, VMS RMS calculates its own extend value. The /EXTEND_QUANTITY qualifier value is used when the program does not specify an extent quantity explicitly.

/INDEXED

Applies the multibuffer default to indexed file operations.

/MAGTAPE

Applies the multibuffer default to magnetic tape operations. Values applied using the /SEQUENTIAL qualifier take precedence over values applied using the /MAGTAPE qualifier.

/NETWORK_BLOCK_COUNT=count

Specifies a default block count (0 to 127) for network access to remote files, where count represents the number of I/O buffers that VMS RMS allocates for transmitting and receiving data.

For remote file access, the buffer size is negotiated between between VMS RMS and the remote system's file access listener (FAL) with the smaller of the two sizes being selected.

Thus, the /NETWORK_BLOCK_COUNT value places an upper limit on the network buffer size that is used. It also places an upper limit on the largest record that may be transferred to or from a remote file. In other words, the largest record that can be transferred must be less than or equal to this value.

If you omit the value or specify a value of 0, VMS RMS uses the systemwide block count value. If this value is also 0, VMS RMS uses a size of one block.

/PROLOG=n

Specifies a default prolog level for indexed files where acceptable values for *n* are 0, 2, or 3. If 0 (default) is specified, VMS RMS sets an appropriate prolog level.

/RELATIVE

Applies the multibuffer default to relative file operations.

/SEQUENTIAL (default)

Applies the multibuffer default to sequential file operations. The /SEQUENTIAL qualifier overrides values applied using either the /DISK, the /MAGNETIC TAPE, or the /UNIT RECORD qualifier.

The /SEQUENTIAL qualifier is the default if you do not specify either the /RELATIVE or the /INDEXED qualifier.

/SYSTEM

Requires CMKRNL (change mode to kernel) privilege.

Applies specified defaults on a systemwide basis to all file operations.

/UNIT_RECORD

Applies the multibuffer default to file operations on unit record devices. Values applied using the /SEQUENTIAL qualifier take precedence over values applied using the /UNIT_RECORD qualifier.

EXAMPLES

1

```
$ SET RMS_DEFAULT/BLOCK_COUNT=24
$ SHOW RMS
```

	MULTI-BLOCK COUNT	MULTIBUFFER COUNTS					NETWORK BLOCK COUNT
		Indexed	Relative	Sequential			
				Disk	Magtape	Unit Record	
Process	24	0	0	0	0	0	0
System	16	0	0	0	0	0	8

	Prolog	Extend Quantity
Process	0	0
System	0	0

The SET RMS_DEFAULT command in this example sets the multiblock count for disk file I/O at 16 for user programs that do not set the multiblock count explicitly. The command applies only to the current process.

2

```
$ SET RMS_DEFAULT/BUFFER_COUNT=8/MAGTAPE
$ SHOW RMS_DEFAULT
```

	MULTI-BLOCK COUNT	MULTIBUFFER COUNTS					NETWORK BLOCK COUNT
		Indexed	Relative	Sequential			
				Disk	Magtape	Unit Record	
Process	24	0	0	0	8	0	0
System	16	0	0	0	0	0	8

	Prolog	Extend Quantity
Process	0	0
System	0	0

The SET RMS_DEFAULT command in this example defines the default multibuffer count for I/O magnetic tape operations at 8.

```
3  $  SET RMS_DEFAULT/BUFFER_COUNT=7/NETWORK_BLOCK_COUNT=16/SYSTEM
   $  SHOW RMS_DEFAULT

            MULTI-  |                MULTIBUFFER COUNTS                | NETWORK
            BLOCK   | Indexed  Relative           Sequential          |  BLOCK
            COUNT   |                        Disk   Magtape  Unit Record |  COUNT
Process      24     |    0         0          0       8         0       |    0
System       16     |    0         0          7       7         7       |    16

             Prolog    Extend Quantity
Process        0              0
System         0              0
```

The SET RMS_DEFAULT command in this example defines the systemwide default multibuffer count at 7 for all sequential file operations on disk, magnetic tape, and unit record devices. The command also sets the network block count at 16.

```
4  $  SET RMS_DEFAULT/EXTEND=50/INDEXED/BUFFER_COUNT=5
   $  SHOW RMS_DEFAULT

            MULTI-  |                MULTIBUFFER COUNTS                | NETWORK
            BLOCK   | Indexed  Relative           Sequential          |  BLOCK
            COUNT   |                        Disk   Magtape  Unit Record |  COUNT
Process      24     |    5         0          0       8         0       |    0
System       16     |    0         0          7       7         7       |    16

             Prolog    Extend Quantity
Process        0             50
System         0              0
```

The SET RMS_DEFAULT command in this example sets the default multibuffer count for I/O operations on indexed files at 5. It also defines the default extend quantity for sequential I/O operations at 50 blocks. These defaults apply only to disk operations for user programs that do not set the multiblock count explicitly. These defaults are limited to the current process.

```
5  $  SET RMS_DEFAULT/PROLOG=2
   $  SHOW RMS_DEFAULT

            MULTI-  |                MULTIBUFFER COUNTS                | NETWORK
            BLOCK   | Indexed  Relative           Sequential          |  BLOCK
            COUNT   |                        Disk   Magtape  Unit Record |  COUNT
Process      24     |    5         0          0       8         0       |    0
System       16     |    0         0          7       7         7       |    16

             Prolog    Extend Quantity
Process        2             50
System         0              0
```

The SET RMS_DEFAULT command in this example specifies Prolog 2 as default for indexed files for the current process.

SET SYMBOL

Controls access to local and global symbols in command procedures.

FORMAT SET SYMBOL

DESCRIPTION

The SET SYMBOL command controls access to local and global symbols in command procedures by treating symbols as undefined. Because all global and local symbols defined in an outer procedure level are accessible to inner procedure levels, it is often necessary to mask these symbols without deleting them.

The SET SYMBOL command also controls whether DCL will attempt to translate the verb string (the first token on the command line) as a symbol before processing the line. The default behavior is that the translation is attempted. The advantage to changing this behavior is that a command procedure will not be affected by outer procedure level environments when invoking a command.

The symbol scoping context is different for local and global symbols. Local symbols are procedure level dependent. Local symbols defined in an outer subroutine level can be read at any inner subroutine level, but they cannot be written to. If you assign a value to a symbol that is local to an outer subroutine level, a new symbol is created at the current subroutine level. However, the symbol in the outer procedure level is not modified.

This means that the SET SYMBOL/SCOPE=NOLOCAL command causes all local symbols defined at an outer procedure level to be inaccessible to the current procedure level and any inner levels. For example, if SET SYMBOL/SCOPE=NOLOCAL was specified at procedure levels 2 and 4, procedure level 2 can read (but not write to) only level 2 local symbols. Level 3 can read (but not write to) level 2 local symbols and can read and write to level 3 local symbols. Level 4 can read and write to only level 4 local symbols.

Global symbols are procedure-level independent. The current global symbol scoping context is applied subsequently to all procedure levels. Specifying the /SCOPE=NOGLOBAL qualifier causes all global symbols to become inaccessible for all subsequent commands until either the /SCOPE=GLOBAL qualifier is specified or the procedure exits to a previous level at which global symbols were accessible. In addition, specifying the /SCOPE=NOGLOBAL qualifier prevents you from creating any new global symbols until the /SCOPE=GLOBAL qualifier is specified.

When you exit a procedure level to return to a previous procedure, the symbol scoping context from the previous level is restored for both local and global symbols.

To display the current symbol scoping state, use the lexical function F$ENVIRONMENT("SYMBOL_SCOPE").

QUALIFIERS

/ALL (default)

Specifies that the values of the /SCOPE qualifier pertain both to the translation of the first token on a command line and to general symbol substitution.

The /ALL qualifier is incompatible with the /GENERAL or the /VERB qualifier.

/GENERAL

Specifies that the values of the /SCOPE qualifier pertain to the translation of all symbols except the first token on a command line.

The /GENERAL qualifier is incompatible with the /ALL or the /VERB qualifier.

/SCOPE=(keyword,...)

Controls access to local and global symbols. Lets you treat symbols as being undefined. Possible keywords are as follows:

NOLOCAL	Causes all local symbols defined in outer procedure levels to be treated as being undefined by the current procedure and by all inner procedure levels.
LOCAL	Removes any symbol translation limit set by the current procedure level.
NOGLOBAL	Causes all global symbols to be inaccessible to the current procedure level and to all inner procedure levels unless otherwise changed.
GLOBAL	Restores access to all global symbols.

/VERB

Specifies that the values of the /SCOPE qualifier pertain to the translation of the first token on a command line as a symbol before processing only. It does not affect general symbol substitution.

Note: Caution must be used if the SET SYMBOL/VERB/SCOPE command is used more than once in a command procedure. Because DCL uses the translation behavior when looking for a label or subroutine, execution may be different running in one mode than in another. Digital recommends that the SET SYMBOL/VERB /SCOPE command be used once as part of the command procedure setup and left in that mode for the duration of the procedure.

The /VERB qualifier is incompatible with the /ALL or the /GENERAL qualifier.

EXAMPLES

1
```
$ SET SYMBOL/SCOPE=NOLOCAL
```

In this example, all local symbols defined in outer procedure levels are now undefined for the current procedure level and all inner procedure levels.

2
```
$ SET SYMBOL/SCOPE=NOGLOBAL
```

In this example, all global symbols are now inaccessible to the current procedure level and all inner procedure levels unless otherwise changed.

```
3   $  test :== SHOW TIME
    $  !
    $  test
       5-APR-1990 11:48:58
    $  !
    $  SET SYMBOL /VERB /SCOPE=NOGLOBAL
    $  test
    %DCL-W-IVVERB, unrecognized command verb - check validity and spelling
     \TEST\
    $  !
    $  show symbol test
      TEST == "SHOW TIME"
```

This example demonstrates the use of the /VERB qualifier.

The symbol "test" is assigned to the SHOW TIME command. The next line shows the default behavior, where DCL attempts to translate the first string on the command line ("test"). Since "test" translates to "SHOW TIME", this is used instead of "test".

The SET SYMBOL command on the next line changes the behavior so that DCL does not attempt a translation. When "test" is entered now, DCL uses the string "test" as the verb and cannot find it in the command table. This results in the error message.

Notice that the scoping of the verb translation has no effect on general symbol translations, as demonstrated by the SHOW SYMBOL command in the example.

SET TERMINAL

Sets the characteristics of a terminal. Entering a qualifier changes a characteristic; omitting a qualifier leaves the characteristic unchanged.

FORMAT

SET TERMINAL *[device-name[:]]*

PARAMETER

device-name[:]

Specifies the device name of the terminal. The default is SYS$COMMAND if that device is a terminal. If the device is not a terminal, an error message is displayed.

DESCRIPTION

The SET TERMINAL command modifies specific terminal characteristics for a particular application or overrides system default characteristics. (These defaults are defined at each installation, based on the most common type of terminal in use.) The default characteristics for terminals are listed in Figure DCL2–2.

The terminal characteristics, local or remote, are determined automatically by the terminal driver for terminals that have the modem characteristic enabled. These characteristics are not affected by the SET TERMINAL command. For example, when you successfully dial in to a VAX processor, you establish your terminal as remote. When you hang up, the terminal characteristic is set back to local.

The set of terminals supported by the VMS operating system includes a set of VT100-family terminals that support special DIGITAL ANSI characteristics and escape sequences. For a description of these special characteristics and escape sequences, see the *VMS I/O User's Reference Manual: Part I*.

Figure DCL2–2 Default Characteristics for Terminals

Default Characteristics for Terminals

Name	Unk.	For.	LA12	LA34 LA38 LA100 LQP02	LA36	LA120	LA210 LN03 LN01K	VT05	VT52 VT55	VT101	VT102	VT100 VT105	VT125	VT131 VT132	VT173	VT200	VT300	VT400	PRO
ADVANCED_VIDEO	No	*	No	No	No	No	No	No	No	No	Yes	@	@	Yes	Yes	Yes	Yes	Yes	Yes
ALTYPEAHD	No	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ANSI_CRT	No	*	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
APPLICATION_KEYPAD	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
/NUMERIC_KEYPAD																			
AUTOBAUD	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
BLOCK_MODE	No	*	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No	No	No	No
BRDCSTMBX	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
BROADCAST	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
CRFILL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEC_CRT	No	*	No	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
DEC_CRT2	No	*	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No
DEC_CRT3	No	*	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No
DEC_CRT4	No	*	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes	Yes	No
DIALUP	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
DISCONNECT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
DMA	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
ECHO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EDIT_MODE	No	*	No	No	No	No	No	No	No	No	Yes	@	@	@	Yes	Yes	Yes	Yes	Yes
EIGHT_BIT	*	*	No	No	No	No	Yes	No	No	No	No	No	No	No	No	Yes	Yes	Yes	No
ESCAPE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FALLBACK	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	No	No	No	No
FORM	*	*	Yes	Yes	No	Yes	Yes	No	No	No	No	No	No	No	No	No	No	No	No
FRAME	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FULLDUP/HALFDUP	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
HANGUP	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
HARDCOPY/SCOPE	*	*	Hard	Hard	Hard	Hard	Hard	Scope	Scope	Scope	Scope	Scope	Scope	Scope	Scope	Scope	Scope	Scope	Scope
HOSTSYNC	*	*	*	*	*	*	*	*	*	*	*	*	*	Yes	Yes	*	*	*	*
INSERT/OVERSTRIKE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LFFILL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LINE_EDITING	No	*	No	No	No	No	No	No	No	No	No	No	*	*	No	*	*	*	*
LOCAL_ECHO	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
LOWERCASE/UPPERCASE	*	*	Low	Low	Low	Low	Low	Up	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
MODEM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	Yes	Yes	*
PAGE	*	*	66	66	66	66	66	20	24	24	24	24	24	24	16	24	24	24	24
PARITY	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PRINTER_PORT	No	*	No	No	No	No	No	No	No	No	Yes	@	Yes	No	No	@	Yes	Yes	Yes

* Indicates that the current setting is not affected by terminal type.
@ Optional terminal feature.

ZK-5170-GE

(continued on next page)

Figure DCL2–2 (Cont.) Default Characteristics for Terminals

(Cont.) Default Characteristics for Terminals

Name	Unk.	For.	LA12	LA34 LA38 LA100 LQP02	LA36	LA120	LA210 LN03 LN01K	VT05	VT52 VT55	VT101	VT102	VT100 VT105	VT125	VT131 VT132	VT173	VT200	VT300	VT400	PRO
READSYNC	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
REGIS	No	*	No	No	No	No	No	No	No	No	No	No	Yes	No	No	@	@	@	@
REMOTE	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SECURE_SERVER	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SET_SPEED	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SIXEL_GRAPHICS	No	*	No	No	No	No	Yes	No	No	No	No	No	Yes	No	No	@	@	@	No
SOFT_CHARACTERS	No	*	No	No	No	No	No	No	No	No	No	No	No	No	No	@	@	@	No
SPEED	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SYSPASSWORD	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
TAB	*	*	Yes	No	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TTSYNC	*	*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TYPE_AHEAD	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
WIDTH	*	*	80	132	132	132	80	72	80	80	80	80	80	80	80	80	80	80	80
WRAP	*	*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

ZK-5171-GE

QUALIFIERS

/ADVANCED_VIDEO
/NOADVANCED_VIDEO

Controls whether the terminal has advanced video attributes and is capable of 132-column video. If the terminal width is set to 132 columns and you specify the /ADVANCED_VIDEO qualifier, the terminal page limit is set to 24 lines. If you specify the /NOADVANCED_VIDEO qualifier, the terminal page limit is set to 12 lines.

/ALTYPEAHD

Causes the terminal driver to create a permanent, alternate type-ahead buffer. The SYSGEN parameter TTY_ALTYPAHD determines the size of the type-ahead buffer. This specification is effective at your next login and stays in effect until you reboot your VAX computer.

You should specify SET TERMINAL/PERMANENT/ALTYPEAHD in SYS$SYSTEM:STARTUP_V5.COM for those communication lines that require this capability.

To use this feature interactively, specify SET TERMINAL/PERMANENT /ALTYPEAHD. This specification is effective at your next login.

/ANSI_CRT (default)
/NOANSI_CRT

Controls whether the terminal conforms to ANSI CRT programming standards. Since ANSI standards are a proper subset of the DEC_CRT characteristics, the default for all VT100-family terminals is /ANSI_CRT.

/APPLICATION_KEYPAD

Specifies that the keypad is to be set to application keypad mode, which allows you to enter DCL commands defined with the DEFINE/KEY command. By default, the terminal is set to numeric keypad mode.

/AUTOBAUD
/NOAUTOBAUD

Controls whether the terminal baud rate is set when you log in and sets the default terminal speed to 9600. You must press the Return key two or more times at intervals of at least 1 second for the baud rate to be determined correctly. If you press a key other than the Return key, the /AUTOBAUD qualifier may 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.

The valid baud rates are as follows:

110	1200	4800
150	1800	9600
300	2400	19200
600	3600	

/BLOCK_MODE
/NOBLOCK_MODE

Controls whether block mode transmission, local editing, and field protection are performed.

/BRDCSTMBX
/NOBRDCSTMBX

Controls whether broadcast messages are sent to an associated mailbox if one exists.

/BROADCAST (default)
/NOBROADCAST

Controls whether reception of broadcast messages (such as those issued by MAIL and REPLY) is enabled. Specify the /NOBROADCAST qualifier when you are using a terminal as a noninteractive device or when you do not want special output to be interrupted by messages. Use the SET BROADCAST command to exclude certain types of messages from being broadcast, rather than eliminating all messages.

/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 to 9. The default is the /CRFILL=0 qualifier.

/DEC_CRT[=(value1,value2,value3)]
/NODEC_CRT[=(value1,value2,value3)]

Controls whether the terminal conforms to Digital VT100-, VT200-, VT300-, or VT400-family standards and supports the minimum standards, including the additional Digital escape sequences.

You can specify one of the following values:

1 (default)	Requests that the DEC_CRT terminal characteristic be set.
2	Requests that the DEC_CRT2 terminal characteristic be set.
3	Requests that the DEC_CRT3 terminal characteristic be set. A level 3 terminal supports the following additional features: • A status line (line 25, at the bottom of the screen) • The ISO Latin1 character set • Terminal state interrogation (describes what state your terminal is in)
4	Requests that the DEC_CRT4 terminal characteristic be set. A level 4 terminal supports the following additional features: • Extended keyboard • Key position mode • Secure reset • Novice mode • Selective erase • On-Line Transaction Processing features: – Page memory – Rectangular editing – Text macros – Data integrity reports

Note that DEC_CRT2, DEC_CRT3, and DEC_CRT4 are supersets of DEC_CRT. Clearing DEC_CRT causes DEC_CRT2, DEC_CRT3, and DEC_CRT4 to be cleared. Similarly, setting DEC_CRT4 causes all subsets of DEC_CRT4 (including ANSI_CRT) to be set.

/DEVICE_TYPE=terminal-type

Informs the system of the terminal type and sets characteristics according to the device type specified. You can specify any of the following terminal types:

UNKNOWN	VT52
FT1–FT8	VT55
LA12	VT100
LA34	VT101
LA36	VT102
LA38	VT105
LA100	VT125
LA120	VT131
LA210	VT132
LN01K	VT173
LN03	VT200
LQP02	VT300
PRO_SERIES	VT400
VT05	

The default characteristics for the VT100-, VT102-, and VT125-series terminals are as follows:

/ADVANCEDVIDEO	/CRFILL=0	/LFFILL=0	/SPEED=9600
/NOALTYPEAHD[1]	/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	

[1] This is the default characteristic set by the system and is not a valid qualifier for your use.

The terminal types and characteristics that can be set are listed in Figure DCL2–2.

/DIALUP
/NODIALUP (default)

Controls whether the terminal is a dialup terminal.

/DISCONNECT
/NODISCONNECT (default)

Controls whether the process connected to this terminal is disconnected if the line detects a hangup. The /DISCONNECT qualifier is valid only when the /PERMANENT qualifier is specified.

/DISMISS
/NODISMISS (default)
Controls whether the terminal driver ignores data that causes a parity error (instead of terminating the currently outstanding I/O with an error status).

/DMA
/NODMA
Controls whether direct memory access (DMA) mode is used on a controller that supports this feature.

/ECHO (default)
/NOECHO
Controls whether the terminal displays the input it receives. With the /NOECHO qualifier, the terminal displays only system or user application output, or both.

/EDIT_MODE
/NOEDIT_MODE
Controls whether the terminal can perform ANSI-defined advanced editing functions.

/EIGHT_BIT
/NOEIGHT_BIT
Controls whether the terminal uses the 8-bit ASCII protocol rather than the 7-bit ASCII protocol. You can use the Terminal Fallback Facility (TFF) to set the 8-bit characteristic on terminals. If the terminal you specify has the TFF enabled, the /EIGHT_BIT qualifier has no effect. For more information on terminal fallback, see the *VMS Terminal Fallback Utility Manual*.

/ESCAPE
/NOESCAPE (default)
Controls whether escape sequences are validated.

/FALLBACK
/NOFALLBACK
Controls whether the 8-bit DEC Multinational Character Set characters are displayed on the terminal in their 7-bit representation. The default depends on the /EIGHTBIT setting of the terminal. If the VMS Terminal Fallback Facility (TFF) is enabled, it activates the default character conversion tables for the named terminal. For more information, see the *VMS Terminal Fallback Utility Manual*. If TFF is not enabled on your system, the /FALLBACK qualifier has no effect and no error message is displayed.

/FORM
/NOFORM
Controls whether a form feed is transmitted rather than translated 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 to 8. The default value depends on the settings for the terminal established by the /PARITY and /EIGHTBIT qualifiers.

/FULLDUP (default)
/NOFULLDUP

Controls whether the terminal operates in full-duplex mode. The /FULLDUP qualifier is equivalent to the /NOHALFDUP qualifier.

/HALFDUP
/NOHALFDUP (default)

Controls whether the terminal operates in half-duplex mode. The /HALFDUP qualifier is equivalent to the /NOFULLDUP qualifier.

/HANGUP
/NOHANGUP (default)

May require LOG_IO (logical I/O) or PHY_IO (physical I/O) privilege depending on system generation parameter settings.

Controls whether the terminal modem is hung up when you log out.

/HARDCOPY
/NOHARDCOPY

Controls whether the device is established as a hardcopy terminal and outputs a backslash (\ ) when the Delete key is pressed. The /HARDCOPY qualifier is equivalent to the /NOSCOPE qualifier.

/HOSTSYNC
/NOHOSTSYNC (default)

Controls whether system transmission to the terminal is stopped (by generating a CTRL/S) when the input buffer is full and resumed (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. Some VT100-family terminals, including the VT101 and VT105, return a VT100-type response. LA38 terminals respond as LA43 terminals.

You can include the SET TERMINAL/INQUIRE command in your LOGIN.COM file to detect the terminal type automatically.

Caution: This qualifier clears the type-ahead buffer. If the response sequence is unrecognized, no action message or error message is displayed. The /INQUIRE qualifier should be used only on Digital terminals. However, the LA36 and VT05 terminals do not support this feature.

/INSERT

Sets the terminal to insert mode. This feature allows you to insert characters when editing command lines. The default mode is overstrike, which allows you to type over the current character when editing a command line. Press 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 to 9. The default is installation dependent. See Figure DCL2–2 for a list of default terminal characteristics.

/LINE_EDITING
/NOLINE_EDITING

Controls whether advanced line-editing features are enabled for editing command lines: pressing the Return key and pressing Ctrl/Z are recognized as line terminators, as are escape sequences.

/LOCAL_ECHO
/NOLOCAL_ECHO (default)

Controls whether the terminal echoes characters locally (rather than the host echoing them) for command level terminal functions. (Do not use the /LOCAL_ECHO qualifier with utilities that require control over echoing, such as line editing or EDT's screen mode.)

Caution: When logging in to terminals with the LOCAL_ECHO characteristic, the VMS operating system has no control over the echoing of passwords.

/LOWERCASE
/NOLOWERCASE

Controls whether lowercase characters are passed to the terminal. The /NOLOWERCASE qualifier translates all input to uppercase. The /LOWERCASE qualifier is equivalent to the /NOUPPERCASE qualifier.

/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

Specifies whether the terminal is connected to a modem or a cable that supplies standard EIA modem control signals. If your terminal has the MODEM characteristic, entering SET TERMINAL/NOMODEM automatically logs you out.

/NUMERIC_KEYPAD (default)

Specifies that the keypad is to be set to numeric keypad mode, which allows you to use the keys on the numeric keypad to type numbers and punctuation marks. In order to use the DEFINE/KEY facility, which allows you to enter DCL commands defined with the DEFINE/KEY

command, set the terminal to /APPLICATION_KEYPAD. Specifies whether the keys of the numeric keypad are used to type numbers and punctuation marks (/NUMERIC_KEYPAD) or to enter DCL commands defined with the DEFINE/KEY command (/APPLICATION_KEYPAD).

/OVERSTRIKE (default)

Sets the terminal to overstrike mode. This feature allows you to type over the current character when you are editing a command line. Set your terminal to insert mode if you want to insert characters when editing command lines. Press Ctrl/A to switch from one mode to the other.

/PAGE[=lines-per-page]

Specifies the number of print lines between perforations for hardcopy terminals. (When the terminal reads a form feed, it advances the paper to the next perforation.) The value of the *lines-per-page* parameter can be from 0 to 255 and defaults to 0 (which treats a form feed as a line feed).

/PARITY[=option]
/NOPARITY (default)

Controls whether the terminal passes data with only odd or even parity, where *option* equals ODD or EVEN. If you specify the /PARITY qualifier without an option, the value defaults to EVEN.

/PASTHRU
/NOPASTHRU (default)

Controls whether the terminal passes all data (including tabs, carriage returns, line feeds, and control characters) to an application program as binary data. The setting of /TTSYNC is allowed.

Make sure that you spell both these qualifiers exactly as they appear in the text.

/PERMANENT

Requires LOG_IO (logical I/O) or PHY_IO (physical I/O) 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 startup file to establish characteristics for all terminals on the system.

/PRINTER_PORT
/NOPRINTER_PORT

Specifies whether the terminal has a printer port (an attribute not set by the SET TERMINAL/INQUIRE command). The default is installation dependent. See Figure DCL2–2 for a list of default terminal characteristics.

/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)

Controls whether the terminal uses the CTRL/S and CTRL/Q functions to synchronize data transmitted from the terminal.

The default is the /NOREADSYNC qualifier; the system does not use the CTRL/S and CTRL/Q functions to control reads to the terminal. The /READSYNC qualifier is useful for certain classes of terminals that demand synchronization or for special-purpose terminal lines where data synchronization is appropriate.

/REGIS
/NOREGIS

Specifies whether the terminal understands ReGIS graphic commands.

/SCOPE
/NOSCOPE

Controls whether the device is established as a video terminal. The /SCOPE qualifier is equivalent to the /NOHARDCOPY qualifier.

/SECURE_SERVER
/NOSECURE_SERVER (default)

Controls whether the Break key on the terminal logs out the current process (except on a virtual terminal). With the /SECURE_SERVER qualifier in effect, pressing the Break key when there is no current process initiates the login sequence. With the /NOSECURE_SERVER qualifier in effect, the break is ignored.

On terminals with the AUTOBAUD and SECURE_SERVER characteristics, pressing the Break key disconnects the current process, but is not required to start a new login sequence. However, when the NOAUTOBAUD characteristic is set, the SECURE_SERVER characteristic requires a break to initiate a new login sequence.

/SET_SPEED
/NOSET_SPEED

Requires either LOG_IO (logical I/O) or PHY_IO (physical I/O) privilege.

Controls whether the /SPEED qualifier can be used to change the terminal speed.

/SIXEL_GRAPHICS
/NOSIXEL_GRAPHICS

Specifies whether the terminal is capable of displaying graphics using the sixel graphics protocol. The default is device dependent. For a list of default terminal characteristics, see Figure DCL2–2.

/SOFT_CHARACTERS
/NOSOFT_CHARACTERS

Specifies twhether the terminal is capable of loading a user-defined character set. The default is device dependent. See Figure DCL2–2 for a list of default terminal characteristics.

/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.

Not all terminals support different input and output baud rates. For specific information on baud rates for your terminal, consult the manual for that terminal.

The default transmission rates are installation dependent.

The valid values for input and output baud rates are as follows:

50	150	1800	4800
75	300	2000	7200
110	600	2400	9600
134	1200	3600	19200

/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 (logical I/O) privilege.

Determines whether the terminal requires that a system password be entered before the Username: prompt.

/TAB
/NOTAB

Controls whether tab characters are converted to multiple blanks. The /NOTAB qualifier expands all tab characters to blanks and assumes tab stops at 8-character intervals. The default is device dependent. For a list of default terminal characteristics, see Figure DCL2–2.

/TTSYNC (default)
/NOTTSYNC

Controls whether transmitting to the terminal is stopped when Ctrl/S is pressed and resumes transmission when Ctrl/Q is pressed.

/TYPE_AHEAD (default)
/NOTYPE_AHEAD

Controls whether the terminal accepts unsolicited input to the limit of the type-ahead buffer.

When you specify the /NOTYPE_AHEAD qualifier, the terminal is dedicated, and accepts input only when a program or the system issues a read to the terminal. Logins are disabled on a terminal with the NOTYPE_AHEAD characteristic. When you specify the /TYPE_AHEAD qualifier, the amount of data that can be accepted is governed by the size of the type-ahead buffer. That size is determined by system generation parameters.

/UNKNOWN

Specifies a terminal type that is unknown to the system, which then uses the default terminal characteristics for unknown terminals. For a summary of the settings, see Figure DCL2–2.

/UPPERCASE
/NOUPPERCASE

Controls whether lowercase characters are translated to uppercase. The /UPPERCASE qualifier is equivalent to the /NOLOWERCASE qualifier.

/WIDTH=characters-per-line

Specifies the maximum characters per line. This value must be an integer in the range 1 to 511. With the /WRAP qualifier, the terminal generates a carriage return and line feed when the width specification is reached.

If the specified width on an ANSI terminal is 132, the screen is set to 132-character mode. If the terminal does not have advanced video option (AVO), the page length limit is set to 12 lines.

/WRAP (default)
/NOWRAP

Controls whether a carriage return and line feed are generated when the value of the /WIDTH qualifier is reached.

EXAMPLES

1
```
$ SET TERMINAL/DEVICE=VT102
```

In this example, the SET TERMINAL command establishes the current terminal as a VT102 terminal and sets the default characteristics for that terminal type.

2
```
$ SET TERMINAL/WIDTH=132/PAGE=60/NOBROADCAST
$ TYPE MEMO.DOC
    .
    .
    .
$ SET TERMINAL/DEVICE=LA36
```

In this example, the first SET TERMINAL command indicates that the width of terminal lines is 132 characters and that the size of each page is 60 lines. The /NOBROADCAST qualifier disables the reception of broadcast messages while the terminal is printing the file MEMO.DOC. The next SET TERMINAL command restores the terminal to its default state.

SET TIME

Resets the system clock, which is used as a timer to record intervals between various internal events and as a source clock for displaying the time of day.

Requires both OPER (operator) and LOG_IO (logical I/O) privileges.

FORMAT

SET TIME*[=time]*

PARAMETER

time

Specifies a date in the format *day-month-year*, or a time in the format *hour:minute:second.hundredth*, or both. These fields accept the following values:

Field	Type	Values
Day	Integer	1 to 31
Month	String	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, or DEC
Year	Integer	1858 to 9999
Hour	Integer	0 to 23
Minute	Integer	0 to 59
Second	Integer	0 to 59
Hundredth	Integer	0 to 99

The hyphens (-), colons (:), and period (.) are required delimiters. Separate the date and time, when both are specified, with a colon. The syntax is sometimes specified as follows:

[dd-mmm-yyyy[:]] [hh:mm:ss.cc]

If the explicit time value is not specified, the interval system clock is automatically reset according to the time-of-year clock.

Note that the time-of-year clock is optional for some processors. For further information about the time-of-year clock, see the *VAX Hardware Handbook*.

EXAMPLES

1
```
$ SET TIME=19-APR-1990:19:31:0.0
```

The SET TIME command in this example sets the date and time at April 19, 1990, 7:31 P.M.

```
2    $ SET TIME
     $ SHOW TIME
     19-APR-1990 03:21:27.53
```

The SET TIME command in this example sets the system time according to the time-of-year clock. The SHOW TIME command requests a display of the current time.

SET UIC

Changes the user identification code (UIC) of your process. Use the SET UIC command to gain access to a restricted file, that is, a file contained in a directory whose protection restricts access to the owner of that directory.

Requires CMKRNL (change mode to kernel) privilege.

FORMAT

SET UIC *[uic]*

PARAMETER

uic

Specifies a valid user identification code (UIC). Brackets ([]) are required around the UIC. The UIC specifies the group number and member number. Specify the UIC by using standard UIC format as described in the section on UIC protection in the *VMS DCL Concepts Manual*.

EXAMPLES

1
```
$ SET UIC [370,10]
```

The SET UIC command in this example establishes your UIC as [370,10]. You can now read or modify any files whose access is restricted to this UIC.

2
```
$ SET UIC [214,4]
$ SET DEFAULT [ANDERSON]
```

The SET UIC command in this example sets your UIC to [214,4]; the SET DEFAULT command sets the default directory name to [ANDERSON].

3
```
$ SET UIC [GEORGE]
```

This example sets the UIC to be that of the user named GEORGE who is a member of the same group as the person entering the SET UIC command. Note the similarity of this UIC format to the directory name format. Be sure not to use a UIC where a directory specification is needed.

4
```
$ SET UIC [VMS,GEORGE]
```

This example sets the UIC to be that of the user named GEORGE who is a member of the VMS group. The person entering the SET UIC command need not be a member of the VMS group.

SET VERIFY

Controls whether command lines and data lines in command procedures are displayed at the terminal or are printed in a batch job log. The information displayed by the SET VERIFY command can help you in debugging command procedures.

FORMAT

SET [NO]VERIFY*[=([NO]PROCEDURE, [NO]IMAGE)]*

PARAMETER

([NO]PROCEDURE, [NO]IMAGE)

Specifies one or both types of verification. Procedure verification causes each DCL command line in a command procedure to be written to the output device. Image verification causes data lines (input data that is included as part of the SYS$INPUT input stream) to be written to the output device.

By default, both types of verification are set or cleared with SET VERIFY and SET NOVERIFY. If you specify only one keyword, the other is not affected. If you specify only one keyword, omit the parentheses.

DESCRIPTION

By default, the SET VERIFY and SET NOVERIFY commands set or clear both types of verification. The default setting for command procedures executed interactively is SET NOVERIFY. System responses and error messages are, however, always displayed. The default for batch jobs is SET VERIFY.

If you use the SET VERIFY command to override the default setting, the system displays each command and data line in the command procedure as it reads it. When verification is in effect, the command interpreter displays each command line after it has completed initial scanning and before the command is parsed and executed. You see the results of symbol substitution performed during scanning, but not the results of symbol substitution performed during parsing and evaluation.

When you change the verification setting, the new setting remains in effect for all command procedures that you subsequently execute.

A file must have read (R) access to allow the SET VERIFY command to set verification.

EXAMPLES

1

```
$ SET VERIFY = PROCEDURE
```

In this example, procedure verification is turned on. If image verification was on, it remains on; if image verification was off, it remains off.

```
2  $ SET VERIFY
   $ INDEX == "$INDEX.EXE
   $ CONTENTS == "$CONTENTS.EXE
   $ TABLE == "$TABLE.EXE
   $ SET NOVERIFY
   $ EXIT
```

Procedure and image verification are turned on at the beginning of the command procedure so that the system displays all the command and data lines in the procedure as it reads them. At the end of the procedure, the SET NOVERIFY command restores the system default (no procedure or image verification).

```
3  $ PROC_VER = F$ENVIRONMENT("VERIFY_PROCEDURE")
   $ IMAGE_VER = F$ENVIRONMENT("VERIFY_IMAGE")
   $ SET NOVERIFY
      .
      .
      .
   $ TEMP = F$VERIFY(PROC_VER, IMAGE_VER)
```

This command procedure uses the lexical function F$ENVIRONMENT to save the current procedure and image verification setting. Then the SET NOVERIFY command turns off both procedure and image verification. Subsequently, the F$VERIFY function is used to restore the original verification settings.

```
4  $  SET VERIFY
   $  @TEST
   $ RUN AVERAGE
   1
   2
   3
   $ EXIT
```

In this example, the SET VERIFY command turns procedure and image verification on. When the command procedure TEST.COM is executed interactively, the command lines and the data lines for the program AVERAGE are displayed on the terminal. The data lines were entered in the command procedure on lines that did not begin with the DCL prompt.

```
5   $ SET VERIFY
    $ COUNT = 1 $ IF P'COUNT' .NES. "" THEN GOTO &P'COUNT'
       .
       .
       .
    $ EXIT
```

When this command procedure is executed interactively, the SET VERIFY command causes the command and data lines to be displayed. Symbols that are substituted during the first phase of symbol substitution (such as 'COUNT') are displayed by the SET VERIFY command, but other symbols are not. The following lines are displayed when this procedure is executed interactively:

```
$ COUNT = 1 $ IF P1 .NES. "" THEN GOTO &P1
   .
   .
   .
```

Although these values are not displayed, the value for P1 is substituted during the third phase of symbol substitution, and the value for &P1 is substituted during the second phase.

SET VOLUME

Changes the characteristics of one or more mounted Files–11 volumes.

Requires write (W) access to the index file on the volume. If you are not the owner of the volume, requires either a system user identification code (UIC) or SYSPRV (system privilege) privilege.

FORMAT

SET VOLUME *device-name[:][,...]*

PARAMETER

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

Specifies the name of one or more mounted Files–11 volumes.

QUALIFIERS

/ACCESSED[=n]

Requires OPER (operator) privilege.

Specifies the number of directories to be maintained in system space for ready access. You can specify a value *n* in the range of 0 to 255. If you specify the qualifier /ACCESSED and omit the number of directories, a default value of 3 is used. If you specify a value greater than the current value, the new value is effective immediately; otherwise, the new value is not effective until the next time the volume is mounted.

/DATA_CHECK[=(option[,...])]

Defines a default for data check operations following all read and write operations to the specified volume. (If you do not specify the /DATA_CHECK qualifier, no checks are made.) Possible keywords are as follows:

READ	Performs checks following all read operations.
WRITE	Performs checks following all write operations (default).

/ERASE_ON_DELETE
/NOERASE_ON_DELETE (default)

Determines whether the space occupied by a file is overwritten with a system-specified pattern when a file on the volume is deleted.

/EXTENSION[=n]

Specifies the number of blocks to be used as a default extension size for all files on the volume. You can specify a value *n* in the range of 0 to 65,535. If you specify the /EXTENSION qualifier without specifying a value, a default value of 0 (the VMS RMS default) is used.

For example, during an update operation, the extension default is used when a file increases to a size greater than its initial default allocation.

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

Sets the default protection to be applied to all files on the specified disk volume. Specify the *ownership* parameter as system (S), owner (O), group (G), or world (W) and the *access* parameter as read (R), write (W), execute (E), or delete (D). A null access specification means no access.

Note: This attribute is not used while the volume is in use on a VMS operating system, but the attribute is provided to control the process use of the volume on RSX–11M systems. The VMS operating system always uses the default file protection; the protection can be changed with the DCL command SET PROTECTION/DEFAULT.

/HIGHWATER_MARKING
/NOHIGHWATER_MARKING

Determines whether the file highwater mark (FHM) volume attribute is set. The FHM attribute guarantees that a user cannot read data that was not written by the user. Applies to Files–11 On-Disk Structure Level 2 volumes only.

/LABEL=volume-label

Specifies a 1- to 12-character alphanumeric name to be encoded on the volume. Characters are automatically changed to uppercase. The specified label remains in effect until it is changed explicitly; dismounting the volume does not affect the label.

/LOG
/NOLOG (default)

Determines whether the volume specification of each volume is displayed after the modification.

/MOUNT_VERIFICATION
/NOMOUNT_VERIFICATION

Determines whether mount verification is enabled. Mount verification prevents interruption to user input/output operations and notifies the operator of problems with the disk.

/OWNER_UIC[=uic]

Sets the owner user identification code (UIC) of the volume to the specified UIC. The default UIC is that of the current process. Brackets ([ ]) are required around the UIC. Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

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

Specifies the protection to be applied to the volume. Specify the *ownership* parameter as system (S), owner (O), group (G), or world (W) and the *access* parameter as read (R), write (W), execute (E), or delete (D). The default protection is all types of access by all categories of user.

When you specify a protection code, execute (E) access indicates create access.

/REBUILD

Recovers caching limits for a volume that was dismounted improperly. 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=(min[,max])

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 plus the maximum time. Each time the file is accessed, the current time is added to the minimum time. If the sum is greater than the expiration date, a new expiration date is computed.

If you omit the maximum value, a default value that is the smaller of (2 x min) or (min + 7) days is used. For example, /RETENTION=3- is the same as /RETENTION=(3-,6-), while /RETENTION=10- is the same as /RETENTION=(10-,17-).

The command SET VOLUME/RETENTION=0 disables retention times on the volume.

/UNLOAD (default)
/NOUNLOAD

Specifies whether the volume is unloaded (spun down) when the DCL command DISMOUNT is entered.

/USER_NAME[=user-name]

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 to 80; the default value is 7.

EXAMPLES

1
```
$ SET VOLUME/DATA_CHECK=(READ,WRITE) DBC5
```

The SET VOLUME command in this example requests that data checks be performed following all read and write operations to DBC5.

2
```
$ SET VOLUME/FILE_PROTECTION=(S:RWED,O:RWED,G:RE,W:RE) DBC5
```

The SET VOLUME command in this example sets the default protection to be applied to all files created on volume DBC5. System (S) and owner (O) are granted all types of access; group (G) and world (W) are permitted only to read and execute files on DBC5.

3
```
$ SET VOLUME/LABEL=LICENSES DBC5
```

The SET VOLUME command in this example encodes the label LICENSES on the volume DBC5. Note that if characters in labels are entered in lowercase, they are changed to uppercase by the /LABEL qualifier.

4
```
$ SET VOLUME/ACCESSED=25/USER_NAME=MANAGER/LOG DBA0:
```

The SET VOLUME command in this example specifies that 25 directories are to be maintained in system space for ready access for the volume DBA0. The command also assigns the user name MANAGER to the volume and displays the volume specification after the volume is modified.

```
5   $  SET VOLUME/REBUILD/LOG NODE$DBA2:
    %SET-I-MODIFIED, _NODE$DBA2: modified
```

The SET VOLUME command in this example causes a rebuild operation to begin on the volume that is mounted on NODE$DBA2. The /LOG qualifier directs the SET VOLUME command to display a notification message.

SET WORKING_SET

Redefines the default working set size for the process, or sets an upper limit to which the working set size can be changed by an image that the process executes. Working set limits cannot be set to exceed those defined in the user authorization file (UAF).

FORMAT

SET WORKING_SET

PARAMETERS

None.

DESCRIPTION

The SET WORKING_SET command enables the user to change the working set size within the authorized limits. A process's working set is the collection of pages to which an executing image can refer. Each user is assigned a default working set size to be associated with the process created during login. The maximum size to which any process can increase its working set is defined in the user authorization file (UAF).

QUALIFIERS

/ADJUST (default)
/NOADJUST

Controls whether the system can automatically adjust the size 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 it must be less than or equal to the authorized extent defined in the UAF.

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.

/LOG
/NOLOG (default)

Determines whether confirmation of the SET WORKING_SET command is displayed.

/QUOTA=n

Specifies the maximum number of pages that any image executing in the process context can request. An image can set the working set size for the process by calling the $ADJWSL (Adjust Working Set Limit) system service.

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

1

```
$  SHOW WORKING_SET
  Working Set       /Limit=  150  /Quota=  700           /Extent= 700
  Adjustment enabled    Authorized Quota=  700  Authorized Extent= 700
$  SET WORKING_SET/QUOTA=1000
%SET-I-NEWLIMS, new working set:   Limit = 150  Quota = 700  Extent = 700
```

The SHOW WORKING_SET command in this example displays the current limit, quota, and extent, as well as the authorized quota and authorized extent. The SET WORKING_SET command attempts to set a quota limiting the maximum number of pages any image can request that is greater than the authorized quota. Note from the response that the quota was not increased.

2

```
$  SHOW WORKING_SET
  Working Set       /Limit=  150  /Quota=  350           /Extent= 350
  Adjustment enabled    Authorized Quota=  350  Authorized Extent= 350
$  SET WORKING_SET/LIMIT=100
%SET-I-NEWLIMS, new working set:   Limit = 100  Quota = 350  Extent = 350
$  SHOW WORKING_SET
  Working Set       /Limit=  100  /Quota=  350           /Extent= 350
  Adjustment enabled    Authorized Quota=  350  Authorized Extent= 350
```

The SET WORKING_SET command in this example sets the working set size for any image in the process to 100.

SHOW

Displays information about the current status of a process, the system, or devices in the system.

FORMAT

SHOW *option*

DESCRIPTION

The SHOW command options are described individually in this manual. Table DCL2–5 lists all the SHOW command options.

Table DCL2–5 SHOW Command Options

Option	Displays
ACCOUNTING	Items for which accounting is enabled
ACL	The access control list (ACL) associated with a system object
AUDIT	The security features that are enabled
BROADCAST	Message classes for which broadcast is enabled
CLUSTER	Cluster activity and performance
CPU	Current state of the attached processor
DEFAULT	The current default device and directory
DEVICES	The status of devices in the system
DEVICE/SERVED	The status of devices served by the mass storage control protocol (MSCP) server on a VAXcluster
DISPLAY	The node where the output from a DECwindows application running on the current node will be displayed
ERROR	The error count for the CPU, memory, and physical devices
INTRUSION	The contents of the break-in database
KEY	Key definitions created by the DEFINE/KEY command
LOGICAL	Current logical name assignments
MAGTAPE	The status and characteristics of a specific magnetic tape device
MEMORY	The availability and usage of memory resources
NETWORK	The availability of network nodes, including the current node
PRINTER	Printer characteristics

(continued on next page)

Table DCL2–5 (Cont.) SHOW Command Options

Option	Displays
PROCESS	Attributes of the current process, including privileges, resource quotas, memory usage, priority, and accounting information
PROTECTION	The current default protection applied to files
QUEUE	Names and types of queues that are available on the system as well as any current jobs belonging to your process
QUEUE/CHARACTERISTICS	Characteristic names and numbers that have been defined for system queues
QUEUE/FORM	Form names and numbers that have been defined for system queues
QUOTA	The current disk quota authorized for and used by a specific user on a specific disk
RMS_DEFAULT	The current default multiblock and multibuffer counts used by VMS Record Management Services (VMS RMS) for file operations
STATUS	The status of the current job, including accumulated CPU time, open file count, and count of I/O operations
SYMBOL	Current symbol definitions
SYSTEM	A list of all processes in the system
TERMINAL	The device characteristics of a terminal
[DAY]TIME	The current date and time
TRANSLATION	A current logical name assignment
USERS	Information about users currently on the system
WORKING_SET	The current working set size limit and quota

SHOW ACCOUNTING

Displays the activities for which accounting is currently enabled. For a complete description of the Accounting Utility, refer to the *VMS Accounting Utility Manual.*

FORMAT SHOW ACCOUNTING

PARAMETERS

None.

DESCRIPTION

The SHOW ACCOUNTING command displays one or more of the following items for which accounting is currently enabled on your system:

Item	Meaning
BATCH	Batch job termination
DETACHED	Detached job termination
IMAGE	Any image termination
INTERACTIVE	Interactive job termination
LOGIN_FAILURE	Login failures
MESSAGE	User messages
NETWORK	Network job termination
PRINT	All print jobs
PROCESS	Any process termination
SUBPROCESS	Subprocess termination

QUALIFIER

/OUTPUT[=filespec]
/NOOUTPUT

Specifies the file to which the display is written; by default, the display is written to the current SYS$OUTPUT device.

If you specify the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. If you enter a file specification, you may not include any wildcard characters.

If you specify the /NOOUTPUT qualifier, output is suppressed.

EXAMPLE

```
$  SHOW ACCOUNTING/OUTPUT=ACCOUNTING.SET
```

The SHOW ACCOUNTING command in this example writes the current setting of SET ACCOUNTING to the file ACCOUNTING.SET.

SHOW ACL

Allows you to display the access control list (ACL) of an object.

FORMAT

SHOW ACL *object-name*

PARAMETER

object-name

Specifies the name of the object whose ACL is to be displayed. No wildcard characters are allowed in the object-name specification.

DESCRIPTION

The SHOW ACL command enables you to display the access control list (ACL) of a system object. By default, the SHOW ACL command assumes an object type of FILE. If the object is any other type, you must include the /OBJECT_TYPE qualifier.

QUALIFIER

/OBJECT_TYPE=type

Specifies the object type of the object whose ACL is to be displayed. The following keywords are used to specify the object type:

CAPABILITY	A system capability, such as the ability to process vector instructions. Currently, the only defined object name for the CAPABILITY type is VECTOR, which governs the ability of a subject to access a vector processor on the system. Note that you must supply the capability name (for example, VECTOR) as the *object-name* parameter in the SHOW ACL command.
DEVICE	A device.
FILE (default)	A Files–11 disk file (includes directory files).
GROUP_GLOBAL_SECTION	A group global section.
LOGICAL_NAME_TABLE	A system logical name table.
QUEUE	A batch or device (terminal, server, or printer) queue.
SYSTEM_GLOBAL_SECTION	A system global section.

EXAMPLE

```
$  SHOW ACL/OBJECT_TYPE=DEVICE TTA1
Object type: device,    Object name: VTA1
(IDENTIFIER=[SALES,FRANK],ACCESS=READ)
(IDENTIFIER=[123,321]+NETWORK,ACCESS=NONE)
   .
   .
   .
```

The SHOW ACL command displays the ACL of the device TTA1.

SHOW AUDIT

Displays the security auditing characteristics in effect on the system.

Requires the SECURITY privilege.

FORMAT

SHOW AUDIT

PARAMETERS

None.

DESCRIPTION

The SHOW AUDIT command displays the set of features that have been enabled for auditing with the DCL command SET AUDIT. If no auditing has been enabled, the display reports briefly that security alarms are currently disabled. The display is directed to the current SYS$OUTPUT device.

If you do not specify any qualifiers with the SHOW AUDIT command, only the auditing failure mode and currently enabled security events are displayed.

It is useful to check which auditing features are enabled whenever you plan to add or delete features with a subsequent SET AUDIT command.

QUALIFIERS

/ALL

Displays all available auditing information including the following: name and location of the system security audit log file; type of security events enabled on the system; action the system will take if an attempt to write an audit event message fails (failure mode); name and location of the security archive file; information about the audit server process, such as the action taken if the audit server process runs out of virtual memory.

/ALARM

Displays the security events currently enabled on the system.

/ARCHIVE

Displays the name and location of the security archive file (if enabled).

/FAILURE_MODE

Displays the failure mode currently in effect on the system.

/JOURNAL

Displays the name and location of the system security audit log file.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. If you do not enter the /OUTPUT qualifier, or if you enter it without a file specification, the output

is sent to the current process default output stream or device, identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. If you enter a file specification, it cannot include any wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/SERVER

Displays information about the audit server process. Currently, the only information displayed is the action the audit server takes if all attempts to allocate process virtual memory are unsuccessful.

EXAMPLES

1

```
$ SHOW AUDIT
Security alarms currently disabled
```

The display produced by the SHOW AUDIT command in this example reveals that security auditing is not enabled.

2

```
$ SET AUDIT/ALARM/ENABLE=ALL
$ SHOW AUDIT
Security alarm failure mode is set to:
    WAIT        Processes will wait for resource

Security alarms currently enabled for:
    ACL
    MOUNT
    AUTHORIZATION
    BREAKIN:      (DIALUP,LOCAL,REMOTE,NETWORK,DETACHED)
    LOGIN:        (BATCH,DIALUP,LOCAL,REMOTE,NETWORK,SUBPROCESS,DETACHED)
    LOGFAILURE:   (BATCH,DIALUP,LOCAL,REMOTE,NETWORK,SUBPROCESS,DETACHED)
    LOGOUT:       (BATCH,DIALUP,LOCAL,REMOTE,NETWORK,SUBPROCESS,DETACHED)
    FILE_ACCESS:
        FAILURE:  (READ,WRITE,EXECUTE,DELETE,CONTROL)
        SUCCESS:  (READ,WRITE,EXECUTE,DELETE,CONTROL)
        SYSPRV:   (READ,WRITE,EXECUTE,DELETE,CONTROL)
        BYPASS:   (READ,WRITE,EXECUTE,DELETE,CONTROL)
        GRPPRV:   (READ,WRITE,EXECUTE,DELETE,CONTROL)
        READALL:  (READ,WRITE,EXECUTE,DELETE,CONTROL)
```

The SHOW AUDIT command in this example reveals that security auditing has been enabled for all possible events. The command also reveals that processes attempting to write security alarms when insufficient resources are available will be placed in the MWAIT state to wait for resources.

```
3   $ SHOW AUDIT/ALL
    List of audit journals:
        Journal name:           SECURITY
        Journal owner:          (system audit journal)
        Destination:            SYS$COMMON:[SYSMGR]AUDIT.AUDIT$JOURNAL
        Monitoring:             free disk space
        Warning threshold:      1000 blocks
        Action threshold:       250 blocks
        Resume threshold:       750 blocks

    Security auditing server characteristics:
        Final resource action:  crash system

    Security archiving information:
        Archiving events:       system audits, system alarms
        Archive destination:    SPAR::SYS$MANAGER:K9.AUDIT$JOURNAL

    Security alarm failure mode is set to:
        WAIT        Processes will wait for resource

    Security alarms currently enabled for:
        ACL
        AUTHORIZATION
        BREAKIN:    (DIALUP,LOCAL,REMOTE,NETWORK,DETACHED)
        LOGIN:      (BATCH,DIALUP,LOCAL,REMOTE,NETWORK,SUBPROCESS,DETACHED)
        LOGFAILURE: (BATCH,DIALUP,LOCAL,REMOTE,NETWORK,SUBPROCESS,DETACHED)
```

The SHOW AUDIT command in this example displays all the available security auditing information, including the following:

- The name and location of the system security audit log file.
- The method used by the audit server to monitor available resources on the system and the threshold values at which the audit server sends out notification, suspends, or resumes activity on the system.
- Information about the audit server process.
- The name and location of the security archive file. By default, archiving is not enabled on the system.
- The security alarm failure mode in effect on the system.
- The classes of security events enabled on the system. All security events generated are written to the system security audit log file and broadcast as alarm messages to all security operator terminals.

```
4   $ SHOW AUDIT/FAILURE_MODE
    Security alarm failure mode is set to:
        IGNORE      Alarms will be lost (0 alarms lost)
```

The SHOW AUDIT command in this example shows that the VMS operating system will ignore security alarms when there are insufficient system resources to write the alarm to the operator mailbox. A message is sent to the system console indicating that alarm messages are being lost.

```
5   $ SHOW AUDIT
    Security alarm failure mode is set to:
        WAIT        Processes will wait for resource

    Security alarms currently enabled for:
        BREAKIN:     (DIALUP,LOCAL,REMOTE,NETWORK,DETACHED)
        LOGIN:       (DIALUP)
        LOGOUT:      (DIALUP)
```

The SHOW AUDIT command in this example reveals that the terminals enabled as security operators will receive an alarm whenever the system detects a possible break-in attempt, or when a dialup user logs in or out.

SHOW BROADCAST

Displays the message classes that are currently affected by the SET BROADCAST command.

FORMAT

SHOW BROADCAST

PARAMETERS

None.

DESCRIPTION

The SHOW BROADCAST command tells which classes of messages are being screened from your terminal by the SET BROADCAST command. If some messages are enabled by the SET BROADCAST command, but these messages will not be displayed because your terminal is set NO BROADCAST, an informational message is displayed.

QUALIFIER

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. If you do not enter the qualifier, or if you enter the /OUTPUT qualifier without a file specification, the output is sent to the current process default output stream or device, identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. Wildcard characters are not allowed.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLES

1

```
$ SET BROADCAST=ALL
$ SET TERMINAL/NOBROADCAST
$ SHOW BROADCAST
Broadcasts are enabled for all classes
Terminal is set "No Broadcast", no broadcast messages will be displayed.
```

The display in this example shows that all message classes are enabled for broadcast, but that these messages will not be received because the terminal is set NO BROADCAST.

2

```
$ SHOW BROADCAST
Broadcasts are currently disabled for:
    MAIL
```

The SHOW BROADCAST display in this example indicates that SET BROADCAST=NOMAIL is in effect.

```
3   $  SET BROADCAST=(NOALL,USER1)
    $  SET TERMINAL/NOBROADCAST
    $  SHOW BROADCAST
    Broadcasts are currently disabled for:
        GENERAL
        PHONE
        MAIL
        QUEUE
        SHUTDOWN
        URGENT
        DCL
        OPCOM
        USER2
        USER3
        USER4
        USER5
        USER6
        USER7
        USER8
        USER9
        USER10
        USER11
        USER12
        USER13
        USER14
        USER15
        USER16
    Terminal is set "No Broadcast", no broadcast messages will be displayed.
```

This example shows the display you see when messages from USER1 are enabled, but will not be received, because the terminal is set NO BROADCAST.

```
4   $  SET BROADCAST=NONE
    $  SHOW BROADCAST
    Broadcasts are disabled for all classes
```

This example shows the display you see when SET BROADCAST=NONE is in effect.

SHOW CLUSTER

Invokes the Show Cluster Utility to monitor and display cluster activity and performance. For a complete description of the Show Cluster Utility, see the *VMS Show Cluster Utility Manual*.

FORMAT SHOW CLUSTER

SHOW CPU

Displays the current state of the processors in a VMS multiprocessing system.

Applies only to VMS multiprocessing systems. Requires CMKRNL (change mode to kernel) privilege.

FORMAT

SHOW CPU *[cpu-id[,...]]*

PARAMETER

cpu-id[,...]

Specifies a decimal value representing the identity of a processor in a multiprocessing system. In a VAX 8300 system, for instance, the CPU ID is the VAXBI node number of the processor; in a VAX 8800 system, the CPU ID of the left processor is 1 and that of the right processor is 0.

DESCRIPTION

The SHOW CPU command displays information about the status, characteristics, and capabilities of the processors active in and available to a VMS multiprocessing system.

You identify the processors to be displayed by using either the /ACTIVE qualifier, the /ALL qualifier, a CPU ID, or list of CPU IDs. If you specify none of these, the SHOW CPU command uses the /ALL qualifier by default.

You identify the type of information to be displayed by using the /BRIEF, /FULL, and /SUMMARY qualifiers. If you specify none of these qualifiers, the SHOW CPU command assumes the /BRIEF qualifier by default. However, if you likewise do not identify a processor or processors as the object of a command, the SHOW CPU command assumes a default of SHOW/ALL/SUMMARY.

The SHOW CPU/FULL command lists the current process on each configured processor without stopping other activity on the system. The current process may change while the data is displayed. As a result, there may be apparent inconsistencies in the display. For example, a process may be listed as the current process on more than one CPU.

QUALIFIERS

/ACTIVE

Selects as the subject of the display only those processors that are members of the system's active set.

/ALL

Selects all configured processors, active and inactive, as the subject of the display.

/BRIEF

Produces information from the summary display and also lists the current CPU state and current process (if any) for each processor in the configuration.

/FULL

Produces information from the summary display. The /FULL qualifier also lists the current CPU state, the current process (if any), the revision levels, and the capabilities for each configured processor. It indicates which processes can execute only on certain processors in the configuration. In addition, if one or more uniprocessing drivers are present in the system, the /FULL qualifier lists them by name.

The SHOW CPU/FULL command lists the current process on each configured processor without stopping other activity on the system. The current process may change while the data is displayed. As a result, there may be apparent inconsistencies in the display. For example, a process may be listed as the current process on more than one CPU.

/SUMMARY

Produces a display listing the processors in the VMS multiprocessing system, indicating which is the primary processor, which processors are configured, and which processors are active. The /SUMMARY qualifier also indicates the minimum revision levels required for processors in the system, which VMS synchronization image has been loaded into the operating system, and whether multiprocessing is enabled. If the presence of one or more uniprocessing drivers in the system prohibits the enabling of multiprocessing, the SHOW CPU command displays a warning message.

EXAMPLES

1

```
$ SHOW CPU

SOWHAT, A VAX 8800
Multiprocessing is ENABLED. Full checking synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 0 uCODE = 0 UWCS = 0.

PRIMARY CPU = 01
Active CPUs:      00 01
Configured CPUs:  00 01
```

The SHOW CPU command in this example produces a configuration summary of all configured processors in the VAX 8800 system SOWHAT. The primary processor is CPU 01, and all configured processors are active.

2

```
$ SHOW CPU/BRIEF

SOWHAT, A VAX 8800
Multiprocessing is ENABLED. Full checking synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 0 uCODE = 0 UWCS = 0.

PRIMARY CPU = 01

CPU 00 is in RUN state
Current Process: AIREGIN          PID = 4A8001E5

CPU 01 is in RUN state
Current Process: ***None***
```

The SHOW CPU/BRIEF command in this example produces a configuration summary of the VAX 8800 system SOWHAT and also indicates that its two processors are in the RUN state. Only CPU 00 has a current process.

3
```
$  SHOW CPU/FULL

SOWHAT, A VAX 8800
Multiprocessing is ENABLED. Full checking synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 0 uCODE = 0 UWCS = 0.

PRIMARY CPU = 01

CPU 00 is in RUN state
Current Process: AIREGIN          PID = 4A8001E5
Revision levels: CPU = 0  uCODE = 0  UWCS = 0.
Capabilities of this CPU:
    *** None ***
Processes which can only execute on this CPU:
    *** None ***

CPU 01 is in RUN state
Current Process: *** None ***
Revision levels: CPU = 0  uCODE = 0  UWCS = 0.
Capabilities of this CPU:
        PRIMARY
Processes which can only execute on this CPU:
        CONFIGURE         PID = 4A80010C  Reason = PRIMARY Capability
```

The SHOW CPU/FULL command in this example produces a configuration summary of the VAX 8800 system SOWHAT, indicating that each processor is in the RUN state. It also shows that CPU 01 has primary and timekeeper capabilities. There is one process, CONFIGURE, in the system that can execute only on CPU 01 because only that processor has the PRIMARY capability.

4
```
$  SHOW CPU

OLEO, A VAX 8300
Multiprocessing is DISABLED. Full checking synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 0 uCODE = 0 UWCS = 0.
*** Loaded unmodified device drivers prevent multiprocessor operation.***
PRIMARY CPU = 02
Active CPUs:      02
Configured CPUs:  02 08
```

The SHOW CPU command in this example produces a configuration summary of all configured processors in the VAX 8300 system OLEO. The primary processor is CPU 02. Multiprocessing cannot be enabled, and the secondary processor cannot be booted because a uniprocessing device driver is present in the system.

```
5   $  SHOW CPU/FULL

    OLEO, A VAX 6000-420
    Multiprocessing is DISABLED. MULTIPROCESSING Sysgen parameter = 02
    Minimum multiprocessing revision levels -- CPU: 0 uCODE: 0 UWCS: 21.
    PRIMARY CPU = 02
    *** Loaded unmodified device drivers prevent multiprocessor operation.***
        RBDRIVER

    CPU 02 is in RUN state
    Current Process: Koko                PID = 2A6001E3
    Revision levels: CPU: 0 uCODE: 0 UWCS: 0.
    Capabilities of this CPU:
            PRIMARY   VECTOR RUN
    Processes which can only execute on this CPU:
            CONFIGURE          PID = 2A40010B  Reason = PRIMARY Capability
                                               Reason = RUN Capability

    CPU 07 is in INIT state
    Current Process: *** None ***
    Revision levels: CPU: 0 uCODE: 0 UWCS: 0.
    Capabilities of this CPU:
        *** None ***
    Processes which can only execute on this CPU:
        *** None ***
```

The SHOW CPU/FULL command in this example produces a configuration summary of the VAX 8300 system OLEO, indicating that only CPU 02, the primary CPU, is active and in the RUN state. It also shows that there is a uniprocessing driver loaded in the system, thus preventing the system from being enabled as a multiprocessor.

SHOW DEFAULT

Displays the current default device and directory.

FORMAT SHOW DEFAULT

DESCRIPTION

The SHOW DEFAULT command displays the current device and directory names, along with any equivalence strings.

The default disk and directory are established in the user authorization file (UAF). You can change these defaults during a terminal session or in a batch job by using the SET DEFAULT command, or by reassigning the logical name SYS$DISK.

EXAMPLES

1

```
$  SHOW DEFAULT
   DISK1:[ALPHA]
$  SET DEFAULT DISK5:[HIGGINS.SOURCES]
$  SHOW DEFAULT
   DISK5:[HIGGINS.SOURCES]
```

The SHOW DEFAULT command in this example displays the current default device and directory names. The SET DEFAULT command changes these defaults, and the next SHOW DEFAULT command displays the new default device and directory.

2

```
$  SET DEFAULT NOSUCH:[NOWAY]
$  SHOW DEFAULT
 NOSUCH:[NOWAY]
 %DCL-I-INVDEF, NOSUCH:[NOWAY] does not exist
```

In this example, the default has been set to a nonexistent device and directory. An error message is displayed.

3

```
$  DEFINE/TRANSLATION_ATTRIBUTES=CONCEALED XYZ WORK:[INVOICES.]
$  SET DEFAULT XYZ:[SALES]
$  SHOW DEFAULT
XYZ:[SALES]
```

In this example, a logical name, XYZ, is defined to represent WORK:[INVOICES]. The /TRANSLATION_ATTRIBUTES=CONCEALED qualifier tells the system not to display the translation of XYZ in file specifications. Thus, the SHOW DEFAULT command displays the logical name XYZ and not its translation.

```
4   $  SET DEFAULT WORK:[BLUE]
    $  SHOW DEFAULT
     WORK:[BLUE]
    $  DEFINE FOO WORK:[BLUE.TEMP1],WORK:[BLUE.TEMP2]
    $  SET DEFAULT FOO
    $  SHOW DEFAULT
     FOO:[BLUE]
     =    WORK:[BLUE.TEMP1]
     =    WORK:[BLUE.TEMP2]
```

In this example, the logical name FOO is defined as a search list containing the directories [BLUE.TEMP1] and [BLUE.TEMP2] on device WORK. The SET DEFAULT command equates this search list logical name with the logical name SYS$DISK. The subsequent SHOW DEFAULT command displays the search list logical name along with its equivalence strings.

Because the directory field has not been explicitly specified, the original [BLUE] directory remains in effect as the current default directory. However, unless the current default directory syntax ([ ]) is explicitly used, all file references are to those directories contained in the search list.

SHOW DEVICES

Displays the status of a device on the system.

See the qualifier descriptions for restrictions.

FORMAT

SHOW DEVICES *[device-name[:]]*

PARAMETER

device-name[:]

Specifies the name of a device for which information is to be displayed. The device name displayed by the system uses the format *ddcu* where *dd* is the device code, *c* is the controller designation, and *u* is the unit number. If the system is part of a VAXcluster that is running with hierarchical storage controllers (HSCs), the device name must include the node name using the format *node*$*ddcu* (where *node* is the node name).

You can specify a complete device name or only a portion of a device name. The SHOW DEVICES command provides defaults for nonspecified portions of device names, as follows:

- If you truncate a device name (for example, if you specify D), the command lists information about all devices whose device names begin with what you entered (in this case, D). However, if you specify a device in a VAXcluster that is running with HSCs, you must include the entire *node* portion of the device name.
- If you omit a controller designation, the SHOW DEVICES command lists all devices on all controllers with the specified unit number.
- If you omit a unit number, the SHOW DEVICES command lists all devices on the specified controller.

Note that the /FILES qualifier does not support defaults for nonspecified portions of device names; you must supply a complete device specification.

DESCRIPTION

When you enter the SHOW DEVICES command without specifying a device or using any qualifier, information about all devices on the system is displayed. If you specify a device name, the SHOW DEVICES command displays information about that device. If you use certain qualifiers with the SHOW DEVICES command, information is displayed about those devices that currently have volumes mounted or that have been allocated to processes, or both.

The device name displayed by the system uses the format *ddcu*, where *dd* is the device code, *c* is the controller designation, and *u* is the unit number. If the system is part of a VAXcluster that is running with hierarchical storage controllers (HSCs), the device name must include the node name using the format *node*$*ddcu* (where *node* is the node name).

If you enter the SHOW DEVICES command and do not specify a device name parameter or a qualifier, the command provides a brief listing of characteristics of all devices on the system, with the exception of pseudodevices with the mailbox characteristic, such as MBA3:, NLA0:, NET9:, and so on. To display such a device, you must specify all or part of the device name.

QUALIFIERS

/ALLOCATED

Displays all devices currently allocated to processes.

If you specify a device name, the characteristics of only that device are displayed. If the device is not currently allocated, the command displays a message indicating that there is no such device. If you specify a generic device name, the characteristics of all allocated devices of that type are displayed.

/BRIEF (default)

Displays brief information about the specified devices.

/FILES

Requires SYSPRV (system privilege) or BYPASS privileges to list read-protected files.

Displays a list of the names of all files open on a volume and their associated process name and process identification (PID). The specified device must be a mounted Files–11 volume. If the specified volume is a multivolume set, the files on each volume in the set are listed.

Note: The SHOW DEVICES/FILES command does not support defaults for nonspecified portions of device names. You must supply a complete device specification when using the /FILES qualifier.

If the /SYSTEM qualifier is also specified, only the names of installed files and files opened by the system are displayed. Files opened by the system are those that have been opened without the use of an ancillary control process (ACP), such as INDEXF.SYS and QUOTA.SYS, as well as system files such as JBCSYSQUE.EXE and SYSMSG.EXE.

If the /NOSYSTEM qualifier is specified, only those files opened by processes are displayed. To list files opened by a process in your group, your process must have at least GROUP privilege. If the process is not in your group, you need WORLD privilege.

If neither the /SYSTEM nor the /NOSYSTEM qualifier is specified, the names of all files currently opened on the system are displayed.

If a file is read-protected from your user identification code (UIC), the "No privilege" message is displayed instead of the file name. You must have SYSPRV (system privilege) privilege or BYPASS privilege to display the file name.

A space in place of a file name represents a work file (such as a temporary edit file) not entered in any directory. To display temporary file names, you must have BYPASS privilege in addition to GROUP or WORLD privilege.

Do not use the /FILES qualifier with the /ALLOCATED, the /BRIEF, the /FULL, or the /MOUNTED qualifier. The functions of the /FILES qualifier and these qualifiers are mutually exclusive.

/FULL
Displays a complete list of information about the devices.

/MOUNTED
Displays all devices that currently have volumes mounted on them.

If you specify a device name, only the characteristics of that device are displayed. However, if the device is not currently mounted, the command issues a message indicating there is no such device. If you specify a generic device name, the characteristics of all such devices that currently have volumes mounted are displayed.

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the output of the command is sent. If you do not enter the qualifier, or if you enter the /OUTPUT qualifier without a file specification, the output is sent to the current process default output stream or device, identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. If you enter a file specification, it may not include any wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/SYSTEM
/NOSYSTEM
Controls whether the names of installed files and files opened by the system are displayed. Files opened by the system are those that have been opened without the use of an ancillary control process (ACP), such as INDEXF.SYS and QUOTA.SYS.

If you specify the /NOSYSTEM qualifier with the /FILES qualifier, only files opened by processes are displayed. If you omit both the /SYSTEM and /NOSYSTEM qualifiers and specify the /FILES qualifier, the names of all files currently open on the system are displayed.

You can use this qualifier only with the /FILES qualifier. See the description of the /FILES qualifier for more details.

/WINDOWS
Displays the window count and total size of all windows for files open on a volume. The file name and related process name and process identification (PID) are also displayed. The letter C in a display indicates that the file is open with "cathedral windows" (segmented windows).

EXAMPLES

1

```
$ SHOW DEVICES
Device                  Device       Err.    Volume         Free  Trans Mount
 Name                   Status       Count    Label        Blocks Count Count
DBA0:                   Online mnt       0  VMS           47088    115     1
DBA1:                   Online mnt       0  USERPACK1     45216      2     1
DBA2:                   Online mnt       3  DOCUMENT       8068     20     1
DBA5:                   Online mnt       0  MASTERP       28668      1     1
DBA6:                   Online           0
DBA7:                   Online mnt       0  PROJECT      110547      1     1
DMA0:                   Online           0
DLA0:                   Online           0
DYA0:                   Online           0
DYA1:                   Online           0
DRA3:                   Online mnt       0  RES26APR      29317      1     1
```

In this example, the SHOW DEVICES command displays the following information for each device on the system:

- Device name
- Device status and characteristics (status indicates whether the device is on line; characteristics indicate whether the device is allocated, is spooled, has a volume mounted on it, or has a foreign volume mounted on it)
- Error count
- Volume label (for disk and tape volumes only)
- Number of free blocks on the volume
- Transaction count
- Number of mount requests issued for the volume (disk devices only)

2

```
$ SHOW DEVICES/FULL DMA0
Disk NODE1$DMA0:, device type RK07, is online, allocated, mounted,
error logging enabled
 Error count                    0  Operations completed            1257
 Owner UIC                [1,4]  Owner process name              VANNOY
 Owner process ID      202000C8  Dev Prot  S:RWED,O:RWED,G:RWED,W:RWED
 Reference count               2  Default buffer size               512
 Volume label      JAKE_X239     Relative volume no.                 0
 Cluster size                  1  Transaction count                   2
 Free blocks                3741  Maximum files allowed           13447
 Extend quantity               5  Mount count                         1
 Volume status           Process  ACP process name               DMA0BACP
 File ID cache size           64  Extent cache size                  64
 Quota cache size             64
Volume is subject to mount verification, file high-water marking
```

In this example, the SHOW DEVICES command requests a full listing of the status of the RK07 device DMA0. The device is located on NODE1 in a VAXcluster.

```
3  $ SHOW DEVICES/FULL NODE2$
   Disk NODE2$DUA0:, device type RA81, is online, mounted,
   error logging enabled
    Error count                    0  Operations completed           24195
    Owner UIC              [11,177]  Owner process name
    Owner process ID       20200000  Dev Prot  S:RWED,O:RWED,G:RWED,W:RWED
    Reference count              16  Default buffer size               512
    Volume label       VMSDOCLIB     Relative volume no.                 0
    Cluster size                3  Transaction count                  17
    Free blocks            525447  Maximum files allowed          111384
    Extend quantity             5  Mount count                         1
    Volume status           System  ACP process name
    Caching disabled
   Volume is subject to mount verification, file high-water marking

   Disk NODE2$DUA1:, device type RA81, is online, error logging enabled
    Error count                    0  Operations completed               0
    Owner UIC                [0,0]  Owner process name
    Owner process ID       20200000  Dev Prot  S:RWED,O:RWED,G:RWED,W:RWED
    Reference count                0  Default buffer size               512
      .
      .
      .
```

In this example, the user requested a full display of information about each device on NODE2 in the VAXcluster. Information is shown here only for the first two devices: a mounted device and a device that is not mounted.

SHOW DEVICES/SERVED

Displays information on devices served by the mass storage control protocol (MSCP) server on this node. The /SERVED qualifier is required.

FORMAT

SHOW DEVICES/SERVED

DESCRIPTION

The SHOW DEVICES/SERVED command displays information about the MSCP server and the devices it serves. This information is used mostly by system managers.

QUALIFIERS

/ALL

This qualifier displays the information displayed by all of the qualifiers listed below except the /OUTPUT qualifier.

/COUNT

Displays the number of transfer operations completed, sorted by the size of the transfers, and the number of MSCP operations that have taken place since the MSCP server was started.

/HOST

Displays the names of the processors that have MSCP-served devices on line. The System Generation Utility (SYSGEN) command MSCP/HOST determines how many hosts in the cluster can connect to the MSCP server at one time.

/OUTPUT=[filespec]

Redirects output from your terminal to the specified file. If you do not specify a file, or if you do not use this qualifier, output is sent to SYS$OUTPUT.

/RESOURCE

Displays information on the resources available to the MSCP server for use in processing I/O requests for the devices it serves. You make these resources available to the MSCP server when you use SYSGEN's MSCP command to start the MSCP server and use the qualifiers listed in the following table:

Qualifier	Item Specified
/BUFFER	The amount of buffer space available to the MSCP server.
/FRACTION	The maximum size, in pages, of the buffer granted to an I/O request; for transfers of more data than will fit a buffer of the size specified by this qualifier, several computer interconnect (CI) transfers are needed.

Qualifier	Item Specified
/SMALL	The minimum size, in pages, of the buffer that the MSCP server can grant to an I/O request; if less than this amount of buffer space is available, the I/O request must wait until at least this much buffer space becomes available; when this much space becomes available, the MSCP server grants the request a buffer.
/PACKETS	The number of I/O-request packets (class driver request packets [CDRPs]) available to the MSCP server for processing I/O requests.

EXAMPLES

1
```
$  SHOW DEVICES/SERVED
MSCP Served Devices on BOSTON 19-APR-1990 12:34:56.78
                                                Queue Requests
Device:              Status      Total Size     Current     Max      Hosts
    2$DBA0            AVAIL          340670           0       0          0
    2$DMA1           ONLINE           53790           0       0          2
    2$DMA0          OFFLINE           53790           0       0          0
```

This example shows the output generated by the command SHOW DEVICES/SERVED. The first column in the display shows the names of the devices that are served by the MSCP server. The second column shows the status of the devices. The third column shows the size, in blocks, of the device.

The Queue Requests columns show the number of I/O requests currently awaiting processing by that device and the maximum number of I/O requests that have ever been concurrently awaiting processing by that device. The last column in the display shows the number of hosts that have the device on line.

2
```
$  SHOW DEVICES/SERVED/COUNT
       MSCP Served Devices on BOSTON 19-APR-1990 12:34:58.82
Request Count:
       0-7:        1        32-39:        8        88-103:        7
      8-15:        0        40-55:        0       104-127:        0
     16-23:        0        56-71:        8
     24-31:        0        72-87:       20
Operations Count:
     ABORT            0     ERASE            0     READ             0
     ACCESS           0     FLUSH            0     REPLACE          0
     AVAILABLE        0     GET CMD STS      0     SET CTL CHR     10
     CMP CTL DAT      0     GET UNT STS   2799     SET UNT CHR      0
     CMP HST DAT      0     ONLINE           0     WRITE            0
   Total           2809
```

This example shows the information displayed by the SHOW DEVICES /SERVED/COUNT command. The numbers to the left of the colon (:), separated by a hyphen (-), are the size, in pages, of the requests. The numbers to the right of the colon are the number of requests of that size that have been processed by the MSCP server.

The section of the display headed by the label Operations Count shows the number of times the MSCP server has performed the MSCP operations listed. In the example, this MSCP server has performed 10 set-controller-characteristics (SET CTL CHR) operations, but has performed no set-unit-characteristics (SET UNT CHR) operations.

3
```
$  SHOW DEVICES/SERVED/RESOURCE
       MSCP Served Devices on BOSTON 19-APR-1990 12:34:58.82
                                                    Fragment Size
Resources:          Total      Free      In Use     Minimum    Maximum
    Buffer area:       64        64           0           4         32
    I/O Packets:      144       144
                  Current   Maximum
    Buffer wait:        0         0
```

This example shows the information displayed by the SHOW DEVICES /RESOURCE command. The Total column shows the total number of pages in the buffer area and in the number of I/O-request packets set aside for use by the MSCP server. The Free column shows the number of pages in the buffer and the number of I/O-request packets that are available for use.

The In Use column shows the number of pages within the buffer area that are in use. The columns labeled Fragment Size show the minimum and the maximum size, in pages, of a buffer that an I/O request can obtain from the buffer area.

The line labeled Buffer wait shows the number of I/O requests that are currently waiting for buffer space to become available for their use, and the maximum number of I/O requests that have waited concurrently to obtain a buffer.

4
```
$  SHOW DEVICES/SERVED/HOST
       MSCP Served Devices on BOSTON 19-APR-1990 12:34:58.82
                                                Queue Requests
Host:                Time of Connection        Current    Max   Devices
    HARVEY        19-APR-1990 12:57:39.90            0      1         2
    DOC           19-APR-1990 22:02:10.25            0      1         0
    GRUMPY        19-APR-1990 22:02:10.25            0      0         1
    SLEEPY        19-APR-1990 22:02:11.75            0      1         0
```

This example shows the information displayed by the SHOW DEVICES /SERVED/HOST command. The first column contains the names of the hosts that have class drivers connected to the MSCP server. The next column contains the times at which these connections were made.

The columns under the heading Queue Requests show the number of requests the MSCP server currently has outstanding for I/O activity on the devices it serves, the maximum number of such requests that have been outstanding at one time, and the number of MSCP-served devices that the listed hosts have on line.

SHOW DISPLAY

Indicates the node where output from a DECwindows application will be displayed.

FORMAT

SHOW DISPLAY *[display-device]*

PARAMETERS

display-device

Refers to the *display-device* parameter specified with the SET DISPLAY command. If you are directing application output to multiple workstations in the same session, you can use logical names to point to each workstation. Using the SHOW DISPLAY command, you can specify this logical name as the *display-device* parameter to see where application output will be displayed.

If you do not specify a *display-device* string, the logical name DECW$DISPLAY is used.

DESCRIPTION

DECwindows gives you the ability to run applications across a network by allowing you to perform the following tasks:

- Direct the output from applications running on your workstation to another workstation.
- Direct the output from applications running on *remote* processors to your workstation. Although the application runs on another processor, it looks the same as any other application running *locally* on your workstation.

By running applications on a remote processor for local display on your workstation, you can take advantage of larger computers that might be better suited to a specific computing task. By default, applications running on your workstation are displayed on your workstation.

You use the SET DISPLAY command to direct the output from applications to other workstations. The SHOW DISPLAY command lets you see where the output from these applications will be displayed.

Sample output from the SHOW DISPLAY command looks like the following:

```
Device:    WSA2:
Node:      0
Transport: LOCAL
Server:    0
Screen:    0
```

Device is your workstation device. A new WSA*n* device is created each time you use the SET DISPLAY/CREATE command. Node is the network system on which the output from applications is displayed. When you are running and displaying applications on your node, Node is 0, which is the standard shorthand notation for representing your node. Transport

refers to the mechanism, for example, DECNET or LOCAL, that passes information between the application—the client—and the server. The server sends input from the user to the application and output from the application to the display. Server and Screen are 0.

On DECwindows workstations, the Session Manager creates a default workstation device for use by DECwindows processes (like DECterm). When you use the SET HOST command to connect to a remote node, no workstation device is created for that process and DECW$DISPLAY is not defined. You must specifically create new display devices with the SET DISPLAY/CREATE command.

If no definition for DECW$DISPLAY exists, entering the SHOW DISPLAY command returns an error.

See the description of the SET DISPLAY command for more information.

EXAMPLE

```
$  SHOW DISPLAY
   Device:      WSA1:
   Node:        0
   Transport:   LOCAL
   Server:      0
   Screen:      0

$  SET DISPLAY/CREATE/NODE=ZEPHYR
$  SHOW DISPLAY
   Device:      WSA2:
   Node:        ZEPHYR
   Transport:   DECNET
   Server:      0
   Screen:      0
$  SPAWN/NOWAIT/INPUT=NL: RUN SYS$SYSTEM:DECW$CLOCK

$  SET DISPLAY/NOPERMANENT

$  SHOW DISPLAY
   Device:      WSA1:
   Node:        0
   Transport:   LOCAL
   Server:      0
   Screen:      0
```

In this example, you are logged in to your workstation, here referred to as node 0. (0 is the standard shorthand notation for representing your node.) You want to run the DECwindows Clock on your workstation and display it on another node, ZEPHYR.

Assuming you are authorized to display applications on ZEPHYR, you redirect the application's output to ZEPHYR with the SET DISPLAY command and enter the SHOW DISPLAY command to verify the location of the redirected display. You then run Clock. When you finish running Clock, you disable the redirected display by entering the SET DISPLAY /NOPERMANENT command. Finally, you enter the SHOW DISPLAY command to verify that any applications subsequently run on your node will also be displayed there.

Note that a new workstation display device, WSA2, is created when you enter the SET DISPLAY/CREATE command. When you cancel the redirected display with the SET DISPLAY/NOPERMANENT command, application output is once again displayed on the workstation display device WSA1.

SHOW ENTRY

Displays information about a user's batch and print jobs or about specific job entries.

Requires GROUP privilege to display all jobs in your group. Requires OPER (operator) privilege to display all jobs in all groups.

FORMAT

SHOW ENTRY *[entry-number[,...]]*

PARAMETER

entry-number[,...]

Specifies the entry number of the job you want displayed. If no entry number is specified, all your own jobs (or those owned by the user specified with the /USER_NAME qualifier) are displayed.

DESCRIPTION

The SHOW ENTRY command displays information about a user's batch and print jobs or about specific job entries.

The display lists each entry's current status as well as its attributes. These attributes are the job name, the owner, the entry number, the job status, and the queue name. You can obtain this information about your own print and batch jobs or another user's jobs on any queue.

If you are interested solely in the status of your own batch or print jobs, the SHOW ENTRY command produces a more efficient display than the SHOW QUEUE command. Because the SHOW QUEUE command displays all available queues and the jobs they contain, you must scan the display to locate your own jobs. By contrast, SHOW ENTRY displays the status of only your own jobs (or those owned by the user you specify with the /USER_NAME qualifier).

QUALIFIERS

/BATCH

Selects batch jobs for display. If the /USER_NAME qualifier is not specified, information about your own jobs is displayed.

/BRIEF (default)

Displays the following information for each job: job name, user name, entry number, job size in blocks (for print jobs), status, queue name, and queue type. The /FULL and /FILES qualifiers override the /BRIEF qualifier.

Specify the /FULL qualifier to obtain more job information.

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

Selects for display only those jobs with the specified status. Specify the status with one or more of the following keywords:

EXECUTING	Requests the display of currently executing jobs.
HOLDING	Requests the display of jobs on hold. Holding status indicates that the job is being held in the queue indefinitely.
PENDING	Requests the display of jobs with pending status. Pending status indicates that the job is waiting its turn to execute.
RETAINED	Requests the display of jobs retained in the queue after execution. Retained status indicates that the job has completed but remains in the queue. For example, a job may be retained in the queue if there was an error during its execution.
TIMED_RELEASE	Requests the display of jobs on hold until a specified time. Timed release status indicates that the job is being held in the queue for execution at a future time.

If no keyword is specified, the /BY_JOB_STATUS qualifier displays the status of all jobs.

If the /USER_NAME qualifier is not specified, information about your own job is displayed.

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

Selects for display only those print jobs in the queue types specified. Specify the queue type with one or more of the following keywords:

PRINTER	Requests the display of jobs in print queues.
SERVER	Requests the display of jobs in server queues.
TERMINAL	Requests the display of jobs in terminal queues.

If no keyword is specified, the /DEVICE qualifier displays all printer, terminal, and server queues.

If the /USER_NAME qualifier is not specified, information about your own jobs is displayed.

/FILES

Adds to the default display the list of full file specifications for each file in each job.

/FULL

Displays the following information for each job: job name, user name, entry number, job status, full file specification associated with each job, date and time of submission, settings specified for the job, queue name, and queue type.

The /FULL qualifier overrides the default brief listing format.

/GENERIC

Selects for display only those jobs contained in generic queues. A generic queue holds jobs of a particular type (for example, batch or line printer jobs) and directs them to execution queues for processing.

If the /USER_NAME qualifier is not specified, information about your own jobs is displayed.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the SHOW ENTRY command is sent. By default, the output is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/USER_NAME=username

Selects for display those jobs owned by the specified user. If the /USER_NAME qualifier is not specified, information about your own jobs is displayed. The name must be 1 to 12 alphanumeric characters.

EXAMPLES

1

```
$  SHOW ENTRY/DEVICE=(PRINTER,TERMINAL)
 Jobname         Username    Entry    Blocks   Status
 -------         --------    -----    ------   ------
 FORECAST        JONES         422        12   Printing
  On printer queue LN01$PRINT

 MANAGER         JONES         431         4   Printing
  On terminal queue LQ$PRINT
```

In this example, the SHOW ENTRY command displays your current job entries on all printer and terminal queues.

2

```
$  SHOW ENTRY/USER_NAME=MACDUFF/FULL
 Jobname         Username    Entry    Blocks    Status
 -------         --------    -----    ------    ------
 STAFF           MACDUFF       625       112    Pending
  On printer queue LN01$PRINT
  Submitted 19-APR-1990 12:14 /FORM=LN01$PORTRAIT (stock=DEFAULT)
  /NOTIFY /PRIORITY=100
    _DBA1:[MACDUFF]STAFF.DIS;3  (pending)

 MEMO            MACDUFF       629        94    Printing at block 37
  One printer queue LINE$PRINT
  Submitted  19-APR-1990  12:16 /FORM=DEFAULT /NOTIFY /PRIORITY=100
  /COPIES=2 /NOFEED /PASSALL
    _DBA1:[MACDUFF.DAILY]MEMO.TXT;2 (printing copy 2)
```

In this example, the SHOW ENTRY command displays the current entries owned by MACDUFF on all queues. The /FULL qualifier lists the submission information, the full file specification, and the current settings for both the job and the queue.

Note that entry 629 specified the /COPIES, /NOFEED, and /PASSALL qualifiers to the PRINT command. The /NOFEED qualifier suppresses automatic form feeds. The /PASSALL qualifier suppresses formatting (including form feeds and carriage return characters) performed by the print symbiont.

```
3   $ SUBMIT ASSIGNMENTS.COM
    Job ASSIGNMENTS.COM (queue SYS$BATCH, entry 199) pending
       .
       .
       .
    $ SHOW ENTRY 199
      Jobname           Username    Entry    Status
      -------           --------    -----    ------
      ASSIGNMENTS       JONES         199    Executing
        On batch queue WRITER_BATCH
```

In this example, JONES submits ASSIGNMENTS.COM for batch processing. Because JONES does not specify a specific queue, the job is entered into the generic SYS$BATCH queue to await processing. After performing other tasks, JONES checks the status of her job and sees that her file is now executing. Note that the job entry migrated from a generic to an execution batch queue and that JONES was able to check the status of her job without knowing the specific batch queue name. If she did not specify an entry number, all her jobs would have been displayed.

SHOW ERROR

Displays the error count for all devices with error counts greater than zero.

FORMAT SHOW ERROR

PARAMETERS

None.

QUALIFIERS

/FULL

Displays the error count for all devices, including those with no errors. (The error count is either zero or a number greater than zero.)

/OUTPUT[=filespec]
/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.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. Wildcard characters are not allowed in the file specification.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLE

```
$  SHOW ERROR
Device  Error Count
CPU:          2
MEMORY:       1
DBB1:         9
```

The SHOW ERROR command displays the error count for all devices with error counts greater than zero.

SHOW INTRUSION

Displays the contents of the break-in database.

Requires the CMKRNL (change mode to kernel) and SECURITY privileges.

FORMAT SHOW INTRUSION

DESCRIPTION

The VMS operating system stores information in the break-in database about login failures that originate from a specific source and that result from any number of failure types (invalid password, account expired, unknown user name). A security manager can identify possible break-in attempts by using the SHOW INTRUSION command to display the contents of the break-in database.

The entries in the break-in database have the following format:

```
Intrusion       Type       Count       Expiration       Source
```

The information provided in the fields in each entry is as follows:

Field	Description
Count	Number of login failures associated with a particular source.
Expiration	Absolute time at which a login failure is no longer counted by VMS. The SYSGEN parameter LGI_BRK_TMO controls how long the VMS operating system keeps track of a login failure.
Intrusion	Class of intrusion. The type of evasive action that the VMS operating system takes depends on the class of intrusion.
Source	Origin of the login failure. The information provided in this field depends on the class of intrusion.
Type	Severity of intrusion as defined by the threshold count for login failures.

In the break-in database, the operating system classifies login failures according to their source. The four classes of system intrusion are as follows:

Intrusion Class	Description
NETWORK	Login failure originating from a remote node, using a valid user name.
TERMINAL	Login failure originating from one terminal.
TERM_USER	Login failure originating from one terminal, using a valid user name.
USERNAME	Login failure attempting to create a detached process.

The class of intrusion determines the type of information presented in the source field of the entry. Information appears in the source field in one of the following formats:

Intrusion Class	Format of Source Field
NETWORK	node::user name
TERMINAL	terminal:
TERM_USER	terminal:user name
USERNAME	user name

The type of evasive action that a security manager can take is based on the type of information provided. For details on how to use this information, see the *Guide to VMS System Security*.

The break-in database contains two levels of intrusion entries: suspect and intruder. The severity level of an entry is displayed in the type field of the entry. When a login failure associated with a particular source occurs, the VMS operating system classifies the login failure as suspect. Each succeeding login failure from the same source is counted. The login failure count is displayed in the count field of the entry. The absolute time at which the login failure ceases to be counted is displayed in the expiration field of the entry. When the number of login failures exceeds the number specified by the SYSGEN parameter LGI_BRK_LIM, the break-in entry is classified as an intruder. However, if the parameter LGI_BRK_LIM is set to zero, the first login failure is not classified as an intruder; the result is the same as if the parameter LGI_BRK_LIM were set to one.

When a break-in entry is promoted to intruder, the VMS operating system takes evasive action by blocking all login attempts from that particular source.

The duration of the evasive action is determined by the SYSGEN parameter LGI_HID_TIM. The absolute time at which the evasive action ends is displayed in the expiration field of the entry.

For information on break-in detection, prevention, and evasive actions, see the *Guide to VMS System Security*.

If you determine that an entry in the break-in database resulted from a user error and not a break-in attempt, you can remove an entry from the break-in database with the DELETE/INTRUSION command. See the DELETE/INTRUSION command for more details.

QUALIFIERS

/OUTPUT[=filespec]

Directs the output from the SHOW INTRUSION command to the file specified with the qualifier. By default, output from the command is displayed to SYS$OUTPUT.

/TYPE=keyword

Selects the type of information from the break-in database that is displayed. The valid keywords are as follows:

ALL	All break-in entries. By default, all entries are displayed.
SUSPECT	Break-in entries for login failures that have occurred but have not yet passed the threshold necessary to be identified as an intruder.
INTRUDER	Break-in entries for which the login failure rate was high enough to warrant evasive action.

EXAMPLES

```
1  $ SHOW INTRUSION/OUTPUT=INTRUDER.LIS
```

The SHOW INTRUSION command in this example writes all the entries currently in the break-in database to the file INTRUDER.LIS.

```
2  $ SHOW INTRUSION/TYPE=INTRUDER

Intrusion    Type       Count    Expiration     Source
TERMINAL     INTRUDER     9      10:29:39.16    AV34C2/LC-1-15:
NETWORK      INTRUDER     7      10:47:53.12    BNKRPT::CAMPEAU
```

In this example, the SHOW INTRUSION command displays all intruder entries currently in the break-in database.

SHOW KEY

Displays the key definitions created with the DEFINE/KEY command.

FORMAT

SHOW KEY *[key-name]*

PARAMETER

key-name

Specifies the name of the key whose definition you want displayed. For a list of valid key names, see the DEFINE/KEY command.

DESCRIPTION

After you have defined keypad keys by using the DEFINE/KEY command, you can use the SHOW KEY command to refresh your memory about a key definition. You can also use the SHOW KEY command with the /DIRECTORY qualifier to list the names of all the states in which you have created key definitions. Use the SET KEY command to change key states.

QUALIFIERS

/ALL

Displays all key definitions in the current state (or the state specified with the /STATE qualifier). If you use the /ALL qualifier, do not specify a key name.

/BRIEF (default)
/NOBRIEF

Displays only the key definition and state. The /BRIEF and /NOFULL qualifiers are equivalent.

/DIRECTORY

Displays the names of all states for which keys have been defined. If you have not specified a state with a key definition, the SHOW KEY /DIRECTORY command displays DEFAULT for the state.

You cannot use the /DIRECTORY qualifier with any of the other SHOW KEY qualifiers.

/FULL
/NOFULL (default)

Displays all qualifiers associated with a definition. By default, only the state of the definition and the definition itself are displayed. The /FULL and /NOBRIEF qualifiers are equivalent.

/STATE=(state-name[,...])
/NOSTATE

Displays the key definitions for the specified state. If you specify only one state name, you can omit the parentheses. State names can be any appropriate alphanumeric string. State names are created with the DEFINE/KEY command.

If you omit the /STATE qualifier or use the /NOSTATE qualifier, key definitions in the current state are displayed.

EXAMPLE

```
$ DEFINE/KEY/TERMINATE PF1 "ATTACH GEORGE"
%DCL-I-DEFKEY, DEFAULT key PF1 has been defined
$ SHOW KEY PF1
DEFAULT keypad definitions:
  PF1 = "ATTACH GEORGE"
$ SHOW KEY/FULL PF1
DEFAULT keypad definitions:
  PF1 = "ATTACH GEORGE"  (noecho,terminate,noerase,nolock)
```

The SHOW KEY command in this example displays both the definition and the state for the PF1 key. This is the default display. The SHOW KEY /FULL command displays all qualifiers associated with the key definition.

SHOW LICENSE

Displays software product licenses active on the current node.

FORMAT

SHOW LICENSE *[product-name]*

PARAMETER

product-name

Specifies the name or names of activated software product licenses to display. Wildcard characters (* and %) are allowed. If you do not specify a product name, information is displayed about all active product name licenses. The *product-name* parameter is incompatible with the /CHARGE_TABLE qualifier.

DESCRIPTION

The DCL command SHOW LICENSE displays software product licenses active on the current node. An active license is one that has been registered in the LICENSE database *and* has been loaded into system memory. To register and activate software product licenses, use the License Management Utility (LICENSE) or VMSLICENSE.COM. Some licenses are registered automatically during product installation.

For a complete description of this utility, see the *VMS License Management Utility Manual*.

To display licenses registered in the LICENSE database, use the LICENSE LIST command, described with the utility.

QUALIFIERS

/BRIEF

Displays a summary of information about the specified active product licenses. You cannot use the /BRIEF qualifier with the /CHARGE_TABLE qualifier.

/CHARGE_TABLE

Displays information in the current Charge Table, also known as the License Unit Requirement Table (LURT), for the current VAX computer. The /CHARGE_TABLE qualifier is incompatible with the *product-name* parameter and with the /BRIEF and /PRODUCER qualifiers.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the SHOW LICENSE command is sent. By default, the output of the SHOW LICENSE command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PRODUCER=producer-name

Displays software product licenses active on the current node and supplied by the specified producer. Wildcard characters (* and %) are allowed for the *producer-name* parameter. You cannot use the /PRODUCER qualifier with the /CHARGE_TABLE qualifier.

EXAMPLES

1
```
$ SHOW LICENSE
    Active licenses on node WTPOOH:
        DVNETEND
                Producer: DEC
                Units: 0
                Version:  5.4
                Date:  (none)
                Termination Date: (none)
                Availability: E (System Integrated Products)
                Activity:  0
                MOD_UNITS
        VAX-VMS
                Producer: DEC
                Units: 0
                Version:  5.4
                Date:  (none)
                Termination Date: (none)
                Availability: A (VMS Capacity)
                Activity:  0
                MOD_UNITS
                NO_SHARE
```

The SHOW LICENSE command in this example displays all the active licenses on the current node, WTPOOH.

2
```
$ SHOW LICENSE/BRIEF
    Active licenses on node WTPOOH:
------- Product ID --------    ---- Rating ----- -- Version --
Product           Producer    Units Avail Activ Version Date    Expires
DVNETEND          DEC             0  E     0       5.3  (none)  (none)
VAX-VMS           DEC             0  A     0       5.3  (none)  (none)
```

The SHOW LICENSE command in this example displays a summary of all the active licenses on the current node, WTPOOH.

3
```
$ SHOW LICENSE/CHARGE_TABLE
VMS/LMF Charge Information for node WTPOOH
This is a VAX 8800, hardware model type 18
Type: A, Units Required: 93          (VMS Capacity)
Type: B, * Not Permitted *           (VMS Server)
Type: C, * Not Permitted *           (VMS Concurrent User)
Type: D, * Not Permitted *           (VMS Workstation)
Type: E, Units Required: 400         (System Integrated Products)
Type: F, Units Required: 1200        (Layered Products)
```

The SHOW LICENSE command in this example displays license unit requirements for the VAX computer with the node name WTPOOH. For a description of how to use this information, see the *VMS*

License Management Utility Manual, which is part of the VMS Base Documentation Set.

```
4   $ SHOW LICENSE/OUTPUT=SYS$LOGIN:ACTIVE_LICENSES_OCT30.DAT
```

The SHOW LICENSE command in this example writes all the active licenses to the file named SYS$LOGIN:ACTIVE_LICENSES_OCT30.DAT.

SHOW LOGICAL

Displays translations, the level of translation, and the logical name table for a specified logical name. The SHOW LOGICAL command performs iterative translations.

Requires read (R) access to the table in which a logical name is cataloged to display information about the logical name.

FORMAT

SHOW LOGICAL *[logical-name[:][,...]]*

PARAMETER

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

Specifies one or more logical names whose translations you want to display. Wildcard characters (* and %) are allowed. However, if a wildcard character is used, iterative translation is not done.

The logical name is translated iteratively up to a number of times determined by the system (from 9 to 11). That is, translations are examined to see if they are also logical names.

DESCRIPTION

The SHOW LOGICAL command displays logical names.

The logical name LNM$DCL_LOGICAL contains the list of logical name tables and the order in which they are searched. Unless LNM$DCL_LOGICAL has been redefined, the process, job, group, and system tables are searched, in that order. (To see how LNM$DCL_LOGICAL is defined for your process, enter the command SHOW LOGICAL /TABLE=LNM$DIRECTORIES LNM$DCL_LOGICAL.)

If you specify a logical name, its translations are displayed. If you do not specify a logical name, all the logical names in the tables defined by the logical name LNM$DCL_LOGICAL are displayed.

You can specify the tables you want to search. If you do not specify a table, SHOW LOGICAL searches the tables specified by the logical name LNM$DCL_LOGICAL.

The SHOW LOGICAL command performs iterative translations. If a logical name has more than one translation, then all translations at a level are displayed before going to the next level. Use the SHOW TRANSLATION command to display only the first translation found for a specified logical name.

The SHOW LOGICAL command executes an image and causes the current image (if any) to exit. Use the SHOW TRANSLATION command (which is built into the command interpreter) when you do not want to exit the current image.

If a logical name contains control characters, the SHOW LOGICAL command replaces them with periods (.) for display.

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 value for this qualifier is USER_MODE; by default any definitions in all four access modes are displayed.

/ALL (default)

Indicates that all logical names in the specified logical name tables are to be displayed. If you do not enter the /PROCESS, the /JOB, the /GROUP, the /SYSTEM, or the /TABLE qualifier, all logical names in the tables specified by the logical name LNM$DCL_LOGICAL are displayed.

/DESCENDANTS
/NODESCENDANTS (default)

Controls whether the system 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 for the specified logical name. The information includes the access mode, attributes, the translation, and the logical name table.

/GROUP

Indicates that only the group logical name table is to be searched. The /GROUP qualifier is synonymous with the /TABLE=LNM$GROUP qualifier. If you specify the /GROUP qualifier and you do not also specify a logical name, all names in the group table are displayed.

/JOB

Indicates that only the job logical name table is to be searched. The /JOB qualifier is synonymous with the /TABLE=LNM$JOB qualifier. If you specify the /JOB qualifier and you do not also specify a logical name, all names in the job logical name table are displayed.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the SHOW LOGICAL command is sent. By default, the output of the SHOW LOGICAL command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PROCESS

Indicates that only the process logical name table is to be searched. The /PROCESS qualifier is synonymous with the /TABLE=LNM$PROCESS qualifier. If you specify the /PROCESS qualifier and you do not also specify a logical name, all names in the process table are displayed.

/STRUCTURE
/NOSTRUCTURE (default)

Controls whether the system displays the "family tree" of all accessible logical name tables. The display includes the two logical name directory tables (process and system) and all logical name tables cataloged in these directory tables. Any descendant logical name tables are shown under their parent tables.

If you specify the /STRUCTURE qualifier, you cannot use any other qualifiers except /ACCESS_MODE, /FULL, and /OUTPUT.

/SYSTEM

Indicates that only the system logical name table is to be searched. The /SYSTEM qualifier is synonymous with the /TABLE=LNM$SYSTEM qualifier. If you specify the /SYSTEM qualifier and you do not also specify a logical name, all names in the system table are displayed.

/TABLE=(name[,...])

Specifies the tables you want to search. If you specify only one table, you can omit the parentheses. Wildcards (* and %) are allowed. Names with wildcards are used to match table names. Names without wildcards are treated both as table names and table search lists (whichever is appropriate).

You can use the /TABLE qualifier to specify the following:

- A user-defined logical name table (created with the CREATE/NAME_ TABLE command)
- The process, group, or system logical name tables
- The process or system directory tables

If you specify the table name by using a logical name that translates to more than one table, then each table is searched in the order specified. For example, if you specify SHOW LOGICAL/TABLE=LNM$FILE_ DEV, and LNM$FILE_DEV is equated to LNM$PROCESS, LNM$JOB, LNM$GROUP, and LNM$SYSTEM, then the process, job, group, and system tables are searched, in that order.

If you do not specify the /TABLE qualifier, the default is /TABLE=LNM$DCL_LOGICAL.

EXAMPLES

```
1   $  SHOW LOGICAL/PROCESS
    (LNM$PROCESS_TABLE)
      "SYS$COMMAND" = "_TTB4:"
      "SYS$DISK" = "WORK6:"
      "SYS$DISK" = "WORK6:"
      "SYS$ERROR" = "_TTB4:"
      "SYS$INPUT" = "_TTB4:"
      "SYS$LOGIN" = "WORK6:[ODONNELL]"
      "SYS$LOGIN_DEVICE" = "WORK6:"
      "SYS$OUTPUT" = "_TTB4:"
      "SYS$OUTPUT" = "DBA2:"
      "SYS$SCRATCH" = "WORK6:[ODONNELL]"
```

The SHOW LOGICAL command in this example displays all process logical names and their translations. (Note that /TABLE=LNM$PROCESS would produce the same display as /PROCESS.)

```
2   $  SHOW LOGICAL INFILE
      "INFILE" = "WORK6:[LOGAN]PAYROLL.EXE" (LNM$PROCESS_TABLE)
```

The SHOW LOGICAL command in this example displays the translation for the logical name INFILE. The response indicates that the logical name was found in the process logical name table.

```
3   $  SHOW LOGICAL/GROUP
       .
       .
       .
```

The SHOW LOGICAL command in this example displays all group logical names and their translations. (Note that /TABLE=LNM$GROUP would produce the same display as /GROUP.)

```
4   $  SHOW LOGICAL/TABLE=SYSTEM  SYS$LIBRARY
      "SYS$LIBRARY" = "SYS$SYSROOT:[SYSLIB]" (LNM$SYSTEM_TABLE)
                    = "DOCD$:[SYSC.SYSLIB]"
```

The SHOW LOGICAL command in this example displays the translation of the logical name SYS$LIBRARY in the system table. The response indicates that SYS$LIBRARY is defined in the system table, and that the logical name has two translations.

```
5   $  SHOW LOGICAL/TABLE=LNM$GROUP/TABLE=LNM$SYSTEM SYS$DISK
     "SYS$DISK" = "ZZZ3:" (LNM$SYSTEM_TABLE)
```

The SHOW LOGICAL command in this example is qualified by both the /TABLE=LNM$GROUP and /TABLE=LNM$SYSTEM qualifiers. The response indicates that the logical name SYS$DISK was found in the system logical name table. When you enter two conflicting qualifiers, as in this example, only the last qualifier you specify is used.

```
6   $  SHOW LOGICAL/TABLE=LNM$PROCESS_DIRECTORY
```

The SHOW LOGICAL command in this example displays the logical names in the process directory table. Each name is either a table name, or a name that translates iteratively to a table.

SHOW MEMORY

Displays the availability and usage of those system resources that are related to memory.

FORMAT

SHOW MEMORY

PARAMETERS

None.

DESCRIPTION

The information provided by the SHOW MEMORY command can help you determine whether to change certain system memory resources to improve system performance. The system memory resources are as follows:

- Physical memory
- Process entry slots and balance slots
- Nonpaged and paged dynamic memory
- Space in paging and swapping files

When the SHOW MEMORY command is executed, a display is written to SYS$OUTPUT. Depending on which qualifiers you specify, the display shows the following memory resource statistics:

- Physical memory usage
- Bad page list
- Number of pages allocated to VMS
- Slot usage
- Fixed-size pool areas (in packets)
- Dynamic memory usage (in bytes)
- Paging file usage (in pages)
- Lookaside list
- Dynamic memory

For a detailed description of each item displayed, see the examples.

QUALIFIERS

/ALL (default)

Displays all available information, that is, information displayed by the /FILES, /PHYSICAL_PAGES, /POOL, and /SLOTS qualifiers.

/FILES

Displays information about the use of each paging and swapping file currently installed.

/FULL
Displays additional information about the use of each pool area or paging and swapping file currently installed, when used with the /POOL or the /FILES qualifier. This qualifier is ignored unless the /FILES or the /POOL qualifier is specified explicitly.

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the output of the command is sent. If you do not enter the qualifier, or if you enter the /OUTPUT qualifier without a file specification, the output is sent to the current process default output stream or device, identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. If you enter a file specification, it cannot include any wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PHYSICAL_PAGES
Displays information about the amount of physical memory and the number of free and modified pages.

/POOL
Displays information about the usage of each dynamic memory (pool) area, including the amount of free space and the size of the largest contiguous block in each area.

/SLOTS
Displays information about the availability of partition control block (PCB) vector slots and balance slots.

EXAMPLES

1
```
$ SHOW MEMORY/PHYSICAL_PAGES

                System Memory Resources on  19-APR-1990 16:11:30.76
Physical Memory Usage (pages):  Total ❶    Free ❷      In Use ❸     Modified ❹
Main Memory (32.00Mb)           65536      44233        20955          308

Of the physical pages in use, 10970 pages are permanently allocated to VMS.
```

Physical Memory Usage
Shows the use of physical memory.

❶ Total	Displays the number of physical memory pages available for general system use. Multiport memory pages used for shared memory global sections, mailboxes, and common event blocks are not included in this number.
❷ Free	Displays the number of pages on the free page list.

❸ In Use	Displays the number of pages currently being used. This number is calculated by adding the number of pages on the free, modified, and bad lists and then subtracting that sum from the total number of available pages.
❹ Modified	Displays the number of pages on the modified page list.

Bad Page List

Shows the contents of the bad page list.

Note: This display is written only when there are pages on the bad page list.

Total	Displays the number of pages on the bad page list.
Dynamic	Displays the number of memory errors detected after the system was booted.
I/O Errors	Displays the number of errors detected during page fault handling.
Static	Displays the number of memory errors detected during boot-time scan.

By default, either single-bit or double-bit errors cause the pages to be removed during the boot-time scan.

Pages Allocated to VMS

Any SHOW MEMORY display that includes the physical memory display concludes with the number of pages permanently allocated to the VMS operating system. These pages include nonpaged executive code and data, the PFN database, nonpaged dynamic memory, the interrupt stack, and the system page table.

2
```
$ SHOW MEMORY/SLOTS

                System Memory Resources on 19-APR-1990 16:11:35.31
Slot Usage (slots):            Total ❶     Free ❷   Resident ❸   Swapped ❹
Process Entry Slots              75          28          46          1
Balance Set Slots                70          26          44          0
```

Slot Usage (slots)

Displays the use of process entry slots and balance set slots.

❶ Total	Displays the number of process entry slots (the value of the SYSGEN parameter MAXPROCESSCNT) and balance set slots (the value of the SYSGEN parameter BALSETCNT) permanently allocated when the system was bootstrapped.
❷ Free	Displays the number of slots currently available.
❸ Resident	Displays the number of slots currently used by memory-resident processes. The number of balance set slots in use can never be any larger than the number of process entry slots in use because the SWAPPER and NULL processes have process entry slots but do not require balance set slots.

❹ Swapped	Displays the number of slots used by outswapped processes. For process entry slots, this number includes all processes that have been partially outswapped. For balance set slots, this number includes those processes that have had their process bodies outswapped but have process headers that are still resident.

3 `$ SHOW MEMORY/POOL`

```
                System Memory Resources on  19-APR-1990 16:11:39.97
Fixed-Size Pool Areas (packets):    Total ❶      Free❷     In Use ❸     Size ❹
  Small Packet (SRP) List             624          42          582          96
  I/O Request Packet (IRP) List       500         257          243         160
  Large Packet (LRP) List              51          14           37         640

Dynamic Memory Usage (bytes):       Total ❺     Free ❻    In Use ❼   Largest ❽
  Nonpaged Dynamic Memory          161792        3488      158304        1936
  Paged Dynamic Memory              65536       29312       36224       29296
```

Fixed-Size Pool Areas (in packets)

Shows the use of the nonpaged pool areas that consist of fixed-size packets, the so-called lookaside lists.

❶ Total	Displays the total number of packets allocated for each list.
❷ Free	Displays the number of available packets on each list.
❸ In Use	Displays the number of packets in use on each list. This number is the total number of packets minus the number of free packets.
❹ Size	Displays the fixed block size for each list.

Dynamic Memory Usage (in bytes)

Shows the use of the nonpaged and paged pool areas that allocate variably sized blocks.

❺ Total	Displays the total number of bytes set aside for each area.
❻ Free	Displays the total amount of free space in each dynamic memory area.
❼ In Use	Displays the amount of space currently allocated from each area. This number is simply the total size minus the number of free bytes.
❽ Largest	Displays the size of the largest contiguous block in each area. For the paged pool, this number represents the largest block that can be allocated. For the nonpaged pool, an allocation request larger than this number will cause the nonpaged pool to grow (if other constraints allow growth).

4 `$ SHOW MEMORY/FILES`

```
                System Memory Resources on  19-APR-1990 16:11:45.83
Paging File Usage (pages):                          Free ❷   Reservable ❸    Total ❹
  DISK$VMS02APR1:[SYS2.SYSEXE]SWAPFILE.SYS ❶         256          256         4096
  DISK$VMS02APR1:[SYS2.SYSEXE]PAGEFILE.SYS           7613         6912         8192
```

Paging File Usage (in pages)

Shows the usage of paging and swapping files.

❶ Name	Displays the complete file specification of each swapping or paging file. The names of the primary paging file, the primary swapping file (if this file exists), and the files installed by the bootstrap operation are always displayed. The names of any secondary paging or swapping files installed by the System Generation Utility (SYSGEN) are displayed only if the process using the SHOW MEMORY command has read (R) access to those files. If the process cannot read the file, the name is suppressed but the usage statistics are displayed.
❷ Free	Displays the number of free blocks in each paging and swapping file currently installed. Free blocks are blocks that may be physically allocated in the file.
❸ Reservable	Displays the number of reservable blocks in each paging and swapping file currently installed. Reservable blocks are blocks that may be logically claimed by a process for future physical allocation. A negative value indicates that the file may be overcommitted.
❹ Total	Displays the total size of each paging and swapping file.

When the /FULL qualifier is included on the SHOW MEMORY command for displays of pool areas or paging file usage, additional information is included in the pool or files displays.

5
```
$ SHOW MEMORY/POOL/FULL

                System Memory Resources on  31-DEC-1990 16:11:49.74
Small Packet (SRP) Lookaside List              Packets       Bytes       Pages
    Current Total Size ❶                           624       59904         117
    Initial Size (SRPCOUNT) ❷                       50        4800          10
    Maximum Size (SRPCOUNTV) ❸                    1500      144000         282
    Free Space ❹                                    46        4416
    Space in Use ❺                                 578       55488
    Packet Size/Upper Bound (SRPSIZE) ❻                         96
    Lower Bound on Allocation ❼                                 48
I/O Request Packet (IRP) Lookaside List        Packets       Bytes       Pages
    Current Total Size ❶                           500       80000         157
    Initial Size (IRPCOUNT) ❷                      500       80000         157
    Maximum Size (IRPCOUNTV) ❸                    1500      240000         469
    Free Space ❹                                   259       41440
    Space in Use ❺                                 241       38560
    Packet Size/Upper Bound (fixed) ❻                           160
    Lower Bound on Allocation ❼                                 112
Large Packet (LRP) Lookaside List              Packets       Bytes       Pages
    Current Total Size ❶                            51       32640          64
    Initial Size (LRPCOUNT) ❷                       37       23680          47
    Maximum Size (LRPCOUNTV) ❸                      80       51200         100
    Free Space ❹                                    14        8960
    Space in Use ❺                                  37       23680
    Packet Size/Upper Bound (LRPSIZE + 64) ❻                    640
    Lower Bound on Allocation ❼                                 480
Nonpaged Dynamic Memory
    Current Size (bytes) ❽          161792    Current Total Size (pages) ❽     316
    Initial Size (NPAGEDYN) ❾       149504    Initial Size (pages) ❾           292
```

```
    Maximum Size (NPAGEVIR) ❿     512000    Maximum Size (pages) ❿          1000
    Free Space (bytes) ⓫            4256    Space in Use (bytes) ⓬        157536
    Size of Largest Block ⓭         1936    Size of Smallest Block ⓮          16
    Number of Free Blocks ⓯           19    Free Blocks LEQU 32 Bytes ⓰        6
Paged Dynamic Memory
    Current Size (PAGEDYN) ❽       65536    Current Total Size (pages) ❽     128
    Free Space (bytes) ⓫           29312    Space in Use (bytes) ⓬         36224
    Size of Largest Block ⓭        29296    Size of Smallest Block ⓮          16
    Number of Free Blocks ⓯            2    Free Blocks LEQU 32 Bytes ⓰        1
```

Lookaside List

Displays information about each nonpaged pool area that contains fixed-size blocks.

❶ Current Size	Displays the current total size of each lookaside list. The "pages" column lists the number of physical pages permanently allocated to each list.
❷ Initial Size	Displays the initial size of each lookaside list and the name of the SYSGEN parameter that controls this size.
❸ Maximum Size	Displays the maximum size to which each lookaside list can grow and the name of the SYSGEN parameter that controls this size.
❹ Free Space	Displays the amount of free space on each list.
❺ Space in Use	Displays the amount of space currently allocated from each list.
❻ Packet Size	Displays the fixed block size for each list and the relation between this size and a SYSGEN parameter. (Note that the block size for the I/O request packet lookaside list cannot be varied.) Allocation requests must be smaller than this size in order to be allocated from a given list.
❼ Lower Bound	Displays the lower limit on allocation size permitted from each lookaside list.

Dynamic Memory

Shows the use of dynamic memory areas consisting of variably sized blocks.

❽ Current Size	Displays the current size (in bytes and pages) of each dynamic memory area.
❾ Initial Size	Displays the initial size of nonpaged dynamic memory and the name of the SYSGEN parameter (NPAGEDYN) that controls this size.
❿ Maximum Size	Displays the maximum size to which nonpaged dynamic memory can grow and the name of the SYSGEN parameter (NPAGEVIR) that controls this size.
⓫ Free Space	Displays the amount of free space in each dynamic memory area.
⓬ Space in Use	Displays the amount of space currently allocated from each area.

⓭ Largest Block	Displays the size of the largest contiguous area in each pool area.
⓮ Smallest Block	Displays the size of the smallest hole (free block) in each pool area.
⓯ Free Blocks	Displays the total number of free blocks in each pool area. The size of this number is a measure of pool fragmentation.
⓰ Blocks LEQU 32	Displays the number of free blocks that are 32 bytes long or shorter. This number is another measure of pool fragmentation because while allocation of these small blocks is unlikely, they contribute to the allocation time whenever an allocation request is made.

6
```
$ SHOW MEMORY/FILES/FULL
                System Memory Resources on  14-APR-1990 16:11:55.49
DISK$VMS02APR1:[SYS0.SYSEXE]SWAPFILE.SYS ❶

    Free Blocks ❷              256    Reservable Blocks ❸             256
    Total Size (blocks) ❹     4096    Paging File Number ❺              1
    Swapping Usage (processes) ❻ 0    Paging Usage (processes) ❼        0
  This file is used exclusively for swapping. ❽

DISK$VMS02APR1:[SYS0.SYSEXE]PAGEFILE.SYS ❶
    Free Blocks ❷             7611    Reservable Blocks ❸            6912
    Total Size (blocks) ❹     8192    Paging File Number ❺              5
    Swapping Usage (processes) ❻ 0    Paging Usage (processes) ❼        0
  This file can be used for either paging or swapping. ❽
```

Paging File Usage

Shows the usage of paging and swapping files.

❶ File Name	Displays the complete file specification of each paging or swapping file, subject to the privilege restriction mentioned in the description of the normal display.
❷ Free Blocks	Displays the number of free blocks in each paging and swapping file currently installed. Free blocks are blocks that may be physically allocated in the file.
❸ Reservable Blocks	Displays the number of reservable blocks in each paging and swapping file currently installed. Reservable blocks are blocks that may be logically claimed by a process for future physical allocation. A negative value indicates that the file may be overcommitted.
❹ Total Size	Displays the size of each paging and swapping file.
❺ File Number	Displays the internal paging file index assigned to each paging or swapping file when it is installed.
❻ Swapping Usage	Displays the number of processes currently assigned space in this file for the purpose of swapping. Swapping file assignment can change over the life of a process.

❼ Paging Usage	Displays the number of processes currently paging to this file. Paging file assignment is made when a process is created and a process continues to page to that file. Note that the last two pieces of information are limited by the GROUP and WORLD privileges. That is, a process with neither privilege can only determine the paging and swapping file assignments of itself and its subprocesses. A process with GROUP privilege can obtain this information about all processes that have the same group number. Only a process with WORLD privilege can obtain accurate paging and swapping file information for the entire system.
❽ File Usage	Displays a line of text that describes whether the file is used exclusively for swapping or is used for both paging and swapping.

```
7    $ SHOW MEMORY
```

The SHOW MEMORY command in this example displays all memory resource information, that is, information displayed by the /FILES, /PHYSICAL_MEMORY, /POOL, and /SLOTS qualifiers.

SHOW PRINTER

Displays the current settings for a printer.

FORMAT

SHOW PRINTER *device-name[:]*

PARAMETER

device-name[:]
Specifies the name of the printer for which settings are to be displayed.

DESCRIPTION

The SHOW PRINTER command displays the settings that are currently defined for the specified printer. Settings include the following:

- Printer type
- Page width
- Page length
- Line termination type
- Form feed
- Case
- Character translation
- Wrapping

Printer settings are established by the SET PRINTER command. You must have OPER (operator) privilege to use the SET PRINTER command.

QUALIFIER

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the output of the command is sent. By default, the output of the SHOW PRINTER command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLE

```
$  SHOW PRINTER LPA0:
 Printer LPA0:, device type LP11, is online, allocated, spooled
 Error count                    0  Operations completed             880
 Owner process  "SYMBIONT_0001"  Owner UIC                       [0,0]
 Owner process ID       21C0008D  Dev Prot  S:RWLP,O:RWLP,G:RWLP,W:RWLP
 Reference count                2  Default buffer size              132
 Page width                   132  Page Length                       66
 No Carriage_return      Formfeed        Lowercase
 No Passall              No Wrap         Printall
 No Fallback
 Intermediate device: STAR$DBA1:
 Associated queue: LN01$PRINT
```

The SHOW PRINTER command in this example displays the settings for the printer LPA0.

SHOW PROCESS

Displays information about a process and its subprocesses.

Requires GROUP privilege to show other processes in the same group.
Requires WORLD privilege to show processes outside your group.

FORMAT

SHOW PROCESS *[[node-name::]process-name]*

PARAMETERS

node-name::

The name of the node on which the specified process is running. The node name can have as many as six alphanumeric characters. The two colons (::) count for two additional characters, for a total of eight.

You must specify a node name on the same VAXcluster on which the current process is running.

process-name

The name of the process about which information is to be displayed. The process name can have up to 15 alphanumeric characters.

The specified process must be in the same group as the current process.

DESCRIPTION

The SHOW PROCESS command displays information about a process and its subprocesses. If no qualifier is entered, only the following subset of information is displayed:

- Time
- Process terminal
- User name and user identification code (UIC)
- Node name
- Process name and process identification (PID)
- Priority
- Default directory
- Allocated devices

A local process name can look like a remote process name. Therefore, if you specify ATHENS::SMITH, the system checks for a process named ATHENS::SMITH on the local node before checking node ATHENS for a process named SMITH.

You also can use the /IDENTIFICATION=pid qualifier to specify a process name. If you use the /IDENTIFICATION qualifier and the *process-name* parameter together, the qualifier overrides the parameter. If you do not specify either the *process-name* parameter or the /IDENTIFICATION qualifier, information is displayed for the current process.

If you have GROUP or WORLD privilege, you can display information about processes other than your own. With GROUP privilege you can look at other processes in your group. With WORLD privilege you can look at processes outside of your group. You must use the /IDENTIFICATION qualifier to look at processes outside of your group.

QUALIFIERS

/ACCOUNTING
Displays the accumulated accounting statistics for the process.

/ALL
Displays the basic subset of information as well as accounting statistics, privileges, quotas, and subprocesses. Displays memory use for the current process.

/CONTINUOUS
Displays continuously updated information about the local process in a VAXcluster environment. You cannot use the /CONTINUOUS qualifier to display information about a process on another node in a VAXcluster environment.

While the continuous display is running, you can 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 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 continuous display, press the E key. To return to the original display, press the space bar.

The /CONTINUOUS qualifier may not be used with the /OUTPUT qualifier.

/IDENTIFICATION=pid
Requires GROUP or WORLD privilege to access processes other than your own.

Displays information about the process with the specified process identification (PID). The PID is assigned by the system when the process is created. When you specify a PID, you can omit the leading zeros.

If you specify the /IDENTIFICATION qualifier, it overrides the *process-name* parameter. If, in addition, you specify the /MEMORY qualifier, the PID value must be that of the current process.

/MEMORY
Displays the process's use of dynamic memory areas. The /MEMORY qualifier is allowed only for the current process.

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the output of the command is sent. By default, the output of the SHOW PROCESS command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

The /OUTPUT qualifier is incompatible with the /CONTINUOUS qualifier.

/PRIVILEGES

Displays current privileges and rights for the process. To display only privileges, also specify the /NORIGHTS qualifier.

/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.

/RIGHTS
/NORIGHTS

Determines whether the current rights are displayed for the specified process. The /NORIGHTS qualifier is the default, unless you also specify the /PRIVILEGES qualifier. When used with the /PRIVILEGES qualifier, the /NORIGHTS qualifier allows you to view only the current privileges, but not the current process rights. (By default the /PRIVILEGES qualifier displays both the current privileges and rights.)

/SUBPROCESSES

Displays the current subprocesses in hierarchical order.

EXAMPLES

1

```
$ SHOW PROCESS OCALA::MALIK

 19-APR-1990 15:35:19.39  User: MALIK    Process ID: 28200364
                          Node: OCALA    Process name: MALIK
Terminal:          RTA5:
User identifier: [VMS,MALIK]
Base  priority:    4
Default file spec: WORK5:[MALIK]
Devices allocated: RTA5:
```

The SHOW PROCESS command in this example is entered by the user MALIK. The system displays the subset of information for the owned process on node OCALA. The information includes the following:

- Date and time the SHOW PROCESS command is entered
- User name
- Process identification (PID) number
- Node name
- Process name
- Device name of the current SYS$INPUT device
- User identification code (UIC)

- Base execution priority
- Default device (only for processes on the same node)
- Default directory (only for current processes)
- Devices allocated to the process and volumes mounted, if any

```
2   $ SHOW PROCESS/ACCOUNTING
     19-APR-1990 14:48:01.31   User: MALIK  Process ID:   28200364
                               Node: OCALA  Process name: "MALIK"

     Accounting information:
      Buffered I/O count:       4878  Peak working set size:      844
      Direct I/O count:         1284  Peak virtual size:         1176
      Page faults:              6100  Mounted volumes:              0
      Images activated:           22
      Elapsed CPU time:      0 00:01:20.51
      Connect time:          0 04:06:03.75
```

The SHOW PROCESS command in this example displays the accounting statistics for the process.

```
3   $ SHOW PROCESS/PRIVILEGES

     19-APR-1990 14:59:28.53  User: MALIK   Process ID:    28200364
                              Node: OCALA   Process name: "MALIK"

     Process privileges:
      GROUP                may affect other processes in same group
      TMPMBX               may create temporary mailbox
      NETMBX               may create network device

     Process rights identifiers:
      INTERACTIVE
      DIALUP
```

The SHOW PROCESS command in this example displays the current privileges for the process.

```
4   $ SHOW PROCESS/QUOTAS

     19-APR-1990 15:00:28.79   User: MALIK  Process ID:    28200364
                               Node: OCALA  Process name:  "MALIK"

     Process Quotas:
     Account name: VMS
      CPU limit:                       Infinite  Direct I/O limit:       6
      Buffered I/O byte count quota:      17904  Buffered I/O limit:     6
      Timer queue entry quota:               10  Open file quota:       31
      Paging file quota:                  24945  Subprocess quota:       8
      Default page fault cluster:            64  AST limit:             14
      Enqueue quota:                         30  Shared file limit:      9
      Max detached processes:                11  Max active jobs:       14
```

The SHOW PROCESS command in this example displays the available quotas and limits.

5
```
$ SHOW PROCESS/SUBPROCESSES

 19-APR-1990 15:44:59.39  User: MALIK  Process ID:   28200364
                          Node: OCALA  Process name: "MALIK_1"

 Processes in this tree:

 MALIK
   MALIK_1 (*)
     MALIK_2
```

The SHOW PROCESS command in this example shows the current process tree. The current process is indicated by the asterisk (*). Processes both below and above the current process are shown.

6
```
$ SHOW PROCESS/CONTINUOUS FRED

                              Process FRED                        12:26:53


   State                CUR                 Working set                269

   Cur/base priority    8/4                 Virtual pages             1713

   Current PC           7FFEE07E            CPU time           00:00:13.82

   Current PSL          03C00000            Direct I/O                 246

   Current user SP      7FF785A4            Buffered I/O               646

   PID                  226006C0            Page faults               3417

   UIC                  [VMS,FRED]          Event flags          C8000007
                                                                 C0000000
   SYS$SYSROOT:[SYSEXE]SHOW.EXE
```

In this example, the /CONTINUOUS qualifier causes the display of information about process FRED to be updated continuously.

7
```
$ SHOW PROCESS/MEMORY

 19-APR-1990 14:59:04.48   User: MALIK  Process ID:   28200364
                           Node: OCALA  Process Name: "MALIK"

 Process Dynamic Memory Area
     Current Size (bytes)          25600    Current Total Size (pages)      50
     Free Space (bytes)            22698    Space in Use (bytes)          2902
     Size of Largest Block         22496    Size of Smallest Block          15
     Number of Free Blocks             7    Free Blocks LEQU 32 Bytes        3
```

The SHOW PROCESS command in this example displays the use of dynamic memory areas for the current process, MALIK. These areas are described as follows:

Current size	Displays the current size (in bytes and pages) of each dynamic memory area.
Free space	Displays the amount of free space in each dynamic memory area.

Space in use	Displays the amount of space currently allocated from each area.
Largest block	Displays the size of the largest contiguous area in each pool area.
Smallest block	Displays the size of the smallest free block in each pool area.
Free blocks	Displays the total number of free blocks in each pool area. The size of this number is a measure of pool fragmentation.
Blocks LEQU 32	Displays the number of free blocks that are 32 bytes or shorter. This number is another measure of pool fragmentation, because while allocation of these small blocks is unlikely, they contribute to the allocation time whenever an allocation request is made.

8
```
$ SHOW PROCESS OCALA::MALIK
 19-APR-1990 15:35:19.39  User: MALIK   Process ID: 28200364
                          Node: OCALA   Process name: MALIK
Terminal:          RTA5:
User identifier:   [VMS,MALIK]
Base  priority:    4
Default file spec: WORK5:[MALIK]
Devices allocated: RTA5:
```

The SHOW PROCESS command in this example displays the basic subset of information for the process MALIK on node OCALA.

SHOW PROTECTION

Displays the current default file protection to be applied to all new files created during the terminal session or batch job.

FORMAT

SHOW PROTECTION

PARAMETERS

None.

DESCRIPTION

The SHOW PROTECTION command displays the current default file protection to be applied to all new files created during the terminal session or batch job. You can change the default protection at any time with the SET PROTECTION/DEFAULT command.

Use the DIRECTORY/PROTECTION command to see the current protection for one or more specific files.

EXAMPLE

```
$  SHOW PROTECTION
   SYSTEM=RWED, OWNER=RWED, GROUP=RE, WORLD=NO ACCESS
$  SET PROTECTION=(GROUP:RWED,WORLD:RE)/DEFAULT
$  SHOW PROTECTION
   SYSTEM=RWED, OWNER=RWED, GROUP=RWED, WORLD=RE
```

The SHOW PROTECTION command in this example requests a display of the current protection defaults and the user identifiers; the SET PROTECTION/DEFAULT command changes the file access allowed to other users in the same group and to miscellaneous system users. The next SHOW PROTECTION command shows the modified protection defaults.

SHOW QUEUE

Displays information about queues and the jobs that are currently in queues.

Requires GROUP privilege to show all jobs in your group. Requires OPER (operator) privilege to show all jobs in all groups.

FORMAT

SHOW QUEUE *[queue-name]*

PARAMETER

queue-name

Specifies the name of the queue for which you want information displayed. Wildcard characters (* and %) are allowed. The default value for the *queue-name* parameter is the asterisk wildcard (*). If no queue name is specified, information on all queues is displayed.

DESCRIPTION

The SHOW QUEUE command displays the name, type, status, and attributes of batch and output queues as well as information about jobs in the queues. If you want status information about queues or a complete list of the jobs in those queues, use the SHOW QUEUE command. The default command is SHOW QUEUE.

A distinct advantage of the SHOW QUEUE command is that you can use different qualifier combinations to determine explicit information about queues. Using combinations that include the SHOW QUEUE qualifiers /BATCH, /BY_JOB_STATUS, /DEVICE, and /GENERIC allow you to extract this data. For example, the command SHOW QUEUE /GENERIC/BATCH displays information about all generic batch queues. For information about a specific job or to display only your jobs, use the SHOW ENTRY command.

When you enter the SHOW QUEUE command with no qualifiers, the system lists the names, types, and status of all the specified queues along with information about your jobs in those queues. In a cluster, all queues available for the cluster are listed.

QUALIFIERS

/ALL_JOBS

Displays all the jobs in the specified queues. If you do not specify a queue name, the /ALL_JOBS qualifier displays all job entries on all queues. To modify the display, combine this qualifier with the /BY_JOB_STATUS qualifier.

/BATCH

Displays all batch queues. Use the /BATCH qualifier in conjunction with other qualifiers to display specific information about particular batch queues.

/BRIEF

Displays a one-line description of each queue and the jobs that are in it. This information includes the name, type, and status of each queue. It also includes the user name, entry number, and status for each job. The /FULL and /FILES qualifiers override the /BRIEF qualifier.

/BY_JOB_STATUS=(keyword-list)

Displays jobs with the specified status. Specify the status with one or more of the following keywords:

EXECUTING	Requests the display of currently executing jobs.
HOLDING	Requests the display of jobs on hold. Holding status indicates that the job is being held in the queue indefinitely.
PENDING	Requests the display of jobs with pending status. Pending status indicates that the job is waiting its turn to execute.
RETAINED	Requests the display of jobs retained in the queue after execution. Retained status indicates that the job has completed, but it remains in the queue. For example, a job may be retained in the queue if there was an error during its execution.
TIMED_RELEASE	Requests the display of jobs on hold until a specified time. Timed release status indicates that the job is being held in the queue for execution at a future time.

Note that if you specify the qualifier without a keyword, the system will only display queues that actually contain jobs.

/DEVICE[=(keyword-list)]

Displays a particular type of queue. Use the /DEVICE qualifier in conjunction with other qualifiers to display specific information about particular device queues.

Specify the type of device queue with one or more of the following keywords:

PRINTER	Requests the display of all print queues.
SERVER	Requests the display of all server queues.
TERMINAL	Requests the display of all terminal queues.

You can specify more than one keyword. If you do not specify a keyword, the /DEVICE qualifier displays all printer, terminal, and server queues.

/FILES

Adds to the display the list of files associated with each job.

/FULL

Displays complete information about queues, the jobs contained in queues, and the files associated with the jobs. See the /BRIEF qualifier.

/GENERIC

Displays all generic queues. A generic queue is not an execution queue. Its function is to hold jobs of a particular type (line printer jobs, for example) and direct them to execution queues for processing.

Use the /GENERIC qualifier in conjunction with other qualifiers to display specific information about particular generic queues. For example, use the /GENERIC qualifier along with the /BATCH qualifier to specify information about generic batch queues. Use the /GENERIC qualifier along with the /DEVICE qualifier to determine information concerning generic output queues.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. By default, the output of the SHOW QUEUE command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/SUMMARY

Displays the total number of executing jobs, pending jobs, holding jobs, retained jobs, and timed release jobs for each queue. For output queues, the total block count for pending jobs is also shown.

EXAMPLES

1

```
$ SHOW QUEUE/ALL/BY_JOB_STATUS=executing
Printer queue KLEE$LCA0, on KLEE::KLEE$LCA0, mounted form DEFAULT

Printer queue SERIFA$LN01, on SERIFA::SERIFA$LPA0, mounted form
LN01$PORTRAIT (stock=DEFAULT)

  Jobname         Username     Entry  Blocks  Status
  -------         --------     -----  ------  ------
  APPLICA         DENNIS        2045     102  Printing

Batch queue SYS_TEX

  Jobname         Username     Entry  Status
  -------         --------     -----  ------
  CHAPTER1.JOB    MARTIN        1388  Executing
    .
    .
    .
```

The SHOW QUEUE command in this example displays all the queues on the system and any jobs within those queues that are currently executing. Notice that "printing" is the executing state for printer and terminal queues. ("Processing" is the executing state for server queues.)

2
```
$ SHOW QUEUE/FULL CAXTON_LPA0

Printer queue CAXTON_LPA0, on CAXTON::CAXTON_LPA0, mounted form
80_COLS (stock=BLUE)
    /BASE_PRIORITY=100
    /DEFAULT=(FEED,FLAG,FORM=40_COLS (stock=WHITE),TRAILER=ONE)
    /NOENABLE_GENERIC Lowercase /OWNER=[1,4] /PROTECTION=(S:E,O:D,G:R,W:W)

  Jobname          Username     Entry  Blocks  Status
  -------          --------     -----  ------  ------
  ACCOUNT          MARTIN         880      10  Printing
    Submitted  9-MAY-1990 12:49 /FORM=80_COLS (stock=BLUE)  /PRIORITY=100
  REPORT           MARTIN         858       4  Pending
    Submitted  8-MAY-1990 17:27 /PRIORITY=100
```

The SHOW QUEUE command in this example lists any current job entry you have on the printer queue CAXTON_LPA0. The /FULL qualifier lists the submission information, the full file specification, and the current settings for both the job and the queue.

The job that is currently printing, ACCOUNT, is using a BLUE paper stock, as indicated by stock=BLUE. Notice that the default paper stock for the queue is WHITE, as indicated by stock=WHITE. Before the job ACCOUNT could be run, the operator had to stop the queue and mount the requested paper stock, BLUE. However, the next job on the queue, REPORT, expects the default paper stock of WHITE. Again, the operator must stop the queue and mount the correct paper stock. The job REPORT remains in a pending state until this is done.

3
```
$ SHOW QUEUE/SUMMARY/DEVICE=printer

Generic printer queue CLUSTER_PRINT
    1 holding,    1 timed release

Printer queue BREUER$LPB0, on BREUER::BREUER$LPB0, mounted form DEFAULT
    empty

Printer queue BAUHAU$LCA0, on BAUHAU::BAUHAU$LCA0, mounted form DEFAULT
    2 pending (8 blocks),    1 executing,    1 holding,    4 timed release
    1 retained

Generic printer queue LPS
    empty
   .
   .
   .
```

The SHOW QUEUE command in this example lists all the printer queues and summarizes the status of the jobs that are currently entered.

SHOW QUEUE/CHARACTERISTICS

Displays information about queue characteristics defined for the system. A characteristic is a user-defined attribute of a batch or output queue, such as ink color.

FORMAT

SHOW QUEUE/CHARACTERISTICS
[characteristic-name]

PARAMETER

characteristic-name

Specifies the name of a characteristic. Wildcard characters (* and %) are allowed. The default value for the *characteristic-name* parameter is the asterisk wildcard (*). Thus, information about all characteristics is displayed when you do not specify a characteristic name.

You create a characteristic name with the DEFINE/CHARACTERISTIC command. You can then assign it to a queue by using the INITIALIZE /QUEUE, the SET QUEUE, or the START/QUEUE command with the /CHARACTERISTICS qualifier. You can also specify characteristics for a job by using the /CHARACTERISTICS qualifier with the PRINT, the SUBMIT, or the SET ENTRY command.

DESCRIPTION

The SHOW QUEUE/CHARACTERISTICS command displays the characteristic name and number of characteristics defined for the system. To see which characteristics are associated with a particular queue, use the SHOW QUEUE command with the /FULL qualifier.

QUALIFIER

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. By default the output of the SHOW QUEUE/CHARACTERISTICS command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

The file specification may not include any wildcard characters. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLES

1

```
$ SHOW QUEUE/CHARACTERISTICS
Characteristic name                  Number
-------------------                  ------
REDINK                                    0
COLOR_CHART                               1
TEXMAC_JOB                                2
BLUEINK                                   6
BROWNINK                                 25
```

The SHOW QUEUE/CHARACTERISTICS command in this example displays all the characteristics that have been defined for this system.

2

```
$ SHOW QUEUE/CHARACTERISTICS *INK
Characteristic name                  Number
-------------------                  ------
REDINK                                    0
BLUEINK                                   6
BROWNINK                                 25
```

The SHOW QUEUE/CHARACTERISTICS command in this example displays the name and number of all characteristics that end with INK.

SHOW QUEUE/FORM

Displays information about forms defined for the system. Forms define the size and type paper and the layout of text that are used for print jobs.

FORMAT

SHOW QUEUE/FORM *[form-name]*

PARAMETER

form-name

Specifies the name of the form. Wildcard characters (* and %) are allowed. The default value for the *form-name* parameter is an asterisk (*), which means that the names of all forms on the system are displayed.

DESCRIPTION

The SHOW QUEUE/FORM command displays the name and number of forms defined for the system. To display the attributes associated with forms, use the /FULL qualifier.

Use the SHOW QUEUE/FORM command to find out which forms are available on the system. To see which forms are available on one or more queues, use the SHOW QUEUE command with the /FULL qualifier.

Form names are created by the DEFINE/FORM command. You can specify a particular form for a print job by using the /FORM qualifier with the PRINT or SET ENTRY command. Forms are assigned to queues with the INITIALIZE/QUEUE, the SET QUEUE, or the START/QUEUE command.

QUALIFIERS

/BRIEF (default)

Displays a brief description (form names, numbers, and descriptions) about the forms on the system.

/FULL

Displays a full description (including paper size and margin settings) about the forms on the system.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. By default the output of the SHOW QUEUE/FORM command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

The file specification can not include any wildcard characters. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLES

1

```
$ SHOW QUEUE/FORM DEFAULT
Form name                               Number   Description
---------                               ------   -----------
DEFAULT                                      0   System-defined default
```

The SHOW QUEUE/FORM command in this example displays only the default form.

2

```
$ SHOW QUEUE/FORM LN01*
Form name                               Number   Description
---------                               ------   -----------
LN01_LANDSCAPE (stock=DEFAULT)             105   132 by 66 (landscape)
LN01_LANDSCAPE_INDENTED (stock=DEFAULT)
                                           107   132 by 65 (landscape)
LN01_PORTRAIT (stock=DEFAULT)              106   80 by 60 (portrait)
```

The SHOW QUEUE/FORM command in this example displays the names of all forms, including the stock, that begin with LN01. The display includes the names, stock for each form, numbers, and brief descriptions of those forms.

3

```
$ SHOW QUEUE/FORM/FULL
Form name                               Number   Description
---------                               ------   -----------
132_51_STD (stock=DEFAULT)                 102   132 by 51 (standard short)
    /LENGTH=51 /MARGIN=(BOTTOM=6) /STOCK=DEFAULT /TRUNCATE /WIDTH=132
40_66_STD (stock=DEFAULT)                  103   40 by 66 (standard labels)
    /LENGTH=66 /MARGIN=(BOTTOM=6) /STOCK=DEFAULT /WIDTH=40
BLUE_PAPER_STOCK (stock=DIGITAL_8X11_STOCK1412TEA)
                                         22222   blue paper, DEC order# 22222
    /LENGTH=66 /MARGIN=(BOTTOM=6) /STOCK=DIGITAL_8X11_STOCK1412TEA
    /TRUNCATE  /WIDTH=80
DEFAULT                                      0   System-defined default
    /LENGTH=66 /MARGIN=(BOTTOM=6) /STOCK=DEFAULT /TRUNCATE /WIDTH=132
LN01_LANDSCAPE (stock=DEFAULT)             105   132 by 66 (landscape)
    /LENGTH=66 /STOCK=DEFAULT /WIDTH=132
LN01_LANDSCAPE_INDENTED (stock=DEFAULT)
                                           107   132 by 65 (landscape)
    /LENGTH=65 /SETUP=(LN01_TOP_MARGIN_150) /STOCK=DEFAULT /WIDTH=132
LN01_PORTRAIT (stock=DEFAULT)              106   80 by 60 (portrait)
    /LENGTH=60 /SETUP=(LN01_PORTRAIT) /STOCK=DEFAULT /WIDTH=80
MEMO (stock=DEFAULT)                       110   LN03 indented memo format
    /LENGTH=64 /MARGIN=(TOP=2,LEFT=5) /STOCK=DEFAULT /TRUNCATE /WIDTH=80
```

This SHOW QUEUE/FORM command also displays the names of all form types and stock for the system. By using the /FULL qualifier, you can see what image size has been set for each form type.

SHOW QUOTA

Displays the current disk quota that is authorized for a specific user on a specific disk. This display includes a calculation of the amount of space available and the amount of overdraft that is permitted.

Requires read (R) access to the quota file in order to display the quotas of other users.

FORMAT

SHOW QUOTA

DESCRIPTION

The SHOW QUOTA command indicates whether a quota exists for any specific user on a specific disk. The display that results gives the quotas used, authorized, and available in blocks. The amount of overdraft permitted is also shown.

QUALIFIERS

/DISK[=device-name[:]]

Specifies the disk whose quotas are to be examined. By default, the current default disk (defined by the logical name SYS$DISK) is examined.

/USER=uic

Specifies which user's quotas are to be displayed. By default, the current user's quotas are displayed.

EXAMPLES

1

```
$ SHOW QUOTA
User [360,010] has 2780 blocks used, 7220 available,
of 10000 authorized and permitted overdraft of 500 blocks on DISK$
```

The SHOW QUOTA command in this example displays the amount of disk space authorized, used, and still available on the current default disk for the present user. The permitted overdraft in this example is 500 blocks.

2

```
$ SHOW QUOTA /USER=[360,007]/DISK=XXX1:
%SYSTEM-F-NODISKQUOTA, no disk quota entry for this UIC
```

The SHOW QUOTA command in this example displays the fact that the user with user identification code (UIC) [360,007] has no disk quota allocation on device XXX1.

3

```
$ SHOW QUOTA /USER=[360,111]
User [360,111] has 27305 blocks used, 2305 OVERDRAWN,
of 25000 authorized and permitted overdraft of 4000 blocks on DISK$
```

The SHOW QUOTA command in this example illustrates a user with an overdrawn quota.

SHOW RMS_DEFAULT

Displays the current default values for the multiblock count, the multibuffer count, the network transfer size, the prolog level, and the extend quantity.

FORMAT

SHOW RMS_DEFAULT

PARAMETERS

None.

DESCRIPTION

The SHOW RMS_DEFAULT command displays information that VMS Record Management Services (VMS RMS) uses for file operations including the default values for the multibuffer count, the multiblock count, the network block count, the prolog level and the extend quantity. The command provides these values at both the current process level and at the system level.

The SHOW RMS_DEFAULT command lists the multibuffer count values for each of the file types, including the values for the three classes of sequential files (disk, magtape and unit record).

QUALIFIER

/OUTPUT[=filespec]
/NOOUTPUT

Specifies the file to which the display is written (default is SYS$OUTPUT). Wildcard characters are not allowed in the file specification. If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default output file name and LIS the default output file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLE

```
$  SHOW RMS_DEFAULT


          MULTI-   |                  MULTIBUFFER COUNTS                  | NETWORK
          BLOCK    | Indexed  Relative            Sequential              |  BLOCK
          COUNT    |                         Disk    Magtape  Unit Record |  COUNT
Process     0      |    0         0            0       0         0         |    0
System      16     |    0         0            0       0         0         |    8

           Prolog     Extend Quantity
Process      0               0
System       0               0
```

The SHOW RMS_DEFAULT command in this example shows a system multiblock count of 16 and a network block count of 8. These are typical values.

SHOW STATUS

Displays the current status of your process.

FORMAT

SHOW STATUS

PARAMETERS

None.

DESCRIPTION

The SHOW STATUS command verifies that your current process is running. The SHOW STATUS information can also indicate if the process is using an abnormal amount of CPU time, is opening too many files, or is accruing too many page faults. The information displayed includes the following:

- Current time and date
- Elapsed CPU time used by the current process
- Buffered I/O count
- Current working set size
- Open file count
- Direct I/O count
- Current amount of physical memory occupied
- Number of page faults

The information displayed by SHOW STATUS is similar to that displayed by the CTRL/T function. (See the SET CONTROL command.)

EXAMPLE

```
$ SHOW STATUS
Status on  19-APR-1990 12:56:48.68     Elapsed CPU :   0 00:00:55.02
Buff. I/O :     5117    Cur. ws. :     300         Open files :     1
Dir. I/O :       458    Phys. Mem. :   162         Page Faults : 8323
```

The SHOW STATUS command in this example displays the current status of your process.

SHOW SYMBOL

Displays the value of the specified symbol.

FORMAT

SHOW SYMBOL *[symbol-name]*

PARAMETER

symbol-name

Specifies the name of the symbol whose value you want to display. You must specify a symbol name unless you use the /ALL qualifier. Wildcard characters (* and %) are allowed in the *symbol-name* parameter.

DESCRIPTION

The SHOW SYMBOL command searches for the specified symbol name in several places. First, it looks in the local symbol table of the current command level. Next, it searches the local symbol tables of preceding command levels. Last, it searches the global symbol table. The SHOW SYMBOL command displays the first match it finds.

The /LOCAL and /GLOBAL qualifiers override the search order.

QUALIFIERS

/ALL

Displays the current values of all symbols in the specified symbol table (/LOCAL or /GLOBAL). If you specify the /ALL qualifier and do not specify either the /LOCAL or the /GLOBAL qualifier, the SHOW SYMBOL command displays the contents of the local symbol table for the current command level.

/GLOBAL

Searches only the global symbol table for the specified symbol name. If you specify both the /ALL and /GLOBAL qualifiers, all names in the global symbol table are displayed.

/LOCAL

Searches only the local symbol table for the current command level for the specified symbol name. If you specify both the /ALL and /LOCAL qualifiers, all names in the local symbol table for the current command level are displayed.

/LOG (default)
/NOLOG

Controls whether the system generates an informational message if the symbol value has been truncated. The value is truncated if it exceeds 255 characters.

EXAMPLES

```
1   $ SHOW SYMBOL PURGE
      PURGE = "PURGE/KEEP=2"
```

The SHOW SYMBOL command in this example displays the current value of the symbol name PURGE. The command interpreter first searches the local symbol table for the current command level, then local symbol tables for preceding command levels, and finally the global symbol table. The single equal sign (=) following PURGE means it is a local symbol.

```
2   $ SHOW SYMBOL/GLOBAL/ALL
      TIME == "SHOW TIME"
      LOG == "@LOG"
      $RESTART == "FALSE"
      $SEVERITY == "1"
      $STATUS == "%X00000001"
```

The SHOW SYMBOL command in this example displays all the symbols defined in the global symbol table. Note that the symbols $RESTART, $SEVERITY, and $STATUS, which are maintained by the system, are also displayed.

```
3   $ SHOW SYMBOL/LOCAL TIME
    %DCL-W-UNDSYM, undefined symbol
```

The SHOW SYMBOL command in this example searches only the local symbol table for the symbol TIME. The response indicates that TIME currently has no value.

SHOW SYSTEM

Displays status information about current processes.

FORMAT SHOW SYSTEM

PARAMETERS *None.*

DESCRIPTION

The SHOW SYSTEM command displays the following information about processes on the system:

- Time
- Process name and identification
- Processing state
- Priority
- Total process I/O count
- Cumulative processor time used
- Cumulative page faults
- Amount of physical memory being used
- Type of process

It also checks to see whether the machine is a multiprocessor. A machine is considered a multiprocessor if the following conditions are true:

- The SYSGEN parameter MULTIPROCESSING is not equal to zero.
- The machine accommodates more than one CPU.

If the machine is a multiprocessor, the SHOW SYSTEM command includes information about the multiprocessing environment. Each process in the currently executing state (indicated by the CUR symbol) reveals which processor it is running on. It does this by including a number beside the CUR symbol.

The SHOW SYSTEM command examines the processes on the system without stopping activity on the system. This means that process information may change during the time that SHOW SYSTEM collects the data to be displayed. As a result, there may be minor inconsistencies in the SHOW SYSTEM display. For example, SHOW SYSTEM may display two processes that schedule state CUR on the same CPU.

QUALIFIERS

/BATCH
Displays all batch jobs for the local system. When used with the /CLUSTER qualifier, the /BATCH qualifier displays all batch jobs in the VAXcluster environment.

/CLUSTER
Displays all processes on all nodes in a VAXcluster.

/FULL
Displays the user identification code (UIC) in addition to the default information. The UIC is displayed underneath the process name.

/NETWORK
Displays all network processes on the system.

/NODE[=(name,...)]
Displays all the processes on the specified node or nodes. If you enter the /NODE qualifier without a value, the qualifier displays all the processes on the local node of a VAXcluster environment.

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the output of the command is sent. By default, the output of the SHOW SYSTEM command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

The file specification may not include any wildcard characters. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PROCESS (default)
Displays all processes on the system.

/SUBPROCESS
Displays all subprocesses on the system.

EXAMPLES

1

```
$ SHOW SYSTEM
VAX/VMS 5.4  on node KRYPTON  19-APR-1990 17:45:47.78  Uptime  2 21:53:59
  Pid    Process Name    State  Pri      I/O       CPU    Page flts Ph.Mem
27400201 SWAPPER         HIB     16        0   0 00:29:52.05       0      0
27401E03 DOCBUILD        LEF      4    37530   0 00:05:47.62   96421    601
27402604 BATCH_789       LEF      4     3106   0 00:00:48.67    4909   2636B
27401C05 BATCH_60        LEF      6      248   0 00:00:06.83    1439   1556B
27400207 ERRFMT          HIB      8     6332   0 00:00:41.83      89    229
27400208 CACHE_SERVER    HIB     16     2235   0 00:00:05.85      67    202
27400209 CLUSTER_SERVER  HIB      8     4625   0 00:22:13.28     157    448
2740020C JOB_CONTROL     HIB     10   270920   0 01:07:47.88    5163   1384
2740020D CONFIGURE       HIB      9      125   0 00:00:00.53     104    264
  .
  .
  .
27400E8D Sir Lancelot    LEF      5      226   0 00:00:07.87    4560    697
2740049A Guenevere       LEF      4      160   0 00:00:02.69     534    477
27401EA0 BATCH_523       CUR  4   4    17470   0 03:25:49.67    8128   5616 B
274026AF GAWAIN          CUR  6   4    14045   0 00:02:03.24   20032    397
274016D5 GAHERIS         LEF      6      427   0 00:00:09.28    5275   1384
27401ED6 knight_1        HIB      5      935   0 00:00:10.17    3029   2204S
274012D7 BATCH_689       LEF      4    49216   0 00:14:18.36    7021   3470 B
274032D9 DECW$MAIL       LEF      4     2626   0 00:00:51.19    4328   3087 B
274018E3 SERVER_0021     LEF      6      519   0 00:00:07.07    1500    389N
274016E8 NMAIL_0008      HIB      4    10955   0 00:00:55.73    5652    151
274034EA MORDRED         LEF      4     2132   0 00:00:23.85    5318    452
274022EB S. Whiplash     CUR  6   4      492   0 00:00:12.15    5181    459
274018EF DwMail          LEF      5   121386   0 00:28:00.97    7233   4094
27401AF0 EMACS$RTA43     LEF      4    14727   0 00:03:56.54    8411   4224 S
27400CF4 TRISTRAM        HIB      5    25104   0 00:06:07.76   37407   1923
274020F5 Morgan          LEF      7    14726   0 00:02:10.74   34262   1669
27400CF6 mr. mike        LEF      9    40637   0 00:05:15.63   18454    463
```

The SHOW SYSTEM command in this example displays all processes on the system.

The information in this example includes the following:

- Process identification (PID) code—A 32-bit binary value that uniquely identifies a process.
- Process name—A 1- to 15-character string used to identify a process.
- Process state—The activity level of the process, such as COM (computing), HIB (hibernation), LEF (local event flag) wait, or CUR (if the process is current). If a multiprocessing environment exists, the display shows the CPU ID of the processor on which any current process is executing.

  Note that the SHOW SYSTEM command examines the processes on the system without stopping activity on the system. In this example process information changed during the time that the SHOW SYSTEM command collected the data to be displayed. As a result, this display includes two processes, named GAWAIN and S. Whiplash, with the state CUR on the same CPU, CPU ID 6 in the example.

- Current priority—The priority level assigned to the process (the higher the number, the higher the priority).[1]
- Total process I/O count[1]—The number of I/O operations involved in executing the process. This consists of both the direct I/O count and the buffered I/O count.
- Charged CPU time[1]—The amount of CPU time that a process has used thus far.
- Number of page faults[1]—The number of exceptions generated by references to pages that are not in the process's working set.
- Physical memory occupied[1]—The amount of space in physical memory that the process is currently occupying.
- Process indicator—Letter B indicates a batch job; letter S indicates a subprocess; letter N indicates a network process.
- User identification code (UIC)—An 8-digit octal number assigned to a process. This number is displayed only if the /FULL qualifier is specified.

2
```
$ SHOW SYSTEM /CLUSTER
VAX/VMS V5.4 on node ALPES 19-APR-1990 09:09:58.61  Uptime    0 2:27:11
Pid       Process Name    State  Pri I/O  CPU           Page flts Ph. Mem
31E00041  SWAPPER         HIB    16    0  0 00:00:02.42     0       0
31E00047  CACHE_SERVER    HIB    16   58  0 00:00:00.26    80      36
31E00048  CLUSTER_SERVER  CUR     9  156  0 00:00:58.15  1168      90
31E00049  OPCOM           HIB     7 8007  0 00:00:33.46  5506     305
31E0004A  AUDIT_SERVER    HIB     9  651  0 00:00:21.17  2267      22
31E0004B  JOB_CONTROL     HIB    10 1030  0 00:00:11.02   795     202
    .
    .
    .
```

The SHOW SYSTEM command in this example shows all processes on all nodes of the cluster.

3
```
$ SHOW SYSTEM /NODE=EON
VAX/VMS V5.4 on node EON  19-APR-1990 09:19:15.33  Uptime    0 02:29:07
Pid       Process Name    State  Pri  I/O  CPU           Page flts Ph. Mem
36200041  SWAPPER         HIB    16    0  0 00:00:12.03     0       0
36200046  ERRFMT          HIB     8  263  0 00:00:05.89   152      87
36200047  CACHE_SERVER    HIB    16    9  0 00:00:00.26    80      51
36200048  CLUSTER_SERVER  CUR     8   94  0 00:00:30.07   340      68
36200049  OPCOM           HIB     6 2188  0 00:02:01.04  1999     177
3620004A  AUDIT_SERVER    HIB    10  346  0 00:00:10.42  1707      72
    .
    .
    .
```

The SHOW SYSTEM command in this example shows all processes on the node EON.

[1] This information is displayed only if the process is currently in the balance set; if the process is not in the balance set, these columns contain the following message:

```
-- swapped out --
```

SHOW TERMINAL

Displays the current characteristics of a specific terminal. Each characteristic corresponds to an option of the SET TERMINAL command.

FORMAT

SHOW TERMINAL *[device-name[:]]*

PARAMETER

device-name[:]

Specifies the name of the terminal for which you want the characteristics displayed. The default is your terminal (SYS$COMMAND).

DESCRIPTION

The SHOW TERMINAL command displays the information about terminal settings for such things as terminal speed, width, number of lines, graphics, and device type.

Note that the SHOW TERMINAL command does not describe terminal fallback characteristics if any are activated. If the Terminal Fallback Facility (TFF) is enabled, you can invoke the Terminal Fallback Utility (TFU) and issue the subcommand SHOW TERMINAL/FALLBACK. For more information, see the *VMS Terminal Fallback Utility Manual.*

QUALIFIERS

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. If you do not enter the qualifier, or if you enter the /OUTPUT qualifier without a file specification, the output is sent to the current process default output stream or device, identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. If you enter a file specification, it cannot include any wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PERMANENT

Requires LOG_IO (logical I/O) or PHY_IO (physical I/O) privilege.

Displays the permanent characteristics of the terminal.

EXAMPLE

```
$ SHOW TERMINAL
Terminal: _TTE4:       Device_Type: VT102         Owner: FRANKLIN
Physical Terminal: _LTA49
   Input:   9600      LFfill:  0      Width:  80      Parity: None
   Output:  9600      CRfill:  0      Page:   24
Terminal Characteristics:
   Interactive         Echo                Type_ahead          No Escape
   No Hostsync         TTsync              Lowercase           Tab
   Wrap                Scope               No Remote           Eightbit
   Broadcast           No Readsync         No Form             Fulldup
   No Modem            No Local_echo       No Autobaud         Hangup
   No Brdcstmbx        No DMA              No Altypeahd        Set_speed
   Line Editing        Overstrike editing  No Fallback         No Dialup
   No Secure server    No Disconnect       No Pasthru          No Syspassword
   No SIXEL Graphics   Soft Characters     Printer port        Numeric Keypad
   ANSI_CRT            No Regis            No Block_mode       Advanced_video
   Edit_mode           DEC_CRT             DEC_CRT2            No DEC_CRT3
```

In this example, the SHOW TERMINAL command displays the characteristics of this specific terminal. If you are displaying statistics about a terminal allocated to another user, the input, output, LFfill, CRfill, width, page, and parity statistics are not shown.

SHOW TIME

Displays the current date and time.

FORMAT SHOW [DAY]TIME

PARAMETERS *None.*

EXAMPLE

```
$  SHOW TIME
  19-APR-1990 00:03:45
```

The SHOW TIME command in this example displays the current date and time.

SHOW TRANSLATION

Displays the first translation found for the specified logical name. You can specify the tables that are searched.

Requires read (R) access to a logical name table to display information about any logical name cataloged in that table.

FORMAT

SHOW TRANSLATION *logical-name*

PARAMETER

logical-name

Specifies the logical name whose translation you want to display.

DESCRIPTION

The SHOW TRANSLATION command searches one or more logical name tables for a specified logical name and returns the equivalence name of the first match found. You can specify the tables you want to search. If you do not specify a table, SHOW TRANSLATION searches the tables defined by the logical name LNM$DCL_LOGICAL.

The logical name LNM$DCL_LOGICAL contains the list of logical name tables and the order in which they are searched. Unless LNM$DCL_LOGICAL has been redefined for your process, the process, job, group, and system logical name tables are searched, in that order. The first match found is displayed. (To see how LNM$DCL_LOGICAL is defined for your process, enter the command SHOW LOGICAL /TABLE=LNM$DIRECTORIES LNM$DCL_LOGICAL.)

If a table contains more than one entry with the same name, but each name has a different mode, then the translation for the name with the outermost (least privileged) mode is returned.

The SHOW TRANSLATION command is similar to the SHOW LOGICAL command. However, the SHOW TRANSLATION command is executed within the DCL command interpreter (the SHOW LOGICAL command calls an image). Therefore, the SHOW TRANSLATION command does not cause the current image to exit and does not deassign user mode logical names. Also, the SHOW TRANSLATION command does not display iterative translations of a name.

QUALIFIER

/TABLE=name

Searches the specified table. The default value for the *name* parameter is LNM$DCL_LOGICAL.

If you specify the table name by using a logical name that translates to more than one table, then each table is searched in the order specified until a match is found.

EXAMPLES

1
```
$ SHOW TRANSLATION PAYROLL
  PAYROLL = DISK1:[ACCOUNTS.WORKING]FACTOR1.DAT;37 (LNM$PROCESS_TABLE)
```

The SHOW TRANSLATION command in this example displays the translation for the logical name PAYROLL and also displays the name of the table where the logical name was found. In this example, PAYROLL was found in LNM$PROCESS_TABLE, the process logical name table.

2
```
$ DEFINE DISK  DBA1:
$ DEFINE/GROUP DISK  DBA2:
$ SHOW TRANSLATION DISK
  DISK = DBA1:(LNM$PROCESS_TABLE)
```

The DEFINE commands in this example place entries for the logical name DISK in both the process and group logical name tables. Then, the SHOW TRANSLATION command shows the translation associated with the logical name DISK. By default, the process, job, group, and system tables are searched (in that order). The first match found is displayed. The logical name DISK from the process table (LNM$PROCESS_TABLE) is displayed because it is found before the name DISK in the group table.

3
```
$ RUN ORION
Ctrl/Y
$ SHOW TRANSLATION TERMINAL
  TERMINAL = _TTT3: (LNM$PROCESS_TABLE)
$ CONTINUE
```

The RUN command in this example executes the image ORION.EXE. After the CTRL/Y function interrupts the image, the SHOW TRANSLATION command displays a logical name assignment. The CONTINUE command resumes the execution of the image.

4
```
$ SHOW TRANSLATION/TABLE=LNM$SYSTEM USER
  USER = "DBA2:"  (LNM$SYSTEM_TABLE)
```

The SHOW TRANSLATION command in this example displays the translation for the logical name USER. Because a table name is specified, the SHOW TRANSLATION command does not use the default search order. Only the specified table, LNM$SYSTEM, is searched. LNM$SYSTEM is the system logical name table.

5
```
$ DEFINE/TABLE=LNM$PROCESS_DIRECTORY MYPROC -
_$ TEST_TABLE, LNM$PROCESS
$ SHOW TRANSLATION/TABLE=MYPROC FILER
  FILER = "[SMITH.FILER]"   (TEST_TABLE)
```

In this example, MYPROC defines a list of logical name tables that you want searched. It asks the system to first search TEST_TABLE (a user-defined table) and then to search LNM$PROCESS (the process logical name table). MYPROC is stored in LNM$PROCESS_DIRECTORY, the process directory table. When you enter the SHOW TRANSLATION command to find FILER in the MYPROC table, the tables TEST_TABLE and LNM$PROCESS are searched, in that order. The first match found is displayed.

SHOW USERS

Displays the user name and node name (in a VAXcluster environment) of interactive, subprocess, and batch users on the system.

FORMAT

SHOW USERS *[username]*

PARAMETER

username

Specifies the user about whom you want information. Wildcard characters (* and %) are allowed. If you specify a string, all users whose user names begin with the string are displayed. For example, if you specify the string MAR, all user names that begin with MAR are displayed. If no user exists whose name matches the specified string, an informational message to that effect is displayed.

If you omit the *username* parameter, a list of all interactive, subprocess, and batch users is displayed.

QUALIFIER

/BATCH

Displays all batch users in the VAXcluster environment. To restrict the display to users on specific nodes, use the /BATCH qualifier with the /NODE qualifier.

/CLUSTER

Displays all users on all nodes in a VAXcluster environment.

/FULL

Displays the user name, the node name, the process name, the process identification (PID) code, terminal names (both virtual and physical), and port information of all interactive, subprocess, and batch users on the system.

/INTERACTIVE

Displays all interactive users in the VAXcluster environment. To restrict the display to users on specific nodes, use the /INTERACTIVE qualifier with the /NODE qualifier.

/NETWORK

Displays all network users in the VAXcluster environment. To restrict the display to users on specific nodes, use the /NETWORK qualifier with the /NODE qualifier.

/NODE[=(name,...)]

Displays all interactive, subprocess, and batch users on the specified node or nodes. If you enter the /NODE qualifier without a value, the qualifier displays all the interactive, subprocess, and batch users on the local node.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. By default, the output of the SHOW USERS command is sent to the current SYS$OUTPUT device (usually your terminal). To send the output to a file, use the /OUTPUT qualifier followed by a file specification.

Wildcard characters are not allowed in the file specification. If you enter a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS is the default file type.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/SUBPROCESS

Displays all subprocess users in the VAXcluster environment. To restrict the display to users on specific nodes, use the /SUBPROCESS qualifier with the /NODE qualifier.

EXAMPLES

1

```
$  SHOW USERS
              VAX/VMS User Processes at 19-APR-1990 08:56:38.95
       Total number of users = 30, number of processes = 97

Username        Node      Interactive      Subprocess      Batch
1201BUILD       CORINTH         1
PHAEDO          PYLOS           1
CRITO           THEBES          2
MENO            SPARTA          1
GORGIAS         ATHENS          2
PROTAGORAS      HELOS           1                1
    .
    .
    .
```

The SHOW USERS command in this example displays the user name and node names of all current interactive, subprocess, and batch users on the system.

2

```
$  SHOW USERS *LES*
              VAX/VMS User Processes at 19-APR-1990 14:06.16.24
Total number of users = 3, number of processes = 10

Username        Node      Interactive     Subprocess       Batch
THALES          MILETS        -               -              1
PRAXITELES      LESBOS        5               2
PERICLES        ATHENS        1
```

The SHOW USERS command in this example displays the user name and node names of all users whose user names contain the string LES.

3
```
$ SHOW USERS YETTO
          VAX/VMS User Processes at 19-APR-1990 08:59:38.76
Total number of users = 1, number of processes = 2

Username      Node      Interactive     Subprocess      Batch
YETTO         SPHAWK        2
```

The SHOW USERS command in this example displays the user name and node name of the user YETTO.

4
```
$ SHOW USERS R
          VAX/VMS User Processes at 19-APR-1990 08:59:38.76
    Total number of users = 1, number of processes = 18

Username      Node     Interactive      Subprocess      Batch
RADAMS        ATHENS         1
RADAMS        SRFCLB        16               1
```

The SHOW USERS command in this example displays the user name and node names of all users whose user names begin with the letter R.

5
```
$ SHOW USERS/FULL/NODE
          VAX/VMS User Processes at 19-APR-1990 14:20:39.27
Total number of users = 24, number of processes = 33

Username     Node       Process Name       PID          Terminal
BARTON       METEOR     LBarton_9          26200240     RTA9:     (K4:::BARTON)
BATBOUTA     METEOR     Ellen              262001BD     VTA28:    LTA27: (ZK34C3/LC-4-6)
BPORTER      METEOR     BATCH-338          2620034D     (batch)
BULMER       METEOR     Cheryl Bulmer      2620025A     VTA48:    LTA47: (ZK34C4/LC-3-6)
CHIN         METEOR     Theresa Chin       26200BB      VTA27:    LTA26: (ZK34C4/LC-5-10)
DAVIDSON     METEOR     DAVIDSON           262001BF     VTA29:    LTA28: (ZK34C2/LC-3-2)
   .
   .
   .
```

The SHOW USERS command in this example displays the user name, the local node, the process name, the process identification (PID) number, the terminal names (both virtual and physical), and port information for all interactive, subprocess, and batch users on the system.

6
```
$ SHOW USERS/FULL
          VAX/VMS User Processes at 19-APR-1990 12:14:49.16
Total number of users = 71, number of processes = 239

Username       Node       Process Name       PID          Terminal
1201BUILD      ATHENS     1201BUILD          32400296     VTA23:    LTA22:
                                                             (PC-AA0004000AAFC)
1201BUILD      ATHENS     EMACS$VTA23        32400297     (subprocess of 32400296)
<LOGIN>  FAB4       _WSA1              3100009F
ARBO           LXX        ARBO               2CC00055     TWA1:
BATBOUTA       HELOS      BATCH_698          3286022F     (batch)

   .
   .
   .
```

The SHOW USERS command in this example displays the user name, the node name, the process name, the process identification (PID) number, the terminal names (both virtual and physical), and port information for all interactive, subprocess, and batch users on the system. A user name of <LOGIN> indicates that someone is in the process of logging in.

```
7  $ SHOW USERS /NODE=(ATHENS,HELLAS,METEOR)
             VAX/VMS User Processes at 19-APR-1990 15:59:27.49
   Total number of users = 81, number of processes = 248

   Username        Node        Interactive      Subprocess      Batch
   AGRICOLA        HELLAS          1
   AUBER           METEOR          4                1
   BABBIT          HELLAS          1
   BALAKIREV       METEOR          1
   BILLINGS        ATHENS          1
   BUONONCINI      HELLAS          1
      .
      .
      .
```

The SHOW USERS command in this example displays the user name and node name for all interactive, batch, and subprocess users on the nodes ATHENS, HELLAS, and METEOR.

```
8  $ SHOW USERS /NODE=HELLAS
             VAX/VMS User Processes at 19-APR-1990 16:03:50.50
   Total number of users = 37, number of processes = 54

   Username        Node        Interactive      Subprocess      Batch
   AGRICOLA        HELLAS          1
   BABBIT          HELLAS          1
   BUONOCINI       HELLAS          1
   BRUCKNER        HELLAS          1                1
   CAGE            HELLAS          1
   CHERUBINI       HELLAS          1
      .
      .
      .
```

The SHOW USERS command in this example displays the user name and node name for all interactive, subprocess, and batch users on the node HELLAS.

SHOW WORKING_SET

Displays the working set limit, quota, and extent assigned to the current process.

FORMAT

SHOW WORKING_SET

PARAMETERS

None.

QUALIFIER

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. If you do not enter the qualifier, or if you enter the /OUTPUT qualifier without a file specification, the output is sent to the current process default output stream or device, identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, specifying only a directory), SHOW is the default file name and LIS the default file type. Wildcard characters are not allowed in the file specification.

If you enter the /NOOUTPUT qualifier, output is suppressed.

EXAMPLE

```
$ SHOW WORKING_SET
Working Set      /Limit= 180   /Quota= 350          /Extent= 1200
Adjustment enabled  Authorized Quota= 350  Authorized Extent= 1200
```

In this example, the response to the SHOW WORKING_SET command indicates that the current process has a working set limit of 180 pages and a quota of 350 pages and that the current quota is equal to the authorized limit (350 pages). It also shows that the current process has a working set extent of 1200 and that the current extent is equal to the authorized limit (1200).

SHOW ZONE

Displays the current state of a VAXft 3000 system. For more information on the SHOW ZONE command, see the *VAXft System Services Reference Manual.*

Applies only to a VAXft 3000 system.

FORMAT SHOW ZONE *[zone-id]*

SORT

Invokes the Sort/Merge Utility, which reorders the records in a file into a defined sequence and creates either a new file of the reordered records or an address file by which the reordered records can be accessed. For a complete description of the Sort/Merge Utility, see the *VMS Sort/Merge Utility Manual*.

FORMAT

SORT *input-filespec[,...] output-filespec*

SPAWN

Creates a subprocess of the current process. Portions of the current process context are copied to the subprocess.

The RESOURCE_WAIT state is required to spawn a process. Requires TMPMBX (temporary mailbox) or PRMMBX (permanent mailbox) privilege. The SPAWN command does not manage terminal characteristics. The SPAWN and ATTACH commands cannot be used if your terminal has an associated mailbox.

FORMAT

SPAWN *[command-string]*

PARAMETER

command-string

Specifies 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.

DESCRIPTION

The SPAWN command creates a subprocess of your current process with the following attributes copied from the parent process:

- All symbols except $RESTART, $SEVERITY, and $STATUS
- Key definitions
- The current keypad state
- The current prompt string
- All process logical names and logical name tables except those explicitly marked CONFINE or those created in executive or kernel mode
- Default disk and directory
- Current SET MESSAGE settings
- Current process privileges
- Control and verification states

Note that some attributes, such as the process's current command tables, are *not* copied.

When the subprocess is created, the process-permanent open files and any image or procedure context are *not* copied from the parent process. The subprocess is set to command level 0 (DCL level with the current prompt).

If you do not specify the /PROCESS qualifier, the name of this subprocess is composed of the same base name as the parent process and a unique number. For example, if the parent process name is SMITH, the subprocess name can be SMITH_1, SMITH_2, and so on.

The LOGIN.COM file of the parent process is not executed for the subprocess because the context is copied separately, allowing quicker initialization of the subprocess. When the /WAIT qualifier is in effect, the parent process remains in hibernation until the subprocess terminates or returns control to the parent by way of the ATTACH command.

More than one process simultaneously attempts to use the same input or output stream in the following circumstances:

- When several processes share that stream and you terminate a subprocess to which you are not currently attached.
- When you terminate a process that is not spawned from the process to which you are currently attached.

You should use the LOGOUT command to terminate the subprocess and return to the parent process. You can also use the ATTACH command to transfer control of the terminal to another process in the subprocess tree, including the parent process. (The SHOW PROCESS/SUBPROCESSES command displays the processes in the subprocess tree and points to the current process.)

Note: Because a tree of subprocesses can be established using the SPAWN command, you must be careful when terminating any process in the tree. When a process is terminated, all subprocesses below that point in the tree are terminated automatically.

Qualifiers used with the SPAWN command must directly follow the command verb. The command string parameter begins after the last qualifier and continues to the end of the command line.

QUALIFIERS

[/CARRIAGE_CONTROL](#)
/NOCARRIAGE_CONTROL

Determines whether carriage-return and line-feed characters are prefixed to the subprocess's prompt string. By default, SPAWN copies the current setting of the parent process.

/CLI=cli-filespec
/NOCLI

Specifies the name of a command language interpreter (CLI) to be used by the subprocess. The default CLI is the same as the parent process (defined in SYSUAF). If you specify the /CLI qualifier, the attributes of the parent process are copied to the subprocess.

The CLI you specify must be located in SYS$SYSTEM and have the file type EXE.

/INPUT=filespec

Specifies an input file containing one or more DCL commands to be executed by the spawned subprocess. The file type defaults to COM. No wildcards are allowed in the file specification. 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 neither is specified, SYS$INPUT is assumed (in which case a SPAWN/NOWAIT command is aborted if Ctrl/Y is pressed to abort something running in your parent process).

You cannot explicitly specify non-record-oriented, process-permanent files (NRO PPFs) with the /INPUT qualifier. The system displays an error message when it encounters such a file as the value for the /INPUT qualifier.

Note that when NRO PPFs are used as implicit input (that is, the /INPUT qualifier is not specified and SYS$INPUT is a NRO PPF), the SPAWN command can succeed, as shown in the following table:

Process Type	SYS$INPUT	Implicit Input
Interactive	NRO PPF	SYS$COMMAND
Noninteractive	NRO PPF	Null device
Any	Any other	SYS$INPUT

If SYS$INPUT is a terminal, it cannot have an associated terminal mailbox.

/KEYPAD (default)
/NOKEYPAD

Copies keypad key definitions and the current keypad state from the parent process. By default, if you have established key definitions or states with the DEFINE/KEY or the SET KEY command, these settings are copied to the subprocess. Use the /NOKEYPAD qualifier if you do not want the key settings to be copied.

/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 to the subprocess. By default, all process logical names and logical name tables are copied to the subprocess except those explicitly marked CONFINE or created in executive or kernel mode.

/NOTIFY
/NONOTIFY (default)

Controls whether a message is broadcast to your terminal notifying you that your subprocess has completed or aborted. This qualifier should not be used unless you specify the /NOWAIT qualifier. The /NOTIFY qualifier

cannot be specified when the SPAWN command is executed from within a noninteractive process.

Note that messages broadcast as a result of using the /NOTIFY qualifier are considered to be DCL messages. Therefore, if SET BROADCAST=NODCL is in effect, all such notification messages are suppressed.

/OUTPUT=filespec

Specifies the output file to which the results of the SPAWN operation are written. No wildcards can be used in the file specification. (Do not specify SYS$COMMAND as a file specification for the /OUTPUT qualifier when using the /NOWAIT qualifier; both parent and subprocess output will be displayed simultaneously on your terminal.)

You cannot explicitly specify non-record-oriented, process-permanent files (NRO PPFs) with the /OUTPUT qualifier. The system displays an error message when it encounters such a file as the value for the /OUTPUT qualifier.

Note that when NRO PPFs are used as implicit output, the SPAWN command can succeed, as shown in the following table:

Process Type	SYS$OUTPUT	Implicit Output
Any	NRO PPF	Mailbox transmitting records for parent to write to its current SYS$OUTPUT device
Any	Any other	SYS$OUTPUT

If you omit the /OUTPUT qualifier, output is written to the current SYS$OUTPUT device.

/PROCESS=subprocess-name

Specifies the name of the subprocess to be created. If you omit the /PROCESS qualifier, a unique process name is assigned with the same base name as the parent process and a unique number. The default subprocess name format is username_*n*. If you specify a process name that already exists, an error message is displayed. If the /LOG qualifier has been specified, the assigned name of the subprocess is displayed.

/PROMPT[=string]

Specifies the prompt string for DCL to use in the subprocess. The default is the prompt of the parent process.

The string can consist of more than one character. All valid ASCII characters can be used in the string. The string must be enclosed in quotation marks (" ") if it contains spaces, special characters, or lowercase characters. Otherwise, letters are automatically converted to uppercase, and leading and trailing spaces are removed.

If no string is specified, the DCL default prompt string " $ " is used for the subprocess.

/SYMBOLS (default)
/NOSYMBOLS

Determines whether global and local symbols (except $RESTART, $SEVERITY, and $STATUS) are passed to the subprocess. $RESTART, $SEVERITY, and $STATUS symbols are *never* passed 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 enter another DCL command. The /NOWAIT qualifier allows you to enter 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.)

Note that specifying the /NOWAIT qualifier causes both input and output to be shared with the parent process. If the input device is a terminal, control characters, such as CTRL/T or CTRL/Y, also affect all subprocesses sharing the input device. The CTRL/Y control character, for example, interrupts all such subprocesses.

This problem may be avoided by specifying /INPUT=NL:.

EXAMPLE

```
$ RUN MYPROG
      .
      .
      .
$ Ctrl/Y
$ SPAWN MAIL
%DCL-S-SPAWNED, process SMITH_1 spawned
%DCL-S-ATTACHED, terminal now attached to process SMITH_1
MAIL> READ
   .
   .
   .
MAIL> EXIT
%DCL-S-RETURNED, control returned to process SMITH
$ CONTINUE
```

The SPAWN command in this example allows you to enter the VMS Mail Utility (MAIL) without terminating the currently running program. After you exit from MAIL, control is returned to the parent process.

START/CPU

Starts the specified secondary processor or processors (and any associated vector processors) in a VMS multiprocessing system. The /CPU qualifier is required.

Applies only to VMS multiprocessing systems. Requires CMKRNL (change mode to kernel) privilege.

FORMAT

START/CPU *[cpu-id[,...]]*

PARAMETER

cpu-id[,...]

Specifies a decimal value representing the identity of a processor in a VMS multiprocessing system. On a VAX 8300 system, for instance, the CPU ID is the VAXBI node number of the processor; on a VAX 8800 system, the CPU ID of the left processor is 1 and that of the right processor is 0. If you do not specify a CPU ID and do not include the /ALL qualifier, the START/CPU command selects a single available processor to join the multiprocessing system.

DESCRIPTION

The START/CPU command starts a secondary processor in a VMS multiprocessing system.

You can issue a START/CPU command only for processors in the STOPPED or TIMOUT state, as represented by the SHOW CPU command. Otherwise, the START/CPU command has no effect.

QUALIFIER

/ALL

Selects all remaining processors in the system's available set to join the multiprocessing system.

EXAMPLES

1
```
$ START/CPU
```

The START/CPU command in this example selects a single inactive processor from the set of those processors that are currently available but inactive. When it completes its initialization, the selected processor becomes part of the system's active set and is capable of scheduling and executing processes.

2
```
$ START/CPU 4,7
```

The START/CPU command in this example selects the processors with CPU IDs 4 and 7, if they are currently available and inactive. When they complete initialization, these processors become part of the system's active set and are capable of scheduling and executing processes.

```
3    $ START/CPU/ALL
```

The START/CPU/ALL command in this example selects all remaining inactive and available processors. When they complete initialization, these processors become part of the system's active set and are capable of scheduling and executing processes.

START/QUEUE

Starts or restarts the specified queue after it has been initialized. You also can use this command to change the attributes of the specified queue. The /QUEUE qualifier is required.

Requires OPER (operator) privilege or execute (E) access to the specified queue.

FORMAT

START/QUEUE *queue-name[:]*

PARAMETER

queue-name[:]
Specifies the name of the queue to be started or restarted.

DESCRIPTION

The START/QUEUE command restarts a queue that has been stopped or paused. You must initialize the queue with the INITIALIZE/QUEUE command before you can use the START/QUEUE command. To initialize and start the queue at the same time, use the INITIALIZE/QUEUE /START command.

You can specify with the START/QUEUE command most qualifiers that can be used with the INITIALIZE/QUEUE command. The defaults for the START/QUEUE qualifiers depend on the qualifiers specified when the queue was initialized. For example, the default for /JOB_LIMIT with INITIALIZE/QUEUE is 1. However, if the queue you are altering was initialized with a job limit of 3, and if you do not specify the /JOB_LIMIT qualifier with the START/QUEUE command, the job limit remains at 3 for that queue.

Values or options specified with qualifiers on the START/QUEUE command override the values or options of those same qualifiers that were specified when the queue was initialized.

If the specified queue is running when you enter the START/QUEUE command, the system returns an error message. To change the attributes of a running queue, use the SET QUEUE command.

The /TOP_OF_FILE, /BACKWARD, /FORWARD, /SEARCH, /ALIGN, and /NEXT qualifiers are effective only when restarting an output execution queue from a paused state. They do not apply to queues that are stopped or to batch queues. When you specify more than one of the first five of these qualifiers, the print symbiont processes them in the following order:

1 /TOP_OF_FILE

2 /BACKWARD

3 /FORWARD

4 /SEARCH

5 /ALIGN

QUALIFIERS

/ALIGN[=(option[,...])]

Prints alignment pages to aid in aligning printer forms. Use this qualifier only when restarting an output execution queue from a paused state.

After the alignment is complete, the queue enters a paused state until you restart it by reentering the START/QUEUE command. Printing resumes from the point where alignment data started; that is, the task is backspaced over the pages printed for alignment.

Possible options are as follows:

MASK	Specifies that input data is masked by replacing alphabetic characters with x's and numbers with 9s; nonalphanumeric characters are not masked. Mask characters allow you to prevent the printing of sensitive information. If you omit the MASK option, data is printed unaltered.
n	Specifies the number of alignment pages to print. The value of *n* can be from 1 to 20. By default, one page of alignment data is printed.

/BACKWARD=n

Restarts a print queue *n* pages before the current page; *n* defaults to 1. If you omit the page value, printing resumes at the top of the current page. Use this qualifier only when restarting an output execution queue from a paused state.

/BASE_PRIORITY=n

Specifies the base process priority at which jobs are initiated from a batch execution queue. By default, if you omit the qualifier, jobs are initiated at the same priority as the base priority established by DEFPRI at system generation (usually 4). The base priority specifier can be any decimal value from 0 to 15.

/BLOCK_LIMIT=([lowlim,]uplim)
/NOBLOCK_LIMIT

Limits the size of print jobs that can be processed on an output execution queue. This qualifier allows you to reserve certain printers for certain size jobs. You must specify at least one of the parameters.

The *lowlim* parameter is a decimal number referring to the minimum number of blocks that are accepted by the queue for a print job. If a print job is submitted that contains fewer blocks than the the *lowlim* value, the job remains pending until the block limit for the queue is changed. After the block limit for the queue is decreased sufficiently, the job is processed.

The *uplim* parameter is a decimal number referring to the maximum number of blocks that are accepted by the queue for a print job. If a print job is submitted that exceeds this value, the job remains pending until the block limit for the queue is changed. After the block limit for the queue is increased sufficiently, the job is processed.

If you specify only an upper limit for jobs, you can omit the parentheses. For example, /BLOCK_LIMIT=1000 means that only jobs with 1000 blocks or less are processed in the queue. To specify only a lower job limit, you must use two consecutive quotation marks ("") to indicate the upper specifier. For example, /BLOCK_LIMIT=(500,"") means any job with 500 or more blocks is processed in the queue. You can specify both a lower and upper limit. For example, /BLOCK_LIMIT=(200,2000) means that jobs with less than 200 blocks or more than 2000 blocks are not processed in the queue.

The /NOBLOCK_LIMIT qualifier cancels the previous setting established by the /BLOCK_LIMIT qualifier for the queue.

/CHARACTERISTICS=(characteristic[,...])
/NOCHARACTERISTICS

Specifies one or more characteristics for processing jobs on an execution queue. If a queue does not have all the characteristics that have been specified for a job, the job remains pending. If you specify only one characteristic, you can omit the parentheses. Each time you specify the /CHARACTERISTICS qualifier, all previously set characteristics are canceled. Only the characteristics specified with the qualifier are established for the queue.

Queue characteristics are installation specific. The characteristic parameter can be either a value from 0 to 127 or a characteristic name that has been defined by the DEFINE/CHARACTERISTIC command.

The /NOCHARACTERISTICS qualifier cancels any settings previously established by the /CHARACTERISTICS qualifier for the queue.

/CLOSE

Prevents jobs from being entered in the queue through PRINT or SUBMIT commands or as a result of requeue operations. To allow jobs to be entered, use the /OPEN qualifier. Whether a queue accepts or rejects new job entries is independent of the queue's state (such as paused, stopped, or stalled). When a queue is marked closed, jobs executing continue to execute. Jobs already pending in the queue continue to be candidates for execution.

/CPUDEFAULT=time

Defines the default CPU time limit for jobs in this batch execution queue. You can specify time as delta time, 0, INFINITE, or NONE. You can specify up to 497 days of delta time.

If the queue does not have a specified CPUMAXIMUM time limit and the value established in the user authorization file (UAF) has a specified CPU time limit of NONE, either the value 0 or the keyword INFINITE allows unlimited CPU time. If you specify NONE, the CPU time value defaults to the value specified either in the UAF or by the SUBMIT command (if included). CPU time values must be greater than or equal to the number specified by the SYSGEN parameter PQL_MCPULM.

For information on specifying delta times, see the *VMS DCL Concepts Manual*. For more information on specifying CPU time limits, see Table DCL1–1.

/CPUMAXIMUM=time

Defines the default CPU time limit for all jobs in this batch execution queue. You can specify time as delta time, 0, INFINITE, or NONE. You can specify up to 497 days of delta time.

If the queue does not have a specified CPUMAXIMUM time limit and the value established in the UAF has a specified CPU time limit of NONE, either the value 0 or the keyword INFINITE allows unlimited CPU time. If you specify NONE, the CPU time value defaults to the value specified either in the UAF or by the SUBMIT command (if included). CPU time values must be greater than or equal to the number specified by the SYSGEN parameter PQL_MCPULM. The time cannot exceed the CPU time limit set by the /CPUMAXIMUM qualifier. For information on specifying delta time, see the *VMS DCL Concepts Manual*. For more information on specifying CPU time limits, see Table DCL1–1.

/DEFAULT=(option[,...])
/NODEFAULT

Establishes defaults for certain options of the PRINT command. Defaults are specified by the list of options. If you specify only one option, you can omit the parentheses. After you set an option for the queue with the /DEFAULT qualifier, you do not have to specify that option in your PRINT commands. If you do specify these options in your PRINT command, the values specified with the PRINT command override the values established for the queue with the /DEFAULT qualifier. For information on establishing mandatory queue attributes, see the description of the /SEPARATE qualifier.

You cannot use the /DEFAULT qualifier with the /GENERIC qualifier.

Possible options are as follows:

[NO]BURST[=keyword]	Controls whether two file flag pages with a burst bar between them are printed preceding output. If you specify the value ALL (default), these flag pages are printed before each file in the job. If you specify the value ONE, these flag pages are printed once before the first file in the job.
[NO]FEED	Specifies whether a form feed is inserted automatically at the end of a page.
[NO]FLAG[=keyword]	Controls whether a file flag page is printed preceding output. If you specify the value ALL (default), a flag page is printed before each file in the job. If you specify the value ONE, a flag page is printed once before the first file in the job.
FORM=type	Specifies the default form for an output execution queue. If a job is submitted without an explicit form definition, this form is used to process the job. See also the description of the /FORM_MOUNTED qualifier.

[NO]TRAILER[=keyword]	Controls whether a file trailer page is printed following output. If you specify the value ALL (default), a trailer page is printed after each file in the job. If you specify the value ONE, a trailer page is printed once after the last file in the job.

When you specify the BURST option for a file, the [NO]FLAG option does not add or subtract a flag page from the two flag pages that are printed preceding the file. For information on specifying default queue attributes, see the *Guide to Maintaining a VMS System*.

/DESCRIPTION=string
/NODESCRIPTION

Specifies a string of up to 255 characters that is used to provide operator-supplied information about the queue.

Enclose strings containing lowercase letters, blanks, or other nonalphanumeric characters (including spaces) in quotation marks (" ").

The /NODESCRIPTION qualifier removes any descriptive text that may be associated with the queue.

/DISABLE_SWAPPING
/NODISABLE_SWAPPING

Controls whether batch jobs executed from a queue can be swapped in and out of memory.

/ENABLE_GENERIC
/NOENABLE_GENERIC

Specifies whether files queued to a generic queue that does not specify explicit queue names with the /GENERIC qualifier can be placed in this execution queue for processing. For more information, see the description of the /GENERIC qualifier.

/FORM_MOUNTED=type

Specifies the mounted form for an output execution queue. If the stock of the mounted form does not match the stock of the default form, as indicated by the qualifier /DEFAULT=FORM, all jobs submitted to this queue without an explicit form definition enter a pending state. If a job is submitted with an explicit form and the stock of the explicit form does not match the stock of the mounted form, the job enters a pending state. In both cases, the jobs remain in a pending state until the stock of the mounted form of the queue matches the stock of the form associated with the job.

To specify the form type, use either a numeric value or a form name that has been defined by the DEFINE/FORM command. Form types are installation specific. You cannot use the /FORM_MOUNTED qualifier with the /GENERIC qualifier.

/FORWARD=n

Advances the specified number of pages before resuming printing the current file in the current job; the default is 1. If you omit the page value, printing resumes at the top of the next page. Use this qualifier only when restarting an output execution queue from a paused state.

/GENERIC[=(queue-name[,...])]
/NOGENERIC

Specifies a generic queue. Also specifies that jobs placed in this queue can be moved for processing to compatible execution queues. The /GENERIC qualifier optionally accepts a list of target execution queues that have been previously defined. For a generic batch queue, these target queues must be batch execution queues. For a generic output queue, these target queues must be output execution queues, but can be of any type (printer, server, or terminal). For example, a generic printer queue can feed a mixture of printer and terminal execution queues.

If you do not specify any target execution queues with the /GENERIC qualifier, jobs can be moved to any execution queue that (1) is initialized with the /ENABLE_GENERIC qualifier, and (2) is the same type (batch or output) as the generic queue.

To define the queue as a generic batch or output queue, you use the /GENERIC qualifier with either the /BATCH or the /DEVICE qualifier. If you specify neither the /BATCH nor the /DEVICE qualifier on creation of a generic queue, by default the queue becomes a generic printer queue.

/JOB_LIMIT=n

Specifies the number of batch jobs that can be executed concurrently from the queue. Specify a number in the range 0 to 255.

/LIBRARY=file-name
/NOLIBRARY

Specifies the file name for the device control library. When you initialize an output execution queue, you can use the /LIBRARY qualifier to specify an alternate device control library. You can use only a file name as the parameter of the /LIBRARY qualifier. The system always assumes that the file is located in SYS$LIBRARY and that the file type is TLB.

/NEXT

Aborts the currently suspended print job and begins processing of the first pending job in the queue. Use this qualifier only when restarting an output execution queue from a paused state.

/ON=[node::]device[:] (printer, terminal, server queue)
/ON=node:: (batch queue)

Specifies the node or device, or both, on which this execution queue is located. For batch execution queues, you can specify only the node name. For output execution queues, you can include both the node name and the device name.

The node name is used only in VAXcluster systems; it must match the node name specified by the SYSGEN parameter SCSNODE for the VAX computer on which the queue executes.

/OPEN

Allows jobs to be entered in the queue through PRINT or SUBMIT commands or as the result of requeue operations. To prevent jobs from being entered in the queue, use the /CLOSE qualifier. Whether a queue accepts or rejects new job entries is independent of the queue's state (such as paused, stopped, or stalled).

/OWNER_UIC=uic

Requires OPER (operator) privilege or control (C) and execute (E) access to the queue.

Enables you to change the user identification code (UIC) of the queue. Specify the UIC by using standard format as described in the *VMS DCL Concepts Manual*.

/PROCESSOR=filename
/NOPROCESSOR

Allows you to specify your own print symbiont for an output execution queue. You can use any valid file name as a parameter of the /PROCESSOR qualifier. The system supplies the device and directory name SYS$SYSTEM and the file type EXE. If you use this qualifier for an output queue, it specifies that the symbiont image to be executed is SYS$SYSTEM:filename.EXE.

By default, SYS$SYSTEM:PRTSMB.EXE is the symbiont image associated with an output execution queue.

The /NOPROCESSOR qualifier cancels any previous setting established by the /PROCESSOR qualifier, and causes SYS$SYSTEM:PRTSMB.EXE to be used.

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

Requires OPER (operator) privilege or control (C) and execute (E) access to the queue.

Specifies the protection of the queue. Ownership categories are system (S), owner (O), group (G), and world (W); each category can be abbreviated to its first character. Access categories are read (R), write (W), execute (E), and delete (D); a null access specification means no access. If you include only one protection code, you can omit the parentheses. For more information on specifying protection codes, see the *VMS DCL Concepts Manual*. For more information on controlling queue operations through UIC-based protection, see the *Guide to Maintaining a VMS System*.

/RECORD_BLOCKING
/NORECORD_BLOCKING

Determines whether the symbiont can concatenate (or block together) output records for transmission to the output device. If you specify the /NORECORD_BLOCKING qualifier, the symbiont sends each formatted record in a separate I/O request to the output device. For the standard VMS print symbiont, record blocking can have a significant performance advantage over single-record mode.

/RETAIN[=option]
/NORETAIN

Holds jobs in the queue in a retained status after they have executed. The /NORETAIN qualifier enables you to reset the queue to the default. Possible options are as follows:

ALL	Holds all jobs in the queue after execution.
ERROR	Holds in the queue only jobs that fail to complete.

/SCHEDULE=[NO]SIZE

Specifies whether pending jobs in an output queue are scheduled for printing based on the size of the job. When the /SCHEDULE=SIZE qualifier is in effect, shorter jobs are printed before longer ones. When the /SCHEDULE=NOSIZE qualifier is in effect, jobs are printed in the order they were submitted, regardless of size.

If you enter this command while there are pending jobs in any queue, its effect on future jobs is unpredictable.

/SEARCH="search-string"

Specifies that printing is to resume at the page containing the specified string. The search for the string moves forward, beginning on the page following the current page. During the search, consecutive tabs and spaces are treated as a single space, and character case is ignored. The string can be from 1 to 63 characters and must be enclosed in quotation marks (" "). Use this qualifier only when restarting an output execution queue from a paused state.

/SEPARATE=(option[,...])
/NOSEPARATE

Specifies the mandatory queue attributes, or job separation options, for an output execution queue. Job separation options cannot be overridden by the PRINT command.

You cannot use the /SEPARATE qualifier with the /GENERIC qualifier.

The job separation options are as follows:

[NO]BURST	Specifies whether two job flag pages with a burst bar between them are printed at the beginning of each job.
[NO]FLAG	Specifies whether a job flag page is printed at the beginning of each job.
[NO]TRAILER	Specifies whether a job trailer page is printed at the end of each job.
[NO]RESET=(module[,...])	Specifies one or more device control library modules that contain the job reset sequence for the queue. The specified modules from the queue's device control library (by default SYS$LIBRARY:SYSDEVCTL) are used to reset the device each time a job reset occurs. The RESET sequence occurs after any file trailer and before any job trailer. Thus, all job separation pages are printed when the device is in its RESET state.

When you specify /SEPARATE=BURST, the [NO]FLAG separation option does not add or subtract a flag page from the two flag pages that are printed preceding the job.

For information on establishing queue attributes that can be overridden, see the description of the /DEFAULT qualifier.

For more information on specifying mandatory queue attributes, see the *Guide to Maintaining a VMS System*.

/TOP_OF_FILE

Resumes printing at the beginning of the file that was current when the output execution queue paused. Use this qualifier only when restarting an output execution queue from a paused state.

/WSDEFAULT=n

Defines for a batch job a working set default, the default number of physical pages that the job can use. The value set by this qualifier overrides the value defined in the user authorization file (UAF) of any user submitting a job to the queue.

You also can specify this qualifier for an output execution queue. Used in this context, the /WSDEFAULT qualifier establishes the working set default of the symbiont process for an execution queue when the symbiont process is created.

If you specify the value 0 or NONE, the working set default value defaults to the value specified in the UAF or by the SUBMIT command (if included). For more information about the way a working set default affects batch jobs, see Table DCL2–6.

/WSEXTENT=n

Defines for the batch job a working set extent, the maximum amount of physical memory that the job can use. The job uses the maximum amount of physical memory only when the system has excess free pages. The value set by this qualifier overrides the value defined in the user authorization file (UAF) of any user submitting a job to the queue.

You also can specify this qualifier for an output execution queue. Used in this context, the /WSEXTENT qualifier establishes the working set extent of the symbiont process for an output execution queue when the symbiont process is created.

If you specify the value 0 or NONE, the working set extent value defaults to the value specified in the UAF or by the SUBMIT command (if included).

For more information about the way a working set extent affects batch jobs, see Table DCL2–6.

/WSQUOTA=n

Defines for a batch job a working set quota, the amount of physical memory that is guaranteed to the job. The value set by this qualifier overrides the value defined in the user authorization file (UAF) of any user submitting a job to the queue.

You also can specify this qualifier for an output execution queue. Used in this context, the /WSQUOTA qualifier establishes the working set quota of the symbiont process for an output execution queue when the symbiont process is created.

If you specify the value 0 or NONE, the working set quota value defaults to the value specified in the UAF or by the SUBMIT command (if included).

Working set default, working set quota, and working set extent values are included in each user record in the system UAF. You can specify working set values for individual jobs or for all jobs in a given queue. The decision

table (Table DCL2–6) shows the action taken for different combinations of specifications that involve working set size and working set quota values.

Table DCL2–6 Working Set Default, Extent, and Quota Decision

Value Specified by the SUBMIT Command?	Value Specified for the Queue?	Action Taken
No	No	Use the UAF value.
No	Yes	Use value for the queue.
Yes	Yes	Use smaller of the two values.
Yes	No	Compare specified value with UAF value; use the smaller.

EXAMPLES

1
```
$ STOP/QUEUE  LPA0
$ START/QUEUE/TOP_OF_FILE  LPA0
```

The STOP/QUEUE command in this example suspends operation of the printer queue LPA0. Then the START/QUEUE/TOP_OF_FILE command resumes operation. The file that was being printed when the queue was stopped is started again from the beginning.

2
```
$ INITIALIZE/QUEUE  LPA0
    .
    .
    .
$ START/QUEUE/DEFAULT=FLAG  LPA0
```

The INITIALIZE/QUEUE command in this example initializes the queue named LPA0. Later, the START/QUEUE command starts the queue. The /DEFAULT qualifier requests that a flag page precede each file in each job.

3
```
$ START/QUEUE/DEFAULT=FORM=LN01_PORTRAIT LN01_PRINT
```

The START/QUEUE command in this example restarts the LN01_PRINT queue with the default form LN01_PORTRAIT.

START/QUEUE/MANAGER

Starts the queue manager for the batch/print facility and opens the queue file. After the system is bootstrapped, you must execute this command before you can execute any other queue management or job submission command. The /QUEUE qualifier is optional, but the /MANAGER qualifier is required.

For more information, see the *Guide to Maintaining a VMS System.*

Requires both OPER (operator) and SYSNAM (system logical name) privileges.

FORMAT

START/QUEUE/MANAGER *[filespec]*

PARAMETER

filespec

Specifies the name of the queue file. This file contains information about batch and print jobs, queues, form definitions, and characteristics. The *filespec* parameter is used in VAXcluster systems. The default file specification is SYS$SYSTEM:JBCSYSQUE.DAT. Any elements that you omit from the file specification default to those of SYS$SYSTEM:JBCSYSQUE.DAT. Wildcard characters are not allowed in the file specification.

DESCRIPTION

The START/QUEUE/MANAGER command is generally included in the system startup procedure. You can omit the file specification if you want your system to use the default queue file.

In a VAXcluster, you must include the *filespec* parameter to cause each system to access the same queue file on a shared disk volume. The file specification must include at least the device and directory names.

QUALIFIERS

/BUFFER_COUNT=n

Specifies the number of buffers in the RMS local buffer cache to allocate for performing I/O operations to the queue file. Specify a positive integer in the range 1 to 5000, or 0 to request a default value. If you omit the /BUFFER_COUNT qualifier or specify the value 0 for buffer count, an initial default value of 100 is used, which is subject to automatic adjustment by the job controller based on the number of queues defined and other factors.

/EXTEND_QUANTITY=n

Specifies the number of blocks by which the queue file is extended, when necessary. This value is also used as the initial allocation size when the queue file is created. Specify a positive integer in the range of 10 to 65,535, or 0. If you specify the value 0, the default value of 100 is used.

/NEW_VERSION
/NONEW_VERSION (default)

Specifies that a new version of the queue file be created to supersede an existing version. If you specify a new version all jobs in the previous version are lost. The new queue file contains no information until you enter a subsequent INITIALIZE/QUEUE command.

/RESTART
/NORESTART (default)

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 queue file that is opened is the queue file that was open before the abort.

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 OPER (operator) privilege is necessary to restart the queue manager and to restore the queuing environment using START/QUEUE/MANAGER and appropriate START/QUEUE commands.

Note that in order to prevent a looping condition, the job controller does not restart the queue manager if it detects an error within 2 minutes of starting the queue manager.

EXAMPLES

1
```
$ START/QUEUE/MANAGER/RESTART
```

The START/QUEUE/MANAGER command is this example opens the default queue file SYS$SYSTEM:JBCSYSQUE.DAT, or creates a new queue file if the default queue file does not exist. The /RESTART qualifier directs the queue manager to restore automatically the queuing environment if the job controller aborts due to a fatal error condition.

2
```
$ START/QUEUE/MANAGER DUA5:[SYSQUE]
```

The START/QUEUE/MANAGER command in this example opens the queue file JBCSYSQUE.DAT on the cluster-accessible disk volume DUA5, in directory SYSQUE. You must mount the disk before you enter the START/QUEUE/MANAGER command.

START/ZONE

Adds a zone to the running VAXft 3000 system. For more information on the START/ZONE command, see the *VAXft System Services Reference Manual.*

Applies only to the VAXft 3000 system. Requires CMKRNL (change mode to kernel) privilege.

FORMAT START/ZONE

STOP

Terminates execution of a command, an image, a command procedure, a command procedure that was interrupted by a CTRL/Y function, or a detached process or subprocess.

Requires GROUP privilege to stop other processes in the same group. Requires WORLD privilege to stop processes outside your group.

FORMAT

STOP *[process-name]*

PARAMETER

process-name

Requires that the process be in your group.

Specifies the name of the process to be deleted. The process name can have from 1 to 15 alphanumeric characters. The specified process must have the same group number in its user identification code (UIC) as the current process; you cannot use the *process-name* parameter to stop a process outside of your group. To stop a process outside of your group, you must use the qualifier /IDENTIFICATION=pid.

The process name is incompatible with the /IDENTIFICATION qualifier; if you use the /IDENTIFICATION qualifier, the process name is ignored. If you include neither the *process-name* parameter nor the /IDENTIFICATION qualifier with the STOP command, the image executing in the current process is terminated.

DESCRIPTION

The STOP command causes an abnormal termination of the image that is currently executing. If the image has declared any exit-handling routines, they are not given control. Use the EXIT command to terminate the image so that the exit-handling routines gain control.

Note that when an image has been interrupted by a CTRL/Y function and the RUN command is entered to execute another image, the interrupted image is terminated. However, in this case, exit-handling routines execute before the next image is run.

If the STOP command is executed from a noninteractive process (such as a batch job), the process terminates.

If you press Ctrl/Y to interrupt a command procedure and then enter the STOP command, or if the STOP command is executed in a command procedure, all command levels are unstacked and control returns to command level 0 (DCL level with the $ prompt).

If you specify a process name or process identification (PID) code, the STOP command terminates the image currently executing in the specified process and deletes the process. If the process is noninteractive, no notification of the deletion occurs and the log file for the job is not printed.

QUALIFIER

/IDENTIFICATION=pid

Specifies the system-assigned process identification (PID) code. When you create a process with the RUN command, the RUN command displays the PID code of the newly created process. The /IDENTIFICATION qualifier can be used in place of the process name parameter.

You can omit any leading zeros in specifying the PID code.

EXAMPLES

1

```
$ RUN MYPROG
    .
    .
    .
Ctrl/Y
Interrupt
$ STOP
```

The RUN command in this example begins executing the image MYPROG. Subsequently, the CTRL/Y function interrupts the execution. The STOP command then terminates the image.

2

```
$ @TESTALL
    .
    .
    .
Ctrl/Y
Interrupt
$ STOP
```

The @ (execute procedure) command in this example executes the procedure TESTALL.COM. Subsequently, the CTRL/Y function interrupts the procedure. The STOP command then returns control to the DCL command interpreter.

3

```
$ RUN/PROCESS_NAME=LIBRA  LIBRA
%RUN-S-PROC_ID, identification of created process is 0013340D
    .
    .
    .
$ STOP LIBRA
```

The RUN command in this example creates a subprocess named LIBRA to execute the image LIBRA.EXE. Subsequently, the STOP command causes the image to exit and deletes the process.

4

```
$ ON ERROR THEN STOP
    .
    .
    .
```

In a command procedure, the ON command establishes a default action when any error occurs in the execution of a command or program. The STOP command stops all command levels. If this ON command is executed

in a command procedure, which in turn is executed from within another procedure, control does not return to the outer procedure, but to DCL command level 0.

STOP/CPU

Stops the specified secondary processor or processors (and any associated vector processors) in a VMS multiprocessing system. The /CPU qualifier is required.

Applies only to VMS multiprocessing systems. Requires CMKRNL (change mode to kernel) privilege.

FORMAT

STOP/CPU *[cpu-id[,...]]*

PARAMETER

cpu-id[,...]

Specifies a decimal value representing the identity of a processor in a VMS multiprocessing system. On a VAX 8300 system, for instance, the CPU ID is the VAXBI node number of the processor; on a VAX 8800 system, the CPU ID of the left processor is 1 and that of the right processor is 0. If you do not specify a CPU ID, the STOP/CPU command selects a processor in the current active set to stop.

DESCRIPTION

The STOP/CPU command removes a secondary processor from the active set in a VMS multiprocessing system. If the secondary processor is not executing a process when the STOP/CPU command is issued, it enters the STOPPED state. If the secondary is executing a process at the time, it continues to execute the current process until it becomes a candidate for rescheduling on another processor in the system. When this occurs, the secondary enters the STOPPED state.

The VMS operating system subjects a processor to a set of checks when it is the object of a STOP/CPU command. As a result, you may not be permitted to stop certain processors that are vital to the functioning of the system. In these cases, there is usually a process in the system that can execute only on the processor you intend to stop. You can determine this by issuing a SHOW CPU/FULL command. In unusual circumstances, you can bypass the checking mechanism by using the /OVERRIDE_CHECKS qualifier in the command.

The STOP/CPU command has no effect if its object processor is already in the STOPPED state when it is issued.

QUALIFIERS

/ALL

Stops all eligible secondary processors in the system's active set.

/OVERRIDE_CHECKS

Directs the STOP/CPU command to bypass a series of checks that determine whether the specified processor is eligible for removal from the active set.

EXAMPLES

1
```
$ STOP/CPU
```

The STOP/CPU command in this example selects a processor and removes it from the multiprocessing system's active set.

2
```
$ STOP/CPU 4,7
```

The STOP/CPU command in this example selects the processors with CPU IDs 4 and 7 and removes them from the multiprocessing system's active set.

3
```
$ STOP/CPU/OVERRIDE_CHECKS 8
```

The STOP/CPU/OVERRIDE_CHECKS command in this example unconditionally stops the processor with the CPU ID of 8 and removes it from active participation in the multiprocessing system.

4
```
$ STOP/CPU/ALL
```

The STOP/CPU/ALL command in this example stops all eligible secondary processors in the active set and removes them from the multiprocessing system.

STOP/QUEUE

The STOP/QUEUE command causes the specified execution queue to pause. 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 /QUEUE qualifier is required.

Requires OPER (operator) privilege or execute (E) access to the queue.

FORMAT

STOP/QUEUE *queue-name[:]*

PARAMETER

queue-name[:]
Specifies the name of the queue that you want to pause.

DESCRIPTION

The STOP/QUEUE command causes the specified queue to pause. All jobs currently executing in the queue are suspended. No new jobs can be initiated.

Use the START/QUEUE command to release the queue from the paused state. When you restart the queue, any jobs that were executing resume executing at the point where they left off, unless you use the /BACKWARD, the /FORWARD, the /SEARCH, or the /TOP_OF_FILE qualifier to restart a print job at a different place.

For information about other STOP/QUEUE commands, see the following commands:

STOP/QUEUE/ABORT
STOP/QUEUE/ENTRY
STOP/QUEUE/MANAGER
STOP/QUEUE/NEXT
STOP/QUEUE/REQUEUE
STOP/QUEUE/RESET

EXAMPLES

1
```
$ STOP/QUEUE LPA0
```

The STOP/QUEUE command in this example halts the current print job in the queue LPA0 and places that queue in the paused state.

```
2   $ STOP/QUEUE TEXTBATCH
      .
      .
      .
    $ START/QUEUE/BLOCK_LIMIT=500 TEXTBATCH
```

The STOP/QUEUE command in this example halts all batch jobs that are currently executing on the queue TEXTBATCH and places that queue in the paused state. Later, the START/QUEUE command releases the queue from the paused state. All the jobs that were halted resume processing, but the START/QUEUE command now limits any further jobs to 500 blocks or smaller.

STOP/QUEUE/ABORT

Aborts a job that is printing or processing on an output queue, deletes it from the queue, and begins processing the first pending job in the queue. The /QUEUE qualifier is optional, but the /ABORT qualifier is required.

Requires OPER (operator) privilege, execute (E) access to the queue, or delete (D) access to the current job.

FORMAT

STOP/QUEUE/ABORT *queue-name[:]*

PARAMETER

queue-name[:]
Specifies the name of the queue containing the job you want to abort.

DESCRIPTION

When you abort a print job, the print job completes the page that is currently printing. Then the job is removed from the queue. If the output queue has been set up to put trailing pages at the end of jobs, a trailer page is printed after the current page is completed. For information on how a batch job is aborted, see the description of the STOP/QUEUE /ENTRY command.

Use the STOP/QUEUE/ABORT command to abort the current print job and to delete it from the queue. You do not specify a job entry number with the /ABORT qualifier, because output queues can have only one current job at a time.

Use the STOP/QUEUE/ENTRY command to abort one or more batch jobs that are executing currently on a queue and to delete them from the queue. To stop a batch job you must specify an entry number, because batch queues, unlike print queues, can have more than one job executing at the same time. (You also can use the STOP/QUEUE/ENTRY command to abort a print job that is printing or processing currently on a queue, and to delete it from the queue.)

Use the STOP/QUEUE/REQUEUE command to stop batch or print jobs and to requeue them. Use the DELETE/ENTRY command to delete an entry that is queued and awaiting execution.

Note: If you enter the STOP/QUEUE/ABORT command accidentally for a malfunctioning queue, enter the STOP/QUEUE/RESET command to stop the queue in an orderly fashion.

EXAMPLE

```
$ STOP/QUEUE/ABORT LPA0
```

This example aborts the current print job on the queue LPA0. The print symbiont begins to process the first pending job in the queue. Assuming there is no problem with the printer, the current page of the file completes printing. If the printer queue has been set up to put trailer pages at the end of jobs, a trailer page is printed after the current page is completed.

STOP/QUEUE/ENTRY

Aborts one or more jobs that are executing on a batch queue or printing on an output queue, deletes them from the queue, and begins processing the first pending job in the queue. The /QUEUE qualifier is optional, but the /ENTRY qualifier is required.

Requires OPER (operator) privilege, execute (E) access to the queue, or delete (D) access to the current job.

FORMAT

STOP/QUEUE/ENTRY=*(entry-number[,...])*
[queue-name[:]]

PARAMETERS

entry-number[,...]

Specifies the entry number (or a list of entry numbers) of jobs to be deleted. If you specify only one entry number, you can omit the parentheses. If you do not specify a queue name, you can delete entries from multiple queues.

The system assigns a unique entry number to each queued print or batch job in the system. By default, the PRINT and SUBMIT commands display the entry number when they successfully queue a job for processing. These commands also create or update the local symbol $ENTRY to reflect the entry number of the most recently queued job. To find a job's entry number, enter the SHOW ENTRY or the SHOW QUEUE command.

queue-name[:]

Specifies the name of the queue that contains the jobs that you want to abort. The queue name can refer either to the queue to which the job was submitted or to the queue where the job is executing. The *queue-name* parameter is optional syntax. However, when you specify a queue name, the VMS operating system uses it to verify an entry in the specific queue before stopping and deleting the entry.

DESCRIPTION

When you abort a batch job, the system tries to stop the job in an orderly fashion by closing any open files and sending a message to the log file. For information on how a print job is aborted, see the description of the STOP/QUEUE/ABORT command.

Use the STOP/QUEUE/ENTRY command to abort one or more batch jobs that are executing currently on a queue and to delete them from the queue. To stop a batch job you must specify an entry number, because batch queues, unlike print queues, can have more than one job executing at the same time. (You also can use the STOP/QUEUE/ENTRY command to abort a print job that is currently printing or processing on a queue and to delete it from the queue.)

Use the STOP/QUEUE/REQUEUE command to stop batch or print jobs and to requeue them. Use the DELETE/ENTRY command to delete an entry that is queued and is awaiting execution.

Note: If you enter the STOP/QUEUE/ENTRY command accidentally for a malfunctioning queue, enter the STOP/QUEUE/RESET command to stop the queue in an orderly fashion.

EXAMPLE

```
$  STOP/QUEUE/ENTRY=365 SYS$BATCH
```

The STOP/QUEUE/ENTRY command in this example aborts batch job number 365 currently executing on the SYS$BATCH queue and begins the first pending job in the queue.

STOP/QUEUE/MANAGER

Performs an orderly shutdown of the system job queue manager on the node from which the command is entered. The /QUEUE qualifier is optional, but the /MANAGER qualifier is required.

Requires OPER (operator) and SYSNAM (system logical name) privileges.

FORMAT

STOP/QUEUE/MANAGER

PARAMETERS

None.

DESCRIPTION

The STOP/QUEUE/MANAGER command carries out the following operations:

- Performs the STOP/QUEUE/NEXT operation for all output execution queues on the node from which the command is entered.
- Performs the STOP/QUEUE/ABORT operation for all current jobs that cannot be restarted, in all execution queues on the node from which the command is entered. Performs the STOP/QUEUE/REQUEUE operation for all current restartable jobs in all execution queues on that node.
- When all activity in all queues ceases, the STOP/QUEUE/MANAGER command closes the job queue manager file.

The STOP/QUEUE/MANAGER command is part of the SYS$SYSTEM:SHUTDOWN.COM procedure.

EXAMPLE

```
$ STOP/QUEUE/MANAGER
```

The STOP/QUEUE/MANAGER command in this example performs a shutdown of all queues on the node from which the command is entered.

STOP/QUEUE/NEXT

Stops the specified queue after all executing jobs have completed processing. No new jobs can be initiated; the START/QUEUE command restarts the queue. The /QUEUE qualifier is optional, but you must specify the /NEXT qualifier.

Requires OPER (operator) privilege or execute (E) access to the specified queue.

FORMAT

STOP/QUEUE/NEXT *queue-name[:]*

PARAMETER

queue-name[:]
Specifies the name of the queue that you want to stop.

DESCRIPTION

The STOP/QUEUE/NEXT command stops the queue completely after it allows any current jobs to complete execution. No new jobs can be initiated. Use the START/QUEUE command to restart the queue.

You should use the STOP/QUEUE/NEXT command before deassigning, deleting, merging, or requeuing a queue. Following this procedure allows all currently executing jobs to complete processing before changes are made to the queue.

If the printing device fails, enter the STOP/QUEUE/RESET command to stop the queue in an orderly fashion.

EXAMPLES

1
```
$ STOP/QUEUE/NEXT BATCH1
```

In this example, the STOP/QUEUE/NEXT command prepares to stop the queue BATCH1. All currently executing jobs are allowed to complete, but no new jobs are allowed to initiate. Once all current jobs have finished, the queue is stopped.

2
```
$ STOP/QUEUE/NEXT LPA0
$ SHOW QUEUE/ALL LPA0
Printer queue LPA0
$ DELETE/QUEUE LPA0
```

This example shows how to delete the printer queue LPA0. First, the STOP/QUEUE/NEXT command is entered, which stops the printer after the current job is printed. Then the SHOW QUEUE/ALL command is entered to ensure that no jobs are pending in the queue. The screen display shows that no jobs are pending. Finally, the DELETE/QUEUE command is entered to delete the printer queue LPA0.

STOP/QUEUE/REQUEUE

Stops the current jobs on the specified queue and requeues them for later processing. The queue does not stop; processing of the first pending job in the queue begins. The /QUEUE qualifier is optional, but the /REQUEUE qualifier is required. The /ENTRY qualifier is required to requeue batch jobs.

Requires OPER (operator) privilege, execute (E) access to the queue, or delete (D) access to the current job.

FORMAT

STOP/QUEUE/REQUEUE*[=queue-name]*
queue-name[:]

STOP/QUEUE/REQUEUE*[=queue-name]*
/ENTRY*=(entry-number[,...])*
queue-name[:]

PARAMETERS

queue-name[:]

Specifies the name of the queue that contains the jobs that you want to stop. When you specify a queue name as a parameter for the /REQUEUE qualifier, the jobs are requeued to that queue. Otherwise, the jobs are requeued in the current queue.

entry-number[,...]

Specifies the entry number (or a list of entry numbers) of the jobs you want to requeue. If you specify only one entry number, you can omit the parentheses.

The system assigns a unique entry number to each queued print or batch job in the system. By default, the PRINT and SUBMIT commands display the entry number when they successfully queue a job for processing. These commands also create or update the local symbol $ENTRY to reflect the entry number of the most recently queued job. To find a job's entry number, enter the SHOW ENTRY or SHOW QUEUE command.

DESCRIPTION

The STOP/QUEUE/REQUEUE command causes the system to requeue the jobs for later processing or for execution in the queue. If the print symbiont has sent checkpoint information about a print job to the job controller, printing resumes at the last checkpoint recorded, unless you enter the SET ENTRY/NOCHECKPOINT command before the job is reinitiated. Batch jobs generally restart at the beginning; however, batch jobs that contain SET RESTART_VALUE commands run only those portions of the job that have not completed successfully.

Use the STOP/QUEUE/ABORT command to stop a current print job without requeueing it. Use the STOP/QUEUE/ENTRY command to stop a current batch job without requeueing it. You also can use the STOP /QUEUE/ENTRY command to stop a print job without requeueing it. Use

the DELETE/ENTRY command to delete an entry that is queued and is waiting to be executed or processed.

Note: If you enter the STOP/QUEUE/REQUEUE command accidentally for a malfunctioning queue, enter the STOP/QUEUE/RESET command to stop the queue in an orderly fashion.

QUALIFIERS

/ENTRY=(entry-number[,...])

Specifies the entry number of one or more jobs you want to abort. If you specify only one entry number, you can omit the parentheses.

The system assigns a unique entry number to each queued print or batch job in the system. By default, the PRINT and SUBMIT commands display the entry number when they successfully queue a job for processing. These commands also create or update the local symbol $ENTRY to reflect the entry number of the most recently queued job. To find a job's entry number, enter the SHOW ENTRY or the SHOW QUEUE command.

You must use the /ENTRY qualifier when you enter the STOP/QUEUE/REQUEUE command for a batch queue. Entry numbers specified must match entry numbers of executing jobs.

/HOLD

Places the aborted job or jobs in a hold state for later release with the SET ENTRY/RELEASE or SET ENTRY/NOHOLD command.

/PRIORITY=n

Requires OPER (operator) or ALTPRI (alter privilege) privilege to raise the priority value above the value of the SYSGEN parameter MAXQUEPRI.

Changes the priority of the requeued job or jobs. The parameter *n* can be from 0 to 255; the default value of the *n* parameter is the same as the priority value that the job or jobs had when they were stopped.

Generally, the /PRIORITY qualifier is used to lower the priority of a job or jobs, which ensures that the job or jobs runs when the queue contains no other jobs. No privilege is needed to set the priority lower than the MAXQUEPRI value.

/REQUEUE=[queue-name]

Specifies a queue where current jobs are to be requeued. If you do not specify the *queue-name* parameter, the jobs are requeued in the current queue.

EXAMPLES

1
```
$ STOP/QUEUE/REQUEUE=LPB0 LPA0
```

In this example, the current print job on queue LPA0 is stopped and requeued to queue LPB0. If the print symbiont sent checkpoint information about the print job to the job controller, printing resumes on LPB0 at the last checkpoint recorded.

```
2   $ STOP/QUEUE/REQUEUE/HOLD LPA0
      .
      .
      .
    $ SET ENTRY 254/RELEASE
```

In this example, the current print job on LPA0 is suspended and placed in the hold state. Later, when you enter the SET ENTRY command with the /RELEASE qualifier, the job is released from the hold state and is rescheduled to print on queue LPA0. If the print symbiont sent checkpoint information about the print job to the job controller, printing resumes at the last checkpoint.

```
3   $ STOP/QUEUE/REQUEUE/ENTRY=758 SYS$BATCH
```

In this example, batch job number 758 is stopped and requeued for later processing on SYS$BATCH. If the batch job has been programmed with appropriate SET RESTART_VALUE commands, those portions of the job that have completed successfully are not rerun.

STOP/QUEUE/RESET

Abruptly stops the queue and returns control to the system. Any jobs currently executing are stopped immediately. The START/QUEUE command restarts the queue. Current jobs that can be restarted (all print jobs and any batch jobs submitted with the /RESTART qualifier) are requeued for processing. Current jobs that cannot be restarted are aborted and must be resubmitted for processing. The /QUEUE qualifier is optional, but you must specify the /RESET qualifier.

Requires OPER (operator) privilege or execute (E) access to the specified queue.

FORMAT

STOP/QUEUE/RESET *queue-name[:]*

PARAMETER

queue-name[:]
Specifies the name of the queue you want to reset.

DESCRIPTION

The STOP/QUEUE/RESET command stops the queue as soon as the system receives the command. The queue manager requests termination for all executing jobs, but aborts or requeues executing jobs without waiting for termination status to be received.

Use the START/QUEUE command to restart the queue. Current jobs that can be restarted are requeued for processing. Current jobs that cannot be restarted are aborted and must be resubmitted for processing. (Print jobs are restartable by default. Use the SUBMIT/RESTART command to make a batch job restartable.)

EXAMPLES

1
```
$ STOP/QUEUE/RESET LPA0
```

The STOP/QUEUE/RESET command in this example abruptly stops the printer queue LPA0. The current print job stops immediately.

2
```
$ STOP/QUEUE/RESET TEXBATCH
```

The STOP/QUEUE/RESET command in this example stops the TEXBATCH queue. Any current job that was submitted with the /RESTART qualifier is requeued for processing when the queue is restarted. Current jobs that did not specify the /RESTART qualifier must be resubmitted to the queue.

STOP/ZONE

Removes a zone from a running VAXft 3000 system. For more information on the STOP/ZONE command, see the *VAXft System Services Reference Manual.*

Applies only to the VAXft 3000 system. Requires CMKRNL (change mode to kernel) privilege.

FORMAT

STOP/ZONE *zone-id*

SUBMIT

Queues one or more files containing command procedures to a batch queue.

Requires OPER (operator) privilege or execute (E) or write (W) access to the queue.

FORMAT

SUBMIT *filespec[,...]*

PARAMETER

filespec[,...]

Specifies one or more files containing command procedures. Wildcard characters (* and %) are allowed in the directory specification, file name, file type, and version number fields. The default file type is that of the preceding file. If no previous file specification contains an explicit file type, the default file type is COM.

If you specify more than one file, separate the file specifications with either commas (,) or plus signs (+).

If you specify a node name, you must use the /REMOTE qualifier.

DESCRIPTION

The SUBMIT command places the specified files in a batch queue for subsequent execution. By default, this queue is SYS$BATCH. All files queued by a single SUBMIT command are processed serially as one job. By default, the name of the batch job is the name of the first file specified in the SUBMIT command.

The system assigns a unique entry number to each batch job in the queue. When you enter the SUBMIT command, by default, the system displays the job name, the queue name, the entry number, and the job status.

The system automatically creates or updates the local symbol $ENTRY when a SUBMIT command completes successfully. The value of $ENTRY is a string that identifies the entry number of the most recently queued job. If you want to refer to a job's entry number later, store the value of $ENTRY in another symbol.

After you queue a batch job, the version of the file submitted is processed, even if a newer version of the file is created before the batch job runs. Also, another file with the same name and version number as the file queued cannot be substituted for the file that was submitted.

When the system executes a command procedure submitted to a batch queue, it creates a detached process to execute the commands. This process receives the owner's disk and directory defaults and the same resource quotas and privileges that were given to the owner's interactive process when you logged in.

If multiple procedures are submitted, the job terminates as soon as any procedure exits with an error or severe (fatal) error status.

Batch Job Output

By default, all output from each command procedure in a batch job is written to a log file. This log file is queued for printing on SYS$PRINT when the batch job finishes. By default, this log file is deleted after it is printed. When you stop a batch job by using the STOP/QUEUE/ENTRY, the STOP/IDENTIFICATION, or the DELETE/ENTRY command, the log file is not queued for printing.

For information on how to change the system's handling of the log file, see the descriptions of the /LOG_FILE, /PRINTER, and /KEEP qualifiers.

QUALIFIERS

/AFTER=time
/NOAFTER

Requests that the job be held until after a specific time. If the specified time has passed already, the job is processed immediately.

You can specify time as either an absolute time or as a combination of absolute and delta times. For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

In a VAXcluster, a batch job submitted to execute at a specific time may begin execution a little before or after the requested time. This occurs when the clocks of the member systems in the VAXcluster are not synchronized. For example, a job submitted using the DCL command SUBMIT/AFTER=TOMORROW may execute at 11:58 P.M. relative to the host system's clock.

This problem can occur in a cluster even if a job is run on the same machine from which it was submitted, because the redundancy built into the batch/print system allows more than one job controller in the cluster to receive a timer asynchronous system trap (AST) for the job and, thus, to schedule it for execution. Moreover, this behavior is exacerbated if the batch job immediately resubmits itself to run the next day using the same SUBMIT command. This can result in having multiple instances of the job executing simultaneously because TOMORROW (after midnight) might be only a minute or two in the future.

A solution to this problem is to place the SUBMIT command in a command procedure that begins with a WAIT command, where the delta-time specified in the WAIT command is greater than the maximum difference in time between any two systems in the cluster. Use the SHOW TIME command on each system to determine this difference in time. Use the SYSMAN command CONFIGURATION SET TIME to synchronize clocks on the cluster. For complete information on the SYSMAN command CONFIGURATION SET TIME, see the *VMS SYSMAN Utility Manual*.

/BACKUP
/NOBACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]
/NOBEFORE

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BY_OWNER[=uic]
/NOBY_OWNER

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CHARACTERISTICS=(characteristic[,...])

Specifies the name or numbers of one or more characteristics to be associated with the the job. Characteristics can refer to such things as color of ink. If you specify only one characteristic, you can omit the parentheses.

A characteristic's number must range from 0 to 127. To see which characteristics have been defined for your system, use the SHOW QUEUE/CHARACTERISTICS command. To see which characteristics are associated with a particular queue, use the SHOW QUEUE/FULL command.

A job can be executed on a queue only if none, some, or all of the characteristics associated with the queue also are associated with the job. That is, the job's characteristics must be a subset of the queue's characteristics. However, if any of the characteristics associated with the job are not associated with the queue, the job remains pending until one or more of the following occurs:

- The characteristics specified with the queue are changed to make the job's characteristics a subset of the queue's characteristics (using, for example, the SET QUEUE/CHARACTERISTICS command).
- The characteristics specified with the job are changed to make the job's characteristics a subset of the queue's characteristics (using, for example, the SET ENTRY/CHARACTERISTICS command).
- The job is moved to a queue on which all the job's characteristics have been specified (using, for example, the SET ENTRY/REQUEUE command).
- The job is deleted (using, for example, the DELETE/ENTRY command).

/CLI=filename

Specifies the command language interpreter (CLI) to be used to process the job. The file specification assumes the device name SYS$SYSTEM: and the file type EXE (SYS$SYSTEM:filename.EXE). The default CLI is that defined in the user authorization file (UAF).

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each submit operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. You can abbreviate word responses to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CPUTIME=time

Defines a CPU time limit for the batch job. You can specify time as delta time, 0, INFINITE, or NONE. If the queue on which the job executes has a defined CPUMAXIMUM value, the smaller of the SUBMIT command and queue values is used. If the queue on which the job executes does not have a specified maximum CPU time limit, the smaller of the SUBMIT command and user authorization file (UAF) values is used. If the queue on which the job executes does not have a specified maximum CPU time limit and the UAF has a specified CPU time limit of NONE, either the value 0 or the keyword INFINITE allows unlimited CPU time. If you specify the keyword NONE, the specified queue or UAF value is used. CPU time values must be greater than or equal to the number specified by the SYSGEN parameter PQL_MCPULM. For more information on specifying CPU time limits, see Table DCL1–1.

/CREATED (default)
/NOCREATED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/DELETE
/NODELETE (default)

Positional qualifier.

Controls whether files are deleted after processing. If you specify the /DELETE qualifier after the SUBMIT command name, all files in the job are deleted after processing. If you specify the /DELETE qualifier after a file specification, only that file is deleted after it is processed.

For the /DELETE qualifier to work, the protection code on the input files must allow delete (D) access to the user identification code (UIC) of the user submitting the job.

/EXCLUDE=(filespec[,...])
/NOEXCLUDE

Excludes the specified files from the submit operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRED
/NOEXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/HOLD
/NOHOLD (default)

Controls whether the job is made available for immediate processing. The /HOLD qualifier holds the job until it is released by the SET ENTRY /RELEASE or the SET ENTRY/NOHOLD command.

/IDENTIFY (default)
/NOIDENTIFY

Displays the job name, the queue name, the entry number, and the status of the job when it is queued.

/KEEP
/NOKEEP

Controls whether the log file is deleted after it is printed; the /NOKEEP qualifier is the default unless the /NOPRINTER qualifier is specified.

/LOG_FILE[=filespec]
/NOLOG_FILE

Names the log file. No wildcards (* and %) are allowed in the file specification.

When you use the /LOG_FILE qualifier, the system writes the batch job's output to the file you specify. If you use the /NOLOG_FILE qualifier, no log file is created. By default, a log file is created, is written to the directory defined by the logical name SYS$LOGIN in the UAF, and is given the batch job's name as its file name with a file type of LOG. By default, a log file also is given the batch job's name as its file name with a file type of LOG.

You can use the /LOG_FILE qualifier to write the log file to a different device. Logical names in the file specification are translated in the context of the process that submits the job. The process executing the batch job must have access to the device on which the log file will reside.

If you omit the /LOG_FILE qualifier and specify the /NAME qualifier, the log file is written to a file having the same file name as that specified by the /NAME qualifier with the file type LOG. When you omit the /LOG_FILE qualifier, the job-name value used with the /NAME qualifier must be a valid file name.

/MODIFIED
/NOMODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/NAME=job-name

Names the job (and possibly the batch job log file). The job name must be 1 to 39 alphanumeric characters. If characters other than alphanumeric characters, underscores (_), or dollar signs ($) are used in the name, enclose the name in quotation marks (" "). The default job name is the name of the first file in the job.

If you omit the /LOG_FILE qualifier, the job-name value must be a valid file name. The SHOW ENTRY and SHOW QUEUE/FULL commands display the job name.

/NOTIFY
/NONOTIFY (default)

Controls whether a message is broadcast to your terminal session when the job is completed or aborted.

/PARAMETERS=(parameter[,...])

Provides the values of up to eight optional parameters (equated to the symbols P1 to P8, respectively, for each command procedure in the job). The symbols are local to the specified command procedure.

Commas (,) separate individual parameters. If you specify only one parameter, you can omit the parentheses.

If the parameter contains spaces, special characters, or lowercase characters, enclose it in quotation marks. The size of the parameter can be from 1 to 255 characters.

/PRINTER[=queue-name](default)
/NOPRINTER

Queues the job log file for printing when your job is completed. The /PRINTER qualifier allows you to specify a particular print queue; the default print queue is SYS$PRINT. If you specify the /NOPRINTER qualifier, the /KEEP qualifier is assumed.

/PRIORITY=n

Requires OPER (operator) or ALTPRI (alter privilege) privilege to specify a priority greater than the value of the SYSGEN parameter MAXQUEPRI.

Specifies the job-scheduling priority for the batch job with respect to other jobs in the same queue. The value of *n* is an integer in the range of 0 to 255, where 0 is the lowest priority and 255 is the highest.

The default value is the value of the SYSGEN parameter DEFQUEPRI. No privilege is needed to set the priority lower than the MAXQUEPRI value.

The /PRIORITY qualifier has no effect on the job's process execution priority. The job's process execution priority is determined by the base priority attribute of the INITIALIZE/QUEUE/BASE_PRIORITY command.

/QUEUE=queue-name[:]

Identifies the batch queue on which the job is entered. The default queue is SYS$BATCH.

/REMOTE

Queues the job to SYS$BATCH on the remote node specified. When you use the /REMOTE qualifier, you *must* include the node name in the file specification.

Note that, unlike submitting a job on a local node, multiple command procedures queued by a single SUBMIT/REMOTE command are considered separate jobs.

You can specify only the following qualifiers with the /REMOTE qualifier:

- /BACKUP
- /BEFORE
- /BY_OWNER
- /CONFIRM
- /CREATED
- /EXCLUDE
- /EXPIRED
- /MODIFIED
- /SINCE

/RESTART
/NORESTART (default)

Indicates whether the job restarts after a system failure or after a STOP /QUEUE/REQUEUE command.

/SINCE[=time]
/NOSINCE

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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/USER=username

Requires CMKRNL (change mode to kernel) privilege and read (R) and write (W) access to the user authorization file (UAF).

Allows you to submit a job on behalf of another user. The job runs exactly as if that user had submitted it. The job runs under that user's user name and user identification code (UIC), and accounting information is logged to that user's account. By default, the user identification comes from the requesting process. The username qualifier value can be any user name that is validated on your system. The name must be 1 to 12 alphanumeric characters.

/WSDEFAULT=n

Defines for a batch job a working set default, the default number of physical pages that the job can use. If the queue on which the job executes has a nonzero default working set, the smaller of the specified job and queue values is used. If the queue on which the job executes has a working set default of 0, the smaller of the specified job and UAF values (value established in the user authorization file) is used. If you specify the value 0 or NONE, the specified queue or UAF value is used. Working set default values must range between the numbers specified by the SYSGEN parameters PQL_MWSDEFAULT and WSMAX.

/WSEXTENT=n

Defines for the batch job a working set extent, the maximum amount of physical memory that the job can use. The job uses the maximum amount of physical memory only when the system has excess free pages. If the queue on which the job executes has a nonzero working set extent, the smaller of the specified job and queue values is used. If the queue on which the job executes has a working set extent of 0, the smaller of the specified job and the value established in the user authorization file (UAF) is used. If you specify the value 0 or NONE, the specified queue or UAF value is used. Working set extent values must range between the numbers specified by the SYSGEN parameters PQL_MWSEXTENT and WSMAX.

/WSQUOTA=n

Defines for the batch job a working set quota, the amount of physical memory that the job is guaranteed. If the queue on which the job executes has a nonzero working set quota, the smaller of the specified job and queue values is used. If the queue on which the job executes has a working set quota of 0, the smaller of the specified job or the value established in the user authorization file (UAF) is used. If you specify the value 0 or NONE, the specified queue or UAF value is used. Working set quota values must range between the numbers specified by the SYSGEN parameters PQL_MWSQUOTA and WSMAX.

EXAMPLES

1

```
$ SUBMIT/AFTER=16:30 TRANSLATE
  Job TRANSLATE (queue SYS$BATCH, entry 1401) holding until 19-APR-1990 16:30
```

In this example, the command procedure TRANSLATE.COM is submitted to SYS$BATCH. The procedure is executed at 4:30 P.M. or later. When the batch job completes, the log file TRANSLATE.LOG is queued to SYS$PRINT for printing and is deleted.

2

```
$ SUBMIT /PARAMETERS=(TXT,DOC,MEM) BACKUP, -
_$ AVERAGE, RUNMASTER
  Job BACKUP (queue SYS$BATCH, entry 416) pending
```

In this example, the SUBMIT command enters three command procedures in a single job. The job is given three parameters: P1 is equated to the string TXT, P2 to the string DOC, and P3 to the string MEM. After the procedure BACKUP.COM is executed, the procedures AVERAGE.COM and RUNMASTER.COM are executed.

3

```
$ SUBMIT/NAME=BATCH24/HOLD TESTALL
  Job BATCH24 (queue SYS$BATCH, entry 467) holding
```

In this example, the SUBMIT command enters the procedure TESTALL.COM as a batch job and specifies that the job be held for later processing. The job is not released until the SET ENTRY/RELEASE command is entered. The /NAME qualifier requests that the batch job be identified as BATCH24.

4

```
$ SUBMIT TEST.COM
  Job TEST (queue SYS$BATCH, entry 493) pending
$ BATCH_JOB = $ENTRY
    .
    .
    .
$ DELETE/ENTRY='BATCH_JOB'
```

In this command sequence, the $ENTRY symbol is used to refer to a particular job in the queue file. The SUBMIT command creates a batch job to run the command procedure TEST.COM. In addition, the SUBMIT command defines $ENTRY as a local symbol whose value is the entry number of the job (493 in this example). The second statement assigns the value $ENTRY to the local symbol BATCH_JOB. The last line of the example deletes the job by using the symbol BATCH_JOB to identify it.

```
5   $ DEFINE JUNE WORKZ:[JONES]ANNUAL_REPORT.COM
    $ SUBMIT JUNE

Job ANNUAL_REPORT (queue SYS$BATCH, entry 229) started on ZOO_BATCH
```

In this example, the logical name JUNE is created and equated to ANNUAL_REPORT.COM with the DEFINE command. Using the logical name JUNE, the user submits ANNUAL_REPORT.COM to the batch queue. Note that the system translates the logical name JUNE to ANNUAL_REPORT.COM before ANNUAL_REPORT.COM is submitted to the batch queue. Also, the log file produced is named ANNUAL_REPORT.COM rather than JUNE.COM.

Note also that the job is submitted to the generic queue SYS$BATCH, but runs on the execution queue ZOO_BATCH.

SUBROUTINE

Defines the beginning of a subroutine in a command procedure. The SUBROUTINE command must be the first executable statement in a subroutine. For more information about the SUBROUTINE command, refer to the description of the CALL command.

FORMAT SUBROUTINE

SYNCHRONIZE

Holds the process issuing the command until the specified job completes execution.

FORMAT

SYNCHRONIZE *[job-name]*

PARAMETER

job-name

Specifies the name of the job as defined when the job was submitted. You can specify only job names that are associated with your user name. (A job is associated with the user name of the process that submits it.)

To specify a job that does not have a unique name, use the /ENTRY qualifier to specify the entry number. If you specify both the *job-name* parameter and the /ENTRY qualifier, the *job-name* parameter is ignored.

DESCRIPTION

The SYNCHRONIZE command provides job synchronization by placing a process in a wait state until the specified job completes. If the specified job is not a current job in the system, the SYNCHRONIZE command displays an error message.

When a job specified in a SYNCHRONIZE command completes, the process is released from the wait state. The completion status for the SYNCHRONIZE command is the same as the completion status of the last command executed in the job. To make sure that you can determine the completion status when the SYNCHRONIZE command is part of a command procedure, include SET NOON before the SYNCHRONIZE command and SHOW SYMBOL $STATUS immediately after the SYNCHRONIZE command.

You must specify either the *job-name* parameter or the /ENTRY qualifier.

QUALIFIERS

/ENTRY=entry-number

Identifies the job by the system-assigned entry number.

The system assigns a unique entry number to each queued print or batch job in the system. By default, the PRINT and SUBMIT commands display the entry number when they successfully queue a job for processing. These commands also create or update the local symbol $ENTRY to reflect the entry number of the most recently queued job. To find a job's entry number, enter the SHOW ENTRY or SHOW QUEUE command. If you specify both the *job-name* parameter and the /ENTRY qualifier, the job name is ignored.

/QUEUE=queue-name[:]

Names the queue containing the job. If you use the /QUEUE qualifier, you must specify either the *job-name* parameter or the /ENTRY qualifier. If you specify the *job-name* parameter, the default queue is SYS$BATCH. If you specify the /ENTRY qualifier, there is no default queue.

EXAMPLES

1

```
$  SUBMIT/NAME=PREP FORMAT/PARAMETERS=(SORT,PURGE)
   Job PREP (queue SYS$BATCH, entry 219) started on queue SYS$BATCH
$  SUBMIT PHASER
   Job PHASER (queue SYS$BATCH, entry 223) started on queue SYS$BATCH
```

In this example, the first SUBMIT command submits the command procedure FORMAT.COM for execution and names the job PREP. The second SUBMIT command queues the procedure PHASER.COM. The procedure PHASER.COM contains the following line:

```
$ SYNCHRONIZE PREP
```

When this line is processed, the system verifies whether the job named PREP exists. The procedure PHASER is forced to wait until the job PREP completes execution.

2

```
$  SUBMIT/NAME=TIMER       COMP.COM
   Job TIMER (queue SYS$BATCH, entry 214) started on queue SYS$BATCH
$  SYNCHRONIZE /ENTRY=214
```

In this example, a batch job named TIMER is submitted. Then the SYNCHRONIZE command is entered interactively. This command places the interactive process in a wait state until entry number 214 (TIMER) completes. You cannot enter subsequent commands from your terminal session until the SYNCHRONIZE command completes and your process is released from the wait state.

TYPE

Displays the contents of a file or group of files on the current output device.

FORMAT

TYPE *filespec[,...]*

PARAMETER

filespec[,...]

Specifies one or more files to be displayed. If you specify a file name and not a file type, the file type defaults to LIS. The TYPE command displays all files that satisfy the file description.

Wildcard characters (* and %) are allowed in place of the directory name, file name, file type, or file version number field. If you specify more than one file, separate the file specifications with commas (,) or plus signs (+). The files are displayed in the order listed.

DESCRIPTION

When the TYPE command displays output, you can control the display in the following ways:

- Press Ctrl/C to stop the TYPE command for the current file that is being displayed. If you specified only one file with your TYPE command, or if the TYPE command is displaying the last file in the list, pressing Ctrl/C cancels the TYPE command. If you have specified more than one file with the TYPE command, pressing Ctrl/C causes the TYPE command to display the next file in the list.
- Press Ctrl/S to temporarily suspend the output. Press Ctrl/Q to resume the output display at the point of interruption.
- Press Ctrl/O to suppress the display but not to suspend the command processing. If you press Ctrl/O again before the TYPE command terminates, output resumes at the current point in command processing. However, if you press Ctrl/O when the TYPE command is displaying files in a list, the TYPE command suppresses typing the current file and begins typing the next file in the list. This behavior is an exception to normal CTRL/O processing.
- Press Ctrl/Y to interrupt the command execution. You can enter the CONTINUE command after pressing Ctrl/Y to resume displaying the files where the interruption took place, provided you have not entered an intervening command that calls up a new image. If you press Ctrl/Y to stop command execution entirely, you can enter the EXIT command (or any other DCL command that activates an image) to run down the image.

In addition, the /PAGE qualifier may be used to display text one screen at a time.

The TYPE command opens the specified file with shared read (R) and write (W) access. Therefore, any file that has its attributes set to shared write is displayed, even if it is currently opened by another user.

You also can use the TYPE command to execute a command procedure on a remote node. This is useful on clusters, for example, when you want to display the status of clusterwide services, such as queues, or when you want to display the users logged in to other nodes on the cluster. A sample command procedure follows:

```
$ ! SHOWUSERS.COM
$ if f$mode() .eqs. "NETWORK" then define/user sys$output sys$net
$ show users
```

This command procedure can be used with the TYPE command to display at the user's local node the users logged on to the remote node where the command procedure resides.

Specify the command procedure as a parameter to the TYPE command as follows:

```
$ TYPE node_name::"TASK=command_procedure"
```

where:

node_name	Specifies the name of the remote node on which the command procedure resides.
command_procedure	Specifies the file name of the command procedure to be run.

This form of the command finds the command procedure in the default DECnet account of the remote node.

To execute a command procedure in the SYS$LOGIN directory of a particular account use an access control string in the command, as follows:

```
$ TYPE node_name"user_name password"::"TASK=command_procedure"
```

where:

user_name	Specifies the user name of the account on the remote node.
password	Specifies the password of the account on the remote node.

QUALIFIERS

/BACKUP

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the dates of their most recent backups. This qualifier is incompatible with the /CREATED, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/BEFORE[=time]

Selects only those files dated prior to 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. Specify one of the following qualifiers with the /BEFORE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

/BY_OWNER[=uic]

Selects only those files whose owner user identification code (UIC) matches the specified owner UIC. The default UIC is that of the current process.

Specify the UIC by using standard UIC format as described in the *VMS DCL Concepts Manual*.

/CONFIRM
/NOCONFIRM (default)

Controls whether a request is issued before each typing operation to confirm that the operation should be performed on that file. The following responses are valid:

YES	NO	QUIT
TRUE	FALSE	Ctrl/Z
1	0	ALL
	Return	

You can use any combination of uppercase and lowercase letters for word responses. Word responses can be abbreviated to one or more letters (for example, T, TR, or TRU for TRUE), but these abbreviations must be unique. Affirmative answers are YES, TRUE, and 1. Negative answers include: NO, FALSE, 0, and pressing the Return key. Entering QUIT or pressing Ctrl/Z indicates that you want to stop processing the command at that point. When you respond by entering ALL, the command continues to process, but no further prompts are given. If you type a response other than one of those in the list, DCL issues an error message and redisplays the prompt.

/CREATED (default)

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files based on their dates of creation. This qualifier is incompatible with the /BACKUP, /EXPIRED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/EXCLUDE=(filespec[,...])

Excludes the specified files from the type operation. You can include a directory but not a device in the file specification. Wildcard characters (* and %) are allowed in the file specification. However, you cannot use relative version numbers to exclude a specific version. If you specify only one file, you can omit the parentheses.

/EXPIRED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) The /EXPIRED qualifier is incompatible with the /BACKUP, /CREATED, and /MODIFIED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time qualifiers, the default is the /CREATED qualifier.

/MODIFIED

Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /MODIFIED qualifier selects files according to the dates on which they were last modified. This qualifier is incompatible with the /BACKUP, /CREATED, and /EXPIRED qualifiers, which also allow you to select files according to time attributes. If you specify none of these four time modifiers, the default is the /CREATED qualifier.

/OUTPUT[=filespec]
/NOOUTPUT

Controls where the output of the command is sent. If you specify the /OUTPUT=filespec qualifier, the output is sent to the specified file, rather than to the current output device, SYS$OUTPUT. If you do not enter the qualifier, or if you enter the /OUTPUT qualifier without a file specification, the output is sent to SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, /OUTPUT=[JONES]), TYPE is the default file name and LIS the default file type. If you enter a file specification, it cannot include any wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

The /OUTPUT qualifier is incompatible with the /PAGE qualifier.

/PAGE
/NOPAGE (default)

Controls whether output from the TYPE command is displayed one screen at a time. If more than one file has been requested, you can cancel the display of the current file and continue with the next file by pressing Ctrl /Z.

The /PAGE qualifier is incompatible with the /OUTPUT qualifier.

/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. Specify one of the following qualifiers with the /SINCE qualifier to indicate the time attribute to be used as the basis for selection: /BACKUP, /CREATED (default), /EXPIRED, or /MODIFIED.

For complete information on specifying time values, see the *VMS DCL Concepts Manual*.

EXAMPLES

1
```
$ TYPE  COMMON.DAT
```

In this example, the TYPE command requests that the file COMMON.DAT be displayed at the terminal.

2

```
$ TYPE *.DAT
This is the first line in the file AA.DAT.
   .
   .
   .
Ctrl/O
This is the first line in the file BB.DAT.
   .
   .
   .

Ctrl/Y
Interrupt
$ STOP
```

In this example, the TYPE command contains a wildcard character (*) in place of the file name. All files with file types of DAT are scheduled for display. When Ctrl/O is pressed, output of the current file stops and the TYPE command begins displaying the next file. The CTRL/Y function interrupts the command; the STOP command terminates the TYPE command.

3

```
$ TYPE LETTER*.MEM
April 19, 1990
   .
   .
   .

Ctrl/Y
Interrupt
$ SHOW TIME
 19-APR-1990 15:48:07
$ CONTINUE
Sincerely yours,
   .
   .
   .
```

In this example, the TYPE command displays all files whose names begin with the word LETTER and have the file type MEM. While the files are being displayed, the user presses Ctrl/Y to interrupt the TYPE operation and to display the time. After entering the SHOW TIME command, the user enters the CONTINUE command to resume the TYPE operation.

4

```
$ TYPE/OUTPUT=SAVETEXT.TXT *.TXT
```

In this example, the TYPE command writes all TXT files in your default directory to a file called SAVETEXT.TXT (also in your default directory).

5

```
$ TYPE MEXICO::NOTICE.TEXT/OUTPUT=TEMP.TEXT
```

In this example, the TYPE command requests that the file NOTICE.TEXT at remote node MEXICO be written to the output file TEMP.TEXT on the local node, rather than to SYS$OUTPUT.

```
6   $ TYPE SECSSYS"FILES OFFICEFIL"::"TASK=SHOWUSERS"

          VAX/VMS Interactive Users
           19-APR-1990 17:20:13.30
     Total number of interactive users = 5
 Username      Process Name       PID      Terminal
 KAITLIN       Sec1            00536278    TXA1:
 LINDSEY       Sec2            00892674    VTA2:
 ALYSON        Sec3            00847326    TXA3:
 KIM           Sec4            02643859    RTA1:
 GERARD        System Mangr    00007362    VTA1:
```

In this example, the TYPE command executes the command procedure SHOWUSERS.COM found in the SYS$LOGIN directory of user FILES on remote node SECSSYS. The output of the TYPE command then is displayed at the local node.

UNLOCK

Makes an improperly closed file accessible.

FORMAT

UNLOCK *filespec[,...]*

PARAMETER

filespec[,...]
Specifies the name of the file to be unlocked. Wildcard characters (* and %) are allowed. If you include more than one file specification, separate them with either commas (,) or plus signs (+).

QUALIFIERS

/CONFIRM
/NOCONFIRM (default)
Displays a query for each file being unlocked, to which you must respond Y (YES) or T (TRUE) to unlock the file. Any other response aborts the unlock operation.

/LOG
/NOLOG (default)
Controls whether the UNLOCK command displays the file specification of each file being unlocked.

EXAMPLES

1

```
$ TYPE TST.OUT
%TYPE-E-OPENIN, error opening  DISK1:[STEVE]TST.OUT;3 as input
-SYSTEM-W-FILELOCKED, file is deaccess locked
$ UNLOCK TST.OUT
$ TYPE TST.OUT
```

In this example, the request to type the output file TST.OUT returns an error message indicating that the file is locked. The UNLOCK command unlocks it. Then the TYPE command is reentered to display the contents of the file.

2

```
$ UNLOCK NODE3::DISK0:[LISTS]MAILLIST3.LIS
$ COPY NODE3::DISK0:[LISTS]MAILLIST3.LIS *.*
```

In this example, you need a copy of the file MAILLIST3.LIS, which is locked on remote NODE3. Enter the UNLOCK command first and then copy the file to your current node, disk, and directory.

VIEW

Invokes the Compound Document Architecture (CDA) Viewer, which lets you view a compound document file on a character cell terminal or VMS DECwindows display. For a complete description of the CDA Viewer, see the *Introduction to the CDA Services* or the *CDA Reference Manual*.

FORMAT

VIEW *[input-file]*

WAIT

Puts your process into a wait state for the specified amount of time. The WAIT command is used in a command procedure to delay processing of either the procedure itself or a set of commands in the procedure.

FORMAT

WAIT *delta-time*

PARAMETER

delta-time

Specifies a delta time interval in the following format. (A delta time is an offset from the current time to a time in the future.)

hour:minute:second.hundredth

The fields on the format line indicate the following:

hour	Specifies an integer in the range 0 to 23.
minute	Specifies an integer in the range 0 to 59.
second	Specifies an integer in the range 0 to 59.
hundredth	Specifies an integer in the range 0 to 99.

The colons (:) and period (.) are required delimiters; also, the delta time must begin with the number of hours and not a colon. Note that the days field, usually included in the delta time format, must be omitted here.

For more information on specifying delta time values, see the *VMS DCL Concepts Manual*.

Note that if you enter the WAIT command interactively, you are not prompted for a time value. However, in order for the command to have any effect, you must supply a time value.

DESCRIPTION

If you enter the WAIT command interactively, your current process is placed in a wait state and you cannot enter any more commands until the waiting period is over. (You can, however, receive unsolicited messages from other processes.) Press Ctrl/C or Ctrl/Y to restore normal terminal interaction.

EXAMPLE

```
$ LOOP:
$ RUN ALPHA
$ WAIT 00:10
$ GOTO LOOP
```

In this example, the command procedure executes the program image ALPHA. After the RUN command executes the program, the WAIT command delays execution of the GOTO command for 10 minutes. Note that 00 is specified for the number of hours, because the time specification cannot begin with a colon. After 10 minutes, the GOTO

command executes, and the procedure transfers control to the label LOOP and executes the program ALPHA again. The procedure loops until it is interrupted or terminated.

If the procedure is executed interactively, terminate it by pressing Ctrl/C or Ctrl/Y and by entering the STOP command or another DCL command that runs a new image in the process. If the procedure is executed in a batch job, enter the DELETE/ENTRY command to terminate it.

WRITE

Writes the specified data as one record to an open file specified by a logical name.

All qualifiers must precede all data item expressions.

FORMAT

WRITE *logical-name expression[,...]*

PARAMETERS

logical-name

Specifies the logical name assigned to the output file. Use the logical name assigned by the OPEN command. In interactive mode, specify the process-permanent files identified by the logical names SYS$INPUT, SYS$OUTPUT, SYS$ERROR, and SYS$COMMAND. (The OPEN command assigns a logical name to a file and places the name in the process logical name table.)

expression[,...]

Specifies data to be written as a single record to the output file. You can specify data items using character string expressions, which may be symbol names, character strings in quotation marks (" "), literal numeric values, or a lexical function. For more information on string expressions, see the *VMS DCL Concepts Manual*.

You can specify a list of expressions separated by commas (,); the command interpreter concatenates the items into one record and writes the record to the output file.

The maximum size of any record that can be written is less than 1024 bytes. If, however, you specify the /SYMBOL qualifier, the maximum record size is 2048 bytes. (See the Description section.)

DESCRIPTION

The WRITE command can write records to sequential, relative, or indexed files that have been opened for writing. When the WRITE command writes a record, it always positions the record pointer after the record just written.

To write to a file, the file must be opened by using either the /WRITE or the /APPEND qualifier with the OPEN command. However, the process-permanent files identified by the logical names SYS$INPUT, SYS$OUTPUT, SYS$ERROR, and SYS$COMMAND do not have to be opened explicitly to be written to.

If you do not specify the /SYMBOL qualifier, DCL places the command and the complete string expression (expanded if it was specified as one or more symbols) in a 1024-byte buffer. If you specify the /SYMBOL qualifier, DCL interprets the symbol or symbols and places the expanded string in a separate 2048-byte buffer, and then performs the write operation. For this reason, use the /SYMBOL qualifier where the record contains approximately 1000 bytes or more.

QUALIFIERS

/ERROR=label

Transfers control on an I/O error to the location specified by *label* (in a command procedure). If no error routine is specified and an error occurs during the writing of the file, the current ON condition action is taken. The /ERROR qualifier overrides any ON condition action specified. If an error occurs and control passes successfully to the target label, the reserved global 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. Use the /SYMBOL qualifier to write a very large record. (See the Description section.)

Each expression specified must be a symbol. You cannot specify character string expressions (that is, strings in quotation marks) with the /SYMBOL qualifier.

If you do not use the /SYMBOL qualifier, the entire command, including the expression or expressions, is placed in a 1024-byte buffer, as explained in the Description section.

/UPDATE

Replaces the last record read with the record specified with the expression parameter. You must be able to read and write to a file to use the /UPDATE qualifier. Use the WRITE/UPDATE command only after a READ command. The WRITE/UPDATE command modifies the last record you have read.

With sequential files, you must replace a record with another record of the same size when you use the WRITE/UPDATE command.

EXAMPLES

1

```
$ WRITE SYS$OUTPUT "Beginning second phase of tests"
```

The WRITE command writes a single line of text to the current output device.

2

```
$ OPEN/APPEND OUTPUT_FILE TRNTO::DBA1:[PGM]PLAN.DAT
$ WRITE OUTPUT_FILE "BEGINNING PHASE 3"
```

In this example, the OPEN/APPEND command opens the file PLAN.DAT at the remote node TRNTO and positions the pointer at the end of the file. The WRITE command writes a record to the end of the file PLAN.DAT.

3
```
$ OPEN/WRITE OUTPUT_FILE TESTFILE.DAT
$ INQUIRE ID "Assign Test-id Number"
$ WRITE/ERROR=WRITE_ERROR  OUTPUT_FILE  "Test-id is ",ID
$ WRITE/ERROR=WRITE_ERROR  OUTPUT_FILE  ""
$ !
$ WRITE_LOOP:
   .
   .
   .
$ GOTO WRITE_LOOP
$ END_LOOP:
$ !
$ CLOSE OUTPUT_FILE
$ PRINT TESTFILE.DAT
$ EXIT
$ !
$ WRITE_ERROR:
$ WRITE SYS$OUTPUT "There was a WRITE error."
$ CLOSE OUTPUT_FILE
$ EXIT
```

In this example, the OPEN command opens the file TESTFILE.DAT; the INQUIRE command requests an identification number to be assigned to a particular run of the procedure. The number entered is equated to the symbol ID. The WRITE commands write a text line concatenated with the symbol name ID and a blank line.

The lines between the label WRITE_LOOP and END_LOOP process information and write additional data to the file. When the processing is finished, control is transferred to the label END_LOOP. The CLOSE and PRINT commands at this label close the output file and queue a copy of the file to the system printer.

The label WRITE_ERROR is used as the target of the /ERROR qualifier to the WRITE command; if an error occurs when a record is being written, control is transferred to the label WRITE_ERROR.

4
```
$ OPEN/APPEND MYFILE [JONES]TESTING.DAT
$ WRITE/SYMBOL MYFILE A,B,C
```

This example assumes that the symbols A, B, and C have already been defined. The OPEN/APPEND command opens the file [JONES]TESTING.DAT and positions the pointer at the end of the file. The WRITE/SYMBOL command concatenates the values of the symbols A, B, and C and writes this data to a new record at the end of the file.

Index

A

Accessing restricted files • DCL2–236
Accounting
  enabling or disabling logging • DCL2–91
  of detached process • DCL2–55
  of terminal session • DCL2–303
ACCOUNTING command • DCL1–14
  See also SET ACCOUNTING command
ALLOCATE command • DCL1–15 to DCL1–17
  and DEASSIGN command • DCL1–104
  and DISMOUNT command • DCL1–170
Allocating devices • DCL1–15
Analysis
  dump file • DCL1–30
  global symbol table • DCL1–23
  image file • DCL1–22
  image file fixup section • DCL1–23
  image file patch text records • DCL1–24
  object file • DCL1–26
    debugger information records • DCL1–27
    end-of-module records • DCL1–27
    global symbol directory records • DCL1–27
    link option specification records • DCL1–28
    module header records • DCL1–28
    module traceback records • DCL1–28
    relocation records • DCL1–29
    text • DCL1–29
  object module • DCL1–26
  patch text record • DCL1–24
  shareable image file • DCL1–22
Analysis back-end converter • DCL1–70
ANALYZE/AUDIT command • DCL1–18
ANALYZE/CRASH_DUMP command • DCL1–19
ANALYZE/DISK_STRUCTURE command • DCL1–20
ANALYZE/ERROR_LOG command • DCL1–21
ANALYZE/IMAGE command • DCL1–22 to DCL1–24
ANALYZE/MEDIA command • DCL1–25
ANALYZE/OBJECT command • DCL1–26 to DCL1–29
ANALYZE/PROCESS_DUMP command • DCL1–30 to DCL1–31
ANALYZE/RMS_FILE command • DCL1–32
ANALYZE/SYSTEM command • DCL1–33
APPEND command • DCL1–34 to DCL1–38
APPEND command (Cont.)
  using with DECwindows compound documents • DCL1–34
Applications
  running locally • DCL2–133
  running remotely • DCL2–133
ASSIGN command • DCL1–39 to DCL1–45
  and DEASSIGN command • DCL1–104
Assignment
  of logical queue to an execution queue • DCL1–47
  of queue name • DCL1–249
  of symbols interactively • DCL1–262
= (assignment statement) command • DCL1–1 to DCL1–4
ASSIGN/MERGE command • DCL1–46
ASSIGN/QUEUE command • DCL1–47 to DCL1–48
  and DEASSIGN/QUEUE command • DCL1–109
AST (asynchronous system trap)
  specifying quota • DCL2–55
ATTACH command • DCL1–49 to DCL1–50
Attached processor
  showing state • DCL2–258
  starting • DCL2–343
  stopping • DCL2–361

B

Back-end converter
  analysis • DCL1–70
  PostScript • DCL1–68
  text • DCL1–67
BACKUP command • DCL1–51
Bad block data
  on disks • DCL1–247
Base address
  defining for images • DCL1–390
Base priority
  establishing for batch job • DCL1–252, DCL2–203
Batch editing
  EVE • DCL1–191, DCL1–194
  VAXTPU • DCL1–191, DCL1–194
Batch job
  defining default working set • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
  defining maximum CPU time limit • DCL1–267

Batch job (Cont.)
defining working set extent • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining working set quota • DCL1–269, DCL2–208, DCL2–353, DCL2–383
deleting files
after processing • DCL2–379
deleting log file • DCL1–267, DCL2–380
end of job on cards • DCL1–208
flushing output buffer • DCL2–183
holding • DCL1–267, DCL2–380
keeping log file • DCL2–380
limiting CPU time of • DCL1–267, DCL2–380
log file • DCL2–376
on remote network node • DCL2–382
passing parameters to • DCL2–381
password • DCL2–9
priority • DCL2–382
queue
changing entry • DCL2–136
displaying entries • DCL2–275, DCL2–309
entering command procedure in • DCL2–376
modifying characteristics of • DCL2–345
starting • DCL2–345
saving log file • DCL1–267
stopping process • DCL2–358
submitting through cards • DCL1–266
synchronizing with process • DCL2–387
working set
defining default • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining extent for • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining quota for • DCL1–269, DCL2–208, DCL2–353, DCL2–383
Batch-oriented editor • DCL1–185
Batch queue
creating • DCL1–249
defining default CPU time limit • DCL1–253, DCL2–204, DCL2–347
defining default working set • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining maximum CPU time limit • DCL1–253, DCL2–205, DCL2–348
defining working set extent • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining working set quota • DCL1–269, DCL2–208, DCL2–353, DCL2–383
deleting • DCL1–143
Batch queue (Cont.)
deleting entries • DCL1–136
establishing base priority for jobs • DCL1–252, DCL2–203
initializing • DCL1–249
Block
specifying cluster size on disk • DCL1–242
Block size
for files • DCL1–164
Byte dump • DCL1–175

C

CALL command • DCL1–52 to DCL1–55
CANCEL command • DCL1–56 to DCL1–57
Cancellation
of detached process wakeup request • DCL2–55
of logical name assignments • DCL1–104
of subprocess wakeup request • DCL2–55
Card
submitting batch job on • DCL1–266
Card reader
end of batch job • DCL1–208
Character string
finding in file • DCL2–81
specifying case for search • DCL2–81
symbol assignment • DCL1–5
CLOSE command • DCL1–58 to DCL1–59
See also OPEN command
Cluster
dismounting volumes on • DCL1–171
Cluster size
specifying on disk • DCL1–242
Clusterwide device
dismounting • DCL1–171
Command Definition Utility (CDU)
invoking • DCL2–117
Command file
VAXTPU • DCL1–191
Command interpreter
controlling error checking of • DCL2–182
specifying alternate • DCL1–392
Command procedure
continuing execution of • DCL1–63
controlling error checking in • DCL2–182
delaying process of • DCL2–397
displaying command lines of • DCL2–237
displaying prompts of • DCL1–262
executing • DCL1–9
label • DCL1–52, DCL1–227, DCL1–229

Command procedure (Cont.)
parameters for • DCL1–9
passing symbol to interactively • DCL1–262
resuming execution of • DCL1–63
stopping
and returning to command level 0 • DCL2–358
submitting batch jobs • DCL2–376
terminating • DCL1–222
testing expressions • DCL1–237
transferring control within • DCL1–52, DCL1–227, DCL1–229
Comparison
of characters in records • DCL1–151
of files • DCL1–151
Concatenating files • DCL1–34, DCL1–74
CONNECT command • DCL1–60 to DCL1–62
CONTINUE command • DCL1–63 to DCL1–64
CONVERT command • DCL1–65
CONVERT/DOCUMENT command • DCL1–66 to DCL1–72
creating an options file • DCL1–67
CONVERT/RECLAIM command • DCL1–73
COPY command • DCL1–74 to DCL1–83
using with DECwindows compound documents • DCL1–75
CPU (central processing unit)
defining default time limit for batch jobs • DCL1–253, DCL2–204, DCL2–347
defining maximum time limit for batch jobs • DCL1–253, DCL1–267, DCL2–205, DCL2–348
displaying error count for • DCL2–279
limiting time for batch job • DCL2–138, DCL2–379
time used by current process • DCL2–319
CREATE command • DCL1–84 to DCL1–88
CREATE/DIRECTORY command • DCL1–89 to DCL1–91
CREATE/FDL command • DCL1–92
CREATE/NAME_TABLE command • DCL1–93 to DCL1–96
CREATE/TERMINAL command • DCL1–97 to DCL1–102
Ctrl/C
and CONTINUE command • DCL1–63
continuing after • DCL1–63
restriction with keystroke journaling • DCL1–200
CTRL functions
enabling or disabling
CTRL/C • DCL2–118
CTRL/T • DCL2–118
CTRL/Y • DCL2–118
Ctrl/O
See TYPE command
Ctrl/Q
See TYPE command
Ctrl/S
See TYPE command
Ctrl/Y
and CONTINUE command • DCL1–63
and EXIT command • DCL1–222
and login procedure • DCL1–392
and ON command • DCL2–2
continuing after • DCL1–63

D

Data check
changing default • DCL2–240
Data record compaction
TA90E support • DCL1–246, DCL2–177
Data stream
marking beginning of • DCL1–111
marking end of • DCL1–206
Date
changing system • DCL2–234
displaying • DCL2–328
Day
setting default type • DCL2–120
DCL commands
continuing execution of • DCL1–63
marking beginning of input stream • DCL1–111
marking end of input stream • DCL1–206
resuming execution of • DCL1–63
DDIF (Digital Document Interchange Format)
analyzing files encoded in • DCL1–70
DEALLOCATE command • DCL1–103
and ALLOCATE command • DCL1–15, DCL1–103
Deallocating devices • DCL1–103
DEASSIGN command • DCL1–104 to DCL1–108
and DEFINE command • DCL1–114
DEASSIGN/QUEUE command • DCL1–109
DEBUG command • DCL1–110
Debugger
and RUN (Image) command • DCL2–51
including in output image • DCL1–386
information record analysis • DCL1–27
invoking • DCL1–30, DCL1–110
using with DEPOSIT command • DCL1–147
using with EXAMINE command • DCL1–209
Debugger information records
analyzing in object file • DCL1–27

Debugging
VAXTPU • DCL1–192
Decimal dump • DCL1–175
DECK command • DCL1–111 to DCL1–113
and EOD command • DCL1–206
DECnet • DCL2–149, DCL2–171, DCL2–173
running DECwindows applications across • DCL2–133
DECterm window
setting application keypad • DCL1–98
DECW$DISPLAY • DCL2–129, DCL2–272
DECwindows
EVE • DCL1–193, DCL1–195
VAXTPU • DCL1–193, DCL1–195
Default characteristics
modifying terminal • DCL2–221 to DCL2–233
setting for magnetic tape device • DCL2–177
Default device
displaying • DCL2–262
setting • DCL2–121
Default directory
displaying • DCL2–262
setting • DCL2–121
Default error checking
controlling • DCL2–182
Default libraries
displaying help • DCL1–232
Default printer
displaying characteristics of • DCL2–300
Default protection
establishing • DCL2–199
Default UIC
changing • DCL2–236
Default working set
for batch job • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
modifying size • DCL2–244
DEFINE/CHARACTERISTIC command • DCL1–120 to DCL1–121
DEFINE command • DCL1–114 to DCL1–119
and DEASSIGN command • DCL1–104
DEFINE/FORM command • DCL1–122 to DCL1–125
DEFINE/KEY command • DCL1–126 to DCL1–130
Delaying command processing • DCL2–397
See also Wait state
DELETE/CHARACTERISTIC command • DCL1–135
DELETE command • DCL1–131 to DCL1–134
DELETE/ENTRY command • DCL1–136 to DCL1–138
DELETE/FORM command • DCL1–139
DELETE/INTRUSION_RECORD command • DCL1–140
DELETE/KEY command • DCL1–141
DELETE/QUEUE command • DCL1–143 to DCL1–144
DELETE/SYMBOL command • DCL1–145 to DCL1–146
Deleting
batch job file after processing • DCL2–379
batch queue • DCL1–143
batch queue entries • DCL1–136
files • DCL1–131
logical names • DCL1–104
logical name tables • DCL1–104
multiple files • DCL1–131
print queue • DCL1–143
print queue entries • DCL1–136
wakeup request • DCL2–55
DEPOSIT command • DCL1–147 to DCL1–150
and EXAMINE command • DCL1–209
length qualifiers • DCL1–148
radix qualifiers • DCL1–148
Detached process
See Process
Device driver image
patching • DCL2–11
Device name
assigning logical name to • DCL1–39, DCL1–114
Devices
access • DCL1–15
allocation • DCL1–15
assigning logical queue name to • DCL1–47
creating • DCL2–129
deallocating • DCL1–103
dismounting • DCL1–170
displaying
default • DCL2–262
error count for • DCL2–279
information on • DCL2–246
mounted volumes • DCL2–266
queue entries • DCL2–275, DCL2–309
status of • DCL2–264
establishing as spooled • DCL2–123
establishing operational status for • DCL2–123
logical name assignment • DCL1–15
magnetic tape
setting default characteristics for • DCL2–177
modifying • DCL2–129
modifying protection of • DCL2–200
unloading with DISMOUNT command • DCL1–172
DIFFERENCES command • DCL1–151 to DCL1–158

DIFFERENCES command (Cont.)
comment characters • DCL1–153
comment delimiters • DCL1–153
exit status • DCL1–152
output formats • DCL1–156
Digital Document Interchange Format
See DDIF
DIGITAL Standard Runoff
See DSR • DCL2–63
Directory
changing specification • DCL2–34
copying • DCL1–74
creating • DCL1–89
creating UIC • DCL1–89
displaying contents of • DCL1–159
displaying default • DCL2–262
file version limit
defining at creation • DCL1–90
modifying • DCL2–126
modifying number in system space
for Files–11 volume • DCL2–240
protection
defining at creation • DCL1–90
modifying • DCL2–196
ready access • DCL1–241
space preallocation on disk • DCL1–243
DIRECTORY command • DCL1–159 to DCL1–167
DISCONNECT command • DCL1–168 to DCL1–169
Disk
allocating mapping pointers • DCL1–248
creating sequential files • DCL1–84
defining shareable volume • DCL1–247
defining structure level • DCL1–247
directory space allocation • DCL1–243
disabling operator status • DCL2–40
dismounting • DCL1–170
dismounting volume set • DCL1–172
displaying quota • DCL2–317
enabling operator status • DCL2–40
establishing operational status for • DCL2–123
files
comparing • DCL1–151
deleting • DCL1–131
index file placement • DCL1–245
indicating bad block data • DCL1–247
modifying RMS defaults for file operations •
DCL2–214
renaming directory • DCL2–34
renaming file • DCL2–34
specifying cluster size • DCL1–242
specifying default file extension size • DCL1–244
Disk (Cont.)
specifying density • DCL1–242
specifying faulty areas • DCL1–241
specifying maximum file number • DCL1–245
volume initialization • DCL1–240
Disk file protection
defining default • DCL1–244
Disk quota
displaying • DCL2–317
Dismount
clusterwide • DCL1–171
disk • DCL1–170
magnetic tape • DCL1–170
shared device • DCL1–171
DISMOUNT command • DCL1–170 to DCL1–173
Display
allocated device • DCL2–265
command procedure • DCL2–237
date • DCL2–328
device status • DCL2–264
file at terminal • DCL2–389
file on current output device • DCL2–389
files opened by the system • DCL2–266
names of installed files • DCL2–265, DCL2–266
names of open files • DCL2–265
time • DCL2–328
working set limit • DCL2–335
working set quota • DCL2–335
Document conversion
output formats • DCL1–66
Dollar sign ($)
and DECK command • DCL1–111
and EOD command • DCL1–206
and EOJ command • DCL1–208
DSR (DIGITAL Standard Runoff) • DCL2–63
invoking • DCL2–63
DTE commands • DCL2–158
CLEAR • DCL2–158
EXIT • DCL2–159
QUIT • DCL2–160
SAVE • DCL2–161
SEND BREAK • DCL2–162
SET DTE • DCL2–163
SHOW DTE • DCL2–168
SPAWN • DCL2–169
Dump
format
byte • DCL1–175
decimal • DCL1–175
hexadecimal • DCL1–176
longword • DCL1–176
octal • DCL1–176

Dump
format (Cont.)
word • DCL1–177
of files • DCL1–174
of volumes • DCL1–174
reading • DCL1–174
DUMP command • DCL1–174 to DCL1–178
Duplicate labels
command interpreter rules for • DCL1–52, DCL1–227, DCL1–229

E

EDIT/ACL command • DCL1–179
EDIT/EDT command • DCL1–180 to DCL1–183
EDIT/FDL command • DCL1–184
Editor
default • DCL1–180
invoking
EDT • DCL1–180
EVE • DCL1–189
SUMSLP • DCL1–185
TECO • DCL1–186
VAXTPU • DCL1–189
screen oriented • DCL1–180
EVE • DCL1–189
VAXTPU • DCL1–189
EDIT/SUM command • DCL1–185
EDIT/TECO command • DCL1–186 to DCL1–188
EDIT/TPU command • DCL1–189 to DCL1–204
EDT description • DCL1–180
ELSE keyword
and IF command • DCL1–237
End of batch job on cards • DCL1–208
End of data stream • DCL1–206
See also EOD command
End-of-file condition • DCL1–206
End-of-file indicator • DCL1–111
End-of-module
record analysis • DCL1–27
ENDSUBROUTINE command • DCL1–53, DCL1–54, DCL1–205
EOD command • DCL1–206 to DCL1–207
and DECK command • DCL1–111
EOJ command • DCL1–208
Equivalence name
assigning to logical name • DCL1–39, DCL1–114
displaying for logical names • DCL2–329
Error
checking
controlling • DCL2–182
reporting
for image files • DCL1–22
for object files • DCL1–26
Error stream
defining for created process • DCL2–53
EVE$INIT logical name • DCL1–194
EVE (Extensible VAX Editor)
batch editing • DCL1–191, DCL1–194
DECwindows interface • DCL1–193, DCL1–195
initialization file • DCL1–194
input file • DCL1–189, DCL1–192
invoking • DCL1–189
journaling • DCL1–195, DCL1–198
output file • DCL1–197
recovery from system failure • DCL1–198
section file • DCL1–200
start position • DCL1–202
EXAMINE command • DCL1–209 to DCL1–211
and DEPOSIT command • DCL1–147
length qualifier • DCL1–210
EXCHANGE command • DCL1–212
EXCHANGE/NETWORK command • DCL1–213 to DCL1–221
creating files • DCL1–217
protecting files • DCL1–217
qualifiers • DCL1–217
selecting transfer modes • DCL1–215
transferring files • DCL1–215
wildcard character • DCL1–216
Executable image
creating • DCL1–387
patching • DCL2–11
@ (execute procedure) command • DCL1–9 to DCL1–13
Executing SYS$LOGIN • DCL1–392
Execution
of alternate login command procedure • DCL1–393
of login command procedure • DCL1–392
resuming
command procedure • DCL1–63
DCL commands • DCL1–63
program • DCL1–63
Execution queue • DCL1–251
/EXECUTIVE_MODE qualifier
ASSIGN command • DCL1–40
EXIT command • DCL1–222 to DCL1–225
See also STOP command
Expression
value test • DCL1–237

Extensible VAX Editor
See EVE

F

F$CONTEXT lexical function • DCL1–272, DCL1–275 to DCL1–279
F$CSID lexical function • DCL1–272, DCL1–280 to DCL1–281
F$CVSI lexical function • DCL1–272, DCL1–282 to DCL1–283
F$CVTIME lexical function • DCL1–273, DCL1–284 to DCL1–285
F$CVUI lexical function • DCL1–273, DCL1–286
F$DEVICE lexical function • DCL1–273, DCL1–287 to DCL1–288
  use of • DCL1–287
  value returned • DCL1–287
F$DIRECTORY lexical function • DCL1–273, DCL1–289
F$EDIT lexical function • DCL1–273, DCL1–290 to DCL1–291
F$ELEMENT lexical function • DCL1–273, DCL1–292 to DCL1–293
F$ENVIRONMENT lexical function • DCL1–273, DCL1–294 to DCL1–296
F$EXTRACT lexical function • DCL1–273, DCL1–297 to DCL1–298
F$FAO lexical function • DCL1–273, DCL1–299 to DCL1–305
F$FILE_ATTRIBUTES lexical function • DCL1–273, DCL1–306 to DCL1–308
F$GETDVI lexical function • DCL1–273, DCL1–309 to DCL1–321
  item names • DCL1–310
F$GETJPI lexical function • DCL1–273, DCL1–322 to DCL1–327
F$GETQUI lexical function • DCL1–273, DCL1–328 to DCL1–343
F$GETSYI lexical function • DCL1–273, DCL1–344 to DCL1–348
F$IDENTIFIER lexical function • DCL1–273, DCL1–349 to DCL1–350
F$INTEGER lexical function • DCL1–273, DCL1–351
F$LENGTH lexical function • DCL1–273, DCL1–352
F$LOCATE lexical function • DCL1–273, DCL1–353 to DCL1–354
F$LOGICAL
  See F$TRNLNM
F$MESSAGE lexical function • DCL1–273, DCL1–355
F$MODE lexical function • DCL1–274, DCL1–356 to DCL1–357
F$PARSE lexical function • DCL1–274, DCL1–358 to DCL1–360
F$PID lexical function • DCL1–274, DCL1–361 to DCL1–362
F$PRIVILEGE lexical function • DCL1–274, DCL1–363
F$PROCESS lexical function • DCL1–274, DCL1–364
F$SEARCH lexical function • DCL1–274, DCL1–365 to DCL1–367
F$SETPRV lexical function • DCL1–274, DCL1–368 to DCL1–371
F$STRING lexical function • DCL1–274, DCL1–372
F$TIME lexical function • DCL1–274, DCL1–373
F$TRNLNM lexical function • DCL1–274, DCL1–374 to DCL1–377
F$TYPE lexical function • DCL1–378 to DCL1–379
F$USER lexical function • DCL1–274, DCL1–380
F$VERIFY lexical function • DCL1–274, DCL1–381 to DCL1–382
False expression
  and IF command • DCL1–237
FHM (file highwater mark) • DCL1–244
File
  formatting text
    See DSR
File expiration date
  specifying retention time values • DCL2–242
File extension size
  changing default • DCL2–240
File highwater mark • DCL1–244
File image
  analyzing • DCL1–22
  fixup section analysis • DCL1–23
File name
  changing • DCL2–34
File object
  analyzing • DCL1–26
  analyzing debugger information records • DCL1–27
  analyzing global symbol directory records • DCL1–27
  analyzing link option specification records • DCL1–28
  analyzing module header records • DCL1–28
  analyzing module traceback records • DCL1–28
  analyzing relocation records • DCL1–29
  analyzing text • DCL1–29
  identifying errors • DCL1–26
File protection
  changing default for volume • DCL2–240
  defining at file creation • DCL1–85

File protection (Cont.)
defining default • DCL1–244
establishing default • DCL2–199
modifying • DCL2–196
with EXCHANGE/NETWORK command • DCL1–217
Files
allocating headers • DCL1–244
appending to • DCL1–34
batch job
deleting after processing • DCL2–379
closing • DCL1–58
comparing • DCL1–151
concatenating • DCL1–74
copying • DCL1–74, DCL1–213
creating • DCL1–74, DCL1–84, DCL1–213
with EDT editor • DCL1–180
with EVE • DCL1–189, DCL1–192
with TECO editor • DCL1–186
with VAXTPU • DCL1–189, DCL1–192
creating owner UIC • DCL1–85
deassigning logical name • DCL1–58
default extension size on disk • DCL1–244
deleting • DCL1–131
displaying
allocated blocks • DCL1–164
at terminal • DCL2–389
backup date • DCL1–161
blocks used • DCL1–164
creation date • DCL1–161
expiration date • DCL1–161
files opened by the system • DCL2–266
help • DCL1–231
latest version • DCL1–165
modification date • DCL1–161
names of installed files • DCL2–265, DCL2–266
names of open files • DCL2–265
on current output device • DCL2–389
owner UIC • DCL1–163
protection • DCL1–163
dumping • DCL1–174
editing
with EDT editor • DCL1–180
with EVE • DCL1–189, DCL1–197
with SUMSLP editor • DCL1–185
with TECO editor • DCL1–186
with VAXTPU • DCL1–189, DCL1–197
extending • DCL1–36
ignoring characters in comparisons • DCL1–154
ignoring records in comparisons • DCL1–154
ignoring strings in comparisons • DCL1–154
Files (Cont.)
input
EVE • DCL1–189
VAXTPU • DCL1–189
installed
displaying names of • DCL2–266
list in directory • DCL1–159
maximum number on disk • DCL1–245
modifying
characteristics of • DCL2–144
queue entry for • DCL2–136
RMS defaults for file operations • DCL2–214
opening • DCL2–5
output
EVE • DCL1–197, DCL1–203
VAXTPU • DCL1–197, DCL1–203
printing • DCL2–13
purging • DCL2–24
reading records from • DCL2–28
renaming • DCL2–34
restricted
access to • DCL2–236
searching for character string • DCL2–81
transferring • DCL1–213
unlocking • DCL2–395
updating
with SUMSLP editor • DCL1–185
version limit
defining at directory creation • DCL1–90
writing records to • DCL2–399
Files–11 disk
initializing • DCL1–240
Files–11 On-Disk Structure Level 1 • DCL1–240
Files–11 volume
modifying characteristics of • DCL2–240
File shareable image
analyzing • DCL1–22
File system requests
responding to • DCL2–39
File type
changing • DCL2–34
File version number
changing • DCL2–34
File windows
mapping pointer allocation • DCL1–248
specifying mapping pointers • DCL2–242
Fixup section
analyzing • DCL1–23
FONT command • DCL1–226
Formatting
of DIFFERENCES output • DCL1–155

G

Generic device name • DCL1–15
Generic queue • DCL1–251
  initializing • DCL1–257, DCL2–350
Global symbol • DCL1–1, DCL1–5
Global symbol directory records
  analyzing in object file • DCL1–27
Global symbol table
  analyzing • DCL1–23
  deleting symbols from • DCL1–145
  entering symbol in • DCL1–263
GOSUB command • DCL1–227 to DCL1–228
GOTO command • DCL1–229 to DCL1–230
Group logical name table
  canceling entries • DCL1–105
  including logical name • DCL1–41, DCL1–116

H

Header allocation
  on disk volumes • DCL1–244
HELP command • DCL1–231 to DCL1–236
Help display
  of default libraries • DCL1–232
Help library
  creating • DCL1–231
  user • DCL1–234
Hexadecimal dump • DCL1–176
Hibernation
  and RUN command • DCL2–55

I

IF command • DCL1–237 to DCL1–239
  and CONTINUE command • DCL1–63
Image
  continuing execution of • DCL1–63
  defining base address • DCL1–390
  executing in detached process • DCL2–53
  executing in subprocess • DCL2–53
  resuming execution of • DCL1–63
  running • DCL2–51
  system • DCL1–389
  terminating with EXIT command • DCL1–222
Image file
  See also PATCH command
  analyzing • DCL1–22
  analyzing fixup section • DCL1–23
  analyzing patch text records • DCL1–24
  anayzing global symbol table • DCL1–23
  error analysis of • DCL1–22
  invoking • DCL2–11
Image hibernation
  and RUN command • DCL2–55
Image size
  specifying with RUN command • DCL2–57
Image wakeup
  and RUN command • DCL2–55
Index
  creating • DCL2–77
  creating source file with DSR • DCL2–63
Index file
  placing on disk • DCL1–245
Initialization
  tape
    using REPLY/BLANK_TAPE • DCL2–40
    using REPLY/INITIALIZE_TAPE • DCL2–40
  volumes • DCL1–240
Initialization file
  EVE • DCL1–194
INITIALIZE command • DCL1–240 to DCL1–248
INITIALIZE/QUEUE command • DCL1–249 to DCL1–261
Input data stream
  marking beginning of • DCL1–111
  marking end of • DCL1–206
Input file
  EVE • DCL1–189, DCL1–192
  VAXTPU • DCL1–189, DCL1–192
Input stream
  defining for created process • DCL2–53
  switching control to other processes • DCL1–49
INQUIRE command • DCL1–262 to DCL1–264
INSTALL command • DCL1–265
Installed files
  displaying names of • DCL2–265
Interactive
  assignment of symbols • DCL1–262
  help • DCL1–233

J

Job
  defining default CPU time limit • DCL1–253, DCL2–204, DCL2–347
  defining maximum CPU time limit • DCL1–253, DCL2–205, DCL2–348
  deleting from queue • DCL1–136, DCL1–143
  redirecting to another queue • DCL1–46
  removing from queue
    with ASSIGN/MERGE command • DCL1–46
Job batch card
  end of • DCL1–208
JOB card
  password • DCL2–9
JOB command • DCL1–266 to DCL1–271
Job logical name table
  canceling entries • DCL1–105
  including logical name • DCL1–41, DCL1–116
Journal
  EVE • DCL1–195, DCL1–198
  VAXTPU • DCL1–195, DCL1–198

K

Keypad
  application
    setting for DECterm • DCL1–98

L

Label
  command interpreter rules for • DCL1–52, DCL1–227, DCL1–229
  in command procedure • DCL1–52, DCL1–227, DCL1–229
    syntax • DCL1–227, DCL1–229
  specifying for volume • DCL2–241
  volume header • DCL1–240
  writing on volume • DCL1–240
Lexical functions • DCL1–273, DCL1–274
  F$CONTEXT • DCL1–275
  F$CSID • DCL1–280
  F$CVSI • DCL1–282
  F$CVTIME • DCL1–284
Lexical functions (Cont.)
  F$CVUI • DCL1–286
  F$DEVICE • DCL1–287
  F$DIRECTORY • DCL1–289
  F$EDIT • DCL1–290
  F$ELEMENT • DCL1–292
  F$ENVIRONMENT • DCL1–294
  F$EXTRACT • DCL1–297
  F$FAO • DCL1–299
  F$FILE_ATTRIBUTES • DCL1–306
  F$GETDVI • DCL1–309
  F$GETJPI • DCL1–322
  F$GETQUI • DCL1–328
  F$GETSYI • DCL1–344
  F$IDENTIFIER • DCL1–349
  F$INTEGER • DCL1–351
  F$LENGTH • DCL1–352
  F$LOCATE • DCL1–353
  F$MESSAGE • DCL1–355
  F$MODE • DCL1–356
  F$PARSE • DCL1–358
  F$PID • DCL1–361
  F$PRIVILEGE • DCL1–363
  F$PROCESS • DCL1–364
  F$SEARCH • DCL1–365
  F$SETPRV • DCL1–368
  F$STRING • DCL1–372
  F$TIME • DCL1–373
  F$TRNLNM • DCL1–374
  F$TYPE • DCL1–378
  F$USER • DCL1–380
  F$VERIFY • DCL1–381
  overview • DCL1–272
Library
  object module • DCL1–28
LIBRARY command • DCL1–383
LICENSE command • DCL1–384
License Management Utility (LICENSE) • DCL2–285
Licenses
  displaying active • DCL2–285
Limit working set
  displaying • DCL2–335
LINK command • DCL1–385 to DCL1–391
Linker
  memory allocation file • DCL1–386, DCL1–387
Link option specification records
  analyzing in object file • DCL1–28
List files
  in directory • DCL1–159
Local symbol • DCL1–1, DCL1–5

Local symbol table
deleting symbols from • DCL1–145
entering symbol in • DCL1–263
Lock limit
specifying for detached process • DCL2–57
specifying for subprocess • DCL2–57
Logging in • DCL1–392 to DCL1–395
Logging out • DCL1–396
and device access • DCL1–15
Logical name
assigning • DCL1–39, DCL1–114
assigning to device • DCL1–15
canceling • DCL1–104
creating • DCL1–39, DCL1–114
creating a table • DCL1–93
deassigning using CLOSE command • DCL1–58
displaying
equivalence name for • DCL2–288, DCL2–329
translation of • DCL2–288, DCL2–329
EVE$INIT • DCL1–194
process-permanent
defining equivalence name for detached process • DCL2–53
defining equivalence name for subprocess • DCL2–53
TPU$COMMAND • DCL1–191
TPU$DEBUG • DCL1–193
TPU$DISPLAY_MANAGER • DCL1–193
TPU$JOURNAL • DCL1–196
TPU$SECTION • DCL1–200
TPU$WORK • DCL1–202
Logical name inclusion
in group logical name table • DCL1–41, DCL1–116
in job logical name table • DCL1–41, DCL1–116
in process logical name table • DCL1–41, DCL1–116
in system logical name table • DCL1–41, DCL1–116
Logical name table
creating • DCL1–93
deleting • DCL1–104
displaying • DCL2–288
Logical queue • DCL1–252
deassigning • DCL1–109
Login command procedure
executing • DCL1–392
specifying alternate • DCL1–393
LOGINOUT.EXE file
and detached process • DCL2–56
LOGOUT command • DCL1–396 to DCL1–397
message • DCL1–396
multiple • DCL1–396
Longword dump • DCL1–176

M

MACRO command • DCL1–398 to DCL1–403
Magnetic tape
device characteristics for • DCL2–177
dismounting • DCL1–170
initializing • DCL1–240
overriding overwrite protection on • DCL1–246
runaway stop • DCL1–241
specifying volume density • DCL1–242
Mailbox
process termination • DCL2–58
MAIL command • DCL1–404
Mail Utility (MAIL) • DCL1–404
Mapping pointer allocation • DCL1–248
Match size
specifying with DIFFERENCES command • DCL1–155
/MEDIA_FORMAT qualifer
for INITIALIZE command • DCL1–246, DCL2–177
Memory
displaying
error count for • DCL2–279
displaying availability and use of
process balance slots • DCL2–292
process entry slots • DCL2–292
modifying • DCL1–147
replacing virtual contents • DCL1–147
virtual examination of contents • DCL1–209
Memory allocation file
brief format • DCL1–386
cross-reference format • DCL1–386
full format • DCL1–387
MERGE command • DCL1–405
Merging
of DIFFERENCES • DCL1–155
of queues • DCL1–46
Message
sending to terminal • DCL2–38
MESSAGE command • DCL1–406
Message file
setting format • DCL2–179
Modes
of transferring files • DCL1–215
Module header records
analyzing in object file • DCL1–28

Module object
analyzing • DCL1–26
end-of-file records • DCL1–27
Module traceback records
analyzing in object file • DCL1–29
MONITOR command • DCL1–407
MOUNT command • DCL1–408
and DEASSIGN command • DCL1–104
and DISMOUNT command • DCL1–170

N

Name
See also Logical name
detached process • DCL2–55
generic device • DCL1–15
logical
canceling • DCL1–104
deassigning • DCL1–58
subprocess • DCL2–55
symbol definition • DCL1–1, DCL1–5
NCS command • DCL2–1
Network HSC node
connecting to a remote HSC • DCL2–173
connecting to a storage controller • DCL2–171
Network node
See also SET HOST command
See also SET HOST/DUP command
See also SET HOST/HSC command
and batch jobs • DCL2–382
connecting to a remote processor • DCL2–149
Node names
displaying • DCL2–331
Nonpaged dynamic memory
displaying availability and use of • DCL2–292

O

Object file
analyzing • DCL1–26
identifying errors • DCL1–26
Object module
analyzing • DCL1–26
end-of-file records • DCL1–27
Object module library • DCL1–28
Octal dump • DCL1–176
ON command • DCL2–2 to DCL2–4
and command procedure • DCL2–2
ON command (Cont.)
and CONTINUE command • DCL1–63
and Ctrl/Y • DCL2–2
error in command procedure • DCL2–2
interrupt of command procedure • DCL2–2
Online help • DCL1–231
OPCOM
enabling terminal to receive messages from • DCL2–40
messages to users from • DCL2–47
Open
displaying
names of open files • DCL2–265
file • DCL2–5
OPEN command • DCL2–5 to DCL2–8
See also CLOSE command
See also READ command
See also WRITE command
Operator
See also REQUEST command
disabling status • DCL2–40
enabling status • DCL2–40
log file closing • DCL2–41
log file opening • DCL2–41
requesting reply from • DCL2–47
sending message to • DCL2–47
Options file
CONVERT/DOCUMENT command • DCL1–67
Output file
EVE • DCL1–197
VAXTPU • DCL1–197
Output stream
defining for created process • DCL2–53
Overlaying files using the COPY command • DCL1–79
Override
default command interpreter • DCL1–392
magnetic tape overwrite protection • DCL1–246
owner identification field • DCL1–246
Overwrite protection
overriding on magnetic tape • DCL1–246
Owner identifier field
writing characters to • DCL1–245
Ownership
specifying for volume • DCL1–246

P

P0 image
creating • DCL1–388

Paged dynamic memory
displaying availability and use of • DCL2–292
Parameter
passing to batch job • DCL2–381
passing to command procedure • DCL1–9, DCL1–52
specifying for command procedures • DCL1–9
Password
changing • DCL2–184
setting at login • DCL1–392
PASSWORD command • DCL2–9 to DCL2–10
PATCH command • DCL2–11
Patch text records
analyzing • DCL1–24
Patch Utility (PATCH)
changing code in • DCL2–11
invoking • DCL2–11
PHONE command • DCL2–12
Physical memory
displaying availability and use of • DCL2–292
Port
displaying information • DCL2–331
PostScript back-end converter
processing options in • DCL1–68
Print
command procedure in batch job log • DCL2–237
file • DCL2–13
PRINT command • DCL2–13 to DCL2–22
Printer, system
displaying default characteristics of • DCL2–300
Print queue
changing entry • DCL2–136
creating • DCL1–249
deleting • DCL1–143
deleting entries • DCL1–136
displaying entries • DCL2–275, DCL2–309
establishing as spooled • DCL2–123
initializing • DCL1–249
modifying characteristics of • DCL2–187, DCL2–345
starting • DCL2–345
Priority
modifying process • DCL2–191
specifying for batch job • DCL2–382
specifying for detached process • DCL2–59
specifying for subprocess • DCL2–59
Privilege
displaying process • DCL2–304
displaying subprocess • DCL2–304
modifying process • DCL2–191
Privileges
specifying for detached process • DCL2–59
specifying for subprocess • DCL2–59
Process
See also Subprocess
detached
accounting • DCL2–55
assigning resource quota to • DCL2–54
creating with RUN command • DCL2–53, DCL2–61
defining attributes • DCL2–54
defining equivalence names for process-permanent logical names • DCL2–53
image hibernation • DCL2–55
naming • DCL2–55
scheduling wakeup • DCL2–57
specifying quotas • DCL2–57
specifying working set • DCL2–61
displaying
buffered I/O count • DCL2–319
characteristics of • DCL2–302
CPU time used • DCL2–319
current physical memory occupied • DCL2–319
current working set size • DCL2–319
information on • DCL2–246
names • DCL2–331
open file count • DCL2–319
page faults • DCL2–319
status • DCL2–319
updated information about • DCL2–303
hibernation
with ATTACH command • DCL1–49
identification
displaying • DCL2–303
image wakeup • DCL2–55
modifying characteristics of • DCL2–191
modifying working set default size • DCL2–244
name
for detached process • DCL2–59
for subprocess • DCL2–59
placing in wait state • DCL2–397
priority
for detached process • DCL2–59
for subprocess • DCL2–59
privilege
displaying • DCL2–304
specifying for detached process • DCL2–59
specifying for subprocess • DCL2–59
quotas
displaying • DCL2–304
setting default device and/or directory • DCL2–121

Process (Cont.)
status
displaying current • DCL2–319
swap mode
enabling or disabling • DCL2–193
swapping
for created process • DCL2–60
switching control of input stream to • DCL1–49
synchronizing with batch job • DCL2–387
system
displaying list of processes • DCL2–322
working set
displaying quota and limit • DCL2–335
Process dump
analysis of • DCL1–30
Processing options
in PostScript back-end converter • DCL1–68
in text back-end converter • DCL1–67
Process logical name table
canceling entries • DCL1–106
including logical name • DCL1–41, DCL1–116
Program
continuing execution of • DCL1–63
marking beginning of input stream • DCL1–111
marking end of input stream • DCL1–206
resuming execution of • DCL1–63
Prompt
displaying in command procedure • DCL1–262
Protection
default at disk initialization • DCL1–244
defining at directory creation • DCL1–90
defining at file creation • DCL1–85
disk volumes • DCL1–247
displaying default • DCL2–308
establishing default • DCL2–199
magnetic tape volumes • DCL1–247
modifying • DCL2–196
directory • DCL2–196
file • DCL2–196
modifying for device • DCL2–200
of shareable images • DCL1–388
PSWRAP command • DCL2–23
PURGE command • DCL2–24 to DCL2–27
Purging
See also Deleting
files • DCL2–24

Q

Queue
See also Batch queue
See also Print queue
assigning logical name to • DCL1–47
assigning to devices • DCL1–47
batch
modifying characteristics of • DCL2–345
batch job
displaying entries • DCL2–275, DCL2–309
entering command procedure in • DCL2–376
starting • DCL2–345
changing entry
for batch • DCL2–136
for printer • DCL2–136
deassigning • DCL1–109
device
displaying entries • DCL2–275, DCL2–309
execution (type) • DCL1–251
generic • DCL1–251
initializing • DCL1–249
logical • DCL1–252
merging jobs • DCL1–46
removing jobs from • DCL1–46
server • DCL1–251
starting • DCL2–345
stopping • DCL2–345
symbiont • DCL1–251
types of • DCL1–251
Quota
assigning to created process • DCL2–54
AST limit • DCL2–55
batch job
working set • DCL2–383
CPU
for created process • DCL2–60
of subprocesses process can create • DCL2–60
specifying for detached process • DCL2–58, DCL2–59
specifying for subprocess • DCL2–58, DCL2–59
working set
for batch job • DCL2–383
modifying • DCL2–244

R

Read check
  with APPEND command • DCL1–37
  with COPY command • DCL1–79
  with INITIALIZE command • DCL1–242
READ command • DCL2–28 to DCL2–31
  See also OPEN command
  See also WRITE command
Ready access
  for directories on disk • DCL1–241
RECALL command • DCL2–32 to DCL2–33
Record Management Services
  See RMS
Records
  analyzing
    debugger information • DCL1–27
    end-of-file • DCL1–27
    global symbol directory • DCL1–27
    link option specification • DCL1–28
    module header • DCL1–28
    module traceback • DCL1–28
    patch text • DCL1–24
    relocation • DCL1–29
  comparing • DCL1–151
  reading • DCL2–28
  writing to file • DCL2–399
Recover
  for EDT • DCL1–182
Recovery from system failure
  EVE • DCL1–198
  VAXTPU • DCL1–198
Relocation records
  analyzing in object file • DCL1–29
RENAME command • DCL2–34 to DCL2–37
REPLY command • DCL2–38 to DCL2–46
  See also INITIALIZE command
  See also MOUNT command
  See also REQUEST command
  disabling operator status • DCL2–40
  enabling operator status • DCL2–40
  responding to file system requests • DCL2–39
  responding to user requests • DCL2–39
REQUEST command • DCL2–47 to DCL2–48
Resume execution
  of command procedure • DCL1–63
  of DCL commands • DCL1–63
  of program • DCL1–63
RETURN command • DCL2–49 to DCL2–50
Return key
  pressing to log in • DCL1–392
Rights list
  modifying • DCL2–212
RMS (VMS Record Management Services)
  displaying default block count • DCL2–318
  modifying defaults for • DCL2–214
RUN (Image) command • DCL2–51 to DCL2–52
  abbreviating • DCL2–51
  and debugger • DCL2–51
RUN (Process) command • DCL2–53 to DCL2–62
  See also ATTACH command
  See also SPAWN command
  creating detached process • DCL2–61
Runaway magnetic tape
  stopping • DCL1–241
Runoff
  See DSR
RUNOFF command • DCL2–63 to DCL2–72
RUNOFF/CONTENTS command • DCL2–73 to DCL2–76
RUNOFF/INDEX command • DCL2–77 to DCL2–80

S

Screen-oriented editor • DCL1–180
  EVE • DCL1–189
  VAXTPU • DCL1–189
SEARCH command • DCL2–81 to DCL2–87
Search list • DCL1–39, DCL1–114
Secondary processor
  showing state • DCL2–258
  starting • DCL2–343
  stopping • DCL2–361
Server queue • DCL1–251
SET ACCOUNTING command • DCL2–91 to DCL2–92
  See also ACCOUNTING command
SET ACL command • DCL2–93 to DCL2–99
SET AUDIT command • DCL2–100 to DCL2–111
SET BROADCAST command • DCL2–112 to DCL2–113
SET CARD_READER command • DCL2–114
SET CLUSTER/EXPECTED_VOTES command • DCL2–115 to DCL2–116
SET command • DCL2–88 to DCL2–90
  summary of options • DCL2–88
SET COMMAND command • DCL2–117
SET CONTROL command • DCL2–118 to DCL2–119

SET DAY command • DCL2–120
SET DEFAULT command • DCL2–121 to DCL2–122
SET DEVICE command • DCL2–123 to DCL2–124
SET DEVICE/SERVED command • DCL2–125
SET DIRECTORY command • DCL2–126 to DCL2–128
SET DISPLAY command • DCL2–129 to DCL2–135
SET ENTRY command • DCL2–136 to DCL2–143
SET FILE command • DCL2–144 to DCL2–148
SET HOST command • DCL2–149 to DCL2–151
  See also Network node
SET HOST/DTE command • DCL2–152
  DTE commands • DCL2–158
    CLEAR • DCL2–158
    EXIT • DCL2–159
    QUIT • DCL2–160
    SAVE • DCL2–161
    SEND BREAK • DCL2–162
    SET DTE • DCL2–163
    SHOW DTE • DCL2–168
    SPAWN • DCL2–169
SET HOST/DUP command • DCL2–171 to DCL2–172
  See also Network node
SET HOST/HSC command • DCL2–173 to DCL2–174
  See also Network node
SET KEY command • DCL2–175
SET LOGINS command • DCL2–176
SET MAGTAPE command • DCL2–177 to DCL2–178
SET MESSAGE command • DCL2–179 to DCL2–181
SET ON command • DCL2–182
SET OUTPUT_RATE command • DCL2–183
SET PASSWORD command • DCL2–184 to DCL2–186
SET PRINTER command • DCL2–187 to DCL2–190
SET PROCESS command • DCL2–191 to DCL2–194
SET PROMPT command • DCL2–195
SET PROTECTION command • DCL2–196 to DCL2–198
SET PROTECTION/DEFAULT command • DCL2–199
SET PROTECTION/DEVICE command • DCL2–200 to DCL2–202
SET QUEUE command • DCL2–203 to DCL2–209
SET RESTART_VALUE command • DCL2–210 to DCL2–211
SET RIGHTS_LIST command • DCL2–212 to DCL2–213
SET RMS_DEFAULT command • DCL2–214 to DCL2–217
SET SYMBOL command • DCL2–218 to DCL2–220
SET TERMINAL command • DCL2–221 to DCL2–233
  See also SHOW TERMINAL command
SET TIME command • DCL2–234 to DCL2–235
SET UIC command • DCL2–236
  See also Protection
SET VERIFY command • DCL2–237 to DCL2–239
SET VOLUME command • DCL2–240 to DCL2–243
SET WORKING_SET command • DCL2–244 to DCL2–245
$SEVERITY • DCL2–182
  changing • DCL1–222, DCL2–49
Shareable image
  file analysis • DCL1–22
  patching • DCL2–11
Shareable image file
  analyzing • DCL1–22
  creating • DCL1–388
Shareable volume
  dismounting • DCL1–170
  initializing disk as • DCL1–247
Shared device
  dismounting • DCL1–171
SHOW ACCOUNTING command • DCL2–248 to DCL2–249
  See also ACCOUNTING command
  items enabled • DCL2–248
SHOW ACL command • DCL2–250
SHOW AUDIT command • DCL2–251 to DCL2–254
SHOW BROADCAST command • DCL2–255 to DCL2–256
SHOW CLUSTER command • DCL2–257
SHOW command • DCL2–246 to DCL2–247
  summary of options • DCL2–246
SHOW CPU command • DCL2–258 to DCL2–261
SHOW DEFAULT command • DCL2–262 to DCL2–263
SHOW DEVICES command • DCL2–264 to DCL2–268
SHOW DEVICES/SERVED command • DCL2–269 to DCL2–271
SHOW DISPLAY command • DCL2–272 to DCL2–274
  See also SET DISPLAY command
SHOW ENTRY command • DCL2–275 to DCL2–278
SHOW ERROR command • DCL2–279
SHOW INTRUSION command • DCL2–280 to DCL2–282
SHOW KEY command • DCL2–283 to DCL2–284
SHOW LICENSE command • DCL2–285
SHOW LOGICAL command • DCL2–288 to DCL2–291

SHOW MEMORY command • DCL2–292 to DCL2–299
SHOW PRINTER command • DCL2–300 to DCL2–301
SHOW PROCESS command • DCL2–302 to DCL2–307
SHOW PROTECTION command • DCL2–308
SHOW QUEUE/CHARACTERISTICS command • DCL2–313 to DCL2–314
SHOW QUEUE command • DCL2–309 to DCL2–312
SHOW QUEUE/FORM command • DCL2–315 to DCL2–316
SHOW QUOTA command • DCL2–317
SHOW RMS_DEFAULT command • DCL2–318
SHOW STATUS command • DCL2–319
SHOW SYMBOL command • DCL2–320 to DCL2–321
SHOW SYSTEM command • DCL2–322 to DCL2–325
SHOW TERMINAL command • DCL2–326 to DCL2–327
  See also SET TERMINAL command
SHOW TIME command • DCL2–328
SHOW TRANSLATION command • DCL2–329 to DCL2–330
SHOW USERS command • DCL2–331 to DCL2–334
SHOW WORKING_SET command • DCL2–335
SHOW ZONE command • DCL2–336
SORT command • DCL2–337
SPAWN command • DCL2–338 to DCL2–342
  and ATTACH command • DCL1–49
START/CPU command • DCL2–343 to DCL2–344
START/QUEUE command • DCL2–345 to DCL2–354
START/QUEUE/MANAGER command • DCL2–355 to DCL2–356
START/ZONE command • DCL2–357
Status
  displaying
    current process • DCL2–319
    device • DCL2–246, DCL2–264
    process • DCL2–246
    system • DCL2–246
$STATUS • DCL2–182
  changing • DCL1–222, DCL2–49
Status code
  controlling command interpreter response to • DCL2–182
STOP command • DCL2–358 to DCL2–360
  See also Ctrl/C
  See also Ctrl/Y
  See also EXIT command
  and detached process image • DCL2–55
STOP command (Cont.)
  and subprocess image • DCL2–55
  detached process • DCL2–358
  process • DCL2–358
  runaway magnetic tape • DCL1–241
  subprocess • DCL2–358
STOP/CPU command • DCL2–361, DCL2–362
STOP/QUEUE/ABORT command • DCL2–365 to DCL2–366
STOP/QUEUE command • DCL2–363 to DCL2–364
STOP/QUEUE/ENTRY command • DCL2–367 to DCL2–368
STOP/QUEUE/MANAGER command • DCL2–369
STOP/QUEUE/NEXT command • DCL2–370
  and DELETE/QUEUE command • DCL1–143
STOP/QUEUE/REQUEUE command • DCL2–371 to DCL2–373
STOP/QUEUE/RESET command • DCL2–374
STOP/ZONE command • DCL2–375
:= (string assignment) command • DCL1–5 to DCL1–8
Structure level
  defining for disks • DCL1–247
Subdirectory
  creating • DCL1–89
SUBMIT command • DCL1–269, DCL2–376 to DCL2–385
Subprocess
  See also SPAWN command
  accounting • DCL2–55
  assigning resource quota to • DCL2–54
  creating with RUN command • DCL2–53
  creating with SPAWN command • DCL2–338
  defining attributes • DCL2–54
  defining equivalence names for process-permanent logical names • DCL2–53
  displaying characteristics of • DCL2–302
  displaying quota • DCL2–304
  image hibernation • DCL2–55
  naming with RUN/PROCESS_NAME • DCL2–55
  scheduling wakeup • DCL2–57
  specifying default working set • DCL2–61
  specifying quotas • DCL2–57
  switching control of input stream to • DCL1–49
Subroutine
  termination of GOSUB • DCL2–49
SUBROUTINE command • DCL1–53, DCL1–54, DCL2–386
SUMSLP description • DCL1–185
Swapping
  for created process • DCL2–60

Swapping
process
enabling or disabling swap mode • DCL2–193
Symbol
assigning value with READ command • DCL2–28
binary overlay in • DCL1–1
character overlays in • DCL1–6
deleting
from global symbol table • DCL1–145
from local symbol table • DCL1–145
displaying • DCL2–320
general assignment • DCL1–1
interactive assignment in command procedure • DCL1–262
masking • DCL2–218
string assignment • DCL1–5
Symbolic name
defining • DCL1–1, DCL1–5
SYNCHRONIZE command • DCL2–387 to DCL2–388
SYS$ERROR
specifying equivalence name with RUN command • DCL2–57
SYS$INPUT
specifying equivalence name with RUN command • DCL2–57
SYS$MANAGER:ACCOUNTING.DAT • DCL2–91
SYS$OUTPUT
displaying file on • DCL2–389
specifying equivalence name with RUN command • DCL2–58
SYS$SYLOGIN
executing • DCL1–392
SYSLOST directory • DCL2–146
System
accessing • DCL1–392
changing
date • DCL2–234
password • DCL2–184
time • DCL2–234
displaying
information on • DCL2–246
status • DCL2–246
System help files • DCL1–231
System image
creating • DCL1–389
System logical name table
canceling entries • DCL1–106
including logical name • DCL1–41, DCL1–116
System login image
and detached process • DCL2–56
System performance
displaying availability and use of resources • DCL2–292
System processes
displaying list • DCL2–322
System time
changing • DCL2–234

T

TA90E tape drive
support for • DCL1–246, DCL2–177
using /MEDIA_FORMAT qualifier • DCL1–246, DCL2–177
Table of contents
creating • DCL2–73
Tape
disabling operator status • DCL2–40
enabling operator status • DCL2–40
establishing operational status for • DCL2–123
modifying RMS defaults for file operations • DCL2–214
Tape initializing
using REPLY/BLANK_TAPE • DCL2–40
using REPLY/INITIALIZE_TAPE • DCL2–40
TECO description • DCL1–186
Terminal
See also SET TERMINAL command
See also SHOW TERMINAL command
default characteristics • DCL1–392
See LOGIN Procedure command
displaying
characteristics of • DCL2–326
file at • DCL2–389
establishing as spooled • DCL2–123
modifying characteristics of • DCL2–221
sending message to • DCL2–38
virtual • DCL1–60, DCL1–168
Terminal emulator
creating • DCL1–97
Terminal session
logging in • DCL1–392
logging out • DCL1–396
Termination
of command procedure • DCL1–222
of GOSUB subroutine • DCL2–49
of terminal session • DCL1–396
Testing
the value of an expression • DCL1–237

Text
  analyzing
    in object file • DCL1–29
Text back-end converter
  processing options in • DCL1–67
Text editor
  EVE • DCL1–189
  VAXTPU • DCL1–189
Text file
  formatting
    See DSR • DCL2–63
THEN keyword
  and IF command • DCL1–237
Time
  changing system • DCL2–234
  CPU quota for created process • DCL2–60
  CPU used by current process • DCL2–319
  displaying • DCL2–328
TPU
  See VAXTPU
TPU$COMMAND logical name • DCL1–191
TPU$DEBUG logical name • DCL1–193
TPU$DISPLAY_MANAGER logical name • DCL1–193
TPU$JOURNAL logical name • DCL1–196
TPU$SECTION logical name • DCL1–200
TPU$WORK logical name • DCL1–202
Transfer modes
  EXCHANGE/NETWORK command • DCL1–215
True expression
  and IF command • DCL1–237
TYPE command • DCL2–389 to DCL2–394

U

UAF (user authorization file)
  and detached process • DCL2–56
UIC (user identification code)
  changing default • DCL2–236
  specifying for directory • DCL1–89
  specifying for files • DCL1–85
Unloading device
  with DISMOUNT command • DCL1–172
UNLOCK command • DCL2–395
Unlocking files • DCL2–395
User
  displaying
    disk quota • DCL2–317
    interactive terminal name • DCL2–331
    process identification code (PID) • DCL2–331
    users on system • DCL2–331
User (Cont.)
  recording name on disk volume • DCL2–242
User library
  help • DCL1–234
User name
  specifying at login • DCL1–392
User password
  setting • DCL2–184
User requests
  responding to • DCL2–39

V

Value
  test in expression • DCL1–237
VAXTPU (VAX Text Processing Utility)
  batch editing • DCL1–191, DCL1–194
  command file • DCL1–191
  debugger • DCL1–192
  DECwindows interface • DCL1–193, DCL1–195
  display mangager • DCL1–193
  input file • DCL1–189, DCL1–192
  invoking • DCL1–189
  journaling • DCL1–195, DCL1–198
  output file • DCL1–197
  recovery from system failure • DCL1–198
  section file • DCL1–200
  start position • DCL1–202
  work file • DCL1–202
Verification
  modifying for command procedures • DCL2–237
Version limit
  for files in directory • DCL1–90
Version number
  assigning to files • DCL1–216
VIEW command • DCL2–396
Virtual memory
  examining contents • DCL1–209
  replacing contents • DCL1–147
Virtual terminal
  connecting to • DCL1–60
  disconnecting from • DCL1–168
VMS multiprocessing system
  showing attached processor state • DCL2–258
  starting attached processor • DCL2–343
  stopping attached processor • DCL2–361
VMS NCS • DCL2–1
VMS RMS
  See RMS

Volume
deleting disk files • DCL1–131
dismounting disk and magnetic tape • DCL1–170
displaying disk quota • DCL2–317
dumping • DCL1–174
Files–11
modifying characteristics of • DCL2–240
recording name on • DCL2–242
initializing • DCL1–240
label • DCL1–240
protecting • DCL1–247
specifying maximum file number • DCL1–245
specifying ownership • DCL1–246
Volume accessibility field
writing characters to • DCL1–245
Volume set
dismounting • DCL1–172

W

WAIT command • DCL2–397 to DCL2–398
Wait state
delaying command processing • DCL2–397
inducing to synchronize process with batch job • DCL2–387
placing current process in • DCL2–397
Wakeup
canceling request • DCL1–56, DCL2–55
scheduling with RUN command • DCL2–55
Windows
displaying count for open files • DCL2–266
displaying size for open files • DCL2–266
Word dump • DCL1–177
Work file
VAXTPU • DCL1–202
Working set
batch job
defining default for • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining extent for • DCL1–260, DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining quota for • DCL1–269, DCL2–208, DCL2–353, DCL2–383
defining quota
for batch job • DCL2–61
displaying
limit for process • DCL2–335
quota for process • DCL2–335
modifying default size • DCL2–244
Working set
specifying default
for detached process • DCL2–61
for subprocess • DCL2–61
specifying quotas • DCL2–58
Working set quota
displaying • DCL2–335
Write
record to file • DCL2–399
Write check
with APPEND command • DCL1–37
with COPY command • DCL1–80
with INITIALIZE command • DCL1–242
WRITE command • DCL2–399 to DCL2–401
See also CLOSE command
See also OPEN command
See also READ command

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