OpenVMS DCL Dictionary: N–Z

December 1995

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

Revision/Update Information: This manual supersedes the *OpenVMS DCL Dictionary*, *OpenVMS Version 6.2*.

Software Version: OpenVMS Alpha Version 7.0
OpenVMS VAX Version 7.0

Digital Equipment Corporation
Maynard, Massachusetts

December 1995

Digital Equipment Corporation makes no representations that the use of its products in the manner described in this publication will not infringe on existing or future patent rights, nor do the descriptions contained in this publication imply the granting of licenses to make, use, or sell equipment or software in accordance with the description.

Possession, use, or copying of the software described in this publication is authorized only pursuant to a valid written license from Digital or an authorized sublicensor.

Digital conducts its business in a manner that conserves the environment and protects the safety and health of its employees, customers, and the community.

© Digital Equipment Corporation 1995. All rights reserved.

The following are trademarks of Digital Equipment Corporation: AXP, Bookreader, CDA, CI, DEC, DECdirect, DECdtm, DECevent, DECnet, DECprint, DECram, DECspell, DECterm, DECUS, DECwindows, DECwrite, DECwriter Correspondent, DEQNA, DTIF, EDT, GIGI, HSC, LA, LiveLink, LN03, MASSBUS, MicroVAX, MSCP, OpenVMS, PrintServer 40, Q–bus, ReGIS, RQDX3, RX02, RX33, RZ, TMSCP, ULTRIX, UNIBUS, VAX, VAX 6000, VAXcluster, VAX COBOL, VAX FORTRAN, VAXft, VAXserver, VAXstation, VMS, VMScluster, VT, VT100, VT300, WPS, XUI, and the DIGITAL logo.

The following are third-party trademarks:

Adobe, Display PostScript, and PostScript are registered trademarks of Adobe Systems Incorporated.

OSF, OSF/Motif, and Motif are registered trademarks and Open Software Foundation is a trademark of the Open Software Foundation, Inc.

UNIX is a registered trademark licensed exclusively by X/Open Company, Ltd.

All other trademarks and registered trademarks are the property of their respective holders.

ZK6200

This document is available on CD–ROM.

Contents

Preface vii

NCS DCLII–1
ON DCLII–2
OPEN DCLII–6
PASSWORD DCLII–10
PATCH (VAX Only) DCLII–12
PHONE DCLII–13
PRINT DCLII–14
PRODUCT DCLII–26
PSWRAP DCLII–27
PURGE DCLII–28
READ DCLII–32
RECALL DCLII–36
RENAME DCLII–39
REPLY DCLII–43
REQUEST DCLII–52
RETURN DCLII–54
RUN (Image) DCLII–56
RUN (Process) DCLII–58
RUNOFF DCLII–69
SEARCH DCLII–70
SET DCLII–78
SET ACCOUNTING DCLII–81
SET AUDIT DCLII–84
SET BROADCAST DCLII–97
SET CARD_READER DCLII–99
SET CLUSTER/EXPECTED_VOTES DCLII–100
SET COMMAND DCLII–102
SET CONTROL DCLII–105
SET DAY DCLII–107
SET DEFAULT DCLII–108
SET DEVICE DCLII–110
SET DEVICE/SERVED DCLII–112
SET DIRECTORY DCLII–113
SET DISPLAY DCLII–116
SET ENTRY DCLII–122
SET FILE DCLII–132
SET HOST DCLII–140

SET HOST/DTE DCLII–143
SET HOST/DUP DCLII–150
SET HOST/HSC DCLII–152
SET HOST/LAT DCLII–154
SET HOST/RLOGIN DCLII–159
SET HOST/TELNET DCLII–161
SET HOST/TN3270 . . . . . DCLII–162
SET KEY DCLII–163
SET LOGINS DCLII–164
SET MAGTAPE DCLII–165
SET MESSAGE DCLII–167
SET NETWORK DCLII–169
SET ON DCLII–172
SET OUTPUT_RATE DCLII–173
SET PASSWORD DCLII–174
SET PREFIX DCLII–177
SET PRINTER DCLII–179
SET PROCESS DCLII–182
SET PROMPT DCLII–190
SET PROTECTION/DEFAULT DCLII–191
SET QUEUE DCLII–192
SET RESTART_VALUE DCLII–200
SET RIGHTS_LIST DCLII–202
SET RMS_DEFAULT DCLII–205
SET SECURITY DCLII–209
SET SERVER DCLII–217
SET SYMBOL DCLII–219
SET TERMINAL DCLII–222
SET TIME DCLII–236
SET VERIFY DCLII–238
SET VOLUME DCLII–241
SET WORKING_SET DCLII–245
SHOW DCLII–247
SHOW ACCOUNTING DCLII–250
SHOW AUDIT DCLII–252
SHOW BROADCAST DCLII–256
SHOW CLUSTER DCLII–258
SHOW CPU DCLII–259
SHOW DEFAULT DCLII–264
SHOW DEVICES DCLII–266
SHOW DEVICES/SERVED DCLII–273
SHOW DISPLAY DCLII–278
SHOW ENTRY DCLII–280
SHOW ERROR DCLII–285
SHOW INTRUSION DCLII–288
SHOW KEY DCLII–291
SHOW LICENSE DCLII–293

SHOW LOGICAL DCLII–301
SHOW MEMORY DCLII–307
SHOW NETWORK DCLII–317
SHOW PRINTER DCLII–320
SHOW PROCESS DCLII–322
SHOW PROTECTION DCLII–330
SHOW QUEUE DCLII–331
SHOW QUEUE/CHARACTERISTICS DCLII–338
SHOW QUEUE/FORM DCLII–340
SHOW QUEUE/MANAGERS DCLII–342
SHOW QUOTA DCLII–345
SHOW RMS_DEFAULT DCLII–346
SHOW SECURITY DCLII–347
SHOW STATUS DCLII–351
SHOW SYMBOL DCLII–352
SHOW SYSTEM DCLII–354
SHOW TERMINAL DCLII–362
SHOW TIME DCLII–365
SHOW TRANSLATION DCLII–366
SHOW USERS DCLII–368
SHOW WORKING_SET DCLII–373
SHOW ZONE DCLII–375
SORT DCLII–376
SPAWN DCLII–377
START/CPU DCLII–382
START/NETWORK DCLII–384
START/QUEUE DCLII–385
START/QUEUE/MANAGER DCLII–397
START/ZONE DCLII–401
STOP DCLII–402
STOP/CPU DCLII–405
STOP/NETWORK DCLII–407
STOP/QUEUE DCLII–408
STOP/QUEUE/ABORT DCLII–409
STOP/QUEUE/ENTRY DCLII–411
STOP/QUEUE/MANAGER/CLUSTER DCLII–413
STOP/QUEUE/NEXT DCLII–414
STOP/QUEUE/REQUEUE DCLII–415
STOP/QUEUE/RESET DCLII–418
STOP/QUEUES/ON_NODE DCLII–420
STOP/ZONE DCLII–423
SUBMIT DCLII–424
SUBROUTINE DCLII–435
SYNCHRONIZE DCLII–436
TYPE DCLII–438
UNLOCK DCLII–445
VIEW DCLII–446

WAIT DCLII–447
WRITE DCLII–449

A Obsolete Commands

Index

Figures

DCLII–1 Running Remote and Local Applications DCLII–117
DCLII–2 Default Characteristics for Terminals DCLII–223

Tables

DCLII–1 SET Command Options DCLII–78
DCLII–2 SET ACCOUNTING Keywords for Resource Types DCLII–81
DCLII–3 SET ACCOUNTING Keywords for Process Types DCLII–82
DCLII–4 SET HOST/DTE Session Commands DCLII–143
DCLII–5 Working Set Default, Extent, and Quota Decision DCLII–198
DCLII–6 SET SECURITY Qualifier Categories DCLII–210
DCLII–7 SHOW Command Options DCLII–247
DCLII–8 Working Set Default, Extent, and Quota Decision DCLII–395
A–1 Obsolete Commands A–1

Preface

Intended Audience

This manual is intended for all users of the OpenVMS 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 *OpenVMS User's Manual*.

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 hard copy of the *OpenVMS DCL Dictionary* is a two-part manual. The first part contains commands beginning with the letters A to M (including the lexical functions). The second part contains commands beginning with the letters N to Z. The Table of Contents and Index are comprehensive: they include both parts. The Bookreader copy of the *OpenVMS DCL Dictionary* is one manual.

Appendix A lists the obsolete DCL commands and the current services that replace them.

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

Related Documents

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

The *OpenVMS User's Manual* provides an overview of DCL command language concepts and defines and illustrates good practices in constructing command procedures with DCL commands and lexical functions.

See the various utilities reference manuals for detailed information on 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. The *OpenVMS DCL Dictionary* only provides a brief description and format information of each utility.

For message descriptions, use the online Help Message utility or refer to the OpenVMS system messages documentation.

Reader's Comments

Digital welcomes your comments on this manual.

Print or edit the online form SYS$HELP:OPENVMSDOC_COMMENTS.TXT and send us your comments by:

Internet	**openvmsdoc@zko.mts.dec.com**
Fax	603 881-0120, Attention: OpenVMS Documentation, ZK03-4/U08
Mail	OpenVMS Documentation Group, ZKO3-4/U08 110 Spit Brook Rd. Nashua, NH 03062-2698

How To Order Additional Documentation

Use the following table to order additional documentation or information. If you need help deciding which documentation best meets your needs, call 800-DIGITAL (800-344-4825).

Telephone and Direct Mail Orders

Location	Call	Fax	Write
U.S.A.	DECdirect 800–DIGITAL 800–344–4825	Fax: 800–234–2298	Digital Equipment Corporation P.O. Box CS2008 Nashua, NH 03061
Puerto Rico	809–781–0505	Fax: 809–749–8300	Digital Equipment Caribbean, Inc. 3 Digital Plaza, 1st Street, Suite 200 P.O. Box 11038 Metro Office Park San Juan, Puerto Rico 00910–2138
Canada	800–267–6215	Fax: 613–592–1946	Digital Equipment of Canada, Ltd. Box 13000 100 Herzberg Road Kanata, Ontario, Canada K2K 2A6 Attn: DECdirect Sales
International	—	—	Local Digital subsidiary or approved distributor
Internal Orders	DTN: 264–4446 603–884–4446	Fax: 603–884–3960	U.S. Software Supply Business Digital Equipment Corporation 10 Cotton Road Nashua, NH 03063–1260

ZK–7654A–GE

Conventions

The name of the OpenVMS AXP operating system has been changed to OpenVMS Alpha. Any references to OpenVMS AXP or AXP are synonymous with OpenVMS Alpha or Alpha.

The following conventions are used to identify information specific to OpenVMS Alpha or to OpenVMS VAX:

Alpha	The Alpha icon denotes the beginning of information specific to OpenVMS Alpha.
VAX	The VAX icon denotes the beginning of information specific to OpenVMS VAX.
◆	The diamond symbol denotes the end of a section of information specific to OpenVMS Alpha or to OpenVMS VAX.

In this manual, every use of DECwindows and DECwindows Motif refers to DECwindows Motif for OpenVMS software.

The following conventions are also used in this manual:

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 (GOLD) *x*	A sequence such as PF1 *x* indicates that you must first press and release the key labeled PF1 (defined as the GOLD key), then press and release another key or a pointing device button. The GOLD key definition is often mapped to the PF1 key on the keypad. GOLD key sequences can also have a slash (/), dash (–), or underscore (_) as a delimiter in EVE commands.
Return	In examples, a key name enclosed in a box indicates that you press a key on the keyboard. (In text, a key name is not enclosed in a box.)
. . .	Horizontal ellipsis points in examples indicate 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.
. . .	Vertical ellipsis points indicate 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 command format descriptions, parentheses indicate that, if you choose more than one option, you must enclose the choices in parentheses.

[ ]	In command format descriptions, brackets indicate optional elements. You can choose one, none, or all of the options. (Brackets are not optional, however, in the syntax of a directory name in an OpenVMS file specification or in the syntax of a substring specification in an assignment statement.)
{ }	In command format descriptions, braces indicate a required choice of options; you must choose one of the options listed.
boldface text	Boldface text represents the introduction of a new term or the name of an argument, an attribute, or a reason. Boldface text is also used to show user input in Bookreader versions of the manual.
italic text	Italic text indicates important information, complete titles of manuals, or variables. Italic text also represents information that can vary in system messages (for example, Internal error *number*), command lines (for example, /PRODUCER=*name*), and command parameters in text.
UPPERCASE TEXT	Uppercase text indicates a command, the name of a routine, the name of a file, or the abbreviation for a system privilege.
`Monospace type`	Monospace type indicates code examples and interactive screen displays. In the C programming language, monospace type in text identifies the following elements: keywords, the names of independently compiled external functions and files, syntax summaries, and references to variables or identifiers introduced in an example.
-	A hyphen in code examples indicates that additional arguments to the request are provided on the line that follows.
numbers	All numbers in text are assumed to be decimal unless otherwise noted. Nondecimal radixes—binary, octal, or hexadecimal—are explicitly indicated.

The contents of the display examples for certain commands described in this manual may differ slightly from the actual output provided by these commands on your system. However, when the behavior of a command differs significantly between Alpha and VAX, that behavior is described in text and rendered, as appropriate, in separate examples.

NCS

Invokes the OpenVMS 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 *OpenVMS 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 *OpenVMS User's 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. The asterisk (*) and the percent sign (%) 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 OpenVMS 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.

When you use the OPEN command to create a new file, variable fixed control (VFC) record format is used. Concatenating a file of this record format with a file of another record format might be impossible due to record format incompatibilities. To avoid the VFC format, use the CREATE command to create the file.

When the OPEN command is specified on an existing file, the record type of that file is used.

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 allowed only read 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]

Note

To change your password, use the SET PASSWORD command. For information on this command, see the description of SET 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.

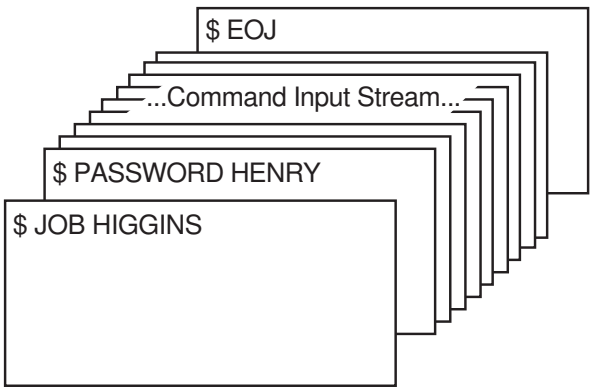
If you are submitting the job from an account with a null password, omit the password specifier on the PASSWORD card.

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 (VAX Only)

VAX

On VAX, 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 *OpenVMS VAX Patch Utility Manual*.

Format

PATCH filespec ♦

PHONE

Invokes the Phone utility, which lets you communicate with other users on your system or any other system connected to your system by DECnet for OpenVMS. For a complete description of the Phone utility, see the *OpenVMS User's Manual*.

Format

PHONE [phone-command]

PRINT

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

Requires read (R) access to the file and submit (S) access to the queue.

The PRINT command accepts the /PARAMETERS qualifier to specify functions unique to printing on PostScript printers with DECprint Supervisor software. Certain parameters are available only if the DCPS-PLUS license has been installed on your system. For information on these additional parameters, see HELP PRINT_Parameter.

Format

PRINT filespec[,...]

Parameter

filespec[,...]
Specifies one or more files to be printed. The asterisk (*) and the percent sign (%) wildcard characters 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 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 *OpenVMS User's 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS Guide to System Security*.

/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 the job's characteristics are 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 (D) access for the life of the job. You need to have delete access when you submit the job and delete access when the system deletes your file at the end of the job.

/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. The asterisk (*) and the percent sign (%) wildcard characters 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 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(=value...)[,...])
Specifies parameters and their values to be passed to the job; each parameter can contain from 1 to 8 values and 255 characters. If you specify only one parameter or parameter value, you can omit the parentheses. Enclose parameter values containing lowercase letters or nonalphanumeric characters (including spaces) in quotation marks.

The PRINT command accepts the /PARAMETERS qualifier to specify functions unique to printing on PostScript printers with DECprint Supervisor software. Certain parameters are available only if the DCPS-PLUS license has been installed on your system.

For complete information on these additional parameters, see HELP PRINT_ Parameter.

/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 queue's maximum scheduling priority.

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 system parameter DEFQUEPRI. No privilege is needed to set the priority lower than the queue's maximum scheduling priority.

/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 the /REMOTE qualifier:

/BACKUP
/BEFORE
/BY_OWNER
/CONFIRM
/CREATED
/EXCLUDE
/EXPIRED
/MODIFIED
/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.

/RETAIN=option

Specifies the circumstances under which you want your jobs to be retained in a queue. When a job is retained in the queue, you can issue the SHOW QUEUE command after the job completes to see the status of the job. Without job retention, no record of a job is left in a queue after a job completes.

Use the following options to specify job retention:

- ALWAYS—-Holds the job in the queue regardless of the job's completion status.
- DEFAULT—-Holds the job in the queue as specified by the queue's retention policy.
- ERROR—-Holds the job in the queue only if the job completes unsuccessfully.
- UNTIL=*time-value*—-Holds the job in the queue for the specified length of time, regardless of the job's completion status.

Note

You cannot specify a /NORETAIN qualifier with the PRINT command (as system managers can with the commands INITIALIZE/QUEUE, START/QUEUE, and SET QUEUE). However, you can specify /RETAIN=DEFAULT with the PRINT command. The default option holds the job in the queue as specified by the queue's retention policy. If the system manager has not specified retention for the queue, the job is not retained.

How Job Retention is Determined

Although you can specify job retention options for your own jobs, the job retention option you specify may be overridden by the job retention option of the queue on which your job executed. If you submit or print a job to a generic queue, the generic queue's job retention setting may also override the job retention option you specify. This section describes how job retention is determined.

An execution queue's job retention setting takes precedence over a generic queue's job retention setting. However, if the job's completion status does not match the job retention setting (if any) on the execution queue, then the generic queue's job retention setting attempts to control job retention. If the job's completion status does not match the job retention setting (if any) on the generic queue, then the user-specified job retention setting is used. Jobs submitted directly to execution queues are not affected by job retention settings on generic queues.

If the execution queue's retention setting applies, the job is retained on the execution queue. Likewise, if the generic queue's retention setting applies, the job is retained on the generic queue. If the user-specified setting applies, the job is retained in the queue to which it was submitted.

The following example illustrates how the queue manager determines job retention:

Suppose you submit a job to a generic queue and specify /RETAIN=ALWAYS, and the job completes successfully.

First, the queue manager compares the job's completion status to the execution queue's retention setting. Suppose the queue is set with /RETAIN=ERROR (retains only jobs that complete unsuccessfully). The job is not retained in the execution queue because the error condition was not met.

The queue manager then compares the job's completion status to the generic queue's retention setting. Suppose the generic queue has no retention setting. The queue manager's comparison again fails to retain the job.

Finally, the queue manager compares the job's completion status to the retention setting you specified for the job. This comparison reveals that the job should be retained. Because the user-specified setting leads the queue manager to retain the job, the job is held in the queue to which the job was submitted—in this case, the generic queue.

For more information on types of queues, see the INITIALIZE/QUEUE command. For more information on setting retention options for queues, see the INITIALIZE /QUEUE, START/QUEUE, or SET QUEUE command.

Timed Retention

Timed retention, which you specify using the UNTIL=*time-value* option, allows you to retain a job in the queue only as long as you need it. This eliminates the need to delete the job from the queue later.

For example, the following command retains the print job MYFILE in the queue until 7:31 on December 14, when the job will automatically be deleted from the queue.

```
$ PRINT/RETAIN=UNTIL=14-DEC-1994:07:31:0.0 MYFILE.DAT
```

However, depending on the queue's job retention policy, the job might be retained indefinitely. The job retention policy set on the queue takes precedence over the user-specified job retention setting. Because system managers cannot specify timed job retention for a queue, any jobs retained as a result of a queue's setting are retained indefinitely.

If you specify the /RETAIN=UNTIL=*time-value* option, you must supply a time value. The time value is first interpreted as a delta time, then as a combination time, and finally as absolute time. If you specify a delta time, the delta begins when the job completes. For example, if you specify PRINT /RETAIN=UNTIL="+3:00", the job will be retained for three hours after the job completes. For information on specifying time values, see the *OpenVMS User's Manual*.

/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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 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 14-DEC-1994 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  THETA.TXT + BETA/FLAG + GAMMA/FLAG + *.LIS/FLAG
  Job THETA (queue SYS$PRINT, entry 237) pending
```

   The PRINT command in this example submits the files THETA.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   THETA.TXT/COPIES=2, -
_$BETA.DOC/COPIES=3
Job THETA (queue SYS$PRINT, entry 240) pending
```

   The print job queued by the PRINT command in this example consists of two copies of THETA.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   THETA.TXT,BETA/NOIDENTIFY
```

The PRINT command in this example concatenates the files THETA.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 NODE3::
$ PRINT/REMOTE NODE3::REPORT.MEM
```

In this example, the two commands are entered at a node other than NODE3. The COPY command copies the file REPORT.MEM from the current node to the NODE3 node. The PRINT command queues the file REPORT.MEM located on the NODE3 node for printing at the NODE3 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'
Entry     Jobname     Username     Blocks    Status
-----     -------     --------     ------    ------
  867     TEST.TXT    Gibbons         135    Printing
          Submitted  10-DEC-1994 11:07 /FORM=DEFAULT /PRIORITY=100
          File: $5$DUA174:[GIBBONS]TEST.TXT;3
```

The PRINT command in this system 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.

8.
```
$ PRINT/RETAIN=UNTIL=1 MYFILE.DAT
   .
   .
   .
$ SHOW QUEUE DOC$LN03
Server queue DOC$LN03, stopped, on NEWTON::, mounted form DEFAULT
Entry    Jobname     Username    Blocks  Status
-----    -------     --------    ------  ------
  436    MYFILE      HERSHEY          8  Retained until 11-DEC-1994 16:56
      %JBC-F-JOBABORT, job aborted during execution
        Completed  11-DEC-1994 15:56 on queue DOC$LN03
```

The SHOW QUEUE display in this system example includes the date and time at which a retained job completed and the queue on which it executed. The user set job retention to be one hour after job completion. Depending on the queue's job retention policy, the job might be deleted from the queue at 16:56.

PRODUCT

Invokes the POLYCENTER Software Installation utility to do one of the following:

- Install one or more software products.
- Remove one or more software products.
- Perform other related operations.

For a complete description of POLYCENTER Software Installation utility and the use of the PRODUCT command, see the *OpenVMS System Manager's Manual* and the *OpenVMS System Management Utilities Reference Manual*.

Format

PRODUCT [subcommand product-name [/qualifiers]]

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, see the Display PostScript documentation.

Format

PSWRAP filespec

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 (+). The asterisk (*) and the percent sign (%) wildcard characters 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS Guide to System Security*.

/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. The asterisk (*) and the percent sign (%) wildcard characters 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 OpenVMS Record Management Services (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 most recent /INDEX qualifier value is used. If a previous value was not specified, the primary index is used (/INDEX=0).

/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 up to 254 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. You cannot use any of the qualifiers in conjunction with a command-specifier.

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 254 (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. You can use continuation characters with the commands to be recalled, but only 255 characters can be read at a time.

The recall buffer can hold up to 254 commands. The size of the recall buffer is 4Kb, which will store approximately 80 commands at 48 characters each.

If the length of stored commands makes it necessary, one or more of the oldest commands will be removed from the recall buffer to make room for the most recent command.

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. Do not use the /ALL qualifier with the other RECALL qualifiers.

Note

The RECALL command is never stored in the recall buffer.

/ERASE
Erases the contents of the recall buffer.

/INPUT=filespec
Causes each line of the input file to be added to the recall buffer. If a file type is not specified with the file name, .LIS is the default. The file specification cannot include the asterisk (*) and the percent sign (%) wildcard characters.

If the /ERASE qualifier is also specified, the contents of the recall buffer are erased before the contents of the specified file are read into the recall buffer.

The /INPUT qualifier is incompatible with the /ALL and /PAGE qualifiers.

/OUTPUT=filespec
Specifies the name of the output file where the contents of the recall buffer are written. If you do not specify a file type, the default is .LIS. The file specification cannot include the asterisk (*) and the percent sign (%) wildcard characters.

If the /ERASE qualifier is also specified, the contents of the recall buffer are erased after the contents of the recall buffer are written to the specified file.

The /OUTPUT qualifier is incompatible with the /ALL and /PAGE qualifiers.

/PAGE
/NOPAGE (default)
Displays all the commands (and their numbers) available for recall one screen at a time. The /NOPAGE qualifier produces the same output as the /ALL qualifier. You can cancel the output display by pressing Ctrl/Z.

The /PAGE qualifier is incompatible with the /INPUT and /OUTPUT qualifiers.

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.

3.
```
$ TYPE COMMANDS.LIS
DIRECTORY
RUN AUTHORIZE
SET PROCESS/PRIVILEGES=ALL
$ RECALL/INPUT=COMMANDS.LIS
$ RECALL/ALL
  1 SET PROCESS/PRIVILEGES=ALL
  2 RUN AUTHORIZE
  3 DIRECTORY
  4 TYPE COMMANDS.LIS
```

This example shows the contents of the COMMANDS.LIS file with the TYPE command, then uses the RECALL/INPUT=COMMANDS.LIS command to place the commands into the recall buffer. Issuing the RECALL/ALL command subsequently shows the numbered display of commands in the recall buffer.

4.
```
$ RECALL/OUTPUT=NEW_COMMANDS.LIS
$ TYPE NEW_COMMANDS.LIS
TYPE COMMANDS.LIS
DIRECTORY
RUN AUTHORIZE
SET PROCESS/PRIVILEGES=ALL
```

This example places the contents of the recall buffer (see the previous example) into the NEW_COMMANDS.LIS file. Note that they are not numbered and in the reverse sequence of the RECALL/ALL command output.

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. The asterisk (*) and the percent sign (%) wildcard characters 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 the asterisk (*) and the percent sign (%) wildcard characters. 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 an asterisk (*) or a percent sign (%) wildcard character as the version number, the version number of the input file is used.
- If the input file specification contains an asterisk (*) or a percent sign (%) wildcard character 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS Guide to System Security*.

/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. The asterisk (*) and the percent sign (%) wildcard characters 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.

/INHERIT_SECURITY
/NOINHERIT_SECURITY (default)
Controls whether the security profile (UIC, protection code, and ACL) of the renamed file is altered. If you specify /INHERIT_SECURITY, a new security profile is generated, as if a new file had been created with the new file and directory names. See the *OpenVMS Guide to System Security* or online help (Hints topic) for a description of how a profile is assigned.

/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. The asterisk (*) and the percent sign (%) wildcard characters 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 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 the asterisk (*) wildcard character 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 511 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 OpenVMS system or VMScluster. 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 cluster.

The /USERNAME qualifier sends a message to terminals at which one or more system or cluster 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, 14-DEC-1994 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 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, 14-DEC-1994 10:22:19.75, operator status for operator OPA0
CENTRAL, PRINTER, TAPES, DISKS, DEVICES, CARDS, NETWORK, CLUSTER, LICENSE,
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, 14-DEC-1994 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, 14-DEC-1994 10:04:00.18, operator enabled, operator OPA0
$
%OPCOM, 14-DEC-1994 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, 14-DEC-1994 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 14-DEC-1994 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 cluster. 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 manager (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.
LICENSE	Inhibits messages pertaining to software licenses.
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.
LICENSE	Diplays messages pertaining to software licenses.
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 cluster 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 VMScluster), 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 cluster, 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 for OpenVMS is installed) the node name. The bell sounds at the terminal as the message is displayed.

2.
```
$ REPLY/ENABLE=DISKS
%OPCOM, 14-DEC-1994, 10:17:09.02, operator enabled, operator OPA0
$
%OPCOM, 14-DEC-1994 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, 14-DEC-1994 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
14-DEC-1994 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, 14-DEC-1994 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 logical name specified by the user in the MOUNT command is defined with an equivalence name of DUA4 rather than the drive originally specified.

5.
```
$ REPLY/STATUS
%OPCOM, 14-DEC-1994 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 displays, a bell rings at that terminal.

7.
```
$ REPLY/ENABLE
%OPCOM, 14-DEC-1994 10:22:19.75, operator status for operator OPA0
CENTRAL, PRINTER, TAPES, DISKS, DEVICES, CARDS, NETWORK, CLUSTER,
LICENSE, OPER11, OPER12

   .
   .
   .
$ REPLY/DISABLE=(PRINTER, TAPES)
%OPCOM, 14-DEC-1994 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
 14-DEC-1994 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
  14-DEC-1994 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. The asterisk (*) and the percent sign (%) 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.

For a complete description of the OpenVMS Debugger, see the *OpenVMS Debugger Manual*.

To get help on debugger commands from DCL level, type the following command:

```
$ HELP/LIBRARY=SYS$HELP:DBG$HELP
```

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.EXE 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 or the /DETACHED 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. The asterisk (*) and the percent sign (%) 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 or the /DETACHED 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.

If the detached process terminates unexpectedly and you want to find out why, you can use the Accounting utility to display the final exit status of the process. For more information, see the *OpenVMS System Management Utilities Reference Manual*.

Both the /DETACHED and the /UIC qualifiers request the RUN command to create a detached process. You must have the user privilege DETACH or CMKRNL to create a detached process with a different UIC. When you create a detached process, the resource quotas are established as follows:

- If you do not specify a value for a particular quota, that quota is given the value of the corresponding PQL_D* (default) system parameter.
- If you specify a value for a particular quota, that value is compared with the quotas for the creator process (maximum) and the system parameters PQL_M* (minimum). If the value you specify is within the allowed range, it is used for the new process. If you specify a value greater than the creator process's quota, the creator process's quota is used. If the specified value is less than the corresponding system parameter, the system parameter value is substituted.

However, if you have the DETACH or CMKRNL 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

Qualifier	Quota
/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 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 use the /NOACCOUNTING qualifier.

The /NOACCOUNTING qualifier stops the current accounting file tracking the resources used by the created process.

The /ACCOUNTING qualifier (the default) has no effect.

/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.

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.

When you specify the /AUTHORIZE qualifier, quotas are derived from the user authorization file (UAF) record of the process' owner. Any qualifiers to the RUN command that specify other quotas are ignored in favor of the UAF quotas.

When you specify the /NOAUTHORIZE qualifier, quotas are derived from the system parameters that set process quota default limits (parameters prefixed with PQL_D).

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.

/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.

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 *OpenVMS User's 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, resource quotas for the detached process are limited by the quotas of the creator process (maximum) and the system parameters PQL_M* (minimum). The DETACH or CMKRNL privilege allows you to specify any quotas for the detached process that exceed the normal range. Unless you have the DETACH or CMKRNL 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.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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.

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 *OpenVMS User's 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.

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.

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 (up to 64K pages) 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.

The maximum working set quota is nondeductible.

/ON=node_name

Specifies a VMScluster node on which a detached process is to be created. Quotas are determined by comparing the values you specify with the RUN command with the quotas of the creator process (maximum) and the PQL_M* system parameters on the target node (minimum). To specify quotas outside that range, you must have DETACH or CMKRNL privilege. Omitted quota values default to the values of the PQL_D* system parameters on the target node.

The qualifier value *node_name* is a 1- to 6-character string containing the SCS node name of the requested node.

For example, to create a process named BAR on node FOO that runs MY_PROG.EXE, enter the following command:

```
$ RUN $10$DKB100:[SMITH]MY_PROG.EXE /DETACH /ON="FOO"/PROCESS_NAME="BAR"
```

Note that the disk containing the image must be mounted on the specified node. Because the disk might not be mounted on the node on which the command is entered, the RUN command processor does not check whether the image exists. Consequently, the command can complete without error even though the created process aborts immediately because the image file cannot be found.

/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. 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.

Alpha

On Alpha, the value of parameter *n* is a decimal 0 to 63, where 63 is the highest priority and zero is the lowest. Normal priorities range from 0 to 15; real-time priorities range from 16 to 63.♦

VAX

On VAX, the value of parameter *n* is a decimal 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 *OpenVMS Guide to System Security*.

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

/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.

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 *OpenVMS User's 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.

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 *OpenVMS User's Manual*.

/TRUSTED
Specifies that the created process is part of the Trusted Computing Base (TCB) and performs its own auditing. The /DETACH qualifier is required as well as the DETACH privilege.

/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 *OpenVMS Guide to System Security*.

/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.

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 more information about the RUNOFF, RUNOFF/CONTENTS, and RUNOFF /INDEX commands and a description of the DSR formatter, see the *OpenVMS User's Manual* and the *OpenVMS DIGITAL Standard Runoff Reference Manual*.

Format

RUNOFF filespec[,...]

SEARCH

Searches one or more files for the specified strings and displays the 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 (,).

You can use the asterisk (*) and the percent sign (%) wildcard characters 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User’s 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 *OpenVMS User's 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. The asterisk (*) and the percent sign (%) wildcard characters 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 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 the asterisk (*) and the percent sign (%) wildcard characters are used.

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

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)

You can use one of the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting on ANSI video terminals with advanced video; REVERSE is the default highlighting on ANSI video terminals without advanced video.

For hardcopy printing, you can use the HARDCOPY=OVERSTRIKE and HARDCOPY=UNDERLINE keywords. This specifies that the strings should be highlighted in a manner suitable for most hardcopy printers. 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.

/KEY=(POSITION=n,SIZE=m)
Searches the records of a file (beginning at the specified position) for the length of the specified size.

You can specify the POSITION keyword value as 1 to 32,767. The first byte in a record is considered position 1.

/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.
EQV	A match occurs if none or all of the search strings are in the record.
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.
XOR	A match occurs if any of the search strings are in the record but not if all or none of them are in the record.

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. If you specify none of these options, the default is /MATCH=OR.

/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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Displays information one page at a time.
SCROLL	Displays information on a continuous stream.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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

/WARNINGS (default)
/NOWARNINGS
Allows or disallows the following messages to be displayed when search operations are performed:

NOMATCHES
TRUNCATE
NULLFILE

/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 30 asterisks to separate each window within a file.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

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 DCLII–1 lists all the SET command options, including those generally reserved for use by system operators and managers.

Table DCLII–1 SET Command Options

Option	Function
ACCOUNTING	Controls the current accounting file.
AUDIT	Provides the management interface to the security auditing system.
BROADCAST	Determines which messages will be broadcast to SYS$OUTPUT.
CARD_READER	Defines the default ASCII translation mode for a card reader.
CLUSTER/EXPECTED_ VOTES	Sets the total expected votes in the VMScluster to a value that you specify or, if no value is specified, sets the total votes to a value determined by the system
COMMAND	Adds commands that are defined in a command description file to your process command set or a command tables file.
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 VMScluster.
DIRECTORY	Modifies the characteristics of one or more directories.
DISPLAY	Redirects the output of a DECwindows application.
ENTRY	Changes the current status or attributes of a job not currently executing in a queue.

(continued on next page)

Table DCLII–1 (Cont.) SET Command Options

Option	Function
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.
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.
HOST/RLOGIN	Allows you to log in to a remote host over a TCP/IP connection and start an interactive terminal session by accessing the RLOGIN application.
HOST/TELNET	Connects you to a remote host over a TCP/IP connection by invoking the TELNET application.
HOST/TN3270	Connects you to a remote IBM host over a TCP/IP connection, causing the local keyboard to emulate an IBM 3279-class terminal keyboard by invoking the TN3270 terminal emulator.
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.
NETWORK	Registers the attributes of a network service.
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.
PREFIX	Allows you to set a prefix control string for verified command lines.
PRINTER	Defines printer characteristics.
PROCESS	Defines execution characteristics of the current process.
PROMPT	Defines the DCL prompt.

(continued on next page)

Table DCLII–1 (Cont.) SET Command Options

Option	Function
PROTECTION/DEFAULT	Establishes the default protection to be applied to all files subsequently created.
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.
SECURITY	Modifies the security profile of an object.
SERVER (VAX Only)	On VAX, controls starting, stopping, and restarting of the security server. The security server maintains information stored in the system intrusion and proxy databases.
SYMBOL	Controls access to local and global symbols in command procedures.
TERMINAL	Defines terminal characteristics.
TIME	Resets the system clock to the specified value.
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

Controls the current accounting file.

Requires OPER (operator) privilege.

Format

SET ACCOUNTING

Parameters

None.

Description

Each node on your system has its own current accounting file. You can control what resources this file tracks, and start up a new version of this file using the SET ACCOUNTING command.

There are two occasions when the resources used by a process are not tracked, despite the SET ACCOUNTING command:

- When you use the RUN (Process) command with the /NOACCOUNTING qualifier.
- When you use the $CREPRC system service with the PRC$M_NOACNT status flag.

Similarly, there is one occasion when the resources used by an image are always tracked, despite the SET ACCOUNTING command:

- When you install an image using the /ACCOUNTING qualifier of the Install utility.

For more information on how to use the SET ACCOUNTING command see the *OpenVMS System Manager's Manual*.

Qualifiers

/DISABLE[=(keyword[,...])]
Prevents the tracking of the resources specified by the keywords.

Table DCLII–2 lists the keywords you can use to specify the type of resource.

Table DCLII–2 SET ACCOUNTING Keywords for Resource Types

Keyword	Type of Resource
IMAGE	Resources used by an image
LOGIN_FAILURE	Resources used by an unsuccessful attempt to log in
MESSAGE	(Unformatted resource record written to the accounting file by a call to the $SNDJBC system service)
PRINT	Resources used by a print job

(continued on next page)

Table DCLII–2 (Cont.) SET ACCOUNTING Keywords for Resource Types

Keyword	Type of Resource
PROCESS	Resources used by a process

You do not need to stop the tracking of all processes and images. You can prevent resources being tracked for specific types of process and for images running in these types of process.

Table DCLII–3 lists the keywords you can use to specify the type of process.

Table DCLII–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 (the parent process can be a batch, detached, network, or interactive process)

If the system is no longer tracking any resources, /DISABLE closes the current accounting file.

If you use the /DISABLE qualifier and omit the keywords, the current accounting file does not track any resources, and the system closes the file.

/ENABLE[=(keyword[,...])]
Tells the system which resources to track.

The keywords are the same as those used by /DISABLE.

Note that the keywords shown in Table DCLII–3 are ignored unless you specify IMAGE or PROCESS to track the resources used by images or processes.

If the system is not already tracking any resources, /ENABLE opens the current accounting file.

If you use the /ENABLE qualifier and omit the keywords, the current accounting file tracks all possible resources.

/LOG
Writes information to the current SYS$OUTPUT device as the command executes.

/NEW_FILE
Closes the current accounting file, and starts up a new version of it.

The name of the new file depends on whether the logical name ACCOUNTNG is defined in your system logical name table.

If this logical name is not defined, the SET ACCOUNTING command opens the file SYS$MANAGER:ACCOUNTNG.DAT.

If this logical name is defined, the command opens the file that this logical name points to. If you omit the directory, SYS$MANAGER is the default, and if you omit the file type, .DAT is the default.

The /NEW_FILE qualifier writes a file forward link record to the old file, and a file backward link record to the new file. These records contain the names of the old and new files respectively.

Examples

1.
```
$ SET ACCOUNTING /DISABLE /ENABLE=(PROCESS,BATCH,INTERACTIVE)
$ SET ACCOUNTING /ENABLE=IMAGE
```

   This example tells the system to track the resources used only by batch and interactive processes, and by images running in batch and interactive processes. It illustrates the cumulative effect of /ENABLE and /DISABLE qualifiers, and of SET ACCOUNTING commands.

   The /DISABLE qualifier prevents the tracking of all resources. The /ENABLE qualifier then tells the system to track the resources used by batch and interactive processes. The second SET ACCOUNTING command tells the system to track the resources used by images.

2.
```
$ SET ACCOUNTING /NEW_FILE
$ RENAME SYS$MANAGER:ACCOUNTNG.DAT;-1 WEEK_24_RESOURCES.DAT
```

   This example closes the current accounting file, opens a new version of it, and changes the name of the old file to WEEK_24_RESOURCES.DAT.

SET AUDIT

Provides the management interface to the security auditing system.

Requires the SECURITY privilege.

Format

SET AUDIT/qualifier

Parameters

None.

Description

The SET AUDIT command and the SHOW AUDIT command provide the management interface to the security auditing system.

The SET AUDIT command enables or disables security auditing. In addition, you use the command to do the following:

- Select categories of events to audit
- Change the operational characteristics of the audit server
- Establish the location of the audit journal and the security archive file
- Control the monitoring of disk resources

Values set by the command are saved so it is unnecessary to set them each time the system starts up. Commands for event definition, resource monitoring, and starting a new log apply clusterwide, while other commands apply only to the local node.

Security auditing features require a certain amount of system overhead. Therefore, you should be careful to select the features that will provide the most benefit in your work environment. Enable only the auditing of information that you know you will examine and analyze regularly. Any other collection of data is likely to be wasteful. For further information about auditing, see the *OpenVMS Guide to System Security*.

There are five categories of qualifiers, grouped by task, for the SET AUDIT command:

Task	Qualifiers	Requirements
Define auditing events	/AUDIT, /ALARM, /CLASS, /ENABLE, /DISABLE	Specify whether you are defining alarms (/ALARM), audits (/AUDIT), or both. Also specify whether you are enabling (/ENABLE) or disabling (/DISABLE) the reporting of the event.
Define auditing log file	/DESTINATION, /JOURNAL, /VERIFY	Requires both the /DESTINATION and /JOURNAL qualifiers.
Define operational characteristics of the audit server and a listener mailbox (if any)	/INTERVAL, /LISTENER, /SERVER, /VERIFY	None.
Define secondary log file	/ARCHIVE, /DESTINATION, /VERIFY	None.
Define resource monitoring defaults	/BACKLOG, /EXCLUDE, /JOURNAL, /RESOURCE, /THRESHOLD, /VERIFY	With the /RESOURCE or /THRESHOLD qualifier, include the /JOURNAL qualifier.

Qualifiers

/ALARM

Makes the command apply to alarms, which are messages displayed on an operator terminal. See the description of the DCL command REPLY/ENABLE for details on how to enable terminals to display security messages.

/ARCHIVE=[keyword,...]

Specifies which classes of audit event messages are written to the security archive file. Specify one or more of the following keywords:

Keyword	Description
NONE	Disables archiving on the system.
[NO]ALL (default)	Enables or disables archiving of all system security events. By default, no events are archived.
SYSTEM_ALARM	Enables archiving of all security alarm events.

Keyword	Description
SYSTEM_AUDIT	Enables archiving of all security audit events. Archiving should be run on only one node in a VMSclsuter with its own audit server database because multiple nodes will try to open the audit file exclusively.

/AUDIT
Makes the command apply to audits, which are messages recorded in the system security audit log file.

/BACKLOG=[keyword[,...]]
Specifies the thresholds for suspending a process that has exceeded the process message limit. The thresholds include the total number of messages in memory and the number belonging to the particular process. To prevent a process from being suspended, use the /EXCLUDE qualifier. Specify the following keywords:

Keyword	Description
TOTAL=(n1,n2,n3)	Thresholds at which flow control is initiated and accelerated; see description below.
PROCESS=(p1,p2)	Thresholds at which process submissions are controlled.

Total Messages	Default	Process Messages	Default	Action Taken
N1	100	P1	5	When there are 100 messages in memory, the audit server suspends any process that has submitted 5 or more messages until all messages are written to disk.
N2	200	P2	2	When there are 200 messages in memory, the audit server suspends any process that has submitted 2 or more messages until all messages are written to disk.
N3	300			Any process with messages in memory is suspended until all messages are written to disk.

/CLASS=class

Specifies the class of the object whose auditing attributes are to be modified. If /CLASS is not specified, the command assumes the class is FILE. Specify one of the following keywords with the /CLASS qualifier:

CAPABILITY
COMMON_EVENT_CLUSTER
DEVICE
FILE
GROUP_GLOBAL_SECTION
LOGICAL_NAME_TABLE
QUEUE
RESOURCE_DOMAIN
SECURITY_CLASS
SYSTEM_GLOBAL_SECTION
VOLUME

/DESTINATION=filespec

When changing the destination of event messages, specifies the new location of the system security audit log file. The device, if part of the file specification, must be a disk. The /DESTINATION qualifier requires the /JOURNAL qualifier in this case.

Once you have relocated the log file, execute the command SET AUDIT /SERVER=NEW_LOG to let all the nodes in the cluster know of the new location. The previous audit log file is closed and all subsequent audit event messages generated throughout the cluster are sent to the new audit log file.

When used with /ARCHIVE, specifies the name of the archive log file. Events can be archived to a local or remote file on any file-structured disk device. For example, you can use an archive file to redirect event messages from a satellite to a larger node in the cluster.

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

Disables alarms or audits for the specified events. To disable all system events and file access events, specify the keyword ALL. You must specify at least one of the keywords. For a list of the keywords to use with the /DISABLE qualifier, see the /ENABLE qualifier description. You must also specify either the /ALARM or /AUDIT qualifier, or both, when you use the /DISABLE qualifier.

In processing the SET AUDIT command, the system processes the /DISABLE qualifier last. If you specify both the /ENABLE and /DISABLE qualifiers in the same command line, the /DISABLE qualifier prevails.

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

Enables alarms or audits for the specified events. To enable all system events and file access events, specify the keyword ALL. You must specify at least one keyword. You must also specify either the /ALARM or /AUDIT qualifier, or both, when you use the /ENABLE qualifier.

The keywords that you can specify with either the /ENABLE or the /DISABLE qualifier are as follows:

Keyword	Description
ACCESS=(condition [:access[,...]] [,...])	Specifies access events for all objects in a class. (To audit a single object, use an auditing ACE and enable the access control list (ACL) category.) Digital recommends that when you enable auditing conditionally, you enable it for all possible forms of access since the system can check access rights at several points during an operation. (For example, a FAILURE might occur on a read or write access check.) **Condition Keyword — Description** ALL — All object access BYPASS — Successful object access due to the use of the BYPASS privilege FAILURE — Unsuccessful object access GRPPRV — Successful object access due to the use of the group privilege (GRPPRV) READALL — Successful object access due to the use of the READALL privilege SUCCESS — Successful object access SYSPRV — Successful object access due to the use of the system privilege (SYSPRV) **Access Keyword — Description** ALL — All types of access ASSOCIATE — Associate access CONTROL — Control access to examine or change security characteristics CREATE — Create access DELETE — Delete access EXECUTE — Execute access LOCK — Lock access LOGICAL — Logical I/O access MANAGE — Manage access PHYSICAL — Physical I/O access READ — Read access SUBMIT — Submit access WRITE — Write access

Keyword	Description
ACL	Specifies an event requested by an audit or alarm ACE in the access control list (ACL) of an object. To audit all objects of a class, use the ACCESS keyword.
ALL	Specifies all system events and file access events. It does not enable access events for object classes other than FILE.
AUDIT=keyword	Specifies events within the auditing subsystem. Only one keyword is currently defined.

Keyword	Description
ILLFORMED	Specifies illformed events from internal calls (identified by NSA$M_INTERNAL) to $AUDIT_EVENT, $CHECK_PRIVILEGE, $CHKPRO, or $CHECK_ACCESS system services. An illformed event is caused by an incomplete or syntactically incorrect argument being supplied to one of these system services by a piece of privileged code.

AUTHORIZATION	Specifies the modification of any portion of the system user authorization file (SYSUAF), network proxy authorization file (NETPROXY), or the rights list (RIGHTLIST) (including password changes made through the AUTHORIZE, SET PASSWORD, or LOGINOUT commands or the $SETUAI system service).
BREAKIN=(keyword[,...])	Specifies the occurrence of one or more classes of break-in attempts, as specified by one or more of the following keywords: ALL DETACHED DIALUP LOCAL NETWORK REMOTE
CONNECTION	Specifies a logical link connection or termination through DECnet Phase IV, DECwindows, $IPC, or SYSMAN.

Keyword	Description
CREATE	Specifies the creation of an object. Requires the /CLASS qualifier if it is not a file.
DEACCESS	Specifies deaccess from an object. Requires the /CLASS qualifier if it is not a file.
DELETE	Specifies the deletion of an object. Requires the /CLASS=DEVICE qualifier.
IDENTIFIER	Specifies that the use of identifiers as privileges should be audited. For further information, see the *OpenVMS Guide to System Security*.
INSTALL	Specifies modifications made to the known file list through the INSTALL utility.
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 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. See the LOGFAILURE keyword for further description. ALL, BATCH, DETACHED, DIALUP, LOCAL, NETWORK, REMOTE, SUBPROCESS

Keyword	Description
LOGOUT= (keyword[,...])	Specifies the occurrence of one or more classes of logouts, as specified by the following keywords. See the LOGFAILURE keyword for further description. ALL — BATCH DETACHED — DIALUP LOCAL — NETWORK REMOTE — SUBPROCESS
MOUNT	Specifies a mount or dismount operation.
NCP	Specifies access to the network configuration database, using the network control program (NCP).
PRIVILEGE= (keyword[,...])	Specifies successful or unsuccessful use of privilege, as specified by the following keywords: FAILURE [:privilege(,...)] — Unsuccessful use of privilege SUCCESS [:privilege(,...)] — Successful use of privilege For a listing of privileges, see online help for the DCL command SET PROCESS/PRIVILEGES.
PROCESS= (keyword[,...])	Specifies the use of one or more of the process control system services, as specified by the following keywords: ALL — Use of any of the process control system services CREPRC — All use of $CREPRC DELPRC — All use of $DELPRC SCHDWK — Privileged use of $SCHDWK CANWAK — Privileged use of $CANWAK WAKE — Privileged use of $WAKE SUSPND — Privileged use of $SUSPND RESUME — Privileged use of $RESUME GRANTID — Privileged use of $GRANTID REVOKID — Privileged use of $REVOKID GETJPI — Privileged use of $GETJPI FORCEX — Privileged use of $FORCEX SETPRI — Privileged use of $SETPRI Privileged use of a process control system service means the caller used GROUP or WORLD privilege to affect the target process.

Keyword	Description
SYSGEN	Specifies the modification of a system parameter with the OpenVMS System Generation utility.
TIME	Specifies the modification of system time.

/EXCLUDE=process-id
/NOEXCLUDE=process-id

Adds a process identification (PID) to the audit server's process exclusion list. The process exclusion list contains those processes that will not be suspended by the audit server if a resource exhaustion reaches the action threshold. By default, realtime processes and all of the following processes are included in the process exclusion list and are never suspended:

CACHE_SERVER
CLUSTER_SERVER
CONFIGURE
DFS$COM_ACP
DNS$ADVER
IPCACP
JOB_CONTROL
NETACP
NET$ACP
OPCOM
REMACP
SHADOW_SERVER
SMISERVER
SWAPPER
TP_SERVER
VWS$DISPLAYMGR
VWS$EMULATORS

Use the SET AUDIT/NOEXCLUDE command to remove a process from the process exclusion list; however, processes listed above cannot be removed from the exclusion list. Also note that PIDs are not automatically removed from the process exclusion list when processes log out of the system.

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

Specifies the delta times to be used for regular audit server operations. For information about specifying delta times, see the *OpenVMS User's Manual*. The following table describes keywords for the /INTERVAL qualifier.

Keyword	Description
ARCHIVE_FLUSH=time	Specifies the interval at which data collected by the audit server is written to the archive file. The default is 1 minute.
JOURNAL_FLUSH=time	Specifies the interval at which data collected by the audit server is written to the audit log file. The default is 5 minutes.

Keyword	Description
RESOURCE_ MONITOR=time	Specifies the interval at which the audit server retries log file allocation or access. This interval applies whenever free space in the log file is below either the warning or action thresholds, or when the volume holding the log file is inaccessible. The default interval is 5 minutes.
RESUME_SCAN=time	Specifies the interval at which the audit server reviews an existing resource exhaustion condition. The default is 15 minutes.

/JOURNAL[=journal-name]
Specifies the name of the audit journal; the name defaults to SECURITY. (Currently, there is only one journal.)

The /JOURNAL qualifier is required when redefining the audit log file or when specifying resource monitoring characteristics with the /RESOURCE or the /THRESHOLD qualifier.

/LISTENER=device
/NOLISTENER
Specifies the name of a mailbox device to which the audit server sends a binary copy of all security audit event messages. Users can create such a mailbox to process system security events as they occur. For a description of the message formats written to the listener mailbox, see the Audit Analysis Utility documentation in the *OpenVMS System Management Utilities Reference Manual*.

Use the SET AUDIT/NOLISTENER command to disable a listener device.

/RESOURCE=keyword[,...]
Enables or disables the monitoring of disk volumes to ensure adequate space for audit journal entries; it also specifies the monitoring method to use. The /JOURNAL qualifier is required. For more information about resource monitoring, see the *OpenVMS Guide to System Security*.

Keyword	Description
DISABLE	Disables monitoring on the disk volume containing the audit journal.
ENABLE	Enables resource monitoring on the disk volume containing the audit journal.

/SERVER=keyword[,...]
Modifies audit server characteristics. The following table describes keywords for the /SERVER qualifier:

Keyword	Description
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.

Keyword	Description
FINAL_ACTION=action	Specifies the action the audit server should take when it runs out of memory and cannot buffer messages. (For more information, see the discussion of message flow control in the *OpenVMS Guide to System Security*.) Specify one of the following actions: CRASH — Crash the system if the audit server runs out of memory. IGNORE_NEW — Ignore new event messages until memory is available. New event messages are lost but event messages in memory are saved. PURGE_OLD (default) — Remove old event messages until memory is available for the most current messages.
FLUSH	Copies all buffered audit and archive records to the security audit log file and security archive file, respectively.
INITIATE	Enables auditing during system startup. Ordinarily, auditing is started from VMS$LPBEGIN in STARTUP.COM but, if a site redefines the logical name SYS$AUDIT_SERVER_INHIBIT, the OpenVMS system waits for a SET AUDIT/SERVER=INITIATE command before enabling auditing.
NEW_LOG	Creates a new clusterwide audit log file. Typically, this is used daily to generate a new version of the audit log file.
RESUME	Requests the audit server process to resume normal activity on the system, if adequate disk space is available. Normally, once the 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. In order to fully enable the auditing subsystem, the SET AUDIT/SERVER=INITIATE command must be used after the SET AUDIT/SERVER=START command has completed. Digital recommends using the following command procedure to start the Audit Server: `SYS$SYSTEM:STARTUP AUDIT_SERVER`

/THRESHOLD=type=value

Specifies threshold values used in monitoring available space in the audit log file. The auditing system issues advisory messages to central and security operators whenever free space in the audit log file falls below the WARNING threshold. The auditing system suspends processes which generate audit events when free disk space is below the action threshold. (See /RESOURCE=[enable|disable]). The /JOURNAL qualifier is required.

The following table lists the types of thresholds:

Keyword	Description
WARNING=value	Specifies the threshold at which the audit server notifies all security operator terminals that resources are getting low.
ACTION=value	Specifies the threshold at which the audit server starts suspending processes that are generating audit records. (Certain processes are immune to this: see *OpenVMS Guide to System Security*).

The following table lists the default warning and action values for each monitoring mode.

Mode	Warning	Action
Blocks	100	25
Delta time	2 0:00:00	0 0:30:00

/VERIFY

Do not return the dollar sign ($) prompt until the audit server completes the command. Associated qualifiers determine which of the following actions occur:

- Redefinition of auditing events
- Redefinition of the audit log file or the archive file
- Modification of the audit server's operational characteristics
- Modification of resource monitoring attributes

If you do not want to wait for the command to complete, specify /NOVERIFY.

Examples

1.
```
$ SET AUDIT/AUDIT/ENABLE= -
_$ (CREATE,ACCESS=(SYSPRV,BYPASS),DEACCESS)/CLASS=FILE
$ SHOW AUDIT/AUDIT
System security audits currently enabled for:

   .
   .
   .
  FILE access:
    Failure:     read,write,execute,delete,control
    SYSPRV:      read,write,execute,delete,control
    BYPASS:      read,write,execute,delete,control
    Other:       create,deaccess
```

The SET AUDIT command in this example enables auditing of file creation and file deaccess; it also enables auditing for any file access done by using either SYSPRV or BYPASS privilege.

2.
```
$ SET AUDIT/JOURNAL=SECURITY/DESTINATION=AUDIT$:[AUDIT]TURIN
$ SET AUDIT/SERVER=NEW
$ SHOW AUDIT/JOURNAL
List of audit journals:
  Journal name:           SECURITY
  Journal owner:          (system audit journal)
  Destination:            AUDIT$:[AUDIT]TURIN.AUDIT$JOURNAL
```

The SET AUDIT commands in this example demonstrates how to switch to a new journal.

3.
```
$ SET AUDIT/SERVER=FINAL=CRASH
$ SHOW AUDIT/SERVER
Security auditing server characteristics:
  Database version:       4.4
  Backlog (total):        100, 200, 300
  Backlog (process):      5, 2
  Server processing intervals:
    Archive flush:        0 00:01:00.00
    Journal flush:        0 00:05:00.00
    Resource scan:        0 00:05:00.00
  Final resource action:  crash system
```

The SET AUDIT command in this example changes the audit server's final action setting so the system crashes when the audit server runs out of memory.

4.
```
$ SET AUDIT/ARCHIVE/DESTINATION=SYS$SPECIFIC:[SYSMGR]TURIN-ARCHIVE
$ SHOW AUDIT/ARCHIVE
Security archiving information:
  Archiving events:     system audits
  Archive destination:  SYS$SPECIFIC:[SYSMGR]TURIN-ARCHIVE.AUDIT$JOURNAL
```

The SET AUDIT command in this example enables a node-specific archive file.

5.
```
$ SET AUDIT/JOURNAL/RESOURCE=ENABLE
$ SHOW AUDIT/JOURNAL
List of audit journals:
  Journal name:           SECURITY
  Journal owner:          (system audit journal)
  Destination:            SYS$COMMON:[SYSMGR]SECURITY.AUDIT$JOURNAL
  Monitoring:             enabled
    Warning thresholds,  Block count:   100    Duration:   2 00:00:00.0
    Action thresholds,   Block count:    25    Duration:   0 00:30:00.0
```

The SET AUDIT command in this example enables disk monitoring and switches the mode so the disk space is monitored in terms of time rather than free blocks.

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 all 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 *OpenVMS 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.

SET BROADCAST

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 VMScluster 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 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 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 system parameter VOTES for each node in the cluster and QUORUM_DISK_VOTES is the value of the system parameter 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 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 disks). If the sum of the votes for all members of the cluster is smaller than the cluster quorum, all nodes 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.

Note that no matter what value you specify for the SET CLUSTER/EXPECTED_VOTES command, you cannot increase quorum to a value that is greater than the number of the votes present, nor can you reduce quorum to a value that is half or fewer of the votes present.

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 to enter this command only 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 system parameter EXPECTED_VOTES on each 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 system 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 *OpenVMS Command Definition, Librarian, and Message Utilities Manual*.

Format

SET COMMAND [filespec[,...]]

Parameters

[filespec[,...]]
Specifies the name of one or more command definition files. If you specify more than one name, separate them with commas. The default file type is .CLD. See the *OpenVMS Command Definition, Librarian, and Message Utilities Manual* for more information about writing a command definition file.

The asterisk (*) and the percent sign (%) wildcard characters are allowed in the file specification.

Qualifiers

/DELETE=(verb[,...])
Specifies /DELETE mode to delete verbs from the command table you are modifying.

You can use the /DELETE qualifier to delete a verb in either your process command table or in a command table file specified with the /TABLE qualifier. If you do not use the /TABLE qualifier to specify an alternate command table, the default is to delete verbs from your process command table. If you do not use the /OUTPUT qualifier to specify an output file, the default is to return the modified command table to your process.

The verb specifies a verb to be deleted. If you specify two or more verbs, separate them with commas and enclose the list in parentheses. If you specify only one verb, you can omit the parentheses.

You cannot use the /LISTING, /OBJECT, or /REPLACE qualifiers in /DELETE mode.

/LISTING[=filespec]
/NOLISTING
Controls whether an output listing is created and optionally provides an output file specification for the listing file. A listing file contains a listing of the command definitions along with any error messages. The listing file is similar to a compiler listing.

If you specify the /LISTING qualifier and omit the file specification, output is written to the default device and directory; the listing file will have the same name as the first command definition file and a file type of LIS.

You can use the /LISTING qualifier only in /OBJECT or /REPLACE mode; you cannot create a listing in /DELETE mode. In /OBJECT and /REPLACE modes, the default is /NOLISTING.

/OBJECT[=filespec]
Specifies /OBJECT mode to create an object module from a command definition file and optionally provides an object file specification. You cannot use the /OBJECT qualifier to create an object module from a command definition that contains the IMAGE keyword.

You can specify only one command definition file when you use SET COMMAND /OBJECT.

If you specify the /OBJECT qualifier and omit the file specification, output is written to the default device and directory; the object file will have the same name as the input file and a file type .OBJ.

You cannot use the /DELETE, /OUTPUT, /REPLACE, or /TABLE qualifiers in /OBJECT mode.

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the modified command table should be placed. If you provide an output file specification, the modified command table is written to the specified file. If you do not provide an output file specification, the edited command table replaces your process table. The /NOOUTPUT qualifier indicates that no output is to be generated.

You can specify an output file specification with the /OUTPUT qualifier only when you also use the /TABLE=filespec qualifier to provide the input tables. The default file type is .EXE.

You can use the /OUTPUT qualifier only in /DELETE or /REPLACE mode; you cannot use the /OUTPUT qualifier in /OBJECT mode.

In /DELETE and /REPLACE mode, the default is /OUTPUT with no file specification.

/REPLACE
Specifies /REPLACE mode to add or replace verbs in the command table you are modifying.

You can use the /REPLACE qualifier to modify either the process command table or a command table file specified with the /TABLE qualifier. If you do not use the /TABLE qualifier to specify an alternate command table, the default is to modify your process command table. If you do not use the /OUTPUT qualifier to specify an output file, the default is to return the modified command table to your process.

You cannot use the /OBJECT or /DELETE qualifiers in /REPLACE mode.

If you do not explicitly specify /DELETE, /OBJECT, or /REPLACE mode the default is /REPLACE.

/TABLE=[filespec]
Specifies the command table that is to be modified. If you specify the /TABLE qualifier and omit the file specification, the current process command table is modified. If you include a file specification, the specified command table is modified. The default file type is EXE.

If you use the /TABLE qualifier to provide an input command table file, you should also use the /OUTPUT qualifier to provide an output table file. Otherwise, the modified command table will be written to your process and will replace your process command table.

You can only use the /TABLE qualifier in /DELETE or /REPLACE mode; you cannot use the /TABLE qualifier in /OBJECT mode.

In /REPLACE and /DELETE mode, the default is /TABLE with no input file specification.

Examples

1. `$ SET COMMAND SNAG`

   This command adds the commands in SNAG.CLD to the command table in the current process.

2. `$ SET COMMAND/OBJECT SNAG`

   This command creates an object file using the commands in SNAG.CLD. This object file can then be linked with other object files to process application defined commands.

3. `$ SET COMMAND/TABLE=MYTAB/OUTPUT=MYCLI SNAG`

   This command adds the commands in SNAG.CLD to the command table MYTAB.EXE and writes the updated table to MYCLI.EXE.

   When you use the /TABLE qualifier to specify an input command table, you should use the /OUTPUT qualifier to specify an an output file. Otherwise, your process command table will be overwritten.

4. `$ SET COMMAND/DELETE=HOLD`

   This command deletes the definition for the verb HOLD from your process command table. The modified command table is returned to your process.

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 CONTROL [=(T,Y)]

SET NOCONTROL [=(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 OpenVMS Record Management Services (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
WORK:[TOP]
$ 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]

KUDOS.TMP;1

Total of 1 file.

Directory WORK:[TOP.SUB2]

KUDOS.TMP;1

Total of 1 file.

Grand total of 2 directories, 2 files.
$ DIRECTORY []

Directory WORK:[TOP]

KUDOS.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 OpenVMS Record Management Services (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. Devices are automatically set /AVAILABLE when brought online even if the device had been previously set /NOAVAILABLE.

/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

Makes a disk on a local node available to all the nodes in a VMScluster.

Applies only to VMScluster 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 VMScluster, and the local MSCP server must have been invoked by the System Generation utility (SYSGEN).

You cannot use the SET DEVICE/SERVED command under the following conditions:

- In service of a Phase II shadow set virtual unit
- On devices that are already mounted
- On system disks
- On quorum disks

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. The asterisk (*) and the percent sign (%) wildcard characters 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS Guide to System Security*.

The /OWNER_UIC qualifier requires control access, a system UIC, or privilege.

/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. The asterisk (*) and the percent sign (%) wildcard characters 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 control access, a system UIC, or privilege.

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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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, use the DIRECTORY/FULL command on a directory file and look at the File Attributes component of the output.

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 OpenVMS DECwindows application. Output can be directed from any 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.

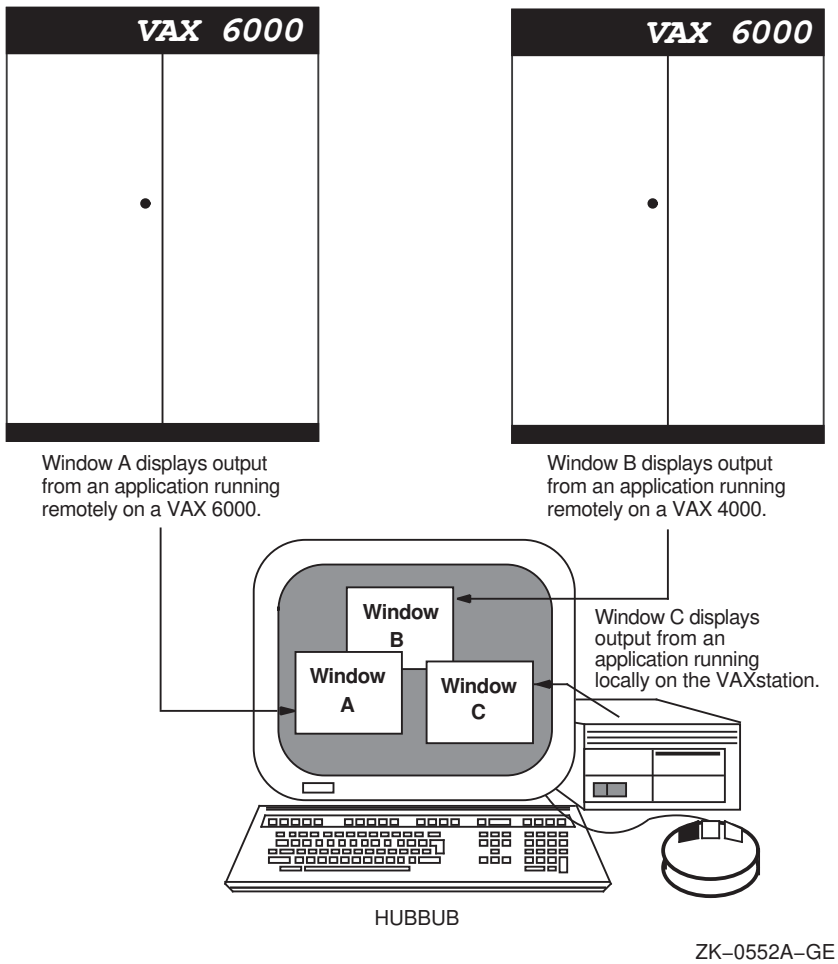
By running applications on a remote processor for local display on your workstation monitor, you can take advantage of larger computers that might be better suited to a specific computing task. By default, applications running on your workstation are displayed on your workstation. While DECwindows must 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 DCLII–1.

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

Figure DCLII–1 Running Remote and Local Applications



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 DECwindows documentation.

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 VMScluster), 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 DECwindows documentation.

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 *DECnet for OpenVMS Networking Manual* and the *DECnet for OpenVMS Network Utilities 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.

/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.

/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
  Device:     WSA1: [super]
  Node:       0
  Transport:  LOCAL
  Server:     0
  Screen:     0

$ SET DISPLAY/CREATE/NODE=ZEPHYR/EXECUTIVE_MODE
$ SHOW DISPLAY
  Device:     WSA2:  [exec]
  Node:       ZEPHYR
  Transport:  DECNET
  Server:     0
  Screen:     0
$ SPAWN/NOWAIT/INPUT=NL: RUN SYS$SYSTEM:DECW$CLOCK

$ SET DISPLAY/DELETE

$ SHOW DISPLAY
  Device:     WSA1:  [super]
  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

 Device:    WSA2:  [super]
 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

 Device:    WSA3:  [super]
 Node:      ZEPHYR
 Transport: DECNET
 Server:    0
 Screen:    0

$ RUN/DETACHED/OUTPUT=WSA3: SYS$SYSTEM:DECW$CALENDAR

$ RUN SYS$SYSTEM:DECW$BOOKREADER
$ SHOW DISPLAY

 Device:    WSA1:  [super]
 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 not currently executing in a queue.

Requires delete (D) access to the job or manage (M) access to the queue.

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.

This command requires delete (D) access to the job, manage (M) access to the queue, or OPER (operator) privilege.

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 scheduled for processing.

You can specify either absolute time or a combination of absolute and delta times. For complete information on specifying time values, see the *OpenVMS User's Manual*.

To specify /AFTER for a job on hold, you must also specify /NOHOLD in order to cause the job to be held only until the specified time. Jobs can be released before the specified time by using the /NOAFTER or /RELEASE qualifier with the SET ENTRY command.

/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 system parameter PQL_MCPULM.

For more information on specifying CPU time limits, see the CPU Time Limit Specifications and Actions table for the INITIALIZE/QUEUE command. For information on specifying time values, see the *OpenVMS User's 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 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 /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 retained in a queue.
- 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 VMScluster system 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 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 queue's maximum scheduling priority.

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 system parameter DEFQUEPRI. No privilege is needed to set the priority lower than the queue's maximum scheduling priority.

/RELEASE
You can use the /RELEASE qualifier to release jobs that have been held for the following reasons:

- A job was submitted with the /AFTER qualifier.
- A job was submitted with the /HOLD qualifier.
- A completed job is being retained in a queue.
- A user-written symbiont has refused a job.

/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.

/RETAIN=option

Specifies the circumstances under which you want your jobs to be retained in a queue. When a job is retained in the queue, you can issue the SHOW QUEUE command after the job completes to see the status of the job. Without job retention, no record of a job is left in a queue after a job completes.

Use the following options to specify job retention:

- ALWAYS—Holds the job in the queue regardless of the job's completion status.
- DEFAULT—Holds the job in the queue as specified by the queue's retention policy.
- ERROR—Holds the job in the queue only if the job completes unsuccessfully.
- UNTIL=*time-value*—-Holds the job in the queue for the specified length of time, regardless of the job's completion status.

Note

You cannot specify a /NORETAIN qualifier with the SET ENTRY command (as system managers can with the commands INITIALIZE /QUEUE, START/QUEUE, and SET QUEUE). However, you can specify /RETAIN=DEFAULT with the SET ENTRY command. The default option holds the job in the queue as specified by the queue's retention policy. If the system manager has not specified retention for the queue, the job is not retained.

How Job Retention is Determined

Although you can specify job retention options for your own jobs, the job retention option you specify may be overridden by the job retention option of the queue on which your job executed. If you submit or print a job to a generic queue, the generic queue's job retention setting may also override the job retention option you specify. This section describes how job retention is determined.

An execution queue's job retention setting takes precedence over a generic queue's job retention setting. However, if the job's completion status does not match the job retention setting (if any) on the execution queue, then the generic queue's job retention setting attempts to control job retention. If the job's completion status does not match the job retention setting (if any) on the generic queue, then the user-specified job retention setting is used. Jobs submitted directly to execution queues are not affected by job retention settings on generic queues.

If the execution queue's retention setting applies, the job is retained on the execution queue. Likewise, if the generic queue's retention setting applies, the job is retained on the generic queue. If the user-specified setting applies, the job is retained in the queue to which it was submitted.

The following example illustrates how the queue manager determines job retention:

Suppose you submit a job to a generic queue and specify /RETAIN=ALWAYS, and the job completes successfully.

First, the queue manager compares the job's completion status to the execution queue's retention setting. Suppose the queue is set with /RETAIN=ERROR (retains only jobs that complete unsuccessfully). The job is not retained in the execution queue because the error condition was not met.

Second, the queue manager compares the job's completion status to the generic queue's retention setting. Suppose the generic queue has no retention setting. The queue manager's comparison again fails to retain the job.

Finally, the queue manager compares the job's completion status to the retention setting you specified for the job. This comparison reveals that the job should be retained. Because the user-specified setting leads the queue manager to retain the job, the job is held in the queue to which the job was submitted—in this case, the generic queue.

For more information on types of queues, see the INITIALIZE/QUEUE command. For more information on setting retention options for queues, see the INITIALIZE /QUEUE, START/QUEUE, or SET QUEUE command.

Timed Retention

Timed retention, which you specify using the UNTIL=*time-value* option, allows you to retain a job in the queue only as long as you need it. This eliminates the need to delete the job from the queue later.

For example, the following command retains job 172 in the queue until 7:31 on April 19, when the job will automatically be deleted from the queue.

```
$ SET ENTRY/RETAIN=UNTIL=14-DEC-1994:07:31:0.0 172
```

However, depending on the queue's job retention policy, the job might be retained indefinitely. The job retention policy set on the queue takes precedence over the user-specified job retention setting. Because system managers cannot specify timed job retention for a queue, any jobs retained as a result of a queue's setting are retained indefinitely.

If you specify the /RETAIN=UNTIL=*time-value* option, you must supply a time value. The time value is first interpreted as a delta time, then as a combination time, and finally as absolute time. If you specify a delta time, the delta begins when the job completes. For example, if you specify SET ENTRY /RETAIN=UNTIL="+3:00", the job will be retained for three hours after the job completes. For information on specifying time values, see the *OpenVMS User's Manual*.

/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, which is 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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 system parameters PQL_MWSDEFAULT and WSMAX.

/WSEXTENT=n

Defines, for the batch job, a working set extent, which is 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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 system parameters PQL_MWSEXTENT and WSMAX.

/WSQUOTA=n

Defines, for the batch job, a working set quota, which is 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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 system 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 (,). The asterisk (*) and the percent sign (%) wildcard characters are allowed.

Description

The SET FILE command modifies a number of file characteristics.

Qualifiers

/ATTRIBUTE=(file-attribute[,...])
Sets the attributes associated with a file. The following table lists possible keywords and the relationship to both ACP-QIO and OpenVMS RMS File attributes:

Keyword	ACP-QIO File Attribute[1]	OpenVMS RMS File Attribute[2]
BKS:{value}	FAT$B_BKTSIZE={byte}	FAB$B_BKS={byte}
DEQ:{value}	FAT$W_DEFEXT={word}	FAB$W_DEQ={word}
EBK:{value}	FAT$L_EFBLK={longword}	XAB$L_EBK={longword}
FFB:{value}	FAT$W_FFBYTE={word}	XAB$W_FFB={word}
FSZ:{value}	FAT$B_VFCSIZE={byte}	FAB$B_FSZ={byte}
GBC:{value}	FAT$W_GBC={word}	FAB$W_GBC={word}
HBK:{value}	FAT$L_HIBLK={longword}	XAB$L_HBK={longword}
LRL:{value}	FAT$W_RSIZE={word}	XAB$W_LRL={word}
MRS:{value}	FAT$W_MAXREC={word}	FAB$W_MRS={word}
ORG:IDX	FAT$V_FILEORG=FAT$C_INDEXED	FAB$B_ORG=FAB$C_IDX
ORG:REL	FAT$V_FILEORG=FAT$C_RELATIVE	FAB$B_ORG=FAB$C_REL
ORG:SEQ	FAT$V_FILEORG=FAT$C_SEQUENTIAL	FAB$B_ORG=FAB$C_SEQ
RAT:BLK	FAT$B_RATTRIB=FAT$M_NOSPAN	FAB$B_RAT=FAB$M_BLK
RAT:CR	FAT$B_RATTRIB=FAT$M_IMPLIEDCC	FAB$B_RAT=FAB$M_CR
RAT:FTN	FAT$B_RATTRIB=FAT$M_FORTRANCC	FAB$B_RAT=FAB$M_FTN
RAT:MSB	FAT$B_RATTRIB=FAT$M_MSBVAR	FAB$B_RAT=FAB$M_MSB
RAT:NONE	FAT$B_RATTRIB=0	FAB$B_RAT=0

[1]For further information, see the *OpenVMS I/O User's Reference Manual*.

[2]For further information, see the *OpenVMS Record Management Services Reference Manual*.

Keyword	ACP-QIO File Attribute[1]	OpenVMS RMS File Attribute[2]
RAT:PRN	FAT$B_RATTRIB=FAT$M_PRINTCC	FAB$B_RAT=FAB$M_PRN
RFM:FIX	FAT$V_RTYPE=FAT$C_FIXED	FAB$B_RFM=FAB$C_FIX
RFM:STM	FAT$V_RTYPE=FAT$C_STREAM	FAB$B_RFM=FAB$C_STM
RFM:STMCR	FAT$V_RTYPE=FAT$C_STREAMCR	FAB$B_RFM=FAB$C_STMCR
RFM:STMLF	FAT$V_RTYPE=FAT$C_STREAMLF	FAB$B_RFM=FAB$C_STMLF
RFM:UDF	FAT$V_RTYPE=FAT$C_UNDEFINED	FAB$B_RFM=FAB$C_UDF
RFM:VAR	FAT$V_RTYPE=FAT$C_VARIABLE	FAB$B_RFM=FAB$C_VAR
RFM:VFC	FAT$V_RTYPE=FAT$C_VFC	FAB$B_RFM=FAB$C_VFC
VRS:{value}	FAT$W_VERSIONS={word}	XAB$W_VERLIMIT={word}

[1]For further information, see the *OpenVMS I/O User's Reference Manual*.

[2]For further information, see the *OpenVMS Record Management Services Reference Manual*.

/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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS Guide to System Security*.

/CACHING=option

On Alpha systems, this qualifier sets the caching attribute of files and directories stored in Spiralog volumes, whose device type is Files_64. It returns an error if any of the specified files and directories are not in Spiralog volumes.

The caching attribute of a file specifies the default caching option for the file. This is the caching option that is used whenever an application accesses the file without specifying which caching option it wants to use.

The value of **option** can be one of the following:

- WRITEBEHIND

  Selects write-behind caching without flush on close.

  Write-behind caching improves the performance of write operations. It allows Spiralog to buffer writes to the file in your computer's cache and to reduce the number of I/Os to disk by amalgamating writes. This improves both application response time and overall data throughput.

  When an application writes to the file, Spiralog writes the data to its cache. The application proceeds as soon as the data is in the cache. Some time within the next 30 seconds, Spiralog writes the data to disk.

- FLUSH_ON_CLOSE

  Selects write-behind caching with flush on close.

  This is identical to the WRITEBEHIND option except that the file's data is written to disk when the application closes the file. If the file has any data in your computer's Spiralog cache that has not yet been written to disk, Spiralog writes the data to disk before it closes the file.

- WRITETHROUGH

  Selects write-through caching.

  Write-through caching writes data straight through to disk. When an application writes to the file, Spiralog writes the data straight through to disk before putting it in the cache. The application cannot proceed until the data is on disk.

The caching attribute of a directory controls how the caching attribute is inherited by new files created in it.

When you create a new directory or file, it inherits its caching attribute from its parent directory. When you create a new version of an existing file, the new file inherits its caching attribute from the highest version of the existing file.

When you change the caching attribute of a directory, it does not affect the caching attribute of any existing files and subdirectories in the directory.

When you change the caching attribute of a file, it does not affect the caching option being used by applications that are currently accessing the file. It affects only subsequent accesses to the file.

/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 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 /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.

The asterisk (*) and the percent sign (%) wildcard characters are not allowed in the file specification.

/ERASE_ON_DELETE
Specifies that the specified files are erased from the disk (not just written over) when the DELETE or PURGE command is issued for the files. See the DELETE /ERASE command 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. The asterisk (*) and the percent sign (%) wildcard characters 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 read (R), write (W), and control access. Being the owner of the file is one way to get control access.

Controls whether an expiration date is assigned to the specified files.

Specify the date according to the rules described in the *OpenVMS User's 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, OpenVMS Record Management Services (OpenVMS 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 OpenVMS Record Management Services (OpenVMS 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 from 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.

/MOVE
/NOMOVE
Controls whether movefile operations are enabled on the specified file.

When you create a file, movefile operations are enabled on that file. You should disable movefile operations on specialized files that are accessed other than through the XQP (such as files accessed through logical I/O to a disk).

Note that movefile operations are automatically disabled on critical system files. Do not enable movefile operations on these files.

/NODIRECTORY
Use with extreme caution. Requires SYSPRV (system privilege).

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 *OpenVMS System Management Utilities Reference 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 *OpenVMS Guide to System Security*.

/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).
- Specify 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 *OpenVMS Guide to System Security*.

/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 OpenVMS File Applications*.

/SHELVABLE
/NOSHELVABLE

Controls whether the file is shelvable.

/SINCE[=time]

Selects only those files dated after the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's Manual*.

/STATISTICS
/NOSTATISTICS (default)
Enables the gathering of RMS statistics on the specified file. These statistics can then be viewed by using the Monitor utility, which is invoked with the DCL command MONITOR. The SET FILE/STATISTICS command applies an application ACE to the specified file. The ACE does not affect access control and is only meaningful to the application assigning it.

/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-1995:11:00 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, 1995.

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 (*). You must have system privilege (SYSPRV) to change the owner UIC.

4.
```
$ SET FILE/NOMOVE TEST.FDL
$DIRECTORY/FULL TEST.FDL

Directory SYS$SYSDEVICE:[SMITH]

TEST.FDL;1   File ID:  (10,8,0)
   .
   .
   .
File attributes: Allocation: s, Extend: 0, Global buffer count: 0
   No version limit, MoveFile disabled
   .
   .
   .
```

Movefile operations are disabled on the file TEST.FDL. A DIRECTORY/FULL command on the file TEST.FDL affirms that the file attribute Movefile is disabled.

5.
```
$  SET FILE/ATTRIBUTES=ORG:SEQ -
_$ TEST$:[DATA]SET_ATTRIBUTES.DATA_FILE/LOG
%SET-I-MODIFIED, TEST$:[DATA]SET_ATTRIBUTES.DATA_FILE;1 MODIFIED
```

The command, SET FILE/ATTRIBUTES, changes the file organization of the specified file.

6.
```
$  SET FILE/PROTECTION=(S:RWE,O=RWE,G:RE,W:RE) TEMP.DIR
$ DIRECTORY/PROTECTION TEMP.DIR

Directory DKB0:[SMITH]

TEMP.DIR;1           (RWE,RWE,RE,RE)
```

This example sets the protection on the TEMP.DIR file with the SET FILE command and then displays the protection of the file with the DIRECTORY command.

SET HOST

Connects your terminal (through the current host processor) to another processor, called the remote processor. The command requires that:

- **Both processors must be running DECnet software.**[1]
- **You must have an account on the remote system to log in.**
- **The NETMBX (network mailbox) privilege is set.**

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?
```

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.

[1] Available under separate license.

Note that SET HOST, unlike the OpenVMS 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

/APPLICATION_PROTOCOL[=protocol]

Specifies the protocol connection, CTERM (CTDRIVER) or RTERM (RTTDRIVER) on the specified node. CTERM protocol is the default if no connection is specified.

/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 (default)

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/APPLICATION_PROTOCOL=CTERM DAKOTA
```

   The /APPLICATION_PROTOCOL qualifier specifies the CTERM protocol (the default) on node DAKOTA in this command line.

2.
```
$ SET HOST ITALIC
Username:  BROWN
Password: <PASSWORD>
    Welcome to OpenVMS VAX Version 6.1 on node ITALIC
   .
   .
   .
$  LOGOUT
BROWN logged out at 19-APR-1994 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.

3.
```
$  SET TERMINAL/WIDTH=80
$  SET HOST/RESTORE GENEVA
Username: Jones
Password: <PASSWORD>
$  SET TERMINAL/WIDTH=132
   .
   .
   .
$  logout
JONES   logged out at 19-APR-1994 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. DTE commands enable you to configure a SET HOST /DTE session while it is in progress.

To issue DTE commands, you must get into DTE command mode by pressing 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.

Table DCLII–4 describes the DTE commands.

Table DCLII–4 SET HOST/DTE Session Commands

Command	Description
CLEAR	Disconnects your local system from DTEPAD. This command is equivalent to the QUIT command.
EXIT	Returns the session to emulation mode.
QUIT	Disconnects your local system from DTEPAD. This command is equivalent to the CLEAR command.

(continued on next page)

Table DCLII–4 (Cont.) SET HOST/DTE Session Commands

Command	Description
SAVE filespec	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.
SEND BREAK	Sends a break to remote systems that expect a break rather than a carriage return.
SET DTE	Modifies configurable characteristics of DTEPAD while in a SET HOST/DTE session. You can use the SET HOST/DTE qualifiers in command mode.
SHOW DTE	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.
SPAWN	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, as follows: /INPUT=filespec /LOGICAL_NAMES and /NOLOGICAL_NAMES /OUTPUT=filespec /PROCESS=subprocess-name /SYMBOLS and /NOSYMBOLS /WAIT and /NOWAIT See the SPAWN command in this manual for more information about these qualifiers.

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.

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.

Alpha

On Alpha, defaults to a DMCL (any modem that uses the DEC Modem Command Language).♦

VAX

On VAX, 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 baud rates are as follows:

```
 50      150      1800      4800      38400
 75      300      2000      7200      57600
110      600      2400      9600      76800
134     1200      3600     19200     115200
```

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:
```

   This command 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:
```

   This command 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
```

   This command sets the outgoing terminal port, TTA2, to support 7-bit characters.

4.
```
$ SET HOST/DTE/NOFLOW_CONTROL TTA2
```

   This command disables the XON/XOFF flow control.

5.
```
$ SET HOST/DTE/ERROR_ACTION=EXIT TTA2
```

   This command sets the error action to EXIT.

6.
```
$ SET HOST/DTE/MAX_BUFFERS=150 TTA2
```

   This command sets the maximum number of receive buffers to 150.

7.
```
$ SET HOST/DTE/ESCAPE=E TTA2
```

   This command defines the letter E as the escape character. Note that DTEPAD is not case sensitive.

8.
```
$  SET HOST/DTE/LOG TTA2
```

   This command enables logging of the session. Since no log file is specified, the log is written to the default log file, DTEPAD.LOG.

9.
```
$ SET HOST/DTE/INIT=MYFILE.INI TTA2
```

   This command uses the initialization file MYFILE.INI.

10.
```
$  Ctrl/@
DTEPAD>
```

   This example shows you how to access DTE command mode by pressing Ctrl/@, where @ is the command character.

11.
```
DTEPAD> SAVE MYFILE.INI
```

This command saves the information on the current configuration in the file MYFILE.INI.

12.
```
DTEPAD>SET DTE/BREAK=G
```

This command defines the letter G as the break character.

13.
```
DTEPAD>SET DTE/ECHO
```

This command sets the terminal port so that echoing is performed by the local system.

14.
```
DTEPAD>SET DTE/SPEED=4800
```

This command sets the input and output baud rates to 4800.

15.
```
DTEPAD>SET DTE/LOG=myfile.log
```

This command directs logging to the file MYFILE.LOG.

16.
```
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
```

This command displays all the current settings of the configurable characteristics, the number of bytes transmitted and received, and the number of errors detected.

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:

Alpha

On Alpha, specify the following commands:

```
$ RUN SYS$SYSTEM:SYSMAN
SYSMAN> IO CONNECT FYA0/NOADAPTER/DRIVER=SYS$FYDRIVER♦
```

VAX

On VAX, specify the following commands:

```
$ RUN SYS$SYSTEM:SYSGEN
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=MSCP$DUP/TASK=DIRECT R2DH5Y
%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 R2DH5Y under direction of the MSCP$DUP server.

```
$ SET HOST/DUP/SERVER=DUP/TASK=DIRECT PUA0/DEVICE
%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 KDM70 controller named PUA0 under direction of the DUP server.

SET HOST/HSC

Connects your terminal to a HSC disk and tape controller through the computer interconnect (CI) bus.

Used only with HSCs. Requires the DIAGNOSE privilege.

Format

SET HOST/HSC node-name

Parameter

node-name
Specifies the node name of the HSC.

Description

The SET HOST/HSC command establishes a connection to an HSC disk and tape controller by way of the CI bus. (The SHOW CLUSTER command lists the names of HSCs that are accessible to your node.) No password is required to access the HSC; however, only SHOW commands are accepted when the HSC's Secure/Enable switch is in the Secure position.

Once the connection is made to the HSC, 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 HSC before entering commands. To exit from the HSC and return to the local system, press Ctrl/\.

A description of HSC commands and utilities can be obtained from the HSC documentation.

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
HSC>
```

This SET HOST/HSC command connects the user terminal to the HSC named HSC001.

SET HOST/LAT

Connects your terminal to a specified service available on the local area network (LAN), establishing one session for communication between your terminal and that service.

The service node that provides the service must be on a remote node, must be on the same extended LAN, and must be running at least Version 5.0 of the LAT protocol.

Format

SET HOST/LAT service-name

Parameter

service-name
Specifies the name of the service to which you want your terminal connected. A service is a resource on the LAN. A service often consists of all of the resources of a computer system. Other examples of services are a file storage system and an application program running on a computer system. A computer system that offers one or more services is called a service node.

If several service nodes offer the same service, and you do not specify the /NODE=node-name qualifier, your terminal connects to the service node that is the least busy.

To display a list of services on your LAN, use the LAT Control Program (LATCP) SHOW SERVICES command. See the *OpenVMS System Management Utilities Reference Manual*.

Description

The SET HOST/LAT command allows you to connect your terminal to a specified service, establishing one LAT session for communication between your terminal and that service. (For an overview of the LAT protocol and its advantages, see the *OpenVMS System Manager's Manual*.)

The service node that provides the service must be on a remote node, must be on the same extended LAN, and must be running at least Version 5.0 of the LAT protocol.

Some services are password protected. You are prompted for a password unless you specify the password with the /PASSWORD qualifier.

Once the connection to the service is made, you can interact with the service as if your terminal is directly connected to it. Some services will prompt you. For example, if the service is an OpenVMS system, it prompts you for a user name and password. You must have an account on the service node to log in.

Press the disconnect character to end the LAT session and return to DCL command level on your local system. With some services, such as general timesharing services like OpenVMS, you can end the LAT session by logging out of the service. The default disconnect character is Ctrl/\. Use the /DISCONNECT qualifier to change the default disconnect character.

You cannot use SET HOST/LAT to connect to the local node.

Qualifiers

/AUTOCONNECT
/NOAUTOCONNECT
Specifies whether connection attempts should be retried automatically when a connection fails because a service is unknown or unavailable, or because a node is unknown or unreachable. Also specifies that reconnects should be attempted automatically if a service has disconnected abnormally. The default is /NOAUTOCONNECT.

/AUTOPROMPT (default)
/NOAUTOPROMPT
Causes an OpenVMS Username: prompt to appear with no user action when a SET HOST/LAT command is issued.

On a terminal server port, you can configure the port to have AUTOPROMPT disabled (/NOAUTOPROMPT) so that you are required to press Return when connecting to a node to get the Username: prompt. However, when connecting to a reverse LAT service, the AUTOPROMPT characteristic should be disabled.

/BREAK=break-character
Defines a character that generates a break on lines that expect a break rather than a carriage return. To generate a break, press the Ctrl and *break-character* keys together. The default *break-character* value is the tilde (~).

You can select any ASCII character between @ and Z, except C, M, Q, S, Y, and the left bracket ([ ). You cannot select a character that is already defined as the disconnect character.

/DESTINATION_PORT=port-name
Specifies the port on a node to which you want to connect. The /NODE qualifier is required when you specify the /DESTINATION_PORT qualifier. The port must be available and must offer the service you specify. OpenVMS and certain other LAT service node systems ignore the /DESTINATION_PORT qualifier.

/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.

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).

/DISCONNECT=disconnect-character
Defines the character that you can use to disconnect from a remote session. To generate a disconnect, press the Ctrl and *disconnect-character* keys together. The default *disconnect-character* is the backslash (\).

You can select any ASCII character from @ through Z, except C, M, Q, S, Y, and the left bracket ([). For example, if you specify /DISCONNECT=A, Ctrl/A will be the disconnect character. You cannot select a character that is already defined as the break character.

/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.

Note

To change the number of bits per character on the remote terminal server port, that port must have the REMOTE MODIFICATION characteristic enabled.

/FRAME=*n*
The /FRAME=*n* qualifier allows a user making a LAT connection to a remote system to specify 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 /EIGHT_BIT qualifiers. The following example specifies a character frame size of 7 bits per character:

```
$ SET HOST/LAT /FRAME=7 DIAL_OUT_SVC
```

/LOG[=log-file]
Logs all data that is delivered during the LAT session. If you do not specify a log file, the data is stored in the file SETHOST_LAT.LOG.

/NODE=node-name
Specifies the node that offers the service to which you want to connect. The node you specify must be a remote node. Failover is not performed if the connection fails.

/PASSWORD=password
Specifies the password required by a service that is password protected. If you do not specify the /PASSWORD qualifier when requesting a connection to a password-protected service, you are prompted for a password.

/QUEUE
/NOQUEUE (default)
When connecting to a reverse LAT service that is already in use (such as a dial out modem), you are notified that the service is in use and the SET HOST/LAT command terminates. However, LAT can allow incoming connections to be queued to any reverse LAT service that supports service queueing, which enables users to be placed on a queue when using reverse LAT services.

LAT reports your position in the queue. When the resource becomes available, you are immediately notified. You can cancel the queued connection by pressing Ctrl/Y and terminating the SET HOST /LAT command.

/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, 38400, 57600
```

If you select an invalid or unsupported speed, the terminal line speed will remain set at its previous value.

Note

To change the speed on the terminal server port, the REMOTE MODIFICATION characteristic must be enabled on that terminal server port.

When initiating a connection, SET HOST/LAT may attempt to set terminal server port characteristics, such as the speed and the default speed for a LAT device. If the device connected to the terminal server port has a fixed speed (such as a dial-out modem) and you do not want the host to try to change this, disable the REMOTE MODIFICATION characteristic on that port using the following command:

```
Local> DEFINE PORT x REMOTE MODIFICATION DISABLE
Local> LOGOUT PORT x
```

Use the following command for terminal servers that support the CHANGE command:

```
Local> CHANGE PORT x REMOTE MODIFICATION DISABLE
```

Examples

1.
```
$ SET HOST/LAT SORTER
%LAT-S-CONNECTED, session to SORTER established
%LAT-I-TODISCON, type ^\ to disconnect the session
Username: SMITH
Password:
   .
   .
   .
$ LOGOUT
SMITH logged out at 30-DEC-1994  11:04:51.45
%LAT-I-DISCONNECTED, session disconnected from SORTER
-LAT-I-END, control returned to node HOME
$
```

This SET HOST/LAT command connects the user to the service SORTER, which is a computer system. The first message confirms that the user has

been connected to that service. The second message informs the user how to disconnect the session. (The user can also disconnect the session by logging out from SORTER.) SORTER then prompts for the username and password. Use the normal login procedure to log in to the system. When the user logs out of the service SORTER, the terminal displays the DCL command prompt of the user's local processor system (HOME).

2.
```
$ SET HOST/LAT/DESTINATION_PORT=BOSTON-
_$ /NODE=STATE/DISCONNECT=F BUDGET
```

   This command connects the user's terminal to the service BUDGET that is offered on port BOSTON, on service node STATE. The user can disconnect the session by typing Ctrl/F.

3.
```
$ SET HOST/LAT PURSE
Password:
```

   This command attempts to connect the user's terminal to the service PURSE. The service PURSE is password protected, so the user is prompted for a password. The user could have specified the password within the SET HOST /LAT command, as shown in the next example.

4.
```
$ SET HOST/LAT/PASSWORD=BEOR PURSE
```

   This command connects the user's terminal to the password-protected service PURSE. The password is BEOR.

SET HOST/RLOGIN

Allows you to log in to a remote host over a TCP/IP connection and start an interactive terminal session by accessing the RLOGIN application.

Format

SET HOST/RLOGIN { IPhostname | IPaddress }

Note

You can specify the *IPhostname* or the *IPaddress*, but not both.

Parameter

IPhostname
Specifies the IP host name of the remote host.

IPaddress
Specifies an IP address of the remote host.

Description

The SET HOST/RLOGIN command allows you to log in to a remote host by invoking RLOGIN client software that runs on your system. Once you start the terminal session, you can enter commands interactively on the remote host. The parameter that specifies the remote host is either an IP host name or an IP address.

Qualifiers

/AUTHENTICATE
Specifies that Kerberos authentication should be used for acquiring access to the remote node.

/PASSWORD=password
Optional qualifier that specifies the password of the user logging in to the remote host.

/TERMINAL_TYPE=type
Sets the terminal emulator to one of the following terminal types: VT100, VT200, VT300, VT400, VT500.

/TRUNCATE_USERNAME
Specifies that the current user name should be truncated to 8 characters before attempting to connect to the remote node. The qualifier is required for communication with systems that limit the size of their login names to 8 characters. The /TRUNCATE_USERNAME qualifier is ignored if /USERNAME is specified.

/USERNAME=username

Specifies the user name for logging in to the remote node. The user name can be enclosed in quotes to preserve the case of the user name for case-sensitive systems such as UNIX systems. If the /USERNAME qualifier is not specified, the default is the current user's user name.

Example

```
$ SET HOST/RLOGIN remotehst1
```

This example creates an RLOGIN connection to remote host *remotehst1* over a TCP/IP connection.

SET HOST/TELNET

Connects you to a remote host over a TCP/IP connection by invoking the TELNET application.

Format

SET HOST/TELNET { IPhostname | IPaddress }

Note

You can specify the *IPhostname* or the *IPaddress*, but not both.

Parameter

IPhostname
Specifies the IP host name of the remote host.

IPaddress
Specifies an IP address of the remote host.

Description

The SET HOST/TELNET command allows you to connect to a server on a remote system by invoking the TELNET client software that runs on your system. The parameter that specifies the remote host is either an IP host name or an IP address. Most of the attributes are negotiated with the remote node. The qualifiers are used only in exception cases (for example, cases where a remote server does not support a negotiated parameter but requires a certain characteristic for the connection).

Qualifiers

/AUTHENTICATE
Specifies that Kerberos authentication should be used for acquiring access to the remote node.

/PORT=port
Specifies the remote TCP port to use. The default is 23.

/TERMINAL_TYPE=type
Sets the terminal emulator to one of the following terminal types: VT100, VT200, VT300, VT400, VT500.

Example

```
$ SET HOST/TELNET remotehst2
```

This example creates a TELNET connection to remote host *remotehst2* over a TCP/IP connection.

SET HOST/TN3270

Connects you to a remote IBM host over a TCP/IP connection, causing the local keyboard to emulate an IBM 3279-class terminal keyboard by invoking the TN3270 terminal emulator.

Format

SET HOST/TN3270 { IPhostname | IPaddress }

Note

You can specify the *IPhostname* or the *IPaddress*, but not both.

Parameter

IPhostname
Specifies the IP host name of the remote host.

IPaddress
Specifies an IP address of the remote host.

Description

The SET HOST/TN3270 command allows you to connect with a TELNET server on a remote IBM system by invoking the TN3270 terminal emulator TELNET client program on the local host. The parameter that specifies the remote host is either an IP host name or an IP address. The TN3270 client will automatically determine the terminal type (IBM-3278-2, IBM-3278-3, IBM-3278-4, or IBM-32798-5).

Qualifiers

/AUTHENTICATE
Specifies that Kerberos authentication should be used for acquiring access to the remote node.

/PORT=port
Specifies the remote TCP port to use. The default is 23.

/TERMINAL_TYPE
Sets the terminal emulator to one of the following terminal types: VT100, VT200, VT300, VT400, VT500.

Example

```
$ SET HOST/TN3270 remotehst3
```

This example creates a connection to a TELNET server on the remote IBM system *remotehst3* over a TCP/IP connection.

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 to set the login limit.

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-I-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-I-INTSET, login interactive limit=9, 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 9 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 noncompaction has been selected for a given cartridge, that same status applies to the entire cartridge.

/RETENSION
Moves a TZK10 tape cartridge to the end of the tape, and then back to the beginning of the tape. Use the /RETENSION qualifier on a regular basis to help maintain the integrity of TZK10 tape cartridges.

The /RETENSION qualifier must be used in conjunction with the /REWIND or /UNLOAD qualifier. The /RETENSION qualifier completes its action before /REWIND or /UNLOAD. Use /RETENSION/REWIND when you want the tape cartridge to remain loaded in the drive. Use /RETENSION/UNLOAD when you want to unload the tape cartridge after the retension operation.

This qualifier only affects TZK10 tape cartridge drives and has no effect on non-SCSI drives.

/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 *OpenVMS System Manager's Manual*.
RECORD:*n*	Skips the specified number of records up to 32767.

/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. The asterisk (*) and the percent sign (%) wildcard characters are not 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 the OpenVMS system 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 *OpenVMS Command Definition, Librarian, and Message Utilities 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 NETWORK

Registers the attributes of a network service.

Requires SYSNAM (system name) privilege.

Format

SET NETWORK network-service

Parameter

network-service
Specifies the name of a network service.

Description

The SET NETWORK command allows you to control information about network services on an OpenVMS system. This information is contained in structures pointed to by executive mode logical names SYS$NET_SERVICES_1 to SYS$NET_SERVICES_12. Each structure defines a particular network service and contains the following information:

- product name
- manufacturer
- type of network
- node name
- address(es)
- interface(s) (OpenVMS device driver)
- vendor specific data
- status
- connections
- counters
- start command
- stop command

The following items are required: product name, manufacturer, type of network, node name, address.

The SET NETWORK allows you to perform the following actions on the information on network services:

- Add a service (use the /REGISTER qualifier)
- Delete a service (use the /REMOVE qualifier)
- Modify the information for a service (use the /UPDATE qualifier)

The /REGISTER qualifier is the default, if you do not specify an action.

SET NETWORK

Qualifiers

/ADDRESS=address[es]
Specifies the network address of the local node.

/CONNECTIONS=
Specifies a command to be executed to display the number of network connections.

/COUNTERS=
Specifies a command to be executed to display the number of network counters.

/DATA=
Specifies a character string provided by the network service vendor.

/INTERFACE=
Specifies the OpenVMS driver for the network service.

/MANUFACTURER=
Specifies the manufacturer of the network service.

/NETWORK_TYPE=
Specifies the protocol for the network service.

/NODE=
Specifies the name of the local node.

/REGISTER
Defines a new network service.

/REMOVE
Deletes a network service from the database.

/START=
Specifies an image to be executed when you issue the START/NETWORK command for the network service.

/STATUS=
Specifies a command to be executed to display additional status information.

/STOP=
Specifies an image to be executed when you issue the STOP/NETWORK command for the network service.

/UPDATE
Allows you to modify the specified data for the network service.

Examples

1.
```
$ SET NETWORK DECnet/OSI -
        /MANUFACTURER= "Digital Equipment Corporation"
        /NODE="GALAXY"
        /ADDRESS="19.129"
        /NETWORK_TYPE="DNA V"
        /INTERFACE="net 0"
        /DATA="Router: No"
        /STATUS="mcr ncl show node 0 all"
        /CONNECTIONS="mcr ncl show node 0 session control port * all"
        /COUNTERS="mcr ncl show node 0 session control all counters"
```

```
/START="@sys$startup:net$startup"
/STOP="@sys$manager:net$shutdown")
```

This command adds the network service DECnet/OSI to the database, with the specified characteristics.

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 or detached 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 *OpenVMS User's 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

Changes a password or system password. Also, can establish a secondary password or system password, or remove a secondary 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 password length and the maximum period of time that a password can remain unchanged. The OpenVMS 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. A system manager can add words readily associated with the site to the dictionary, thus disallowing them as passwords.

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.’’)

Note

Blank spaces are permissible within a password, but they are not considered part of the password, and OpenVMS ignores them. For example, "MY PASSWORD" is an acceptable password, but the system only records "MYPASSWORD." This means that "MYPA SSWORD" is also a valid password for the account in question.

A password that contains blank spaces will fail in contexts where spaces have meaning. For example, the syntax of an access control string assumes there is one and only one space, preceding the password, for example:

```
$ DIR JULY04"JEFFERSON PRESIDENT"::TEST.SDML
```

If you enter the following command, it will fail:

```
$ DIR JULY04"JEFFERSON PRE SIDENT"::TEST.SDML
```

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 previous 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 generated passwords. For more information about this, see the description of the Authorize utility's /GENERATE_PASSWORD qualifier in the *OpenVMS System Management Utilities Reference 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 optional value specified with the /GENERATE qualifier, and uses the larger of the two values. If you do not specify a value with the /GENERATE qualifier, the account minimum length is used.

Note

The VMS$PASSWORD_DICTIONARY logical must point to a valid dictionary file for the SET PASSWORD/GENERATE command to work properly.

/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 VMScluster, 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 *OpenVMS Guide to 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 PREFIX

Allows you to set a prefix control string for verified command lines.

Format

SET [NO]PREFIX string

Parameter

string
Specifies the FAO control string to be used in generating a prefix to a verified command line. The following rules apply:

- No more than 64 characters are allowed in the control string.
- The resulting string can be no longer than 64 characters.
- Basic formatting FAO directives can be used ("!/", "!_", "!^", "!!", "!%F", and "!n*c").
- Time and date FAO directives can be used ("!%T" and "!%D").
- Repeat counts can be used ("!n(DD)").
- Output field length specifications can be used ("!lengthDD").
- Combination of repeat count and output field length can be used ("!n(lengthDD)").
- FAO directives that require arguments will always receive a value of zero.

Description

The SET PREFIX command allows you to prefix verified command lines with a custom string. This string is a limited FAO control string that specifies date and time information as well as constant information and formatting controls (that is, tabs, form feeds, and so on). For example, this allows you to use a full date and time prefix (a time stamp) to identify batch runs and to verify that a batch job ran at the expected time.

See the documentation on the F$FAO lexical function for more information about FAO control strings.

The first line of a verified command is prefixed with the result of the control string. The control string is evaluated before the command itself is executed. Any continuation lines are prefixed with a blank string in order to make them flush with the first line of the command. Command input and output are not prefixed. The prefix control string can later be retrieved by using VERIFY_PREFIX with F$ENVIRONMENT.

Example

```
$ SET VERIFY
$ @TEST
$ SET DEFAULT SYS$LOGIN
$ SHOW DEFAULT
  USER$:[SMYTHE]
$ SET PREFIX "(!5%T) "
$ @TEST
(17:52) $ SET DEFAULT SYS$LOGIN
(17:52) $ SHOW DEFAULT
  USER$:[SMYTHE]
```

This example demonstrates the difference between having and not having a prefix for verification. The first command turns on verification. (Verification must be turned on to see the prefix.) The second command invokes a test procedure to show what the output looks like without a prefix. The third and fourth lines reflect the contents of the test procedure invoked in the preceding command. The third command sets the prefix to an FAO control string so that the first five characters of the standard time will be shown for each command. The last command invokes the test procedure again to demonstrate what the output looks like with a prefix.

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.

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 OpenVMS 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 or kernel thread 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.

Process names are unique only within a particular UIC group. 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

/AUTO_UNSHELVE
/NOAUTO_UNSHELVE
Controls whether the process automatically unshelves files.

/AFFINITY
NOAFFINITY

Allows bits in the process thread affinity mask to be set or cleared individually, in groups, or all at once. This qualifier is mutually exclusive with the /CAPABILITIES qualifier.

Note

The SET PROCESS/[NO]AFFINITY command will fail if there is no CPU with the required affinity.

The /NOAFFINITY qualifier clears all affinity bits currently set in the current or permanent affinity masks, based on the setting of the /PERMANENT qualifier. Specifying the /AFFINITY qualifier has no direct effect, but merely indicates the target of the operations specified by the following secondary parameters:

/SET=(*n*[,...]) Sets all user capabilities defined by the position values *n*, where *n* has the range of 0 to 31.

/CLEAR=(*n*[,...]) Clears all user capabilities defined by the position values *n*, where *n* has the range of 0 to 31.

/PERMANENT Performs the operation on the permanent user mask as well as the current user mask, making the changes valid for the life of the process thread. (The default behavior is to affect only the affinity mask for the running image.)

The secondary qualifiers can all be used at once as long as the affinity bits defined in the /SET and /CLEAR parameters do not overlap.

The privileges required to execute the SET PROCESS/AFFINITY command match those required by the $PROCESS_AFFINITY system service. ALTPRI is the base privilege required to make any modifications, and the only privilege required to modify the current owner's process or thread. Modifications within the same UIC group require GROUP privilege. Modifications to any unrelated process or thread require WORLD privilege.

As with the other SET PROCESS qualifiers, the bit operations occur on the current process if no /IDENTIFICATION qualifier or explicit process name parameter is specified. Specifying a process name does not imply that all threads associated with the process are affected; the SET PROCESS command affects only the initial thread of a multithreaded process.

/CAPABILITIES
NOCAPABILITIES

Allows bits in the process user capability mask to be set or cleared individually, in groups, or all at once. This qualifier is mutually exclusive with the /AFFINITY qualifier.

Note

The SET PROCESS/[NO]CAPABILITIES command will fail if there is no CPU with the required set of capabilities.

The /NOCAPABILITIES qualifier clears all user capability bits currently set in the current or permanent user masks, based on the setting of the /PERMANENT qualifier. Specifying the /CAPABILITIES qualifier has no direct effect, but merely indicates the target of the operations specified by the following secondary qualifiers:

/SET=(*n*[,...]) Sets all user capabilities defined by the position values *n*, where *n* has the range of 0 to 31.

/CLEAR=(*n*[,...]) Clears all user capabilities defined by the position values *n*, where *n* has the range of 0 to 31.

/PERMANENT Performs the operation on the permanent user mask as well as the current user mask, making the changes valid for the life of the process thread. (The default behavior is to affect only the capabilities mask for the running image.)

The secondary qualifiers can all be used at once as long as the user capability bits defined in the /SET and /CLEAR parameters do not overlap.

The privileges required to execute the SET PROCESS/CAPABILITIES command match those required by the $PROCESS_CAPABILITIES system service. ALTPRI is the base privilege required to make any modifications, and the only privilege required to modify the current owner's process or thread. Modifications within the same UIC group require GROUP privilege. Modifications to any unrelated process or thread require WORLD privilege.

As with the other SET PROCESS qualifiers, the bit operations occur on the current process if no /IDENTIFICATION qualifier or explicit process name parameter is specified. Specifying a process name does not imply that all threads associated with the process are affected; the SET PROCESS command affects only the initial thread of a multithreaded process.

/CLEAR=(*n*[,...])

Clears all user capabilities or CPU affinities defined by the position values *n*, where *n* has the range of 0 to 31. The /CLEAR qualifier is only valid in conjunction with the /CAPABILITIES or the /AFFINITY qualifier.

/DUMP
/NODUMP (default)

Causes the contents of the address space to be written to the file named SYS$LOGIN:(image-name).DMP (where the image name is the same as the file name) 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 or kernel thread 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.

Note

The /IDENTIFICATION qualifier allows the SET PROCESS command to affect individual kernel thread PIDs; since each thread is a separate runnable entity, this command treats them as discrete entities in terms of capabilities.

/NAME=string

Changes the name of the current process to a string of 1 to 15 characters.

/PERMANENT

Performs the operation on the permanent user mask as well as the current user mask, making the changes valid for the life of the process thread. (The default behavior is to affect the user mask only for the running image.) The /PERMANENT qualifier is only valid in conjunction with the /CAPABILITIES or the /AFFINITY qualifier.

/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 or kernel thread. 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 as an authorized privilege to enable any privilege you do not have in your authorized privilege mask.

Enables the following process privileges:

ACNT	ALLSPOOL	ALTPRI	AUDIT
BUGCHK	BYPASS	CMEXEC	CMKRNL
DETACH	DIAGNOSE	DOWNGRADE	EXQUOTA
GROUP	GRPNAM	GRPPRV	IMPORT
LOG_IO	MOUNT	NETMBX	OPER
PFNMAP	PHY_IO	PRMCEB	PRMGBL
PRMMBX	PSWAPM	READALL	SECURITY
SETPRV	SHARE	SHMEM	SYSGBL
SYSLCK	SYSNAM	SYSPRV	TMPMBX
UPGRADE	VOLPRO	WORLD	

Use the SHOW PROCESS/PRIVILEGES command to determine what authorized 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.

/SET=(*n*[,...])
Sets all user capabilities defined by the position values *n*, where *n* has the range of 0 to 31. The /SET qualifier is only valid in conjunction with the /CAPABILITIES or the /AFFINITY 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 CMKRNL (change mode to kernel) and CMEXEC (change mode to executive) privilege enabled. Note that this was the default behavior of the SET PROCESS/SUSPEND command for versions of OpenVMS prior to VMS 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-1994 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-1994 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.

6.
```
$ SET PROCESS CPUSCHED/AFFINITY/SET=1/PERMANENT
$ SET PROCESS CPUSCHED/CAPABILITY/SET=8/PERMANENT
$ SHOW CPU/FULL

COBRA7, a DEC 4000 Model 620
Multiprocessing is ENABLED. Streamlined synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 1

System Page Size = 8192
System Revision Code =
System Serial Number =
Default CPU Capabilities:
        System:         QUORUM RUN
Default Process Capabilities:
        System:         QUORUM RUN

PRIMARY CPU = 00

CPU 00 is in RUN state
Current Process: *** None ***
Serial Number:  AY24870417
Revision:       A200
VAX floating point operations supported.
IEEE floating point operations and data types supported.
Processor is Primary Eligible.
PALCODE: Revision Code = 5.48
         PALcode Compatibility = 0
         Maximum Shared Processors = 2
         Memory Space:  Physical address = 00000000 00000000
                        Length = 0
         Scratch Space: Physical address = 00000000 00000000
                        Length = 0
Capabilities of this CPU:
        System:         PRIMARY QUORUM RUN
        User bitmask:   00000040
Processes which can only execute on this CPU:
        NETACP           PID = 0000008E  Reason: PRIMARY Capability

CPU 01 is in RUN state
Current Process: CPUSCHED        PID = 00000095
Serial Number:  AY24870406
Revision:       A200
VAX floating point operations supported.
IEEE floating point operations and data types supported.
PALCODE: Revision Code = 5.48
         PALcode Compatibility = 0
         Maximum Shared Processors = 2
         Memory Space:  Physical address = 00000000 00000000
                        Length = 0
         Scratch Space: Physical address = 00000000 00000000
                        Length = 0
Capabilities of this CPU:
        System:         QUORUM RUN
        User bitmask:   00000080
Processes which can only execute on this CPU:
        CPUSCHED         PID = 00000095  Reason: Affinitized to this CPU
                                         Reason: User capabilities - 00000080)

$ SET PROCESS/NOAFFINITY/PERMANENT
$ SET PROCESS/NOCAPABILITIES/PERMANENT
$ SHOW CPU/FULL

COBRA7, a DEC 4000 Model 620
Multiprocessing is ENABLED. Streamlined synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 1
```

```
System Page Size = 8192
System Revision Code =
System Serial Number =
Default CPU Capabilities:
        System:         QUORUM RUN
Default Process Capabilities:
        System:         QUORUM RUN

CPU 00 is in RUN state
Current Process: *** None ***
Serial Number:  AY24870417
Revision:       A200
VAX floating point operations supported.
IEEE floating point operations and data types supported.
Processor is Primary Eligible.
PALCODE: Revision Code = 5.48
         PALcode Compatibility = 0
         Maximum Shared Processors = 2
         Memory Space:  Physical address = 00000000 00000000
                        Length = 0
         Scratch Space: Physical address = 00000000 00000000
                        Length = 0
Capabilities of this CPU:
        System:         PRIMARY QUORUM RUN
        User bitmask:   00000040
Processes which can only execute on this CPU:
        NETACP           PID = 0000008E  Reason: PRIMARY Capability

CPU 01 is in RUN state
Current Process: CPUSCHED        PID = 00000095
Serial Number:  AY24870406
Revision:       A200
VAX floating point operations supported.
IEEE floating point operations and data types supported.
PALCODE: Revision Code = 5.48
         PALcode Compatibility = 0
         Maximum Shared Processors = 2
         Memory Space:  Physical address = 00000000 00000000
                        Length = 0
         Scratch Space: Physical address = 00000000 00000000
                        Length = 0
Capabilities of this CPU:
        System:         QUORUM RUN
        User bitmask:   00000080
Processes which can only execute on this CPU:
        *** None ***
```

In this example, CPU 1 has user capability 8 enabled (user mask = 80). User capability 8 is set for process CPUSCHED, and CPU affinity is set to 1. Either of these settings forces the process to run only on CPU 1, as shown by the SHOW PROCESS command.

Then, the SET PROCESS/NOAFFINITY/NOCAPABILITIES command clears all CPU affinities and user capability requirements for the current process (CPUSCHED), and the binding to CPU 1 disappears.

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-1994 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/DEFAULT

Establishes the default protection for files created by the current process.

Format

SET PROTECTION[=(code)]/DEFAULT

Parameter

code
Specifies the SOGW protection to be assigned by default to all files subsequently created by the current process. To override this protection you must specify an explicit protection using either the SET PROTECTION command or the /PROTECTION qualifier on the CREATE command. If you do not specify a protection code, the current default 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.

Use the SET SECURITY command to reset security characteristics of the directory or file.

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 QUEUE

Changes the attributes of the specified queue.

Requires manage (M) access to the 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 a null string ("") 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 system parameter PQL_MCPULM. The time cannot exceed the CPU time limit set by the /CPUMAXIMUM qualifier. For information on specifying delta time, see the *OpenVMS User's Manual*. For more information on specifying CPU time limits, see the CPU Time Limit Specifications and Actions table for 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 system parameter PQL_MCPULM.

For information on specifying delta time, see the *OpenVMS User's Manual*. For more information on specifying CPU time limits, see the CPU Time Limit Specifications and Actions table for 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. If no form type is explicitly specified with the FORM keyword, the system assigns the form ''DEFAULT'' to the queue. 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 *OpenVMS System Manager's Manual*.

/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 no form type is explicitly specified, the system assigns the form ''DEFAULT'' to the queue.

If the stock of the mounted form does not match 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 and remain pending until the stock of the queue's mounted form is identical to the stock of the form associated with the job.

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 and remains 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. You cannot use the /FORM_MOUNTED qualifier with the /GENERIC qualifier.

/JOB_LIMIT=n
Indicates the number of batch jobs that can be executed concurrently from the queue. Specify a number in the range 1 to 255.

/NO_INITIAL_FF
/NONO_INITIAL_FF (default)
Allows user to set or modify whether a form feed should be sent to a printer device when a queue starts. To suppress the initial form feed, set the queue with /NO_INITIAL_FF qualifier.

Setting the queue with /NONO_INITIAL_FF qualifier sends a form feed to the output device before printing begins when the queue restarts.

/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) 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 *OpenVMS Guide to System Security*.

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

Requires OPER (operator) privilege to control access to the queue.

Specifies the protection of the queue.

- Specify the *ownership* parameter as system (S), owner (O), group (G), or world (W).
- Specify the *access* parameter as read (R), submit (S), manage (M), 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 *OpenVMS Guide to System Security*. For more information on controlling queue operations through UIC-based protection, see the *OpenVMS System Manager's Manual*.

/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 OpenVMS system 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 *OpenVMS System Manager's Manual*.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the OpenVMS system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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 DCLII–5.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the OpenVMS system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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 DCLII–5.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha systems or 512-byte pages on VAX systems. Note that the OpenVMS system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 DCLII–5) shows the action taken for different combinations of specifications that involve working set size and working set quota values.

Table DCLII–5 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:

DYNAMIC	Allows unprivileged holders of the identifier to remove and to restore the identifier from the process rights list by using the DCL command SET RIGHTS_LIST.
NOACCESS	Makes any access rights of the identifier null and void. If a user is granted an identifier with the No Access attribute, that identifier has no effect on the user's access rights to objects. This attribute is a modifier for an identifier with the Resource or Subsystem attribute.
RESOURCE	Allows holders of an identifier to charge disk space to the identifier. Used only for file objects.

SUBSYSTEM	Allows holders of the identifier to create and maintain protected subsystems by assigning the Subsystem ACE to the application images in the subsystem. Used only for file objects.

To remove an attribute from the identifier, add a NO prefix to the attribute keyword. For example, to remove the Resource attribute, specifiy /ATTRIBUTE=NORESOURCE.

The default uses the current processes in the rights database. Use the command SHOW PROCESS/RIGHTS to see the attributes of the current process.

/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-NOPRIV, insufficient privilege or obeject protection violation
$ 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 OpenVMS Record Management Services (RMS) for file operations.

If you set the default value for either the multiblock count or the multibuffer count at 0, RMS tries to use the process default value or the system default value, in that order. If these are set at 0, 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 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 *OpenVMS 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 *OpenVMS Record Management Services Reference 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 *OpenVMS Record Management Services Reference 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, 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 is the number of blocks to be allocated for each I/O buffer.

For remote file access, the buffer size is negotiated between 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. The largest record must be less than or equal to (512 * network_block_count). (The network_block_count is in block units and the record is in byte units.)

If you omit the value or specify a value of 0, RMS uses the systemwide block count value. If this value is also 0, 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, 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-  |                MULTIBUFFER COUNTS                | NETWORK
           BLOCK   | Indexed  Relative           Sequential           |  BLOCK
           COUNT   |                       Disk   Magtape  Unit Record |  COUNT
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-  |                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         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-BLOCK COUNT	MULTIBUFFER COUNTS					NETWORK BLOCK COUNT
		Indexed	Relative	Sequential			
				Disk	Magtape	Unit Record	
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-BLOCK COUNT	MULTIBUFFER COUNTS					NETWORK BLOCK COUNT
		Indexed	Relative	Sequential			
				Disk	Magtape	Unit Record	
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 SECURITY

Modifies the security profile of an object.

Format

SET SECURITY object-name

Parameter

object-name
Specifies the name of an object, such as a file or device, whose security profile is to be modified. An object is identified by an object name and a class name. The default class name is FILE.

An object name of the FILE class (explicitly or implicitly specified) can include an asterisk (*) or a percent sign (%) wildcard character, but wildcard characters are not allowed in any class other than FILE. SET SECURITY does not operate on remote files and devices, alias directory entries, or directory names in UIC format (for example, [14,5]).

Description

The SET SECURITY command modifies the security profile of an object. Such a profile contains the following elements:

- An access control list editor (ACL editor)
- A protection code, which defines access to objects based on the categories of system, owner, group, and world.
- An owner. The system uses the owner element to interpret the protection code.

There are three different ways to use the command.

- You can provide new values explicitly with the qualifiers /ACL, /PROTECTION, and /OWNER. (For extensive ACL work, use /EDIT to invoke the ACL editor.)
- You can copy from another object's profile with the /LIKE qualifier.
- If the object is of the FILE class, you can reset its profile to the default setting with the /DEFAULT qualifier.

In order to modify a security profile, you need control access to the object. An ACL grants control access explicitly whereas a protection code grants it implicitly to anyone belonging to the owner or system categories. If an object profile is modified while the object is being accessed, the existing access is unaffected.

The following table identifies object classes and the access types they support.

Object Class	Access Types
CAPABILITY (VAX only)	Use, Control
COMMON_EVENT_FLAG_ CLUSTER	Associate, Delete, Control

Object Class	Access Types
DEVICE	Read, Write, Physical, Logical, Control
FILE (including directory file)	Read, Write, Execute, Delete, Control
GROUP_GLOBAL_SECTION	Read, Write, Execute, Control
LOGICAL_NAME_TABLE	Read, Write, Create, Delete, Control
QUEUE	Read, Submit, Manage, Delete, Control
RESOURCE_DOMAIN	Read, Write, Lock, Control
SECURITY_CLASS	Read, Write, Control, Logical I/O, Physical I/O
SYSTEM_GLOBAL_SECTION	Read, Write, Execute, Control
VOLUME	Read, Write, Create, Delete, Control

The *OpenVMS Guide to System Security* provides a full explanation of protected objects and how to modify them.

Table DCLII–6 shows the qualifier categories for the SET SECURITY command. The explanations for the qualifiers following Table DCLII–6 occur in alphabetical order.

Table DCLII–6 SET SECURITY Qualifier Categories

General Qualifiers	ACL-Modifying Qualifiers	Security Class Qualifier	File-specific Qualifiers	Transfer Qualifiers
/ACL	/AFTER	/PROFILE	/BACKUP	/COPY_ATTRIBUTE
/CLASS	/DELETE		/BEFORE	/LIKE
/LOG	/EDIT		/BY_OWNER	
/OWNER	/REPLACE		/CONFIRM	
/PROTECTION			/CREATED	
			/DEFAULT	
			/EXCLUDE	
			/EXPIRED	
			/MODIFIED	
			/SINCE	

Qualifiers

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

Identifies one or more access control list entries (ACEs) to add, replace, or delete. Enclose each ACE in parentheses and separate multiple ACEs by commas (,). The most common type of entry, the Identifier ACE, has the format (IDENTIFIER=identifier, ACCESS=access-type(+...)). By default, SET SECURITY adds an ACE to the top of the ACL. This behavior changes when you include one of the positional qualifiers: /AFTER, /DELETE, or /REPLACE. See the discussion of ACL ordering in the *OpenVMS Guide to System Security*.

/AFTER=ace

Positions all ACEs specified with the /ACL qualifier after the ACE named with the /AFTER qualifier.

/BACKUP
Modifies the time value provided with the /BEFORE or the /SINCE qualifier. The /BACKUP qualifier selects files according to the date of their most recent backup (rather than by the creation, expiration, or modification date). By default, SET SECURITY selects files according to their creation date.

/BEFORE[=time]
Selects only those files dated prior to the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's Manual*.

/BY_OWNER[=uic]
Selects files whose owner's UIC matches the UIC specified. The default UIC is that of the current process.

/CLASS=class-name
Specifies the class of the object whose profile is to be modified. By default, the command assumes the object class is FILE.

/CONFIRM
Controls whether SET SECURITY prompts for verification before performing the operation. Valid responses are YES, NO, TRUE, and FALSE. Answers are not case sensitive and can be abbreviated to one letter. To stop processing the command at any point, type QUIT or press Ctrl/Z. To cancel the verification procedure but to proceed with the command, type ALL.

/COPY_ATTRIBUTE=(keyword[,...])
Specifies a subset of security elements to transfer from a source object to a target object. Valid keywords include the following:

Keyword	Description
ALL (default)	Copy all security elements
ACL	Copy the access control list
OWNER	Copy the owner
PROTECTION	Copy the protection code

Use the /COPY_ATTRIBUTE qualifier with the /LIKE qualifier. For example, you can create an ACL for an object and then copy its ACL to new objects.

/CREATED
Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files according to the date they were created (rather than by the backup, expiration, or modification date). By default, SET SECURITY selects files according to their creation date.

/DELETE[=ALL]
Deletes ACEs according to the following rules:

- The expression /ACL=aces/DELETE deletes the named ACEs.

- The expression /ACL/DELETE deletes all unprotected ACEs.
- The expression /ACL/DELETE=ALL deletes all ACEs including protected ACEs.
- The expression /ACL=aces/DELETE=ALL deletes the existing ACL (if any) and create a new ACL with the ACEs specifies on the /ACL qualifier.

/DEFAULT

Regenerates the security profile of a file. The default qualifier changes the protection code, the ACL, and the owner elements of a file to what it would be if the file had just been created. The profile is recreated according to the following rules:

- The protection code is propagated from the default protection ACE on the directory (if one exists), or else it is propagated from the process default.
- The ACL is propagated from the parent directory for those ACEs that have the default option.
- The owner is set to the owner of the parent directory.

With subdirectory files, SET SECURITY assigns the owner, protection, and ACL elements of the parent directory.

SET SECURITY does not copy any ACE on the source object if the ACE holds the nopropagate attribute nor does it change any ACE on the target object if the ACE holds the protected attribute. To apply new elements to all versions of the file, specify ;* in the object name. Refer to the *OpenVMS Guide to System Security* for more information on propagation rules.

/EDIT

Invokes the access control list editor (ACL editor) and allows you to modify an ACL interactively. The ACL editor does not allow the asterisk (*) and the percent sign (%) wildcard characters in an object name. You must specify the object whose ACL you are editing.

The /EDIT qualifier must be the first qualifier on the command line; other qualifiers can include /CLASS and, if the class is SECURITY_CLASS, you can include the /PROFILE qualifier. Whenever an object does not belong to the FILE class, you also need to specify /CLASS.

See the ACL editor in the *OpenVMS System Management Utilities Reference Manual* for more information.

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

Excludes the specified files from the SET SECURITY operation. You can include a directory, but not a device, in the file specification. You cannot use relative version numbers to exclude a specific version.

/EXPIRED

Modifies the time specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates rather than by the backup, creation, or modification date. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) By default, files are selected according to their creation date.

/LIKE=(NAME=source-object-name
[,CLASS=source-object-class] [,PROFILE=TEMPLATE=template-name])
Identifies the object from which SET SECURITY should copy security elements. The /LIKE qualifier replaces an object's existing elements with those of the source object. Nopropagate ACEs are not transferred and protected ACEs on the target object are not deleted. Use the /COPY_ATTRIBUTE qualifier with the /LIKE qualifier to copy an object's elements. Refer to the *OpenVMS Guide to System Security* for information about the special handling of protected and nopropagate ACEs.

The object class of the source object defaults to the class of the target object. When the /CLASS qualifier is omitted, the CLASS keyword defaults to FILE.

The PROFILE keyword applies to security class objects. It identifies which template of the security class you want to copy and modify. See /PROFILE for more information.

/LOG
Controls whether the SET SECURITY command displays the name of the object that has been modified by the command. The qualifier is invalid with the /EDIT 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, rather than by the backup, creation, or expiration date. By default, files are selected according to their creation date.

/OWNER=identifier
Modifies the owner element of an object. Specify the user identification code (UIC) or general identifier in the standard format. Modifying the owner element of a file usually requires privileges. See the discussion in the *OpenVMS Guide to System Security*.

/PROFILE=TEMPLATE[=template-name]
Identifies which template profile of a security class object you want to modify. All object classes except FILE have at least one template profile. These template profiles define the basis of the profile of new objects. Use the DCL command SHOW SECURITY/CLASS=SECURITY_CLASS to display template names. When no value is given for *template-name*, SET SECURITY uses the template named DEFAULT.

Include the /CLASS=SECURITY_CLASS qualifier to identify which profile you want to modify.

/PROTECTION=(ownership[:access][,...])
Modifies the protection code of an object. The protection code defines the type of access allowed to users, based on their relationship to the object's owner.

Specify the *ownership* parameter as system (S), owner (O), group (G), or world (W).

Access types are class specific and are shown in the Description section. For *access*, use the first letter of the access name. The Examples section provides you with models of protection codes.

/REPLACE=(ace[,...])
Eliminates entries listed with the /ACL qualifier and adds entries listed with the /REPLACE qualifier. SET SECURITY inserts the entries listed with /REPLACE in the position of the last deleted ACE.

/SINCE[=time]
Selects only those files dated after the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's Manual*.

Examples

1.
```
$  SHOW SECURITY LNM$GROUP /CLASS=LOGICAL_NAME_TABLE

LNM$GROUP object of class LOGICAL_NAME_TABLE

     Owner: [SYSTEM]
     Protection: (System: RWCD, Owner: R, Group: R, World: R)
     Access Control List:
          (IDENTIFIER=[USER,SMITH],ACCESS=CONTROL)

$  SET SECURITY LNM$GROUP /CLASS=LOGICAL_NAME_TABLE -
_$      /ACL=((IDENTIFIER=CHEKOV,ACCESS=CONTROL), -
_$            (IDENTIFIER=WU,ACCESS=READ+WRITE)) -
_$       /DELETE=ALL -
_$       /PROTECTION=(S:RWCD, O:RWCD, G:R, W:R)

$  SHOW SECURITY LNM$GROUP /CLASS=LOGICAL_NAME_TABLE

LNM$GROUP object of class LOGICAL_NAME_TABLE

     Owner: [SYSTEM]
     Protection: (System: RWCD, Owner: RWCD, Group: R, World: R)
     Access Control List:
          (IDENTIFIER=[USER,CHEKOV],ACCESS=CONTROL)
          (IDENTIFIER=[USER,WU],ACCESS=READ+WRITE)
```

This example shows how to make a straightforward change to the security elements of an object. The first SHOW SECURITY command displays the current settings of the LNM$GROUP logical name table. The SET SECURITY command resets the ACL to allow control access for user Chekov, and to allow read and write access for user Wu. Note that without the /DELETE=ALL qualifier, these ACEs would have been added to the existing ACL rather than superseding it. The protection is also changed to allow read, write, create, and delete access for the owner. The last command displays the results of the changes.

2.
```
$  SHOW SECURITY LNM$GROUP /CLASS=LOGICAL_NAME_TABLE

LNM$GROUP object of class LOGICAL_NAME_TABLE

     Owner: [SYSTEM]
     Protection: (System: RWCD, Owner: R, Group: R, World: R)
     Access Control List:
          (IDENTIFIER=[USER,FERNANDEZ],ACCESS=CONTROL)

$  SHOW SECURITY LNM$JOB /CLASS=LOGICAL_NAME_TABLE

LNM$JOB object of class LOGICAL_NAME_TABLE

     Owner: [USER,WEISS]
     Protection: (System: RWCD, Owner: RWCD, Group, World)
     Access Control List:  <empty>


$  SET SECURITY LNM$JOB /CLASS=LOGICAL_NAME_TABLE -
_$      /LIKE=(NAME=LNM$GROUP, CLASS=LOGICAL_NAME_TABLE) -
_$      /COPY_ATTRIBUTES=PROTECTION
$  SET SECURITY LNM$JOB /CLASS=LOGICAL_NAME_TABLE -
_$      /ACL=(IDENTIFIER=FERNANDEZ, ACCESS=READ)

$  SHOW SECURITY LNM$JOB /CLASS=LOGICAL_NAME_TABLE

LNM$JOB object of class LOGICAL_NAME_TABLE

     Owner: [USER,WEISS]
     Protection: (System: RWCD, Owner: R, Group: R, World: R)
     Access Control List:
          (IDENTIFIER=[USER,FERNANDEZ],ACCESS=READ)
```

This example shows how to copy security access information from one object to another and, at the same time, set some elements explicitly. The first SHOW SECURITY commands display the current settings for the LNM$GROUP and LNM$JOB logical name tables. The SET SECURITY command copies the protection code from the LNM$GROUP logical name table to the LNM$JOB logical name table and adds an ACE to allow read access to another user. The final SHOW SECURITY command shows the effect of the changes.

3.
```
$  SHOW SECURITY SECURITY_CLASS /CLASS=SECURITY_CLASS

SECURITY_CLASS object of class SECURITY_CLASS

     Owner: [SYSTEM]
     Protection: (System: RWED, Owner: RWED, Group: R, World: R)
     Access Control List:  <empty>

  Template: DEFAULT

     Owner: [SYSTEM]
     Protection: (System: RWED, Owner: RWED, Group, World: RE)
     Access Control List:   <empty>

$  SET SECURITY SECURITY_CLASS /CLASS=SECURITY_CLASS -
_$      /PROFILE=TEMPLATE=DEFAULT -
_$      /PROTECTION=(S:RWE, O:RWE, G:RE)

$  SHOW SECURITY SECURITY_CLASS /CLASS=SECURITY_CLASS

SECURITY_CLASS object of class SECURITY_CLASS
     Owner: [SYSTEM]
     Protection: (System: RWED, Owner: RWED, Group: R, World: R)
     Access Control List:  <empty>

  Template: DEFAULT
```

```
Owner: [SYSTEM]
Protection: (System: RWE, Owner: RWE, Group: RE, World: RE)
Access Control List:  <empty>
```

This example demonstrates how to change the security elements for the template of a security class object. The first command shows the current settings for the SECURITY_CLASS object. The second command changes the DEFAULT template of the SECURITY_CLASS object such that the protection is (S:RWE, O:RWE, G:RE). The change is shown in the display of the last command. The world protection of RE remains unchanged.

SET SERVER

Controls starting, stopping, and restarting of the security server. The security server maintains information stored in the system intrusion and proxy databases.

Format

SET SERVER server-name

Parameter

server-name
The server-name must be SECURITY_SERVER.

Description

The SET SERVER command provides a system manager with a means to start, stop, and restart the security server. The security server maintains information stored in the system intrusion and proxy databases.

The system intrusion database is used by LOGINOUT, DECnet/OSI, DECwindows, SHOW INTRUSION, DELETE INTRUSION, and other applications. For more information about the system intrusion database and $DELETE_INTRUSION, $SCAN_INTRUSION, and $SHOW_INTRUSION system services, see the *OpenVMS System Services Reference Manual*. For further information, see the *OpenVMS Guide to System Security*.

The system proxy database is used by AUTHORIZE, DECnet/OSI, DFS, and other applications to access information stored in the nework proxy database. Additional information can be found in the *OpenVMS System Management Utilities Reference Manual*. See also the $ADD_PROXY, $DELETE_PROXY, $DISPLAY_PROXY, $VERIFY_PROXY system services in the *OpenVMS System Services Reference Manual*.

Qualifiers

/EXIT
Stop the detached security server process.

/RESTART
Restart the detached security server process.

/START
Start the detached security server process.

Examples

1. `$ SET SERVER SECURITY_SERVER/START`

   This command starts the detached security server process.

2. `$ SET SERVER SECURITY_SERVER/EXIT`

   This command stops the detached security server process.

3. `$ SET SERVER SECURITY_SERVER/RESTART`

   This command restarts the detached security server 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.
```
$ NOW :== SHOW TIME
$ !
$ NOW
   7-APR-1994 11:48:58
$ !
$ SET SYMBOL /VERB /SCOPE=NOGLOBAL
$ NOW
%DCL-W-IVVERB, unrecognized command verb-check validity and spelling
 \NOW\
$ !
$ SHOW SYMBOL NOW
  NOW == "SHOW TIME"
```

This example demonstrates the use of the /VERB qualifier.

The symbol NOW 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 (NOW). Since NOW translates to the SHOW TIME command, this is used instead of NOW.

The SET SYMBOL command on the next line changes the behavior so that DCL does not attempt a translation. When NOW is subsequently entered, DCL uses the string NOW as the command 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 DCLII–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 an OpenVMS system 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 OpenVMS 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 *OpenVMS Wide Area Network I/O User's Reference Manual*.

Figure DCLII–2 Default Characteristics for Terminals

Default Characteristics for Terminals

Name	Unk.	For.	IA12	IA34 IA38 IA100 LQP02	LA36	LA120	IA210 IN03 IN01K	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	No	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	No	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	*	*	*	*
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 DCLII–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 14 lines.

/ALTYPEAHD
Causes the terminal driver to create a permanent, alternate type-ahead buffer. The system 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.

To enable /ALTYPEAHD, you must also set the qualifier /TYPE_AHEAD.

You should specify SET TERMINAL/PERMANENT/ALTYPEAHD in SYS$STARTUP:SYSTARTUP_VMS.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:

```
 50       150       1800       4800       38400
 75       300       2000       7200       57600
110       600       2400       9600       76800
134      1200       3600      19200      115200
```

/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.

/COLOR
Sets the ANSI_COLOR terminal characteristic and identifies the terminal as capable of supporting the ANSI color escape sequences.

/COMMSYNC
/NOCOMMSYNC (default)
Allows connection of asynchronous printers and other devices to terminal ports, using standard modem control signals as flow control. Transmission to the device stops if either data set ready (DSR) or clear to send (CTS) EIA modem control signals are dropped. Transmission resumes when both signals are present.

The /COMMSYNC qualifier and the /MODEM qualifier are mutually exclusive.

The COMMSYNC feature has the following limitations:

- Cannot be used on LAT ports
- Can only be used on ports with full modem control
- Should not be used in conjunction with Xon/Xoff flow control (the port may hang)

Caution

The /COMMSYNC qualifier should never be set on a line with a modem that is intended for interactive use. The qualifier disables the modem terminal characteristic that disconnects a user process from the terminal line in case of a modem phone line failure. With the /COMMSYNC qualifier enabled, the next call on the terminal line could be attached to the previous user's process. Security administrators should be aware that the characteristic should not be used on interactive terminal ports. In addition, the /COMMSYNC qualifier is not supported on a port connected to a LAT line.

/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-, VT400-, or VT500-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 (OLTP) 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	LA38	LQP02	VT100	VT132
FT1–FT8	LA100	PRO_	VT101	VT173
LA12	LA120	SERIES	VT102	VT200
LA34	LA210	VT05	VT105	VT300
LA36	LN01K	VT52	VT125	VT400
	LN03	VT55	VT131	VT500

The default characteristics for the VT100-, VT102-, and VT125-series terminals are as follows:

/ADVANCEDVIDEO	/NOALTYPEAHD[1]	/ANSI_CRT
/NOAUTOBAUD	/NOBLOCK_MODE	/NOBRDCSTMBX
/BROADCAST	/CRFILL=0	/ECHO
/NOEIGHT_BIT	/NOESCAPE	/NOFORM
/FULLDUP	/NOHOSTSYNC	/LFFILL=0
/LOWERCASE	/NODMA	/PAGE=24
/NOPARITY	/NOPASTHRU	/NOREADSYN
/SPEED=9600	/TAB	/TTSYNC
/TYPE_AHEAD	/WIDTH=80	/WRAP

[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 DCLII–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 *OpenVMS 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 OpenVMS Terminal Fallback Facility (TFF) is enabled, it activates the default character conversion tables for the named terminal. For more information, see the *OpenVMS 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 from 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 when the /INQUIRE qualifier is specified and the DEC_CRT characteristic is set. The SET TERMINAL command reads the current screen size from the terminal and sets the corresponding page length and page width values appropriately. The default device type is UNKNOWN. Works only on Digital terminals, and not on LA36 or VT05 terminals. Some VT100 family terminals, including the VT101 and VT105, return a VT100 type response. LA38 terminals respond as LA43 terminals.

Note

The SET TERMINAL/INQUIRE command works correctly on DIGITAL supplied VT100 and later terminals. Some personal computer terminal emulators may not work correctly, since they do not correctly emulate all VT100 escape sequences. DIGITAL recommends that users who experience problems with these terminal emulators contact the terminal emulator supplier.

You can include the SET TERMINAL/INQUIRE command in your LOGIN.COM file to detect the terminal type automatically.

If you specify /INQUIRE=OLD, OpenVMS sets the terminal window to 24 lines by 80 columns and ignores the real terminal size. (This is the behavior of the SET TERMINAL/INQUIRE command prior to OpenVMS Version 6.2.)

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 DCLII–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 OpenVMS 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. The /MODEM qualifier and the /COMMSYNC qualifier are mutually exclusive.

/NUMERIC_KEYPAD (default)
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 DCLII–2 for a list of default terminal characteristics.

VAX

/PROTOCOL=DDCMP
/PROTOCOL=NONE (default)
On VAX, 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.

Caution

SET TERMINAL/READSYNC should not be used on LAT terminal lines. Setting this characteristic may cause unexpected results.

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)
Requires either LOG_IO (logical I/O) or PHY_IO (physical I/O) privilege.

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 DCLII–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 DCLII–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      38400
 75      300      2000      7200      57600
110      600      2400      9600      76800
134     1200      3600     19200     115200
```

VAX

/SWITCH=DECNET
On VAX, 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 DCLII–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 accepts input only when a program or the system issues a read to the terminal, such as for user input at the DCL prompt ($). 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 DCLII–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 14 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[/CLUSTER][=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 - VAX only♦
Year	Integer	1957 to 2056 - Alpha only♦
Hour	Integer	0 to 23
Minute	Integer	0 to 59
Second	Integer	0 to 59
Hundredth	Integer	0 to 99

VAX

Alpha

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]

Alpha

Alpha systems also allow a 2-digit year format:

[dd-mmm-yy[:]] [hh:mm:ss.cc]

The century applied to the 2-digit year format is determined by the corresponding year in the supported Alpha date range (1957-2056).♦

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 VAX processors. For further information about the time-of-year clock, see the hardware documentation for your Digital computer.

Note

Alpha systems maintain system time during power failures and system down time. When a system is booted, if the time is known to be earlier than the time value of the last time modification, or greater than five

years in the future, you are prompted to enter the time at the console prompt.

Qualifier

/CLUSTER

Requires OPER and LOG_IO privilege, and in a VMScluster environment, SYSLCK privilege.

Sets the time on all nodes in a cluster to the same system time.

Examples

1.
```
$ SET TIME=14-DEC-1995:19:31:0.0
```

   The SET TIME command in this example sets the date and time at December 14, 1995, 7:31 P.M.

2.
```
$ SET TIME
$ SHOW TIME
14-DEC-1995 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.

3.
```
$ SET TIME/CLUSTER=14-DEC-1995:15:31:0.0
```

   This example sets the date and time to December 14, 1995, 3:31 P.M. on all nodes in the cluster on which the command was issued.

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 VERIFY [=([NO]PROCEDURE, [NO]IMAGE)]

SET NOVERIFY

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")
$ HOLD_PREFIX = F$ENVIRONMENT("VERIFY_PREFIX")
$ SET PREFIX "(!%T)"
$ SET VERIFY
   .
   .
   .
$ TEMP = F$VERIFY(PROC_VER, IMAGE_VER)
$ SET PREFIX "''HOLD_PREFIX'"
```

This command procedure uses the F$ENVIRONMENT lexical function to save the current procedure and image verification setting, as well as the current verification prefix string. The SET PREFIX command sets the verification prefix to be used in the current command procedure. It uses an FAO control string to produce the time each command is read by the command interpreter (DCL), surrounded by parentheses. Then the SET VERIFY command turns on both procedure and image verification. Subsequently, the F$VERIFY lexical function is used to restore the original verification settings. The SET PREFIX command returns the verification prefix to its previous setting. Note how the symbol HOLD_PREFIX is used in the SET PREFIX command. This preserves casing and special characters in the stored string.

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. The SET VOLUME command affects only the node on which the command is issued, and will not affect any other nodes, even when a volume is mounted on multiple nodes in a VMScluster configuration.

If you are not the owner of the volume, requires control access to the volume.

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 OpenVMS 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 an OpenVMS system, but the attribute is provided to control the process use of the volume on RSX–11M systems. The OpenVMS 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 ANSI name to be encoded on the volume. The specified label remains in effect until it is changed explicitly; dismounting the volume does not affect the label. Digital strongly recommends that a volume label should only consist of alphanumeric characters, dollar signs ($), underscores (_), and hyphens (-).

If you change the volume label on an OpenVMS system disk, you should also update the POLYCENTER Software Installation utility database. To accomplish this, use the PRODUCT REGISTER VOLUME command to replace the old volume label with the new volume label.

Note

Changing the volume label does not change other structures that used the original volume label. For example, the DISK$labelname logical is not changed nor is the device-lock name that is kept internally by OpenVMS. As a result, if you attempt to access another disk that has the same volume label as the original volume of this device, you may get error messages such as the following: "%MOUNT-F-VOLALRMNT, another volume of same label already mounted".

Digital recommends that, if you change a disk volume label, you also dismount and remount the disk on all nodes in the cluster so that the names and locks are consistent.

/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 *OpenVMS Guide to System Security*.

/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).
- Specify the *access* parameter as read (R), write (W), create (C), or delete (D).

The default protection is all types of access by all categories of user.

/REBUILD[=FORCE]
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. The FORCE option forces the disk to be rebuilt unconditionally, thus updating the free block count in the disk volume's lock value block.

/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.

/SUBSYSTEM
/NOSUBSYSTEM
Enables the processing of subsystem ACEs. Requires the SECURITY privilege. By default, the disk from which you boot has protected subsystems enabled but other disks do not. For further details on subsystems, see the *OpenVMS Guide to System Security*.

/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).

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the OpenVMS system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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 physical 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 physical 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 physical 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 DCLII–7 lists all the SHOW command options.

Table DCLII–7 SHOW Command Options

Option	Displays
ACCOUNTING	The resources the current accounting file is tracking
AUDIT	Displays the security auditing characteristics in effect on the system
BROADCAST	Displays message classes for which broadcast is enabled
CLUSTER	Displays VMScluster activity and performance
CPU	Displays current state of the attached processor
DEFAULT	Displays the current default device and directory
DEVICES	Displays the status of devices in the system
DEVICE/SERVED	Displays the status of devices served by the mass storage control protocol (MSCP) server on a VMScluster
DISPLAY	Displays the node where the output from a DECwindows application running on the current node will be displayed
ENTRY	Displays information about a user's batch and print jobs or about specific job entries
ERROR	Displays the error count for the CPU, memory, and physical devices
INTRUSION	Displays the contents of the break-in database
KEY	Displays key definitions created by the DEFINE/KEY command

(continued on next page)

Table DCLII–7 (Cont.) SHOW Command Options

Option	Displays
LICENSE	Displays software product licenses active on the current node as well as lists the names attached to a license (known as the RESERVE list)
LOGICAL	Displays current logical name assignments
MEMORY	Displays the availability and usage of memory resources
NETWORK	Displays information about network services registered on a node
PRINTER	Displays printer characteristics
PROCESS	Displays attributes of the current process, including privileges, resource quotas, memory usage, priority, and accounting information
PROTECTION	Displays the current default protection applied to files
QUEUE	Displays names and types of queues that are available on the system as well as any current jobs belonging to your process
QUEUE/CHARACTERISTICS	Displays characteristic names and numbers that have been defined for system queues
QUEUE/FORM	Displays form names and numbers that have been defined for system queues
QUOTA	Displays the current disk quota authorized for and used by a specific user on a specific disk
RMS_DEFAULT	Displays the current default multiblock and multibuffer counts used by OpenVMS Record Management Services (RMS) for file operations
SECURITY	Displays the name, class, and profile of a security object
STATUS	Displays the status of the current job, including accumulated CPU time, open file count, and count of I/O operations
SYMBOL	Displays current symbol definitions
SYSTEM	Displays a list of all processes in the system
TERMINAL	Displays the device characteristics of a terminal
[DAY]TIME	Displays the current date and time

(continued on next page)

Table DCLII–7 (Cont.) SHOW Command Options

Option	Displays
TRANSLATION	Displays a current logical name assignment
USERS	Displays information about users currently on the system
WORKING_SET	Displays the CURRENT working set size limit and quota

SHOW ACCOUNTING

Shows what resources the current accounting file is tracking.

Format

SHOW ACCOUNTING

Parameters

None.

Description

Each node on your system has its own current accounting file. You can see what resources this file is tracking using the SHOW ACCOUNTING command.

There are two occasions when the resources used by a process are not tracked, despite the output of the SHOW ACCOUNTING command:

- When you use the RUN (Process) command with the /NOACCOUNTING qualifier.
- When you use the $CREPRC system service with the PRC$M_NOACNT status flag.

Similarly, there is one occasion when the resources used by an image are always tracked, despite the output of the SHOW ACCOUNTING command:

- When you install an image using the /ACCOUNTING qualifier of the Install utility.

The SHOW ACCOUNTING command produces a screen display (see the Example). The keywords in the display (in upper case) fall into two categories:

- Keywords that show which types of resource are being tracked:

Keyword	Type of Resource
IMAGE	Resources used by an image
LOGIN_FAILURE	Resources used by an unsuccessful attempt to log in
MESSAGE	(Unformatted resource record written to the accounting file by a call to the $SNDJBC system service)
PRINT	Resources used by a print job
PROCESS	Resources used by a process

- Keywords that show which types of process are being tracked. When the resources for processes or images are tracked, these keywords show the process type:

Keyword	Type of Process
BATCH	Batch process
DETACHED	Detached process
INTERACTIVE	Interactive process
NETWORK	Network process
SUBPROCESS	Subprocess (the parent process can be a batch, detached, interactive, or network process)

Qualifier

/OUTPUT[=filespec]
Requires read (R) and write (W) access to the directory in which the specified file is created.

Controls the output destination of the command. By default, the output is the current SYS$OUTPUT device. To send the output to a file, use the /OUTPUT qualifier followed by the file specification.

If the file specification does not include the file name or file type, the defaults .SHOW and .LIS are used respectively.

Example

```
$ SHOW ACCOUNTING

Accounting is currently enabled to log the following activities:

      PROCESS        any process termination
      IMAGE          image execution
      INTERACTIVE    interactive job termination
      LOGIN_FAILURE  login failures
      NETWORK        network job termination
      PRINT          all print jobs
```

The keywords in this example show that the local node is tracking the resources used by each:

- Interactive and network process.
- Image running in an interactive or network process.
- Login failure.
- Print job.

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 current state of security auditing for the system. The display can include the state of the audit journal, the characteristics of the audit server, and the events for which auditing is enabled. If no auditing has been enabled, the display reports that security alarms and audits are currently disabled.

SHOW AUDIT and SET AUDIT provide the principal management interface to the security auditing system.

Qualifiers

/ALL

Displays all available auditing information including the following:

- Location of the system security audit log file
- Security events enabled for auditing
- Location of the security archive file
- Audit server characteristics, such as the action taken if the audit server runs out of memory.

/ALARM

Displays the categories of events that are currently enabled; these events will generate messages on any operator's terminal accepting security class messages.

/ARCHIVE

Displays the name and location of the security archive file (if archiving is enabled).

/AUDIT

Displays the categories of events that are currently enabled to write messages to the system security audit log file.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/JOURNAL
Displays characteristics of the system audit journal.

/OUTPUT[=filespec]
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 default output stream or device for the current process, which is identified by the logical name SYS$OUTPUT.

If you enter the /OUTPUT qualifier with a partial file specification (for example, only a directory name), SET AUDIT assigns the file name SHOW with the default file type of .LIS. The file specification cannot include the asterisk (*) and the percent sign (%) wildcard characters.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/SERVER
Displays audit server characteristics.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW AUDIT/ALL
List of audit journals:
  Journal name:           SECURITY
  Journal owner:          (system audit journal)
  Destination:            SYS$COMMON:[SYSMGR]SECURITY.AUDIT$JOURNAL
  Monitoring:             free disk space
  Warning threshold:      1000 blocks
  Action threshold:       250 blocks
  Resume threshold:       750 blocks

Security auditing server characteristics:
  Database version:       4.2
  Backlog (total):        100, 200, 300
  Backlog (process):      5, 2
  Final resource action:  purge oldest audit events

Security archiving information:
  Archiving events:       none
  Archive destination:

System security alarms currently enabled for:
  ACL
  Authorization
  Breakin:     dialup,local,remote,network,detached
  Logfailure:  batch,dialup,local,remote,network,subprocess,detached

System security audits currently enabled for:
  ACL
  Authorization
  Breakin:     dialup,local,remote,network,detached
  Logfailure:  batch,dialup,local,remote,network,subprocess,detached
```

   The SHOW AUDIT command in this example displays the auditing settings after a VAX system installation.

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. The asterisk (*) and the percent sign (%) 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 *OpenVMS System Management Utilities Reference Manual*.

Format

SHOW CLUSTER

SHOW CPU

Displays the current state of the processors in an OpenVMS system.

Format

SHOW CPU [cpu-id[,...]]

Parameter

cpu-id[,...]
Specifies a decimal value representing the identity of a processor in a OpenVMS multiprocessing system. On a VAX 6000 system or an Alpha 7000 system, the CPU ID is the backplane slot number of the processor.

Description

The SHOW CPU command displays information about the status, characteristics, and capabilities of the processors active in and available to an OpenVMS multiprocessing or single-CPU 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.

SHOW CPU

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 OpenVMS multiprocessing or single-CPU 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 OpenVMS 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

COBRA7, a DEC 4000 Model 620
Multiprocessing is ENABLED. Streamlined synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 1
```

```
System Page Size = 8192
System Revision Code =
System Serial Number =
Default CPU Capabilities:
        System:         QUORUM RUN
Default Process Capabilities:
        System:         QUORUM RUN

PRIMARY CPU = 00

CPU 00 is in RUN state
Current Process: *** None ***
Serial Number:  AY24870417
Revision:       A200
VAX floating point operations supported.
IEEE floating point operations and data types supported.
Processor is Primary Eligible.
PALCODE: Revision Code = 5.48
         PALcode Compatibility = 0
         Maximum Shared Processors = 2
         Memory Space:  Physical address = 00000000 00000000
                        Length = 0
         Scratch Space: Physical address = 00000000 00000000
                        Length = 0
Capabilities of this CPU:
        System:         PRIMARY QUORUM RUN
        User bitmask:   00000040
Processes which can only execute on this CPU:
        NETACP           PID = 0000008E  Reason: PRIMARY Capability

CPU 01 is in RUN state
Current Process: CPUSCHED        PID = 00000095
Serial Number:  AY24870406
Revision:       A200
VAX floating point operations supported.
IEEE floating point operations and data types supported.
PALCODE: Revision Code = 5.48
         PALcode Compatibility = 0
         Maximum Shared Processors = 2
         Memory Space:  Physical address = 00000000 00000000
                        Length = 0
         Scratch Space: Physical address = 00000000 00000000
                        Length = 0
Capabilities of this CPU:
        System:         QUORUM RUN
        User bitmask:   00000080
Processes which can only execute on this CPU:
        CPUSCHED         PID = 00000095  Reason: Affinitized to this CPU
                                         Reason: User capabilities - 00000080
```

The SHOW CPU/FULL command in this example produces a configuration summary of the DEC 4000 Model 620 system COBRA7. Both processors are in the RUN state, but only CPU 1 has a current process (CPUSCHED). CPUSCHED runs on CPU 1 because it has affinity for that processor, and because only CPU 1 has process capability 8.

4. $ 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 6000-420 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.

5. $ SHOW CPU/FULL

```
CPU type: DEC 7000 Model 620
Multiprocessing is ENABLED. Full checking synchronization image loaded.
Minimum multiprocessing revision levels: CPU = 1

System Page Size = 8192
System Revision Code =
System Serial Number = PROTO115
Default CPU Capabilities:
        QUORUM RUN
Default Process Capabilities:
        QUORUM RUN

PRIMARY CPU = 00

CPU 00 is in RUN state
Current Process: *** None ***
Serial Number:  GROUCHO
Revision:
VAX floating point operations supported.
IEEE floating point operations and data types supported.
PALCODE: Revision Code = 5.37
         PALcode Compatibility = 2
         Maximum Shared Processors = 8
         Memory Space:  Physical address = 00000000 00000000
                        Length = 16
         Scratch Space: Physical address = 00000000 00020000
                        Length = 16
Capabilities of this CPU:
        PRIMARY QUORUM RUN
Processes which can only execute on this CPU:
        CONFIGURE        PID = 00000104  Reason: PRIMARY Capability
```

```
CPU 01 is in RUN state
Current Process: VMSADU          PID = 00000110
Serial Number:  HARPO
Revision:
VAX floating point operations supported.
IEEE floating point operations and data types supported.
PALCODE: Revision Code = 5.37
         PALcode Compatibility = 2
         Maximum Shared Processors = 8
         Memory Space:  Physical address = 00000000 00000000
                        Length = 16
         Scratch Space: Physical address = 00000000 00020000
                        Length = 16
Capabilities of this CPU:
        QUORUM RUN
Processes which can only execute on this CPU:
        *** None ***
```

The SHOW CPU/FULL command in this example produces a configuration summary of the Alpha 7000-620, showing both CPUs active and in the RUN state.

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:[ALAMO]
$ 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 KUDOS WORK:[BLUE.TEMP1],WORK:[BLUE.TEMP2]
$ SET DEFAULT KUDOS
$ SHOW DEFAULT
 KUDOS:[BLUE]
 =   WORK:[BLUE.TEMP1]
 =   WORK:[BLUE.TEMP2]
```

In this example, the logical name KUDOS 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 VMScluster 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 VMScluster 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 VMScluster 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.

/EXACT

Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/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.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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 the asterisk (*) and the percent sign (%) wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of device information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/REBUILD_STATUS

Tells you whether volumes need rebuilding.

You may need to rebuild a volume if the volume was improperly dismounted. Volumes are improperly dismounted when, for example, the system crashes.

For each volume, SHOW DEVICES/REBUILD_STATUS returns one of these values:

Value	Meaning
Yes	Rebuild needed
No	Rebuild not needed
Not applicable	You cannot rebuild this volume. This value is returned if, for example, the volume is not a disk, or the volume is write-locked.
Information unavailable	Rebuild information is unavailable. This value is returned when, for example, the volume is not mounted, or mount verification is taking place.

To rebuild a volume, either:

- Use SET VOLUME/REBUILD
- Dismount the volume, then mount the volume again using MOUNT/REBUILD

You cannot use the /REBUILD_STATUS qualifier with any other SHOW DEVICES qualifiers, except /OUTPUT.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/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).

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

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 DEVICE/FULL DKB0:

Disk $DKB0:, device type RZ56, is online, mounted, file-oriented device,
    shareable, error logging is enabled.

Error count                    0  Operations completed            392750
Owner process                 ""  Owner UIC                        [1,4]
Owner process ID       00000000  Dev Prot           S:RWPL,O:RWPL,G:R,W
Reference count             317  Default buffer size                512
Total blocks            1299174  Sectors per track                   54
Total cylinders            1604  Tracks per cylinder                 15

Volume label      "SYSTEM_DISK"  Relative volume number               0
Cluster size                  3  Transaction count                 278
Free blocks              367632  Maximum files allowed          162396
Extend quantity               5  Mount count                         1
Mount status             System  Cache name      "$DKB0:XQPCACHE"
Extent cache size             64  Maximum blocks in extent cache   36763
File ID cache size            64  Blocks currently in extent cache 36258
Quota cache size               0  Maximum buffers in FCP cache       210
Volume owner UIC           [1,1]  Vol Prot   S:RWCD,O:RWCD,G:RWCD,W:RWCD

Volume status:  subject to mount verification, protected subsystems enabled,
    file high-water marking, write-through caching enabled.
```

In this example, the SHOW DEVICES command requests a full listing of the status of the RZ56 device DKB0.

3.
```
$ SHOW DEVICES/REBUILD_STATUS

Device Name             Rebuild needed?

ADU15$DKA300:           Information unavailable
EDIV$DKA300:            Information unavailable
EMUL$DKB200:            No
EMUL$DKB300:            No
EMUL$DKB500:            Yes
FTA0:                   Not applicable
OPA0:                   Not applicable
```

In this example, the volume mounted on device EMUL$DKB500 needs rebuilding.

4.
```
$ 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:RWPL,O:RWPL,G:RWPL,W:RWPL
 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 VMScluster. Information is shown here only for the first two devices: a mounted device and a device that is not mounted.

VAX

5.
```
$ SHOW DEVICE $1$DKB1:/FULL

Disk $1$DKB1: (VMSRMS), device type RRD40, is online, allocated,
deallocate on dismount, mounted, software write-locked, file-oriented
device, shareable, served to cluster via MSCP Server

Error count                  0  Operations completed               15
Owner process         "_FTA5:"  Owner UIC                       [1,4]
Owner process ID      2020005D  Dev Prot          S:RWPL,O:RWPL,G:R,W
Reference count              2  Default buffer size               512
Total blocks               256  Sectors per track                  32
Total cylinders              1  Tracks per cylinder                 8
Allocation class             1

Volume label        "VOLUME_1"  Relative volume number             64
Cluster size                 0  Transaction count                   1
Free blocks                  0  Maximum files allowed               0
Extend quantity              0  Mount count                         1
Mount status           Process  ACP process name           "DAD2CACP"

Volume status:  ISO 9660.
Members of this volume set are $1$DKB7: (rvn 64), $1$DKB4: (rvn 8),
$1$DKB1: (rvn 1), $1$DKB12: (rvn 4096), $1$DKB16: (rvn 65535),
$1$DKB6: (rvn 32).
```

In this example, the user requested a full display on a VAX system of a device contain on member of an ISO 9660 partially mounted volume set. Note the volume status displays the media format is ISO 9660 and the volume set list shows a sparce list of the currently mounted members of the volume set.♦

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. The following message displays when the user issues a SHOW DEVICE/SERVED command when the tape server is not loaded:

```
%SHOW-E-TMSCPNOTLD, TMSCP-Server code not loaded
```

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.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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 VMScluster 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of device information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/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.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

Examples

1.
```
$ SHOW DEVICES/SERVED
       MSCP-Served Devices on BHAK 28-MAY-1994 13:48:01.32

                                                Queue Requests
Device:           Status      Total Size     Current    Max      Hosts
    11$DUA8       Online         2376153           0      2          6
    11$DUA9        Avail         2376153           0      0          0
    11$DUA10      Online         2376153           0      2          8
    11$DUA11      Online         2376153           0      2          7
    11$DUA13      Online         2376153           0      2          7
    11$DUA14       Avail         2376153           0      0          0
    11$DUA16       Avail         2376153           0      0          0
    11$DUS16       Avail         2376153           0      1          0
    11$DUA17       Avail         2376153           0      0          0
    11$DUA18      Online         2376153           0      1          4
    11$DUA19      Online         2376153           0      4          7
    11$DUA20      Online         2376153           0      1          7
    11$DUA21      Online         2376153           0     17         12
```

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 BHAK 28-MAY-1994 13:49:52.41
  .
  .
  .
Request Count:
     0-7:   951154        32-39:     2168        88-103:     1618
    8-15:   197224        40-55:     2543       104-127:      189
   16-23:   137707        56-71:     8343
   24-31:      982        72-87:      141

Operations Count:
   ABORT              0   ERASE          22772  READ         1042206
   ACCESS             0   FLUSH              0  REPLACE            0
   AVAILABLE        611   GET COM STS        0  SET CTL CHR      176
   CMP CTL DAT        0   GET UNT STS  4026024  SET UNT CHR     3630
   CMP HST DAT        0   ONLINE           427  WRITE          259953
   Total        5355799
```

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 BHAK 28-MAY-1994 13:51:32.01
  .
  .
  .
Resources:         Total      Free      In Use
    Buffer Area:     400       400           0
    I/O Packets:       0         0

                 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 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 BHAK 28-MAY-1994 13:54:41.99
  .
  .
  .
                                                 Queue Requests
Host:                 Time of Connection        Current    Max   Devices
    IPL31         25-MAY-1994 21:44:06.44            0      1         0
    DELAND        25-MAY-1994 21:44:09.98            0      1         0
    HEAVEN        25-MAY-1994 22:03:15.67            0      7        10
    VIVA          26-MAY-1994 09:44:11.96            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 server devices that the listed hosts have on line.

5.
```
$ SHOW DEVICES/SERVED
       MSCP-Served Devices on HEN  3-JAN-1992 09:09:08.49
                                             Queue Requests
Device:          Status    Total Size    Current   Max  Hosts
   254$DJB1       Avail             0          0     0      0
   254$DUA2      Online       1216665          0     0      1
   254$DUA4006    Avail             0          0     0      0

      TMSCP-Served Devices on HEN  3-JAN-1992 09:09:08.74
                                             Queue Requests
Device:          Status     Position     Current   Max  Hosts
   90$MUA7        Avail             0          0     0      0
   90$MUA8        Avail             0          0     0      0
   90$MUA50      Online          3804          0     0      0
```

This example displays the output of the SHOW DEVICES/SERVED command from a node that has both MSCP server and TMSCP server devices. In the display, the third column for MSCP server disk devices shows the size of the disk device. The same column for TMSCP server device shows the location where each tape is currently positioned.

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
```

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. Note that a new workstation display device, WSA2, is created when you enter the SET DISPLAY/CREATE command.

SHOW ENTRY

Displays information about a user's batch and print jobs or about specific job entries.

Requires read (R) access to the queue.

Format

SHOW ENTRY [entry-number[,...]],[job-name[,...]]

Parameter

entry-number[,...]
Specifies the entry number of the job you want displayed. If no entry number or job name is specified, all your own jobs (or those owned by the user specified with the /USER_NAME qualifier) are displayed.

job-name[,...]
Specifies the name of the jobs you want displayed. The asterisk (*) and the percent sign (%) wildcard characters are allowed. If no job name or 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 information displayed includes the entry number, the job name, the owner, job size in blocks (for print jobs), and the job status. The name, status, and queue type of the queue in which the job is located are also displayed.

If you are only interested in information about your own batch and print jobs, the SHOW ENTRY command produces a better display than the SHOW QUEUE command. Because the SHOW QUEUE command displays queue information regardless of whether your jobs are in these queues, you must scan the display to locate your jobs. By contrast, the SHOW ENTRY command displays only information relevant to your jobs (or those owned by the user you specify with the /USER_NAME qualifier). If the /USER_NAME qualifier is not specified, information about your own jobs is displayed.

Qualifiers

/BATCH
Selects batch jobs for display.

/BRIEF (default)
Displays the following information for each job: entry number, job name, user name, job size in blocks (for print jobs), job status, queue name, queue status, 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 jobs in any of the following states:

ABORTING	STALLED
EXECUTING	STARTING
PRINTING	SUSPENDED
PROCESSING	

ABORTING means that the job is halting prior to normal completion and will not continue processing. A SUSPENDED state means that the job stopped during processing, but should continue when the cause of the SUSPENDED state is resolved. A STALLED or SUSPENDED state means that the job stopped during processing, but should continue when the cause of the STALLED or SUSPENDED state is resolved. PROCESSING is the executing state for server queues. PRINTING is the executing state for printer and terminal queues. STARTING means the job is beginning to be processed.

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.

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 specified time.

If no keyword is specified, the /BY_JOB_STATUS qualifier displays the status of all jobs.

/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 jobs in printer, terminal, or server queues.

/EXACT

Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/FILES
Adds to the default display the list of full file specifications for each file in each job. The /FILES qualifier overrides the default /BRIEF qualifier.

/FULL
Displays the following information for each job: entry number, job name, user name, job status, full file specification associated with each job, date and time of submission, settings specified for the job, queue name, queue status, and queue type.

The /FULL qualifier overrides the default /BRIEF qualifier.

/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.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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.

The asterisk (*) and the percent sign (%) 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/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.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW ENTRY/BY_JOB_STATUS=RETAINED
Entry    Jobname       Username    Blocks      Status
-----    -------       --------    ------      ------
  422    FORECAST      JONES                   Retained on completion
         On stopped generic batch queue CLUSTER_BATCH
         Completed 21-DEC-1994 16:18 on queue NODE_BATCH
```

In this example, the SHOW ENTRY command displays a job entry that was retained on completion.

2.
```
$ SHOW ENTRY/FULL S*
Entry     Jobname       Username    Blocks      Status
-----     -------       --------    ------      ------
  625     STAFF         JAMES          112      Pending (queue stopped)
          On stopped printer queue LN01$PRINT
          Submitted 19-DEC-1994 12:14 /FORM=LN01$PORTRAIT (stock=DEFAULT)
          /NOTIFY /PRIORITY=100
          File: _DBA1:[JAMES]STAFF.DIS;3

  629     SEARCH         JAMES           94      Printing
          On printer queue LINE$PRINT
          Submitted  19-DEC-1994 12:16 /FORM=DEFAULT /NOTIFY /PRIORITY=100
          /COPIES=2 /NOFEED /PASSALL
           FILE:_DBA1:[JAMES.DAILY]SEARCH.TXT;2 (printing copy 2)
```

In this example, the SHOW ENTRY command displays the current jobname entries beginning with the letter ‘‘S’’ owned by JAMES on all queues. The /FULL qualifier lists the submission information, the full file specification, and the current settings for the job.

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/FULL
Entry    Jobname       Username     Status
-----    -------       --------     ------
  199    ASSIGNMENTS   JONES        Executing
         Submitted 19-DEC-1994 08:36 /KEEP /NOLOG/ NOPRINT /PRIORITY=100
         File: DUA2:[JONES]ASSIGNMENTS.COM;34
```

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 job status and sees that the 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 job status without knowing the specific batch queue name. If the user did not specify an entry number, all 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

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/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.)

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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. The asterisk (*) and the percent sign (%) wildcard characters are not allowed in the file specification.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of error information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

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 SECURITY privilege.

Format

SHOW INTRUSION

Description

The OpenVMS 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
Intrusion	Class of intrusion. The type of evasive action that the OpenVMS system takes depends on the class of intrusion.
Type	Severity of intrusion as defined by the threshold count for login failures.
Count	Number of login failures associated with a particular source.
Expiration	Absolute time at which a login failure is no longer counted by OpenVMS. The system parameter LGI_BRK_TMO controls how long the OpenVMS system keeps track of a login failure.
Source	Origin of the login failure. The information provided in this field depends on the class of intrusion.

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 *OpenVMS Guide to 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 OpenVMS 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 system 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 OpenVMS system takes evasive action by blocking all login attempts from that particular source.

The duration of the evasive action is determined by the system 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 *OpenVMS Guide to 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

/OLD

VAX

Displays the contents of the old kernel mode intrusion database. The kernel mode intrusion database was used by the system and layered products prior to OpenVMS VAX Version 6.1. It is still updated by the system to provide backwards compatability to applications that have not yet converted over to using the supported system services for access to the intrusion database. Entries added directly to the old kernel mode intrusion database by applications may be examined only by using the /OLD qualifier.♦

/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   NODE22::SMITH
```

   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 as well as lists the names attached to a license (known as the RESERVE list). The SHOW LICENSE command displays the license database information currently in your system's memory. Use the License Management utility command, LICENSE LIST, when you want to view the license database information that is on disk.

Format

SHOW LICENSE [product-name [,...]]

Parameter

product-name
Specifies the name or names of activated software product licenses to display. The asterisk (*) and the percent sign (%) wildcard characters 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 /UNIT_REQUIREMENTS 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 *OpenVMS License Management Utility Manual*.

To display licenses registered in the LICENSE database, use the LICENSE LIST command, described with the utility.

Qualifiers

/BEFORE
Use with /TERMINATION_DATE and /RELEASE_DATE qualifiers. Selects only those licenses whose times are before the time specified with the other qualifiers.

The /BEFORE qualifier cannot be used with the /SINCE qualifier.

/BRIEF (default)
Displays a summary of information about the specified active product licenses. Use the /FULL qualifier to obtain a complete product license listing.

/CLUSTER
Use with the /UNIT_REQUIREMENTS qualifier to display the license unit requirements for every node in a VMScluster.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/FULL
Displays a summary of information about the specified active product licenses, including Product Authorization Key (PAK) options and the reserve list (if any).

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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.

The asterisk (*) and the percent sign (%) 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of license information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.

Key Sequence	Description
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/PRODUCER=producer-name
Displays software product licenses active on the current node and supplied by the specified producer. The asterisk (*) and the percent sign (%) wildcard characters are allowed for the *producer-name* parameter. You cannot use the /PRODUCER qualifier with the /UNIT_REQUIREMENTS qualifier.

/RELEASE_DATE=[date_time]
Allows listing licenses using release dates as selection criteria.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/SINCE(default)
Use with the /TERMINATION_DATE and /RELEASE_DATE qualifiers. Selects only those licenses whose times are after the time specified with the other qualifiers.

The /SINCE qualifier cannot be used with the /BEFORE qualifier.

/TERMINATION_DATE=date_time
Allows listing licenses using termination dates as selection criteria.

/UNIT_REQUIREMENTS
Displays information in the License Unit Requirement Table (LURT). The /UNIT_REQUIREMENTS qualifier is incompatible with the *product-name* parameter and with the /BRIEF and /PRODUCER qualifiers.

/USAGE
Tells you how many license units are loaded, how many are currently allocated, and how many are currently available, as well as the license type for each product

on the system. Use with the /FULL qualifier to display complete information—including the PID, process name, node, or user name—for each instance of use of the product. You need group privilege to see the list of users in your group who have allocated license units; you need world privilege to see the list of users in all groups.

In a VMScluster, if you own multiple license types for a single product, you are limited to viewing the usage information for the license type loaded on the node from which you are executing the SHOW LICENSE/USAGE command. To find out the usage of the other license type loaded on another node, issue the command on that node. You can also use the System Management (SYSMAN) utility to do this.

In a VMScluster, usage information is limited to the local license type. For example, VAX and Alpha availability licenses are considered by LMF to be different license types. If you are running both VAX and Alpha systems in a cluster, usage information for availability licenses is limited to the local system type. For example, if you have DEC C installed on all nodes in your VMScluster, you can display DEC C license allocation on all the VAX nodes in the cluster from any VAX node with DEC C installed, but you cannot display the DEC C license allocation on the Alpha nodes.

Usage information is not available for unlimited licenses (a license with 0 units). Clusterwide usage information is not available for personal use or NO_SHARE licenses. See the *OpenVMS License Management Utility Manual* for more information on license types.

/WARNING_INTERVAL=n
NOWARNING_INTERVAL
Displays a warning stating the number of licenses that will terminate in n days. The default is 30 days.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW LICENSE/FULL

Active licenses on node WTPOOH:

DVNETEND
       Producer: DEC
       Units: 0
       Version:  0.0
       Date:  (none)
       Termination Date: (none)
       Availability: E (System Integrated Products)
       Activity:  0
       MOD_UNITS
```

```
VAX-VMS
       Producer: DEC
       Units: 0
       Version:  0.0
       Date:  (none)
       Termination Date: (none)
       Availability: A (VMS Capacity)
       Activity:  0
       MOD_UNITS
       NO_SHARE
```

The SHOW LICENSE command in this 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 Release Termination
DVNETEND   DEC            0  E     0      0.0  (none)   (none)
VAX-VMS    DEC            0  A     0      0.0  (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/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.

4. `$ SHOW LICENSE/FULL PERSONAL`

```
Active licenses on node PICCHU:

PERSONAL
       Producer: DEC
       Units: 100
       Version: 0.0
       Release Date: (none)
       Termination Date: (none)
       Availability: 0
       Activity: 100
       RESERVE_UNITS
       Reserve: SMITH
```

The SHOW LICENSE command in this example displays information about the product PERSONAL, as well as the name SMITH attached to the product license (known as the RESERVE list).

5. `$ SHOW LICENSE/TERM=10-JAN-2014 test0%`

```
Active licenses on node PICCHU:

--- Product ID ----  ---- Rating ----- -- Version --
Product    Producer  Units Avail Activ Version Release    Termination
TEST01     DEC           0  A     0      0.0  (none)      (none)
TEST02     DEC           0  B     0      0.0  10-JAN-2014 12-NOV-2014
TEST03     DEC           0  C     0      0.0  30-DEC-2014 (none)
TEST04     DEC           0  D     0      0.0  (none)      25-AUG-2015
TEST05     DEC           0  E     0      0.0  14-NOV-2016 14-AUG-2016


$ SHOW LICENSE/RELEASE=10-JAN-2014/SINCE test0%

Active licenses on node PICCHU:
```

```
--- Product ID ----  ---- Rating ----- -- Version --
Product    Producer  Units Avail Activ Version Release    Termination
TEST02     DEC           0  B     0      0.0  10-JAN-2014 12-NOV-2014
TEST03     DEC           0  C     0      0.0  30-DEC-2014 (none)
TEST05     DEC           0  E     0      0.0  14-NOV-2016 14-AUG-2016


$ SHOW LICENSE/RELEASE=10-JAN-2014/BEFORE test0%

Active licenses on node PICCHU:

--- Product ID ----  ---- Rating ----- -- Version --
Product    Producer  Units Avail Activ Version Release    Termination
TEST01     DEC           0  A     0      0.0  (none)      (none)
TEST04     DEC           0  D     0      0.0  (none)      25-AUG-2015
```

In these examples, the SHOW LICENSE command uses the /TERM, /RELEASE, /SINCE and /BEFORE qualifiers.

6.
```
$ SHOW LICENSE/UNIT_REQUIREMENTS
VMS/LMF Charge Information for node PICCHU
This is a VAX 6000-420, hardware model type 160

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)
Type: G, * Not Permitted *       (VMS Reserved)
Type: H, * Not Permitted *       (Alpha Layered Products)
Type: I, Units Required: 1200    (Layered Products)
```

In this example, the /UNIT_REQUIREMENTS qualifier displays information in the License Unit Requirement Table (LURT).

7.
```
$ SHOW LICENSE/WARNING_INTERVAL=8000 test0%
Active licenses on node PICCHU:

--- Product ID ----  ---- Rating ----- -- Version --
Product    Producer  Units Avail Activ Version Release    Termination
TEST01     DEC           0  A     0      0.0  (none)      (none)
TEST02     DEC           0  B     0      0.0  10-JAN-2014 12-NOV-2014
TEST03     DEC           0  C     0      0.0  30-DEC-2014 (none)
TEST04     DEC           0  D     0      0.0  (none)      25-AUG-2015
TEST05     DEC           0  E     0      0.0  14-NOV-2016 14-AUG-2016
%SHOW-I-TERMIMM, 3 licenses will terminate in 8000 days
```

The /WARNING_INTERVAL qualifier in this example displays three licenses that will terminate in 8000 days.

8.
```
$ SHOW LICENSE/USAGE/FULL DECWRITE-USER

View of loaded licenses from node SLTG24   29-MAR-1994 13:36:22.23

ACTIVITY license DECWRITE-USER usage information:
Pid        Process Name      Units   Username        Node
416000E6   MACAHAY             100   MACAHAY         SLTG24
416000E7   MACAHIGH            100   MACAHIGH        SLTG24
416000E8   ALICE               100   ALICE           SLTG24
416000E9   MORGEN              100   MORGEN          SLTG24
416000F1   ANGEL               100   ANGEL           SLTG24
416000F2   ANGEL_1             100   ANGEL           SLTG24
Units loaded: 2000    Units allocated: 600    Units available: 1400
```

The SHOW LICENSE command in this example lists the current users of the activity license for the product DECwrite. For each instance of use of the product, the process identification (PID), process name, node, and user name are identified. The units column shows the number of units allocated for each particular invocation of the product. The last line displays the units loaded when the LICENSE LOAD command was given, the total number of units currently allocated, and the total of unused (available for others to use) units.

9.
```
$ SHOW LICENSE/USAGE/FULL TEST_PER

View of loaded licenses from node: SLTG24  30-FEB-1994 15:45:59

PERSONAL USE license DEC TEST_PER usage information:
Units   Reserved for:
  100   UNCLE
  100   AUNT
  100   NEPHEW
  100   NIECE
Units loaded: 600    Units reserved: 400    Units available: 200
```

This example shows a personal use license. The DEC TEST_PER product has enough units for six reservations with 100 units for each reservation. The license database (LDB) only has a total of four names in the reserve list attached to this product. If the license administrator (usually the system manager) wants to take full advantage of this license and adds 2 more names to the reserve list, he should use the following commands to update the product information:

```
$ LICENSE MODIFY TEST_PER/RESERVE=(NAME, ANOTHER_NAME)/ADD
$ LICENSE UNLOAD TEST_PER
$ LICENSE LOAD TEST_PER
```

If this product is used in a cluster environment, you may use the SYSMAN Utility to unload and load the license.

10.
```
$ SHOW LICENSE/USAGE/FULL TEST_CAP

View of loaded licenses from node: SLTG24  30-FEB-1994 15:45:59

Availability license DEC TEST_CAP usage information:
Units   Node
   10   SLTG24
   10   SLTG43
  600   TORN8O
  600   LTNUP
Units loaded: 620    Units allocated: 1220    Units available: ***
```

In this example, the number of units allocated appears to be greater than the total units loaded and the units available value is three asterisks (***).

When you see three asterisks (***) as the number of units available, it is generally not a cause for alarm. This situation might arise when the license database (LDB) has been updated on disk, but the new information has not been propagated to the license database in memory on all nodes in the cluster. This node, SLTG24, happens to be one of the nodes that has not received the latest LDB information.

To update the information in the license database in memory for the TEST_CAP product, enter the following commands:

```
$ LICENSE UNLOAD TEST_CAP
$ LICENSE LOAD TEST_CAP
```

The next time you issue the SHOW LICENSE/USAGE command the three asterisks (***) in display should disappear. If, however, you are using multiple LDB files in a cluster, you should read the section on the license database in the *OpenVMS License Management Utility Manual*.

11.
```
$ SHOW LICENSE/UNIT_REQUIREMENT/CLUSTER

VMS/LMF Cluster License Unit Requirements Information  24-JUN-1994  14:05:51.65
Node        A     B     C     D     E     F     G     H     I

KARBO       -     -     -   100    50    10     -     -    10
JENJON      -     -     -   100    50    10     -     -    10
HELENA    143     -     -     -   600  2400     -     -  2400
SHAKTI      -     -     -   100    50    10     -     -    10

Total Cluster Unit Requirements
Type: A, Units Required: 143     (VMS Capacity)
Type: B, * Not Permitted *       (VMS Server)
Type: C, * Not Permitted *       (VMS Concurrent User)
Type: D, Units Required: 300     (VMS Workstation)
Type: E, Units Required: 750     (System Integrated Products)
Type: F, Units Required: 2430    (Layered Products)
Type: G, * Not Permitted *       (VMS Reserved)
Type: H, * Not Permitted *       (Alpha Layered Products)
Type: I, Units Required: 2430    (Layered Products)
```

In this example, the display shows how many license units are required for each license type (A, B, etc.) on each node in the cluster. If a row of three asterisks (***) is displayed for a node, it means that the node is in the process of booting.

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. The asterisk (*) and the percent sign (%) wildcard characters 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.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/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.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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.

The asterisk (*) and the percent sign (%) 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/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.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/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. The asterisk (*) and the percent sign (%) wildcard characters are allowed. Names with wildcards are used to match table names. Names without wildcard characters 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.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

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 an OpenVMS system
Slot usage
Dynamic memory usage (in bytes)
Paging file usage (in blocks)
Dynamic memory
Granularity hint regions for code and data (Alpha only)
Virtual I/O Cache facility (VAX only)

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.

/CACHE

Displays information about the Virtual I/O Cache facility. The Cache facility information is displayed as part of the SHOW MEMORY and SHOW MEMORY /CACHE/FULL commands.

/EXACT

Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/FILES
Displays information about the use of each paging and swapping file currently installed.

/FULL
Displays additional information about 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. When used with the /CACHE qualifier, /FULL displays additional information about the use of the Virtual I/O Cache facility.

Alpha

/GH_REGIONS
On Alpha, displays information about the granularity hint regions (GHR) that have been established. For each of these regions, information is displayed about the size of the region, the amount of free memory, the amount of memory in use, and the amount of memory released from the region. The granularity hint regions information is also displayed as part of SHOW MEMORY, SHOW MEMORY/ALL, and SHOW MEMORY/FULL commands.♦

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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 asterisk (*) and the percent sign (%) wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of memory information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/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.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/SLOTS
Displays information about the availability of partition control block (PCB) vector slots and balance slots.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW MEMORY

      System Memory Resources on  4-MAY-1994 10:14:45.68

Physical Memory Usage (pages):     Total        Free      In Use    Modified
  Main Memory (24.00Mb)            49152       16390       31056        1706

Virtual I/O Cache Usage (pages):   Total        Free      In Use     Maximum
                                    9232           0        9232       18055

Slot Usage (slots):                Total        Free    Resident     Swapped
  Process Entry Slots                 26           3          21           2
  Balance Set Slots                   23           1          21           1

Dynamic Memory Usage (bytes):      Total        Free      In Use     Largest
  Nonpaged Dynamic Memory         462336        8304      454032        4608
  Paged Dynamic Memory            348672      117120      231552      114976

Paging File Usage (pages):                      Free  Reservable       Total
  DISK$DKA300:[SYS0.SYSEXE]PAGEFILE.SYS        46514       -3239       50000

Of the physical pages in use, 5162 pages are permanently allocated to VMS.
```

This example shows reservable pages. Here, the reservable pages are a negative value which indicates that you may want to consider adding to the fixed amount of pagefile space available.

VAX

2.
```
$ SHOW MEMORY/CACHE/FULL

            System Memory Resources on 10-OCT-1994 18:36:12.79
Virtual I/O Cache
Total Size (pages)   ❶   2422    Read IO Count          ❻       9577
Free Pages           ❷   18      Read Hit Count         ❼       5651
Pages in Use         ❸   2404    Read Hit Rate          ❽       59%
Maximum Size (SPTEs) ❹   11432   Write IO Count         ❾       2743
Files Retained       ❺   99      IO Bypassing the Cache ❿      88
```

Note

This example shows the output for the SHOW MEMORY/CACHE/FULL command on a VAX system. The SHOW MEMORY/CACHE/FULL command will display slightly different field on an Alpha system.

VAXcluster Cache Usage (in pages)

Shows the use of the VAXcluster Cache facility on VAX.

❶ Total size — Displays the total number of system memory pages that the VAXcluster cache currently controls.

❷ Free pages — Displays the number of pages controlled by the VAXcluster cache that do not contain cache data.

❸ Pages in use	Displays the number of pages controlled by the VAXcluster cache that contain valid cached data.
❹ Maximum Size	Shows the maximum size that the cache could ever grow to.
❺ Files retained	Displays the number of files that are closed but the file system control information is being retained because they have valid data residing in the cache.
❻ Read I/O count	Displays the total number of read IOs that have been seen by the VAXcluster cache since the last system.
❼ Read hit count	Displays the total number of read IOs that did not do a physical IO because the data for them was found in the cache since the last system BOOT.
❽ Read hit rate	Displays the read hit count and read IO count ratio.
❾ Write IO count	Shows the total number of write IOs that have been seen by the cache since the last system BOOT.
❿ IO bypassing	Displays the count of IOs that for some reason did not attempt to satisfy the request/update by the cache.♦

3. `$ SHOW MEMORY/PHYSICAL_PAGES`

```
                System Memory Resources on  14-DEC-1994 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 (existing on some VAX) 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 OpenVMS

Any SHOW MEMORY display that includes the physical memory display concludes with the number of pages permanently allocated to the OpenVMS system. These pages include nonpaged executive code and data, the PFN database, nonpaged dynamic memory, the interrupt stack, and the system page table.

4. `$ SHOW MEMORY/SLOTS`

```
                System Memory Resources on 14-DEC-1994 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 system parameter MAXPROCESSCNT) and balance set slots (the value of the system 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.

5. $ SHOW MEMORY/POOL

```
              System Memory Resources on  14-DEC-1994 16:11:39.97
Dynamic Memory Usage (bytes):    Total ❶   Free ❷ In Use ❸ Largest ❹
  Nonpaged Dynamic Memory       161792       3488    158304      1936
  Paged Dynamic Memory           65536      29312     36224     29296
```

Dynamic Memory Usage (in bytes)

Shows the use of the nonpaged and paged pool areas that allocate variably sized blocks.

❶ Total — Displays the total number of bytes set aside for each area.

❷ Free — Displays the total amount of free space in each dynamic memory area.

❸ 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.

❹ 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).

6. $ SHOW MEMORY/FILES

```
              System Memory Resources on  14-DEC-1994 16:11:45.83
Paging File Usage (blocks):                    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.

Note that a negative value is not an immediate concern but indicates that the file may become overcommitted if physical memory becomes scarce.

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.

7. `$ SHOW MEMORY/POOL/FULL`

```
                System Memory Resources on  31-DEC-1994 16:11:49.74

Nonpaged Dynamic Memory                          (Lists + Variable)
 Current Size (bytes)    ❶   8144384    Current Total Size (pages) ❶   15907
 Initial Size (NPAGEDYN) ❷   8144384    Initial Size (pages)       ❷   15907
 Maximum Size (NPAGEVIR) ❸  36196352    Maximum Size (pages)       ❸   70696
 Free Space (bytes)      ❹   2849856    Space in Use (bytes)       ❺ 5294528
 Size of Largest Block   ❻    971904    Size of Smallest Block     ❼      64
 Number of Free Blocks   ❽      6756    Free Blocks LEQU 64 Bytes  ❾     274
Paged Dynamic Memory
 Current Size (PAGEDYN)  ❶   4324352    Current Total Size (pages) ❶    8446
 Free Space (bytes)      ❹   3378664    Space in Use (bytes)       ❺  951488
 Size of Largest Block   ❻   3357664    Size of Smallest Block     ❼      16
 Number of Free Blocks   ❽       216    Free Blocks LEQU 64 Bytes  ❾     178
```

Dynamic Memory

Shows the use of dynamic memory areas consisting of variably sized blocks.

❶ Current Size — Displays the current size (in 512-byte pagelets on Alpha and in bytes and pages on VAX) of each dynamic memory area.

❷ Initial Size — Displays the initial size of nonpaged dynamic memory and the name of the system parameter (NPAGEDYN) that controls this size.

❸ Maximum Size — Displays the maximum size to which nonpaged dynamic memory can grow and the name of the system parameter (NPAGEVIR) that controls this size.

❹ Free Space — Displays the amount of free space in each dynamic memory area.

❺ Space in Use — Displays the amount of space currently allocated from each area.

❻ Largest Block — Displays the size of the largest contiguous area in each pool area.

❼ Smallest Block — Displays the size of the smallest hole (free block) in each pool area.

❽ Free Blocks — Displays the total number of free blocks in each pool area. The size of this number is a measure of pool fragmentation.

❾ Blocks LEQU 64 — Displays the number of free blocks that are 64 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.

8. `$ SHOW MEMORY/FILES/FULL`

```
              System Memory Resources on  14-APR-1994 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.

Note that a negative value is not an immediate concern but indicates that the file may become overcommitted if physical memory becomes scarce.

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.

SHOW NETWORK

Displays information about network services registered on a node.

Format

SHOW NETWORK [network-service]

Parameter

network-service
Specifies a network service for which you want to display information. If you do not specify a service, the SHOW NETWORK command displays information about all services that are currently registered on the local node.

Description

The SHOW NETWORK command displays information about network services available on an OpenVMS system.

Qualifiers

/FULL
Displays all the information for the specified network service.

/OLD
If you are running DECnet Phase IV, retains the behavior of the SHOW NETWORK command prior to OpenVMS Version 7.0. If the local node is a routing node, the /OLD qualifier provides routing information.

/OUTPUT[=filespec]
/NOOUTPUT
Controls where the output of the command is sent. By default, the output of the SHOW NETWORK command is sent to the current SYS$OUTPUT device (usually your terminal).

The asterisk (*) and the percent sign (%) wildcard characters are not allowed in the file specification.

If you enter the /NOOUTPUT qualifier, output is suppressed.

Examples

1.
```
$ SHOW NETWORK
Product: DECnet           Node: GALAXY         Addresss(es): 19.129
```

   This command displays all the network services currently registered on the local node, and the name and address of that node.

2.
```
$ SHOW NETWORK DECnet
Product: DECnet           Node: GALAXY         Addresss(es): 19.129
```

   This command identifies the network services, in this case DECnet, registered on the local node.

3. $ SHOW NETWORK/FULL
   The following network service is available at this time:

```
Product:  DECNET               Manufacturer:  Digital Equipment Corporation)
Node:  ZOOMAN                  Address(es):  19.215
Network Type:  DNA IV          Interface(s):  net 0

Node Volatile Characteristics as of 21-NOV-1995 10:36:09

Executor node = 19.215 (ZOOMAN)

Identification           = DECnet for OpenVMS Alpha V6.2
Management version       = V4.0.0
Incoming timer           = 45
Outgoing timer           = 60
Incoming Proxy           = Enabled
Outgoing Proxy           = Enabled
NSP version              = V4.1.0
Maximum links            = 32
Delay factor             = 80
Delay weight             = 5
Inactivity timer         = 60
Retransmit factor        = 10
Routing version          = V2.0.0
Type                     = nonrouting IV
Routing timer            = 600
Broadcast routing timer  = 180
Maximum address          = 1023
Maximum circuits         = 16
Maximum cost             = 1022
Maximum hops             = 30
Maximum visits           = 63
Maximum area             = 63
Max broadcast nonrouters = 64
Max broadcast routers    = 32
Maximum path splits      = 1
Area maximum cost        = 1022
Area maximum hops        = 30
Maximum buffers          = 100
Buffer size              = 576
Default access           = incoming and outgoing
Pipeline quota           = 4032
Alias maximum links      = 32
Path split policy        = Normal
Maximum Declared Objects = 31

Known Link Volatile Summary as of 21-NOV-1995 10:36:10

   Link       Node           PID     Process     Remote link  Remote user

  8201   19.117           20200094  REMACP            25330  JONES
  8200   19.129           20200094  REMACP            24711  SMITH

Node Counters as of 21-NOV-1995 10:36:10

Executor node = 19.215 (ZOOMAN)

           3  Maximum logical links active
           0  Aged packet loss
           0  Node unreachable packet loss
           0  Node out-of-range packet loss
           0  Oversized packet loss
           0  Packet format error
           0  Partial routing update loss
           0  Verification reject
```

```
$
```

This command displays all the information available about all the network services registered on the local node.

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	Form feed
Page width	Case
Page length	Character translation
Line termination type	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.

The asterisk (*) and the percent sign (%) 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 VMScluster 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
Number of kernel threads

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
Shows the resources used by the process.

/ALL
Displays the basic subset of information as well as information about:

Accounting
Dynamic memory use
Privileges
Quotas
Shelving
Subprocesses

/CONTINUOUS
Displays continuously updated information about the local process in a VMScluster environment. You cannot use the /CONTINUOUS qualifier to display information about a process on another node in a cluster environment.

While the continuous display is running, you can press the T key to display information for threads that make up the process. If there are multiple threads, pressing the T key repeatedly cycles through all the threads.

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.

/DUMP
Displays the image dump setting which is set or cleared by the SET PROCESS /DUMP command.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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.

/INTERVAL=n
Use with the /CONTINUOUS qualifier to update the information at the specified number of seconds.

/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.

The asterisk (*) and the percent sign (%) 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of process information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/PRIVILEGES
Displays current privileges and rights for the process. To display only privileges, also specify the /NORIGHTS qualifier. Use the SET PROCESS/PRIVILEGES command to enable process privileges on a system.

/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 (default)
/NORIGHTS
Displays the current rights for the specified process. Use the /NORIGHTS qualifier with the /PRIVILEGES qualifier to suppress the rights display.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/SHELVING
Displays whether the process automatically unshelves files.

/SUBPROCESSES
Displays the current subprocesses in hierarchical order.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW PROCESS OCALA::MALIK

 14-DEC-1994 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
 14-DEC-1994 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. The values under Peak working set size and Peak virtual size are rendered in 512-byte pages on VAX and in pagelets on Alpha.

3. $ SHOW PROCESS/PRIVILEGES

```
 14-DEC-1994 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

```
 14-DEC-1994 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. The value under Paging file quota is rendered in 512-byte pages on VAX and in pagelets on Alpha.

5. $ SHOW PROCESS/SUBPROCESSES

```
 14-DEC-1994 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 memory          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. Note that the Virtual memory heading appears on VAX and the Virtual pages heading appears on Alpha; both indicate the virtual memory used as a number of CPU-specific pages. The value displayed for Working set is also a number of CPU-specific pages.

7. $ SHOW PROCESS/MEMORY

```
 14-DEC-1994 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 on VAX (512-byte pagelets on Alpha) 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 (VAX) Blocks LEQU 64 (Alpha)	Displays the number of free blocks that are 32 bytes or shorter on VAX or 64 bytes or shorter on Alpha. 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
 14-DEC-1994 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.

9.
```
$ SHOW PROCESS/SHELVING SMITH

15-JUNE-1995  10:07:25.11   User: SMITH         Process ID:  20206A50
                            Node: BANANA        Process name: "SMITH"

Auto-unshelve: on
```

The SHOW PROCESS command in this example shows that the SMITH process automatically unshelves files.

10.
```
$ SHOW PROCESS/DUMP SMITH

31-MAY-1994 10:38:32.48   User: SMITH            Process ID:   20C0011B
                          Node: AAAAAA           Process name: "_RTA1:"

Image Dump: on
```

The SHOW PROCESS command in this example shows that the SMITH process causes the contents of the address space to be written to the file named SYS$LOGIN:(image-name).DMP (where the image name is the same as the file name) when an image terminates due to an unhandled error.

SHOW PROTECTION

Displays the current default process 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 read (R) access to the job.

Format

SHOW QUEUE [queue-name]

Parameter

queue-name
Specifies the name of the queue for which you want information displayed. The asterisk (*) and the percent sign (%) wildcard characters are allowed. The default value for the *queue-name* parameter is the asterisk (*) wildcard character. 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. When you enter the SHOW QUEUE command with no qualifiers, the OpenVMS system lists the names, types, and status of all the specified queues along with information about your jobs in those queues. The SHOW QUEUE command assumes the /BRIEF qualifier by default.

In a VMScluster, the SHOW QUEUE command displays information on all the queues available for the cluster.

If you want information about queues or a complete list of the jobs in those queues, use the SHOW QUEUE command. For information about specific jobs, use the SHOW ENTRY command.

Qualifiers

/ALL_JOBS
Displays all the jobs in the specified queues. You must have read (R) access to the job to show information about any jobs.

/BATCH
Displays only batch queues and jobs in those queues.

/BRIEF (default)
Displays a one-line description of each queue and jobs that are in it. This information includes the name, type, and status of each queue. It also includes the entry number, the job name, the user name, and the status for each job shown. The /FULL and /FILES qualifiers override the /BRIEF qualifier.

/BY_JOB_STATUS=(keyword-list)
Displays queues that contain jobs that match the specified status. By default, jobs owned by the user are displayed. Specify the status with one or more of the following keywords:

EXECUTING — Requests the display of jobs in any of the following states:

ABORTING	STALLED
EXECUTING	STARTING
PRINTING	SUSPENDED
PROCESSING	

ABORTING means that the job is halting prior to normal completion and will not continue processing. A SUSPENDED state means that the job stopped during processing, but should continue when the cause of the SUSPENDED state is resolved. PROCESSING is the executing state for server queues. PRINTING is the executing state for printer and terminal queues. STARTING means the job is beginning to be processed or printed. A STALLED or SUSPENDED state means that the job stopped during processing, but should continue when the cause of the STALLED or SUSPENDED state is resolved.

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.

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 specified 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 and jobs in that queue.

Specify the type of device queue with one or more of the following keywords:

PRINTER — Requests the display of print queues.

SERVER — Requests the display of server queues.

TERMINAL — Requests the display of terminal queues.

You can specify more than one keyword. If you do not specify a keyword with the /DEVICE qualifier, all printer, terminal, and server queues are displayed.

/EXACT

Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/FILES
Adds to the display the list of files associated with each job. The /FILES qualifier overrides the /BRIEF qualifier.

/FULL
Displays complete information about queues, jobs contained in queues, and the files associated with the jobs. The /FULL qualifier overrides the /BRIEF qualifier.

/GENERIC
Displays only generic queues and jobs in those 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.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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.

The asterisk (*) and the percent sign (%) 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/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.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1. `$ SHOW QUEUE/ALL/BY_JOB_STATUS=pending`

```
Printer queue KLEE$LCA0, stopped, mounted form DEFAULT
  /BASE_PRIORITY=4 /DEFAULT=(FEED,FORM=ELITE (stock=DEFAULT)) /OWNER=[SYSTEM]
  /PROTECTION=(S:M,O:D,G:R,W:S)

  Entry     Jobname         Username        Blocks  Status
  -----     -------         --------        ------  ------
   2045     APPLICA         MARTIN             102  Pending

Batch queue SYS_TEX, available, on NODE22::
  /BASE_PRIORITY=3 /JOB_LIMIT=25 /OWNER=[SYSTEM]
  /PROTECTION=(S:M,O:D,G:R,W:S)

  Entry     Jobname         Username                Status
  -----     -------         --------                ------
   1388     CHAPTER1.JOB    MARTIN                  Pending

Generic batch queue CLUSTER_BATCH
  /GENERIC=(HMSCMS_BATCH,NODE22_BATCH) /OWNER=[SYSTEM]
  /PROTECTION=(S:M,O:D,G:R,W:S)

  Entry     Jobname         Username                Status
  -----     -------         --------                ------
    936     no privilege                            Pending
   .
   .
   .
```

The SHOW QUEUE command in this example displays only the queues in which jobs are currently pending. The /ALL qualifier requests the display of all pending jobs. Notice that you cannot see job information for entry 936. You must have GROUP privilege to show all jobs in your group or OPER privilege to show all jobs in all groups.

2. $ SHOW QUEUE/FULL ARMADA*

```
Batch queue ARMADA_BATCH, idle, on ARMADA::
  /AUTO_START_ON=(ARMADA::) /BASE_PRIORITY=3 /JOB_LIMIT=3 /OWNER=[SYSTEM]
  /PROTECTION=(S:M,O:D,G:R,W:S)

Printer queue ARMADA$PRINT, stopped, on ARMADA::LPA0, mounted form DEFAULT
  /BASE_PRIORITY=4 /DEFAULT=(FEED,FORM=ELITE (stock=DEFAULT)) /OWNER=[SYSTEM]
  /PROTECTION=(S:E,O:D,G:R,W:W)

  Entry  Jobname         Username     Blocks  Status
  -----  -------         --------     ------  ------
    605  SET             TELLER          140  Pending (queue stopped)
         Submitted 21-DEC-1994 16:14 /FORM=ELITE (stock=DEFAULT) /PRIORITY=200
         File: _$5$DUA1:[TELLER]SET.CLD;5

    606  CLOSE           TELLER          140  Pending (queue stopped)
         Submitted 21-DEC-1994 16:16 /FORM=DEFAULT /PRIORITY=200
         File: _$5$DUA1:[TELLER]CLOSE.TXT;2

Printer queue ARMADA$PRINTER_1, idle, on ARMADA::TTA3, mounted form DEFAULT
  <Printer queue on node ARMADA for a LN03R printer>
  /BASE_PRIORITY=4 /DEFAULT=(FEED,FORM=DEFAULT) /LIBRARY=SMU$DEVCTL Lowercase
  /OWNER=[SYSTEM] /PROCESSOR=CPS$SMB /PROTECTION=(S:M,O:D,G:R,W:S)
  /SEPARATE=(FLAG)
```

The SHOW QUEUE command in this example lists information on all of your current job entries. Complete information about the queues, the jobs contained in those queues, and the files associated with the jobs is displayed.

3. $ SHOW QUEUE/SUMMARY

```
Batch queue HMSCMS_BATCH, available, on HMSCMS::

    Job summary:  1 executing,  5 holding

Server queue NM$QUE01, available, on NODE22::, mounted form DEFAULT

    Job summary:  2 executing

Generic server queue NM$QUEUE

    Job summary:  1 timed release

Batch queue PIZZA_BATCH, idle, on PIZZA::

    Job summary:  queue is empty

Batch queue NODE22_BATCH, available, on NODE22::

    Job summary:  1 executing,  1 timed release

Printer queue ARMADA$PRINT, stopped, on ARMADA::LPA0, mounted form DEFAULT

    Job summary:  8 pending (565 blocks)

Terminal queue ALLBQ, stopped, on KATYA::TTA2, mounted form DEFAULT

    Job summary:  2 pending (445 blocks)
   .
   .
   .
```

The SHOW QUEUE command in this example lists all queues and displays the total number of jobs on the queues.

4.
```
$ SHOW QUEUE DOC$LN03

Server queue DOC$LN03, stopped, on NEWTON::, mounted form DEFAULT

  Entry  Jobname         Username     Blocks  Status
  -----  -------         --------     ------  ------
    436  DOCPLAN         HERSHEY           8  Retained until 11-JAN-1994 16:56
       %JBC-F-JOBABORT, job aborted during execution
         Completed  11-JUL-1991 15:56 on queue DOC$LN03
```

This SHOW QUEUE display includes the date and time at which a retained job completed and the queue on which it executed. You can specify the /RETAIN qualifier with the PRINT, SUBMIT, or SET ENTRY command to specify the circumstances under which you want your job to be retained in a queue. In this example, the user set job retention to be one hour after job completion. Depending on the queue's job retention policy, the job might be deleted from the queue at 16:56. (See the PRINT, SUBMIT or SET ENTRY command descriptions for more information on the /RETAIN qualifier.)

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. The asterisk (*) and the percent sign (%) wildcard characters 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
-------------------                 ------
BLUEINK                                  6
BROWNINK                                25
COLOR_CHART                              1
REDINK                                   0
TEXMAC_JOB                               2
```

   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
-------------------                 ------
BLUEINK                                  6
BROWNINK                                25
REDINK                                   0
```

   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. The asterisk (*) and the percent sign (%) wildcard characters 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 the asterisk (*) and the percent sign (%) 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 QUEUE/MANAGERS

Provides information about the queue manager(s) on the system or VMScluster.

Format

SHOW QUEUE/MANAGERS [queue-manager-name]

Parameter

queue-manager-name
Specifies the name of the queue manager for which you want information displayed. The asterisk (*) and the percent sign (%) wildcard characters are allowed. The default value for the *queue-manager-name* parameter is the asterisk (*) wildcard character. If no queue manager name is specified, information on all queue managers is displayed.

Description

The SHOW QUEUE/MANAGERS command displays information about the queue manager(s) on the system or VMScluster. The command assumes the /BRIEF qualifier as the default, and displays a one-line description which includes each queue manager's name, status, and process node name. The /FULL qualifier displays the following information:

- Full file specification of the queue database master file (disk, directory, and file name of the shared master file)
- Name of queue manager
- Status of queue manager
- The node name on which the queue manager process is running (if the queue manager process is currently running)
- Prioritized list of nodes on which the queue manager process can run
- Disk and directory containing the queue database files specific to the particular queue manager

If a queue manager process is not running, the current location node name will not be displayed for that queue manager.

The queue manager status may be one of the following:

State	Description
Start pending	The queue manager process is attempting to start up, however, it is waiting for a node on which it can run to enter the cluster.
Starting	The queue manager is in the process of starting up as a result of a START /QUEUE /MANAGER command or failing over from another node in the cluster.
Running	The queue manager is running.
Failing over	The queue manager is in the process of failing over to another node in the cluster.

State	Description
Stopping	The queue manager is in the process of stopping.
Stopped	The queue manager is stopped and will not start until a START /QUEUE /MANAGER command is executed.

Qualifiers

/BRIEF

Displays a one-line description of queue manager(s) on the system or cluster. The information displayed includes the name and status of the queue manager and the node on which its process is running. The /BRIEF qualifier is present by default.

/FULL

Displays complete information about queue manager(s) on the system or cluster. The /FULL qualifier overrides the /BRIEF qualifier.

Examples

1.
```
$ SHOW QUEUE/MANAGERS/FULL

Master file:  SYS$COMMON:[SYSEXE]QMAN$MASTER.DAT;

Queue manager BATCHQ_MANAGER, running, on BBBBBB::
  /ON=(BBBBBB, AAAAAA, CCCCCC, EEEEEE, *)
  Database location:  DISK1:[QUEUES]

Queue manager PRINTQ_MANAGER, starting, on AAAAAA::
  /ON=(AAAAAA, BBBBBB, CCCCCC, EEEEEE, *)
  Database location:  DISK2:[QUEUES]

Queue manager SYS$QUEUE_MANAGER, running, on FFFFFF::
  /ON=(FFFFFF, EEEEEE, CCCCCC, BBBBBB, AAAAAA, *)
  Database location:  DISK1:[QUEUES]

Queue manager TRANSFER_MANAGER, stopped
  /ON=(AAAAAA, BBBBBB, EEEEEE)
  Database location:  DISK1:[TRANSFER]
```

   The SHOW QUEUE/MANAGERS/FULL command displays complete information about a queue manager on a system or cluster.

2.
```
$ SHOW QUEUE/MANAGERS

Queue manager BATCHQ_MANAGER, running, on BBBBBB::

Queue manager PRINTQ_MANAGER, starting, on AAAAAA::

Queue manager SYS$QUEUE_MANAGER, running, on FFFFFF::

Queue manager TRANSFER_MANAGER, stopped
```

   The SHOW QUEUE/MANAGERS command in this example shows information about the queue manager in brief format. The /BRIEF qualifier is the default and does not need to be specified.

3.
```
$ SHOW QUEUE/MANAGERS/FULL SYS$QUEUE_MANAGER

Master file:  SYS$COMMON:[SYSEXE]QMAN$MASTER.DAT;

Queue manager SYS$QUEUE_MANAGER, running, on FFFFFF::
  /ON=(FFFFFF, EEEEEE, CCCCCC, BBBBBB, AAAAAA, *)
  Database location:  DISK1:[QUEUES]
```

   The command, SHOW QUEUE/MANAGERS/FULL SYS$QUEUE_ MANAGER, in this example shows a request for a specific queue manager by name.

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 or identifier

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 OpenVMS Record Management Services (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). The asterisk (*) and the percent sign (%) 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 SECURITY

Displays the name, class, and profile of a protected object.

Format

SHOW SECURITY object-name

Parameter

object-name
Specifies the name of an object whose security profile is to be displayed. If the object class is SECURITY_CLASS, you can specify an asterisk (*) as *object-name* to see a display of all security class objects. An object name of the FILE class (explicitly or implicitly specified) can include the asterisk (*) and the percent sign (%) wildcard characters. However, wildcard characters are not allowed in any class other than FILE or SECURITY_CLASS.

Description

The SHOW SECURITY command displays the name, class, and profile of a protected object. A profile includes an access control list (ACL), the protection code, and the owner of a protected object. For SECURITY_CLASS objects, SHOW SECURITY displays all the template profiles, which are the basis for profiles of new objects.

The /CLASS qualifier identifies the class *object-name* is a member of. If the class is DEVICE and the object is a disk device on which a volume is mounted as a Files–11 (rather than foreign) volume, then both the device and the volume profiles are displayed.

All qualifiers other than /CLASS apply only to files.

For a description of protected objects, see the *OpenVMS Guide to System Security*.

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 (rather than by the creation, expiration, or modification date). By default, SHOW SECURITY selects files according to their creation date.

/BEFORE[=time]
Selects only those files dated prior to the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's Manual*.

/BY_OWNER[=uic]
Selects files whose owner's UIC matches the UIC specified with *uic*. The default UIC is that of the current process.

Specify the UIC by using the standard format described in the *OpenVMS Guide to System Security*.

/CLASS=class
Specifies the class of the object whose profile is to be displayed. By default, the command assumes the object class is FILE. Object class keywords are as follows:

CAPABILITY	QUEUE
COMMON_EVENT_CLUSTER	RESOURCE_DOMAIN
DEVICE	SECURITY_CLASS
FILE	SYSTEM_GLOBAL_SECTION
GROUP_GLOBAL_SECTION	VOLUME
LOGICAL_NAME_TABLE	

/CREATED
Modifies the time value specified with the /BEFORE or the /SINCE qualifier. The /CREATED qualifier selects files according to the date they were created (rather than by the backup, expiration, or modification date). By default, SHOW SECURITY selects files according to their creation date.

/EXCLUDE=(filespec[,...])
Excludes the specified files from the SHOW SECURITY operation. You can include a directory, but not a device, in the file specification. You cannot use relative version numbers to exclude a specific version.

/EXPIRED
Modifies the time specified with the /BEFORE or the /SINCE qualifier. The /EXPIRED qualifier selects files according to their expiration dates rather than by the backup, creation, or modification date. (The expiration date is set with the SET FILE/EXPIRATION_DATE command.) By default, files are selected according to their creation date.

/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, rather than by the backup, creation, or expiration date. By default, files are selected according to their creation date.

/SINCE[=time]
Selects only those files dated after the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's Manual*.

Examples

1.
```
$  SHOW SECURITY LNM$SYSTEM_TABLE /CLASS=LOGICAL_NAME_TABLE

LNM$SYSTEM_TABLE object of class LOGICAL_NAME_TABLE

     Owner: [SYSTEM]
     Protection: (System: RWC, Owner: RWC, Group: R, World: R)
     Access Control List:
          (IDENTIFIER=[USER,SVENSEN],ACCESS=CONTROL)
```

   This example shows a typical request to display the security elements of an object. The logical name table LNM$SYSTEM_TABLE is displayed with the settings of the security elements owner, protection, and ACL.

2.
```
$ SHOW SECURITY/CLASS=DEVICE $99$DUA22

_$99$DUA22: object of class DEVICE
     Owner: [SALES,TSUTTER]
     Protection: (System: RWPL, Owner: RWPL, Group: R, World)
     Access Control List: <empty>

RES17SEP object of class VOLUME
     Owner: [FEAST,FY93]
     Protection: (System: RWCD, Owner: RWCD, Group: RWCD, World: RWCD)
     Access Control List: <empty>

$ SHOW DEVICE $99$DUA22

Device               Device      Error    Volume       Free  Trans Mnt
 Name                Status      Count     Label      Blocks Count Cnt
$99$DUA22:  (KUDOS)  Mounted         0  RES17SEP      649904     1   2
```

   This example shows a request for the security profile of a disk device. The resulting display provides both the profiles of the disk 99DUA22 and the volume RES127SEP that is mounted on it. The subsequent SHOW DEVICE command confirms the volume is mounted on the device 99DUA22.

3.
```
$  SHOW SECURITY LOGICAL_NAME_TABLE /CLASS=SECURITY_CLASS

LOGICAL_NAME_TABLE object of class SECURITY_CLASS

     Owner: [SYSTEM]
     Protection: (System: RWCD, Owner: RWCD, Group: R, World: R)
     Access Control List: <empty>

  Template: GROUP

     Owner: [SYSTEM]
     Protection: (System: RWCD, Owner: R, Group: R, World: R)
     Access Control List: <empty>

  Template: JOB

     Owner: [SYSTEM]
     Protection: (System: RWCD, Owner: RWCD, Group, World)
     Access Control List: <empty>

  Template: DEFAULT

     Owner: [SYSTEM]
     Protection: (System: RW, Owner: RW, Group: R, World: R)
     Access Control List: <empty>
```

   This example shows the output for the special case of a security class object. The security class object LOGICAL_NAME_TABLE is displayed with the security profile. In addition, three templates are displayed.

```
4.  $  SHOW SECURITY * /CLASS=SECURITY_CLASS

    SECURITY_CLASS object of class SECURITY_CLASS
         Owner: [SYSTEM]
         Protection: (System: RWCD, Owner: RWCD, Group: R, World: R)
         Access Control List:  <empty>

    LOGICAL_NAME_TABLE object of class SECURITY_CLASS
         Owner: [SYSTEM]
         Protection: (System: RWCD, Owner: RWCD, Group: R, World: R)
         Access Control List:  <empty>

                   .
                   .
                   .
```

This example shows the output for the special case of showing all the security classes currently registered. The asterisk (*) wildcard character is used; any other form of wildcard characters is not accepted. Security profiles are shown for each security class. Note that template information is not shown.

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 14-DEC-1994 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. The asterisk (*) and the percent sign (%) wildcard characters 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 system 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 (default)
/NOBATCH
Displays all batch jobs for the local system. When used with the /CLUSTER qualifier, the /BATCH qualifier displays all batch jobs in the VMScluster environment. When you use the /NOBATCH qualifier, all batch jobs are excluded from the display.

/CLUSTER
Displays the specified processes on all nodes in a VMScluster.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/FULL
Displays the user identification code (UIC), the processor type, and the process size, in addition to the default information. The UIC is displayed below the process name.

/HEADING
/NOHEADING
Displays a heading line above the system output. When you use the /NOHEADING qualifier, the heading line is excluded from the display.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/IDENT=pid
Displays all processes on the system that have the specified process identification (PID) code number.

/INTERACTIVE
/NOINTERACTIVE
Displays all interactive processes on the system. When you use the /NOINTERACTIVE qualifier, all interactive processes are excluded from the display.

/NETWORK
/NONETWORK
Displays all network processes on the system. When you use the /NONETWORK qualifier, all network processes are excluded from the display.

/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 VMScluster 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 the asterisk (*) and the percent sign (%) 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.

/OWNER_UIC=uic
Displays all processes on the system that have the specified user identification code (UIC) number.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of system information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/PROCESS[=name] (default)
/NOPROCESS
Displays all specified processes on the system. If you do not specify a process name with the /PROCESS qualifier, all processes are displayed.

When you use the /NOPROCESS qualifier with the /CLUSTER qualifier, only the node or nodes available on the cluster are displayed with their respective uptimes and operating system version.

You can include the asterisk (*) and the percent sign (%) wildcard characters in the process name.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/STATE=process-state
Displays all processes with the specified process state. You can include the asterisk (*) and the percent sign (%) wildcard characters in the process-state name. The following process states are available:

CEF (Common event flag wait)
COLPG (Collided page wait)
COM (Computable)
COMO (Computable but outswapped)
CUR (Current)
FPG (Free page wait)
HIB (Hibernating)
HIBO (Hibernating and outswapped)
LEF (Local event flag wait)
LEFO (Local event flag wait and outswapped)
MUTEX[1] (Miscellaneous wait)
PFW (Page fault wait)
PSXFR (POSIX fork wait)
RWAST (AST wait)
RWBRK (Waiting for BROADCAST to finish)
RWCAP (CPU capability required)
RWCLU (Cluster transition wait)
RWCSV (Cluster server)
RWIMG (Image activation lock)
RWLCK (Lock ID database)
RWMBX (Mailbox full)
RWMPB (Modified page writer busy)
RWMPE (Modified page list empty)
RWNPG (Nonpaged pool)
RWPAG (Paged pool)
RWPFF (Page file full)
RWQUO (Pooled quota)
RWSCS (SCS wait)
RWSWP (Swapfile spacelist empty)
SUSP (Suspended)
SUSPO (Suspended and outswapped)

[1]MUTEX is output if one of the RW* states cannot be output.

/SUBPROCESS
/NOSUBPROCESS
Displays all subprocesses on the system. When you use the /NOSUBPROCESS qualifier, all subprocesses are excluded from the output.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW SYSTEM
 VAX/VMS 6.2  on node KRYPTON  14-DEC-1994 17:45:47.78  Uptime  2 21:53:59
   Pid    Process Name   State  Pri      I/O       CPU   Page flts   Pages
 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    2636 B
 27401C05 BATCH_60       LEF     6      248  0 00:00:06.83    1439    1556 B
 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    2204 S
 274012D7 BATCH_689      LEF     4    49216  0 00:14:18.36    7021    3470 B
 274032D9 DECW$MAIL      LEF     4     2626  0 00:00:51.19    4328    3087 B
 274018E3 SERVER_0021    LEF     6      519  0 00:00:07.07    1500     389 N
 274016E8 NMAIL_0008     HIB     4    10955  0 00:00:55.73    5652     151
 274034EA MORDRED        LEF     4     2132  0 00:00:23.85    5318     452
 274022EB S. Whiplash    CUR  6  4      492  0 00:00:12.15    5181     459
 274018EF DwMail         LEF     5   121386  0 00:28:00.97    7233    4094
 27401AF0 EMACS$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.
- Pages[1]—The number of CPU-specific pages 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
VMS V6.2  on node ALPES 14-DEC-1994 09:09:58.61  Uptime    2 2:27:11
Pid       Process Name   State  Pri I/O  CPU           Page flts Pages
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 was issued from an Alpha system and shows all processes on all nodes of the cluster.

3.
```
$ SHOW SYSTEM /NODE=EON
VAX/VMS V6.2 on node EON  14-DEC-1994 09:19:15.33  Uptime    2 02:29:07
Pid       Process Name   State  Pri  I/O  CPU           Page flts  Pages
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   CUR    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 was issued from a VAX system and 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 --
```

4.
```
$ SHOW SYSTEM/NOPROCESS/CLUSTER/FULL
OpenVMS V6.2 on node AAAAAA  MAY 12, 1995 10:29 AM  Uptime  3 16:37:39
        DEC 3000 Model 500

OpenVMS V6.2 on node BBBBBB  MAY 12, 1995 10:29 AM  Uptime  3 12:42:56
        DEC 4000 Model 610

OpenVMS V5.5-2  on node CCCCCC  MAY 12, 1995 10:29 AM  Uptime  3 16:26:52
        MicroVAX 3400 Series

OpenVMS V6.1  on node DDDDDD  MAY 12, 1995 10:29 AM  Uptime  3 16:41:35
        DEC 4000 Model 610

OpenVMS V6.1  on node EEEEEE  MAY 12, 1995 10:29 AM  Uptime  3 16:26:10
        VAXstation 3100/GPX
```

This example displays only the nodes available on the cluster with their respective uptimes and operating system versions because the /NOPROCESS qualifier suppresses the display of processes. The /FULL qualifier also displays the type of hardware on which the system is running.

5.
```
$ SHOW SYSTEM/PROCESS=S*
OpenVMS V6.2 on node AAAAAA  MAY 12, 1995 10:30 AM  Uptime  3 12:43:55
  Pid    Process Name    State  Pri      I/O       CPU       Page flts  Pages
20C00101 SWAPPER         HIB     16        0   0 00:00:00.05         0      0
20C0010E SHADOW_SERVER   HIB      6        7   0 00:00:00.03        32      4
20C0010F SECURITY_SERVER HIB     10       35   0 00:00:02.16       292    323
20C00110 SMISERVER       HIB      9       67   0 00:00:00.20       152    131
20C0011A SMITH           CUR  0   4       63   0 00:00:00.29       538     55
```

This example displays only the processes on the system that begin with the letter S.

6.
```
$ SHOW SYSTEM/NOHEADING/OUTPUT=SYSPROC.DAT
20C00101 SWAPPER         HIB     16        0   0 00:00:00.05         0      0
20C00105 CONFIGURE       HIB     10       24   0 00:02:00.86        41     21
20C00107 IPCACP          HIB     10        9   0 00:00:00.04        33     43
20C00108 ERRFMT          HIB      7     3583   0 00:00:04.31        50     61
20C00109 CACHE_SERVER    HIB     16        3   0 00:00:00.02        27     35
20C0010A CLUSTER_SERVER  HIB     10       11   0 00:00:00.10        59     75
```

This example places the display of system processes into the SYSPROC.DAT file without the heading information using the /OUTPUT qualifier. In this way, you can create a data file for processing because the heading is suppressed using the /NOHEADING qualifier.

7.
```
$ SHOW SYSTEM/IDENT=20C0010D/FULL
OpenVMS V6.2  on node AAAAAA  MAY 12, 1995 10:35 AM  Uptime  3 12:48:19
        DEC 4000 Model 610
  Pid    Process Name    State  Pri      I/O       CPU       Page flts  Pages
20C0010D JOB_CONTROL     HIB     10       41   0 00:00:00.25        51     66
         [SYSTEM]                                                        528Kb
```

This example displays a system process by PID number.

8.
```
$ SHOW SYSTEM/OWNER=SMITH
OpenVMS V6.2  on node AAAAAA  MAY 12, 1995 10:34 AM  Uptime  3 12:47:37
  Pid    Process Name    State  Pri      I/O       CPU       Page flts  Pages
20C00119 DECW$TE_0119    LEF      6      334   0 00:00:01.00       975    657
20C0011A SMITH           LEF      8       63   0 00:00:00.29       538     55
20C0011B _RTA1:          CUR  0   4      554   0 00:00:01.72      1771     70
```

This example displays the system processes belonging to user SMITH.

9.
```
$ SHOW SYSTEM/STATE=L*
OpenVMS V6.2  on node AAAAAA  MAY 12, 1995 10:36 AM  Uptime  3 12:49:46
  Pid    Process Name    State  Pri      I/O       CPU       Page flts  Pages
20C00119 DECW$TE_0119    LEF      6      334   0 00:00:01.00       975    657
20C0011A SMITH           LEF      8       63   0 00:00:00.29       538     55
```

This example displays the system processes with process states that begin with the letter L.

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 *OpenVMS Terminal Fallback Utility Manual*.

Qualifiers

/BRIEF
Displays a subset of more commonly used terminal characteristics.

/FULL (default)
Displays all terminal characteristics.

/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 the asterisk (*) and the percent sign (%) 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.

Examples

1.
```
$ SHOW TERMINAL/BRIEF
Terminal: _RTA1:      Device_Type: VT300_Series  Owner: _RTA1:
                                                 Username: SMITH

Terminal Characteristics:
   Speed:   9600      Page:  62          Width: 80
   No Remote          Hostsync           TTsync
   No Modem           Broadcast          Wrap
   No Hangup          No Disconnect      Overstrike editing
   No Dialup          Application keypad Line Editing
```

   In this example, the SHOW TERMINAL command displays a subset of the more commonly used terminal characteristics.

2.
```
$ SHOW TERMINAL/FULL
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 (see the following example).

3.
```
$ SHOW TERMINAL/FULL
Terminal: _RTA1:      Device_Type: VT300_Series  Owner: _RTA1:
                                                 Username: SMITH
Remote Port Info: NODE12::SMITH

   Input:    9600     LFfill:  0      Width:  80      Parity: None
   Output:   9600     CRfill:  0      Page:   62

Terminal Characteristics:
   Interactive        Echo               Type_ahead         No Escape
   Hostsync           TTsync             Lowercase          Tab
   Wrap               Scope              No Remote          Eightbit
   Broadcast          No Readsync        No Form            Fulldup
   No Modem           No Local_echo      No Autobaud        No Hangup
   No Brdcstmbx       No DMA             No Altypeahd       Set_speed
   No Commsync        Line Editing       Overstrike editing No Fallback
   No Dialup          No Secure server   No Disconnect      No Pasthru
   No Syspassword     SIXEL Graphics     No Soft Characters Printer port
   Application keypad ANSI_CRT           Regis              No Block_mode
   Advanced_video     Edit_mode          DEC_CRT            DEC_CRT2
   DEC_CRT3           No DEC_CRT4        No DEC_CRT5        Ansi_Color
   VMS Style Input
```

In this example, the SHOW TERMINAL command displays the full terminal characteristics.

SHOW TIME

Displays the current date and time.

Format

SHOW [DAY]TIME

Parameters

None.

Example

```
$ SHOW TIME
  14-DEC-1994 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 VMScluster environment) of interactive, subprocess, and batch users on the system.

Format

SHOW USERS [username]

Parameter

username
Specifies the user about whom you want information. The asterisk (*) and the percent sign (%) wildcard characters 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 tells you that no processes were found.

If you omit the *username* parameter, a list of all interactive, subprocess, and batch users is displayed.

Qualifiers

/BATCH
/NOBATCH
Displays all batch users in the VMScluster environment. To restrict the display to users on specific nodes, use the /BATCH qualifier with the /NODE qualifier. When you use the /NOBATCH qualifier, all batch users are excluded from the display.

/CLUSTER
Displays the specified user names on all nodes in a VMScluster environment.

/EXACT
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

/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.

/HEADING (default)
/NOHEADING
Displays a heading line above the system output. When you use the /NOHEADING qualifier, the heading line is excluded from the display.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/INTERACTIVE
/NOINTERACTIVE
Displays all interactive processes held by users in the VMScluster environment. To restrict the display to users on specific nodes, use the /INTERACTIVE qualifier with the /NODE qualifier. When you use the /NOINTERACTIVE qualifier, all interactive processes held by users in the VMScluster environment are excluded from the display.

/NETWORK
/NONETWORK
Displays all network users in the VMScluster environment. To restrict the display to users on specific nodes, use the /NETWORK qualifier with the /NODE qualifier. When you use the /NONETWORK qualifier, all network users in the VMScluster environment are excluded from the display.

/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.

The asterisk (*) and the percent sign (%) 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.

/PAGE[=keyword]
/NOPAGE (default)
Controls the display of user information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/SEARCH="string"
Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/SUBPROCESS
/NOSUBPROCESS
Displays all subprocess users in the VMScluster environment. To restrict the display to users on specific nodes, use the /SUBPROCESS qualifier with the /NODE qualifier. When you use the /NOSUBPROCESS qualifier, all subprocess users in the VMScluster environment are excluded from the output.

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

Examples

1.
```
$ SHOW USERS
      OpenVMS User Processes at MAY 12, 1995 10:37 AM
   Total number of users = 3,  number of processes = 14

 Username     Node     Interactive  Subprocess   Batch
 MJONES      BBBBBB            1
 MJONES      XXXXXX            4         2
 JOHNSONL    AAAAAA            1         4
 SMITH       AAAAAA            2
```

   The SHOW USERS command in this example displays the user names and node names of all current interactive, subprocess, and batch users on the system.

2.
```
$ SHOW USERS/NOHEADING/OUTPUT=SYSUSERS.DAT
$ TYPE SYSUSERS.DAT
 MJONES      BBBBBB            1
 MJONES      XXXXXX            4         2
 JOHNSONL    AAAAAA            1         4
 SMITH       AAAAAA            2
```

   The SHOW USERS command in this example displays the user names and node names of all current interactive, subprocess, and batch users on the system without the heading text using the /NOHEADING qualifier. Using the /OUTPUT qualifier, you can write the output to a file for processing or later review.

3.
```
$ SHOW USERS *LES*
      OpenVMS User Processes at MAY 12, 1995 10:41 AM
   Total number of users = 3,  number of processes = 10

 Username     Node     Interactive  Subprocess   Batch
 THALES      MILETS            -         -          1
 PRAXITELES  LESBOS            5         2
 PERICLES    ISLAND            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.

4.
```
$ SHOW USERS/FULL/NODE=AAAAAA
      OpenVMS User Processes at JUNE 9, 1995 02:23 PM
   Total number of users = 3,  number of processes = 3

 Username    Node   Process Name    PID     Terminal
 DJONES     AAAAAA  Aaaaaa_fta2:  2180012D  FTA2:
 MJOHNSON   AAAAAA  MJOHNSON      2180011E  RTA1:    (JJJJJ::MJOHNSON)
 SMITH      AAAAAA  SMITH         2180011A  FTA1:
<LOGIN> B4B4    _WSA1         3100009F
```

   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 system AAAAAA. A user name of <LOGIN> indicates that someone is in the process of logging in.

```
5.  $ SHOW USERS /NODE=(AAAAAA,BBBBBB,MMMMMM)
          OpenVMS User Processes at JUNE 9, 1995 02:23 PM
       Total number of users = 5,  number of processes = 7

     Username    Node   Process Name    PID     Terminal
     BRICKLEY   BBBBBB  BRICKLEY       21E0009E  RTA1:   (CBREEZ::BRICKLEY)
     DCLDCT     MMMMMM  Mmmmmm_rta1:  2020015D  RTA1:    (MMMMMM::DJOHNSON)
     DJOHNSON   AAAAAA  Aaaaaa_fta2:  2180012D  FTA2:
     DJOHNSON   MMMMMM  Mmmmmm_fta1:  2020013E  FTA1:
     DJOHNSON   MMMMMM  Mmmmmm_rta3:  20200184  RTA3:    (DDRSND::DJOHNSON)
     JONES      AAAAAA  JONES         2180011E  RTA1:    (IVOK::JONES)
     SMITH      AAAAAA  SMITH         2180011A  FTA1:
```

The SHOW USERS command in this example displays the user name and node name for all interactive, batch, and subprocess users on the nodes AAAAAA, BBBBBB, and MMMMMM.

SHOW WORKING_SET

Alpha On Alpha, displays the working set limit, quota, and extent (in pagelets and CPU-specific pages) assigned to the current process.♦

VAX On VAX, displays the working set limit, quota, and extent (in pages) 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. The asterisk (*) and the percent sign (%) wildcard characters are not allowed in the file specification.

If you enter the /NOOUTPUT qualifier, output is suppressed.

Examples

Alpha

1.
```
$ SHOW WORKING_SET
Working Set (pagelets)  /Limit= 2000  /Quota= 4000 /Extent= 6000
Adjustment enabled  Authorized Quota= 4000  Authorized Extent= 6000

Working Set (8Kb pages) /Limit= 125   /Quota= 250  /Extent= 375
                    Authorized Quota= 250  Authorized Extent= 375
```

This example shows the SHOW WORKING_SET command on Alpha. The process has a working set limit of 2000 pagelets (125 pages) and a quota of 4000 pagelets (250 pages) and that the current quota is equal to the authorized limit (4000 pagelets; 250 pages). It also shows that the current process has a working set extent of 6000 pagelets (375 pages) and that the current extent is equal to the authorized limit (6000 pagelets; 375 pages). A pagelet is 512 bytes.♦

VAX

2.
```
$ SHOW WORKING_SET
Working Set      /Limit= 180   /Quota= 350           /Extent=1200
Adjustment enabled  Authorized Quota= 350  Authorized Extent=1200
```

This example shows the SHOW WORKING_SET command on VAX. The process has a working set limit of 180 pages, a quota of 350 pages and that the 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). Each page on a VAX is 512 bytes.♦

SHOW ZONE

Displays the current state of a VAXft system. For more information on the SHOW ZONE command, see VAXft systems documentation.

Applies only to a VAXft 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 *OpenVMS User's 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 global symbols except $RESTART, $SEVERITY, $STATUS
- All local symbols defined for the current command procedure level
- 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. The asterisk (*) and the percent sign (%) wildcard characters are not 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. The asterisk (*) and the percent sign (%) wildcard characters cannot 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.

/PRIVILEGES={CURRENT | AUTHORIZED}

Determines whether the spawned process inherits the current process' current or authorized privileges as its authorized privileges. By default, the authorized privilege mask for the subprocess is taken from the current privileges of its creator. (This corresponds to /PRIVILEGES=CURRENT.) If the /PRIVILEGES=AUTHORIZED qualifier is specified, the subprocess' authorized privileges will be taken from the caller's authorized privileges.

/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 dollars sign ($) 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.

/TRUSTED
/NOTRUSTED
Indicates that the SPAWN command input originates in a trusted command procedure. SPAWN commands are not allowed in CAPTIVE accounts. The /TRUSTED qualifier provides a way for properly written captive command procedures to perform SPAWN operations when the command input originates in the captive command procedure where it can be trusted. For more information about trusted command procedures, see the *OpenVMS Guide to System Security*.

/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 OpenVMS 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). The /CPU qualifier is required.

Applies only to OpenVMS 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 OpenVMS multiprocessing system. On a VAX 6000 system or an Alpha 7000 system, the CPU ID is the backplane slot number of the processor. 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 OpenVMS 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.

/DEFAULT_CAPABILITIES
Eliminates all previous capability (user and system) modifications for the specified CPU and reinitializes them with the values in the global initialization variable SCH$GL_DEFAULT_CPU_CAP.

Normally, user capabilities survive CPU shutdowns and restarts (not reboots), making the downtime as transparent to the user as possible. The CPU user capability bits are only initialized from SCH$GL_DEFAULT_CPU_CAP at the first boot of the CPU. (The system capability bits, however, are reinitialized to their defaults taken from SCH$GL_DEFAULT_CPU_CAP.)

However, there may be times when the CPU needs to be returned to a known, consistent state. The /DEFAULT_CAPABILITIES qualifier mimics the behavior of the initial bootstrap of the CPU.

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/NETWORK

Starts or restarts the specified network service on the local node. The /NETWORK qualifier is required.

Format

START/NETWORK network-service

Parameter

network-service
Specifies the name of the network service to be started or restarted.

Description

The START/NETWORK command causes a network service to begin executing on the local node.

Use the STOP/NETWORK command to pause the network.

Example

```
$ START/NETWORK  DECnet
```

This command starts the DECnet network service.

START/QUEUE

Starts or restarts the specified queue after it has been initialized. You also can use this command to change the options of the specified queue. The /QUEUE qualifier is required.

Requires manage (M) access to the 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 create the queue with the INITIALIZE/QUEUE command before you can use the START/QUEUE command. To create and start the queue at the same time, use the INITIALIZE/QUEUE/START command.

If the specified queue is an autostart queue, the START/QUEUE command activates the queue for autostart. The queue begins processing jobs when autostart is enabled with the ENABLE AUTOSTART/QUEUES command for any node on which the queue can run.

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 options of a running queue, use the SET QUEUE command. To change queue options that cannot be altered with the SET QUEUE command, use the following procedure:

1. Stop the queue with the STOP/QUEUE/NEXT command.
2. Restart the queue with the START/QUEUE or INITIALIZE/QUEUE/START command, specifying the appropriate qualifiers for the options you desire.

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.

/AUTOSTART_ON=(node::[device][,...])

Designates the queue as an autostart execution queue and specifies the node, or node and device, on which the queue can be located. Both *node* and *device* must be specified for output queues. For batch queues, only *node* is applicable.

In a VMScluster, you can specify more than one node (or node and device) on which a queue can run, in the preferred order in which nodes should claim the queue. This allows the queue to fail over to another node if the node on which the queue is running leaves the cluster.

For autostart queues, the START/QUEUE command activates the queue for autostart. The queue will begin processing jobs when the ENABLE AUTOSTART /QUEUES command is entered for a node on which the queue can run.

This qualifier cannot be used with the /ON or /GENERIC qualifier. However, you can specify the /AUTOSTART_ON qualifier for a queue previously created or started with the /ON qualifier. Doing so overrides the /ON option and makes the queue an autostart queue.

For more information about autostart queues, see the chapter about managing queues in the *OpenVMS System Manager's Manual*.

/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.

Note

Using the START/QUEUE/BACKWARD=*n* command to restart a print job that uses Fortran carriage control and that was printed with the /NOFEED qualifier can have unexpected results, in particular:

- The page positioning in the restarted job may not be correct: the output may not begin at the top of the page specified by *n*.
- The output from the print job may be preceded by extra meaningless information.

/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 a null string ("") 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 system parameter PQL_MCPULM.

For information on specifying delta times, see the *OpenVMS User's Manual*. For more information on specifying CPU time limits, see the CPU Time Limit Specifications and Actions table for the INITIALIZE/QUEUE command.

/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 system parameter PQL_MCPULM. The time cannot exceed the CPU time limit set by the /CPUMAXIMUM qualifier. For information on specifying delta time, see the *OpenVMS User's Manual*. For more information on specifying CPU time limits, see the CPU Time Limit Specifications and Actions table for 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.

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. If no form type is explicitly specified with the FORM keyword, the system assigns the form ''DEFAULT'' to the queue. 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 establishing mandatory queue options, see the description of the /SEPARATE qualifier. For more information on specifying default queue options, see the *OpenVMS System Manager's Manual*.

/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 no form type is explicitly specified, the system assigns the form ''DEFAULT'' to the queue.

If the stock of the mounted form does not match 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 and remain pending until the stock of the mounted form of the queue is identical to the stock of the form associated with the job.

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 and remains 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. 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.

Use the /GENERIC qualifier to change the list of target nodes for a generic queue. The queue must have been initialized as a generic queue with the INITIALIZE /QUEUE/GENERIC command.

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=filename
/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.

/NO_INITIAL_FF
/NONO_INITIAL_FF (default)
Specifies whether a form feed should be sent to a printer device when a queue starts. To suppress the initial form feed, use the /NO_INITIAL_FF qualifier.

The /NONO_INITIAL_FF qualifier sends a form feed to the output device to ensure that the paper is at the top of a page before printing begins.

/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 system parameter SCSNODE for the VAX computer on which the queue executes.

You cannot use the /ON qualifier with the /AUTOSTART_ON or /GENERIC qualifier. However, you can specify the /ON qualifier for a queue previously created or started with the /AUTOSTART_ON qualifier. Doing so overrides the /AUTOSTART_ON qualifier and makes the queue a nonautostart queue.

/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 manage (M) 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 *OpenVMS User's Manual*.

/PROCESSOR=filename
/NOPROCESSOR

Requires OPER (operator) privilege to change the file name from the one with which the queue was initialized.

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.

- Specify the *ownership* parameter as system (S), owner (O), group (G), or world (W).
- Specify the *access* parameter as read (R), submit (S), manage (M), 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 *OpenVMS Guide to System Security*. For more information on controlling queue operations through UIC-based protection, see the *OpenVMS System Manager's Manual*.

/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 OpenVMS 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.

A user can request a job retention option for a job by specifying the /RETAIN qualifier with the PRINT, SUBMIT, or SET ENTRY command. However, the job retention option you specify for a queue overrides any job retention option requested by a user for a job in that queue.

/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 options, 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 options that can be overridden, see the description of the /DEFAULT qualifier.

For more information on specifying mandatory queue options, see the *OpenVMS System Manager's Manual*.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating systems rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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 in formation about the way a working set default affects batch jobs, see Table DCLII–8.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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 DCLII–8.

/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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that the operating system rounds up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha.

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 DCLII–8) shows the action taken for different combinations of specifications that involve working set size and working set quota values.

Table DCLII–8 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 the job that is currently executing on the printer queue LPA0 and places that queue in the paused state. The START/QUEUE command releases the queue from the paused state. The /TOP_OF_FILE qualifier causes the job that was suspended to resume printing at the beginning of the file rather than at where it was interrupted.

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.

4.
```
$ INITIALIZE/QUEUE/START/GENERIC=(A,B)  MYQUEUE
.
.  [new printers X and Y are brought in at a later date]
.
$ STOP/QUEUE/NEXT MYQUEUE
$ START/QUEUE/GENERIC=(X,Y) MYQUEUE
```

This example changes the list of target nodes for a generic queue. Note that the queue was previously initialized as a generic queue.

START/QUEUE/MANAGER

Starts the clusterwide queue manager for the queuing system and opens that queue manager's queue database files. The /QUEUE qualifier is optional, but the /MANAGER qualifier is required.

By default, the command affects the default queue manager, SYS$QUEUE_MANAGER. Specify the /NAME_OF_MANAGER qualifier to start a queue manager other than the default.

For more information, see the chapter on the queue manager in the *OpenVMS System Manager's Manual*.

Requires OPER (operator) and SYSNAM (system logical name) privileges.

Format

START/QUEUE/MANAGER [dirspec]

Parameter

dirspec

Specifies the directory location to contain the system queue and journal files of the queue database. The queue file has a file type of QMAN$QUEUES and contains queue definitions. The journal file has a file type of QMAN$JOURNAL and contains job and other information that lets the queue manager to return to its last known state should a system be stopped unexpectedly. These files must reside in the same directory.

The default location of the queue and journal files is SYS$COMMON:[SYSEXE]. The optional *dirspec* parameter is used only for specifying an alternate location for the queue and journal files. The specification must include at least the device and directory name. The asterisk (*) and the percent sign (%) wildcard characters are not allowed in the directory specification.

The directory you specify must be available to all nodes that can run the queue manager. If the directory specification is a concealed logical name, it must be identically defined on all nodes in the cluster.

The location of the queue and journal files is stored in the master file of the queue database. You do not have to respecify the directory location with subsequent START/QUEUE/MANAGER commands.

For information about changing the location of any of the queue database files, see the chapter on the queue manager in the *OpenVMS System Manager's Manual*.

Description

The START/QUEUE/MANAGER command has the following uses:

- Enter the command START/QUEUE/MANAGER/NEW_VERSION to create the queue database and initially start a queue manager. See the description of the /NEW_VERSION qualifier for more information. Once the queue manager has been started, it will remain running unless it is explicitly stopped with the STOP/QUEUE/MANAGER/CLUSTER command.
- If the STOP/QUEUE/MANAGER/CLUSTER command has been executed, enter the START/QUEUE/MANAGER command to restart a queue manager.

- In a VMScluster, enter the START/QUEUE/MANAGER command with the /ON qualifier to modify the list of preferred nodes on which a queue manager can run. See the description of the /ON qualifier for more information.
- In a VMScluster, enter the START/QUEUE/MANAGER command to ensure that a queue manager process is executing on the most preferred, available node. If the queue manager is not running on the most preferred, available node, the queue manager will be moved to that node without interruption of service. If you are using the default node list (*), the queue manager will not move. For more information, see the description of the /ON qualifier.

If the queue manager is in a location other than the default, and in VMScluster environments with multiple system disks, you must define the logical name QMAN$MASTER. For instructions, see the chapter about the queue manager and queue database in the *OpenVMS System Manager's Manual*.

If a queue manager does not start when you enter the START/QUEUE /MANAGER command, you will receive the following message:

```
%JBC-E-QMANNOTSTARTED, queue manager could not be started
```

If you see this message, search the operator log file SYS$MANAGER:OPERATOR.LOG (or look on the operator console) for messages from the facilities QUEUE_MANAGE and JOB_CONTROL for information about the problem, as follows:

```
$ SEARCH SYS$MANAGER:OPERATOR.LOG /WINDOW=5 QUEUE_MANAGE,JOB_CONTROL
```

Qualifiers

/ADD

Creates an additional queue manager in the existing queue database. If the named queue manager already exists, the request will be rejected.

/NAME_OF_MANAGER=name

Creates a non-default queue manager. The required name value may be up to 31 characters long and may be a logical. The name will serve as the identifier for the queue manager process and the portion of the database that it is managing.

/NEW_VERSION
/NONEW_VERSION (default)

Specifies that a new (empty) version of the queue database is to be created. This qualifier is required when initially creating and starting the queuing system.

If you specify this qualifier and a queue database already exists, the new master and queue files of the queue database supersede existing versions of those files. However, the journal file of the existing queue database is deleted. Jobs and other information are lost.

/ON=(node[,...])

In a VMScluster, specify the nodes on which a clusterwide queue manager can run. The default value for the node list is the asterisk (*) wildcard character, meaning that all nodes in the cluster are eligible to run the queue manager. If the node on which the queue manager is running leaves the cluster, the queue manager can automatically fail over to any available node in the cluster. However, to specify a preferred order in which the nodes should claim the queue manager, or to limit the nodes which can run it, you must specify the /ON qualifier.

The node list you specify is stored in the queue database. Anytime the START /QUEUE/MANAGER command is entered and neither the /NEW_VERSION nor /ON qualifier is specified, the /ON list stored in the queue database remains unchanged.

For highest availability, specify the asterisk (*) wildcard character as the last node in the node list to indicate that any remaining unlisted node can claim the queue manager, with no preferred order. If you do not specify the asterisk (*) wildcard character last in the node list, the queue manager can only fail over if one of the nodes in the list is available. However, if you want to exclude certain nodes from being eligible to run the queue manager, you cannot use the asterisk (*) wildcard character. You cannot specify the asterisk (*) wildcard character as part of a node name.

Anytime the START/QUEUE/MANAGER command is entered (with or without the /ON qualifier), the job controller will check to see if one or more preferred queue manager nodes was currently or previously specified with the /ON qualifier. If one or more preferred nodes was specified, and the queue manager is running on a node other than the first available node of those specified, the queue manager process is moved from its current node and restarted on the first available preferred node. Despite the transition, queues on the running nodes are not stopped. All requests to the queuing system, for example, PRINT, SUBMIT, and SHOW ENTRY requests, will complete as expected.

Examples

1.
```
$ START/QUEUE/MANAGER/NEW_VERSION
$ SHOW QUEUE
%JBC-E-NOSUCHQUE, no such queue
```

   The START/QUEUE/MANAGER command in this example starts the queue manager and creates the queue and journal files in the default location, SYS$COMMON:[SYSEXE]. Because the asterisk (*) wildcard character is used as the default value for the list of nodes on which the queue manager can run, the queue manager will be able to fail over to any available node in the cluster.

   This command starts the default queue manager SYS$QUEUE_MANAGER because the /NAME_OF_MANAGER qualifier is not specified.

   Both the SYS$COMMON:[SYSEXE] location and the asterisk value for the /ON qualifier are stored in the queue database for future reference. The newly created queue database contains no queues or jobs. The SHOW QUEUE command shows that no queues are defined on this cluster.

2.
```
$ START/QUEUE/MANAGER/NEW_VERSION -
_$ /ON=(SATURN,VENUS,NEPTUN,*) DUA5:[SYSQUE]
```

   The START/QUEUE/MANAGER command in this example creates the queue and journal files on the cluster-accessible disk volume DUA5, in directory SYSQUE. You must mount the disk before you enter the START/QUEUE /MANAGER command.

   The /ON qualifier specifies that the queue manager should run first on node SATURN. If SATURN leaves the cluster, the queue manager will attempt to fail over to VENUS. If VENUS is not available, the queue manager will attempt to fail over to NEPTUN. If NEPTUN is not available, the queue manager will fail over to any other available node in the cluster.

3.
```
$ START/QUEUE/MANAGER/NEW_VERSION -
_$ /ON=(SATURN,VENUS,NEPTUN,*) DUA5:[SYSQUE])
    .
    .
    .
$ START/QUEUE/MANAGER
```

The START/QUEUE/MANAGER command in this example creates the queue database as shown in the previous example. Suppose the queue manager started on node SATURN.

Later, SATURN is removed from the cluster, and the queue manager fails over to node VENUS. When SATURN rejoins the cluster, the second START /QUEUE/MANAGER command in the example is entered to move the queue manager back to node SATURN.

The second START/QUEUE/MANAGER command does not specify the DUA5:[SYSQUE] parameter value or the /ON qualifier and its node list because those previously supplied pieces of information are stored in the queue database. The queue manager continues to use the queue and journal files found at the location stored in its database. The /ON list, stored as a result of the previous START/QUEUE/MANAGER command, also remains unchanged.

4.
```
$ START/QUEUE/MANAGER DUA4:[SYSQUE]
%JBC-E-QMANNOTSTARTED, queue manager could not be started
$ SEARCH SYS$MANAGER:OPERATOR.LOG /WINDOW=5 QUEUE_MANAGE,JOB_CONTROL
%%%%%%%%%%  OPCOM  14-DEC-1994 18:55:18.23  %%%%%%%%%%
Message from user QUEUE_MANAGE on QMUNGR
%QMAN-E-OPENERR, error opening DUA4:[SYSQUE]SYS$QUEUE_MANAGER.QMAN$QUEUES;

%%%%%%%%%%  OPCOM  14-DEC-1994 18:55:18.29  %%%%%%%%%%
Message from user QUEUE_MANAGE on QMUNGR
-RMS-F-DEV, error in device name or inappropriate device type for operation

%%%%%%%%%%  OPCOM  14-DEC-1994 18:55:18.31  %%%%%%%%%%
Message from user QUEUE_MANAGE on QMUNGR
-SYSTEM-W-NOSUCHDEV, no such device available
$ START/QUEUE/MANAGER DUA5:[SYSQUE]
```

In this example, the first START/QUEUE/MANAGER command specifies device DUA4: as the location of the queue and journal files. The error message indicates that the queue manager does not start. The SEARCH command searches the operator log file for relevent messages, and reveals that device DUA4: does not exist. The second START/QUEUE/MANAGER command specifies the correct device name, DUA5:.

START/ZONE

Adds a zone to the running VAXft system. For more information on the START/ZONE command, see the VAXft systems documentation.

Applies only to the VAXft 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. If the *process-name* includes spaces or lowercase letters, enclose the name in quotation marks (‘‘ ’’) to preserve the correct spelling.

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). The /CPU qualifier is required.

Applies only to OpenVMS 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 OpenVMS multiprocessing system. On a VAX 6000 system or an Alpha 7000 system, the CPU ID is the backplane slot number of the processor. 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 OpenVMS 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 attempts to schedule another process. When this occurs, the secondary enters the STOPPED state.

The OpenVMS 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/NETWORK

Stops the specified network service on the local node. The /NETWORK qualifier is required.

Format

STOP/NETWORK network-service

Parameter

network-service
Specifies the name of the network service that you want to halt.

Description

The STOP/NETWORK command causes the specified network to stop executing on the local node.

Use the START/NETWORK command to release the network from the paused state.

Example

```
$ STOP/NETWORK DECnet
```

The STOP/NETWORK command in this example stops the current network service.

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 are initiated. The /QUEUE qualifier is required.

Requires manage (M) 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 are 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 how to stop a queue, see the following commands:

STOP/QUEUE/NEXT
STOP/QUEUE/RESET
STOP/QUEUES/ON_NODE
STOP/QUEUE/MANAGER/CLUSTER

Examples

1.
```
$ STOP/QUEUE LPA0
```

   The STOP/QUEUE command in this example suspends the current print job in the queue LPA0 and places that queue in the paused state.

2.
```
$ STOP/QUEUE JADE_PRINT
$ START/QUEUE/TOP_OF_FILE JADE_PRINT
```

   The STOP/QUEUE command in this example suspends the job that is currently printing on the printer queue JADE_PRINT and places that queue in the paused state. The START/QUEUE command releases the queue from the paused state. The /TOP_OF_FILE qualifier causes the job that was suspended to resume printing at the beginning of the file rather than at where it was interrupted.

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 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.

For batch queues an entry number must be provided. To abort a batch job use the STOP/QUEUE/ENTRY command.

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 delete (D) access to the specified 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 OpenVMS 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/CLUSTER

Shuts down the queue manager on a standalone node or a VMScluster. The /QUEUE qualifier is optional, but the /MANAGER and /CLUSTER qualifiers are required on both standalone and clustered systems. By default, the command affects the default queue manager, SYS$QUEUE_MANAGER. Specify the /NAME_OF_MANAGER qualifier to shut down a queue manager other than the default.

Requires OPER (operator) and SYSNAM (system logical name) privileges.

Format

STOP/QUEUE/MANAGER/CLUSTER

Parameters

None.

Description

The STOP/QUEUE/MANAGER/CLUSTER command notifies the queue manager to perform the following on the standalone node or on all nodes in the cluster:

- Abort all of the current jobs that cannot be restarted, and requeue all of the current restartable jobs on the queue manager
- Stop all of the execution queues on the queue manager
- Disable the autostart feature for all of the queue manager's autostart queues
- Close the queue manager's queue and journal files

Once the STOP/QUEUE/MANAGER/CLUSTER command is entered, the affected queue manager process remains stopped, and requests to the queuing system are denied until the DCL command START/QUEUE/MANAGER is entered.

Qualifier

/NAME_OF_MANAGER=name
Specifies the name of the queue manager process to be stopped. If the /NAME_OF_MANAGER qualifier is omitted, the default queue manager name SYS$QUEUE_MANAGER is used. For more information, see the the chapter about the queue manager in the *OpenVMS System Manager's Manual*.

Example

```
$ STOP/QUEUE/MANAGER/CLUSTER
```

The STOP/QUEUE/MANAGER/CLUSTER command in this example stops the queue manager process, SYS$QUEUE_MANAGER. The process remains stopped and requests to SYS$QUEUE_MANAGER will be denied until the START /QUEUE/MANAGER command is entered.

This command stops the default queue manager SYS$QUEUE_MANAGER because the /NAME_OF_MANAGER qualifier is not specified.

STOP/QUEUE/NEXT

Stops the specified queue after all executing jobs have completed processing. No new jobs are initiated.

The /QUEUE qualifier is optional, but you must specify the /NEXT qualifier.

Requires manage (M) access to the 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 after it allows any current jobs to complete execution. No new jobs are initiated.

You should use the STOP/QUEUE/NEXT command before deassigning, deleting, or merging a queue, as this command allows all currently executing jobs to complete processing before changes are made to the queue. You might also use this command to stop a queue if you need to perform planned service on a printing device. Use the START/QUEUE command to restart the queue.

For autostart queues, the STOP/QUEUE/NEXT command stops the queue and makes it inactive for autostart, so it will not be automatically started. For this reason, you might use this command to prevent an autostart queue from being accidentally restarted when a printing device needs to undergo planned service. Use the START/QUEUE command to reactivate the queue for autostart.

Examples

1.
```
$ STOP/QUEUE/NEXT LASER_PRINT
```

   In this example, the STOP/QUEUE/NEXT command prepares to stop the queue LASER_PRINT. The currently printing job is allowed to complete, but no new job is allowed to initiate. Once the current job has finished, the queue is stopped.

   If LASER_PRINT is an autostart queue, it will not be automatically started until you enter the START/QUEUE command.

2.
```
$ STOP/QUEUE/NEXT BATCH_1
$ SHOW QUEUE/ALL BATCH_1
Batch queue BATCH_1, stopped, on JADE::
$ DELETE/QUEUE BATCH_1
```

   This example shows how to delete the batch queue BATCH_1. First, the STOP/QUEUE/NEXT command is entered, which stops the queue after jobs currently executing on the queue are completed. Second, 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 queue BATCH_1.

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 delete (D) access to the current or specified 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.

STOP/QUEUE/REQUEUE

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 system 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 that cannot be restarted are aborted immediately.

The /QUEUE qualifier is optional, but you must specify the /RESET qualifier.

Requires manage (M) access to the 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. 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. Batch jobs are restartable if submitted with the SUBMIT/RESTART command.) Use the START/QUEUE command to restart the queue.

For autostart queues, the STOP/QUEUE/RESET command stops the queue and makes it inactive for autostart, so it will not be automatically started. For this reason, you might use this command to prevent an autostart queue from being automatically restarted when a printing device fails and needs to be serviced. Use the START/QUEUE command to reactivate the queue for autostart.

Examples

1.
```
$ INITIALIZE/QUEUE/AUTOSTART_ON=MYNODE::LPA0/START LPA0
$ENABLE AUTOSTART/QUEUES/ON_NODE=MYNODE
    .
    .
    .
$STOP/QUEUE/RESET LPA0
$START/QUEUE LPA0
```

THE INITIALIZE/QUEUE command in this example creates an autostart output queue named LPA0. The /START qualifier activates the queue for autostart, and the ENABLE AUTOSTART/QUEUES command causes the queue to begin executing.

Suppose the printer LPA0:: runs out of paper. The STOP/QUEUE/RESET command abruptly stops the queue LPA0. The current print job stops immediately and is requeued. The STOP/QUEUE/RESET command also makes the queue inactive for autostart, so it will not be restarted while the printer's paper is being resupplied.

After the printer is loaded with paper, the START/QUEUE command makes the queue active for autostart and allows the queue manager to automatically start it again.

2. `$ STOP/QUEUE/RESET TEXBATCH`

   The STOP/QUEUE/RESET command in this example stops the batch queue TEXBATCH. Any current jobs that were submitted with the /RESTART qualifier are requeued for processing when the queue is restarted. Users might want to resubmit current jobs that were not originally submitted with the /RESTART qualifier.

STOP/QUEUES/ON_NODE

Stops all queues on the appropriate node. This command is useful if you want to stop a set of queues on a node with a single command (for example, before shutting down a node), but do not want to stop a queue manager throughout a VMScluster.

The /QUEUES qualifier is optional, but the /ON_NODE qualifier is required.

Requires OPER (operator) privilege.

Format

STOP/QUEUES/ON_NODE[=node]

Parameters

None.

Description

The STOP/QUEUES/ON_NODE command notifies the queue manager to perform the following tasks:

- Abort all current jobs that cannot be restarted (in all of that queue manager's execution queues on the appropriate node), and requeue all current restartable jobs.
- Stop all of that queue manager's execution queues on the appropriate node. Force any of that queue manager's autostart queues on the node to fail over to the next available node in the queue's failover list (if any) on which autostart is enabled.
- Prevent any of that queue manager's autostart queues from failing over to the node.

By default, this command affects the node from which it is entered. Specify a nodename with the /ON_NODE qualifier to stop queues on a different node.

By default, the command affects autostart queues managed by the default queue manager, SYS$QUEUE_MANAGER. Specify the /NAME_OF_MANAGER qualifier to disable autostart of a different queue manager's autostart queues (on the node).

The STOP/QUEUES/ON_NODE command affects all autostart and nonautostart execution queues on the appropriate node that are managed by the queue manager. Autostart queues stopped as a result of this command remain active for autostart and will be restarted when the ENABLE AUTOSTART command is entered for the affected node or a node to which the queue can fail over. Nonautostart queues stopped as a result of this command must each be started with a START/QUEUE command specifying the queue name.

If you are using autostart queues, you might want to enter the DISABLE AUTOSTART/QUEUES command. For more information on the relationship between DISABLE AUTOSTART/QUEUES and STOP/QUEUES/ON_NODE, see the section on stopping queues before shutting down a system in the chapter about queues in the *OpenVMS System Manager's Manual*.

The STOP/QUEUES/ON_NODE command is included in the shutdown command procedure SYS$SYSTEM:SHUTDOWN.COM. If you shut down a node without using SHUTDOWN.COM, you might want to enter the STOP/QUEUES/ON_ NODE command first. For more information on stopping queues before shutting down a node, see the chapter about queues in the *OpenVMS System Manager's Manual*.

Qualifier

/NAME_OF_MANAGER=name

Specifies the name of the queue manager controlling the queues you want to stop.

If the /NAME_OF_MANAGER qualifier is omitted, then the default queue manager name SYS$QUEUE_MANAGER is used. For more information on multiple queue managers, see the chapter about the queue manager in the *OpenVMS System Manager's Manual*.

Examples

1. `$ STOP/QUEUES/ON_NODE`

   The STOP/QUEUES/ON_NODE command in this example stops all queues on the node from which it is entered. The autostart feature is disabled on this node for all autostart queues.

   However, the queue manager process continues to run and schedules jobs as requested for execution on its unstopped queues on other nodes in the VMScluster.

   This command only affects queues managed by the default queue manager SYS$QUEUE_MANAGER because the /NAME_OF_MANAGER qualifier is not specified.

2.
```
$INITIALIZE/QUEUE-
_$/AUTOSTART_ON=(JADE::,RUBY::,OPAL::)/BATCH/START BATCH_1
$ENABLE AUTOSTART/QUEUES/ON_NODE=JADE
$ENABLE AUTOSTART/QUEUES/ON_NODE=RUBY
   .
   .
   .
$ STOP/QUEUES/ON_NODE=JADE
$ SHOW QUEUE BATCH_1
Batch queue BATCH_1, idle, on RUBY::
```

The INITIALIZE/QUEUE command in this example creates the autostart queue BATCH_1 capable of running on node JADE, RUBY, or OPAL. The /START qualifier activates the queue for autostart. The first ENABLE AUTOSTART/QUEUES command enables autostart of all autostart queues on node JADE, causing the queue BATCH_1 to begin processing on that node. The second ENABLE AUTOSTART/QUEUES command enables autostart for all autostart queues on node RUBY.

Later, suppose node JADE needs to be removed from the cluster. The STOP /QUEUES/ON_NODE command in the example stops all queues on node JADE without stopping the clusterwide queue manager, and causes the autostart queue BATCH_1 to failover to node RUBY, the next available node in its failover list. Because the STOP QUEUES/ON_NODE command disables autostart, the ENABLE AUTOSTART/QUEUES command must be executed on node JADE when it reboots for autostart queues to run on that node in the future.

This command only affects queues managed by the default queue manager SYS$QUEUE_MANAGER because the /NAME_OF_MANAGER qualifier is not specified.

STOP/ZONE

Removes a zone from a running VAXft system. For more information on the STOP/ZONE command, see VAXft systems documentation.

Applies only to the VAXft 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 submit (S) access to the queue.

Format

SUBMIT filespec[,...]

Parameter

filespec[,...]
Specifies one or more files containing command procedures. The asterisk (*) and the percent sign (%) wildcard characters 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.

In a VMScluster environment, you should periodically keep the cluster in time synchronization using the SET TIME/CLUSTER command because the differences in system times between nodes in a VMScluster may vary. This variance may cause a job to begin executing a little before or after the specified time because the redundancy built into the batch and 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.

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 absolute time or as a combination of absolute and delta times. For complete information on specifying time values, see the *OpenVMS User's Manual*.

In a VMScluster, 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 VMScluster 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 *OpenVMS System Management Utilities Reference 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS User's 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 system parameter PQL_MCPULM. For more information on specifying CPU time limits, see the CPU Time Limit Specifications and Actions table for the INITIALIZE/QUEUE command.

/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. If delete (D) access is not allowed, or if any file in the

command parameter list cannot be opened as input, command processing stops and no batch job is created.

/EXCLUDE=(filespec[,...])
/NOEXCLUDE
Excludes the specified files from the submit operation. You can include a directory but not a device in the file specification. The asterisk (*) and the percent sign (%) wildcard characters are allowed in the file specification. 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. The asterisk (*) and the percent sign (%) wildcard characters are not 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.

/NOTE=text
Specifies a message string of up to 255 characters. This message string appears as part of the display on a SHOW QUEUE/FULL command and can thus be used to convey information concerning a job. The message specified with the /NOTE qualifier is also printed on the flag page of the log file (if printed).

/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.

When batch and output queues are managed by the same queue manager, the queue manager checks to ensure that the queue specified on the SUBMIT /PRINTER command is an output queue and that the user has access to the output queue. These checks are not made if the batch queue specified by the SUBMIT command and the output queue specified by the /PRINTER qualifier are managed by different queue managers.

If you explicitly specify an output queue for the log file when submitting a batch job, be sure the queue you specify with the /PRINTER qualifier is an output queue and not a batch queue. Also, be sure that you have access to the output queue.

/PRIORITY=n

Requires OPER (operator) or ALTPRI (alter privilege) privilege to specify a priority greater than the queue's maximum scheduling priority.

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 system parameter DEFQUEPRI. No privilege is needed to set the priority lower than the queue's maximum scheduling priority, which is the value of the system parameter MAXQUEPRI.

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
/RETAIN	/SINCE		

/RESTART
/NORESTART (default)

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

/RETAIN=option

Specifies the circumstances under which you want your jobs to be retained in a queue. When a job is retained in the queue, you can issue the SHOW QUEUE command after the job completes to see the status of the job. Without job retention, no record of a job is left in a queue after a job completes.

Use the following options to specify job retention:

- ALWAYS—-Holds the job in the queue regardless of the job's completion status.
- DEFAULT—-Holds the job in the queue as specified by the queue's retention policy.
- ERROR—-Holds the job in the queue only if the job completes unsuccessfully.

- UNTIL=*time-value*—-Holds the job in the queue for the specified length of time, regardless of the job's completion status.

Note

You cannot specify a /NORETAIN qualifier with the SUBMIT command (as system managers can with the commands INITIALIZE/QUEUE, START/QUEUE, and SET QUEUE). However, you can specify /RETAIN=DEFAULT with the SUBMIT command. The default option holds the job in the queue as specified by the queue's retention policy. If the system manager has not specified retention for the queue, the job is not retained.

How Job Retention is Determined

Although you can specify job retention options for your own jobs, the job retention option you specify may be overridden by the job retention option of the queue on which your job executed. If you submit or print a job to a generic queue, the generic queue's job retention setting may also override the job retention option you specify. This section describes how job retention is determined.

An execution queue's job retention setting takes precedence over a generic queue's job retention setting. However, if the job's completion status does not match the job retention setting (if any) on the execution queue, then the generic queue's job retention setting attempts to control job retention. If the job's completion status does not match the job retention setting (if any) on the generic queue, then the user-specified job retention setting is used. Jobs submitted directly to execution queues are not affected by job retention settings on generic queues.

If the execution queue's retention setting applies, the job is retained on the execution queue. Likewise, if the generic queue's retention setting applies, the job is retained on the generic queue. If the user-specified setting applies, the job is retained in the queue to which it was submitted.

The following example illustrates how the queue manager determines job retention:

Suppose you submit a job to a generic queue and specify /RETAIN=ALWAYS, and the job completes successfully.

First, the queue manager compares the job's completion status to the execution queue's retention setting. Suppose the queue is set with /RETAIN=ERROR (retains only jobs that complete unsuccessfully). The job is not retained in the execution queue because the error condition was not met.

The queue manager then compares the job's completion status to the generic queue's retention setting. Suppose the generic queue has no retention setting. The queue manager's comparison again fails to retain the job.

Finally, the queue manager compares the job's completion status to the retention setting you specified for the job. This comparison reveals that the job should be retained. Because the user-specified setting leads the queue manager to retain the job, the job is held in the queue to which the job was submitted—in this case, the generic queue.

For more information on types of queues, see the INITIALIZE/QUEUE command. For more information on setting retention options for queues, see the INITIALIZE /QUEUE, START/QUEUE, or SET QUEUE command.

Timed Retention

Timed retention, which you specify using the UNTIL=*time-value* option, allows you to retain a job in the queue only as long as you need it. This eliminates the need to delete the job from the queue later.

For example, the following command retains the job MYFILE in the queue until 7:31 on December 14, when the job will automatically be deleted from the queue.

```
$ SUBMIT/RETAIN=UNTIL=14-DEC-1994:07:31:0.0 MYFILE.COM
```

However, depending on the queue's job retention policy, the job might be retained indefinitely. The job retention policy set on the queue takes precedence over the user-specified job retention setting. Because system managers cannot specify timed job retention for a queue, any jobs retained as a result of a queue's setting are retained indefinitely.

If you specify the /RETAIN=UNTIL=*time-value* option, you must supply a time value. The time value is first interpreted as a delta time, then as a combination time, and finally as an absolute time. If you specify a delta time, the delta begins when the job completes. For example, if you specify SUBMIT /RETAIN=UNTIL="3:00", the job will be retained for three hours after the job completes. For information on specifying time values, see the *OpenVMS User's Manual*.

/SINCE[=time]
/NOSINCE

Selects only those files dated after the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that OpenVMS systems round up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 system 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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that OpenVMS systems round up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 system 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.

Specify the value of *n* as a number of 512-byte pagelets on Alpha or 512-byte pages on VAX. Note that OpenVMS systems round up this value to the nearest CPU-specific page so that actual amount of physical memory allowed may be larger than the specified amount on Alpha. 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 system parameters PQL_MWSQUOTA and WSMAX.

Examples

1.
```
$ SUBMIT/AFTER=16:30 TRANSLATE
    Job TRANSLATE (queue SYS$BATCH, entry 1401) holding until 14-DEC-1994 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.

Requires delete (D) access to the specified job.

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.

If you specify the *job-name* parameter, the command searches for a job with the specified name in the queue SYS$BATCH. To specify a job in a different queue, you must specify the name of the queue using the /QUEUE qualifier.

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. If you specify a generic queue, the command looks for the job in the generic queue and in the qeneric queue's target execution queues.

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 in the default queue SYS$BATCH. 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.

3.
```
$ SUBMIT/NAME=TIMER COMP.COM/QUEUE=BUILD_QUEUE
$ SYNCHRONIZE/QUEUE=BUILD_QUEUE TIMER
```

   The batch job name TIMER is submitted to the queue BUILD_QUEUE in this example. Then the SYNCHRONIZE command is entered interactively. Because the job named TIMER is not in the default queue SYS$BATCH, the SYNCHRONIZE command includes the /QUEUE qualifier to specify the queue in which the job is located.

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. However, you can specify a different default file type with the TYPE$DEFAULT_FILESPEC logical name. The TYPE command displays all files that satisfy the file description.

The asterisk (*) and the percent sign (%) wildcard characters 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 VMScluster systems, 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 absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's 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 *OpenVMS Guide to System Security*.

/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.

/CONTINUOUS/INTERVAL=n

Upon reaching the end of a file, TYPE waits a specified number of seconds (the default is 30) then displays any records which have been added to the file and returns to the wait state. TYPE continues until either Ctrl/C or Ctrl/Y is entered by the user.

/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

Use with the /PAGE=SAVE and /SEARCH qualifiers to specify a search string that must match the search string exactly and must be enclosed with quotation marks (‘‘ ’’).

If you specify the /EXACT qualifier without the /SEARCH qualifier, exact search mode is enabled when you set the search string with the Find (E1) key.

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

Excludes the specified files from the type operation. You can include a directory but not a device in the file specification. The asterisk (*) and the percent sign (%) wildcard characters 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.

/HEADER
/NOHEADER
Specifies whether a header line is placed at the top of each file that is displayed with the TYPE /PAGE=SAVE command.

/HIGHLIGHT[=keyword]
/NOHIGHLIGHT (default)
Use with the /PAGE=SAVE and /SEARCH qualifiers to specify the type of highlighting you want when a search string is found. When a string is found, the entire line is highlighted. You can use the following keywords: BOLD, BLINK, REVERSE, and UNDERLINE. BOLD is the default highlighting.

/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. The file specification cannot include the asterisk (*) and the percent sign (%) wildcard characters.

If you enter the /NOOUTPUT qualifier, output is suppressed.

The /OUTPUT qualifier is incompatible with the /PAGE qualifier.

/PAGE[=keyword]
/NOPAGE (default)

Controls the display of information on the screen.

You can use the following keywords with the /PAGE qualifier:

CLEAR_SCREEN	Clears the screen before each page is displayed.
SCROLL	Displays information one line at a time.
SAVE[=*n*]	Enables screen navigation of information, where *n* is the number of pages to store.

The /PAGE=SAVE qualifier allows you to navigate through screens of information. The /PAGE=SAVE qualifier stores up to 5 screens of up to 255 columns of information. When you use the /PAGE=SAVE qualifier, you can use the following keys to navigate through the information:

Key Sequence	Description
Up arrow (↑), Ctrl/B	Scroll up one line.
Down arrow (↓)	Scroll down one line.
Left arrow (←)	Scroll left one column.
Right arrow (→)	Scroll right one column.
Find (E1)	Specify a string to find when the information is displayed.
Insert Here (E2)	Scroll right one half screen.
Remove (E3)	Scroll left one half screen.
Select (E4)	Toggle 80/132 column mode.
Prev Screen (E5)	Get the previous page of information.
Next Screen (E6), Return, Enter, Space	Get the next page of information.
F10, Ctrl/Z	Exit. (Some utilities define these differently.)
Help (F15)	Display utility help text.
Do (F16)	Toggle the display to oldest/newest page.
Ctrl/W	Refresh the display.
N	Display the next file (when more than one file is specified with the TYPE command)
Q	Quit displaying output from the TYPE command.

The /PAGE qualifier is not compatible with the /OUTPUT qualifier.

/SEARCH="string"

Use with the /PAGE=SAVE qualifier to specify a string that you want to find in the information being displayed. Quotation marks are required for the /SEARCH qualifier, if you include spaces in the text string.

You can also dynamically change the search string by pressing the Find key (E1) while the information is being displayed. Quotation marks are not required for a dynamic search.

/SINCE[=time]
Selects only those files dated after the specified time. You can specify time as absolute time, as a combination of absolute and delta times, or as one of the following keywords: BOOT, LOGIN, 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 *OpenVMS User's Manual*.

/TAIL[=n]
Displays the last several lines of a log file. The value, n, defaults to p-2 where p is the current terminal page length. You can use TYPE/TAIL only if all of the following criteria are true.

- file organization is sequential
- the longest record is less than 512 bytes
- the record format is either VAR, VFC, STM, STRCM or STMLF (for more information, see the description of FAB$B_RFM in the *OpenVMS Record Management Services Reference Manual*)

Even with this criteria, some file conditions cannot be anticipated and may not allow display of the last several lines of a log file, resulting in the following error message:

```
%TYPE-W-READERR, error reading DEVICE:[DIRECTORY]FILE.EXT;1
-SYSTEM-E-UNSUPPORTED, unsupported operation or function
```

/WRAP
/NOWRAP (default)
Use with the /PAGE=SAVE qualifier to limit the number of columns to the width of the screen and to wrap lines that extend beyond the width of the screen to the next line.

The /NOWRAP qualifier extends lines beyond the width of the screen and can be seen when you use the scrolling (left and right) features provided by the /PAGE=SAVE qualifier.

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 an asterisk (*) 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
December 14, 1994
   .
   .
   .
Ctrl/Y
Interrupt
$ SHOW TIME
 14-DEC-1994 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 SECSYS"FILES OFFICEFIL"::"TASK=SHOWUSERS"

        VAX/VMS Interactive Users
           14-DEC-1994 17:20:13.30
   Total number of interactive users = 5
 Username     Process Name      PID     Terminal
 MIRANDA      Sec1           00536278   TXA1:
 JESSICA      Sec2           00892674   VTA2:
 EMILY        Sec3           00847326   TXA3:
 ANDREW       Sec4           02643859   RTA1:
 MARK         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. The asterisk (*) and the percent sign (%) wildcard characters 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 CDA Viewer, which has a character-cell interface for viewing text files and an DECwindows Motif for OpenVMS interface for viewing compound documents and files containing graphics, images, and tabular data.

Note

The DEC CDA Base Services for DECwindows Motif for OpenVMS must be installed to use new versions of the CDA Viewer and DEC CDA Base Services converters.

Format

VIEW [input-file]

WAIT

Places a 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 *OpenVMS User's 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 KUDOS
$ WAIT 00:10
$ GOTO LOOP
```

In this example, the command procedure executes the program image KUDOS. 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 *OpenVMS User's 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, and the value of any symbol that is specified as part of a record cannot exceed 255 characters. However, if you specify the /SYMBOL qualifier, the maximum record size is 2048 bytes and the value of a symbol can exceed 255 characters.

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.

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.

/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.

A
Obsolete Commands

Table A–1 lists the obsolete DCL commands and the current services that replace them. For descriptions of the obsolete commands, see online help.

Table A–1 Obsolete Commands

Obsolete Command	Replaced by
SET ACL	SET SECURITY/ACL
SET PROTECTION	SET SECURITY/PROTECTION
SET PROTECTION/DEVICE	SET SECURITY/PROTECTION/CLASS=DEVICE
SET UIC	Not replaced.
SHOW ACL	SHOW SECURITY

Index

A

Access control list editor
  See ACL editor
Accounting
  of detached processes, *DCL N-Z*, DCLII–61
  of terminal session, *DCL N-Z*, DCLII–323
ACCOUNTING command, *DCL A-M*, DCLI–14
  See also SET ACCOUNTING command
ACL editor, *DCL A-M*, DCLI–199; *DCL N-Z*, DCLII–209
Activating an autostart queue, *DCL A-M*, DCLI–210, DCLI–269; *DCL N-Z*, DCLII–385
ALLOCATE command, *DCL A-M*, DCLI–15 to DCLI–17
  See also DISMOUNT command
  See also DEASSIGN command, *DCL A-M*, DCLI–111
Allocating devices, *DCL A-M*, DCLI–15
ANALYZE/AUDIT command, *DCL A-M*, DCLI–18
Analyze/Disk_Structure utility, *DCL A-M*, DCLI–20
ANALYZE/ERROR_LOG command, *DCL A-M*, DCLI–21
ANALYZE/IMAGE command, *DCL A-M*, DCLI–22 to DCLI–24
ANALYZE/MEDIA command, *DCL A-M*, DCLI–25
ANALYZE/OBJECT command, *DCL A-M*, DCLI–26 to DCLI–29
ANALYZE/PROCESS_DUMP command, *DCL A-M*, DCLI–30 to DCLI–33
ANALYZE/RMS_FILE command, *DCL A-M*, DCLI–34
ANALYZE/SYSTEM command, *DCL A-M*, DCLI–35
Analyzing
  dump files, *DCL A-M*, DCLI–30
  global symbol tables, *DCL A-M*, DCLI–23
  image file, *DCL A-M*, DCLI–22
  image file fixup section, *DCL A-M*, DCLI–23
  image file patch text records, *DCL A-M*, DCLI–24
  object files, *DCL A-M*, DCLI–26 to DCLI–29
    debugger information records, *DCL A-M*, DCLI–27
    end-of-module records, *DCL A-M*, DCLI–27
    global symbol directory records, *DCL A-M*, DCLI–28
Analyzing
  object files (cont'd)
    link option specification records, *DCL A-M*, DCLI–28
    module header records, *DCL A-M*, DCLI–28
    module traceback records, *DCL A-M*, DCLI–28
    relocation records, *DCL A-M*, DCLI–29
    text, *DCL A-M*, DCLI–29
  object module, *DCL A-M*, DCLI–26
  output converter, *DCL A-M*, DCLI–67
    processing options, *DCL A-M*, DCLI–71
  patch text record, *DCL A-M*, DCLI–24
  restrictions, *DCL A-M*, DCLI–30
  shareable image file, *DCL A-M*, DCLI–22
APPEND command, *DCL A-M*, DCLI–36 to DCLI–40
  See also COPY command
  using with DECwindows compound documents, *DCL A-M*, DCLI–36
Applications
  running locally, *DCL N-Z*, DCLII–120
  running remotely, *DCL N-Z*, DCLII–120
ASSIGN command, *DCL A-M*, DCLI–41 to DCLI–46
  See also DEASSIGN command
Assigning
  logical queue to an execution queue, *DCL A-M*, DCLI–48
  queue name, *DCL A-M*, DCLI–266
  queue options, *DCL A-M*, DCLI–266; *DCL N-Z*, DCLII–385
  symbols interactively, *DCL A-M*, DCLI–281
= (Assignment statement) command, *DCL A-M*, DCLI–1 to DCLI–4
ASSIGN/MERGE command, *DCL A-M*, DCLI–47
ASSIGN/QUEUE command, *DCL A-M*, DCLI–48, DCLI–49
  See also DEASSIGN/QUEUE command
ASTs (asynchronous system traps)
  specifying quota, *DCL N-Z*, DCLII–61
Asynchronous system traps
  See ASTs
ATTACH command, *DCL A-M*, DCLI–50, DCLI–51

Automatic unshelving
controlling, *DCL N-Z*, DCLII–182
determining, *DCL A-M*, DCLI–349; *DCL N-Z*, DCLII–325
Autostart queues, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–385 to DCLII–386
activating, *DCL A-M*, DCLI–210, DCLI–269; *DCL N-Z*, DCLII–385, DCLII–386
creating, *DCL A-M*, DCLI–269
deactivating, *DCL N-Z*, DCLII–414, DCLII–418
designating, *DCL A-M*, DCLI–268; *DCL N-Z*, DCLII–386
disabling, *DCL A-M*, DCLI–182; *DCL N-Z*, DCLII–420
enabling on a node, *DCL A-M*, DCLI–210
failover, *DCL A-M*, DCLI–182, DCLI–210
preparing for a shutdown, *DCL N-Z*, DCLII–421
preventing failover, *DCL A-M*, DCLI–182
restarting after deactivating, *DCL N-Z*, DCLII–414, DCLII–418
starting, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–385
stopping before shutdown, *DCL A-M*, DCLI–182
Availability of queues, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–386

B

BACKUP command, *DCL A-M*, DCLI–52
Bad block data
on disks, *DCL A-M*, DCLI–264
Base priority
establishing for batch jobs, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–192
Batch jobs
defining default working sets, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–197, DCLII–394, DCLII–432
defining maximum CPU time limit, *DCL A-M*, DCLI–286
defining working set extent, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–394, DCLII–433
defining working set quotas, *DCL A-M*, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–394, DCLII–433
deleting files
after processing, *DCL N-Z*, DCLII–427
deleting log files, *DCL A-M*, DCLI–286; *DCL N-Z*, DCLII–428
end of job on cards, *DCL A-M*, DCLI–216
flushing output buffers, *DCL N-Z*, DCLII–173
holding, *DCL A-M*, DCLI–286; *DCL N-Z*, DCLII–428
keeping log files, *DCL N-Z*, DCLII–428
Batch jobs (cont'd)
limiting CPU time of, *DCL A-M*, DCLI–286; *DCL N-Z*, DCLII–428
log files, *DCL N-Z*, DCLII–424
on remote network node, *DCL N-Z*, DCLII–430
passing parameters to, *DCL N-Z*, DCLII–429
password, *DCL N-Z*, DCLII–10
priority, *DCL N-Z*, DCLII–430
saving log file, *DCL A-M*, DCLI–286
stopping process, *DCL N-Z*, DCLII–402
submitting through cards, *DCL A-M*, DCLI–285
synchronizing with process, *DCL N-Z*, DCLII–436
working set
defining default, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–197, DCLII–394, DCLII–432
defining extent for, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–394, DCLII–433
defining quotas for, *DCL A-M*, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–394, DCLII–433
Batch-oriented editor, *DCL A-M*, DCLI–205
Batch queues
See Queues
Block size options
for files, *DCL A-M*, DCLI–178
specifying cluster size on disk, *DCL A-M*, DCLI–258
Byte dumps, *DCL A-M*, DCLI–191

C

CALL command, *DCL A-M*, DCLI–53 to DCLI–56
CANCEL command, *DCL A-M*, DCLI–57 to DCLI–58
Canceling
logical name assignments, *DCL A-M*, DCLI–111
of detached process wakeup request, *DCL N-Z*, DCLII–60
of subprocess wakeup requests, *DCL N-Z*, DCLII–60
Card readers
end of batch job, *DCL A-M*, DCLI–216
Cards
submitting batch job on, *DCL A-M*, DCLI–285
CDU
invoking, *DCL N-Z*, DCLII–102
Central processing units
See CPUs
Changing queue options, *DCL N-Z*, DCLII–385
Character strings
finding in files, *DCL N-Z*, DCLII–70
specifying case for search, *DCL N-Z*, DCLII–70

Character strings (cont'd)
symbol assignment, *DCL A-M*, DCLI–5
CLOSE command, *DCL A-M*, DCLI–59, DCLI–60
Command Definition utility (CDU)
See CDU
Command interpreters
controlling error checking of, *DCL N-Z*, DCLII–172
specifying alternate, *DCL A-M*, DCLI–419
Command procedures
continuing execution of, *DCL A-M*, DCLI–64
controlling error checking in, *DCL N-Z*, DCLII–172
delaying process of, *DCL N-Z*, DCLII–447
displaying command lines of, *DCL N-Z*, DCLII–238
displaying prompts of, *DCL A-M*, DCLI–281
executing, *DCL A-M*, DCLI–9
labels, *DCL A-M*, DCLI–53, DCLI–235, DCLI–237
parameters for, *DCL A-M*, DCLI–9
passing symbols to interactively, *DCL A-M*, DCLI–281
resuming execution of, *DCL A-M*, DCLI–64
stopping and returning to command level 0, *DCL N-Z*, DCLII–402
submitting as batch jobs, *DCL N-Z*, DCLII–424
terminating, *DCL A-M*, DCLI–230
testing expressions, *DCL A-M*, DCLI–253
transferring control within, *DCL A-M*, DCLI–53, DCLI–235, DCLI–237
Command verification
using SET PREFIX, *DCL N-Z*, DCLII–177
Comment characters, *DCL A-M*, DCLI–162
See also DIFFERENCES command
Comment delimiters, *DCL A-M*, DCLI–162
See also DIFFERENCES command
Comparing
characters in records, *DCL A-M*, DCLI–160
files, *DCL A-M*, DCLI–160
Concatenating files, *DCL A-M*, DCLI–36, DCLI–79
CONNECT command, *DCL A-M*, DCLI–61 to DCLI–63
Continuation
of interrupted command procedures, *DCL A-M*, DCLI–64
of interrupted DCL commands, *DCL A-M*, DCLI–64
of interrupted programs, *DCL A-M*, DCLI–64
CONTINUE command, *DCL A-M*, DCLI–64
CONVERT command, *DCL A-M*, DCLI–65
CONVERT/DOCUMENT command, *DCL A-M*, DCLI–66 to DCLI–77
creating an options file, *DCL A-M*, DCLI–71
CONVERT/RECLAIM command, *DCL A-M*, DCLI–78
COPY command, *DCL A-M*, DCLI–79 to DCLI–88
using with DECwindows compound documents, *DCL A-M*, DCLI–80
COPY/FTP command, *DCL A-M*, DCLI–89 to DCLI–90
qualifiers, *DCL A-M*, DCLI–89
Copying directory files, *DCL A-M*, DCLI–81
COPY/RCP command, *DCL A-M*, DCLI–91 to DCLI–92
qualifiers, *DCL A-M*, DCLI–91
CPUs (central processing units)
defining maximum time limit for batch jobs, *DCL A-M*, DCLI–271, DCLI–286; *DCL N-Z*, DCLII–193, DCLII–388
displaying error count for, *DCL N-Z*, DCLII–285
limiting time for batch jobs, *DCL A-M*, DCLI–271; *DCL N-Z*, DCLII–124, DCLII–193, DCLII–388, DCLII–427
time used by current process, *DCL N-Z*, DCLII–351
CREATE command, *DCL A-M*, DCLI–93 to DCLI–95
CREATE/DIRECTORY command, *DCL A-M*, DCLI–96 to DCLI–98
CREATE/FDL command, *DCL A-M*, DCLI–99
CREATE/NAME_TABLE command, *DCL A-M*, DCLI–100 to DCLI–103
CREATE/TERMINAL command, *DCL A-M*, DCLI–104 to DCLI–109
Creating queues, *DCL A-M*, DCLI–266
Ctrl/C key sequence
enabling or disabling, *DCL N-Z*, DCLII–105
Ctrl/O key sequence, *DCL N-Z*, DCLII–438
Ctrl/Q key sequence, *DCL N-Z*, DCLII–438
Ctrl/S key sequence, *DCL N-Z*, DCLII–438
Ctrl/T key sequence
enabling or disabling, *DCL N-Z*, DCLII–105
Ctrl/Y key sequence
enabling or disabling, *DCL N-Z*, DCLII–105

D

Data checks
changing default, *DCL N-Z*, DCLII–241
Data record compaction, *DCL A-M*, DCLI–262
TA90E support, *DCL N-Z*, DCLII–165
Data streams
marking beginning of, *DCL A-M*, DCLI–119
marking end of, *DCL A-M*, DCLI–214
Days
setting primary, *DCL N-Z*, DCLII–107
setting secondary, *DCL N-Z*, DCLII–107
DCL commands
continuing execution of, *DCL A-M*, DCLI–64

DCL commands (cont'd)
marking beginning of input stream, *DCL A-M*, DCLI–119
marking end of input stream, *DCL A-M*, DCLI–214
resuming execution of, *DCL A-M*, DCLI–64
RUN [process] command /ON qualifier, *DCL N-Z*, DCLII–64
SET SECURITY, *DCL N-Z*, DCLII–209
SHOW AUDIT, *DCL N-Z*, DCLII–252
SHOW SECURITY, *DCL N-Z*, DCLII–347
DDIF input converter, *DCL A-M*, DCLI–67
DDIF output converter, *DCL A-M*, DCLI–68
DEALLOCATE command, *DCL A-M*, DCLI–110
See also ALLOCATE command
Deallocating devices, *DCL A-M*, DCLI–110
DEASSIGN command, *DCL A-M*, DCLI–111 to DCLI–114
See also DEFINE command
DEASSIGN/QUEUE command, *DCL A-M*, DCLI–115
DEBUG command, *DCL A-M*, DCLI–116 to DCLI–118
Debugger
analyzing in object files, *DCL A-M*, DCLI–27
information record analysis, *DCL A-M*, DCLI–27
invoking, *DCL A-M*, DCLI–30, DCLI–116
Kept Debugger, *DCL A-M*, DCLI–116
RUN command, *DCL N-Z*, DCLII–56
using with DEPOSIT command, *DCL A-M*, DCLI–155
using with EXAMINE command, *DCL A-M*, DCLI–217
Decimal dump, *DCL A-M*, DCLI–191
DECK command, *DCL A-M*, DCLI–119 to DCLI–121
See also EOD command
DECnet for OpenVMS, *DCL N-Z*, DCLII–140, DCLII–150, DCLII–152
running DECwindows applications across, *DCL N-Z*, DCLII–120
DECterm window
setting application keypad, *DCL A-M*, DCLI–105
DEC Text Processing Utility
See DECTPU
DECTPU
invoking, *DCL A-M*, DCLI–209
DECW$DISPLAY logical name, *DCL N-Z*, DCLII–116, DCLII–278
Default characteristics
modifying terminal, *DCL N-Z*, DCLII–222 to DCLII–235
setting for magnetic tape devices, *DCL N-Z*, DCLII–165
Default devices
displaying, *DCL N-Z*, DCLII–264
Default directories
displaying, *DCL N-Z*, DCLII–264
Default error checking
controlling, *DCL N-Z*, DCLII–172
Default printer
displaying characteristics of, *DCL N-Z*, DCLII–320
Default protection
establishing, *DCL N-Z*, DCLII–191
Default working set
for batch jobs, *DCL A-M*, DCLI–288; *DCL N-Z*, DCLII–197, DCLII–394, DCLII–432
modifying size, *DCL N-Z*, DCLII–245
DEFINE/CHARACTERISTIC command, *DCL A-M*, DCLI–128 to DCLI–129
DEFINE command, *DCL A-M*, DCLI–122 to DCLI–127
See also DEASSIGN command
DEFINE/FORM command, *DCL A-M*, DCLI–130 to DCLI–133
DEFINE/KEY command, *DCL A-M*, DCLI–134 to DCLI–137
Delaying command processing, *DCL N-Z*, DCLII–447
See also Wait states
DELETE/CHARACTERISTIC command, *DCL A-M*, DCLI–142
DELETE command, *DCL A-M*, DCLI–138 to DCLI–141
DELETE/ENTRY command, *DCL A-M*, DCLI–143 to DCLI–145
DELETE/FORM command, *DCL A-M*, DCLI–146
DELETE/INTRUSION_RECORD command, *DCL A-M*, DCLI–147
DELETE/KEY command, *DCL A-M*, DCLI–148 to DCLI–149
DELETE/QUEUE command, *DCL A-M*, DCLI–150 to DCLI–151
DELETE/QUEUE/MANAGER command, *DCL A-M*, DCLI–152
DELETE/SYMBOL command, *DCL A-M*, DCLI–153 to DCLI–154
Deleting
batch job file after processing, *DCL N-Z*, DCLII–427
logical names, *DCL A-M*, DCLI–111
logical name tables, *DCL A-M*, DCLI–111
multiple files, *DCL A-M*, DCLI–138
wakeup request, *DCL N-Z*, DCLII–60
DEPOSIT command, *DCL A-M*, DCLI–155 to DCLI–158
See also EXAMINE command
length qualifiers, *DCL A-M*, DCLI–156
radix qualifiers, *DCL A-M*, DCLI–156

Descriptor dump, *DCL A-M*, DCLI–191
Detached processes
See also Processes
creating, *DCL N-Z*, DCLII–66
image hibernation, *DCL N-Z*, DCLII–60
specifying working set, *DCL N-Z*, DCLII–66
Device driver images
patching, *DCL N-Z*, DCLII–12
Device names
assigning logical names to, *DCL A-M*, DCLI–41, DCLI–122
Devices
access, *DCL A-M*, DCLI–15
allocating, *DCL A-M*, DCLI–15
assigning logical queue name to, *DCL A-M*, DCLI–48
creating, *DCL N-Z*, DCLII–116
deallocating, *DCL A-M*, DCLI–110
dismounting, *DCL A-M*, DCLI–186
displaying
default, *DCL N-Z*, DCLII–264
information on, *DCL N-Z*, DCLII–247
mounted volumes, *DCL N-Z*, DCLII–268
queue entries, *DCL N-Z*, DCLII–280, DCLII–331
status of, *DCL N-Z*, DCLII–266
displaying error count for, *DCL N-Z*, DCLII–285
establishing as spooled, *DCL N-Z*, DCLII–110
establishing operational status for, *DCL N-Z*, DCLII–110
logical name assignment, *DCL A-M*, DCLI–15
magnetic tapes
setting default characteristics for, *DCL N-Z*, DCLII–165
modifying, *DCL N-Z*, DCLII–116
unloading with DISMOUNT command, *DCL A-M*, DCLI–188
virtual, *DCL A-M*, DCLI–220, DCLI–342
DIAGNOSE command, *DCL A-M*, DCLI–159
DIFFERENCES command, *DCL A-M*, DCLI–160 to DCLI–169
comment characters, *DCL A-M*, DCLI–163
comment delimiters, *DCL A-M*, DCLI–162
exit status, *DCL A-M*, DCLI–161
output formats, *DCL A-M*, DCLI–165
DIGITAL Standard Runoff
See DSR
Directories
changing specification, *DCL N-Z*, DCLII–39
copying, *DCL A-M*, DCLI–81
creating, *DCL A-M*, DCLI–96
displaying contents of, *DCL A-M*, DCLI–170
displaying default, *DCL N-Z*, DCLII–264
file version limit
defining at creation, *DCL A-M*, DCLI–97
modifying, *DCL N-Z*, DCLII–113
Directories (cont'd)
modifying number in system space
for Files–11 volume, *DCL N-Z*, DCLII–241
protection
defining at creation, *DCL A-M*, DCLI–97
ready access, *DCL A-M*, DCLI–257
shelved files, *DCL A-M*, DCLI–177
space preallocation on disk, *DCL A-M*, DCLI–259
DIRECTORY command, *DCL A-M*, DCLI–170 to DCLI–181
DISABLE AUTOSTART command, *DCL A-M*, DCLI–182 to DCLI–183
Disabling autostart
on a node, *DCL A-M*, DCLI–182; *DCL N-Z*, DCLII–420
DISCONNECT command, *DCL A-M*, DCLI–184 to DCLI–185
Disk quotas
displaying, *DCL N-Z*, DCLII–345
Disks
allocating mapping pointers, *DCL A-M*, DCLI–264
creating sequential files, *DCL A-M*, DCLI–93
defining shareable volume, *DCL A-M*, DCLI–264
defining structure level, *DCL A-M*, DCLI–264
directory space allocation, *DCL A-M*, DCLI–259
disabling operator status, *DCL N-Z*, DCLII–45
dismounting, *DCL A-M*, DCLI–186
dismounting volume set, *DCL A-M*, DCLI–188
displaying quota, *DCL N-Z*, DCLII–345
enabling operator status, *DCL N-Z*, DCLII–45
establishing operational status for, *DCL N-Z*, DCLII–110
files
comparing, *DCL A-M*, DCLI–160
deleting, *DCL A-M*, DCLI–138
index file placement, *DCL A-M*, DCLI–261
indicating bad block data, *DCL A-M*, DCLI–264
modifying RMS defaults for file operations, *DCL N-Z*, DCLII–205
renaming directory, *DCL N-Z*, DCLII–39
renaming file, *DCL N-Z*, DCLII–39
specifying cluster size, *DCL A-M*, DCLI–258
specifying default file extension size, *DCL A-M*, DCLI–259
specifying density, *DCL A-M*, DCLI–258
specifying faulty areas, *DCL A-M*, DCLI–257
specifying maximum file number, *DCL A-M*, DCLI–262
specifying size for DECram disk, *DCL A-M*, DCLI–264
Disk volumes
initializing, *DCL A-M*, DCLI–256

DISMOUNT command, *DCL A-M*, DCLI–186 to DCLI–189
Dismounting
clusterwide volumes, *DCL A-M*, DCLI–187
disks, *DCL A-M*, DCLI–186
shared devices, *DCL A-M*, DCLI–187
tapes, *DCL A-M*, DCLI–186
Displays
allocated device, *DCL N-Z*, DCLII–267
command procedure, *DCL N-Z*, DCLII–238
current process status, *DCL N-Z*, DCLII–351
date, *DCL N-Z*, DCLII–365
device status, *DCL N-Z*, DCLII–247, DCLII–266
files on current output device, *DCL N-Z*, DCLII–438
names of installed files, *DCL N-Z*, DCLII–267, DCLII–270
names of open files, *DCL N-Z*, DCLII–267
process status, *DCL N-Z*, DCLII–247
system status, *DCL N-Z*, DCLII–247
time, *DCL N-Z*, DCLII–365
working set limit or quota, *DCL N-Z*, DCLII–373
Document conversion
output formats, *DCL A-M*, DCLI–66
Dollar sign ($)
and DECK command, *DCL A-M*, DCLI–119
and EOD command, *DCL A-M*, DCLI–214
and EOJ command, *DCL A-M*, DCLI–216
Domain converter
processing options, *DCL A-M*, DCLI–75
DSR (DIGITAL Standard Runoff), *DCL N-Z*, DCLII–69
invoking, *DCL N-Z*, DCLII–69
text file formatting, *DCL N-Z*, DCLII–69
DTIF input converter, *DCL A-M*, DCLI–68
DTIF output converter, *DCL A-M*, DCLI–69
DUMP command, *DCL A-M*, DCLI–190 to DCLI–198
Dump formats, *DCL A-M*, DCLI–191 to DCLI–195
byte, *DCL A-M*, DCLI–191
decimal, *DCL A-M*, DCLI–191
descriptor, *DCL A-M*, DCLI–191
hexadecimal, *DCL A-M*, DCLI–192
identifier, *DCL A-M*, DCLI–193
longword, *DCL A-M*, DCLI–193
octal, *DCL A-M*, DCLI–193
word, *DCL A-M*, DCLI–195
Dumping
of files, *DCL A-M*, DCLI–190
of volumes, *DCL A-M*, DCLI–190
Dump reading, *DCL A-M*, DCLI–190
Duplicate labels
command interpreter rules for, *DCL A-M*, DCLI–53, DCLI–235, DCLI–237

E

EDIT/ACL command, *DCL A-M*, DCLI–199
EDIT/EDT command, *DCL A-M*, DCLI–200 to DCLI–203
EDIT/FDL command, *DCL A-M*, DCLI–204
Editors
See EDT editor
See EVE
See SUMSLP editor
See TECO editor
EDIT/SUM command, *DCL A-M*, DCLI–205
EDIT/TECO command, *DCL A-M*, DCLI–206 to DCLI–208
EDIT/TPU command, *DCL A-M*, DCLI–209
EDT editor, *DCL A-M*, DCLI–200
ELSE keyword
and IF command, *DCL A-M*, DCLI–253
ENABLE AUTOSTART command, *DCL A-M*, DCLI–210 to DCLI–212
Enabling autostart on a node, *DCL A-M*, DCLI–210
End of batch job on cards, *DCL A-M*, DCLI–216
End of data stream, *DCL A-M*, DCLI–214
See also EOD command
End-of-module record analysis, *DCL A-M*, DCLI–27
ENDSUBROUTINE command, *DCL A-M*, DCLI–54, DCLI–55, DCLI–213
EOD (end of deck)
See EOD command
EOD command, *DCL A-M*, DCLI–214, DCLI–215
and DECK command, *DCL A-M*, DCLI–119
EOF condition, *DCL A-M*, DCLI–214
EOF indicator, *DCL A-M*, DCLI–119
EOJ command, *DCL A-M*, DCLI–216
Equivalence names
assigning to logical names, *DCL A-M*, DCLI–41, DCLI–122
displaying for logical names, *DCL N-Z*, DCLII–366
Error messages
online documentation, *DCL A-M*, DCLI–247
Errors
controlling error checking, *DCL N-Z*, DCLII–172
reporting
for image files, *DCL A-M*, DCLI–22
for object files, *DCL A-M*, DCLI–26
Error streams
defining for created process, *DCL N-Z*, DCLII–59
EVE
invoking, *DCL A-M*, DCLI–209

EXAMINE command, *DCL A-M*, DCLI–217 to DCLI–219
and DEPOSIT command, *DCL A-M*, DCLI–155
length qualifier, *DCL A-M*, DCLI–218
EXCHANGE command, *DCL A-M*, DCLI–220
EXCHANGE/NETWORK command, *DCL A-M*, DCLI–221 to DCLI–229
creating files, *DCL A-M*, DCLI–224
protecting files, *DCL A-M*, DCLI–224
qualifiers, *DCL A-M*, DCLI–225
transferring files, *DCL A-M*, DCLI–223
wildcard character, *DCL A-M*, DCLI–224
Executable images
patching, *DCL N-Z*, DCLII–12
Execute procedure (@) command, *DCL A-M*, DCLI–9 to DCLI–13
Executing
alternate login command procedure, *DCL A-M*, DCLI–419
continuing interrupted command procedures, *DCL A-M*, DCLI–64
continuing interrupted programs, *DCL A-M*, DCLI–64
login command procedure, *DCL A-M*, DCLI–419
SYS$LOGIN, *DCL A-M*, DCLI–419
Execution queues, *DCL A-M*, DCLI–267
designating autostart or nonautostart, *DCL A-M*, DCLI–268
specifying node or node and device, *DCL A-M*, DCLI–269
/EXECUTIVE_MODE qualifier
ASSIGN command, *DCL A-M*, DCLI–42
EXIT command, *DCL A-M*, DCLI–230 to DCLI–233
See also STOP command
Expressions
value tests, *DCL A-M*, DCLI–253
Extensible Versatile Editor
See EVE

F

F$CONTEXT lexical function, *DCL A-M*, DCLI–291, DCLI–294 to DCLI–299
F$CSID lexical function, *DCL A-M*, DCLI–291, DCLI–300, DCLI–301
F$CVSI lexical function, *DCL A-M*, DCLI–292, DCLI–302, DCLI–303
F$CVTIME lexical function, *DCL A-M*, DCLI–292, DCLI–304, DCLI–305
F$CVUI lexical function, *DCL A-M*, DCLI–292, DCLI–306
F$DEVICE lexical function, *DCL A-M*, DCLI–292, DCLI–307, DCLI–308
F$DIRECTORY lexical function, *DCL A-M*, DCLI–292, DCLI–309
F$EDIT lexical function, *DCL A-M*, DCLI–292, DCLI–310, DCLI–311
F$ELEMENT lexical function, *DCL A-M*, DCLI–292, DCLI–312, DCLI–313
F$ENVIRONMENT lexical function, *DCL A-M*, DCLI–292, DCLI–314 to DCLI–316
F$EXTRACT lexical function, *DCL A-M*, DCLI–292, DCLI–317, DCLI–318
F$FAO lexical function, *DCL A-M*, DCLI–292, DCLI–319 to DCLI–325
F$FILE_ATTRIBUTES lexical function, *DCL A-M*, DCLI–292, DCLI–326 to DCLI–328
F$GETDVI lexical function, *DCL A-M*, DCLI–292, DCLI–329 to DCLI–344
F$GETJPI lexical function, *DCL A-M*, DCLI–292, DCLI–345 to DCLI–350
F$GETQUI lexical function, *DCL A-M*, DCLI–292, DCLI–351 to DCLI–373
F$GETSYI lexical function, *DCL A-M*, DCLI–292, DCLI–374 to DCLI–379
F$IDENTIFIER lexical function, *DCL A-M*, DCLI–292, DCLI–380, DCLI–381
F$INTEGER lexical function, *DCL A-M*, DCLI–292, DCLI–382
F$LENGTH lexical function, *DCL A-M*, DCLI–293, DCLI–383
F$LOCATE lexical function, *DCL A-M*, DCLI–293, DCLI–384, DCLI–385
F$LOGICAL lexical function
See F$TRNLNM lexical function
F$MESSAGE lexical function, *DCL A-M*, DCLI–293, DCLI–386, DCLI–387
F$MODE lexical function, *DCL A-M*, DCLI–293, DCLI–388, DCLI–389
F$PARSE lexical function, *DCL A-M*, DCLI–293, DCLI–390 to DCLI–392
F$PID lexical function, *DCL A-M*, DCLI–293, DCLI–393, DCLI–394
F$PRIVILEGE lexical function, *DCL A-M*, DCLI–293, DCLI–395
F$PROCESS lexical function, *DCL A-M*, DCLI–293, DCLI–396
F$SEARCH lexical function, *DCL A-M*, DCLI–293, DCLI–397 to DCLI–399
F$SETPRV lexical function, *DCL A-M*, DCLI–293, DCLI–400 to DCLI–403
F$STRING lexical function, *DCL A-M*, DCLI–293, DCLI–404
F$TIME lexical function, *DCL A-M*, DCLI–293, DCLI–405
F$TRNLNM lexical function, *DCL A-M*, DCLI–293, DCLI–406 to DCLI–410

F$TYPE lexical function, *DCL A-M*, DCLI–411, DCLI–412
F$USER lexical function, *DCL A-M*, DCLI–293, DCLI–413
F$VERIFY lexical function, *DCL A-M*, DCLI–293, DCLI–414, DCLI–415
Failover
  autostart, *DCL A-M*, DCLI–279
  autostart queues, *DCL A-M*, DCLI–182, DCLI–210, DCLI–269; *DCL N-Z*, DCLII–386
  of queue manager, *DCL N-Z*, DCLII–398
  preventing, *DCL A-M*, DCLI–182
False expression
  and IF command, *DCL A-M*, DCLI–253
FAO lexical directives, *DCL A-M*, DCLI–319 to DCLI–325
FHM (file high-water mark), *DCL A-M*, DCLI–261
File expiration date
  specifying retention time values, *DCL N-Z*, DCLII–243
File high-water mark
  See FHM
File images
  analyzing, *DCL A-M*, DCLI–22
  fixup section analyzing, *DCL A-M*, DCLI–23
File names
  changing, *DCL N-Z*, DCLII–39
File objects, *DCL A-M*, DCLI–26 to DCLI–29
  analyzing, *DCL A-M*, DCLI–26
    debugger information records, *DCL A-M*, DCLI–27
    global symbol directory records, *DCL A-M*, DCLI–28
    link option specification records, *DCL A-M*, DCLI–28
    module header records, *DCL A-M*, DCLI–28
    module traceback records, *DCL A-M*, DCLI–28
    relocation records, *DCL A-M*, DCLI–29
    text, *DCL A-M*, DCLI–29
  identifying
    errors, *DCL A-M*, DCLI–26
File protection
  changing default for volume, *DCL N-Z*, DCLII–241
  defining at file creation, *DCL A-M*, DCLI–94
  defining default, *DCL A-M*, DCLI–259
  establishing default, *DCL N-Z*, DCLII–191
  with EXCHANGE/NETWORK command, *DCL A-M*, DCLI–224
Files
  allocating headers, *DCL A-M*, DCLI–260
  appending, *DCL A-M*, DCLI–36
  batch jobs
    deleting after processing, *DCL N-Z*, DCLII–427
Files (cont'd)
  closing, *DCL A-M*, DCLI–59
  closing of queue database, *DCL N-Z*, DCLII–413
  comparing, *DCL A-M*, DCLI–160
  concatenating, *DCL A-M*, DCLI–79
  copying, *DCL A-M*, DCLI–79, DCLI–221
  creating, *DCL A-M*, DCLI–79, DCLI–93, DCLI–221
    with EDT editor, *DCL A-M*, DCLI–200
    with TECO editor, *DCL A-M*, DCLI–206
  creating owner UIC, *DCL A-M*, DCLI–94
  deassigning logical names, *DCL A-M*, DCLI–59
  default extension size on disk, *DCL A-M*, DCLI–259
  deleting, *DCL A-M*, DCLI–138
  displaying
    allocated blocks, *DCL A-M*, DCLI–178
    at terminal, *DCL N-Z*, DCLII–438
    backup date, *DCL A-M*, DCLI–172
    backup time, *DCL A-M*, DCLI–178
    blocks used, *DCL A-M*, DCLI–178
    creation date, *DCL A-M*, DCLI–172
    creation time, *DCL A-M*, DCLI–178
    expiration date, *DCL A-M*, DCLI–172
    expiration time, *DCL A-M*, DCLI–178
    files opened by the system, *DCL N-Z*, DCLII–270
    help, *DCL A-M*, DCLI–239
    latest version, *DCL A-M*, DCLI–179
    modification date, *DCL A-M*, DCLI–172
    modification time, *DCL A-M*, DCLI–178
    names of installed files, *DCL N-Z*, DCLII–267, DCLII–270
    names of open files, *DCL N-Z*, DCLII–267
    on current output device, *DCL N-Z*, DCLII–438
    owner UIC, *DCL A-M*, DCLI–174
    protection, *DCL A-M*, DCLI–175
  dumping, *DCL A-M*, DCLI–190
  editing
    with EDT editor, *DCL A-M*, DCLI–200
    with SUMSLP editor, *DCL A-M*, DCLI–205
    with TECO editor, *DCL A-M*, DCLI–206
  formatting text
    See DSR
  ignoring characters, strings, or records in comparisons, *DCL A-M*, DCLI–163
  list in directory, *DCL A-M*, DCLI–170
  maximum number on disk, *DCL A-M*, DCLI–262
  modifying characteristics, *DCL N-Z*, DCLII–132
  modifying queue entries for, *DCL N-Z*, DCLII–122
  modifying RMS defaults for file operations, *DCL N-Z*, DCLII–205

Files (cont'd)
opening, *DCL N-Z*, DCLII–6
printing, *DCL N-Z*, DCLII–14
purging, *DCL N-Z*, DCLII–28
queue and journal, *DCL N-Z*, DCLII–397
reading records from, *DCL N-Z*, DCLII–32
renaming, *DCL N-Z*, DCLII–39
searching for character string, *DCL N-Z*, DCLII–70
transferring, *DCL A-M*, DCLI–221
unlocking, *DCL N-Z*, DCLII–445
updating with SUMSLP editor, *DCL A-M*, DCLI–205
version limit
defining at directory creation, *DCL A-M*, DCLI–97
writing records to, *DCL N-Z*, DCLII–449
Files–11
initializing disks, *DCL A-M*, DCLI–256
On-Disk Structure Level 1 format, *DCL A-M*, DCLI–256
Files–11 volumes
modifying characteristics of, *DCL N-Z*, DCLII–241
File shareable images
analyzing, *DCL A-M*, DCLI–22
File system requests
responding to, *DCL N-Z*, DCLII–44
File types
changing, *DCL N-Z*, DCLII–39
File version numbers
changing, *DCL N-Z*, DCLII–39
File windows
mapping pointer allocation, *DCL A-M*, DCLI–264
specifying mapping pointers, *DCL N-Z*, DCLII–244
FONT command, *DCL A-M*, DCLI–234
Formatting
of DIFFERENCES output, *DCL A-M*, DCLI–164

G

Generic device names, *DCL A-M*, DCLI–15
Generic queues, *DCL A-M*, DCLI–267
initializing, *DCL A-M*, DCLI–274; *DCL N-Z*, DCLII–390
starting, *DCL A-M*, DCLI–268
stopping, *DCL A-M*, DCLI–268
Global symbol directories
See GSDs
Global symbols, *DCL A-M*, DCLI–1, DCLI–5
Global symbol tables
See GSTs
GOSUB command, *DCL A-M*, DCLI–235, DCLI–236
GOTO command, *DCL A-M*, DCLI–237, DCLI–238
Granularity hint regions (GHR), *DCL N-Z*, DCLII–308
Group logical name tables
canceling entries, *DCL A-M*, DCLI–112
including logical name, *DCL A-M*, DCLI–42, DCLI–123
GSDs (global symbol directories)
analyzing in object files, *DCL A-M*, DCLI–28
GSTs (global symbol tables)
analyzing, *DCL A-M*, DCLI–23
deleting symbols from, *DCL A-M*, DCLI–153
entering symbol in, *DCL A-M*, DCLI–282

H

Header allocation
on disk volumes, *DCL A-M*, DCLI–260
HELP command, *DCL A-M*, DCLI–239 to DCLI–246
Help display
of default libraries, *DCL A-M*, DCLI–240
Help files, *DCL A-M*, DCLI–239
Help libraries
creating, *DCL A-M*, DCLI–239
user, *DCL A-M*, DCLI–243
HELP/MESSAGE command, *DCL A-M*, DCLI–247 to DCLI–252
Hexadecimal dump, *DCL A-M*, DCLI–192
Hibernation
See RUN command

I

IF command, *DCL A-M*, DCLI–253 to DCLI–255
Image files, *DCL A-M*, DCLI–22 to DCLI–24
See also PATCH command
analyzing, *DCL A-M*, DCLI–22
analyzing fixup section, *DCL A-M*, DCLI–23
analyzing global symbol table, *DCL A-M*, DCLI–23
analyzing patch text records, *DCL A-M*, DCLI–24
error analyzing of, *DCL A-M*, DCLI–22
invoking, *DCL N-Z*, DCLII–12
Images
continuing execution of, *DCL A-M*, DCLI–64
executing in detached process, *DCL N-Z*, DCLII–58
executing in subprocess, *DCL N-Z*, DCLII–58
hibernation
See RUN command
resuming execution of, *DCL A-M*, DCLI–64
running, *DCL N-Z*, DCLII–56

Images (cont'd)
specifying size with the RUN command, *DCL N-Z*, DCLII–62
terminating with EXIT command, *DCL A-M*, DCLI–230
wakeup
See RUN command
Indexes
creating source file with DSR, *DCL N-Z*, DCLII–69
Index files
placing on disk, *DCL A-M*, DCLI–261
INITIALIZE command, *DCL A-M*, DCLI–256 to DCLI–265
INITIALIZE/QUEUE command, *DCL A-M*, DCLI–266 to DCLI–280
Initializing
queues, *DCL A-M*, DCLI–266
tapes
using REPLY/BLANK_TAPE, *DCL N-Z*, DCLII–44
using REPLY/INITIALIZE_TAPE, *DCL N-Z*, DCLII–44
volumes, *DCL A-M*, DCLI–256
Input converter
DDIF, *DCL A-M*, DCLI–67
DTIF, *DCL A-M*, DCLI–68
Text, *DCL A-M*, DCLI–69
Input data stream
marking beginning of, *DCL A-M*, DCLI–119
marking end of, *DCL A-M*, DCLI–214
Input streams
defining for created process, *DCL N-Z*, DCLII–59
switching control to other processes, *DCL A-M*, DCLI–50
INQUIRE command, *DCL A-M*, DCLI–281 to DCLI–283
INSTALL command, *DCL A-M*, DCLI–284
Interactive help, *DCL A-M*, DCLI–242
ISO 9660 standard
DUMP utility, *DCL A-M*, DCLI–190

J

Job batch cards
end of, *DCL A-M*, DCLI–216
JOB card password, *DCL N-Z*, DCLII–10
JOB command, *DCL A-M*, DCLI–285 to DCLI–290
Job logical name tables
canceling entries, *DCL A-M*, DCLI–112
including logical name, *DCL A-M*, DCLI–43, DCLI–124
Job retention
determining, *DCL N-Z*, DCLII–22, DCLII–128, DCLII–431
Jobs
defining CPU time limit, *DCL A-M*, DCLI–271; *DCL N-Z*, DCLII–193, DCLII–388
deleting from queue, *DCL A-M*, DCLI–143, DCLI–150
redirecting to another queue, *DCL A-M*, DCLI–47
removing from queue
with ASSIGN/MERGE command, *DCL A-M*, DCLI–47

K

Kept Debugger, *DCL A-M*, DCLI–116
Keypad applications
setting for DECterm, *DCL A-M*, DCLI–105

L

Labels
command interpreter rules for, *DCL A-M*, DCLI–53, DCLI–235, DCLI–237
in command procedures, *DCL A-M*, DCLI–53, DCLI–235, DCLI–237
specifying for volumes, *DCL N-Z*, DCLII–242
volume header, *DCL A-M*, DCLI–256
writing on volume, *DCL A-M*, DCLI–256
Lexical functions, *DCL A-M*, DCLI–293
overview, *DCL A-M*, DCLI–291
Libraries
object module, *DCL A-M*, DCLI–28
LIBRARY command, *DCL A-M*, DCLI–416
LICENSE command, *DCL A-M*, DCLI–417
Licenses
displaying active, *DCL N-Z*, DCLII–293
LINK command, *DCL A-M*, DCLI–418
Link option specification records
analyzing in object files, *DCL A-M*, DCLI–28
Listing files in directory, *DCL A-M*, DCLI–170
Local symbols, *DCL A-M*, DCLI–1, DCLI–5
Local symbol tables
deleting symbols from, *DCL A-M*, DCLI–153
entering symbol in, *DCL A-M*, DCLI–282
Lock limits
specifying for detached processes, *DCL N-Z*, DCLII–62
specifying for subprocesses, *DCL N-Z*, DCLII–62
Logging in, *DCL A-M*, DCLI–419 to DCLI–422
Logging out, *DCL A-M*, DCLI–423
and device accesses, *DCL A-M*, DCLI–15
Logical name inclusion
in group logical name tables, *DCL A-M*, DCLI–42, DCLI–123
in job logical name tables, *DCL A-M*, DCLI–43, DCLI–124
in process logical name tables, *DCL A-M*, DCLI–43, DCLI–124

Logical name inclusion (cont'd)
in system logical name tables, *DCL A-M*, DCLI–43, DCLI–124
Logical names
assigning, *DCL A-M*, DCLI–41, DCLI–122
assigning to devices, *DCL A-M*, DCLI–15
canceling, *DCL A-M*, DCLI–111
creating, *DCL A-M*, DCLI–41, DCLI–122
creating a table, *DCL A-M*, DCLI–100
deassigning using CLOSE command, *DCL A-M*, DCLI–59
displaying
equivalence name for, *DCL N-Z*, DCLII–301, DCLII–366
translation of, *DCL N-Z*, DCLII–301, DCLII–366
process-permanent, *DCL N-Z*, DCLII–58
Logical name tables
canceling entries, *DCL A-M*, DCLI–113
canceling system entries, *DCL A-M*, DCLI–113
creating, *DCL A-M*, DCLI–100
deleting, *DCL A-M*, DCLI–111
displaying, *DCL N-Z*, DCLII–301
including logical names, *DCL A-M*, DCLI–43, DCLI–124
including system logical name, *DCL A-M*, DCLI–43, DCLI–124
Logical queues, *DCL A-M*, DCLI–268
deassigning, *DCL A-M*, DCLI–115
Login command procedures
executing, *DCL A-M*, DCLI–419
specifying alternate, *DCL A-M*, DCLI–419
LOGINOUT.EXE file
and detached processes, *DCL N-Z*, DCLII–61
LOGOUT command, *DCL A-M*, DCLI–423
message, *DCL A-M*, DCLI–423
multiple, *DCL A-M*, DCLI–423
Longword dump, *DCL A-M*, DCLI–193

M

MACRO–32 compiler, *DCL A-M*, DCLI–424
MACRO command, *DCL A-M*, DCLI–424 to DCLI–430
Mailboxes
process termination, *DCL N-Z*, DCLII–63
MAIL command, *DCL A-M*, DCLI–431
Mail utility (MAIL), *DCL A-M*, DCLI–431
Managers, queue
See Queue managers
Match size
specifying with DIFFERENCES command, *DCL A-M*, DCLI–164
/MEDIA_FORMAT qualifier
for INITIALIZE command, *DCL A-M*, DCLI–262; *DCL N-Z*, DCLII–165
Memory
displaying availability and use of
process balance slots, *DCL N-Z*, DCLII–307
process entry slots, *DCL N-Z*, DCLII–307
displaying error count for, *DCL N-Z*, DCLII–285
examining contents, *DCL A-M*, DCLI–217
modifying, *DCL A-M*, DCLI–155
replacing contents, *DCL A-M*, DCLI–155
MERGE command, *DCL A-M*, DCLI–432
Merging
of DIFFERENCES, *DCL A-M*, DCLI–165
queues, *DCL A-M*, DCLI–47
MESSAGE command, *DCL A-M*, DCLI–433
Message files
setting format, *DCL N-Z*, DCLII–167
Message logging
CONVERT/DOCUMENT command, *DCL A-M*, DCLI–70
Messages
online documentation, *DCL A-M*, DCLI–247
sending to terminals, *DCL N-Z*, DCLII–43
Modes of transferring files, *DCL A-M*, DCLI–223
Module header records
analyzing in object files, *DCL A-M*, DCLI–28
Module objects
analyzing, *DCL A-M*, DCLI–26
analyzing end-of-file records, *DCL A-M*, DCLI–27
Module traceback records
analyzing in object files, *DCL A-M*, DCLI–28
MONITOR command, *DCL A-M*, DCLI–434
MOUNT command, *DCL A-M*, DCLI–435
See also DEASSIGN command
See also DISMOUNT command
Movefile
controlling whether movefile operations are enabled, *DCL N-Z*, DCLII–136
determining if movefile operations are enabled, *DCL A-M*, DCLI–327
Multiprocessing systems
showing attached processor state, *DCL N-Z*, DCLII–259
starting attached processor, *DCL N-Z*, DCLII–382
stopping attached processors, *DCL N-Z*, DCLII–405

N

Names
See also Logical names
detached processes, *DCL N-Z*, DCLII–60
generic devices, *DCL A-M*, DCLI–15
logical
canceling, *DCL A-M*, DCLI–111
deassigning, *DCL A-M*, DCLI–59

Names (cont'd)
subprocesses, *DCL N-Z*, DCLII–60
symbol definition, *DCL A-M*, DCLI–1, DCLI–5
National character set (NCS) utility, *DCL N-Z*, DCLII–1
NCS command, *DCL N-Z*, DCLII–1
NCS utility
See National character set (NCS) utility
Network nodes
See also SET HOST command
See also SET HOST/DUP command
See also SET HOST/HSC command
and batch jobs, *DCL N-Z*, DCLII–430
connecting to a HSC, *DCL N-Z*, DCLII–152
connecting to a remote processor, *DCL N-Z*, DCLII–140
connecting to a storage controller, *DCL N-Z*, DCLII–150
Networks
pausing, *DCL N-Z*, DCLII–407
releasing from paused states, *DCL N-Z*, DCLII–407
restarting, *DCL N-Z*, DCLII–384
See also Networks, releasing from paused state
See also Networks, starting
starting, *DCL N-Z*, DCLII–384
stopping, *DCL N-Z*, DCLII–384
Node names
displaying, *DCL N-Z*, DCLII–368
Non OpenVMS systems
specifying remote files on, *DCL A-M*, DCLI–91
Nonpaged dynamic memory
displaying availability and use of, *DCL N-Z*, DCLII–307

O

Object files
analyzing, *DCL A-M*, DCLI–26
identifying
errors, *DCL A-M*, DCLI–26
Object module libraries, *DCL A-M*, DCLI–28
Object modules
analyzing, *DCL A-M*, DCLI–26
end-of-file records, *DCL A-M*, DCLI–27
Octal dump, *DCL A-M*, DCLI–193
ON command, *DCL N-Z*, DCLII–2 to DCLII–5
Online help, *DCL A-M*, DCLI–239
OPCOM (operator communication manager)
enabling terminal to receive messages from, *DCL N-Z*, DCLII–45
messages to users from, *DCL N-Z*, DCLII–52
OPEN command, *DCL N-Z*, DCLII–6 to DCLII–9
Open files, *DCL N-Z*, DCLII–6
displaying names, *DCL N-Z*, DCLII–267
Opening of queue and journal files, *DCL N-Z*, DCLII–397
OpenVMS RMS
See RMS
Operator communication manager
See OPCOM
Operators (computer)
See also REQUEST command
disabling status, *DCL N-Z*, DCLII–45
enabling status, *DCL N-Z*, DCLII–45
log file closing, *DCL N-Z*, DCLII–46
log file opening, *DCL N-Z*, DCLII–46
requesting replies from, *DCL N-Z*, DCLII–52
sending requests to, *DCL N-Z*, DCLII–52
Options files
CONVERT/DOCUMENT command, *DCL A-M*, DCLI–71
creating, *DCL A-M*, DCLI–71
Output converter
analysis, *DCL A-M*, DCLI–67
DDIF, *DCL A-M*, DCLI–68
DTIF, *DCL A-M*, DCLI–69
PostScript, *DCL A-M*, DCLI–70
Text, *DCL A-M*, DCLI–70
Output queues
See Queues
Output streams
defining for created process, *DCL N-Z*, DCLII–59
Overlaying files using the COPY command, *DCL A-M*, DCLI–84
Overriding
default command interpreter, *DCL A-M*, DCLI–419
magnetic tape overwrite protection, *DCL A-M*, DCLI–262
owner identification field, *DCL A-M*, DCLI–262
Owner identifier field
writing characters to, *DCL A-M*, DCLI–261
Ownership
specifying for volumes, *DCL A-M*, DCLI–263

P

/PAGE=SAVE qualifier navigation keys, *DCL A-M*, DCLI–166, DCLI–175, DCLI–193, DCLI–241; *DCL N-Z*, DCLII–74, DCLII–254, DCLII–268, DCLII–274, DCLII–282, DCLII–286, DCLII–294, DCLII–303, DCLII–309, DCLII–324, DCLII–334, DCLII–356, DCLII–369, DCLII–442
Paged dynamic memory
displaying availability and use of, *DCL N-Z*, DCLII–307
Parameters
passing to batch jobs, *DCL N-Z*, DCLII–429

Parameters (cont'd)
passing to command procedures, *DCL A-M*, DCLI–9, DCLI–53
specifying for command procedures, *DCL A-M*, DCLI–9
PASSWORD command, *DCL N-Z*, DCLII–10 to DCLII–11
Passwords
changing, *DCL N-Z*, DCLII–174
setting, *DCL N-Z*, DCLII–174
setting at login, *DCL A-M*, DCLI–419
PATCH command, *DCL N-Z*, DCLII–12
Patch text records
analyzing, *DCL A-M*, DCLI–24
Patch utility (PATCH)
changing code in, *DCL N-Z*, DCLII–12
invoking, *DCL N-Z*, DCLII–12
Pausing networks, *DCL N-Z*, DCLII–407
Pausing queues, *DCL N-Z*, DCLII–408
PHONE command, *DCL N-Z*, DCLII–13
Physical memory
displaying availability and use of, *DCL N-Z*, DCLII–307
Ports
displaying information, *DCL N-Z*, DCLII–368
PostScript output converter, *DCL A-M*, DCLI–70
processing options, *DCL A-M*, DCLI–73
PRINT command, *DCL N-Z*, DCLII–14 to DCLII–25
files, *DCL N-Z*, DCLII–14
procedure in batch job log, *DCL N-Z*, DCLII–238
Print queues
See Queues
Priorities
modifying processes, *DCL N-Z*, DCLII–182
specifying for batch jobs, *DCL N-Z*, DCLII–430
specifying for detached processes, *DCL N-Z*, DCLII–64
specifying for subprocesses, *DCL N-Z*, DCLII–64
Privileges
displaying processes, *DCL N-Z*, DCLII–325
modifying processes, *DCL N-Z*, DCLII–182
specifying for subprocesses, *DCL N-Z*, DCLII–64
Process dumps
analyzing of, *DCL A-M*, DCLI–30
Processes
See also Subprocesses
displaying
buffered I/O count, *DCL N-Z*, DCLII–351
characteristics of, *DCL N-Z*, DCLII–322
CPU time used, *DCL N-Z*, DCLII–351
current physical memory occupied, *DCL N-Z*, DCLII–351
current working set size, *DCL N-Z*, DCLII–351
Processes
displaying (cont'd)
identification, *DCL N-Z*, DCLII–324
information on, *DCL N-Z*, DCLII–247
names, *DCL N-Z*, DCLII–368
open file count, *DCL N-Z*, DCLII–351
page faults, *DCL N-Z*, DCLII–351
privilege, *DCL N-Z*, DCLII–325
status, *DCL N-Z*, DCLII–351
updated information about, *DCL N-Z*, DCLII–323, DCLII–324
displaying list of systems processes, *DCL N-Z*, DCLII–354
hibernation
with ATTACH command, *DCL A-M*, DCLI–50
image wakeup, *DCL N-Z*, DCLII–60
modifying characteristics of, *DCL N-Z*, DCLII–182
modifying working set default size, *DCL N-Z*, DCLII–245
placing in wait state, *DCL N-Z*, DCLII–447
priority
for detached processes, *DCL N-Z*, DCLII–64
for subprocesses, *DCL N-Z*, DCLII–64
privileges
specifying for subprocesses, *DCL N-Z*, DCLII–64
setting default devices or directories, *DCL N-Z*, DCLII–108
status
displaying current, *DCL N-Z*, DCLII–351
swap mode
enabling or disabling, *DCL N-Z*, DCLII–186
swapping
for created processes, *DCL N-Z*, DCLII–66
switching control of input stream, *DCL A-M*, DCLI–50
synchronizing with batch job, *DCL N-Z*, DCLII–436
working set
displaying quota and limit, *DCL N-Z*, DCLII–373
Processing options
analysis output converter, *DCL A-M*, DCLI–71
domain converter, *DCL A-M*, DCLI–75
in an options file, *DCL A-M*, DCLI–71
PostScript output converter, *DCL A-M*, DCLI–73
text output converter, *DCL A-M*, DCLI–72
Processors
showing state of attached, *DCL N-Z*, DCLII–259
showing state of secondary, *DCL N-Z*, DCLII–259
starting attached, *DCL N-Z*, DCLII–382

Processors (cont'd)
starting secondary, *DCL N-Z*, DCLII–382
stopping attached, *DCL N-Z*, DCLII–405
stopping secondary, *DCL N-Z*, DCLII–405
PRODUCT command, *DCL N-Z*, DCLII–26
Programs
continuing execution of, *DCL A-M*, DCLI–64
marking beginning of input stream, *DCL A-M*, DCLI–119
marking end of input stream, *DCL A-M*, DCLI–214
resuming execution of, *DCL A-M*, DCLI–64
Prompts
displaying in command procedures, *DCL A-M*, DCLI–281
Protection
default at disk initialization, *DCL A-M*, DCLI–259
defining at directory creation, *DCL A-M*, DCLI–97
defining at file creation, *DCL A-M*, DCLI–94
disk volumes, *DCL A-M*, DCLI–263
displaying default, *DCL N-Z*, DCLII–330
displaying security profiles, *DCL N-Z*, DCLII–347
establishing default, *DCL N-Z*, DCLII–191
magnetic tape volumes, *DCL A-M*, DCLI–263
modifying security profiles, *DCL N-Z*, DCLII–209
PSWRAP command, *DCL N-Z*, DCLII–27
PURGE command, *DCL N-Z*, DCLII–28 to DCLII–31
Purging files, *DCL N-Z*, DCLII–28
See also Deleting

Q

Queue and journal files, *DCL N-Z*, DCLII–397
Queue database files
closing, *DCL N-Z*, DCLII–413
Queue managers
failover, *DCL N-Z*, DCLII–398
restarting, *DCL N-Z*, DCLII–398, DCLII–413
starting, *DCL N-Z*, DCLII–397
stopping, *DCL N-Z*, DCLII–413
Queue options
assigning, *DCL N-Z*, DCLII–385
changing, *DCL A-M*, DCLI–266; *DCL N-Z*, DCLII–385
Queues
See also Print queues
activating autostart, *DCL A-M*, DCLI–210; *DCL N-Z*, DCLII–385
assigning, *DCL A-M*, DCLI–266
assigning logical names to, *DCL A-M*, DCLI–48
assigning to devices, *DCL A-M*, DCLI–48
autostart, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–386
Queues (cont'd)
batch jobs
displaying entries, *DCL N-Z*, DCLII–280, DCLII–331
entering command procedures in, *DCL N-Z*, DCLII–424
changing entries for batch and printer jobs, *DCL N-Z*, DCLII–122
changing options on, *DCL A-M*, DCLI–266; *DCL N-Z*, DCLII–385
creating, *DCL A-M*, DCLI–266
deactivating autostart, *DCL N-Z*, DCLII–414, DCLII–418
deassigning, *DCL A-M*, DCLI–115
defining CPU time limit for batch jobs, *DCL A-M*, DCLI–271; *DCL N-Z*, DCLII–193, DCLII–388
defining default working sets for batch jobs, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–197, DCLII–394, DCLII–432
defining working set extent for batch jobs, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–394, DCLII–433
defining working set quotas for batch jobs, *DCL A-M*, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–394, DCLII–433
deleting batch or print, *DCL A-M*, DCLI–150
deleting entries, *DCL A-M*, DCLI–143
designating as autostart, *DCL A-M*, DCLI–268
disabling autostart, *DCL A-M*, DCLI–182; *DCL N-Z*, DCLII–420
displaying default characteristics of system print queues, *DCL N-Z*, DCLII–320
displaying device entries, *DCL N-Z*, DCLII–280, DCLII–331
displaying entries, *DCL N-Z*, DCLII–331
ensuring availability of, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–386
establishing a print queue as spooled, *DCL N-Z*, DCLII–110
establishing base priority for batch jobs, *DCL N-Z*, DCLII–192
establishing base priority for jobs, *DCL A-M*, DCLI–269
execution of, *DCL A-M*, DCLI–267
designating autostart or nonautostart, *DCL A-M*, DCLI–268
failover of, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–386
generic, *DCL A-M*, DCLI–267
initializing, *DCL A-M*, DCLI–266
logical, *DCL A-M*, DCLI–268
merging jobs, *DCL A-M*, DCLI–47
modifying characteristics of a print queue, *DCL N-Z*, DCLII–179
pausing, *DCL N-Z*, DCLII–408
preparing for a shutdown, *DCL N-Z*, DCLII–421

Queues (cont'd)
preventing failover, *DCL A-M*, DCLI–182
reinitializing existing, *DCL A-M*, DCLI–266
releasing from paused states, *DCL N-Z*, DCLII–408
removing jobs from, *DCL A-M*, DCLI–47
restarting, *DCL N-Z*, DCLII–385, DCLII–414, DCLII–418
See also Queues, releasing from paused state
See also Queues, starting
restarting after deactivating for autostart, *DCL N-Z*, DCLII–414, DCLII–418
server, *DCL A-M*, DCLI–268
setting up for failover, *DCL A-M*, DCLI–269; *DCL N-Z*, DCLII–386
starting, *DCL N-Z*, DCLII–385
starting autostart, *DCL A-M*, DCLI–210; *DCL N-Z*, DCLII–385
starting queue managers, *DCL N-Z*, DCLII–397
stopping, *DCL N-Z*, DCLII–385, DCLII–414, DCLII–418
all, *DCL N-Z*, DCLII–420
before shutdown, *DCL A-M*, DCLI–182; *DCL N-Z*, DCLII–420
queue managers, *DCL N-Z*, DCLII–413
symbionts, *DCL A-M*, DCLI–268
types of, *DCL A-M*, DCLI–267
Quotas
AST limit, *DCL N-Z*, DCLII–61
batch jobs
working set, *DCL N-Z*, DCLII–433
CPU
for created processes, *DCL N-Z*, DCLII–66
of subprocesses process can create, *DCL N-Z*, DCLII–65
working set
for batch jobs, *DCL N-Z*, DCLII–433
modifying, *DCL N-Z*, DCLII–245
Quotation marks (‘‘ ’’)
in remote file specifications, *DCL A-M*, DCLI–91

R

Read check
with APPEND command, *DCL A-M*, DCLI–39
with COPY command, *DCL A-M*, DCLI–84
with INITIALIZE command, *DCL A-M*, DCLI–258
READ command, *DCL N-Z*, DCLII–32 to DCLII–35
Ready access
for directories on disk, *DCL A-M*, DCLI–257
RECALL command, *DCL N-Z*, DCLII–36 to DCLII–38
Record Management Services
See RMS
Records
analyzing
debugger information, *DCL A-M*, DCLI–27
global symbol directory, *DCL A-M*, DCLI–28
link option specification, *DCL A-M*, DCLI–28
module header, *DCL A-M*, DCLI–28
module traceback, *DCL A-M*, DCLI–28
patch text, *DCL A-M*, DCLI–24
relocation, *DCL A-M*, DCLI–29
analyzing end-of-file, *DCL A-M*, DCLI–27
comparing, *DCL A-M*, DCLI–160
reading, *DCL N-Z*, DCLII–32
writing to a file, *DCL N-Z*, DCLII–449
Recovering
EDT editing session, *DCL A-M*, DCLI–202
Releasing networks from paused states, *DCL N-Z*, DCLII–407
Releasing queues from paused states, *DCL N-Z*, DCLII–408
Relocation records
analyzing in object files, *DCL A-M*, DCLI–29
Remote files
specifying, *DCL A-M*, DCLI–91
RENAME command, *DCL N-Z*, DCLII–39 to DCLII–42
REPLY command, *DCL N-Z*, DCLII–43 to DCLII–51
See also INITIALIZE command
See also MOUNT command
See also REQUEST command
disabling operator status, *DCL N-Z*, DCLII–45
enabling operator status, *DCL N-Z*, DCLII–45
responding to file system requests, *DCL N-Z*, DCLII–44
responding to user requests, *DCL N-Z*, DCLII–44
REQUEST command, *DCL N-Z*, DCLII–52 to DCLII–53
Restarting
deactivated autostart queues, *DCL N-Z*, DCLII–414, DCLII–418
networks, *DCL N-Z*, DCLII–384
See also Starting networks
queues, *DCL N-Z*, DCLII–385
See also Starting queues
stopped queues, *DCL N-Z*, DCLII–414, DCLII–418
the queue manager, *DCL N-Z*, DCLII–398, DCLII–413

Restarting a network
See Releasing networks from paused states
Restarting a queue
See Releasing queues from paused states
Resuming execution
of command procedure, *DCL A-M*, DCLI–64
of DCL commands, *DCL A-M*, DCLI–64
of program, *DCL A-M*, DCLI–64
RETURN command, *DCL N-Z*, DCLII–54 to DCLII–55
Return key
to log in, *DCL A-M*, DCLI–419
Rights lists
modifying, *DCL N-Z*, DCLII–202
RMS
displaying default block count, *DCL N-Z*, DCLII–346
modifying defaults for, *DCL N-Z*, DCLII–205
Runaway tapes
stopping, *DCL A-M*, DCLI–257
RUN command
See also ATTACH command
See also SPAWN command
with images, *DCL N-Z*, DCLII–56, DCLII–57
abbreviating, *DCL N-Z*, DCLII–56
with processes, *DCL N-Z*, DCLII–58 to DCLII–68
creating detached processes, *DCL N-Z*, DCLII–66
Runoff
See DSR

S

Screen-oriented editors
EDT, *DCL A-M*, DCLI–200
EVE, *DCL A-M*, DCLI–209
SEARCH command, *DCL N-Z*, DCLII–70 to DCLII–77
Search lists, *DCL A-M*, DCLI–41, DCLI–122
Security
object protection, *DCL N-Z*, DCLII–209, DCLII–347
Security auditing, *DCL N-Z*, DCLII–84
Server queues, *DCL A-M*, DCLI–268
SET ACCOUNTING command, *DCL N-Z*, DCLII–81 to DCLII–83
SET AUDIT command, *DCL N-Z*, DCLII–84 to DCLII–96
SET BROADCAST command, *DCL N-Z*, DCLII–97 to DCLII–98
SET CARD_READER command, *DCL N-Z*, DCLII–99
SET CLUSTER/EXPECTED_VOTES command, *DCL N-Z*, DCLII–100 to DCLII–101
SET command, *DCL N-Z*, DCLII–78 to DCLII–80
SET COMMAND command, *DCL N-Z*, DCLII–102 to DCLII–104
SET CONTROL command, *DCL N-Z*, DCLII–105 to DCLII–106
SET DAY command, *DCL N-Z*, DCLII–107
SET DEFAULT command, *DCL N-Z*, DCLII–108 to DCLII–109
SET DEVICE command, *DCL N-Z*, DCLII–110 to DCLII–111
SET DEVICE/SERVED command, *DCL N-Z*, DCLII–112
SET DIRECTORY command, *DCL N-Z*, DCLII–113 to DCLII–115
SET DISPLAY command, *DCL N-Z*, DCLII–116 to DCLII–121
SET ENTRY command, *DCL N-Z*, DCLII–122 to DCLII–131
SET FILE command, *DCL N-Z*, DCLII–132 to DCLII–139
SET HOST command, *DCL N-Z*, DCLII–140 to DCLII–142
See also Network nodes
SET HOST/DTE command, *DCL N-Z*, DCLII–143
SET HOST/DUP command, *DCL N-Z*, DCLII–150, DCLII–151
See also Network nodes
SET HOST/HSC command, *DCL N-Z*, DCLII–152, DCLII–153
See also Network nodes
SET HOST/LAT command, *DCL N-Z*, DCLII–154 to DCLII–158
/FRAME qualifier, *DCL N-Z*, DCLII–156
SET HOST/RLOGIN command, *DCL N-Z*, DCLII–159 to DCLII–160
SET HOST/TELNET command, *DCL N-Z*, DCLII–161
SET HOST/TN3270 command, *DCL N-Z*, DCLII–162
SET KEY command, *DCL N-Z*, DCLII–163
SET LOGINS command, *DCL N-Z*, DCLII–164
SET MAGTAPE command, *DCL N-Z*, DCLII–165, DCLII–166
SET MAGTAPE/RETENSION command, *DCL N-Z*, DCLII–165
SET MESSAGE command, *DCL N-Z*, DCLII–167, DCLII–168
SET NETWORK command, *DCL N-Z*, DCLII–169
SET ON command, *DCL N-Z*, DCLII–172
SET OUTPUT_RATE command, *DCL N-Z*, DCLII–173
SET PASSWORD command, *DCL N-Z*, DCLII–174 to DCLII–176
SET PREFIX command, *DCL N-Z*, DCLII–177, DCLII–178

SET PRINTER command, *DCL N-Z*, DCLII–179 to DCLII–181
SET PROCESS command, *DCL N-Z*, DCLII–182 to DCLII–189
SET PROMPT command, *DCL N-Z*, DCLII–190
SET PROTECTION/DEFAULT command, *DCL N-Z*, DCLII–191
SET QUEUE command, *DCL N-Z*, DCLII–171, DCLII–192 to DCLII–199
SET RESTART_VALUE command, *DCL N-Z*, DCLII–200 to DCLII–201
SET RIGHTS_LIST command, *DCL N-Z*, DCLII–202 to DCLII–204
  attributes, *DCL N-Z*, DCLII–202
    Dynamic, *DCL N-Z*, DCLII–202
    No Access, *DCL N-Z*, DCLII–202
    Resource, *DCL N-Z*, DCLII–202
    Subsystem, *DCL N-Z*, DCLII–202
SET RMS_DEFAULT command, *DCL N-Z*, DCLII–205 to DCLII–208
SET SECURITY command, *DCL N-Z*, DCLII–209 to DCLII–216
SET SYMBOL command, *DCL N-Z*, DCLII–219 to DCLII–221
SET TERMINAL command, *DCL N-Z*, DCLII–222 to DCLII–235
SET TIME command, *DCL N-Z*, DCLII–236 to DCLII–237
SET VERIFY command, *DCL N-Z*, DCLII–238 to DCLII–240
SET VOLUME command, *DCL N-Z*, DCLII–241 to DCLII–244
SET WORKING_SET command, *DCL N-Z*, DCLII–245, DCLII–246
$SEVERITY global symbol, *DCL N-Z*, DCLII–172
  changing, *DCL A-M*, DCLI–230; *DCL N-Z*, DCLII–54
Shareable images
  analyzing, *DCL A-M*, DCLI–22
  file analyzing, *DCL A-M*, DCLI–22
  patching, *DCL N-Z*, DCLII–12
Shareable volumes
  dismounting, *DCL A-M*, DCLI–186
  initializing disk as, *DCL A-M*, DCLI–264
Shared device
  dismounting, *DCL A-M*, DCLI–187
Shelving
  See also Automatic unshelving
  controlling whether file is shelvable, *DCL N-Z*, DCLII–137
  determining if file is shelvable, *DCL A-M*, DCLI–176, DCLI–328
  determining if file is shelved, *DCL A-M*, DCLI–176, DCLI–177, DCLI–328
SHOW ACCOUNTING command, *DCL N-Z*, DCLII–250, DCLII–251
SHOW AUDIT command, *DCL N-Z*, DCLII–252 to DCLII–255
SHOW BROADCAST command, *DCL N-Z*, DCLII–256, DCLII–257
SHOW CLUSTER command, *DCL N-Z*, DCLII–258
SHOW command, *DCL N-Z*, DCLII–247 to DCLII–249
  summary of options, *DCL N-Z*, DCLII–247
SHOW CPU command, *DCL N-Z*, DCLII–259 to DCLII–263
SHOW DEFAULT command, *DCL N-Z*, DCLII–264, DCLII–265
SHOW DEVICES command, *DCL N-Z*, DCLII–266 to DCLII–272
SHOW DEVICES/SERVED command, *DCL N-Z*, DCLII–273 to DCLII–277
SHOW DISPLAY command, *DCL N-Z*, DCLII–278, DCLII–279
SHOW ENTRY command, *DCL N-Z*, DCLII–280 to DCLII–284
SHOW ERROR command, *DCL N-Z*, DCLII–285, DCLII–287
SHOW INTRUSION command, *DCL N-Z*, DCLII–288 to DCLII–290
SHOW KEY command, *DCL N-Z*, DCLII–291, DCLII–292
SHOW LICENSE command, *DCL N-Z*, DCLII–293 to DCLII–300
SHOW LOGICAL command, *DCL N-Z*, DCLII–301 to DCLII–306
SHOW MEMORY command, *DCL N-Z*, DCLII–307 to DCLII–316
SHOW NETWORK command, *DCL N-Z*, DCLII–317 to DCLII–319
SHOW PRINTER command, *DCL N-Z*, DCLII–320, DCLII–321
SHOW PROCESS command, *DCL N-Z*, DCLII–322 to DCLII–329
SHOW PROTECTION command, *DCL N-Z*, DCLII–330
SHOW QUEUE/CHARACTERISTICS command, *DCL N-Z*, DCLII–338, DCLII–339
SHOW QUEUE command, *DCL N-Z*, DCLII–331 to DCLII–337
SHOW QUEUE/FORM command, *DCL N-Z*, DCLII–340, DCLII–341
SHOW QUEUE/MANAGERS command, *DCL N-Z*, DCLII–342 to DCLII–344
SHOW QUOTA command, *DCL N-Z*, DCLII–345
SHOW RMS_DEFAULT command, *DCL N-Z*, DCLII–346
SHOW SECURITY command, *DCL N-Z*, DCLII–347 to DCLII–350

SHOW STATUS command, *DCL N-Z*, DCLII–351
SHOW SYMBOL command, *DCL N-Z*, DCLII–352, DCLII–353
SHOW SYSTEM command, *DCL N-Z*, DCLII–354 to DCLII–361
SHOW TERMINAL command, *DCL N-Z*, DCLII–362, DCLII–364
See also SET TERMINAL command; SHOW TERMINAL command
SHOW TIME command, *DCL N-Z*, DCLII–365
SHOW TRANSLATION command, *DCL N-Z*, DCLII–366, DCLII–367
SHOW USERS command, *DCL N-Z*, DCLII–368 to DCLII–372
SHOW WORKING_SET command, *DCL N-Z*, DCLII–373 to DCLII–374
SHOW ZONE command, *DCL N-Z*, DCLII–375
Shutdown
preparing a queue for, *DCL N-Z*, DCLII–421
stopping autostart queues before, *DCL A-M*, DCLI–182
stopping queues before, *DCL N-Z*, DCLII–420
SORT command, *DCL N-Z*, DCLII–376
SPAWN command, *DCL N-Z*, DCLII–377 to DCLII–381
See also ATTACH command, *DCL A-M*, DCLI–50
START/CPU command, *DCL N-Z*, DCLII–382 to DCLII–383
Starting networks, *DCL N-Z*, DCLII–384
See also Restarting networks
Starting queues, *DCL N-Z*, DCLII–385
See also Restarting queues
autostart, *DCL A-M*, DCLI–210, DCLI–269; *DCL N-Z*, DCLII–385
nonautostart, *DCL A-M*, DCLI–269
queue manager, *DCL N-Z*, DCLII–397
START/NETWORK command, *DCL N-Z*, DCLII–384
START/QUEUE command, *DCL N-Z*, DCLII–385 to DCLII–396
START/QUEUE/MANAGER command, *DCL N-Z*, DCLII–397 to DCLII–400
START/ZONE command, *DCL N-Z*, DCLII–401
Status code
controlling command interpreter response to, *DCL N-Z*, DCLII–172
$STATUS global symbol, *DCL N-Z*, DCLII–172
changing, *DCL A-M*, DCLI–230; *DCL N-Z*, DCLII–54
STOP command, *DCL N-Z*, DCLII–402 to DCLII–404
See also Ctrl/C key sequence
See also Ctrl/Y key sequence
See also EXIT command
runaway tapes, *DCL A-M*, DCLI–257
STOP/CPU command, *DCL N-Z*, DCLII–405, DCLII–406
STOP/NETWORK command, *DCL N-Z*, DCLII–407
Stopping networks
See also Pausing networks
Stopping queues, *DCL N-Z*, DCLII–414, DCLII–420
See also Pausing queues
abruptly, *DCL N-Z*, DCLII–418
Stopping the queue managers, *DCL N-Z*, DCLII–413
STOP/QUEUE/ABORT command, *DCL N-Z*, DCLII–409, DCLII–410
STOP/QUEUE command, *DCL N-Z*, DCLII–408
STOP/QUEUE/ENTRY command, *DCL N-Z*, DCLII–411, DCLII–412
STOP/QUEUE/MANAGER/CLUSTER command, *DCL N-Z*, DCLII–413
STOP/QUEUE/NEXT command, *DCL N-Z*, DCLII–414
See also DELETE/QUEUE command
STOP/QUEUE/REQUEUE command, *DCL N-Z*, DCLII–415 to DCLII–417
STOP/QUEUE/RESET command, *DCL N-Z*, DCLII–418, DCLII–419
STOP/QUEUES/ON_NODE command, *DCL N-Z*, DCLII–420 to DCLII–422
STOP/ZONE command, *DCL N-Z*, DCLII–423
:= (String assignment) command, *DCL A-M*, DCLI–5 to DCLI–8
Structure levels
defining for disks, *DCL A-M*, DCLI–264
Subdirectories
creating, *DCL A-M*, DCLI–96
SUBMIT command, *DCL A-M*, DCLI–288; *DCL N-Z*, DCLII–424 to DCLII–434
Subprocesses
See also SPAWN command
accounting, *DCL N-Z*, DCLII–61
assigning resource quotas to, *DCL N-Z*, DCLII–59
creating with RUN command, *DCL N-Z*, DCLII–58
creating with SPAWN command, *DCL N-Z*, DCLII–377
defining attributes, *DCL N-Z*, DCLII–59
defining equivalence names for process-permanent logical names, *DCL N-Z*, DCLII–58
displaying characteristics of, *DCL N-Z*, DCLII–322
displaying quotas, *DCL N-Z*, DCLII–325
image hibernation, *DCL N-Z*, DCLII–60
naming with RUN/PROCESS_NAME, *DCL N-Z*, DCLII–60
scheduling wakeup, *DCL N-Z*, DCLII–63

Subprocesses (cont'd)
specifying default working set, *DCL N-Z*, DCLII–66
specifying quotas, *DCL N-Z*, DCLII–62
switching control of input stream, *DCL A-M*, DCLI–50
SUBROUTINE command, *DCL A-M*, DCLI–54, DCLI–55; *DCL N-Z*, DCLII–435
Subroutines
termination of GOSUB, *DCL N-Z*, DCLII–54
SUMSLP editor, *DCL A-M*, DCLI–205
Swapping
for created processes, *DCL N-Z*, DCLII–66
processes
enabling or disabling swap mode, *DCL N-Z*, DCLII–186
Symbionts
customer-written, *DCL A-M*, DCLI–268
default, *DCL A-M*, DCLI–268
special purpose, *DCL A-M*, DCLI–268
Symbolic names
defining, *DCL A-M*, DCLI–1, DCLI–5
Symbols
assigning value with READ command, *DCL N-Z*, DCLII–32
binary overlay in, *DCL A-M*, DCLI–1
character overlays in, *DCL A-M*, DCLI–6
deleting
from global symbol tables, *DCL A-M*, DCLI–153
from local symbol tables, *DCL A-M*, DCLI–153
displaying, *DCL N-Z*, DCLII–352
general assignment, *DCL A-M*, DCLI–1
interactive assignment in command procedures, *DCL A-M*, DCLI–281
masking, *DCL N-Z*, DCLII–219
string assignment, *DCL A-M*, DCLI–5
SYNCHRONIZE command, *DCL N-Z*, DCLII–436 to DCLII–437
SYS$ERROR logical name
specifying equivalence name with RUN command, *DCL N-Z*, DCLII–62
SYS$INPUT logical name
specifying equivalence name with RUN command, *DCL N-Z*, DCLII–63
SYS$LOST directory, *DCL N-Z*, DCLII–136
SYS$OUTPUT
displaying file on, *DCL N-Z*, DCLII–438
SYS$OUTPUT logical name
specifying equivalence name with RUN command, *DCL N-Z*, DCLII–64
SYS$SYLOGIN logical name
executing, *DCL A-M*, DCLI–419
System login images
and detached processes, *DCL N-Z*, DCLII–61
System messages
online documentation, *DCL A-M*, DCLI–247
System performance
displaying availability and use of resources, *DCL N-Z*, DCLII–307
Systems
accessing, *DCL A-M*, DCLI–419
changing
date, *DCL N-Z*, DCLII–236
passwords, *DCL N-Z*, DCLII–174
time, *DCL N-Z*, DCLII–236
displaying
information on, *DCL N-Z*, DCLII–247
status, *DCL N-Z*, DCLII–247
System time
changing, *DCL N-Z*, DCLII–236

T

TA90E tape drive
support for, *DCL N-Z*, DCLII–165
using /MEDIA_FORMAT qualifier, *DCL N-Z*, DCLII–165
Tapes
disabling operator status, *DCL N-Z*, DCLII–45
dismounting, *DCL A-M*, DCLI–186
enabling operator status, *DCL N-Z*, DCLII–45
establishing operational status for, *DCL N-Z*, DCLII–110
initializing using REPLY command, *DCL N-Z*, DCLII–44
modifying RMS defaults for file operations, *DCL N-Z*, DCLII–205
TECO editor, *DCL A-M*, DCLI–206
Terminal emulators
creating, *DCL A-M*, DCLI–104
Terminals
See also SET TERMINAL command; SHOW TERMINAL command
default characteristics, *DCL A-M*, DCLI–419
displaying characteristics of, *DCL N-Z*, DCLII–362
displaying files at, *DCL N-Z*, DCLII–438
establishing as spooled, *DCL N-Z*, DCLII–110
modifying characteristics of, *DCL N-Z*, DCLII–222
sending messages to, *DCL N-Z*, DCLII–43
virtual, *DCL A-M*, DCLI–61, DCLI–184
Terminal sessions
logging in, *DCL A-M*, DCLI–419
logging out, *DCL A-M*, DCLI–423
Terminations
of command procedure, *DCL A-M*, DCLI–230
of GOSUB subroutine, *DCL N-Z*, DCLII–54
of terminal session, *DCL A-M*, DCLI–423
Testing
the value of an expression, *DCL A-M*, DCLI–253

Text
analyzing in object files, *DCL A-M*, DCLI–29
Text editors
See EDT editor
See EVE editor
See SUMSLP editor
See TECO editor
Text file formatting
See DSR
Text input converter, *DCL A-M*, DCLI–69
Text output converter, *DCL A-M*, DCLI–70
processing options, *DCL A-M*, DCLI–72
THEN keyword
and IF command, *DCL A-M*, DCLI–253
Time
changing system, *DCL N-Z*, DCLII–236
CPU quota for created processes, *DCL N-Z*, DCLII–66
CPU used by current process, *DCL N-Z*, DCLII–351
displaying, *DCL N-Z*, DCLII–365
Timed retention
specifying, *DCL N-Z*, DCLII–23, DCLII–129, DCLII–432
TPU
See DECTPU
Transfer modes
EXCHANGE/NETWORK command, *DCL A-M*, DCLI–223
True expression
and IF command, *DCL A-M*, DCLI–253
TYPE command, *DCL N-Z*, DCLII–438 to DCLII–444
TZK10 tape cartridge drives, *DCL N-Z*, DCLII–165

U

UAFs (user authorization files)
and detached processes, *DCL N-Z*, DCLII–61
UICs (user identification codes)
specifying for directories, *DCL A-M*, DCLI–97
specifying for files, *DCL A-M*, DCLI–94
Unloading devices
with DISMOUNT command, *DCL A-M*, DCLI–188
UNLOCK command, *DCL N-Z*, DCLII–445
Unlocking files, *DCL N-Z*, DCLII–445
User authorization files
See UAFs
User identification codes
See UICs
User libraries
See Help libraries
User names
specifying at login, *DCL A-M*, DCLI–419
Users
displaying disk quota of, *DCL N-Z*, DCLII–345
displaying interactive terminal name of, *DCL N-Z*, DCLII–368
displaying names on system, *DCL N-Z*, DCLII–368
displaying process identification code (PID) of, *DCL N-Z*, DCLII–368
recording name on disk volume, *DCL N-Z*, DCLII–243
responding to requests, *DCL N-Z*, DCLII–44
User-specified job retention
PRINT/RETAIN command, *DCL N-Z*, DCLII–21
SET ENTRY/RETAIN command, *DCL N-Z*, DCLII–128
SUBMIT/RETAIN command, *DCL N-Z*, DCLII–430

V

Value test in expression, *DCL A-M*, DCLI–253
Verification
modifying for command procedures, *DCL N-Z*, DCLII–238
Version limits
for files in directory, *DCL A-M*, DCLI–97
Version numbers
assigning to files, *DCL A-M*, DCLI–224
VIEW command, *DCL N-Z*, DCLII–446
Virtual devices, *DCL A-M*, DCLI–220, DCLI–342
Virtual memory
examining contents, *DCL A-M*, DCLI–217
replacing contents, *DCL A-M*, DCLI–155
Virtual terminals
connecting, *DCL A-M*, DCLI–61
disconnecting from, *DCL A-M*, DCLI–184
VMScluster envirnments
specifying cluster size on disk, *DCL A-M*, DCLI–258
VMScluster environments
dismounting volumes on, *DCL A-M*, DCLI–187
Volume accessibility fields
writing characters to, *DCL A-M*, DCLI–261
Volumes
deleting disk files, *DCL A-M*, DCLI–138
dismounting disk and tape, *DCL A-M*, DCLI–186
displaying disk quota, *DCL N-Z*, DCLII–345
dumping, *DCL A-M*, DCLI–190
Files–11
modifying characteristics of, *DCL N-Z*, DCLII–241
recording name on, *DCL N-Z*, DCLII–243
initializing, *DCL A-M*, DCLI–256
label, *DCL A-M*, DCLI–256
protecting, *DCL A-M*, DCLI–263

Volumes (cont'd)
specifying maximum file number, *DCL A-M*, DCLI–262
specifying ownership, *DCL A-M*, DCLI–263
Volume sets
dismounting, *DCL A-M*, DCLI–188

W

WAIT command, *DCL N-Z*, DCLII–447 to DCLII–448
Wait state
delaying command processing, *DCL N-Z*, DCLII–447
inducing to synchronize process with batch job, *DCL N-Z*, DCLII–436
placing current process in, *DCL N-Z*, DCLII–447
Wakeup requests
canceling, *DCL A-M*, DCLI–57
canceling request, *DCL N-Z*, DCLII–60
scheduling with RUN command, *DCL N-Z*, DCLII–60
Windows
displaying size and count for open files, *DCL N-Z*, DCLII–270
Word dumps, *DCL A-M*, DCLI–195
Working sets
batch jobs
defining default for, *DCL A-M*, DCLI–278; *DCL N-Z*, DCLII–394, DCLII–432
defining extent for, *DCL A-M*, DCLI–278, DCLI–288; *DCL N-Z*, DCLII–394, DCLII–433
defining quotas for batch job, *DCL N-Z*, DCLII–394
defining quotas for batch jobs, *DCL A-M*, DCLI–288; *DCL N-Z*, DCLII–198, DCLII–433
displaying
limit for process, *DCL N-Z*, DCLII–373
displaying quotas, *DCL N-Z*, DCLII–373
modifying default size, *DCL N-Z*, DCLII–245
specifying default
for detached processes, *DCL N-Z*, DCLII–66
for subprocesses, *DCL N-Z*, DCLII–66
specifying quotas, *DCL N-Z*, DCLII–63
Write check
with APPEND command, *DCL A-M*, DCLI–39
with COPY command, *DCL A-M*, DCLI–85
with INITIALIZE command, *DCL A-M*, DCLI–258
WRITE command, *DCL N-Z*, DCLII–449 to DCLII–451
Writing records to a file, *DCL N-Z*, DCLII–449