RSX–11M/M–PLUS
MCR Operations Manual

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RSX-11M/M-PLUS
MCR Operations Manual

Order No. AA-FD10A-TC

RSX-11M Version 4.2
RSX-11M-PLUS Version 3.0

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MANUAL OBJECTIVES

The RSX-11M/M-PLUS MCR Operations Manual provides you with the information you need to operate and control RSX-11M/M-PLUS systems. The Monitor Console Routine (MCR) serves as a terminal interface between you and your RSX-11M/M-PLUS operating system. This manual describes the basic concepts of MCR operation and shows you how to use MCR commands.

This manual identifies two basic types of users: privileged and nonprivileged. MCR provides privileged users with functions that control and modify system operation and permit program development and system maintenance. MCR provides nonprivileged users with functions that permit program development and private device and terminal maintenance.

INTENDED AUDIENCE

The RSX-11M/M-PLUS MCR Operations Manual does not attempt to train users. The manual assumes that the reader is familiar with both real-time and batch computer operating procedures. It also assumes that the reader has experience working with computer terminals and other hardware devices.

A user is broadly defined as anyone who interfaces directly with RSX-11M/M-PLUS to perform a task. This broad definition is assumed because of the many and varied settings to which RSX-11M/M-PLUS operating systems are applied.

RSX-11S is a compatible subset system of RSX-11M/M-PLUS. Thus, this manual can also be used as a reference document for RSX-11S.

STRUCTURE OF THIS MANUAL

Chapter 1 describes MCR and provides a summary of MCR commands.

Chapter 2 discusses basic concepts of the RSX-11M/M-PLUS file system (Files-11 file structure), and describes system conventions such as device and task naming conventions.

Chapter 3 provides a detailed description of each MCR command. The command descriptions are alphabetized according to the abbreviated forms of the command names.

Appendix A lists messages that are common to MCR commands, and messages from the Task Termination Notification Program (TKTN). The messages are listed in alphabetical order. Messages that are command-specific are described in the individual command descriptions.

ASSOCIATED MANUALS

Although the RSX-11M/M-PLUS MCR Operations Manual is primarily self-contained, the reader should be familiar with system generation options and features in order to fully understand this manual. For detailed descriptions of system generation, refer to the RSX-11M System Generation and Installation Guide or the RSX-11M-PLUS System Generation and Installation Guide.

CONVENTIONS USED IN THIS MANUAL

This manual observes the following conventions:

Convention	Meaning
(XXX)	A 1- to 3-character key symbol indicating that you press the corresponding key on the terminal. For example, (RET) indicates the RETURN key and (ESC) indicates the ESCAPE key.
(CTRL/a)	A symbol indicating that you are to perform a control key sequence; that is, you press the key labeled CTRL while you press another key simultaneously. For example, (CTRL/C) means that you hold down the CTRL key while you press the C key. The system displays control key sequences in the following manner: ^C or ^Z. Therefore, examples of terminal display in this manual show control key sequences as they are displayed on the terminal screen.
[ ]	Square brackets usually indicate optional entries in a command line or file specification. When you enter an option, you do not include the brackets.
	Square brackets are also part of the User Identification Code and User File Directory syntax (for example, [group,member] or [named]). When you use a UIC or a UFD (in a file specification, for example), you must include the brackets.
{ }	Braces indicate a choice of required entries for a command line. You can use any of the entries enclosed in the braces, but you must specify one of them.
SET	Uppercase letters and words indicate that you should enter the letter or word exactly as shown.
file name	Lowercase letters and words indicate that you are to substitute a word or value.
(base)	The base of a number is indicated in parentheses after the number. For example: 77777(octal), or 255(decimal).
red ink	Red ink in examples indicates input that you type at the terminal.
	Shaded text indicates that the documentation pertains to one operating system only.

Convention	Meaning
pink shading	Pink shading indicates that the text pertains to RSX-11M operating systems only.
gray shading	Gray shading indicates that the text pertains to RSX-11M-PLUS operating systems only.
blue ink	Blue ink in text indicates information that pertains only to RSX-11M-PLUS multiprocessor systems.

Summary of Technical Changes

This revision of the <u>RSX-11M/M-PLUS</u> <u>MCR</u> <u>Operations</u> <u>Manual</u> contains changes and additions made in Version 4.2 of the RSX-11M operating system, and Version 3.0 of the RSX-11M-PLUS operating system.

This summary has the following sections:

- New operating system features

- New or modified MCR commands

- New or modified MCR command keywords

NEW OPERATING SYSTEM FEATURES

Decimal version numbers

RSX-11M-PLUS operating systems only. Decimal version numbers in file specifications are now a system generation option for RSX-11M-PLUS operating systems. The system increments decimal version numbers in the same way as octal version numbers.

Default file protection

RSX-11M-PLUS operating systems only. You can now specify a default file protection code for all of the files that you create in your account. You can specify a protection code for each login session, or you can specify an ongoing protection code by entering the code into your LOGIN.CMD file.

Disk data caching

RSX-11M-PLUS operating systems only. Disk data caching is now a system generation option. If selected, you can enable data caching when mounting a disk. Data caching is a useful way of speeding up I/O operations on your system disk or on disks that are relatively slow in reading or writing data.

Logical names

RSX-11M-PLUS operating systems only. If extended logical name support is selected during system generation, RSX-11M-PLUS operating systems can support logical name assignments in addition to logical device assignments. You can assign logical names to physical devices, to file specifications, or to other logical names.

Named directories

RSX-11M-PLUS operating systems only. RSX-11M-PLUS operating systems now support named directories. Named directory support allows you to assign alphanumeric names to file directories.

Network Command Terminal (NCT)

If support for NCT was selected for your system during system generation, you can establish a remote connection from your terminal to other systems in a network.

Password encryption

RSX-11M-PLUS operating systems only. You can now set and reset your system account password, using as many as 39 alphanumeric characters. When you set a password, a new task called ...PSW is invoked. The task encrypts your password for added account protection.

Terminal characteristics

You can use the SET command with a variety of new keywords to control many of the characteristics of your terminal.

NEW OR MODIFIED MCR COMMANDS

ACD   RSX-11M-PLUS operating systems only. The ANCILLARY CONTROL DRIVER command is a new command. The ACD command loads and unloads character translation routines so that terminals that conform to other standards can use the DIGITAL Multinational Character Set.

ASN   RSX-11M-PLUS operating systems only. The ASSIGN command has been modified. On systems that select extended logical name support during system generation, the ASSIGN command can now make logical name assignments. Formerly, the ASSIGN command made only logical device assignments.

DEV   RSX-11M-PLUS operating systems only. The DEVICES command has been modified so that it can include a second line that displays the status of data caching, seek optimization, and overlapped seeks for a specified device.

DFL   RSX-11M-PLUS operating systems only. The DEFINE LOGICALS command is a new command. On systems that select extended logical name support during system generation, the DFL command defines, deletes, and displays logical name assignments.

NEW OR MODIFIED MCR COMMAND KEYWORDS

ASN   The ASSIGN command has the following new keywords:

/FINAL   RSX-11M-PLUS operating systems only. Specifies that the initial translation of a logical assignment by the system should be final.

/GROUP   RSX-11M-PLUS operating systems only. Specifies a logical assignment for all users with the same group number in their protection UIC.

HOM **INI**	The HOME and INITIALIZE VOLUME commands have the following new keyword:

/POS	RSX-11M-PLUS operating systems only. Writes a set of default values into the home block of an RX50 disk.

INS	The INSTALL command has the following new keywords:

/WB	RSX-11M-PLUS operating systems only. Specifies the file to which a read/write common should be checkpointed.
/FMAP	RSX-11M-PLUS operating systems only. Specifies that a task uses the fast-mapping feature of the Executive.

LOA	The LOAD command has the following new keyword:

/VEC	RSX-11M-PLUS operating systems only. Specifies that a device driver or extended executive partition (EXP) to be loaded is vectored.

MOU	The MOUNT command has the following modified keywords:

/FPRO	Specifies default file protection codes for files created on Files-11 magnetic tapes or disks. Formerly, this keyword applied only to disks.
/PRO	Specifies the default volume protection for Files-11 magnetic tape or disk volumes. Formerly, this keyword applied only to Files-11 disk volumes.

MOU	The MOUNT command also has the following new keyword:

/[NO]CACHE	RSX-11M-PLUS operating systems only. Enables, disables, or modifies disk data caching.

SET	The SET command has the following modified keyword:

/BUF	Sets the default buffer size of a specified device. The minimum default buffer size for devices other than terminals is now 14(decimal) characters. Formerly, the minimum size was one character. The minimum buffer size for terminals remains 16(decimal) characters.

SET	The SET command also has the following new keywords:

/[NO]ANSI	Informs the system whether a terminal supports ANSI standardized escape sequences.
/[NO]AVO	Enables or disables the advanced video option for a terminal.
/[NO]BLKMOD	Enables or disables local editing and block-mode transmission for a terminal.
/[NO]CACHE	RSX-11M-PLUS operating systems only. Enables or modifies data caching for a specified disk.

/[NO]DEC	Indicates whether the specified terminal is upwardly compatible with VT100-series terminals.
/DEF	RSX-11M-PLUS operating systems only. Sets your default device or directory, or both, to a location of your choice.
/[NO]DPRO	RSX-11M-PLUS operating systems only. /DPRO sets a default file protection code for all of the files that you create after issuing it. /NODPRO specifies that the default volume protection code is to be the default file protection code.
/[NO]EDIT	Indicates whether a terminal can perform ANSI-defined advanced editing functions.
/HOST	Sets a specified node as a host system. Executes only on systems that selected Network Command Terminal support during system generation.
/[NO]HSYNC	Enables or disables synchronization between a host system and a terminal. Enabling host synchronization prevents the typeahead buffer from overflowing.
/INQUIRE	Inquires what type a terminal is and then sets the standard terminal attributes for that type.
/NAMED	RSX-11M-PLUS systems only. Establishes named directory mode, which allows you to set your default directory as either a named or numeric directory.
/[NO]PARITY	Enables or disables parity generation and checking for a terminal.
/[NO]PASTHRU	Enables or disables the passing through of special characters. Enabling pass-through causes the system to ignore the standard functions of special characters. Instead, the system passes special characters through to a program in their binary form.
/PASSWORD	RSX-11M-PLUS operating systems only. Changes the password for your system account.
/[NO]PRINTER_PORT	Informs the system whether a terminal has a printer port.
/[NO]REGIS	Indicates whether a terminal supports the ReGIS graphics character set.
/[NO]SOFT	Indicates whether a terminal supports software-defined character sets.
/[NO]TTSYNC	Enables or disables terminal synchronization for a terminal. Enabling terminal synchronization allows control characters to stop and start output to your video screen.

UNL   The UNLOAD command has the following new keyword:

/VEC   RSX-11M-PLUS   operating   systems   only.
                            Specifies that a device driver or extended
                            executive partition (EXP) that is to be
                            unloaded is vectored.

CHAPTER 1

INTRODUCTION TO MCR

The Monitor Console Routine (MCR) serves as an interface between you and the RSX-11M/M-PLUS system. This chapter introduces you to MCR and provides a summary of the MCR commands.

Before trying to use MCR commands, be sure that your terminal is set to MCR. You can verify this by pressing CTRL/C. If your terminal is set to MCR, it will display the explicit MCR prompt (MCR>) when you press CTRL/C. Section 1.1.1 describes the explicit MCR prompt. If you want MCR to be the default command line interpreter for your terminal, have your system manager set this up for you in your account file.

1.1 MCR COMMAND LINES

To issue an MCR command, type a command line in response to a default prompt (>) or the explicit MCR prompt (MCR>). A command line consists of three components: a command name, command parameters, and a line terminator.

It is not necessary to type the entire command name when you issue a command. MCR uses only the first three letters of command names, except for the HELP command, which must be entered in full. You follow the command name with command parameters and a line terminator (the RETURN key).

For example, you can type the CANCEL command as follows:

    >CAN taskname (RET)

The variable taskname is a parameter for the CANCEL command. (RET) signifies the RETURN key, which is a line terminator. As in this example, you often type only the first three letters of a command name. However, some commands have 3-letter acronyms as command names. For example, the names for the ASSIGN and USER FILE DIRECTORY commands are ASN and UFD, respectively.

With most MCR commands, you can specify the full form of the command name, but this is unnecessary because MCR only uses the required first three letters. However, if you want to make the intent of the command clear to someone else, you can type the full command name. For example:

    >CANCEL taskname (RET)

A space or a tab signals the end of the command name; therefore, no spaces or tabs are allowed within the command name itself. For example:

>OPENREGISTER address

is permissible, while

>OPEN REGISTER address

is not.

Typically, a command parameter is a task name, the name of a file, or a device specification. A parameter can be modified by a keyword (see Section 1.1.2).

You press the RETURN key, the ALT key, or the ESC key to terminate a command line. MCR returns the default prompt after processing a command line that is terminated by the RETURN key. MCR suppresses the default prompt after processing a command line terminated by the ESC key, except when the ESC key has special significance as a terminator (as with the RUN and OPENREGISTER commands, for example). MCR then accepts subsequent unsolicited input even though the default prompt does not appear.

When MCR parses a command line, it normally compresses any multiple spaces and tabs, and treats character strings beginning with a semicolon (;) or an exclamation mark (!) as comments (see Section 1.1.3).

When you use quotation marks ("") in the command line, however, MCR parses the portion within the quotes exactly as you typed it. No compression occurs. This allows you to use special nonalphanumeric characters in your command line as well as American National Standard (ANSI) X.327-1978 file specifications, which permit embedded spaces.

If you use only one quotation mark in the command line, MCR assumes an ANSI file specification and does not compress the line past the quotation mark. (See Section 6.2 of the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual for more information on support for quotation marks.)

On RSX-11M-PLUS systems, you can also extend a command line by using a hyphen (-) immediately before the line terminator. Then, after you press RETURN, MCR returns the prompt "->" on the next display line. You can then enter the remainder of your command line. Extra command lines are called continuation command lines. You can enter any number of these continuation lines, but the total command line cannot exceed 255(decimal) characters. Command line continuation is useful when selected keywords or options cause a command line to exceed 80(decimal) characters.

For example, an RSX-11M-PLUS system would respond to the following command line typed over three lines in the same way as if the entire command had been typed on one line:

```
    >INI DK1:ICTSVOL2/UIC=[2,5]- RET
    ->/INDX=BEG-<RET>
    ->/FPRO=[RWED,RWE,RW,R] RET
```

Remember, however, that regardless of how many display lines you use to type a command, if the total number of characters in the command line exceeds 255(decimal), you will receive an error message and your command will not be processed. MCR does not display the error message until after you press the RETURN key to end the final line of the command.

1.1.1 The MCR Prompt

MCR uses three kinds of prompts to indicate that a terminal is waiting for your input: the default prompt, task prompts, and the explicit MCR prompt. The default prompt and task prompts are described more fully in Chapter 2.

A terminal sends MCR any input that you type in response to the explicit MCR prompt (MCR>). For example:

    MCR>command-input

You invoke the explicit MCR prompt by pressing the CTRL key and the C key simultaneously (this is written as CTRL/C).

However, in special cases, pressing CTRL/C will not invoke the MCR prompt. The second item in the following list describes one such case. Also, the description of CTRL/C in Table 2-2 describes two other situations in which CTRL/C does not invoke the explicit MCR prompt.

The following list explains various ways that you can invoke the explicit MCR prompt:

1. When a terminal is displaying the default prompt (>), there is no guarantee that input typed in response to this prompt will be directed to MCR because another task may have attached to the terminal. To ensure that MCR does receive the input, press CTRL/C to invoke the MCR prompt. After MCR processes the command line, the terminal will again display the default prompt.

2. When a terminal is displaying a task prompt (tsk>), you can invoke MCR by pressing CTRL/C. After (or while) MCR processes the command line, the terminal will display the original task prompt.

    If you requested MCR to display information (with the TIME command, for example) and it is not displayed before the task prompt appears, press the RETURN key. This will display the information and then the original task prompt. Also press the RETURN key if you would like to know whether MCR processed the command line or if it returned an error message.

                                NOTE

            If an attached task specifies an asynchronous
            system trap (AST) upon receiving unsolicited
            input, CTRL/C causes an AST to occur, and
            therefore, pressing CTRL/C gains the task's
            attention rather than MCR's. Consequently,
            the MCR prompt does not appear.

3. When any terminal is receiving output from a task, you can interrupt the output by pressing CTRL/C. At the completion of the current I/O operation, the terminal displays the explicit MCR prompt. After MCR processes the command line directed to it, the system resumes the interrupted output.

In all three cases, if the command line invokes a task, the task will issue its own prompt. You can respond to this prompt with another CTRL/C, which invokes the MCR prompt. You can then request another task that issues its own prompt and so on. (Note that because CTRL/C does not abort the task that was active when you typed the CTRL/C, it is possible to have several tasks active at your terminal concurrently.)

1.1.2 Keywords

Some of the MCR commands use keywords that affect a command parameter. Keywords are similar in function to switches (see Section 2.2). A keyword consists of a slash (/) followed by the keyword. A keyword may be followed by an optional equal sign (=) and value. For example:

    /keyword[=value]

A keyword modifies the action of a command. You can apply a keyword directly to the command or to a command parameter, depending on the command. If the keyword follows the command name, it modifies the action of the command. If the keyword follows a parameter, it modifies the action of the parameter.

For example, the INSTALL command requires a filename parameter that specifies the task to be installed. You can append keywords to this file name. One such keyword, /TASK, specifies the name under which the task is to be installed. For example:

    INS BOB.TSK/TASK=AMBER (RET)

This command installs the task image file BOB.TSK with the name AMBER. When you want to use the task, you invoke it with the name AMBER.

If you want to specify multiple keywords with a command, you can enter the keywords in any order. Also, because keywords are command-specific, the keywords for each command are defined in each command description (see Chapter 3).

1.1.3 Comments

MCR treats a line of text as a comment if the first character in the line is a semicolon (;). In addition, you can delimit comments within a command line by using an exclamation point (!). The first exclamation point starts the comment and the second point or line terminator ends the comment. MCR ignores all text between the two exclamation points. For example:

    >; THIS LINE IS A COMMENT

    >TAL !THIS IS A COMMENT STRING! RMDEMO

Comments are especially useful to clarify commands in indirect command files.

If a semicolon or exclamation point is part of a command line, you must place these characters within quotation marks (see Section 1.1).

1.2 THE MCR INTERFACE

MCR parses your typed input to determine what the command line is requesting and then responds accordingly. To service a request, MCR either uses an MCR overlay or activates an independent task.

The required three letters of the command name are the most significant part of a command line. MCR uses the command name to determine the necessary overlay or task. The following procedures detail how MCR activates the appropriate overlay or task to service each command:

1. MCR searches a table containing names of commands that MCR services. If the table contains a command that matches the one you have typed, MCR either loads the corresponding overlay or starts the secondary task (...MCR), which invokes the correct overlay. Then the overlay processes the command line. (On single-user RSX-11M systems, all commands are serviced by MCR..., which is the primary MCR task. There is no secondary MCR task.)

2. If the table does not contain a matching command, MCR prefixes three dots (...) to the command name and searches the System Task Directory (STD) for a task by that name (that is, ...tsk). MCR returns an error if the STD does not contain the specified task.

On RSX-11M systems, MCR displays a "Task active" message if ...tsk is already active at the terminal. If the STD contains ...tsk and it is not running at the issuing terminal, MCR responds conditionally in one of two ways:

- If ...tsk is not active, MCR requests the Executive to run the task at the issuing terminal.

- If ...tsk is active, MCR creates a temporary STD entry that points to the active task's disk image. MCR names the temporary task tskTnn, where nn is the unit number of the terminal that issued the command. If task tskTnn is already installed, MCR requests the Executive to run that version of the task at the issuing terminal. When tskTnn exits, the Executive automatically deletes its STD entry.

On RSX-11M-PLUS systems, MCR first looks for an installed version of tskTnn and requests the Executive to run it. If one does not exist, MCR creates a temporary STD entry, names the task tskTnn, and requests the Executive to run the task. When tskTnn exits, the Executive automatically deletes its STD entry.

1.3 MCR COMMAND SUMMARY

The MCR commands described in Chapter 3 are listed here by category. This command summary provides a compact overview of the facilities available at your terminal. Commands followed by (NP) are available to all users. Commands followed by (P) are available only to privileged users. Commands followed by (NP,P) are nonprivileged commands with privileged options. Commands followed by (P,NP) are privileged commands with nonprivileged options.

Initialization Commands

ACD (P,NP)   Loads and unloads character translation routines.

ACS (P)   Allocates or discontinues the use of a checkpoint file on disk.

ASN (NP,P)   Defines or deletes a logical device assignment. Displays current assignments on your terminal. Defines, deletes, or displays logical name assignments in addition to logical device assignments on RSX-11M-PLUS operating systems that support extended logical name support.

BOOT (P)   Bootstraps a new system into memory and transfers control to it.

DFL (NP,P)   Defines or deletes a logical name assignment. Displays current assignments on your terminal. (Executes only on RSX-11M-PLUS operating systems that select extended logical name support during system generation.)

DMOUNT (NP,P)   Dismounts a volume by marking the volume for dismount and releasing its control blocks (complement of MOUNT).

FLAGS (NP,P)   Creates, displays, or eliminates group global event flags.

HOME (NP,P)   Alters the values contained in various fields of the home block of a Files-11 disk volume.

INITVOLUME (NP)   Initializes a disk, DECtape, or magnetic tape to produce a Files-11 volume.

INSTALL (P)   Installs a task in the system.

LOAD (P)   Loads a nonresident device driver into memory.

MOUNT (NP,P)   Mounts a volume by creating its control blocks and making the volume accessible to the file system.

REDIRECT (P)   Redirects all I/O requests from one physical device to another.

SET (NP,P)   Alters or displays system, device, or task characteristics.

TIME (NP,P)   Enters the time and date into the system. Displays the time and date on your terminal.

UFD (NP,P)   Creates a User File Directory (UFD) in a Master File Directory (MFD) on a Files-11 volume.

Informational Commands

ACT (NP)	Displays on your terminal the names of active tasks that were requested from that terminal.
ATL (NP)	Displays on your terminal the names and status information for active tasks.
CBD (NP)	RSX-11M-PLUS systems only. Displays on your terminal the names and status information for entries in the Common Block Directory.
CLQUEUE (NP)	Displays on your terminal information about tasks in the clock queue.
DEVICES (NP)	Displays on your terminal information about peripheral devices recognized by the system.
LUNS (NP)	Displays on your terminal the list of static logical unit number (LUN) assignments for a specific task.
PARTITIONS (NP)	Displays on your terminal a description of each partition in memory.
TAL (NP)	Displays on your terminal the names and status of all tasks in the system or the name and status of a specific task.
TASKLIST (NP)	Displays on your terminal a description of each installed task.

Task Control Commands

ABORT (NP,P)	Terminates execution of a running task.
ALTER (P)	Alters the priority of a task.
BLOCK (NP,P)	Blocks a task.
CANCEL (NP,P)	Cancels time-based initiation requests for a task (no effect on current execution).
DEBUG (NP,P)	RSX-11M-PLUS systems only. Forces a task to trap to a debugging aid.
FIX (P)	Fixes a task in a partition in memory (the task becomes memory-resident).
REASSIGN (P)	Changes logical unit number (LUN) assignments for a task.
REMOVE (P)	Removes a task from the system (complement of INSTALL).
RESUME (NP,P)	Resumes execution of a task that had suspended itself.
RUN (NP,P)	Initiates the execution of a task. The task may run immediately, after a time delay, or in synchronization with the system clock. Periodic rescheduling is optional.

UNBLK (NP,P)   Unblocks a previously blocked task (complement of BLOCK).

UNFIX (P)   Makes a memory-resident task nonresident (complement of FIX).

UNLOAD (P)   Removes a loadable device driver from memory (complement of LOAD).

UNSTOP (NP,P)   Resumes execution of a task that has been stopped internally by the Executive.

System Maintenance Commands

BRK (P)   Passes control to the Executive Debugging Tool (XDT). Valid only for systems that have generated XDT support.

OPEN (P)   Displays on the entering terminal the contents of a memory location for examination or modification.

SAVE (P)   Copies the current system image into the system image file from which the system was booted.

SSM (P)   Inserts text into the error log file.

SWR (P)   RSX-11M-PLUS multiprocessing systems only. Displays the current value of, or sets or clears a bit in the switch register.

Multiuser Protection Commands

ALLOCATE (NP,P)   Allocates a device to a user (reserves the device as the user's private device).

BRO (NP,P)   Broadcasts a message to a terminal or terminals.

BYE (NP)   Logs out of the system.

DEALLOCATE (NP,P)   Deallocates a private (allocated) device (complement of ALLOCATE).

HELLO or
 LOGIN (NP)   Logs in on the system.

HELP (NP)   Displays the contents of a help file.

Command Line Interpreter Commands

CLI (P,NP)   Allows usage of a command line interpreter (CLI) other than MCR.

DCL (NP)   Permits a DIGITAL Command Language (DCL) command to be issued from a terminal set to MCR.

CHAPTER 2

SYSTEM CONVENTIONS

This chapter discusses system conventions including basic concepts of the RSX-11M/M-PLUS Files-11 file system and those aspects of file handling that directly relate to user functions. Additionally, this chapter discusses devices, terminals, and tasks. The last section of this chapter briefly describes the Account File Maintenance Program (ACNT).

2.1 FILES-11

RSX-11M/M-PLUS includes a volume-structure system called Files-11 to oversee the storage and handling of files. In RSX-11M/M-PLUS, a file is an owner-named area on a volume, and a volume is a medium such as a disk, a DECtape, or a magnetic tape. Two RSX-11M/M-PLUS utilities and three MCR commands help you to prepare volumes for use with Files-11:

- Disk Volume Formatter Utility (FMT)

- Bad Block Locator Utility (BAD)

- INITIALIZE VOLUME (INI)

- MOUNT (MOU)

- USER FILE DIRECTORY (UFD)

The utilities are described in the RSX-11M/M-PLUS Utilities Manual. The commands are described in Chapter 3 of this manual.

Files-11 supports three types of specially formatted volumes: disks, DECtapes, and magnetic tapes. (Files-11 magnetic tapes conform to the American National Standard X3.27-1978.)

For a volume to become a Files-11 volume, you must initialize it with the INI command. A volume that has not been initialized by INI is a "foreign" volume. Foreign volumes are treated differently by RSX-11M and RSX-11M-PLUS systems.

On RSX-11M systems, foreign volumes do not have to be mounted for you to work with them (although it is better for protection purposes if they are mounted).

On RSX-11M-PLUS systems, foreign volumes must be mounted as foreign (with the MOUNT /FOR command).

A system utility, the File Transfer Utility Program (FLX), allows you to access foreign volumes in DIGITAL's DOS-11 or RT-11 format. FLX translates files on such volumes into Files-11 format. In most cases, a DECtape will have a foreign format and, therefore, requires the use of the FLX utility. See the RSX-11M/M-PLUS Utilities Manual for a full description of FLX.

Before Files-11 can access a file, the volume that contains the file must be known to the system. You make a Files-11 volume known to the system by issuing the MOUNT command for the device on which the volume is loaded.

2.1.1 File Ownership and Directories

When you create a file, the system places the file name in a User File Directory (UFD) and stores your current User Identification Code (UIC; see Section 2.2.1) in the file header to indicate that you are the owner of the file. In most cases, the UFD corresponds to your UIC, but a file can be listed in a UFD that is not related to your UIC. It is also possible for your file to be listed simultaneously in more than one UFD. (The files will have different file IDs.)

Each user has a default UFD corresponding to his or her UIC. The UFD is on a default system device (SY:), which is specified by the system manager when the user's account is created.

A UFD is itself a file, which you must explicitly create by means of the MCR UFD command (see Chapter 3). You specify a UFD in the format [g,m] where g and m are octal numbers between 1 and 377 (0 is reserved). These numbers represent the file owner's group and member numbers, respectively. The actual name of the UFD is a concatenation of the group and member numbers, terminated by .DIR. For example, the name of the directory that corresponds to the UFD [203,65] is 203065.DIR. (Note that leading zeros are added to the UFD so that g and m are each three digits long.)

All UFDs on a volume are listed in the volume's Master File Directory (MFD), which corresponds to UFD [0,0] and is therefore named 000000.DIR. The directories (the UFDs and the MFD) list the names of files and contain pointers to each file's header. The file header contains information about the file's owner and the physical location of the file segments; the header occupies one or more blocks of the volume's index file ([0,0]INDEXF.SYS).

To delete a UFD, you can use the Peripheral Interchange Program (PIP) to first delete all of the files contained in the UFD (thereby freeing the space for future use) by typing:

    PIP>[g,m]*.*;*/DE (RET)

After you delete all the files, use PIP to delete the UFD by typing:

    PIP>[0,0]gggmmm.DIR;*/DE (RET)

The variable gggmmm is the concatenation of the group and member number components of the appropriate UFD.

Refer to the RSX-11M/M-PLUS Utilities Manual for a detailed description of PIP.

2.1.2 File Protection

To access a file, you must know the UFD in which it is located. However, knowing the location of a file does not guarantee access to it. You must also satisfy the conditions that are specified in a protection mask associated with the file you wish to access. The volume that contains the file must be mounted before the file system can access the file.

Every file has a protection mask that describes the types of access allowed to each of four user classes. RSX-11M/M-PLUS systems allow the following four types of access:

Read   The user, or the user's task, may read, copy, print, or type the file, and, if it is a task, run it.

Write   The user, or the user's task, may add, delete, or modify data in the file by writing to space already allocated to the file.

Extend   The user, or the user's task, may change the amount of disk space allocated to the file.

Delete   The user, or the user's task, may delete the file.

Users are categorized by UIC into the following four classes:

System   The operating system itself and privileged users (those having group numbers of 10(octal) or less).

Owner   The user having the same UIC as the one the file was created under.

Group   All users having the same group number as the one the file was created under.

World   All users.

A file owner assigns access rights by one of the following means:

INI   Allows you to specify a default file protection code for all files subsequently created on the initialized volume.

UFD   Establishes access rights to a UFD file only. A user often allows read access to a UFD but denies write, extend, or delete access to the files listed within it.

MOUNT   Allows you, while mounting a volume, to specify the default file protection to be assigned to files created on the volume. This protection overrides the protection established with the INI command.

SET   Allows you, when you use the /DPRO keyword, to specify a default protection code for all files that you subsequently create under your UIC.

PIP   Has an option that enables you to alter access rights to your files.

To gain access to a file, a user must satisfy the protection mask of both the file to be accessed and the UFD in which the file is listed. For example, to write to an existing file, you need at least read access to the UFD and write access to the file. To create a new file, you need both write and extend access to the UFD.

2.2 FILE SPECIFICATIONS

MCR uses a standard format for specifying files in a command line. The format is a string that consists of one or more input and output file specifications, as follows:

File specification>output outfile1...,outfilen=infile1...,infilen

The variable outfile is an output file specification and infile is an input file specification. The ellipsis mark (...) indicates that you may include any number of file specifications in the string. The number of file specifications is determined by the receiving command or task. The command line (the line of file specifications plus the task or command name) cannot exceed 80 characters. (On half-duplex terminals, the command line cannot exceed the maximum buffer size set for your terminal.)

On RSX-11M-PLUS systems, you can extend a command line by including a hyphen (-) immediately before the line terminator (the RETURN, ESC, or ALT keys). An extended command line is called a continuation command line. You can continue a command line over an unlimited number of display lines, but the total number of characters in a command line cannot exceed 255 (decimal) characters. If you try to enter a command line with more than 255 characters, you will receive an error message, but not until after you terminate the last continued line.

Some commands and tasks may not require the outfile portion. When it is omitted, you might also be able to omit the equal sign (=).

The individual file specifications (whether input or output) have the following format:

ddnn:[g,m]filename.type;version/switch1.../switchn

ddnn:

Specifies the physical or logical device unit on which the volume containing the file resides. The device unit is expressed as: a 2-character alphabetic device name; an optional 1-, 2-, or 3-digit octal unit number; and a colon (for example, TT104: or LP1:). If you do not specify a unit number, the default number is 0. The default device is your system device (SY:).

[g,m] (or [directory])

Specifies the directory in which the file is located. The variables g and m are octal numbers between 1 and 377 that represent the file owner's group and member numbers, respectively.

On RSX-11M-PLUS operating systems, the alphanumeric [directory] is 1 to 9 characters in length and can consist of any combination of the 26 letters A through Z and/or the digits 0 through 9 (for example, [MYDIR] or [DIRECTNO2]). You can also use the 6-digit equivalent for [g,m]. For example, [303024] is the same as [303,24].

Square brackets are a mandatory part of the directory syntax; thus, they are required for all directories.

filename

Specifies the name of the file, an alphanumeric string from 0 to 9 characters long (there are exceptions to this, depending on the

particular program on which you are working). A period always separates the file name from the file type. You must specify the file name. No default is applied.

If you want to include special characters in the file name (for example, semicolons [;], or exclamation marks [!]), place quotation marks ("") around the name. That way, MCR will parse the name exactly as you typed it. ANSI file names for use with files on ANSI magnetic tapes can contain special characters that are unacceptable in normal Files-11 file names. Therefore, you use quotation marks to enclose ANSI filenames that include special characters. If you use only one double quotation mark ("), MCR assumes that the rest of the line is an ANSI magnetic tape file name and parses the name as such. (See Section 1.1 for more information on using quotation marks.)

type

Consists of an alphanumeric mnemonic from 1 to 3 characters long that identifies the nature of the file's contents (the file type can also be null). For example, .FTN indicates that the file contains a FORTRAN source program and .OBJ indicates that the contents are object (compiled) code. If you do not specify a file type, MCR may assign a default file type. Some conventional and default RSX-11M/M-PLUS file types are listed in Section 2.2.4. A semicolon (;) always separates the file type from the version number.

version

On RSX-11M systems, the version number consists of an octal number between 1 and 77777 that distinguishes various versions of a file. For example, when a file is created, the system assigns it a version number of 1 by default. Thereafter, each time the file is opened, unless you specify otherwise, the file system creates a new file with the same file name and file type, but with a version number that is increased by one. Note that if a file has a version number of 77777, no further versions of the file can be created.

On RSX-11M-PLUS systems, if support for decimal version numbers was selected during system generation, the version number is a decimal number between 1 and 32,767. In this case, the system increments decimal version numbers in the same way as octal version numbers. Conversely, if support for decimal version numbers was not selected during system generation, version numbers remain octal numbers between 1 and 77777.

The numbers -1 and 0 have special significance: -1 implies the lowest existing version of a file and 0 implies the highest existing version. If you omit the version number when you enter a file specification, the default version is the version with the highest version number.

/switch (or /keyword)

Consists of an ASCII name that identifies a task or command option. Options generally modify the task's function in some way or provide information that the task needs in order to respond correctly to the command line.

The switch can be in one of three forms:

/sw   Sets the switch action

/-sw   Negates the switch action

/NOsw   Negates the switch action

The number of values permitted and the interpretation of a switch depend on the task to which the switch is directed.

You can also modify switches with arguments. These arguments may be ASCII strings, octal numbers, or decimal numbers. The following rules apply:

● Numbers terminated by a decimal point (.) are decimal.

● Numbers preceded by a pound sign (#) are octal.

● Whether the default for a numeric value is octal or decimal depends on the command or task to which the switch is directed and on the switch itself.

● You can precede any numeric value by a plus (+) or minus (-) sign; plus is the default.

● A plus or minus sign, if present, must precede the pound sign (#) of an explicit octal number (for example, -#323).

2.2.1 User Identification Codes (UICs)

On RSX-11M systems that do not support multiuser protection, each terminal has, at any one time, one User Identification Code (UIC). A terminal's associated UIC is determined by the last SET /UIC command issued for the terminal, or is [200,200] if the terminal's UIC has not been altered since system generation.

The system uses the current UIC of the issuing terminal whenever you omit the UIC field of a file specification. The system also checks this UIC against the protection mask of any file that you want to access; the check determines whether you have access rights to the file (see Section 2.1.2).

On multiuser protection systems, a terminal has two UICs: a protection UIC and a default UIC. The system checks the protection UIC against a file's protection mask to determine a user's access rights to the file. The default UIC determines the UFD of the file to be accessed whenever you omit the UIC field in the file specification. (See Section 2.1.1 for more information on UFDs.)

How the system sets these two UICs depends on the privilege status of the user logged in at the terminal. When a nonprivileged user logs in, the terminal assumes the user's login UIC as its protection UIC. The login UIC also becomes the initial default UIC for the terminal. You can issue the SET /UIC command to alter the default UIC, but the protection (login) UIC remains unchanged.

When a privileged user logs in, the terminal also assumes the login UIC as the protection and default UICs. However, when you issue the SET /UIC command, the system alters both of these UICs instead of just the default UIC. Because the protection UIC is also changed, the system no longer knows your login UIC. (This does not apply to RSX-11M-PLUS systems on which Resource Accounting is active because the accounting system keeps a record of every user's login UIC.)

2.2.2 Wildcards

A wildcard character is an asterisk (*) or a percent sign (%) that you can use in the place of all or part of a file specification in a command line. A wildcard causes the system to ignore the contents of the wild field and to select all the files that satisfy the remaining explicitly specified fields.

Asterisk wildcards (*) can be used in any part of the file specification except the device-unit field, which must be explicitly supplied or defaulted to SY: (see Section 2.2.3). The following examples illustrate the advantage of using the asterisk wildcard:

    PIP>PROG.MAC;1,PROG.OBJ;1,PROG.TSK;1/DE (RET)

This command line deletes the three individual files specified. (The /DE switch instructs PIP to delete the files.) Since the three files have the same file name and version number, but different types, the following command line would delete the same files:

    PIP>PROG.*;1/DE (RET)

This command line also deletes any other files (on the default device in the default UFD) named PROG with a version number of 1. You should check existing files before using wildcards (for example, by issuing the command line PIP>PROG.*;1/LI).

2.2.3 File Specification Defaults

You can omit any field in a command line file specification except the file name (the BOOT command, which is described in Chapter 3, is the only exception to this rule). When you omit one or more fields in a file specification, the system assumes the following defaults:

Field	Default
ddnn:	The pseudo device unit SY:. There are two exceptions to this default:
	1. The BOOT command defaults to device LB:.
	2. The specification of a dollar sign ($) in the INSTALL and RUN command lines defaults to device LB: (see Chapter 3).
[g,m]	The default directory (see Section 2.2.1) specified for each terminal in one of the following ways:
	1. At system generation (see the RSX-11M or RSX-11M-PLUS System Generation and Installation Guide)
	2. By means of the SET command (see Chapter 3)
	3. By means of the HELLO command (see Chapter 3)
filename	No default (except for the BOOT command). A file specification must include either a file name or a wildcard in the filename field (see Section 2.2.2).

Field	Default
type	A 1- to 3-character alphanumeric mnemonic; one of the file types listed in Section 2.2.4; or null. Default types depend on the task to which the specification is directed and whether the specification refers to an input or an output file. For example, the FORTRAN compiler defaults the type of an input file to .FTN and the type of an output file to .OBJ.
version	For input files, the highest existing version number.
	For output files, the highest existing version number plus 1.
/switch	Switch defaults are established by individual tasks and commands.

2.2.4 Conventional and Default File Types

RSX-11M/M-PLUS has a set of conventional and default file types used to reflect the contents of a file. (The defaults used by DIGITAL-supplied software are described in the manuals that pertain to the individual programs.) Although you can assign your own 3-character file types, it is convenient to use the following types:

Type	File Contents
BAS	BASIC-11 language source program (default)
BAT	Batch file (default)
B2S	BASIC-PLUS-2 source program (default)
CBL	COBOL language source program (default)
CLB	Indirect command file library (default)
CMD	MCR or task commands (an indirect command file; default)
COR	SLP correction file (convention; must be specified)
DAT	Data (as opposed to a program; convention; must be specified)
DIR	Directory (for example, a User File Directory; default)
FTN	FORTRAN IV, FORTRAN IV-PLUS, and FORTRAN-77 language source program (default)
LOG	Log of batch processing session (default)
LST	Listing file (default)
MAC	MACRO-11 source program (default)
MAP	Task Builder memory allocation map (default)
MLB	Macro library (default)

Type	File Contents
OBJ	Object program (output from the MACRO-11 Assembler or a compiler; default)
ODL	Task Builder overlay description (default)
OLB	Object module library (default)
PAT	Correction file used by assembler to create a patched object module (convention; must be specified)
POB	Patched object module input file used by the PAT utility (convention; must be specified)
SML	System macro library (default)
STB	Symbol table (default)
SYS	Bootable system image (default)
TMP	Temporary file (convention; must be specified)
TSK	Task image (default)
TXT	Text file (convention; must be specified)
ULB	Universal library file (default)

2.2.5 Examples of File Specifications

In the following examples, the three letters that identify the task, followed by a right-angle bracket, are the standard task prompts for the respective system programs (for example, PIP>).

- Assemble the MACRO-11 source file CRGPT.MAC and create the object output file CRGPT.OBJ. UFD [200,200] on device DM0: is specified for both files.

    MAC>DM0:[200,200]CRGPT.OBJ=DM0:[200,200]CRGPT.MAC (RET)

- Delete the file SBG.OBJ;5. The output file specification is not applicable and therefore is omitted. The input device defaults to SY:.

    PIP>[200,200]SBG.OBJ;5/DE (RET)

- Task build the object file CRGPT.OBJ. (.OBJ is the default file type for object files.) The output file will be named CRGPT.TSK because .TSK is the default file type for the Task Builder's output file. The device and UFD are also defaulted.

    TKB>CRGPT=CRGPT (RET)

- Delete all files with the name TESTDAT, regardless of type or version. The system uses default values for the device and UFD.

    PIP>TESTDAT.*;*/DE (RET)

2.3 DEVICES

A primary function of the operating system is to manage all connected peripheral devices and thereby maintain efficient system performance. Peripheral devices are the actual hardware elements that make up the computer system. During system generation, the system manager explicitly describes all peripheral devices attached to the system. Devices within multiuser protection systems are subject to a special set of MCR functions (see Section 2.3.5).

Each device has a unique identifier. The identifier consists of two alphabetic characters that form a logical device name (see Section 2.3.4) and an optional unit number of up to three octal digits followed by a colon (:). If you omit the optional octal unit number, the system defaults to unit number 0.

See the RSX-11M System Generation and Installation Guide or the RSX-11M-PLUS System Generation and Installation Guide for a list of the peripheral devices supported by the respective operating system.

2.3.1 Logical Unit Numbers

A task performs I/O operations using logical units identified by numbers, called logical unit numbers (LUNs), rather than using specific device units. You assign a LUN to a specific device before the task actively uses the LUN. You can make the LUN assignment at one of three times:

1. At task-build time

2. From within the task at run time using the ALUN$ Executive directive

3. With the REASSIGN command after the task has been installed and while it is dormant

Refer to the RSX-11M/M-PLUS I/O Drivers Reference Manual or the appropriate language user's guide for more information about logical unit numbers.

2.3.2 Pseudo Devices

A pseudo device is a device unit name that usually corresponds to a real physical device. This association is declared through the commands ASSIGN and REDIRECT. Pseudo devices provide a shorthand method for referencing the physical devices (for example, the pseudo device name SY: refers to the user's system device). Table 2-1 lists some of the RSX-11M/M-PLUS pseudo devices.

Table 2-1
Pseudo Devices

Pseudo Device	Name
Console listing device	CL:
Console output device	CO:

(Continued on next page)

Table 2-1 (Cont.)
Pseudo Devices

Pseudo Device	Name
System library device	LB:
Terminal input/output device	TI:
User's system device	SY:
Spooling device (RSX-11M-PLUS only)	SP:

In a given task, LUN 1 may be assigned to CL:, the console listing device. When the task references LUN 1, the data is sent to whatever device CL: has been redirected to. You can redirect CL: to any appropriate device (a line printer or a terminal, for example) without affecting the task's execution.

A pseudo device redirected to a terminal assumes the privilege status of the terminal to which it is redirected. If the terminal is privileged, CL: becomes privileged when it is redirected to that terminal. But if CL: is subsequently redirected to a nonprivileged terminal, it will also become nonprivileged.

The normal procedure is to redirect the console output device (CO:) to the main operator's terminal and CL: to the line printer. The system automatically redirects TI:, the most commonly used pseudo device, depending on how a task has been activated:

- When you issue the RUN command to activate a task immediately, the system redirects the TI: for that task to your terminal.

- If, in a task, the Executive directives RQST$ or SPWN$ activate another task, that task's TI: defaults to the TI: of the task that issued the directive. A privileged task can specify an alternate TI: for the activated task.

- If the Executive enters a task into the clock queue for activation after a specified interval, the task's TI: defaults to CO:. (Both the RUN command and the Executive directive RUN$ allow a task to be activated at a specified interval from the time the command or directive was issued.)

2.3.3 The Null Device

Program testing often requires an available input or output device. The null device (NL:) can be used for either of these purposes. NL: is neither a pseudo nor a physical device, but, most of the time, it is considered to be a pseudo device.

When a task reads from NL:, NL: returns the code for end-of-file (IE.EOF). When a task writes to NL:, NL: returns the code for success (IS.SUC) but discards the output. As an example, if you are testing a program that normally generates large amounts of printout, you can assign the appropriate LUN to NL: rather than wasting paper or disk space.

2.3.4 Logical Device Names and Logical Names

Logical device names are a system generation option on RSX-11M systems.

Logical device names are included on RSX-11M-PLUS systems.

Logical device names provide another means by which tasks can maintain device independence. A logical device name has the same syntax as a physical device unit. This syntax consists of a 2-letter ASCII name, and an optional unit number of one or two octal digits followed by a colon (:). The name can either be equivalent to a standard RSX-11M/M-PLUS device name (for example, DM:) or it can consist of two letters picked at random (for example, ZZ:). Before you run a task that refers to a logical device rather than a physical device, you must issue the ASSIGN command to associate the logical device name the task uses with a physical device unit (see Chapter 3).

NOTE

The names II: and RD: are used by DIGITAL software. Using these names as logical device names could produce undesirable results.

In addition to logical device assignments, RSX-11M-PLUS operating systems that select extended logical name support during system generation can create and delete logical name assignments. You can assign logical names to file specifications and to other logical names. You can have as many as ten levels of logical assignments. The ASSIGN and DEFINE LOGICALS command descriptions in Chapter 3 provide detailed explanations of logical name assignments.

The term "logical assignments" can apply to either logical device or logical name assignments. There are five types of logical assignments on RSX-11M/M-PLUS operating systems: task assignments, global assignments, group assignments, local assignments, and login assignments.

- Task assignments apply to an individual task and are deleted when the task has completed executing.

- Local assignments apply only to tasks initiated from the terminal used to make the assignments. Any terminal can define or delete its own set of local assignments.

- Login assignments apply only to systems that support multiuser protection. When a user issues the HELLO (or LOGIN) command to log in to the system, the system automatically establishes one or more login logical device assignments. The login assignments apply only to tasks initiated from the terminal while the current user is logged in. Only privileged users can define or delete login assignments.

- Group assignments apply to tasks run by users who have a common group number in their User Identification Code (UIC).

- Global assignments apply to all tasks running in the system.

The system uses logical assignments in the following order: task, local, login, group, and global. If you make a local assignment using a logical name that is already used in a login assignment, the system uses the local assignment. When you delete the local assignment, the system resumes using the login assignment.

Also, the Executive sets up a logical device table that records all logical device assignments and notes whether each assignment is local, login, group, or global. The Executive then searches the logical device table before the physical device table every time a task refers to a device. Thus, a logical name found in the logical device table receives precedence over a physical device unit that has the same identifier.

2.3.5 Public, Private, and Unowned Devices

Systems that support multiuser protection impose special characteristics on devices. Devices can be public, private, or unowned. These characteristics are defined as follows:

- A public device is a device that anyone logged into the system can use. A privileged user can make a device public by issuing the SET /PUB command. If a privileged user mounts a volume on a public device, all system users can access files on the volume without having to mount the volume themselves (depending on the volume and file protection specified for the volume). A public device cannot be allocated and can only be dismounted by a privileged user with the DISMOUNT /DEV command. (See Chapter 3 for descriptions of the MOUNT, DISMOUNT, and SET commands.)

- A private device is a device that a user has allocated by means of the ALLOCATE command. Only privileged users and the owner of a private device can access the device for use within the Files-11 file system. If a nonprivileged user allocates a device and mounts a volume on the device, other nonprivileged users cannot access the volume; privileged users can access the volume by issuing a MOUNT command.

- An unowned device is a device that is neither public nor private. If a user, either privileged or nonprivileged, mounts a volume on an unowned device, all other users can issue subsequent MOUNT commands and thus access the volume.

Nonprivileged users can allocate and mount a volume on an unowned device, and privileged users can also make an unowned device public.

A privileged user can designate any device in the system as a public device. The devices most commonly made public are the system disk (by default) and the system library device.

The ALLOCATE command (see Chapter 3) makes an unowned device private to the user issuing the command. Allocating a device prevents any other nonprivileged user from accessing the device. (Privileged users can override a nonprivileged allocation.) When a user accesses a device without allocating it, other users can then access and/or allocate that device.

The DEALLOCATE command (see Chapter 3) changes a private device back to an unowned device, thereby allowing other users to gain access to it. Privileged users can deallocate any private device regardless of who owns it. Nonprivileged users can deallocate only their own private devices. When a user logs out, the system automatically dismounts and deallocates any private devices belonging to that user. For efficient use of system resources, however, users should deallocate devices as soon as the devices are no longer needed.

RSX-11M grants specific tasks, such as BAD and INI, access to unmounted volumes.

RSX-11M-PLUS does not permit any type of access to unmounted volumes. To access a volume on a physical device in an RSX-11M-PLUS system, you must first issue the MOUNT command. If a volume is not formatted or is in a format other than Files-11, you must mount the volume as foreign with the /FOR keyword.

2.4 TERMINALS

The terminal is the primary means of communication between the user and the computer system. Each terminal in a system has a number associated with it, which is displayed when you log in. You can also refer to any terminal that you use as TI:, and you can work from more than one terminal at the same time.

In RSX-11M/M-PLUS, several terminals can operate concurrently. Each terminal operates independently of others in the system so that each can run tasks at the same time. For example, the PIP utility and the MACRO-11 Assembler can run concurrently from different terminals. (The same task can also run concurrently from different terminals, although each copy of the task running will have its own identifier. See Section 2.5.4 for more information.)

2.4.1 Input Prompts

When you use MCR, there are three prompts that indicate a terminal is waiting for input from you:

- The default prompt (>)

- The task prompt (tsk>)

- The MCR prompt (MCR>)

The default prompt (>) at the beginning of a new line indicates that the terminal is ready to accept unsolicited input. The term unsolicited implies that no specific task has requested input from the terminal. Whatever you type in response to the default prompt is directed to MCR. (An abnormal situation can occur, however, if a task either solicits input or attaches to the terminal without displaying a task prompt. A soliciting or attached task might receive input that you intended for MCR. See Section 2.4.4 for information on attached terminals.) When MCR receives unsolicited input, it identifies, analyzes, and responds appropriately to the input.

When MCR activates a task to service a command, the task normally prompts as follows:

    tsk>

The variable tsk is a 3-character task name. (All DIGITAL system tasks identify themselves by a 3-character prompt and user tasks should do the same.)

As long as a prompting task has attached to a terminal, the task receives all solicited input entered at the terminal until the task detaches (see Section 2.4.4). The terminal discards all unsolicited input. An unattached task, however, may not receive solicited input

because another task could solicit input from the terminal before you can type a response to the prompt for the unattached task. The intervening task would then receive the input intended for the unattached task. To avoid this situation, every task that solicits input from a terminal should perform the following sequential procedure:

1. Attach to the terminal

2. Prompt with a properly formatted identifier (that is, tsk>)

3. Solicit input (issue a read request)

The MCR prompt (MCR>) is described in Section 1.1.1.

2.4.2 Special Character Keys and Control Characters

You can request the system to control terminal operation by means of special character keys and control characters. The relevant special character keys are TAB, ESC (or ALT), RETURN, and DELETE (or RUBOUT). A control character is produced when you press the CTRL key and simultaneously press a letter key.

When you press CTRL/R, CTRL/U, or CTRL/Z, the Executive and the terminal driver display ^R, ^U, or ^Z at the issuing terminal and perform the related function. When you press CTRL/C, the explicit MCR prompt (MCR>) is displayed. (If the terminal is set to recognize commands from DCL or a user-written command line interpreter, pressing CTRL/C would display that prompt instead.) For the other control characters, the Executive does not return a display.

Table 2-2 lists all the special character keys and control characters, and describes the function of each.

<div align="center">
Table 2-2
Special Character Keys and Control Characters
</div>

Character	Description
RETURN	The RETURN key terminates a line of input and advances the cursor or print head to the beginning of the next line.
ESC	The ESC (escape) key terminates a line of input without moving the cursor or print head. When used to terminate an MCR command, it suppresses the default MCR prompt. See the descriptions of the OPEN and RUN commands (in Chapter 3), which have special uses for the ESC key.
	If the appropriate optional facility was selected for your system during system generation, the ESC key can be the first character in an escape sequence. For more information about escape sequences, refer to the RSX-11M/M-PLUS I/O Drivers Reference Manual or the description of the SET /ESCSEQ command in Chapter 3 of this manual.

Table 2-2 (Cont.)
Special Character Keys and Control Characters

Character	Description
DELETE	The DELETE key deletes the last character typed at the terminal as well as additional contiguous characters if the key is pressed repeatedly. On non-CRT terminals, the first DELETE deletes a character and prints a backslash (\) and and the deleted character. Subsequent deletions cause the system to print the deleted characters. Then, when you enter the first non-DELETE character, the system prints a terminating backslash and follows it with that non-DELETE character.

For example:

```
        ----first DELETE
        | ---second DELETE
        | |----third DELETE
        | || ----first non-DELETE
        | || |
MISTKAE\EAK\AKE
```

The result is MISTAKE.

On a CRT terminal that supports backspacing (a system generation option in RSX-11M; always included in RSX-11M-PLUS) and has been declared to be a CRT terminal by the SET /CRT=ttnn: command, the DELETE key moves the printing position one space to the left and erases any character displayed in that position.

For example, to correct the word MISTKAE, press the DELETE key three times to erase E, A and K. The result is MIST. Then type AKE to get MISTAKE.

Note that when DELETE deletes a character in the last character position on the right of the screen, the last character appears to remain and the next-to-last character disappears. However, the system has in fact deleted the last character. You can refresh the screen and verify your correction by pressing CTRL/R.

| CTRL/C | Pressing CTRL/C either as the first character in a line or when the terminal is sending data causes MCR to prompt for command input with the explicit prompt MCR>. If the terminal is set to a command line interpreter (CLI) other than MCR, pressing CTRL/C displays the explicit prompt for the CLI. (Two special effects of CTRL/C are described in the following text.) |

If a task is prompting for input when you press CTRL/C, MCR displays its explicit prompt, then returns control to the interrupted task after receiving a single line of input. (An exception occurs when an attached task specifies an asynchronous system trap (AST) for unrequested characters. In this case, CTRL/C causes an AST to occur, thereby gaining the task's attention rather than MCR's.)

Table 2-2 (Cont.)
Special Character Keys and Control Characters

Character	Description

Special effects:

- If the last character entered at the terminal was CTRL/S, CTRL/C resumes the output that was suspended by CTRL/S.

- If a terminal has been set to "hold screen" mode by the SET /HOLD command, CTRL/C has the effect of a SET /NOHOLD command; that is, CTRL/C disables hold screen mode. (The hold screen feature is, in some cases, a system generation option in RSX-11M but is always included in RSX-11M-PLUS.)

  See Section 1.1.1 for more information on using CTRL/C.

CTRL/I (or TAB) Pressing CTRL/I (or TAB) moves the cursor or print head to the next horizontal tab stop on the line. The system establishes tab stops at every eighth character position in the line (8, 16, 24, and so on).

CTRL/K Pressing CTRL/K causes a vertical tab by directing the system to output four line feeds (four blank lines).

CTRL/L Pressing CTRL/L causes a form feed (but the system does not perform paging). A form feed consists of eight line feeds, so CTRL/L appears on the terminal as eight blank lines.

CTRL/O Pressing CTRL/O alternately suppresses and resumes the display of output at your terminal. It allows you to skip over any unwanted output and then continue the display at a later point.

When you press the first CTRL/O, the system discards the output it is sending to your terminal rather than displaying it. (The system can send the output much faster when it does not have to display it.) When you press the second CTRL/O, the system resumes displaying the output at the point it has reached in sending it (not from the point where you pressed the first CTRL/O). If you do not press another CTRL/O, the system continues displaying the output until it reaches the end of the file.

Pressing CTRL/O may cause different system actions depending on the state of your terminal when you press it. If the terminal is attached to a task other than MCR, pressing CTRL/O suppresses the display of the task's output until you press another CTRL/O to resume the display (as described previously). However, if the terminal is not attached to another task, CTRL/O suppresses only the remainder of the line currently being displayed. Subsequent lines of output will still be displayed.

Table 2-2 (Cont.)
Special Character Keys and Control Characters

Character	Description
CTRL/Q	Pressing CTRL/Q after a CTRL/S resumes output suspended by CTRL/S. (This feature is a system generation option in RSX-11M but is always included in RSX-11M-PLUS.)

CTRL/R	Pressing CTRL/R before pressing a line terminator (RETURN, ALT or ESC) causes the system to retype the current line on a new line, omitting any deleted characters. You can then continue typing the remainder of the line.
	
	For example:
	
	   MISTKAE\EAK\AKE ^R
	   MISTAKE
	
	If the current line is empty and you issue CTRL/R from the explicit MCR prompt (MCR>), CTRL/R directs the system to perform a carriage return and line feed. CTRL/R is echoed as ^R. (This feature is a system generation option in RSX-11M but is always included in RSX-11M-PLUS.)

CTRL/S	Pressing CTRL/S while the terminal is receiving output suspends additional output until you press CTRL/Q or CTRL/C. The suspended output is merely delayed, not discarded as with CTRL/O. The combined functions of CTRL/Q and CTRL/S are convenient when using a CRT terminal. (This feature is a system generation option in RSX-11M but is always included in RSX-11M-PLUS.)
CTRL/U	Pressing CTRL/U before typing a line terminator (RETURN, ALT or ESC) deletes the current line. The system responds with a carriage return and line feed and displays a new prompt so that the line can be retyped. The system also displays a CTRL/U when you begin to type a command line but do not press the RETURN key before the timeout count expires. (The timeout count is specified at system generation time.) Again, a new prompt is displayed. CTRL/U is echoed as ^U. (This control character works only with the full-duplex terminal driver.)
CTRL/X	Pressing CTRL/X clears the terminal typeahead buffer. The typeahead buffer temporarily stores input characters until the terminal driver can pass them to the task. When the typeahead buffer is full, input characters are not accepted. Pressing CTRL/X clears the buffer. CTRL/X is echoed as ^X. (This control character works only with the full-duplex terminal driver.)
CTRL/Z	Pressing CTRL/Z indicates end-of-file. It is used to indicate to system tasks such as MAC, PIP, and TKB that you are finished and the task may exit. CTRL/Z is echoed as ^Z.

2.4.3 Terminal Privilege

You can issue privileged commands only from a privileged terminal. On multiuser protection systems, individual users are either privileged or nonprivileged. When you log in, the terminal assumes your privilege status. On other systems, a terminal's privilege status is determined initially at system generation. You can also use the SET /[NO]PRIV command (see Chapter 3) at a privileged terminal to modify the privilege status of your own and any other terminal connected to the system.

CAUTION

> You must take great care when any terminal is privileged. Privileged commands can disrupt or severely impair system operation.

2.4.4 Attached and Unattached Terminals

A terminal is attached when all input and output are directed to or from a task other than MCR. For example, when you invoke a task (such as the text editor EDT), the task usually attaches to the terminal so that no other task can use the terminal for I/O. When you wish to exit (by pressing CTRL/Z, for example), the task is detached from the terminal and subsequent input is usually directed to MCR.

Since an attached terminal directs all input to the dedicated task, you must either exit from the task or press CTRL/C to gain MCR's attention before attempting to communicate with MCR. (See Section 1.1.1 for a description of CTRL/C as a means of temporarily gaining MCR's attention.)

See the RSX-11M/M-PLUS I/O Drivers Reference Manual for more information on terminals and terminal drivers.

2.4.5 Slave Terminals

You can dedicate a terminal exclusively to one or more tasks by issuing a SET command option that sets the terminal to slave status. (A special I/O function issued by a task can also set a terminal to slave status.) The difference between a slave terminal and an attached terminal is that a slave terminal rejects all unsolicited input, including CTRL/C (however, a slave terminal does accept CTRL/O, CTRL/Q, and CTRL/S). Attached terminals do accept CTRL/C.

Until you issue another MCR command (or a task issues another special I/O function) to delete the slave status, the terminal can only be used to communicate with tasks soliciting input from the terminal. Slaved terminals are often dedicated to real-time applications.

See the RSX-11M/M-PLUS I/O Drivers Manual for more information on terminals and terminal drivers.

2.5 TASKS

The basic executable unit of an RSX-11M/M-PLUS system is the task. A task is either privileged or nonprivileged. A privileged task has special device and memory access rights that a nonprivileged task does

not have. Because of their special access rights, privileged tasks are potentially hazardous to a running system whereas nonprivileged tasks are not.

The following sections give only cursory information about tasks. Consult the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual for a complete description.

2.5.1 Partitions

A task runs in a predetermined contiguous area of memory called a partition. A partition has the following characteristics:

- A name

- A defined size

- A fixed starting address

- A defined type

The relationship between a task and the partition in which it runs depends on whether the system is mapped or unmapped. In an unmapped RSX-11M system, a task can run only in a partition that has the same starting address as the partition for which the task image was created by the Task Builder. In mapped systems, however, a task can run in any partition that is large enough to contain it.

RSX-11M-PLUS systems are always mapped.

2.5.1.1 Partition Types - There are two types of partitions in which tasks can execute:

- System-controlled

- User-controlled

RSX-11M supports both types of partitions.

RSX-11M-PLUS supports only system-controlled partitions.

In a system-controlled partition, the Executive allocates available space to accommodate as many tasks as possible at any one time. This allocation may involve shuffling resident tasks to arrange available space into a contiguous block large enough to contain a requested task. Only mapped systems support system-controlled partitions.

A user-controlled partition, however, is exclusively allocated to one task at a time. This type of partition is supported by both mapped and unmapped RSX-11M systems.

In both types of partitions, the Executive can temporarily move (checkpoint) a resident task to a disk to make space available for another task.

2.5.1.2 Subpartitions - RSX-11M users can subdivide a user-controlled partition into as many as seven nonoverlapping subpartitions. Like a main partition, a subpartition can contain only one task at a time.

Since the subpartitions occupy the same physical memory as the main partition, tasks cannot be simultaneously resident in both the main partition and one or more subpartitions. But since each subpartition can contain a task, up to seven tasks can potentially run in parallel within a checkpointed main partition.

RSX-11M uses subpartitions to reclaim large storage areas in unmapped systems. For example, when a large task that requires a main partition is either no longer active or can be checkpointed, subpartitioning allows the partition space to be used for a number of smaller tasks.

2.5.2 Multiprogramming

Tasks compete for system resources (including memory) on the basis of priority and resource availability. The priority of a task is determined by a number assigned when the task is created by the Task Builder, when it is installed, or when it is run. A priority number is between 1 and 250(decimal), where 250 is the highest priority. The highest priority task that has access to and can use all the resources it needs has control of the CPU.

A task often becomes blocked when it requests system services. For example, it can block itself as it waits for an I/O transfer to complete. While the task is blocked in this way, the Executive looks for another task to use the CPU. The chosen task will be the one that has the highest priority and whose needed resources are available.

2.5.3 Creating a Task

You perform four steps to create a task and prepare it for execution:

1. Enter a program in a supported source language through an editor.

2. Submit the source code to the appropriate translator (assembler/compiler) to produce an object file.

3. Submit the object file to the Task Builder to produce a task image file.

4. Use the INSTALL command to install the task image file in the system or use the install-run-remove option of the RUN command (see Section 2.5.5.1).

The output files that result from Steps 1, 2, and 3 are each stored on a Files-11 volume.

2.5.4 Task-Naming Convention

On RSX-11M multiuser protection systems, more than one copy of an installed task whose name is in the form ...xxx can be active simultaneously (however, there can only be one copy active from one terminal). When you request a task that is already active, MCR automatically creates a name for a copy of the requested task: tskTnn, where tsk is the 3-character task name and Tnn is the octal unit number of the requesting terminal. However, to refer to that task from the requesting terminal, you only need to specify the 3-character task name (tsk).

For example, if you request PIP from TT2: when PIP is already active at another terminal, MCR runs a task called PIPT2. To abort PIPT2 from TT2:, type the following command:

>ABO PIP (RET)

MCR aborts the correct copy of PIP. However, to abort TT2:'s copy of PIP from another terminal, a privileged user must type the following command:

>ABO PIPT2 (RET)

The user at TT2: can also specify PIPT2, but the full name is not necessary in most cases.

On RSX-11M systems, unit numbers for terminals range from 0 through 77(octal), although it is possible to have terminals connected to the system that have terminal numbers greater than 77. However, because of the xxxTnn naming convention for RSX-11M, if you try to run an active installed task from a terminal whose unit number is greater than 77, the task will have an incorrect name or you will get an error message.

Note that the naming convention does not apply to tasks requested by the RUN command.

On RSX-11M-PLUS systems, unit numbers for terminals range from 0 through 377(octal). When you request a task, MCR creates a copy of the requested task and names it tskTnn, where tsk represents the 3-character task name and Tnn represents the octal unit number of the requesting terminal. (If the requesting terminal is a virtual terminal, the task name is tskVnn. If the request is from a serial bus device, the name is tskSnn.) For units 0 through 77(octal), nn corresponds to the octal unit number. For units 100 through 377(octal), the system defines nn using the following algorithm:

```
for   unit   100:   nn   is   A0
for   unit   101:   nn   is   A1
for   unit   107:   nn   is   A7
for   unit   110:   nn   is   B0
for   unit   117:   nn   is   B7
for   unit   120:   nn   is   C0
for   unit   127:   nn   is   C7
for   unit   130:   nn   is   D0
          .
          .
          .
for   unit   370:   nn   is   X0
for   unit   377:   nn   is   X7
```

To refer to the task from the requesting terminal, you only need to specify the 3-character task name (tsk).

For example, if you request PIP from TT100:, MCR runs a task called PIPTA0. To abort PIPTA0 from TT100:, enter the following command:

>ABO PIP (RET)

MCR aborts the correct copy of PIP. However, to abort TT100:'s copy of PIP from another terminal, a privileged user must either specify the full task name (tskTnn) or use the ABORT command's /TERM keyword. For example, either of the following command lines issued from a privileged terminal abort TT100:'s copy of PIP:

```
    >ABO PIPTAO (RET)

       or

    >ABO PIP/TERM=TT100: (RET)
```

Note that the naming convention does not apply to tasks requested by the RUN command.

2.5.5 Installing a Task

When you install a task with the INSTALL command or a form of the RUN command, the system records a number of task parameters in a system-resident list called the System Task Directory (STD). These parameters include the name of the task and the address on the volume that contains the task image. An installed task is defined as a task that has an entry in the STD; it need not be resident in memory nor competing for system resources. The system considers a task dormant (not active) until a request is made for it to run.

The concept of dormant and active tasks is important in a real-time system. A dormant task does not use any memory outside of the Executive (it requires only an STD entry and need not be resident), yet when the task is needed to service a real-time event, the Executive quickly and efficiently introduces it into active competition for system resources. An installed task's STD entry enables this quick response because the STD contains all the parameters the system needs to retrieve the requested task.

You can run an installed dormant task by issuing the RUN command, or another task can request the task to run by issuing an Executive directive, such as RQST$ (Request), RUN$ (Run), or SPWN$ (Spawn).

When the Executive receives a request to run a task, it performs a series of actions:

1. Places the task in active competition for system resources (including memory) with other resident tasks.

2. Allocates the necessary resources as they become free.

3. Brings the task into memory when there is space available in its partition. (The Executive will checkpoint a task with a lower priority, if there is one, to make room for the requested task.)

If another task fully occupies the partition in which the new task is to be installed and no resident task can be checkpointed, the system places the task in a queue of other requested tasks, each waiting for space to become available in its partition. Note that the number of installed dormant tasks can, and usually will, far exceed the number of active tasks.

2.5.5.1 Install-Run-Remove Tasks –
On RSX-11M systems, whenever you request a task to run with the install-run-remove option of the RUN command, MCR names the task TTnn, where nn is the unit number of the terminal that requested the task. You can refer to task TTnn in a command issued from that terminal and omit the task name altogether.

For example, if you issue the following command:

```
    >RUN $CALC from TT1: (RET)
```

MCR runs the task contained in a file called CALC.TSK listed in the system directory and names it TT1. To abort this task from TT1:, issue the ABORT command without specifying a parameter, as follows:

    >ABO (RET)

The following command

    >ABO TT1 (RET)

issued from TT1:, or from any privileged terminal, also aborts the task originally referred to as $CALC in the RUN command issued from terminal TT1:.

On RSX-11M-PLUS systems, MCR also names the task TTnn, where nn is the unit number of the terminal that requested the task. To refer to task TTnn in a command issued from that terminal, you can omit the task name altogether. For example, if you issue the >RUN $CALC command from TT377:, MCR runs the task contained in the file CALC.TSK listed in the system or nonprivileged library directory and names it TTX7. To abort this task from TT377:, issue the ABORT command without specifying a parameter, as follows:

    >ABO (RET)

A privileged user can abort the task either by specifying the task name (TTnn) or by using the ABORT command's /TERM keyword. For example, the following commands issued from a privileged terminal abort the task that was run from TT377: and originally referred to as $CALC:

    >ABO TTX7 (RET)

        or

    >ABO /TERM=TT377: (RET)

Note that RSX-11M-PLUS systems do not require that you perform conversions. Commands that include a task-name parameter (for example, the ABORT, RESUME, BLOCK, UNSTOP, and ALTER commands) accept a keyword that permits the octal representation of task names (/TERM=TTnnn:). For example, if task XYZ is initiated from TT106: and suspends itself, a privileged user can issue the following command line to resume execution of task XYZTA6:

    >RES XYZ/TERM=TT106: (RET)

2.6 NONPRIVILEGED USE OF ACNT

RSX-11M/M-PLUS systems provide an Account File Maintenance Program (ACNT) for creating and maintaining an account file for a multiuser protection system. The account file contains entries for all the UICs that have been authorized for use in the system. One UIC can be shared by several users, each user having his or her own password.

On RSX-11M systems, a nonprivileged user can run the ACNT program to change the password for his or her account. However, the ACNT task must first be installed by a privileged user before a nonprivileged user can run it. Also, only privileged users can use the ACNT program for functions other than changing a password.

On RSX-11M-PLUS systems, a nonprivileged user cannot use the ACNT program to change the password for his or her account. Instead, a nonprivileged user of RSX-11M-PLUS can change his or her password by

using the SET /PASSWORD command. The SET command description in Chapter 3 of this manual tells you how to use the SET /PASSWORD command. If you try to run the ACNT program from a nonprivileged account on an RSX-11M-PLUS system, you will receive the following message:

    ACNT -- Cannot be run from a non-privileged terminal. Use SET /PASSWORD to change your password.

The remainder of this section applies to nonprivileged users on RSX-11M systems only.

When you run the ACNT program, it identifies itself and immediately prompts for your current password. ACNT then searches the account file for the entry that matches the UIC and password. When ACNT locates the correct entry, it prompts you to either enter a new password or press the ESC key. If you enter a new password, ACNT changes your current password to the new one. If you press the ESC key, ACNT leaves your current password unchanged. The prompt also shows the maximum character length allowed for a password.

If you do not enter your current password or if you enter it incorrectly, ACNT issues an error message and exits. In such a case, you must run the ACNT program again to change your password.

After ACNT changes your password or you press the ESC key, ACNT displays the message OPERATION COMPLETE and exits.

See the RSX-11M/M-PLUS System Management Guide for more information on ACNT and its privileged options.

Examples:

    >RUN ACNT (RET)
     * ACCOUNT FILE MAINTENANCE PROGRAM *
    Password (6 chars. or fewer): CRYPTO (RET)
    Press <ESC> to leave entry unchanged
    Password (6 chars. or fewer): (ESC)
    OPERATION COMPLETE

        To exit from ACNT without changing your password, press the
        ESC (escape) key.

    >RUN ACNT (RET)
     * ACCOUNT FILE MAINTENANCE PROGRAM *
    Password (6 chars. or fewer): CRYPT (RET)
    ACNT -- Cannot find account
    OPERATION COMPLETE

        You must enter your password exactly. If your password is
        "CRYPTO", ACNT returns an error message if you enter anything
        other than "CRYPTO".

    >RUN ACNT (RET)
     * ACCOUNT FILE MAINTENANCE PROGRAM *
    Password (6 chars. or fewer): CRYPTO (RET)
    Press <ESC> to leave entry unchanged
    Password (6 chars. or fewer): SECRET (RET)
    OPERATION COMPLETE

        You have successfully changed your password. To best protect
        your account, you should make your password as long as
        possible and you should avoid using personal terms such as
        names of friends or relatives.

CHAPTER 3

MCR COMMANDS

This chapter provides a detailed description of each MCR command. The commands are presented in alphabetical order, rather than by function or privilege status. Note that the commands are alphabetized according to the abbreviated forms of their names.

The descriptions of the commands and command messages in this chapter adhere to the following notational conventions:

- Lowercase text indicates a variable whose actual value is determined when the command is entered or the message is issued. For example, the value of the variable taskname depends on the name of the task associated with the command or message.

- Square brackets ([]) indicate optional entries in a command line or file specification. Note that when an option is entered, the brackets are not included.

  Square brackets are also a part of the User File Directory (UFD) and User Identification Code (UIC) syntax ([group, member]). When you use a UFD or UIC (in a file specification, for example), brackets are required syntax elements; that is, they do not indicate optional entries.

- Unless specified otherwise, all numeric values required in a command can be entered as decimal or octal. Usually, decimal values are indicated by a trailing period (.), and octal values are indicated either by the absence of a period or by a pound sign character (#) preceding the number. For example, the following three values are equal:

      255.   377   #377

The command descriptions in this chapter have a standard format consisting of the following parts:

- The command name

- The command line format

- Command-related error messages

The remainder of this introduction describes the parts of a command description. A part that does not apply to a particular command is omitted from that command description.

COMMAND NAME

Each command description begins by showing the command name. The minimum acceptable abbreviation of the command name is shown in large bold letters at the top of the page. The full command name appears in capital letters underneath the abbreviation. Immediately following the command name, the status of the command is indicated in parentheses, using the following symbols:

- (NP) indicates a nonprivileged command.

- (P) indicates a privileged command.

- (NP,P) indicates a nonprivileged command with privileged options.

- (P,NP) indicates a privileged command with nonprivileged options.

Finally, each command name description concludes by describing the command's function.

Format

This part of the command description shows the command format, describes any command line parameters, and for most commands, includes examples of command line syntax.

Command-Related Error Messages

This part of the command description lists and explains the error messages that are specific to the command. The command may also produce the common error messages listed in Appendix A. These common error messages are not listed with the individual commands.

ABO

3.1 ABORT (NP,P)

The ABORT command terminates execution of a specified task. On operating systems that have multiuser protection, nonprivileged users can abort a nonprivileged task if the task was requested from the same terminal that the ABORT command is issued from. On operating systems that do not have multiuser protection, nonprivileged users can abort any nonprivileged task. Nonprivileged users can also abort privileged tasks requested from the issuing terminal if the tasks have requested an exit AST service routine with the SREX$ form of the SPECIFY REQUESTED EXIT AST Executive directive. Privileged users can abort any task.

When a task that has specified an exit AST service routine is aborted, it enters the routine instead of being aborted immediately. Privileged tasks enter the specified AST routine each time a valid abort request is issued. However, future exit ASTs are not queued until the first exit AST has been effected. Nonprivileged tasks enter the specified AST routine only once. After that, any valid attempt to abort the task succeeds.

See the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual for more information on the SPECIFY REQUESTED EXIT AST directive. Note that the issuing terminal receives no indication that the task being aborted was actually aborted or that it received the abort AST instead.

Aborting a task forces an orderly termination of the specified task. To effect the termination, the system:

- Performs I/O rundown. Cancels I/O for all non-file-structured devices. Allows I/O for file-structured devices to complete and then deaccesses the files. Detaches all attached devices. (I/O rundown may take a considerable amount of time for tasks connected to a network node.)

- Requests the Task Termination Notification program (TKTN) to display a message on the aborted task's issuing terminal giving the reason for the termination. (If the /PMD keyword is specified and the task is not checkpointed, the task's registers are also displayed.)

- Releases the task's partition if the task is not fixed.

- If the system supports the ALTER PRIORITY directive (a system generation option), alters the task's running priority to 247(decimal) (unless the exit AST service routine has been specified). A task must be memory-resident to be aborted; this change in running priority usually causes a quick return for a checkpointed task.

If the command includes the optional keyword /PMD, it forces the system to produce a Postmortem Dump of the aborted task. The dump is generated even if the task was not built with the Task Builder /PM switch or installed with the INSTALL /PMD=YES keyword.

Format:

    ABO[RT] taskname[/PMD][/TERM=ttnnn:]

ABO (Cont.)

taskname

> The name of the task to be aborted. If you omit the taskname, the command attempts to abort task ttnn. (The variable nn is the octal unit number of the issuing terminal.)

> Likewise, if you specify only the first three characters of the taskname, ABORT defaults the taskname to tskTnn.

/PMD

> A keyword that requests a Postmortem Dump of the aborted task.

/TERM=ttnn:

> A privileged RSX-11M-PLUS keyword that aborts a task requested from a terminal other than the one issuing the ABORT command.

Examples:

```
>ABO MAC (RET)
Task "MACT3 " terminated
Aborted via directive or CLI
```

> MCR (the command line interpreter for these examples) aborted a task called MACT3, even though the command, issued from TT3:, specified only the 3-letter task name.

> The command >ABO MACT3 issued from any privileged terminal has the same effect.

> On RSX-11M-PLUS operating systems, the command >ABO MAC /TERM=TT3: issued from any privileged terminal has the same effect.

```
>ABO (RET)
Task "TT7   " terminated
Aborted via directive or CLI
```

> MCR aborted the task, TT7, from TT7:; the task name does not have to be specified to abort task TTn.

Command Error Messages:

> On receiving an ABORT command, MCR requests the Executive to abort the task. The Executive subsequently activates the Task Termination Notification program (TKTN). TKTN then produces the termination display shown in the preceding examples. Messages following an ABORT command can therefore come either from the ABORT command itself or from TKTN.

Messages from ABORT command:

ABO -- Task marked for abort

> A previous request has already been made to abort the specified task, but the abort has not yet occurred. The task marked for abort is probably not currently resident in memory or it has outstanding I/O (for example, an MM: tape-positioning operation must complete).

ABO (Cont.)

ABO -- Task not active

The specified task is not currently active.

Messages from Task Termination Notification program (TKTN):

TKTN displays information about task aborts, whether caused by the ABORT command or by some other means. The display has the format:

Task <taskname> terminated
<abort cause>

Following the displayed cause for the abort is a list of the task's registers at the time of the abort (if the task was not checkpointed). The possible causes of an abort are described in the following messages:

Aborted via directive or CLI

Either an Executive directive or a CLI command issued by another task caused the task to be aborted.

Aborted via CLI
Postmortem Dump will be generated

A CLI command aborted the task and requested a Postmortem Dump.

11/40 F.P. exception

The task encountered a floating point exception while executing on a PDP-11/40 and no SST routine was specified to process the trap.

AST abort. Bad stack

An asynchronous system trap (AST) could not be effected because the AST parameters could not be pushed onto the task's stack.

Checkpoint failure. Read error

The task could not be read back into memory after being checkpointed.

CPU time limit exceeded

(RSX-11M-PLUS operating systems only.) The task exceeded the CPU time limit specified with the /TIME keyword when the task was installed.

IOT execution

The task executed an Input/Output Trap (IOT) instruction, but no synchronous service trap (SST) routine was specified to process the trap.

ABO (Cont.)

Load failure. Read error

> The task could not be loaded because of a hardware error.

Memory protect violation

> The task encountered a memory-protect violation and no SST routine was specified to process the trap.

Non-RSX EMT execution

> The task executed an EMT instruction with an argument other than 377(octal) or, in the case of a privileged task switching to system state, 376(octal), and no SST routine was specified to process the trap.

Odd address or other trap four

> The task executed a word instruction with an odd address or referenced a nonexistent memory location in an unmapped system, and no SST routine was specified to process the trap.

Parity error

> A parity error occurred while the task was executing. The task was fixed in memory so that the memory could not be reused by another task.

Required bus runs are offline or not present

> (RSX-11M-PLUS multiprocessor operating systems only.) The task, or a common that the task is mapped to, was installed with an affinity for a CPU or a bus run that is off line.

Reserved inst execution

> The task executed an illegal instruction and no SST routine was specified to process the trap.

SST abort. Bad CSM parameters

> (RSX-11M-PLUS operating systems only.) The task executed a Call to Supervisor Mode (CSM) instruction with invalid parameters.

SST abort. Bad stack

> An SST could not be effected because the SST parameters could not be pushed onto the task's stack, or a stack overflow was detected in an unmapped system, as indicated by a non-zero value in the header guard word.

Task exit with outstanding I/O

> The task exited with one or more outstanding I/O requests. Tasks should terminate all I/O operations before exiting. The system does, however, process all outstanding I/O requests.

ABO (Cont.)

Task installed in more than one system

> The task image file has been installed in more than one
> system. When a task is installed, pointers to various
> system data structures are stored in the task header in the
> task image file. If a task is installed in more than one
> system, the header contains pointers for the last system in
> which the task was installed. When the task is loaded for
> execution, the loader verifies that the header contains
> valid pointers for the current system. When a task has been
> installed in more than one system, the loader check fails
> and the task is aborted.

T-bit trap or BPT execution

> The task either set the T-bit in the Processor Status Word
> (PSW) or executed a Breakpoint Trap instruction, and no SST
> routine was specified to process the trap.

TI: virtual terminal eliminated

> (RSX-11M-PLUS operating systems only.) The terminal from
> which the task was initiated (its TI:) was a virtual
> terminal that has since been eliminated. This happens to an
> offspring task when its parent task issues an ELIMINATE
> VIRTUAL TERMINAL directive and exits or aborts. The
> offspring task cannot continue running without a TI: and is
> aborted.

Trap execution

> The task executed a TRAP instruction and no SST routine was
> specified to process the trap.

ACD

3.2 ANCILLARY CONTROL DRIVER (P,NP)

The ANCILLARY CONTROL DRIVER (ACD) command executes on RSX-11M-PLUS operating systems only.

The ACD command loads and unloads character translation routines so that the terminal driver can translate between different character sets. Character translation in the terminal driver allows terminals that conform to other standards to use the DIGITAL Multinational Character Set.

The ACD command invokes the ACD interface, which is named ACD.TSK in the system directory. The ACD task links ancillary control drivers to the terminal driver. Each ancillary control driver handles a specific character translation routine. By using the character translation routines, you may select the translation to be performed between the character set used by the system and the one used by your terminal. Also, character translation allows the system and application programs to recognize the same character set, regardless of the type of terminal you are using. Finally, character translation is transparent and is performed for all characters independent of the type of I/O being used.

Format:

    ACD function

Functions:

    INSTALL filename AS NUMBER ident [ASSIGN logical]

        (Privileged function.) Loads the translation routine contained in the specified file. Also, assigns an identifying number or name, or both, to the routine.

        filename

        Specifies the file name that contains the translation routine you want to install. The translation routines are located in the system directory and have the following file names:

        MCSVTW.TSK   For VT100-Wx model terminals (W-Model
                        VT100 terminals with U.S. keyboard)
        MCSVT.TSK   For VT100 non-W model terminals that
                        have the DIGITAL multinational
                        character set on an add-on ROM
        MCSVTWG.TSK   For VT100-WK/WJ model terminals with
                        German keyboard
        MCSVTWF.TSK   For VT100-WF/WE series terminals with
                        French keyboard

        AS NUMBER ident

        Identifies the ancillary control driver that handles the translation routine in the specified file. The value that you specify for ident overrides the internal number that is built into the ACD. Ident can be numeric or alphanumeric.

ACD (Cont.)

If numeric, ident must be an even number, and it is a decimal number by default. If alphanumeric, ident specifies a logical name that is equivalent to the ACD.

[ASSIGN logical]

Assigns an optional logical name to the ACD that handles the specified translation routine.

REMOVE NUMBER ident

(Privileged function.) Unloads the ACD that is specified by ident. The ident parameter can be either a number or a logical name. If you specified a logical name for the ACD when you installed it, the name is deleted when you remove the ACD.

LINK ttnn: TO NUMBER ident

Links the terminal specified by ttnn: to the ACD specified by ident. You can only link one ACD to a terminal at a time. If there is an ACD already linked to your terminal when you specify the LINK function, it will be unlinked so that the new ACD can be linked to the terminal.

However, the same ACD can be linked to multiple terminals simultaneously.

UNLINK ttnn:

Unlinks the terminal specified by ttnn: from the ACD it is linked to.

Examples:

>ACD INSTALL LB:[1,54]MCSVTWF.TSK AS NUMBER 18 ASSIGN FRENCH (RET)
>ACD LINK TT64: TO NUMBER 18 (RET)

The first command installs the character translation routine in file MCSVTWF.TSK and assigns it the number 18 and the logical name FRENCH. Only privileged users can use this command. The second command links terminal TT64: to the translation routine. Nonprivileged users can use this command. Also, instead of using the link command to connect the terminal to a routine, nonprivileged users can use the following DCL SET command:

>SET TERMINAL/TRANSLATION_ROUTINE=FRENCH (RET)

>ACD (RET)
ACD>UNLINK TT64: (RET)
ACD>REMOVE NUMBER 18 (RET)

You can invoke the explicit ACD prompt by typing ACD and a carriage return. Then you can issue ACD commands without having to begin them with ACD. The unlink command unlinks terminal TT64: from the translation routine. The final command in this series removes the translation routine that was installed as number 18. Only privileged users can remove a routine.

ACD (Cont.)

Command Error Messages:

ACD -- ACD already exists

You tried to install an ACD that is already currently installed.

ACD -- ACD is busy but was marked for delete

You tried to remove an ACD that is still linked to a terminal. The ACD must be unlinked from all terminals before you can remove it.

ACD -- ACD task was not found

You specified an incorrect file name for the file containing the translation routine that you want to install. Check the file specification and try again.

ACD -- Invalid logical name

You specified an invalid logical name in the ASSIGN logical parameter of the INSTALL function. Refer to the ASSIGN or DEFINE LOGICALS commands for the syntax rules that apply to creating logical names and try again.

ACD -- Privilege violation

A nonprivileged user tried to install or remove an ACD. The INSTALL and REMOVE functions are privileged functions. Nonprivileged users must have a privileged user install an ACD before it can be linked to a terminal.

ACD -- That ACD is not installed

You tried to remove, or to link a terminal to, an ACD that is not currently installed.

ACD -- Syntax error

You specified something in the ACD command line incorrectly. Check the format of the command and try again.

ACS

3.3 ALLOCATE CHECKPOINT SPACE (P)

The ALLOCATE CHECKPOINT SPACE (ACS) command allocates or discontinues a checkpoint file on disk for systems that support the dynamic allocation of checkpoint space. The disk containing the checkpoint file must be in Files-11 format. Only one checkpoint file per disk is allowed, but numerous disks can each contain a checkpoint file. Generally, sufficient checkpoint space is twice the total amount of memory that all of the running tasks will use.

When the system needs checkpoint space, it searches the checkpoint files in the order in which they were created. If space is not available in the first file created (the primary file), it searches for space in the second file created (the secondary file), and so on.

An ACS command that discontinues a checkpoint file may not take effect immediately. If the specified file contains one or more checkpointed tasks, the tasks must be returned to memory before the system can discontinue the file. However, once the request to discontinue the file has been made, the system does not use the file for any more checkpointed tasks.

Format:

    ACS ddnn:/BLKS=n

ddnn:

    A device unit that contains a mounted Files-11 disk. If the unit
    number (nn) is not specified, the default is zero.

/keyword:

    /BLKS=n

        Specifies the number (n) of blocks on the disk to be
        allocated for the checkpoint file. (A block is 512 decimal
        bytes.) For example, the following command allocates
        250(decimal) blocks for a checkpoint file on the DB: disk:

            >ACS DB:/BLKS=250. ⒭ⒺⓉ

        When n is zero, the system discontinues the use of the
        checkpoint file; the file is neither deleted nor truncated.
        However, the use of the file is discontinued only after all
        of the tasks that are checkpointed to it can be brought into
        memory and checkpointed elsewhere.

        For example, the following command

            >ACS DB:/BLKS=0 ⒭ⒺⓉ

        discontinues the checkpoint file on disk DB0:. This does
        not mean that the space allocated to the checkpoint file is
        freed. The system checkpoint file [0,0]CORIMG.SYS retains
        the space initially allocated by the ACS command so that the

ACS (Cont.)

      space will be available the next time it is needed. If you
      want to free the space allocated to the system checkpoint
      file after its use has been discontinued, use the following
      commands:

            >ACS ddnn:/BLKS=0 (RET)

            ACS -- Checkpoint file now inactive

            >PIP [0,0]CORIMG.SYS/TR (RET)

      You must set the block size of the checkpoint file to zero,
      to discontinue the file before you can truncate it. Do not
      issue the PIP command line until the "Checkpoint file now
      inactive" message has been displayed. PIP cannot determine
      if the checkpoint file is still in use, so issuing the
      command line might cause a volume corruption or a system
      crash.

Examples:

    >ACS DS:/BLKS=250. (RET)
    >ACS DB:/BLKS=1024. (RET)

      This command sequence allocates a primary checkpoint file on
      DS: and a secondary checkpoint file on DB:. The primary
      file is 250(decimal) blocks long and the secondary file is
      1024(decimal) blocks long. When the system searches for
      checkpoint space, it will first look in the file on DS: and
      then in the file on DB:.

    >ACS DS:/BLKS=0 (RET)

      Discontinues use of the checkpoint file on DS:.

Command Error Messages:

    ACS -- Checkpoint file already in use on device

      A previous ACS command established a checkpoint file on the
      volume mounted on the specified device. A volume can
      contain only one checkpoint file.

    ACS -- Checkpoint file now inactive

      This message appears after you issue an ACS command to
      discontinue a checkpoint file and the file does not contain
      any checkpointed tasks. The message indicates that use of
      the file was discontinued immediately after the command was
      issued. If the file is still in use, TKTN will issue a
      message when the file is finally discontinued.

    ACS -- Dynamic allocation of checkpoint space not supported

      (RSX-11M operating systems only.) The ACS command was
      issued on a system that did not include support for the
      dynamic allocation of checkpoint space during system
      generation.

ACS (Cont.)

ACS -- File I/O error nnn.

The ACS command detected an error when it tried to allocate
or open the checkpoint file. The code nnn. is an FCS error
code that defines the cause of the error. See the
RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference
Manual. (If the code is -24, the message may indicate that
the disk, usually a fixed-head disk, does not have enough
contiguous space to allocate the file. The normal
implication of the code -24 is "device full".)

ACS -- File not in use

A checkpoint file was not in use on the device specified in
the ACS command.

ACS -- Not Files-11 device

The command specified a device that did not contain a
Files-11 disk. The specified device unit must contain a
mounted Files-11 disk.

*** <ddnn:> -- Checkpoint file now inactive

This message, issued by TKTN, indicates that a request to
discontinue use of a checkpoint file on device ddnn: has
finally been satisfied. The need to return checkpointed
tasks from the discontinued file back into memory caused the
delay between the request and this message.

*** <taskname> Checkpoint space allocation failure

The task could not be checkpointed because there was not
enough room in the system checkpoint file and checkpoint
space was not allocated in the task image file. Either make
the system checkpoint file bigger or create a second one.

Note that tasks built with the /AL switch are checkpointed
to their task image file if the system checkpoint file is
full.

ACT

3.4 ACTIVE (NP)

The ACTIVE command displays the names of all active tasks that have the terminal from which the command is entered as their TI:. On RSX-11M-PLUS operating systems, the display includes the octal unit number of the terminal that initiated each task.

Format:

    ACT[IVE] [/keyword]

/keywords:

    /ALL

        Displays the names of all active tasks that are currently in the system.

    /TERM=ttnn:

        Displays the names of all of the active tasks for the terminal specified by ttnn:.

Examples:

RSX-11M operating systems

    >ACT (RET)
    MCR...
    ...MCR
    >ACT /ALL (RET)
    RMDEMO
    MCR...
    ...MCR
    F11ACP
    ...PIP
    >ACT /TERM=TT7: (RET)
    ...PIP
    >

RSX-11M-PLUS operating systems

    >ACT (RET)
    MCR...   (TT17:)
    ACTT17   (TT17:)
    >
    >ACT /ALL (RET)
    LDR...   (CO0:)
    RMDEMO   (TT62:)
    MCR...   (TT17:)
    F11ACP   (CO0:)
    DS00F1   (CO0:)
    DS01F1   (CO0:)
    LSTACP   (CO0:)
    DB03F1   (CO0:)

ACT (Cont.)

```
AT.V6    (VT6:)
QMG...   (CO0:)
HRC...   (CO0:)
PIPTA1   (TT101:)
>
>ACT /TERM=TT107: RET
LBRTA7   (TT107:)
>
```

ALL

3.5 ALLOCATE (NP,P)

The ALLOCATE command establishes a specified device as your private device. This command applies to all RSX-11M-PLUS operating systems but only to RSX-11M operating systems that support multiuser protection. Device allocation prevents other nonprivileged users from accessing a device (see Section 2.3.5). Only the device's owner or a privileged user can access or deallocate a private device. Mounted devices, public devices, or other users' private devices cannot be allocated.

The system automatically deallocates your private devices when you log out by issuing the BYE command.

You may also allocate a device to a specific terminal rather than to TI:. This allows you to allocate a device to a virtual terminal.

Format:

        ALL[OCATE] dd[nn:] [=llnn:] [/keyword]

dd

        The device mnemonic of the device that you want to allocate.

nn:

        The optional unit number of the device. If the number and the colon are omitted, the system allocates the first available logical unit of the dd-type device and displays the allocated device in the following format:

                ALL -- <ddnn:> now allocated

llnn:

        The optional name of a logical device, which the system creates and assigns to the physical device being allocated. (This is a local assignment as created by the ASSIGN command.) Specifying a logical device name is helpful when using the /TYPE keyword in an indirect command file.

/keywords:

        /TERM=ttnn:

                Specifies the terminal number (ttnn:) to which the device is to be allocated.

        /TYPE=dev

                Specifies the type of device that you want when you specify a generic allocation. Instead of allocating a specific device, the command allocates the first available device of the specified type. The variable dev is the physical name of the device (for example, RP06, RK07).

                When you use the /TYPE keyword, you specify the device type only. You do not include a unit number or a colon in the specification.

ALL (Cont.)

On RSX-11M operating systems, this keyword is valid for the
following devices:

RA60	RD52	RP02	RM80
RA80	RD53	RP03	RS03
RA81	RK06	RP05	RS04
RC25	RK07	RP06	RX50
RCF25	RL01	RM03	
RD51	RL02	RM05	

On RSX-11M-PLUS operating systems, this keyword is valid for
the following devices:

ML11	RD52	RM02	RP06	TE16	TU58
RA60	RD53	RM03	RS03	TM02	TU60
RA80	RK05	RM05	RS04	TM03	TU77
RA81	RK06	RM80	RX01	TS11	TU80
RC25	RK07	RP02	RX02	TSV05	TK50
RCF25	RL01	RP03	RX50	TU45	
RD51	RL02	RP05		TU56	

Examples:

>ALL DK2: (RET)

    Allocates disk DK2:.

>ALL DK: (RET)

    Allocates disk DK0:.

>ALL DK1:/TERM=VT1: (RET)

    Allocates disk DK1: to the specified virtual terminal,
    VT1:.

>ALL DK=XX0: (RET)
ALL -- DK3: now allocated

    Allocates the first available logical unit of DK (in this
    case, disk DK3:, since units 0, 1, and 2 were allocated
    previously or are public devices) and assigns it the logical
    name XX0:.

>ALL DB/TYPE=RP06 (RET)

    Allocates any available RP06 disk.

ALL (Cont.)

Command Error Messages:

    ALL -- Device allocated to other user

        The specified device has already been allocated by another user.

    ALL -- Device attached

        The specified device cannot be allocated because it is attached to a running task.

    ALL -- Device <dd:> not in system

        The specified device driver does not exist in the system, or the data base for the device driver is not in the system or in the driver's task image.

    ALL -- Invalid keyword

        The specified keyword cannot be used with the ALLOCATE command.

    ALL -- Pseudo device error

        The specified device is a pseudo device. Pseudo devices cannot be allocated.

    ALL -- Public device

        The command attempted to allocate a public device. Public devices cannot be allocated.

    ALL -- User logged on terminal

        The command attempted to allocate a terminal that has been logged-in by another user. Logged-in terminals cannot be allocated.

ALT

3.6 ALTER (P)

The ALTER command changes the static or running priority of an installed task.

Format:

    ALT[ER] taskname /keyword(s)

taskname

    The name of the task whose priority is to be altered.

/keywords:

    /PRI=n

        Changes the task's static priority, and, if the system supports the ALTER PRIORITY directive, the task's running priority. (All RSX-11M-PLUS operating systems support the directive.)

    /RPRI=n

        Changes the task's running priority only (valid only in systems that support the ALTER PRIORITY directive).

    /TERM=ttnnn:

        A privileged RSX-11M-PLUS keyword that alters the priority of a task not initiated from the issuing terminal.

The priority can be from 1 to 250(decimal). The system assumes that the priority value you specify is an octal number unless you include a period (.) after the value.

Examples:

RSX-11M operating systems

    >ALT TEST /PRI=60. (RET)

        Alters the static and running priority of task TEST to 60(decimal).

    >ALT CMFRUN /RPRI=70. (RET)

        Alters the running priority of task CMFRUN to 70(decimal).

RSX-11M-PLUS operating systems

    >ALT ABC/PRI=100./TERM=TT6: (RET)

        Alters the static and running priority of task ABCT6 to 100(decimal).

ASN

3.7 ASSIGN (NP,P)

The ASSIGN command assigns, deletes, or displays logical device assignments. A logical device assignment associates a user-chosen name (a logical device name) with a physical device, a pseudo device, or another logical device. When you assign a logical device name to a pseudo device or to another logical device, the system equates your assignment to the equivalent physical device.

When you assign logical device names, you use the same syntax that you use for physical device names. That is, a logical device name consists of a 2-character alphabetic ASCII name, an optional unit number one or two digits long, and a mandatory colon (:). The two characters in the logical device name can be equivalent to a standard RSX-11M/M-PLUS physical device name (for example, DK:), or they can be two letters picked at random (for example, HI:).

When you install a task or the system processes an ASSIGN LUN directive, the system searches for a specified device by scanning the logical device name table first and then scanning the physical device name table. As a result, you can assign logical device names that are identical to physical device names even though the logical and physical device names do not refer to the same physical device. This is because the system equates a specified device name to the first matching table entry that it finds. Therefore, if a logical device name is identical to a physical device name, the logical device name has precedence.

On RSX-11M-PLUS operating systems, if extended logical name support was selected during system generation, the ASSIGN command can make logical name assignments in addition to logical device assignments. Logical name assignments allow you to choose your own logical names for file specifications as well as for devices. Logical name assignments are described in greater detail later in this description. However, the term "logical assignment" can refer to a logical device assignment, or to a logical name assignment.

On RSX-11M operating systems and RSX-11M-PLUS operating systems without extended logical name support, there are three types of logical assignments: local assignments, login assignments, and global assignments. On RSX-11M-PLUS operating systems that have extended logical name support, there are two additional types of logical assignments: task assignments and group assignments. The following list provides brief descriptions of each type of logical assignment.

- Task assignments are created by the system for individual tasks. Task assignments are deleted when the task has completed execution.

- Local assignments are assignments that you assign or delete for any terminal on which you are logged in. Local assignments apply only to tasks that are initiated from the terminal that is used to make the assignments. Also, local assignments last only as long as the login session in which they are made. That is, the system automatically deletes a session's local assignments when you log out. If you want to

ASN (Cont.)

make the same local assignment whenever you log in, you can enter the assignment in your login command file. Both privileged and nonprivileged users can assign or delete local assignments.

● Login assignments may be made automatically by the system each time you log in. An example of a login assignment is the logical name SY:, which the system assigns to your default device each time you log in (if the device you log in to is different than the default system device). The system keeps track of login assignments by account, so you can use login assignments regardless of which terminal you use to log in. However, the login assignments for an account apply only to tasks that are initiated from that account. Also, only privileged users can assign and delete login assignments.

On RSX-11M operating systems, login assignments occur only if the system supports multiuser protection.

All RSX-11M-PLUS operating systems support login assignments. Additionally, RSX-11M-PLUS operating systems with extended logical name support assign the logical name SYS$LOGIN to the user's login device and directory.

● Group assignments apply to all users with the same group number in their protection User Identification Code (UIC). Only privileged users can assign or delete group assignments.

● Global assignments apply to all tasks running in the system. Only privileged users can assign or delete global assignments.

The order in which the system uses logical assignments is: task, local, login, group, and global. For example, if you make a local assignment using a logical device name that is already used in a login assignment, the system uses the the local assignment. When you delete the local assignment, the system reverts to using the login assignment (you delete assignments by entering ASN =).

On RSX-11M-PLUS operating systems, if extended logical name support was selected during system generation, the ASSIGN command can assign, delete, or display logical name assignments in addition to logical device assignments. Logical name assignments are more flexible than logical device assignments. That is, a logical name assignment can associate a user-chosen name with any of the following:

● A physical, pseudo, or logical device

● A part of a Files-11 file specification

● All of a Files-11 file specification (including the device name and the directory)

● Another logical name

The name or specification for which you are substituting a logical name is called an equivalence name. For example, in the following command:

    >ASN DB1:[JK]=MY_DIRECTORY

ASN (Cont.)

MY_DIRECTORY is a logical name to which the physical device and directory DB1:[JK] are equivalent.

The system keeps logical names and their corresponding equivalence names grouped in pairs in the following four logical name tables:

- The task logical name table contains logical name entries that are created for an individual task using the CREATE LOGICAL (CLOG$) directive. These entries remain in the table for only as long as the task is running. When either the task has exited or the DELETE LOGICAL (DLOG$) directive has been issued, the logical names are removed from the table. (See the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual for information on the CLOG$ and DLOG$ directives.)

- The user logical name table contains logical name entries that are local to a particular user (local and login logical names). By default, the ASN and DFL commands place a logical name in the user logical name table.

- The group logical name table contains logical name entries that are qualified by a group number. These entries can be accessed only by tasks that execute with the same group number in their protection UICs as the user who assigned the logical name. You use the /GR keyword to make an entry in the group logical name table. You must be a privileged user to make or delete entries in the group logical name table.

- The system logical name table contains entries that can be accessed by any task in the system. You use the /SYSTEM or /GBL keyword to make an entry into the system logical name table. You must be a privileged user to make or delete entries in the system logical name table.

When the system encounters a logical name, it searches the logical names tables in this order: task, user, group, and system. The system uses the first match it finds as the equivalence name for the logical name. When it finds an equivalence name, the system substitutes the equivalence name for the logical name in the file specification. This is called logical name translation.

Logical name translation can be iterative. Iterative translation means that the system repeats the process of logical name translation until it resolves a logical name to its original equivalent device or file specification. For example:

```
>ASN DB0:=JK: RET
>ASN JK=A RET
```

The first ASN command assigns the logical name JK: to the device DB0:. The second ASN command assigns the logical name A to the equivalence name JK. In subsequent commands, or in programs you execute, you can refer to the logical name A. For example:

```
>PIP A/LI RET
```

ASN (Cont.)

When the system translates the logical name A, it finds the equivalence name JK. The system then checks to see if the portion of the equivalence name to the left of the colon (if there is a colon) is a logical name. If it is a logical name (as JK is in this example), the system translates that logical name also. When the logical name translation is complete, the translated device specification is DB0:.

Privileged users can control the translation of logical names by using the /FINAL qualifier. For example, suppose you assign three levels of logical names in the following manner:

```
>ASN DB0:[TESTSYS]=TEST5: (RET)
>ASN TEST5:=LAST:/FINAL (RET)
>ASN LAST:=DISK: (RET)
```

If you did not include the /FINAL keyword in the second assignment, the logical name DISK: would be translated iteratively to the final equivalence name DB0:[TESTSYS]. However, because you used the /FINAL keyword, the translation stops at the equivalence name TEST5:. Thus, the assignment is less hardware dependent, as you can now assign TEST5: to a disk drive other than DB0:.

The system limits logical name translation to ten levels. If you define more than ten levels or if you create a circular definition of a logical name, an error will occur if you try to use the logical name iteratively.

If you are ever in doubt about the equivalence name assigned to a logical name, you can use the ASSIGN command to display the current assignments by typing ASN and then pressing the RETURN key. However, the ASN command does not display task logical assignments.

When you make logical assignments with the ASSIGN command, the following syntax rules apply:

- The command is limited to a single command line, so the combined length of the command name, the equivalence name, the logical name, and any keywords cannot exceed 79 characters.

- You cannot use a colon as the first character of a logical name, and you cannot embed a colon within a logical name. With those exceptions, you can use any combination of the following ASCII characters in a logical name:

  - The uppercase letters A through Z

  - The numbers 0 through 9

  - The dollar sign ($), the colon (:), and the underscore (_)

- You cannot use other characters in a logical name when you assign a logical name with the ASSIGN command. However, you can use other characters (such as an asterisk) in the equivalence name if you enclose the equivalence name in quotation marks. The ASSIGN command will retain the quotation marks as part of the equivalence name. However, if you enclose a logical name in quotation marks, the ASSIGN command considers the logical name invalid.

ASN (Cont.)

- If you specify a colon at the end of a logical name, the ASSIGN command removes the colon before it stores the name in the logical name table. When you display a logical name that you terminated with a colon, it is shown with the colon removed. For example:

        >ASN DB:=JK: (RET)
        >ASN (RET)
        JK = DB:

    However, you can include the colon in subsequent commands. For example:

        >DEV JK: (RET)
        DB0:   Public Mounted Loaded Online Type=RP06

    That is, the ASSIGN command treats the terminating colon as a delimiter, and not as part of the logical name. This action contrasts with that of the DEFINE LOGICALS (DFL) command, which retains the colon as part of the logical name.

- When you use the standard format for assigning logical device names (ASN ddnn:=llnn:, where llnn: is a logical device name), the default action of the ASSIGN command is to translate the assignment iteratively until it is resolved to its original final physical device. This action is automatic and transparent to the user.

- When you specify an equivalence name using the ASSIGN command, you must use the proper punctuation marks that are required by the standard syntax of the equivalence name (for example, you include the brackets around a directory specification). If the equivalence name is a device name, terminate it with a colon, as you normally would when specifying a device name. If the equivalence name is a device and directory specification, or a full file specification, do not terminate it with a colon. The ASSIGN command checks an equivalence name that is a device or file specification for proper syntax. If you do not correctly specify the device or file specification, the ASSIGN command fails. In this way, the ASSIGN command allows you to substitute logical names for all or part of a proper Files-11 file specification.

- When you assign a logical name to another logical name, if you intend to substitute the first logical name for a device name in a file specification, terminate the first logical name with a colon when you use it as the equivalence name in the second ASSIGN command line.

- If only part of a file specification is a logical name, it must be the leftmost component of the file specification. That is, you cannot use a logical name for the part of a file specification to the right of a colon only. You can assign a logical name to a node name, to a device name, or to a node name and device name together, and then you can use the

ASN (Cont.)

logical name in a file specification. However, if you assign
a logical name to a directory specification and then try to
use the logical in place of the directory in a file
specification along with a device name, you will receive an
error message.

For more information on logical names, see the description of the
DEFINE LOGICALS (DFL) command.

Formats:

The ASSIGN command has three types of formats. Following is a brief
list of these formats, and a description of the terms used in the
formats. Then each format is described in greater detail, including
descriptions of optional keywords, and examples.

        ASN eenn:=ll[nn]:[/keyword(s)]   !Makes logical assignments

        ASN =[ll[nn]:][/keyword]   !Deletes logical assignments

        ASN [/keyword]   !Displays logical assignments

Note that on RSX-11M-PLUS operating systems, terminating the
equivalence name and the logical name with colons when you make a
logical name assignment is optional. However, when you make logical
device name assignments, if you want the assignments to be translated
iteratively to the original physical device, include the colons.

The terms shown in the ASN command formats have the following
meanings:

ee

        The equivalence name (the name or specification to which you are
        assigning a logical name)

ll:

        The logical name

nn

        The optional 1- or 2-digit unit number

ttnn:

        The terminal device name and number

=gnn

        A User Identification Code (UIC) group number

Format descriptions:

ASN eenn:=ll[nn]:[/keyword(s)]

        Makes a local logical assignment for the terminal from which it
        is entered. However, when entered with keywords, this command
        can make login, group, or global assignments; or it can make

ASN (Cont.)

login assignments for other terminals. Both nonprivileged and privileged users can make local logical assignments, but only privileged users can make other types of assignments.

If both the equivalence name and the logical name are terminated by colons, the equivalence name will be translated iteratively until it is resolved to its final equivalent physical device.

Keywords:

/TERM=ttnn:

Makes a logical assignment for the terminal specified by ttnn:.

/LOGIN

(Privileged keyword). Makes a login logical assignment for the terminal from which it is entered unless another terminal is specified.

On RSX-11M-PLUS operating systems, ttnn: can be a logical name, for example: /TERM=MYTERMINAL.

/GR[=gnn]

(RSX-11M-PLUS operating systems only.)

(Privileged keyword.) Makes a group logical assignment for all users who share the group number of the protection UIC under which the assignment is made, unless another group number is specified. When =gnn is specified, makes a group logical assignment for the specified group number.

/GBL or /SYSTEM

(Privileged keyword.) Makes a global (system-wide) logical assignment. A global assignment is entered into the system-level translation table and it applies to all tasks running in the system.

/FINAL

(RSX-11M-PLUS operating systems only.)

(Privileged keyword.) Specifies that the equivalence name string should not be translated iteratively; that is, the logical name translation should terminate with the current equivalence string.

Examples:

>ASN DB2:=JK: RET

Assigns the logical device name JK: to device DB2:. This is a local assignment for the issuing terminal during the current login session.

ASN (Cont.)

>ASN DB3:=JS:/LOGIN/TERM=TT12: `(RET)`

> Assigns the logical device name JS: to device DB3:.
> This is a login assignment for terminal TT12:. Only
> privileged users can make login assignments.

>ASN RUFUS::DR1:[101,40]=MYDIR `(RET)`

> Assigns the logical name MYDIR to the node, device, and
> directory specification. This is a local assignment
> for the issuing terminal during the current login
> session. However, if you want to assign the same
> logical name to your device and directory each time you
> log in, you can enter the assignment into your login
> command file.

>ASN DB1:=OUR_DEVICE/GR `(RET)`

> Assigns the logical name OUR_DEVICE to device DB1:.
> This is a group assignment for all users with a UIC
> group number that matches the number under which the
> assignment was made. Only privileged users can make
> group assignments.

>ASN DB1:=SY:/GR=7/FINAL `(RET)`

> Assigns the logical name SY: (the logical name for the
> default user disk) to device DB1: for group number 7
> and specifies that the first translation of the logical
> name should be final. Thus, the system will stop
> translating SY: at DB1: for all users in group 7.

>ASN DB2:=JK:/GBL `(RET)`

> Assigns the logical device name JK: to device DB2:.
> This is a global assignment for all system users and
> all tasks running in the system. Only privileged users
> can make global assignments.

>ASN DB=JK: `(RET)`
ASN -- Invalid logical name

> If you specify a colon at the end of a logical name,
> you must also include a colon in the equivalence
> string.

ASN =[ll[nn]:][/keyword]

Deletes all local logical assignments for the terminal from which
it is entered (when entered without parameters). When entered
with a specific logical assignment, deletes that specific
assignment. When entered with keywords, deletes all of the
logical assignments of the specified type. Nonprivileged users
can only delete local logical assignments for their own terminal,
but privileged users can delete other types of assignments, or
assignments for other terminals.

Note that when you delete logical assignments with the ASN
command, the command deletes assignments made by the DFL command
as well.

ASN (Cont.)

Keywords:

/TERM=ttnn:

(Privileged keyword.) Deletes all of the local logical assignments of the specified terminal or deletes a specific logical assignment if one is specified.

/LOGIN

(Privileged keyword.) Deletes a specific login logical assignment when one is specified. When /LOGIN is specified without llnn: or ttnn: (ASN =/LOGIN), deletes all login logical assignments for the terminal from which the command is entered.

/GR[=gnn]

(RSX-11M-PLUS operating systems only.)

(Privileged keyword.) Deletes a specific group logical assignment when one is specified. When /GR is specified without llnn: or =gnn (ASN =/GR), deletes all group logical assignments for the group number of the protection UIC under which the command is entered. When =gnn is specified, deletes group logical assignments for the specified group.

/GBL or /SYSTEM

(Privileged keyword.) Deletes all global logical assignments, or a specific global assignment if one is specified.

Examples:

>ASN = (RET)

Deletes all local logical assignments for the terminal from which it is entered.

>ASN =JK: (RET)

Deletes the local logical device name JK:.

>ASN =JS:/LOGIN/TERM=TT12: (RET)

Deletes the login logical device name JS: for terminal TT12:. Only privileged users can delete login assignments.

>ASN =OUR_DEVICE/GR (RET)

Deletes the group logical assignment OUR_DEVICE. Only privileged users can delete group logical assignments.

>ASN =JK:/GBL (RET)

Deletes the global logical assignment JK:. Only privileged users can delete global logical assignments.

ASN (Cont.)

```
>ASN =/GBL (RET)
```

>   Deletes all global logical assignments.

ASN [/keyword]

Displays the local and login logical assignments for the terminal
from which it is entered (when entered without a keyword). When
entered with a keyword, displays other types of logical
assignments. Nonprivileged users can display the logical
assignments of their terminal, their group, and the system by
entering the /ALL keyword (ASN /ALL). Privileged users can also
display the logical assignments of other terminals (by using the
/TERM keyword). When there are no logical assignments of the
specified type, the system returns the CLI prompt instead of a
display.

Keywords:

/ALL

Displays all of the local, login, and group logical
assignments of the terminal from which it is entered, and
all system logical assignments.

/TERM=ttnn:

(Privileged keyword.) Displays all of the local and login
logical assignments of the specified terminal.

/GR[=gnn]

(RSX-11M-PLUS operating systems only.)

(Privileged keyword.) Displays all of the group logical
assignments for the group number under which the command is
entered, unless specified with another group number. When
=gnn is specified, displays the group logical assignments of
the specified group.

/GBL or /SYSTEM

(Privileged keyword.) Displays all system-level logical
assignments.

Examples:

```
>ASN (RET)
JK    DB2:  Local TI - TT12:
JS    DB3:  Login TI - TT12:
```

Displays all of the local and login logical assignments
for the terminal from which it is entered. Note that
the assignments are displayed with the logical name
first and the equivalence name second, whereas when you
make logical assignments, you specify the equivalence
name first. If the terminal does not have any local or
logical assignments, the command line prompt (>) is
returned without a display.

ASN (Cont.)

```
>ASN /ALL (RET)
SY    DR5:    Global
JK    DB2:    Local TI - TT12:
JS    DB3:    Login TI - TT12:
```

Displays all of the global logical assignments in the system, and all of the group, local, and login assignments for the terminal from which it is entered.

```
>ASN /GR (RET)
SY = DB1: (Group=7, Final, TT12:)
OUR_DEVICE = DB1: (Group=7, Final, TT12:)
```

Displays all of the group logical assignments for the UIC group number under which it is entered.

Command Error Messages:

ASN -- Device not in system

You specified a device in the command line that is not a valid device, or that is not presently on line. Check the device name and then try entering your command again. When you enter your command, be sure to specify the device name first and the logical name second.

ASN -- Device not terminal

You specified an invalid terminal name with the /TERM keyword. Check the name of the terminal and try your command again.

ASN -- Invalid logical name

The logical name that you tried to specify is not a valid logical name. Check the syntax rules for assigning logical names and try your command again. In particular, there are several conditions that result in this message:

● You included a colon within an equivalence name that you enclosed in quotation marks.

● You embedded a colon in a logical name.

● You tried to assign a logical name enclosed in quotation marks.

ASN -- Privileged command

You tried to make a privileged logical assignment from a nonprivileged terminal. The assignment was not made.

ASN -- Syntax error

You entered a command with incorrect syntax. Check the syntax for your command and try it again.

ASN -- Terminal not logged in

You specified a terminal that is not presently logged in to the system.

3.8 ACTIVE TASK LIST (NP)

The ACTIVE TASK LIST (ATL) command displays the name and status of all active tasks in the system or the status of a particular task. The display provides information useful for determining the exact status of each active task. The display contains the following information for each task:

- Task name

- Task control block physical address (octal)

- Partition name

- Partition control block physical address (octal)

- Partition base and limit physical addresses (octal)

- Task's running priority and default priority

- Task status flags

- TI: terminal physical device-unit

- Nonbuffered and buffered I/O counts (decimal)

- Task local event flags

- Task registers and Processor Status Word (memory-resident tasks only)

- RSX-11M-PLUS also displays the name of the parent task (if one exists) as well as the task blocking count.

On RSX-11M-PLUS operating systems, the display lists the tasks installed in primary pool and then those installed in secondary pool. The tasks in secondary pool are indicated by a plus sign (+).

The displayed task status flags are from the Task Control Block (TCB) or the Partition Control Block (PCB). The ATL command displays the name of the bit if the bit is set to 1 at the time of the display. Bits set to 0 are not displayed. Flag names are three characters long and correspond to the last three characters of the mnemonic defining the status bits. For example, AST represents the bit T2.AST and indicates that the task is processing an Asynchronous System Trap. Names prefixed by a minus sign (-) indicate that the bit represents the complement of the condition. For example, -CHK indicates that the task cannot be checkpointed.

If the task is not in memory (the OUT flag is displayed), the contents of the PC (Program Counter), the PSW (Processor Status Word), and the registers are not displayed.

ATL (Cont.)

The following list provides a brief description of each task status flag:

Status	Description
ABO	Task is being aborted.
ACP	Task is an Ancillary Control Processor (ACP).
AST	Task is processing an AST.
BLK	Task is blocked by a command line interpreter (CLI) command.
CAF	Task cannot be checkpointed due to checkpoint space allocation failure.
CAL	Checkpoint space is allocated in task image.
-CHK	Task cannot be checkpointed.
CIP	(RSX-11M-PLUS operating systems.) Task is blocked for checkpoint in progress.
CKD	(RSX-11M operating systems.) Task has checkpointing disabled.
CKP	(RSX-11M operating systems.) Task is checkpointed. (RSX-11M-PLUS operating systems.) Task is blocked for checkpoint in progress.
CKR	Task checkpoint request pending.
CLI	Task is a CLI task.
CMD	(RSX-11M-PLUS operating systems.) Task is executing a CLI command.
DSP	(RSX-11M-PLUS operating systems.) Task was built with separate I- and D-space.
DST	Task ASTs are disabled.
-EXE	Task is not in execution.
FMP	(RSX-11M-PLUS operating systems.) Task uses the fast-mapping feature of the Executive.
FXD	(RSX-11M operating systems.) Task is fixed in memory. (RSX-11M-PLUS operating systems.) Partition is fixed in memory.
GFL	Task has its group global event flags locked.
HLD	(RSX-11M operating systems.) Task is half-loaded.
HLT	Task is being halted.
LDD	(RSX-11M-PLUS operating systems.) Task's load device has been dismounted.
MCR	Task was activated by MCR.
MPC	(RSX-11M-PLUS operating systems.) Task has mapping change and outstanding I/O.
MSG	Task aborted, waiting for TKTN message.
MUT	(RSX-11M-PLUS operating systems.) Task is a multiuser task.
NET	Network protocol.
NRP	(RSX-11M operating systems.) Task is mapped to nonresident partition.
NSD	Task cannot receive data (no send data allowed).
-PMD	Suppress Postmortem Dump on SST abort.
OUT	(RSX-11M operating systems.) Task is out of memory. (RSX-11M-PLUS operating systems.) Partition is out of memory.
PRO	Task has prototype TCB.
PRV	Task is privileged.
PRVD	(RSX-11M-PLUS operating systems.) Task was privileged but has been set nonprivileged.

ATL (Cont.)

Status	Description
RDN	Task I/O is being run down.
REM	Task is to be removed on exit.
REX	Task has abort AST effected or in progress.
ROV	Task has resident overlays.
RST	Task is restricted (used by layered software).
RUN	(RSX-11M-PLUS multiprocessor systems only.) Task is executing on another processor.
SEF	Task is stopped for an event flag(s).
SIO	(RSX-11M-PLUS operating systems.) Task is waiting for terminal I/O.
SLV	Task is slaved.
SNC	(RSX-11M-PLUS operating systems.) Task uses commons for synchronization.
SPM	Task is reserved for Software Performance Monitor (SPM-11).
SPN	Task is being suspended.
SPNA	Task was suspended prior to AST.
STP	Task is stopped for terminal input.
STPA	Task was stopped prior to AST.
WFR	Task is in a "wait-for" state.
WFRA	Task was in a "wait-for" state prior to AST.
XHR	(RSX-11M-PLUS operating systems.) Task has an external header.

Format:

    ATL [taskname]

Example:

```
>ATL RET
LDR... 112050  LDRPAR 112404 00253100-00255600  Pri - 248.  Dpri - 248.
   Status:  -CHK FXD STP -PMD PRV NSD
   TI - CO0:  IOC - 0.  BIO - 0.  Eflg - 000001 000000  PS - 170000
   PC - 120354 Regs 0-6 120212 010364 177777 107646 074714 107614 120166
RMDEMO 053550  GEN    046020 01036700-01065600  Pri - 225.  Dpri - 225.
   Status:  -CHK WFR -PMD PRV MCR
   TI - TT0:  IOC - 0.  BIO - 0.  Eflg - 000021 040000  PS - 170010
   PC - 125234 Regs 0-6 000000 136257 132066 000000 136321 134560 121166
F11ACP 111550  GEN    067150 01164600-01230600  Pri - 149.  Dpri - 149.
   Status:  STP ACP -PMD PRV NSD CAL
   TI - CO0:  IOC - 0.  BIO - 0.  Eflg - 000002 000001  PS - 170000
   PC - 135244 Regs 0-6 000010 000066 000016 000000 067420 111550 120244
MCR... 110160  SYSPAR 114514 00202600-00212600  Pri - 160.  Dpri - 160.
   Status:  STP -PMD PRV MCR CLI NSD CAL
   TI - TT51:  IOC - 0.  BIO - 0.  Eflg - 000001 040000  PS - 170000
   PC - 122436 Regs 0-6 000000 120476 122032 120432 010554 043552 120366
```

BLK

3.9 BLOCK (NP,P)

The BLOCK command blocks an installed task. It declares to the system that the specified task is not eligible to execute or to compete for memory. On multiuser protection systems, nonprivileged users can only block active tasks requested from the issuing terminal. Privileged users can block any task. On systems without multiuser protection, any user can block any task.

However, the following tasks cannot be blocked: ACP tasks, CLI tasks, tasks that are being aborted, and tasks that are exiting.

Blocking a task sets the block bit in the Task Control Block (TCB). When a task's block bit is set, the task is ineligible to compete for system resources. To clear the block bit, issue the MCR UNBLOCK command or, if the task is active, abort the task. (Unblocking or aborting a task are the only ways to cancel the BLOCK command.)

A blocked task has an effective priority of zero. If the task can be checkpointed, any task can checkpoint it. Once checkpointed, the blocked task is no longer eligible to compete for space in memory. A blocked task that is subsequently aborted is automatically unblocked by the system. If the task had previously specified a requested exit AST, the task is unblocked and the AST is declared for it.

Format:

    BLK [taskname] [/TERM=ttnn:]

taskname

    The name of the task to be blocked. If taskname is not specified, the command attempts to block the task requested from the issuing terminal (task TTnn).

/TERM=ttnn:

    A privileged RSX-11M-PLUS keyword that specifies that a task initiated from the specified terminal should be blocked.

Examples:

    >BLK TST (RET)

        Blocks task TSTT36, prohibiting it from further execution. TT36: is the terminal from which the task was initiated.

    >BLK MAS/TERM=TT23: (RET)

        Blocks task MAST23.

BOO

3.10 BOOT (P)

The BOOT command bootstraps a system that exists as a task image file on a Files-11 volume. It provides a convenient means of terminating one system and initiating another, especially on minimum hardware configurations. For example, BOOT can be used to terminate a real-time system and initiate a program development system.

The BOOT command immediately terminates the system currently in operation.

Bootable systems, such as RSX-11M and RSX-11S, are special task image files that have no task headers.

Format:

    BOO[T] [filespec]

filespec

    The standard RSX-11M/M-PLUS file specification in the form:

        dev:[ufd]filename.type;ver

    This specifies the file from which a new system is to be loaded.

    Defaults applied to the file specification are:

        dev: The system device LB:

        [ufd]   The directory under which BOOT is running

        filename   RSX11M

        type   SYS

        version   The latest version

    Note that BOOT is the only command that allows the file specification to omit the file name.

Table 3-1 lists all of the valid bootable devices for RSX-11M/M-PLUS operating systems.

Table 3-1
Valid Bootable Devices

RSX-11M		RSX-11M-PLUS	
RL01/02	RP02/03	RL01/02	RC25
RK05	RP04/05/06	RK05	RP02/03
RK06/07	RS03/04	RK06/07	RP04/05/06
RM02/03/05/80	RX01/02	RM02/03/05/80	RX50
RA60	RX50	RA60	ML11
RA80/81	RD51	RA80/81	
RC25	DECtape	RD 52/53	
ML11			

BOO (Cont.)

On RSX-11M-PLUS operating systems, system images saved on one of the following devices can be transported to any of the other devices and then booted from that device (see the description of the SAVE command for more information):

    ML11   RA60   RC25
    RK06/07   RA80/81   RD51/52/53
    RM02/03/05/80   RP04/05/06   RX50

Restrictions:

For an unsaved system boot, the boot device physical unit number (unit plug) must equal the logical unit number (LUN) in the unsaved system. Otherwise, the initial SAVE command line will not work.

It is not possible to correctly boot a large unsaved Executive under the following circumstances:

1. When booting a mapped RSX-11M or RSX-11M-PLUS operating system from an unmapped RSX-11M system.

2. When booting a 22-bit RSX-11M or RSX-11M-PLUS operating system from an 18-bit RSX-11M operating system.

Booting from an unmapped RSX-11M operating system: If the Executive being booted has anything fixed in memory above 27.5K words (for example, drivers, tasks, or commons), it will not be read into memory, causing problems when you try to run the system. This happens because BOOT moves the bootstrap code in an unmapped system to the top of memory less .5K (28K - .5K) and can only read in the unsaved system image up to this location (27.5K). Anything above 27.5K is not read in.

Booting from an 18-bit RSX-11M operating system: If the system image being booted is larger than the running system, not all of the image will be read into memory. Again, BOOT only reads in the image up to the beginning of the bootstrap code. If the Executive has anything fixed in memory above this location, BOOT will not read it in and the new system will not run properly.

If the Executive Debugging Tool (XDT) has been generated into the system, XDT displays the following when an RSX-11M/M-PLUS operating system is booted for the first time:

    XDT: baselevel

    XDT>

where baselevel is the base level number for the system.

Pressing the G key in response to the prompt returns control to RSX-11M/M-PLUS and causes the system to come up normally. After the system has been saved, XDT does not reappear unless a user sets a breakpoint or issues the BRK command, or the system crashes. (See the RSX-11M/M-PLUS and Micro/RSX Debugging Reference Manual for a description of XDT.)

BOO (Cont.)

Example:

>BOO TEST (RET)

   Bootstraps from the system device the system contained in
   the file TEST.SYS.

Command Error Messages:

BOO -- Device not in system

   The booting system does not contain the data structures
   needed for the device being booted.

BOO -- Device offline

   An attempt was made to boot a file on an off-line device.

BOO -- DPB error

   A bad Directive Parameter Block was created by BOOT. This
   error indicates that the system itself has faulted. If the
   error persists, submit a Software Performance Report (SPR)
   to DIGITAL.

BOO -- File not contiguous

   An attempt was made to load a system from a noncontiguous
   file. System images must be contiguous.

BOO -- Invalid load device

   BOOT detected a device that was invalid as a system
   residence device.

BOO -- Label block read error

   An attempt was made to read the label block of the system
   image file, but the attempt failed.

BOO -- Not a system image

   BOOT did not consider the file to be a system image file,
   probably because the file is formatted improperly.

BOO -- No transfer address

   BOOT did not consider the file to be a system image file
   because the specified transfer address in the label block
   appears to be corrupted.

BRK

3.11 BREAKPOINT TO EXECUTIVE DEBUGGING TOOL (P)

The BREAKPOINT TO EXECUTIVE DEBUGGING TOOL (BRK) command passes
control to the Executive Debugging Tool (XDT) if XDT has been
generated into the system. If XDT is not in the system, the command
has no effect. (See the RSX-11M/M-PLUS and Micro/RSX Debugging
Reference Manual for a description of XDT.) If successful, the BRK
command halts all system activity. Proceeding from a breakpoint
normally restores the system to the state that existed when the BRK
command was issued.

When XDT gains control, it prints the following message on the console
terminal:

    BE: nnnnnn
    XDT>

This message confirms that XDT has control. All XDT commands are
available for use in debugging the Executive or user-written drivers.
To return control to MCR, enter the P command; MCR then prompts with a
right-angle bracket (>).

On an RSX-11M operating system, you can issue the BRK command from a
privileged terminal to invoke XDT, but XDT command input and output is
done to and from the console terminal.

On an RSX-11M-PLUS operating system, you must issue the BRK command
from the console terminal.

Format:

    BRK

Example:

    >BRK RET
    BE: 124560
    XDT>P
    >

Command Error Message:

    BRK -- Terminal not a console

        (RSX-11M-PLUS operating systems only.) The BRK command must
        be issued from the console terminal.

BRO

3.12 BROADCAST (NP,P)

The BROADCAST command displays a specified message at one or more terminals, as follows:

- A privileged user can display a message at all terminals connected to the system or, in a multiuser protection system, at all logged-in terminals.

- Both privileged and nonprivileged users can display a message at any one terminal.

You can also create an indirect command file to contain one or more lines of input to the command. Each line specifies the target terminal and the message to be broadcast. (Privileged users can broadcast a message simultaneously to all terminals.) To use the command file, enter the command name followed by an at sign (@) and the command file specification.

If the message cannot be broadcast within 20 seconds, the system displays the following message at the issuing terminal:

    BRO -- Message failed to reach ttnn:

If a privileged user specifies multiple terminals (ALL: or LOG:), the system returns one error message for each busy terminal.

If you have used SET /NOBROadcast so that you will not receive any messages sent by the BRO command, the user sending the message will receive an error message.

Formats:

    BRO[ADCAST] ttnn: message

    BRO[ADCAST] @filespec

    BRO[ADCAST] ALL:message (Privileged format)

    BRO[ADCAST] LOG:message (Privileged format)

    BRO[ADCAST] user-name message (RSX-11M-PLUS operating systems
                                   with Resource Accounting only)

NOTE

Each format can be entered on two successive lines by pressing the RETURN key immediately after the command name; this invokes the direct task format. For example:

    >BRO (RET)
    BRO>ttnn:message

To exit from the direct task format, press CTRL/Z.

BRO (Cont.)

ttnn:

    The terminal to receive the broadcast message.

message

    The message to be broadcast. This is an ASCII character string that cannot exceed the length of one line (80 characters). Note that an exclamation mark (!) cannot be broadcast.

    Usually, BRO uses uppercase letters when it displays the message. When you use the direct task format, however, BRO displays the message exactly as you typed it.

filespec

    The specification of a file containing one or more message lines in the format:

        ttnn: message

        user-name message

    or, for privileged users:

        ALL:message

        LOG:message

ALL:

    Privileged option. Indicates that the message is to be sent to all terminals connected to the system (this does not include slave terminals, virtual terminals, or terminals that have the broadcast option disabled).

LOG:

    Privileged option. Indicates that the message is to be sent to all logged-in terminals (this does not include slave terminals, virtual terminals, or terminals that have the broadcast option disabled). In a system that does not support multiuser protection, LOG: defaults to ALL:.

user-name

    (RSX-11M-PLUS operating systems with Resource Accounting only.) The user name of the person who is to receive the broadcast message. You can specify user-name to be the last name of the user (NAME) or the first initial and last name (I.NAME). You must use a blank or tab after user-name to separate it from the message text. When you specify user-name (last name only), BRO makes an exact match between the name you enter and a name in the account file. If the user receiving the message is logged in from more than one terminal, the message is sent to all of them.

BRO (Cont.)

The BRO command displays the message in one of the following formats:

RSX-11M systems and RSX-11M-PLUS systems without Resource Accounting

dd:month:yr hh:mm   From node::ttnn: to ttnn:
message

RSX-11M-PLUS systems with Resource Accounting

dd:month:yr hh:mm   From node::user-name (ttnn:)   to ttnn:
message

dd:month:yr hh:mm   From node::user-name (ttnn:)   to user-name
message

The variable node is the name that was selected for your system during system generation. It is also your DECnet node name if your system is on the network.

Examples:

RSX-11M systems and RSX-11M-PLUS systems without Resource Accounting

>BRO TT51: PRIVILEGED TESTING.   PENDING CRASH. (RET)

displays

10-AUG-85 13:35   From QUACK::TT52:   to TT51:
PRIVILEGED TESTING. PENDING CRASH.

>BRO (RET)
BRO>TT51: More testing. Crash likely. (RET)

displays

10-AUG-85 13:37   From QUACK::TT52:   to TT51:
More testing. Crash likely.

>BRO LOG:System going down in 5 minutes for reboot. (RET)

displays

10-AUG-85 13:40   From QUACK::TT52:   to TT51:
SYSTEM GOING DOWN IN 5 MINUTES FOR REBOOT.

RSX-11M-PLUS systems with Resource Accounting

>BRO TT35: This is a test. (RET)

displays

10-AUG-85 13:10   From BANTER::SMITH (TT30:)   to TT35:
THIS IS A TEST.

>BRO JONES THIS IS ANOTHER TEST. (RET)

displays

10-AUG-85 13:10   From BANTER::SMITH (TT30:)   to JONES
THIS IS ANOTHER TEST.

BRO (Cont.)

Note:

The BROADCAST command uses the write-breakthrough feature of the terminal driver, a system generation option always generated with an RSX-11M multiuser protection system and all RSX-11M-PLUS operating systems. If the system supports the feature, under most circumstances the broadcast message will reach all targeted terminals. If the system does not support the write-breakthrough feature, the write defaults to a write logical block; the message cannot break through any type of I/O at the terminal.

Command Error Messages:

BRO -- Can't find <user>

(RSX-11M-PLUS operating systems with Resource Accounting only.) A message was sent, using the user-name format, but the user is not logged in.

BRO -- Command input error

The BROADCAST task did not receive the command line. (Usually an indirect command file could not be found.) Reenter the command line.

BRO -- Command syntax error

The command line had an improper format.

BRO -- Illegal device specified

The specified device was not a terminal.

BRO -- Message failed to reach ttnn:

The message could not be displayed within 20 seconds at the terminal specified by ttnn:.

BRO -- Privileged command

A nonprivileged user entered a privileged option of the command, that is, attempted to broadcast one message to all connected or logged-in terminals.

BRO -- User not receiving messages

The terminal to which the message was sent has been SET /NOBROadcast.

BYE

3.13 BYE (NP)

The BYE command logs you out of a multiuser protection system. The system writes a logout message on the console terminal (CO:), displays a terminating message on the initiating terminal, aborts any active nonprivileged and some privileged tasks that belong to you, dismounts volumes mounted by you (unless you are a privileged user and you have mounted a public device, because mounted public volumes remain mounted), and deallocates any private devices you had previously allocated.

When it logs a terminal out, the BYE command follows this procedure:

1. Checks to see if the terminal's current command line interpreter (CLI) has requested a silent logout. If it has, BYE does not display any information and does not execute the system logout command file.

2. If silent logout is not requested, resets the default CLI for the terminal to MCR, resets the terminal so that it can receive broadcast messages, and executes LB:[1,2]SYSLOGOUT.CMD, the system logout command file.

> On RSX-11M-PLUS operating systems, the system logout command file is not executed on a virtual terminal.

3. Informs the full-duplex terminal driver or DECnet that the terminal is logging out. BYE issues a Queue Input/Output (QIO) directive that the terminal driver uses to hang up remote lines or that DECnet uses to break the connection.

    This action can be controlled by the /[NO]HOLD keyword. If you specify /HOLD, BYE logs out the terminal but the line is not hung up. If you specify /NOHOLD, BYE logs out the terminal and the line is hung up. The default is /NOHOLD.

The way in which BYE aborts (or does not abort) a task active on the terminal being logged out depends on the task and its privilege status.

All tasks with abort ASTs and all nonprivileged tasks that are active at your terminal when you issue the BYE command are aborted. If a nonprivileged task has requested an exit AST service routine by means of a SPECIFY REQUESTED EXIT AST (SREA$ or SREX$) directive, BYE allows the task to enter this service routine. BYE requests each of these tasks to exit (abort), causing the requested exit AST to be entered for the task. For all of these nonprivileged tasks, BYE allows a user-specified time interval during which the AST can be executed for the task. This time interval is specified when the BYE task is built. The default interval is zero, which means that BYE does not wait at all if another value for the time interval has not been specified. At the end of the time interval, if the task has not exited or if the AST service routine has not been entered, BYE aborts the task normally (a second requested exit AST cannot be declared for a nonprivileged task). BYE also aborts any other nonprivileged tasks that are still active.

BYE (Cont.)

BYE aborts a privileged task that has requested an AST service routine
in the same way as a nonprivileged task. However, any privileged
tasks that have not exited by the end of the time interval are not
necessarily aborted. The task itself must determine if it will be
aborted or not. Privileged tasks that did not request the AST service
routine remain active.

Format:

    BYE [/[-][NO]HOLD]

Example:

    >BYE (RET)
    Have a Good Evening
    13-May-85 18:47 TT13: is logged off QUACK

    Depending on the time of day, the system displays "Have a Good
    Morning," "Have a Good Afternoon," or "Have a Good Evening."

On RSX-11M-PLUS operating systems that support Resource Accounting,
the BYE command provides additional information (provided that you
logged in after Resource Accounting was initiated). The additional
information consists of the total time logged in, the amount of CPU
time used, and the total number of tasks run.

Example:

    >BYE (RET)
    Connect time: 2 hrs 18 mins 53 secs
    CPU time used: 0 hrs 5 mins 14 secs
    Task total: 48
    Have a Good Afternoon
    14-MAY-85 17:23 TT30: logged off BANTER

Note that some tasks, including BYE, spawn or request other tasks.
These other tasks are also included in the task total. For example,
when you issue a RUN-immediately command, the Resource Accounting
system records three tasks: the MCR task to execute the RUN command,
INSTALL to install the task, and the actual execution of the task.

Command Error Message:

    BYE -- Syntax error

        A keyword other than a form of /HOLD (/HO[LD],/NOHO[LD],
        /-HO[LD]) was specified in the command line.

3.14 CANCEL (NP,P)

The CANCEL command cancels time-based initiation requests for a task.
These   requests   result   from   a   RUN$ directive   or   any   of   the
time-synchronized variations of the MCR RUN command and are placed in
the clock queue.   (Note that you must be privileged to use these forms
of the RUN command.)

Only a privileged user can issue a CANCEL command for a task not
initiated from the entering terminal.

CANCEL does not affect execution of a currently active task.   CANCEL
removes   only   the   time-based   schedule   requests   still in the clock
queue.

Format:

    CAN[CEL] taskname

        where taskname is the name of the task.

Example:

    >CAN XKE (RET)

        Cancels all periodic rescheduling and time-based initiation
        requests for task XKE.

CBD

3.15 COMMON BLOCK DIRECTORY (NP)

The COMMON BLOCK DIRECTORY (CBD) command executes on RSX-11M-PLUS operating systems only.

The CBD command displays information about all entries or a specific entry in the Common Block Directory. The Common Block Directory is a table of all named common regions and libraries installed in the system.

The display contains the following information for each named common region:

- Common region name

- Partition Control Block (PCB) address

- The number of tasks mapped to the common region

- Common region status bits. The following is a list of the status bits and their meanings:

CAF	Checkpoint allocation failure
-CHK	Cannot be checkpointed
CKP	Checkpoint in progress
CKR	Checkpoint requested
COM	Library or common
DEL	Delete on last detach
DRV	Driver common
FXD	Fixed in memory
LIO	Long I/O
LFR	Last load failed
NSF	Cannot be shuffled
OUT	Out of memory
PER	Parity error
PIC	Position independent
NWB	Common should not be written back
RON	Read-only common

Usually, the status bits will indicate that the common region is either fixed in memory (FXD) or out of memory (OUT).

An optional keyword (/TASKS) displays a list of all tasks attached to a specific common region and the number of times each task has mapped to the common region (mapping count).

Format:

    CBD [common-region-name [/TASKS]]

common-region-name

    The name of a specific common region.

Keyword:

/TASKS

    Displays the names of each task attached to a specific common region and the number of times the task has mapped to the region (mapping count).

CBD (Cont.)

Examples:

```
>CBD (RET)
BASIC2  050534    0 STATUS:   OUT COM
DEPRES  063154    0 STATUS:   OUT COM
FCSSUP  052714    0 STATUS:   OUT COM
RMSRES  045264    1 STATUS:   COM
TTCOM   116570    1 STATUS:   FXD COM
```

     Displays all named common regions, PCB addresses, mapping count, and status.

```
>CBD BASIC2 (RET)
BASIC2  042570    0 STATUS:   OUT COM
```

     Displays information for the BASIC2 entry.

```
>CBD RMSRES/TASKS (RET)
RMSRES  045264    1 STATUS:   COM
        DEVICE    1
```

     Displays information for the RMSRES entry as well as all tasks that have attached to the common region.

CLI

3.16 COMMAND LINE INTERPRETER (P,NP)

The COMMAND LINE INTERPRETER (CLI) command allows the use of a command
line interpreter other than MCR, such as DCL or a user-written CLI. A
CLI task receives unsolicited input from a terminal and then attempts
to interpret the input as a command. On RSX-11M operating systems,
you can have up to 15 alternate CLIs running on your system
simultaneously (the number of CLIs is selected at system generation).
On RSX-11M-PLUS operating systems, the number of CLIs, including MCR,
is always 16. Before you can use an alternate CLI, it must be
installed with the /CLI=YES option. (See the description of the
INSTALL command.)

All of the CLI command keywords and subkeywords can be truncated to
three characters.

Formats:

        CLI /keyword[=cliname]

        CLI /INI[T]=cliname[/subkeyword(s)]

cliname

        The name of the alternate CLI. This name can be between one and
        six characters long.

Keywords:

        /DISABLE=cliname

                Disables the specified CLI. The CLI cannot accept any
                commands. This effectively stops system use by terminals
                set to this CLI until the CLI is enabled again. The system
                sends a message to the CLI informing it that it has been
                disabled if the CLI was initialized with the /MESSAGE
                subkeyword specified.

        /ELIM=cliname or /ELIM=*

                Removes all of the data structures for the specified CLI or,
                if the wildcard (*) is used, for all of the alternate CLIs.
                After this command is executed, the CLI task can be removed
                (see the description of the REMOVE command).

                Individual CLIs can be eliminated only if no terminals are
                set to them. When you use the wildcard option, all CLIs
                except MCR are eliminated. Any terminals set to a non-MCR
                CLI are disabled. The terminals can be enabled again by
                setting them to any valid CLI (after it has been
                initialized) or to MCR (which does not need to be
                initialized). CLIs that were initialized with the /MESSAGE
                subkeyword receive a message from the system informing them
                that they have been eliminated.

                /ELIM=* is intended to be used during the system shutdown
                procedure.

CLI (Cont.)

/ENABLE=cliname

Enables a previously disabled CLI. The CLI can now accept commands. If the CLI was initialized with the /MESSAGE subkeyword specified, the system sends a message to the CLI informing it that it is now enabled.

While a CLI is disabled, the terminal remains set to it. To set the terminal to an enabled CLI, issue the SET /CLI command from another terminal (privileged users only).

/INIT=cliname[/subkeyword(s)]

Initializes the data structures for the specified CLI so that terminals can be set to it. The CLI task must have been installed with the /CLI=YES option. All CLIs except MCR must be initialized before they can be used.

If the /MESSAGE subkeyword is specified, the system sends a message to the CLI, informing the CLI that it has been initialized.

Subkeywords:

/CPR="string"

Specifies the CTRL/C prompt string. The string inside the quotation marks has the same syntax as the MACRO-11 .ASCII directive (see the PDP-11 MACRO-11 Language Reference Manual). You must supply characters such as RETURN (<15>) and LINE FEED (<12>) because they are not supplied automatically. For example:

/CPR="<15><12>/MCR>/"

sets up the string for MCR's CTRL/C prompt. This means that when you press CTRL/C, the system issues a RETURN/LINE FEED and then displays the prompt MCR>.

The string can be between 0 and 31 characters long. A null string, that is, a string with zero characters(/CPR=""), specifies that no prompt will be issued.

If you want to use double quotation marks or slashes within the string, use different characters as the string delimiters. (The delimiters can be any character that is not used in the string.)

The default is /CPR="<15><12>/cli>" where cli is the name of the CLI.

/CTRLC

Specifies that the CLI is requesting CTRL/C notification packets. These packets are only sent if the terminal has the CTRLC terminal attribute set.

CLI (Cont.)

/DISABLE

>Initializes the CLI in disabled mode. The system rejects any commands issued from the terminal until the CLI is enabled.
>
>By default, the CLI is enabled.

/DPR="string"

>Specifies the default prompt to be issued when an empty command line is entered. As with /CPR, the string inside the double quotation marks has the same syntax as the MACRO-11 .ASCII directive. You must supply characters such as RETURN (<15>) and LINE FEED (<12>) because they are not supplied automatically.
>
>The string can be between 0 and 31 characters long. A null string (/DPR="") specifies that no prompt should be issued.
>
>If you want to use double quotation marks or slashes within the string, use different characters as the string delimiters. (The delimiters can be any character that is not used in the string.)
>
>The default is /DPR="<15><12>/>/".

/LGO

>Specifies that the CLI will accept commands from terminals that are not logged in. This allows the CLI to execute the commands without the user having to log in. An application can, for example, use the terminal for data entry only and not allow it access to the system. The terminal is under complete control of the CLI task. You can only do what the CLI allows.
>
>It is up to the CLI to do any user validation or security checks. Also, be careful when doing any file I/O from tasks running on a terminal that is not logged in, because the UIC and privileges for the terminal are undefined.
>
>By default, commands from terminals that are not logged in will be rejected by the system and will not be passed to the CLI.

/MESSAGE

>Specifies that the CLI wants to receive messages from the system. The system messages inform the CLI of events such as its being enabled or

CLI (Cont.)

disabled, or if a terminal is being set to the CLI
or if it is being dissociated from the CLI. (See
the RSX-11M/M-PLUS System Management Guide for a
list of the messages and their format.)

By default, the CLI does not receive messages from
the system.

/NULL

Specifies that the CLI will accept empty command
buffers resulting from a user pressing the RETURN
key as the first character in a command line. No
prompt is issued.

By default, the command is not passed to the CLI
and the default prompt is issued.

/PRIV

Specifies that a user must be privileged to set
the terminal to the CLI. (See the description of
the SET command.)

By default, a nonprivileged user can set his or
her own terminal to the CLI.

/PROMPT

Specifies that the CLI wants to receive prompt
requests if a task that was started in order to
execute a command exits.

By default, the dispatcher issues a prompt and the
request is not passed to the CLI.

/QUIET

Specifies that the MCR commands HELLO and BYE do
silent logins and logouts, respectively. (See the
descriptions of these commands.) The keyword also
suppresses messages from the dispatcher.

/RESTRICT

Specifies that only the CLI can issue the SCLI$
directive to set a terminal to itself. (See the
RSX-11M/M-PLUS and Micro/RSX Executive Reference
Manual.)

Note that you cannot use /RESTRICT for CLI tasks
whose names are in the form ...xxx.

/SNGL

(RSX-11M-PLUS operating systems only.) Specifies
that the dispatcher accept single-line commands
only. A hyphen immediately before a RETURN will
not be interpreted as a continuation line
indicator; it remains part of the text.

CLI (Cont.)

/TASK=taskname

Specifies the name of the task that will act as the CLI. Use this keyword if the name of the task is different from the name of the CLI.

/MESSAGE=cliname:"message-text"

Sends an ASCII message to the CLI if it has the message attribute set for it (by the /MESSAGE subkeyword). If the CLI does not have the attribute set, the command issues an error message.

/SHOW

(Nonprivileged keyword.) Displays information about all CLIs on the system. The information includes the name of the CLI, the task that implements the CLI, the number of terminals set to the CLI, several status bits for the CLI, and whether the CLI is active.

The following list gives the meaning of the status bits:

ACT   CLI is active (always shown for MCR).

DSB   CLI is currently disabled.

PRV   CLI was initialized with the /PRIV subkeyword. You must be privileged to set a terminal (including TI:) to this CLI.

RST   CLI was initialized with the /RESTRICT subkeyword. Only the CLI can set a terminal to itself.

/UNOVR

Clears the override bit set for the terminal's CLI. When the HELLO command enters the command file LB:[1,2]SYSLOGIN.CMD, the terminal is set to a specific CLI. However, an override bit is also set so that the command file can execute from MCR. Clearing the override bit ensures that commands issued from the terminal will go to the correct CLI.

/UNOVR is useful only with SYSLOGIN.CMD, immediately before chaining to a user's LOGIN.CMD, or exiting.

Examples:

```
>CLI /SHOW ⟨RET⟩
MCR        MCR... 9  ACT
DCL        ...DCL 0
```

Displays information about the CLIs currently installed in the system.

CLI (Cont.)

>CLI /INI=TCP/LGO/MES/TASK=PROMPT (RET)

> Initializes the task PROMPT as a CLI. The command line specifies that the CLI will be called TCP, it will accept commands from unlogged-in terminals, and it will receive messages from the system. (Note that PROMPT must first be installed with the /CLI=YES option before it can be initialized as a CLI.)

Command Error Messages:

CLI -- CLI already exists

> You attempted to initialize a CLI that already exists in the system.

CLI -- CLI does not accept messages

> The CLI was not initialized with the /MESSAGE keyword, so its message attribute bit has not been set. The CLI is unable to receive any messages.

CLI -- CLI in use

> You attempted to eliminate a CLI that still has terminals set to it.

CLI -- Device attached

> The CLI command cannot do a /SHOW display because another task has attached the terminal.

CLI -- Feature not supported

> The system does not support alternate CLIs.

CLI -- Illegal keyword value

> You specified an invalid string with the /CPR or /DPR subkeyword.

CLI -- Illegal use of restrict switch

> A CLI cannot be initialized with /RESTRICT if the name of the CLI task is in the form ...xxx.

CLI -- Invalid keyword

> An incorrect keyword was specified in the command line.

CLI -- Max number of CLIs already present

> You attempted to initialize another CLI, but the maximum number of CLIs allowed in the system has already been reached.

CLI (Cont.)

CLI -- No pool space

Not enough space in pool is present to do the operation specified in the command line.

CLI -- Output error

An I/O error occurred while output was being sent to the terminal.

CLI -- Partition too small to buffer information

The /SHOW subkeyword did not have enough space to buffer the display information. Try reinstalling the MCR task with a larger increment, using the /INC keyword (see the description of the INSTALL command). If the error persists, submit a Software Performance Report (SPR).

CLI -- Privileged command

Nonprivileged users can only use the /SHOW keyword.

CLI -- Syntax error

The command line was not entered correctly.

CLI -- Task not a CLI

You attempted to initialize a CLI task that was not installed with the /CLI=YES keyword.

CLI -- Task not in system

The specified CLI task has not been installed, or you attempted to eliminate a CLI whose name is unknown to the system.

3.17 CLOCK QUEUE (NP)

The CLOCK QUEUE (CLQ) command displays on the entering terminal
information about tasks currently in the clock queue. The information
consists of the task names, the next time each task is to be run, and
each task's reschedule interval, if one was specified. The system
places a task in the clock queue if the task was activated by the RUN
command, which specified a time-based option, or by the RUN$
directive.

Format:

     CLQ[UEUE]

Example:

     >CLQ ⏎(RET)
     TASK1 Scheduled at 22-NOV-85 10:24:30:00
     TASK2 Scheduled at 22-NOV-85 10:30:00:00 Reschedule interval 30M
     >

          The first task in the queue will run at 10:24:30:00 (hour:
          minute: second: clock tick); it has not been rescheduled.
          The second task in the queue will next run at 10:30:00:00
          and is scheduled to run every 30 minutes.

DCL

3.18 DIGITAL COMMAND LANGUAGE (NP)

The DIGITAL COMMAND LANGUAGE (DCL) command allows you to issue DCL commands from a terminal that is set to MCR. Instead of MCR processing the command line, DCL processes it. The DCL task must be installed before it can do command processing. See the RSX-11M or the RSX-11M-PLUS Command Language Manual for descriptions of the DCL commands.

Format:

    DCL command-line

Examples:

    >DCL SET DEF LB: ⦿RET

        Issues the DCL command that sets the default device for the
        entering terminal to be LB: (the system device).

    >DCL TYPE [303,24]USERS.TXT ⦿RET

        Issues the DCL command that displays a file on the entering
        terminal. The file is USERS.TXT, which is in directory
        [303,24].

DEA

3.19 DEALLOCATE (NP,P)

The DEALLOCATE command releases a private (allocated) device, thereby allowing other users to access it. (This command applies only to systems that support multiuser protection.) Nonprivileged users can only deallocate private devices that they themselves have allocated. A privileged user can deallocate any device in the system.

Note that when an owner of a private device logs out (issues the BYE command), the system deallocates all of that user's private devices. However, if the system detects an error while attempting to deallocate a device, it stops and does not deallocate that device or any remaining devices. The related error message does not state which device caused the error.

If an allocated device has been mounted, it must be dismounted before you deallocate the device.

Format:

    DEA[LLOCATE] [ddnn:]

ddnn:

    The device unit name and number of the private device to be deallocated. If the command line does not specify a device unit, the system deallocates all private devices owned by the user logged in on the issuing terminal.

Example:

    >DEA DM: (RET)

        Deallocates disk DM:. The deallocated device can now be mounted or allocated by other users.

DEB

3.20 DEBUG (NP,P)

The DEBUG command executes on RSX-11M-PLUS operating systems only.

The DEBUG command forces a task to trap to a debugging aid by setting the T-bit in the task's Processor Status Word (PSW). To debug a task, it must have been built with the /DA switch (see the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual) or have issued a SPECIFY SST VECTOR TABLE FOR DEBUGGING AID (SVDB$) directive (see the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual).

Nonprivileged users can debug any nonprivileged task that was initiated from their own terminals (TI:). Privileged users can debug any task.

Tasks for which you might want to use the DEBUG command are those that are in an infinite loop or that are waiting for an incorrect or nonexistent event flag.

If you enter the DEBUG command, but no debugging aid was specified for the task, you will get the error message "Task does not contain a debugging aid."

Format:

    DEB[UG] [taskname]

taskname

    The name of the task that you want to debug. If you do not specify a task name, DEBUG looks for task TTnn, which is the task currently running from your terminal.

Examples (using ODT as the debugging aid):

    >DEB VT3 (RET)
    TE:001264

    _

        Allows the task named VT3 to be debugged with ODT. After the DEBUG command is issued, ODT displays the T-bit exception code and the octal address following the location in error and issues its prompt. You can then proceed with the debugging. (Refer to the RSX-11M/M-PLUS and Micro/RSX Debugging Reference Manual for the documentation of ODT.)

    >DEB (RET)
    TE:002452

    _

        Assumes that the task named "ttnn" (depending on the type and unit number of the terminal) is the one to be debugged, again using ODT.

DEB (Cont.)

Command Error Messages:

DEB -- Privileged command

Nonprivileged users cannot debug tasks that were not initiated from their own terminals.

DEB -- Task not in system

An attempt was made to debug a task that does not exist. Reenter the command line, specifying the correct task name.

timestamp *** Task <taskname> does not contain a debugging aid

An attempt was made to debug a task that was not built with the Task Builder's /DA switch. Such tasks cannot be debugged.

DEV

3.21 DEVICES (NP,P)

The DEVICES command displays the symbolic names of all devices or all of a particular device type or the name of a specific device. The device names appear in one column; second and subsequent columns contain additional information about each device.

Formats:

```
DEV[ICES]
DEV[ICES] dd:
DEV[ICES] ddnn:
DEV[ICES] /LOG
```

dd:

> The type of devices for which you want the information to be displayed. This parameter must be a physical device name.

ddnn:

> The specific device for which you want the information to be displayed. This parameter may be either a physical or a logical device name.

/LOG

> Displays all logged-in terminals.

On RSX-11M-PLUS operating systems, when you specify a terminal or /LOG, the display includes the login and default directories. Also, if Resource Accounting is running, the display includes the date and time of login, the number of tasks currently active, and the first initial and last name of each logged-in user.

Additionally, on RSX-11M-PLUS operating systems, if a disk device has data caching, seek optimization, or overlapped seeks enabled, DEV displays a second line. This line indicates whether the disk has data caching enabled and displays the status of seek optimization and overlapped seeks for the disk. Note that DEV only displays the second line if the device has data caching, seek optimization, or overlapped seeks enabled. Also, DEV does not display an option if the option is not enabled. Thus, if a device has data caching enabled, but seek optimization and overlapped seeks disabled, DEV displays data cache only. Finally, if the device does not have any of these three options enabled, DEV does not display a second line. The first RSX-11M-PLUS example shown below is an example of the second line of a DEV display.

Examples:

RSX-11M operating systems

```
>DEV (RET)
DB0:     Public Mounted Loaded Type=RP06
DB1:     Public Mounted Loaded Nowrite Type=RP05
DB2:     Public Mounted Loaded Type=RP05
DB3:     TT60: - Private Loaded Type=RP05
DB5:     Offline Loaded Type=RP05
DM0:     Loaded Nowrite Type=RK06
```

DEV (Cont.)

```
DM1:     TT60: - Private Loaded Type=RK06
DR0:     Offline Loaded Type=RM03
DR1:     Loaded Type=RM03
LP0:     Public Loaded
MM0:     TT60: - Private Loaded
MM1:     TT10: - Private Loaded
TT0:     Loaded
TT1:     Loaded
TT2:     [312,1] - Logged On Loaded
TT3:     Loaded
TT4:     [302,310] - Logged on Loaded
TT5:     Loaded
TT6:     [306,14] - Logged On Loaded
TT7:     [50,25] - Logged On Loaded
TT10:    [306,50] - Logged On Loaded
C00:     Loaded
NL0:
TI0:
CL0:     LP0:
LB0:     DB0:
SY0:     DB0:
>
>DEV     /LOG (RET)
TT2:     [312,1]
TT4:     [302,310]
TT6:     [306,14]
TT7:     [7,25]
TT10:    [306,50]
>
>DEV DB1: (RET)
DB1:     Public Mounted Loaded Nowrite Type=RP05
>
>DEV TT30: (RET)
TT30:    [7,30]   [7,30]
         CLI   = MCR     BUF   = 80.      HFILL = 0        SPEED=(9600:9600)
         LINES = 24.     TERM  = VT52     OWNER = NONE     BRO      NOABAUD
         LOWER   PRIV    NOHOLD  NOSLAVE NOESC   CRT       NOFORM   NOREMOTE
         ECHO    NOVFILL HHT     NOFDX   WRAP    NORPA     NOEBC    TYPEAHEAD
```

RSX-11M-PLUS operating systems

```
>DEV DB0: (RET)
DB0:     Public Mounted Loaded Online Type=RP06
         Cached Seek_Optimization=Nearest:10. Overlapped_Seeks
>

>DEV DB: (RET)        (if privileged)
DB0:     Offline Loaded Type=unknown
DB1:     Offline Loaded Type=unknown
DB2:     Mounted Loaded Label=DEVUTIL Type=RP05
DB3:     Public mounted Loaded Label=USERS1 Type=RP06
>
>DEV TT23: (RET)
TT23:    [7,20]   [7,20]              2-OCT-85 10:20   0        J. WHITE
         CLI   = MCR     BUF   = 80.      HFILL = 0        SPEED=(9600:9600)
         LINES = 24.     TERM  = VT100    OWNER = NONE     BRO      NOABAUD
         LOWER   PRIV    NOHOLD  NOSLAVE NOESC   CRT       NOFORM   NOREMOTE
         ECHO    NOVFILL HHT     NOFDX   WRAP    NORPA     NOEBC    TYPEAHEAD
>
```

DEV (Cont.)

```
>DEV /LOG (RET)
TT11:          [304,6]       [7,306]      2-OCT-85 08:28  1      R. SMITH
TT12:          [7,25]        [7,25]       2-OCT-85 08:42  1      M. BROWN
TT13:          [7,201]       [7,201]      2-OCT-85 10:24  1      L. STORM
TT15:          [7,325]       [7,325]      2-OCT-85 08:08  0      P. JONES
TT17:          [007124]      [7,124]      2-OCT-85 09:10  1      S. WHITE
TT20:          [JOYCE]       [7,102]      2-OCT-85 07:43  0      J. LAWRY
```

Notes:

The following notes describe the information that can appear in the example displays.

- MOUNTED indicates that the device is mounted. If a privileged user issues the command, the display includes the volume label.

- PUBLIC indicates that the device has been set public.

- NOWRITE indicates that the volume is software write-locked (write operations are not allowed on the volume).

- TYPE indicates the device type.

- MARKED FOR DISMOUNT indicates that a mountable device has been requested to be dismounted, but the dismount operation has not yet been completed.

- OFFLINE indicates that, although the system tables contain entries for this device, the host configuration does not contain the related device, or the device was powered down at the time of the boot.

  On RSX-11M-PLUS operating systems, OFFLINE also indicates that the device has not been brought on line.

- [uic] LOGGED ON indicates that the user identified by [uic] (the protection UIC) has logged in on the terminal.

- LOADED indicates that a loadable device driver is currently loaded.

- UNLOADED indicates that a loadable device driver is currently not loaded.

- A device name in the second column is the device to which the corresponding device in the first column has been redirected.

- A terminal name in the second column followed by the text "- PRIVATE" indicates that the device named in the first column has been allocated to the user logged in on the terminal in the second column.

- The lines in the display for a specific terminal list the characteristics that have been set for the terminal. The description of the SET command gives all of the available characteristics.

DFL

3.22 DEFINE LOGICALS

The DEFINE LOGICALS (DFL) command executes on RSX-11M-PLUS operating systems only. In addition, to use the DFL command, your system must have selected extended logical name support during system generation.

The DFL command defines, deletes, or displays logical name assignments. You use the DFL command to equate logical names to explicit ASCII text strings (for example, "$TESTFILE #6"), or to other logical names. The DFL command accepts a character string exactly as you specify it without performing any validity checks to test for node names, device names, UFD specifications, or file specifications. Therefore, if you intend to use a logical name as part of a Files-11 file specification, or when you assign logical names to physical device names, you should use the ASSIGN command. The ASSIGN command performs several validity checks to ensure that the system recognizes logical names.

The DFL command can process three types of logical name assignments: local, group, and global.

- Local assignments are assignments that you assign or delete for any terminal on which you are logged in. Local assignments apply only to tasks that are initiated from the terminal that is used to make the assignments. Also, local assignments last only as long as the login session in which they are made. That is, the system automatically deletes a session's local assignments when you log out. If you want to make the same local assignment whenever you log in, you can enter the assignment in your login command file. Both privileged and nonprivileged users can assign or delete local assignments.

- Group assignments apply to all users with the group number in the User Identification Code (UIC) under which the logical name assignment was created. Only privileged users can issue DFL commands to define or delete group assignments.

- Global assignments apply to all tasks running in the system. Only privileged users can issue DFL commands to define or delete global assignments.

The character string to which you assign a logical name is called the equivalence name. The system keeps logical names and their corresponding equivalence names grouped in pairs in the following four logical name tables:

- The task logical name table contains logical name entries that are created for an individual task using the CREATE LOGICAL (CLOG$) directive. These entries remain in the table for only as long as the task is running. When either the task has exited or the DELETE LOGICAL (DLOG$) directive has been issued, the logical names are removed from the table. (See the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual for information on the CLOG$ and DLOG$ directives.)

DFL (Cont.)

- The user logical name table contains logical name entries that are local to a particular user (local and login logical names). By default, the DFL and ASN commands place a logical name in the user logical name table.

- The group logical name table contains logical name entries that are qualified by a group number. These entries can be accessed only by tasks that execute with the same group number in their protection UICs as the user who assigned the logical name. You use the /GR keyword to make an entry in the group logical name table. You must be a privileged user to make or delete entries in the group logical name table.

- The system logical name table contains entries that can be accessed by any task in the system. You use the /SYSTEM or /GBL keyword to make an entry into the system logical name table. You must be a privileged user to make or delete entries in the system logical name table.

When the system translates logical names, it searches the logical names tables in this order: task, user, group, and system. The system uses the first match it finds as the equivalence name for the logical name. For example, if you make a local assignment using a logical name that is already being used in a group or global assignment, the system uses the local assignment. Then, when you delete the local assignment, the system returns to using the previous group or global assignment.

The system limits logical name translation to ten levels. If you define more than ten levels or if you create a circular definition of a logical name, an error will occur if you try to use the logical name iteratively.

If you are ever in doubt about the equivalence name assigned to a logical name, you can use the DFL command to display the current assignments by typing DFL and then pressing the RETURN key. However, the DFL command does not display task logical assignments.

When you make logical assignments with the DFL command, the following syntax rules apply:

- The command is limited to a single command line, so the combined length of the command name, the equivalence name string, the logical name string, and any keywords cannot exceed 79 characters.

- You can use any combination of the following ASCII characters in a logical or equivalence name string:

  - The uppercase letters A through Z

  - The numbers 0 through 9

  - The dollar sign ($), the colon (:), and the underscore (_)

DFL (Cont.)

- If you want to use other ASCII characters, enclose the entire string in quotation marks (for example, "*logical**name*"). In such cases, the DFL command removes the surrounding quotation marks and assigns the remainder of the character string as the logical or equivalence name (embedded quotation marks will remain as part of the logical name when the surrounding quotation marks are removed).

- If you specify a colon at the end of a logical name, the DEFINE command stores the colon as a part of the logical name. This action contrasts with that of the ASSIGN command, which removes the colon before it stores the name in the logical name table. However, the system ignores logical names that terminate with a colon.

For more information on logical name assignments, see the description of the ASSIGN (ASN) command.

Formats:

The DFL command has three types of formats. Following is a brief list of these formats, and a description of the terms used in the formats. Then each format is described in greater detail, including descriptions of optional keywords, and examples.

      DFL ens=lns[/keyword(s)]   !Makes logical name assignments

      DFL =[lns][/keyword]   !Deletes logical name assignments

      DFL [/keyword(s)]   !Displays logical name assignments

The terms shown in the DFL command formats have the following meanings:

ens

      The equivalence name string. (The name or specification to which you are assigning a logical name).

lns

      The logical name string. (The character string that you are assigning to the equivalence name string.)

ttnn:

      The terminal device name and number.

=gnn

      A User Identification Code (UIC) group number.

Format descriptions:

DFL ens=lns[/keyword(s)]

      Assigns a logical name string to an equivalence name string. This command makes a local logical assignment for the terminal from which it is entered. However, when entered with keywords,

DFL (Cont.)

this command can also make group or global assignments; or it can make assignments for other terminals. Both nonprivileged and privileged users can make local logical assignments, but only privileged users can make other types of assignments, or assignments for other terminals.

Keywords:

/GR[=gnn]

(Privileged keyword.) Makes a group logical assignment for all users who share the group number of the protection UIC under which the assignment is made, unless another group number is specified. When =gnn is specified, makes a group logical assignment for the specified group number.

/GBL or /SYSTEM

(Privileged keyword.) Makes a global (system-wide) logical assignment. A global assignment is entered into the system-level translation table and it applies to all tasks running in the system.

/FINAL

(Privileged keyword.) Specifies that the equivalence name string should not be translated iteratively; that is, the logical name translation should terminate with the current equivalence string.

Examples:

>DFL "Good Morning! ***Welcome to BANTER**"=LOGINMSG (RET)

Assigns the logical name LOGINMSG to the equivalence string Good Morning! ***Welcome to BANTER***. This is a local assignment for the issuing terminal during the current login session.

>DFL "CP/MA/DA"=TKBSTR/FINAL (RET)

Assigns the logical name TKBSTR to the equivalence name string CP/MA/DA and specifies that the initial translation of the logical name should be final. This is a local assignment for the issuing terminal during the current login session.

>DFL "Nashua, N.H."="HOME*SWEET*HOME"/GR=7 (RET)

Assigns the logical name HOME*SWEET*HOME to the equivalence name string Nashua, N.H. This is a group assignment for all users with a UIC group number that matches the number under which the assignment was made (group 7 in this example). Only privileged users can make group assignments.

DFL (Cont.)

DFL =[lns][/keyword]

Deletes a specific logical name when you specify lns. Deletes all of the logical names of a specific type when you specify a keyword without specifying lns. Deletes all local logical assignments for the terminal from which it is entered if you specify DFL alone (DFL =). Nonprivileged users can only delete local logical assignments for their own terminal, but privileged users can delete other types of assignments, or assignments for other terminals.

Note that when you delete logical assignments with the DFL command, the command deletes assignments that were made with the ASN command as well.

Keywords:

/TERM=ttnn:

(Privileged keyword.) Deletes a specific local logical name for the specified terminal when specified along with the logical name. Deletes all local logical assignments for the specified terminal when specified without a logical name.

/GR[=gnn]

(Privileged keyword.) Deletes a specific group logical name when specified along with the logical name. When specified without a logical name or a group number (DFL =/GR), deletes all group logical assignments for the group number of the protection UIC under which the command is entered. When you specify =gnn, deletes group logical assignments for the specified group.

/GBL or /SYSTEM

(Privileged keyword.) Deletes a specific global logical name when specified along with the logical name. When specified without a logical name, deletes all global assignments.

Examples:

>DFL = RET

Deletes all local logical assignments for the terminal from which it is entered (including assignments made by the ASN command).

>DFL =TKBSTR RET

Deletes the local logical name TKBSTR.

>DFL =HOME*SWEET*HOME/GR RET

Deletes the group logical assignment HOME*SWEET*HOME. Only privileged users can delete group logical assignments.

>DFL =/GBL RET

Deletes all global logical assignments.

DFL (Cont.)

DFL [/keyword]

Displays the local logical assignments for the terminal from
which it is entered. When entered without a keyword (DFL),
displays all of the terminal's local logical assignments. When
entered with a keyword, displays other types of logical
assignments, or assignments for other terminals. Nonprivileged
users can display the logical assignments of their terminal,
their group, and the system by entering the /ALL keyword (DFL
/ALL). Privileged users can also display the logical assignments
of other terminals. When there are not any logical assignments
of the specified type, the system returns the CLI prompt instead
of a display.

Keywords:

/ALL

Displays all of the logical assignments of the terminal from
which it is entered, and all system logical assignments.
Thus, the display can include local, login, group, and
system assignments.

/TERM=ttnn:

(Privileged keyword.) Displays all local and login logical
assignments for the specified terminal.

/GR[=gnn]

(Privileged keyword.) Displays all group logical assignments
for the group number under which the command is entered,
unless specified with another group number. When =gnn is
specified, displays the group logical assignments of the
specified group.

/SYSTEM or /GBL

(Privileged keyword.) Displays all system-level logical
assignments.

Examples:

>DFL (RET)
TKBSTR = CP/MA/DA (Local, Final, TT12:)
LOGINMSG = Good Morning! ***Welcome to Banter*** (Local, TT12:)

Displays all of the local and login logical assignments
for the terminal from which it is entered. Note that
the assignments are displayed with the logical name
first and the equivalence name second, whereas when you
define a logical assignment, you specify the
equivalence name first. If the terminal does not have
any local or logical assignments, the command line
prompt (>) is returned without a display.

DFL (Cont.)

```
>DFL /GR (RET)
HOME*SWEET*HOME = Nashua, N.H.  (Group=7, TT12:)
```

> Displays all of the group logical assignments for the
> UIC group number under which it is entered.

```
>DFL /ALL (RET)
RSX-11M-PLUS = O.S. (Global)
TKBSTR = CP/MA/DA  (Local, Final, TT12:)
LOGINMSG = Good Morning! ***Welcome to Banter***  (Local, TT12:)
```

> Displays all of the global logical assignments in the
> system, and all of the group, local, and login
> assignments for the terminal from which it is entered.

Command Error Messages:

DFL -- Device not terminal

> You specified an invalid terminal name with the /TERM
> keyword. Check the name of the terminal and try your
> command again.

DFL -- Privileged command

> You tried to make a privileged logical assignment from a
> nonprivileged terminal. The assignment was not made.

DFL -- Syntax error

> You entered a command with incorrect syntax. Check the
> syntax for your command and try it again.

DFL -- Terminal not logged in

> You specified a terminal that is not presently logged in to
> the system.

DMO

3.23 DISMOUNT (NP,P)

The DISMOUNT command requests the file system to mark a volume for dismount and release its control blocks. Marking a volume for dismount prevents programs from opening additional files on the volume. After all files open on the volume are closed, the Ancillary Control Processor (ACP) releases the control blocks and dismounts the volume.

If a single user has mounted a volume, the DISMOUNT command declares the volume logically off line. If multiple users have mounted a volume, the volume remains accessible until all users have dismounted it.

When you dismount a volume, the DISMOUNT command prints on your terminal a message about whether or not a final dismount has been initiated. When the dismount operation completes, either through the Files-11 disk system or the ANSI magnetic tape system (ANSI X3.27-1978), the command prints the following message on the console terminal (CO:):

    *** <ddnn:> dismount complete

NOTE

Do not remove the volume until after you have received this message. If you remove the volume before you have received this message, the volume might be corrupted and the next volume placed on the device drive will probably become corrupted too.

There may be a considerable delay between the time you issue the command and the printing of this message if a number of I/O requests are pending or a number of files are open on the volume.

Nonprivileged users can only dismount volumes that they have mounted. A privileged user can dismount any mounted volume.

On RSX-11M-PLUS systems, you cannot dismount a volume on a shadow device; you must first stop shadow recording (see the RSX-11M/M-PLUS System Management Guide).

Formats:

    DMO ddnn: [["]label["]] [/keyword(s)]

    DMO /USER [/keyword(s)]

ddnn:

    The device unit that holds the volume to be dismounted.

label

    The Files-11 volume label may be up to 12 characters in length for disk and DECtape, and up to 6 characters for magnetic tape. It is used to verify that the proper volume is being dismounted. A volume label is optional (if the command omits a label, no volume label check is performed).

DMO (Cont.)

If a volume label for a magnetic tape contains special characters, it must be enclosed in quotation marks. See the description of the MOUNT command for the list of special characters.

Keywords:

/DEV

> (Privileged keyword.) Dismounts all users from a specific device. This keyword must be specified if you are dismounting a public device.

/USER

Dismounts all volumes that a user has mounted.

/TERM=ttnn:

> (Privileged keyword.) Dismounts all volumes that a user at the specified terminal has mounted.

/LOCK=option

> Allows logical I/O to a volume after it is dismounted. If the drive supports software spin-down, you can also specify whether or not the disk should be left spinning after the dismount. For magnetic tapes, /LOCK can be used to dismount and remount a tape without having to reload the tape.

> On RSX-11M operating systems, /LOCK is valid only for magnetic tape volumes.

> On RSX-11M-PLUS operating systems, /LOCK is valid for magnetic tapes and DB:, DM:, and DU: type disks.

> The options for the /LOCK keyword are:

>> /LOCK=Nounload
>> /LOCK=Unload
>> /LOCK=Virtual

> When you specify the Nounload option (/LOCK=N), DISMOUNT clears the volume valid bit and does not spin down the disk or unload the tape. This option only inhibits access to the volume. This option is the default lock value for volumes mounted as foreign and with no ACP specified. (See the description of the MOUNT command.)

> When you specify the Unload option (/LOCK=U) for disks, DISMOUNT clears the volume valid bit and, if the drive supports the spin-down function, spins down the disk. When you specify /LOCK=U for tapes, DISMOUNT rewinds and unloads the tape. Depending on the hardware, this may only place the unit off line at load point or it may completely unload the tape and close the autoload tape ring. The /LOCK=U option is the default lock value for all volumes mounted with a standard ACP. The usual procedure after dismounting a volume that uses a standard ACP is to remove the volume from the drive.

DMO (Cont.)

On RSX-11M-PLUS operating systems, you can spin down the removable unit of a multiunit device (for example, the RC25; note that upon dismounting an RC25, you will be spinning down the system disk) only if you are privileged. If you are nonprivileged and you try to dismount the unit or specify /LOCK=U in the command line, you will get a warning message that the volume cannot be spun down.

The Virtual option is privileged. When you specify /LOCK=V, DISMOUNT does not clear the volume valid bit and does not spin down the disk or unload the tape. The Executive still permits logical I/O to the volume. For example, the task image of an installed task can reside on a disk that has been dismounted with the /LOCK=V option. However, the file system cannot access the volume. This option is the default when dismounting the system disk prior to saving the system.

Examples:

>DMO DM1:AMBER ⟨RET⟩

Dismounts the volume labeled AMBER on device unit DM1:. If a single user has mounted the volume, the command dismounts the volume. If more than one user has mounted the volume, the volume remains mounted for the other users.

>DMO DM1:/DEV ⟨RET⟩

Places the volume on device unit DM1: logically off line and releases all control blocks. Users can no longer access the device.

>DMO /USER/TERM=TT17: ⟨RET⟩

Dismounts all volumes mounted by terminal TT17:.

>DMO DM0: ⟨RET⟩
DMO -- TT60:   dismounted from DM0:   *** Final dismount initiated ***

Begins the dismounting process for DM0:. When the "dismount complete" message is printed on the console terminal, the volume can be removed from the drive.

Command Error Messages:

DMO -- Warning -- All units of multiunit drive will spin down <ddnn:>

(RSX-11M-PLUS operating systems only.) When a unit of a multiunit device is spun down (by a privileged user), all other units of the device are also spun down.

DMO -- Warning -- Tasks installed from <ddnn:>

The disk being dismounted has tasks installed from it. DMO dismounts the disk, but you can still run the tasks until the disk has spun down. Use the TAS command to find out which tasks are installed.

DMO (Cont.)

DMO -- Warning -- Tasks installed from <ddnn:> - Tasks disabled

(RSX-11M-PLUS systems only.) The disk is being dismounted
with the /LOCK=N or LOCK=U option rather than with /LOCK=V.
Tasks installed from the disk are no longer executable.

DMO -- Warning -- Volume will not spin down <ddnn:>

(RSX-11M-PLUS systems only.) An attempt was made by a
nonprivileged user to spin down the removable unit of a
multiunit device, either implicitly with the DMO command or
explicitly by specifying /LOCK=U in the command line. Only
privileged users can spin down multiunit devices. (For
nonprivileged users, the volume is logically dismounted but
not spun down.)

DMO -- Checkpoint file still active

The command attempted to dismount a volume that contained an
active checkpoint file. The volume cannot be dismounted
until the checkpoint file has been discontinued. Issue an
ACS command to discontinue the file and reissue the DMO
command when the system issues a message to indicate that
the checkpoint file is inactive.

DMO -- Dismounting system disk

This message should only occur during a system generation or
during system shutdown. Since the system disk is a public
device, it can be dismounted only by a privileged user.

DMO -- Dismount is not necessary for cassettes

Self-explanatory. This is an informational message only.

<ddnn:> is attached by task <taskname>

DMO attempted to dismount an attached device. Because DMO
processes the mount list several times before exiting, a
device could be dismounted if the task to which it belongs
detaches before DMO exits. If the device is dismounted, a
normal dismount message appears later.

DMO -- No volume list

The command specified a magnetic tape for which a mounted
volume label list does not exist.

DMO -- Shadow recording is active on <ddnn:>

(RSX-11M-PLUS operating systems only.) The command
specified a shadow device. Shadow devices cannot be
dismounted; first stop shadow recording and then reenter the
command.

DMO (Cont.)

Too many devices attached, no further attach messages

DMO issues this message when eight (or more) devices are
attached during a DMO /USER operation. The message is
issued only when the eighth device is attached; it is not
subsequently issued again if more devices are attached.

DMO -- Volume not mounted

The specified device was not mounted.

DMO -- Volume not mounted by TI:

The command specified a dismount operation for a volume that
was not mounted from the issuing terminal or the command
specified the wrong device name for a tape set.

DMO -- Wrong volume label

The volume label and the label specified in the command did
not match.

3.24 FIX-IN-MEMORY (P)

The FIX command loads and locks a task into its partition. Subsequent requests for running the task are serviced more quickly because the task is resident in memory and does not have to be loaded from the disk before it can run. The system can fix a task in memory only when the partition in which it is to be fixed becomes available.

Fixed tasks remain physically in memory even after they exit. Therefore, they do not have to be reloaded when a request is made to run them. (Note that reexecuting fixed tasks is not always practical; to reexecute, the task must initialize all impure data and LUN assignments at run time.) Only an UNFIX or REMOVE command can free the occupied memory partition.

The following restrictions apply to the fixing of tasks:

- On RSX-11M operating systems, checkpointable tasks cannot be fixed.

- On RSX-11M-PLUS operating systems, checkpointable tasks should not be fixed because fixing a checkpointable task makes the task noncheckpointable.

- On RSX-11M-PLUS operating systems, tasks whose names are in the form ..xxx and xxx$$$ cannot be fixed because that copy of the task is never executed. (The task is a prototype task.)

- Active tasks cannot be fixed.

- A task must be installed before it can be fixed.

Format:

    FIX taskname[/keyword]

        The variable taskname is the name of the task to be fixed in memory.

        On RSX-11M-PLUS operating systems, the FIX command accepts two keywords. The keywords allow you to fix common task regions in a partition. These keywords are:

            /REG - Fix a region.

            /RON - Fix a common, read-only segment of a multiuser task.

        The format is:

            FIX region-name/REG

              or

            FIX taskname/RON

        When fixing a common, read-only segment of a multiuser task, you must type the full name of the multiuser task.

FIX (Cont.)

Examples:

>FIX XKE

Fixes task XKE in its partition.

>FIX FCSRES/REG

(RSX-11M-PLUS operating systems only.) Fixes the resident library for FCS in its partition.

>FIX ...MAC/RON

(RSX-11M-PLUS operating systems only.) Fixes the read-only segment of the MACRO-11 Assembler in its partition.

Command Error Messages:

FIX -- Partition busy

The partition in which the task was to be fixed was occupied, so the task could not be fixed.

FIX -- Task active

The specified task is already active. Active tasks cannot be fixed.

FIX -- Task already fixed

The specified task was already fixed in memory.

FIX -- Task being fixed

The specified task was already being fixed.

FIX -- Task checkpointable

(RSX-11M operating systems only.) A checkpointable task cannot be fixed in memory. Remove the task and install it as noncheckpointable (/CKP=NO). You can then fix the task in memory.

FIX -- Task has no read only segment

An attempt was made to fix the read-only segment of a multiuser task, but the spcified task does not have a read-only segment.

FIX -- Task not in system

The specified task has not been installed in the system. An uninstalled task cannot be fixed.

3.25   GROUP GLOBAL EVENT FLAGS (NP,P)

The GROUP GLOBAL EVENT FLAGS (FLA) command creates, eliminates, or displays group global event flags. Group global event flags provide each UIC group with 32 event flags in addition to the 32 common and 32 local event flags. Group global event flags are similar in use to the common event flags (see the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual). However, only those tasks running under the same group UIC can use the group global event flags for that group. Nonprivileged users can only create or eliminate group global event flags for their login group UIC. Privileged users can create or eliminate group global event flags for any group.

Format:

>FLA[GS] [[ggg]/keyword]

[ggg]

Represents the group for which the group global event flags are to be created. The default group is the login UIC group.

Keywords:

/CRE

Creates group global event flags for the specified UIC group. If the flags already exist but are marked for delete, the delete flag is cleared.

/ELIM

Eliminates group global event flags for the specified UIC group. Event flags are not eliminated until the access count reaches zero. If the access count is greater than zero, the flags are marked for delete.

When you omit the group number and keyword specification, the command displays all the group global event flags in the form:

ggg   access count   event flags   [DEL]

where [DEL] indicates group global event flags marked for delete.

Examples:

>FLA 303/CRE (RET)

Creates group global event flags for all tasks running under the UIC group number 303. All flags are initialized to zero when created.

>FLA (RET)
303   1   000010 000000

Displays the access count (1) and event flags set (in this case, flag 68) for the UIC group 303. The access count is the number of tasks using the event flags.

FLA (Cont.)

The group global event flags are represented by two octal words. The first word contains event flags 65 through 80 (from right to left) and the second word contains event flags 81 through 96 (from right to left).

>FLA 303/ELIM (RET)

Eliminates group global event flags for UIC group 303.

Command Error Message:

FLA -- Illegal function

The /CRE keyword was specified, but the event flags already existed (even though they may have been marked for delete), or the /ELIM keyword was specified, but the event flags were already eliminated or marked for delete.

3.26 HELLO OR LOGIN (NP)

The HELLO and LOGIN commands log you in on a terminal to gain access to a multiuser protection system. Before you log in, the system rejects all MCR commands except HELLO, LOGIN, and HELP. Parameters to the HELLO command are a last name or User Identification Code (UIC) and a password. The system validates these parameters according to entries in an account file.

If the name or UIC and password match an entry in the account file, the system performs the following procedure:

1. Checks to see if the terminal's current command line interpreter (CLI) has requested a silent login. (Silent logins are available only on systems with multi-CLI support.) If so, HELLO does not display the login text file or the user's login command file, does not execute the system login command file, and does not set the default CLI for the terminal.

2. Assigns the login logical device name SY0: to the user's system disk unless the user's logical system device is already the same as physical device SY:. (The system disk is the one that contains the user's files.)

3. Establishes the user's login directory, which is the initial default directory.

4. Records the current time and date and other information about the terminal session in the system file.

5. On an RSX-11M-PLUS operating system that has Resource Accounting active, sets up accounting data structures.

6. Displays a system identification, the current date, and the time the user logged in on the terminal. However, if the CLI requests silent login, the information is not displayed.

7. If the system supports alternate CLIs, sets the terminal's default CLI to be the one specified in the user's account file.

8. Displays the contents of the file LB:[1,2]LOGIN.TXT. However, if the CLI requests a silent login, LOGIN.TXT is not displayed.

    On RSX-11M-PLUS operating systems, if a batch job is being run from the terminal, HELLO displays LB:[1,2]BATCH.TXT. However, if BATCH.TXT does not exist, HELLO displays LOGIN.TXT. HELLO does not display any login text file on a virtual terminal unless a batch job is being run from it.

9. Executes the system command file LB:[1,2]SYSLOGIN.CMD (if it exists) unless the CLI requests a silent login. Before the file is invoked, HELLO instructs the system to override the user's default CLI and use MCR to process the file. (This allows SYSLOGIN.CMD to use MCR commands.) SYSLOGIN.CMD is invoked with the terminal privileged and slaved.

HEL/LOG (Cont.)

HELLO passes the following information to SYSLOGIN.CMD:

```
        Default system device              (xxn:)
        Login UIC                          ([g,m])
        Last name
        First initial
        If terminal is to be privileged    (P or NP)
        If terminal is to be slaved        (S or NS)
```

On RSX-11M-PLUS operating systems, HELLO also passes the following information to SYSLOGIN.CMD:

```
        If terminal is TT, VT, or batch VT (T, V, or B)
        Account number
        Session ID
```

If SYSLOGIN.CMD exists, it must do the following:

- Check the appropriate parameter to see if the terminal should be privileged or nonprivileged and set the terminal accordingly, then check the appropriate parameter to see if the terminal should be slaved or nonslaved and set the terminal accordingly.

                        NOTE

          It is important to set a terminal's
          privilege status before its slave status.
          Otherwise, a nonprivileged user could become
          privileged.

- If your system has multi-CLI support, issue the CLI /UNOVR command to instruct the system to use the user's CLI. The CLI would be MCR, DCL, or a user-written CLI.

  If a default CLI is not specified in the account file, the terminal is set to MCR. If the specified CLI is not present in the system, HELLO issues an error message and the user cannot log in.

The following code is an example of a system command file (using the Indirect Command Processor):

```
              .ENABLE SUBSTITUTION
              .ENABLE QUIET
              .IF P5 = "P" .GOTO SLAV
              SET /NOPRIV=TI:
      .SLAV:  .IF P6 = "S" .GOTO OVER
              SET /NOSLAVE=TI:
      .;
      .;CLEAR OVERRIDE BIT
      .;
      .OVER:  CLI /UNOVR
              .DISABLE QUIET
              .SETS FILE P1+P2+"LOGIN.CMD"
              .TESTFILE 'FILE'
              .IF <FILERR> = 1 .CHAIN 'FILE'/LO
      .END:
```

HEL/LOG (Cont.)

10. If LB:[1,2]SYSLOGIN.CMD does not exist, HELLO executes the user's LOGIN.CMD, if it exists. Before executing, HELLO sets the user's slaved or nonslaved and privileged or nonprivileged status, and clears the CLI override bit.

11. If, after invoking HELLO, the user does not enter a name or UIC and password, HELLO prompts for them. If the user does not respond to the prompt within a certain time interval, HELLO times out. The timeout interval is specified when the HELLO task is built. If the interval is zero, HELLO does not time out.

If logins have been disabled for your system, HELLO displays the reason for this. If desired, the person who disables logins can create or edit LB:[1,2]NOLOGIN.TXT to include the reason.

Formats:

In the following command formats, the braces indicate that the user enters one of the two parameters.

- >HEL   uic   /password
               username

- >HEL
  Account or name: uic
                          username
  Password: password

- >HEL   uic
               username
  Password: password

uic

Your User Identification Code (UIC). The command allows the following four UIC representations:

        g,m
        [g,m]
        g/m
        [g/m]

To suppress part of the display of the file LOGIN.TXT, use the slash form (that is, g/m or [g/m]).

The variables g and m are octal numbers from 1 to 377 that represent group and member numbers, respectively.

username

Your last name, which can be entered in place of a UIC.

password

An alphanumeric password. If you type the password in response to the prompt "Password:," the system does not display (echo) the typed characters.

HEL/LOG (Cont.)

If the HELLO command was successful, the system displays the following message:

```
    system i.d.
    dd-mm-yy hh:mm Logged on Terminal ttnn:    as     xxxnnnn

    greeting

    [login-text]
```

system i.d.

    One of the following, depending on the system:

        RSX-11M BLnn   [g,m] System   nodename

        RSX-11M-PLUS V3.0 BLnn   [g,m] System   nodename

dd-mm-yy

    The current date.

hh:mm

    The time the user logged in.

xxxnnnn

    An RSX-11M-PLUS session identifier assigned to this terminal session.

greeting

    One of the following, depending on the time of day:

        Good Morning
        Good Afternoon
        Good Evening

login-text

    The contents of LOGIN.TXT (or BATCH.TXT).   The   system   displays the contents of the file as follows:

- If you use the slash form when specifying the UIC the first time you log in, the display concludes at the first percent sign (%) in the file. Subsequent logins on any one day (using the slash form) do not display the contents of the text file unless the file has been edited. (The percent sign is used to separate new messages from old ones.)

- If you do not use the slash form, the system displays the entire file. (Note that you can press CTRL/O to end the display after the first percent sign.)

If the login text file does not exist, the following message is displayed:

    Message file error -26

HEL/LOG (Cont.)

Examples:

RSX-11M operating systems

```
>HEL (RET)
Account or name:  JONES
Password:

RSX-11M BL38     [4,54] System      QUACK
2-OCT-85 10:03 Logged on Terminal TT20:

Good Morning

2-OCT-85


     *** NEW DISK CONFIGURATION ***
     DB0:     System and User disk

>
```

The user enters the abbreviation for HELLO, and the system then prompts for the account name and password. After verifying that the account name and password are correct, the system displays the login text. You can halt the output of the login message to the terminal by pressing CTRL/O.

```
>HEL 301/365 (RET)
Password:

RSX-11M BL38     [4,54] System
3-OCT-85 09:45 Logged on Terminal TT17:

Good Morning

>
```

The user enters the abbreviation for HELLO along with the account UIC, and the system then prompts for the password. After verifying that the password (which the terminal does not display) is correct, the system displays the login message.

```
>HEL 301,365 /ARANA (RET)

RSX-11M BL38     [4,54] System
3-OCT-85 09:45 Logged on Terminal TT17:

Good Morning

2-OCT-85


     *** NEW DISK CONFIGURATION ***

>
```

The user enters HELLO, the UIC, and the account password. The group and member numbers of the UIC are separated by a comma. After verifying the account, the system displays the login message.

HEL/LOG (Cont.)

```
>HEL [301/365] /ARANA (RET)

RSX-11M BL38      [4,54] System
2-OCT-85 10:06 Logged on Terminal TT20:

Good Morning

>
```

> The user enters HELLO, the UIC, and the password. In this
> case, the UIC is enclosed in brackets and the group and member
> numbers are separated by a slash.

RSX-11M-PLUS systems

```
>HEL 303/24/03062 (RET)

RSX-11M-PLUS V3.0 BL24      [2,54] System      BANTER
02-OCT-85 17:58 Logged on Terminal TT30: as WRT17

Good Afternoon

>
```

> The user enters the group and member numbers of the UIC, and
> the account password, separated by slashes. The system
> verifies the password and then displays the login message,
> which includes the name of the account (WRT17).

Command Error Messages:

Note that if you use the LOGIN command to log in instead of HELLO, the
error messages are preceded by LOG.

HEL -- Account file open failure

> The account file was open for another user or the disk
> containing the account file was not mounted. Reenter the
> command line.

HEL -- Account file record(s) locked

> (RSX-11M-PLUS operating systems only.) HELLO could not
> access an account record. Reenter the command line.

HEL -- Assign failure

> HELLO could not assign your system device.

HEL -- Cannot allocate UAB

> (RSX-11M-PLUS operating systems only.) The Resource
> Accounting system requires space in secondary pool to
> allocate a User Account Block (UAB). If sufficient space is
> not available in secondary pool, nonprivileged users cannot
> log in. (The Resource Accounting system accepts a switch,
> /POOL RESERVE, that permits the system manager to alter the
> secondary pool limit. See the RSX-11M/M-PLUS System
> Management Guide for complete details.)

HEL/LOG (Cont.)

HEL -- Cannot find physical LB:

HELLO could not open the file because LB: was not assigned.

HEL -- Cannot set CLI

(Multi-CLI operating systems only.) The command line interpreter (CLI) is installed in the system, but HELLO failed to set the terminal to the CLI.

HEL -- CLI not in system

(Multi-CLI operating systems only.) You could not log in because the default CLI specified for you in the account file is not installed in the system.

HEL -- Invalid account

The name or UIC specified in the command is not stored in the account file or the password specified does not match the name or UIC given.

HEL -- Logins are disabled

The system was in the process of shutting down or the command SET /NOLOGON has been issued. You cannot log in at these times.

HEL -- Low pool - nonprivileged logins disabled

To save space in pool, the system will not allow nonprivileged users to log in.

HEL -- Message file error <nnn.>

The system could not open the file LOGIN.TXT for a reason indicated by the FCS code nnn. See the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual for a definition of the FCS code.

HEL -- Other user logged on

Another user was currently logged in on the issuing terminal. Only one user at a time can be logged in on a terminal.

HEL -- Privileged user logged without UAB

(RSX-11M-PLUS operating systems only.) This message indicates that there was not sufficient space in secondary pool for the Resource Accounting system to allocate a User Account Block (UAB). However, the system permits privileged users to log in, although the accounting system will not keep track of their use of the operating system. See the RSX-11M/M-PLUS System Management Guide.

HEL/LOG (Cont.)

HEL -- Spawn failure

>The SPAWN Executive directive failed to assign your system device or the RPOI Executive directive failed to chain to Indirect to execute the login command file.

HEL -- Syntax error

>The format of the command line for HELLO was incorrect.

HEL -- Terminal allocated to other user

>The issuing terminal was already allocated to another user. You cannot log in on a terminal allocated to someone else.

HEL -- Timeout on response

>You did not respond to the HELLO prompt before the timeout count elapsed. (The timeout count is specified when the HELLO task is built.)

HEL -- Warning ** Default device not in system

>Your default system device is not in the system, so HELLO did not make the assignment. However, you are still logged in.

HELP

3.27 HELP (NP)

The HELP command displays the contents of the general help file for your system. The default help file is LB:[1,2]MCR.HLP. HELP is the only MCR command that you can issue without logging in. The display usually contains information on how to log in on the terminal, but each installation can change the contents of its help file to suit specific needs.

Formats:

      HELP % [/OUT:filespec] [qualifier1] [qualifier2] [...qualifier9]

      HELP[/keyword] [qualifier1] [qualifier2] [...qualifier9]

%

      Displays the text contained in [current-uic]HELP.HLP. You must be logged in to request HELP %.

qualifier1...qualifier9

      The subject on which you would like help information to be displayed.

Keywords (all mutually exclusive):

    /CLI:cliname

        Directs HELP to the help file for a command line interpreter (CLI) in LB:[1,2]cliname.HLP.

        If you are in your own CLI and omit the keyword, the default help file is LB:[1,2]MCR.HLP.

    /DCL

        Specifies that the help text begins in the file LB:[1,2]DCL.HLP. This is the default for terminals set to DCL.

    /FIL:[filespec]

        Specifies any file where help text is located. If you do not give a complete file specification, the defaults are LB:[1,2]filename.HLP. If you only use /FIL:, the default help file is LB:[1,2]MCR.HLP.

    /GRO

        Instructs HELP to use [group,1]HELP.HLP on the default volume as the root help file. Group help files allow users with the same group number to share common help files for that group.

    /LOC

        Displays the text contained in HELP.HLP in the default directory on the default volume. This keyword is equivalent to the HELP % command.

HELP (Cont.)

/MCR

Specifies that the help text begins in the file
LB:[1,2]MCR.HLP. This is the default for terminals set to
MCR.

/OUT:filespec

Saves the text of the help file (or files) in the specified
file. If you do not use the /OUT keyword, HELP displays the
files on your terminal.

/xxx

Specifies that the help text begins in the file
LB:[1,2]xxx.HLP, where xxx is the name of a CLI. This
keyword produces the same results as specifying /CLI:xxx.

The format of a HELP.HLP file is:

```
1  FIRST-QUALIFIER-1
   Text    that    will    be    displayed    if    you    type    HELP
   FIRST-QUALIFIER-1.

2  FIRST-QUALIFIER-2
   Text that will be displayed if you type HELP FIRST-QUALIFIER-1
   FIRST-QUALIFIER-2.

2  SECOND-QUALIFIER-2
   Text that will be displayed if you type HELP FIRST-QUALIFIER-1
   SECOND-QUALIFIER-2.

1  SECOND-QUALIFIER-1
   Text    that    will    be    displayed    if    you    type    HELP
   SECOND-QUALIFIER-1.
```

The numerals are level numbers from 1 to 9. Level numbers must be the
first character of the line they are on, and the qualifiers that
follow must be uppercase. Arbitrary strings of blanks or tabs are
allowed between level numbers and qualifiers. If a qualifier begins
with a dollar sign ($) or a slash (/), the $ or / is ignored.

HELP interprets its command line in a strictly nested fashion. When
searching for qualifiers in a help file, HELP begins by looking for a
line containing level number 1, followed by the first qualifier
specified in the command line. If successful and no other qualifiers
were specified, the subsequent help text is displayed. Otherwise, the
search continues for a line containing level number 2, followed by the
second qualifier specified in the command line. Again, if no other
qualifiers were specified, the subsequent help text is displayed.
This correspondence of qualifier position in the HELP command line
with level numbers in the help file continues until the last qualifier
is found.

HELP (Cont.)

HELP permits references within the help file to other files that contain large blocks of text or additional level numbers and their qualifiers. Indirect references to other files decreases search time and also allows more flexible use of the help file. To reference another file from within the help file, specify an at sign (@) as the first nonblank character on a line followed by a file specification. For example:

       @filespec

The variable filespec is any legal RSX-11M/M-PLUS file specification. The default file type is .HLP. However, if a file type other than .HLP is specified, HELP uses the specified file type as the default in succeeding indirect references. For example, if you specify @filename.TXT, HELP uses .TXT as the default file type in future indirect references. The file version number always defaults to the highest existing version.

The file referenced in this manner has the same format as the help file. Note that if the indirect file contains level numbers, the level numbers must be greater than the level number in the help file that precedes the call to the indirect file. For example, if the help file contains the following lines, HELPEXAMPLE.HLP can only contain level numbers greater than 1:

       1 EXAMPLE
       @HELPEXAMPLE

HELP also allows you to share text between two or more similar or synonymous qualifiers in the help file. To do this, specify a pound sign (#) followed by the similar qualifier as the first nonblank character on a line. For example, to relate the qualifiers LOGIN and HELLO, the help file would contain the following lines:

       1 LOGIN
       #HELLO
       1 HELLO

       See Ben Jones for an account and password.

Note that the qualifier that contains the displayed text must be of the same level number as all the qualifiers that refer to it. Also, since HELP searches the help file sequentially, the qualifier must appear after all those that refer to it.

Along with one-word synonyms, you can also use string synonyms. For example:

       1 UTILITIES
       2 RUNNING
        = TASKS EXECUTING
       1 TASKS
       2 EXECUTING

Always begin the string synonym with qualifier 1.

HELP (Cont.)

Example:

The following is an example of a help file:

The general form of the HELP command is:

        HELP [qualifier1] [qualifier2] [...qualifier9]

This displays text from the system help file.

The other general form of the HELP command is:

        HELP % [qualifier1] [qualifier2] [...qualifier9]

This displays information from a user's own help file. This syntax is
not legal until you are logged in.

1 LOGIN
 #HELLO
1 SPELLING

        Type HELP SPELLING DICTIONARY followed by the word you
        want to spell.

2 DICTIONARY

        The file DICTIONARY.HLP [not included in this example]
        contains an abridged listing of frequently misspelled
        words.

 @DICTIONARY
1 HELLO

        See Ben Jones for an account and password.
1 CREATE

                              NOTE

        When creating a help file, the first line should
        be blank since it is not displayed.

By convention, each line should begin with a blank or tab; the lines
cannot begin with the digits 1 to 9 since these would be interpreted
as level numbers. Also, depending upon the types of devices in your
configuration, some practical restrictions should be imposed. For
example, to accommodate VT05Bs, lines of text should not exceed 72
characters long and a block of text should not exceed 20 lines. If
there are level n+1 qualifiers, they should be mentioned in the text
so that they are known to exist. Similarly, level 1 qualifiers should
be added to the text displayed when only HELP is typed.

HELP (Cont.)

If a system contained this help file, you would get the following display in response to HELP L:

>HELP L ⟨RET⟩

                  See Ben Jones for an account and password.

     >

The qualifier HELLO is the synonym defined for LOGIN (L), so HELP displays the text following HELLO for both qualifiers. (Note that a qualifier may be specified by the fewest initial characters that unambiguously define it.)

Command Error Messages:

HEL -- Ambiguous HELP qualifier

    The qualifier does not specify a unique part of the help file. Further characters must be supplied. Examine the command line that HELP displayed below the error message and specify the last qualifier displayed more completely.

HEL -- Ambiguous HELP synonym

    The qualifier referenced as a synonym was not unique.

HEL -- Cannot initialize file storage region correctly

    The HELP text could not be buffered adequately. Reenter the command line.

HEL -- Cannot open output file

    The output file specified with the /OUT:filespec keyword cannot be created. This message can occur for several reasons. For example, the device may be write-locked or you do not have the necessary access privileges for the specified directory.

HEL -- Excessively nested or recursive synonyms

    A string synonym used in the help file has probably been defined recursively.

HEL -- HELP file error <nnn>

    The help file could not be opened for the reason specified by the FCS code nnn. If the code number is -26, the help file does not exist. See the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual for definitions of the error codes.

HEL -- HELP synonym not found

    The help file referenced a synonym, but the file did not include it.

HELP (Cont.)

HEL -- Illegal switch - not logged in

    You attempted to reference a local or group help file or
    output help text to another file without being logged in.
    Log in on the system and then enter the HELP command line.

HEL -- Improper HELP file format

    The help file is not in proper format and cannot be used.
    Either edit the file or reenter it in proper format.

HEL -- Indirect HELP file open error

    HELP attempted to reference another file from within the
    help file, but could not open the indirect file.

HEL -- Indirect HELP file syntax error

    HELP encountered a syntax error either in a reference to
    another file or in the indirect file itself.

HEL -- Switch syntax error

    You specified a keyword incorrectly. Reenter the command
    line.

HEL -- Unknown HELP qualifier

    The help file does not contain the last qualifier displayed
    in the command line below the error message.

3.28 HOME (NP,P)

The HOME command allows you to modify certain fields in the home block of a Files-11 disk volume. After you make the changes, HOME performs extensive checks to ensure that a good home block is written back onto the volume. If any of these checks fail, HOME attempts to place an alternate home block on the first free block on the home block search path. If this is completed successfully, HOME issues a warning message about the new home block. However, you should copy the volume as soon as possible, because the alternate home block could be destroyed while the volume is mounted.

To use the HOME command, you must first install the INI task with the task name ...HOM as follows:

>INS $INI/TASK=...HOM (RET)

The difference between INI and HOME is that INI writes the home block of a volume whereas HOME changes the information in the home block (without changing anything else). Because the HOME command and the INI command are implemented within the same task, they share many of the same error messages. See the description of the INI command for explanations of these common messages.

Also, you should be aware that you cannot use the HOME command on RSX-11M Version 3.2 operating systems (or earlier versions), or on RSX-11M-PLUS Version 1.0 operating systems, and get the desired results.

Format:

HOM[E] ddnn:volume-label/keyword(s)

ddnn:

The volume whose home block you want to modify.

On RSX-11M operating systems, the volume must be allocated and unmounted or allocated and mounted as foreign.

On RSX-11M-PLUS operating systems, the volume must be allocated and mounted as foreign.

volume-label

The current label for the volume.

/keyword(s)

The specifications for the fields you want to modify in the home block. Each keyword defaults to the value specified for the particular field when the volume was initialized. The keywords do not change the files created by the INI command.

Keywords:

/DENS=density

Checks the density of a diskette. If specified, the drive density is compared against the keyword value for consistency. Acceptable values are: HIGH and LOW.

HOM (Cont.)

/EXT=block-count

> Specifies the default file-extend size. A file must be extended when it has used all of its allocated space. Legal values for block-count range from 1 to 255(decimal).
>
> Note that if you specify /EXT=0, no files (including the system files) can be extended. Therefore, although there may be free space on the disk volume, unless there are also free file headers, new files cannot be created on the volume. (If there are no free headers and the index file cannot be extended, no new files can be created.)

/FPRO=[system,owner,group,world]

> Specifies the default protection for the files on the volume. The system recognizes four classes of users for file protection purposes. The position of the user classes in the protection code string is fixed in this order: [SYSTEM, OWNER, GROUP, WORLD]. The location in the string defines which user class you are specifying.
>
> Also, the system recognizes four types of access codes for file protection purposes:
>
>> R - Read access
>> W - Write access
>> E - Extend access
>> D - Delete access
>
> In each instance, the absence of a code means that the user class is denied that type of access.
>
> The square brackets around the protection code are required syntax.
>
> If you want to specify the default protection for a user class, enter an asterisk (*) instead of access codes in that class's place in the string.

/LRU=directory-count

> Specifies the approximate number of directories that will be accessed simultaneously. The Files-11 Ancillary Control Processor (F11ACP) maintains a list of the most recently used directories. The value that you specify for /LRU sets the number of entries in this list. In general, directory operations can be speeded up significantly by increasing the number of entries.
>
> If a directory appears in the list, no disk I/O is required for finding the directory in the Master File Directory (MFD). In addition, directory operations do not require the directory file header to be read. If you do not use /LRU, the default for directory-count is the value specified when the volume was initialized.

HOM (Cont.)

Legal values for directory-count range from 1 to 127(decimal). Note that increasing the value for /LRU increases the number of File Control Blocks (FCBs) used, and may increase the amount of system pool used. See the appropriate system generation manual for more information.

Also note that if you specify /LRU=0, the F11ACP will not keep a list of directories. This is not recommended and could have an adverse effect on system efficiency.

/MXF=file-count

Specifies the maximum number of files allowed on the volume. This number corresponds to the number of file headers in the volume's index file. The value for /MXF includes the five system files and cannot be greater than the total number of bits allocated to the index file bitmap. Use the following algorithm to determine the maximum number of files allowed on your volume:

maximum = (4096.)*(current-number-of-index-file-bitmap-blocks)

The number of index file bitmap blocks depends on the maximum number of files currently allowed on the volume. Use the /VI keyword to obtain this number and read the description of the /INF keyword for the INI command to determine how many index file bitmap blocks are on the volume.

Note that you also cannot reduce the maximum number of files already specified for the volume.

/NAME=new-volume-label

Specifies a new label for the volume.

/OVR (P)

Instructs the HOME command to override label processing so that a volume can be modified without specifying a volume label.

/OWNER=[group,member]

Specifies the owner of the volume. Legal group and member numbers range from 1 to 377(octal). The square brackets are required syntax. This keyword is identical to the /UIC keyword.

/POS

(RSX-11M-PLUS operating systems only.) Applies different default values to a volume when the volume is initialized. This keyword assumes that the volume is an RX50.

The only other keyword you can use along with /POS is /VI. When you use /VI and /POS together, the system displays the following message:

Volume initialized with /POS

HOM (Cont.)

All other information except the volume label is suppressed. The label is displayed only if you specified a label in the command line. If you do not specify a label, /POS generates its own label for the volume: the first 12 characters of the date and time (the day, month, year; hour, minute, and second fields). The label does not include punctuation marks. For example:

20SEP8510453

When you use /POS, the system files (index, bitmap, bad block, core image, and directory) are located at the beginning of the volume instead of in the middle and the default directory for the files is [200,200] instead of [1,1]. These defaults cannot be changed.

Although you cannot use any other keyword except /VI with /POS, the /POS keyword affects other keywords in the following ways: for /FPRO, the default access for all classes (including World) is RWED; for /MAX, the default number of files allowed on the volume is 200.

/PRO=[system,owner,group,world]

Specifies the default protection for a volume. Access codes consist of four groups of four codes in the access rights word as follows:

        R - Read access
        W - Write access
        C - Create access
        D - Delete access

In each instance, the absence of the code means that the user class is denied the access right.

The user classes (system, owner, group, world) are positional. That is, the location of the word in the string defines the user class to whom the code applies. The order is:

        [system,owner,group,world]

The square brackets are required syntax.

Substitute an asterisk (*) for the access codes to force the default value for a specific class.

/UIC=[group,member]

Specifies the owner of the volume. Legal group and member numbers range from 1 to 377(octal). The square brackets are required syntax. This keyword is identical to the /OWNER keyword.

/VI

Lists the HOME keywords and their values for the specified volume.

HOM (Cont.)

/WIN=retrieval-pointer-count

> Specifies the number of mapping pointers to be allocated for file windows. A file window consists of a number of mapping pointers and is stored in memory when the file is opened. (See the <u>RSX-11M/M-PLUS</u> and <u>Micro/RSX I/O Operations Reference Manual</u> for a description of mapping pointers.) The retrieval-pointer-count must be between 1 and 127(decimal).

Example:

    >HOM DK0:TEST/MXF=2357./VI RET

    ** Volume information for DK0: **

    Label   = TEST
    /Cha   = []
    /Ext   = 100.
    /Fpro   = [RWED,RWED,RWED,R]
    /Lru   = 3.
    /Mxf   = 2357.
    /Pro   = [RWED,RWED,RWED,RWED]
    /Uic   = [1,1]
    /Win   = 7.

    Maximum possible files = 4096.

    The Homeblock revision count is 1, Last revised on 11-AUG-85
    Volume created on 11-AUG-85 at 19:47:37

Command Error Messages:

NOTE

> If you receive an error message that is not listed here, see the description of the INI command for an explanation of the message.

        <bell>*** ATTENTION ***<bell>
    THIS VOLUME IS OPERATING WITH A REPLACEMENT HOME BLOCK
     PLEASE TAKE THE ACTION OUTLINED IN THE DOCUMENTATION

HOME could not ensure that a good home block would be written back to the volume, so it has placed an alternate home block on the first free block on the home block search path. The new home block is not allocated to or mapped by any file. You should copy the volume as soon as possible, because many operations on a mounted volume could destroy the replacement home block.

HOM -- Failed to find home block

HOME could not locate the home block of the volume.

HOM (Cont.)

HOM -- Failed to place alternate home block

> When HOME cannot ensure that a good home block will be written
> back to the volume, it attempts to place an alternate home block
> on the first free block of the home block search path. This
> message indicates that the attempt failed. Note that your volume
> may be corrupted and therefore unmountable.

HOM -- MXF less than or equal to the existing value

> The value specified with /MXF was less than or equal to the
> maximum number of files already specified for the volume. This
> value must be greater than the current number of files allowed.

HOM -- Switch is not legal in this mode

> You attempted to use INITIALIZE keywords and/or their options
> with the HOME command.

HOM -- Wrong volume label

> The volume label specified in the command line did not match the
> volume's current label.

3.29   INITVOLUME (NP)

The INITIALIZE VOLUME command produces a Files-11 volume (see Section 2.1). On disk and DECtape volumes, the command initializes the volume (destroys all existing files), writes a dummy bootstrap and a home block, and builds the directory structures. On magnetic tape volumes, the command writes a volume label according to the ANSI X3.27-1978 standard and writes a dummy file that destroys all existing files.

Note that a magnetic tape volume produced by the INI command is considered to be a null volume. If you are going to transport a newly initialized tape to a non-RSX-11M/11M-PLUS operating system, you might first have to make the null volume comply fully with the ANSI standard. To produce an ANSI-standard volume, you must write an actual file or a null file on the tape. You can use the following command line to do this:

        PIP>ddnn:DUMMY=NL:

(Also note that the null device NL: is a system generation option on RSX-11M operating systems.)

On multiuser protection systems, you can only initialize a volume on allocated, private devices (that is, a device you have allocated). On RSX-11M operating systems that do not support multiuser protection, only privileged users can initialize a volume.

On RSX-11M operating systems, the volume must be unmounted or mounted foreign.

On RSX-11M-PLUS operating systems, the volume must be mounted foreign.

Selecting appropriate values for the command parameters requires an in-depth knowledge of Files-11. Refer to the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual for details of the Files-11 disk and ANSI magnetic tape structures.

Format:

        INI[TVOLUME] ddnn:["]volume-label["] [/keyword(s)]

        Note that you can use a hyphen (-) as the last character on a line to extend the INI command line when selected keywords cause it to exceed 80 characters (or whatever buffer size has been specified for the terminal). You can use any number of continuation lines, but the total command line cannot exceed 512(decimal) characters.

        On RSX-11M operating systems, you must first invoke INI and then begin using continuation lines when INI prompts you (INI>).

        On RSX-11M-PLUS operating systems, you can begin using continuation lines on the same line in which you invoke INI.

ddnn:

        The device unit name and number of the volume to be initialized.

INI (Cont.)

["]volume-label["]

> The volume label. This may be up to 12 characters in length for disk and DECtape, and up to 6 characters for magnetic tapes. The label identifies the volume and must be specified.
>
> For magnetic tapes, the volume label is usually a reel number that uniquely identifies the tape. The number is assigned by the installation and, according to the ANSI standard, cannot be duplicated within an installation.
>
> When you specify a volume label for the magnetic tape, you can use the uppercase letters A through Z, the digits 0 to 9, and the following special characters:
>
> > <space> ! " % & ' ( ) * + , - . / : < = > ? ;
>
> To use a label that contains a special character, enclose the label in quotation marks ("label"). To use a quotation mark in a label, you must use two quotation marks within the quoted string. For example, the label T"1% has to be specified in the command line as "T""1%". Any lowercase letters specified in a volume label are converted to uppercase before any operations are performed on the volume.

/keyword(s)

> The specifications for various characteristics you want the volume to have upon initialization.

Keywords:

> /ACCESS="character"
>
> > Allows the owner of a magnetic tape volume to specify the access protection for the volume. INI places "character" in VOL1 (the accessibility field), which is usually blank. Legal values for "character" are the uppercase letters A through Z, the digits 0 to 9, and the following special characters:
> >
> > > <space> ! " % & ' ( ) * + , - . / : < = > ? ;
> >
> > The default value for "character" is a space.
> >
> > Note that if any nonblank character is specified, only a privileged user will be able to mount the volume.
>
> /BAD=[option]
>
> > Indicates that bad block processing is to be included in the volume initialization. Consequently, bad blocks on the volume will be marked as being currently in use and cannot be allocated to files.
> >
> > The brackets surrounding each option are required syntax. The options are:
> >
> > > [MAN]   Accept a bad block list specified from the terminal.

INI (Cont.)

[AUTO]   Read the bad block descriptor file on the last track of the volume created by the manufacturer's diagnostic routines or the Bad Block Locator Utility (BAD).

[NOAUTO]   Ignore the bad block descriptor file and perform no bad block processing.

[AUTO,MAN] Read the bad block file and, when done, accept blocks specified from the terminal.

[OVR]   Include the last track in the BADBLK.SYS file. This option assumes that the bad block file is located on the last good block before the last track. The option is only valid for devices that contain manufacturer-recorded bad block data in the last tracks (that is, DL:, DM:, and DR: type devices).

[OVR,MAN]   Override the manufacturer's bad block descriptor file and accept blocks specified from the terminal.

If the command line specifies [MAN], INI prompts for bad blocks as follows:

    INI>LBN(S)=

Bad blocks can then be entered in the format:

    blocknum:number

where blocknum specifies the bad block number and number specifies the number of sequential bad blocks beginning at blocknum.

INI requires the colon when you specify a sequence of bad blocks. Both blocknum and number default to decimal unless preceded by a pound sign (#).

To specify a single block, simply enter the block number and omit the colon.

To specify a sequence of bad blocks, separate each series of blocks with a space, tab, or comma. For example, the command line:

    INI>LBN(S)=100:2,3,200:100,45:1

enters blocks 100, 101, 3, 200 through 299, and 45 as bad blocks.

A null line (pressing the RETURN key in response to the prompt) displays the bad blocks. The first number in the display represents the beginning block of the sequence; the second number is the number of bad blocks in the sequence. (Note that the numbers are decimal.)

To terminate bad block input, press CTRL/Z or the ESC key.

INI (Cont.)

The default option is /BAD=[AUTO]. INI obtains the bad block information from the manufacturer-recorded bad block descriptor file located on the last track of an RK06/07, RL01/02, or RM02/03/05/80 disk. INI also searches the last track for a bad block descriptor file created by the BAD utility.

/DENS=density

Sets the bit density (bits per inch or bpi) of a magnetic tape loaded on a TE16, TU16, TU45, TS11, TSV05, TU80, TU77, or TU78 tape drive. Legal keyword values are as follows:

/DENS=800

/DENS=1600

/DENS=6250

/DENS=HIGH

/DENS=LOW

The default keyword values are as follows:

/DENS=6250 for TU78 volumes
/DENS=1600 for TS11/TSV05/TU80 volumes
/DENS=800 for all others.

The /DENS keyword checks the density of a diskette in an RX02 drive or of a tape on a TS11/TSV05/TU80 drive. If a /DENS value is specified, the drive density is compared to the keyword value for consistency. If a /DENS value is not specified, no consistency check is performed and the volume is initialized at its current density.

/EXT=block-count

Specifies the number of blocks by which a file is to be extended when the file has used all of its allotted space. Legal values for block-count range from 1 to 255(decimal).

The default is /EXT=5. Note that if you specify /EXT=0, no files (including the system files) can be extended. Therefore, although there may be free space on the disk volume, unless there are also free file headers, new files cannot be created on the volume. (If there are no free headers and the index file cannot be extended, no new files can be created.)

/FPRO=[system,owner,group,world]

Specifies the default protection for files created on the volume being initialized. Access codes consist of four groups of four codes in the access rights word as follows:

R - Read access
W - Write access
E - Extend access
D - Delete access

INI (Cont.)

In each instance, the absence of the code means that the user class is denied the access right.

The user classes (system, owner, group, world) are positional; that is, the location of the word in the string defines the user class to whom the code applies. The order is as follows:

        [system, owner, group, world]

The square brackets are required syntax.

Substitute an asterisk (*) for the access codes to force the default value for a specific class.

The default file protection is /FPRO=[RWED,RWED,RWED,R]. That is, all types of access are allowed for all user classes except the world, which is allowed read access only.

/INDX=index-file-position

Specifies the logical block number for the index file. The keyword can be used to force the index file, the Master File Directory (MFD), and the storage allocation file to a specific volume location, usually to minimize access time. Four possibilities are available:

BEG   - Place the index file at the beginning of the volume.

MID   - Place the index file at the middle of the volume.

END   - Place the index file at the end of the volume.

BLK:nnn - Place the index file at the specified block number.

The defaults are: /INDX=MID (disk devices), /INDX=BEG (DECtape, DECtape II, and ML11).

/INF=initial-index-file-size

Specifies the number of file headers to allocate initially in the index file. The five system files (INDEXF.SYS, BITMAP.SYS, BADBLK.SYS, CORIMG.SYS, and 000000.DIR) are not included in the value for /INF.

The maximum number of file headers that can be allocated to a volume is either determined by the value specified with the /MXF keyword or is defaulted. The default number is based on the size of the volume (see the description of /MXF for the calculation). The maximum number of file headers determines if the volume will have a 1-, 2-, or 3-header index file.

INI (Cont.)

You need to determine the maximum number of file headers allowed on the volume before you can calculate the number of headers that will be preallocated initially. The number of preallocated file headers is determined by either the value you specify with /INF or a formula that uses the value you specify with /MXF. The following list gives the three general formulas (one for each type of index file):

1-header index file

   headers = maximum/2

      headers   The initial number of preallocated file headers.

      maximum   The maximum number of files (specified with /MXF).

   If headers is less than 100(decimal), INI preallocates 16(decimal) file headers for your volume.

2-header index file

   headers = maximum/2 or 25593, whichever is larger

3-header index file

   headers = maximum/2 or 51699, whichever is larger

See the description of the /MXF keyword for more information on multiheader index files.

/LRU=directory-count

Specifies the approximate number of directories that will be accessed simultaneously. The F11ACP maintains a list of the most recently used directories. The value specified for /LRU sets the number of entries in this list. In general, directory operations can be speeded up significantly by increasing the number of entries.

If a directory appears in the list, no disk I/O is required for finding the directory in the Master File Directory (MFD). In addition, directory operations do not require the directory file header to be read.

Legal values for directory-count range from 0 to 127(decimal). Note that increasing the value for /LRU increases the number of File Control Blocks (FCBs) used and may increase the amount of system pool used. See the appropriate system generation manual for more information.

Also note that if you specify /LRU=0, the F11ACP will not keep a list of directories. This is not recommended and could have an adverse effect on system efficiency.

The default is /LRU=3.

INI (Cont.)

/MXF=file-count

>Specifies the maximum number of files allowed on the disk
volume. This number corresponds to the number of file
headers in the volume's index file (see the description of
the /INF keyword). The value for /MXF includes the five
system files. In general, for a disk of size N blocks, the
theoretical maximum number of files is calculated as
follows:

$$MXF = ((N-(((N+4095.)/4096.)+9.))*127.)/258.$$

>If you initialize a disk with the /VI keyword, the value for
the maximum number of files is displayed along with the
other volume information (see the command examples). If you
do not specify a maximum value, the default value is
calculated by INI using the following formula:

$$default\ MXF = (theoretical\ maximum\ MXF)/8$$

>The maximum file-count value of a disk also decides if the
volume will be a Files-11 level 401 or 402 volume. Level
402 volumes will have a multiheader index file and allow up
to 65,500(decimal) files on them. INI creates the
multiheader index file and modifies the volume's home block
automatically if the value specified is greater 25,593. (If
65K index file support is not specified for the INI task,
the largest value allowed for /MXF is 25,593. With 65K
support, the largest value is 65,500.) Note that such
volumes are not backwards compatible from RSX-11M Version
4.0 or from RSX-11M-PLUS Version 2.0. INI issues a warning
message about the incompatibility when it creates a
structure level 402 volume.

>### NOTE
>
>>To create the Files-11 disk structure, a Files-11
volume requires the following five files:
INDEXF.SYS, BITMAP.SYS, BADBLK.SYS, CORIMG.SYS, and
000000.DIR (see the RSX-11M/M-PLUS and Micro/RSX I/O
Operations Reference Manual). Thus, the /MXF value
must be computed by adding the maximum number of
user UFDs and files plus the five files required for
the Files-11 structure.

/OWNER=[g,m] (disks, DECtapes, and magnetic tapes)
/OWNER="owner" (magnetic tapes only)

>Specifies the owner of the volume. It is similar to /UIC,
but for magnetic tapes allows you to use a syntax other than
[g,m]. /OWNER="owner" allows you to change the entire
"owner identifier" field in the volume label block if this
is necessary for interchange with other systems.

INI (Cont.)

/POS

(RSX-11M-PLUS operating systems only.) Applies different defaults to a volume when the volume is initialized. The keyword assumes that the volume is an RX50.

You cannot use the /POS keyword with any other keyword except /VI. When /VI is also used, the system displays the following message:

Volume initialized with /POS

All other information except the volume label is suppressed. The label is displayed only if you specified a label in the command line. If you do not specify a label, /POS generates its own label for the volume: the first 12 characters of the date and time (the day, month, year; hour, minute, and second fields). The label does not include punctuation marks. For example:

20SEP8510453

When you use /POS, the system files (index, bitmap, bad block, core image, and directory) are located at the beginning of the volume instead of in the middle and the default directory for the files is [200,200] instead of [1,1]. These defaults cannot be changed.

Although no other keyword except /VI can be used with /POS, the keyword also has the following effects: for /FPRO, the default access for all classes (including World) is RWED; for /MAX, the default number of files allowed on the volume is 200.

/PRO=[system,owner,group,world]

Specifies the default protection for a volume. Access codes consist of four groups of four codes in the access rights word, as follows:

R - Read access
W - Write access
C - Create access
D - Delete access

In each instance, the absence of the code means that the user class is denied the access right.

The user classes (system, owner, group, world) are positional; that is, the location of the word in the string defines the user class to whom the code applies. The order is:

[system, owner, group, world]

The square brackets are required syntax.

Substitute an asterisk (*) for the access codes to force the default value for a specific class.

INI (Cont.)

The default volume protection is /PRO=[RWED,RWED,RWED,RWED]. That is, all types of access are allowed to all four user classes.

/UIC=[group,member]

Specifies the owner of the volume. Legal group and member numbers range from 1 through 377(octal). The square brackets are required syntax.

The default is /UIC=[1,1].

/VI

Lists all of the INI keywords and their values for the specified volume.

/WIN=retrieval-pointer-count

Specifies the number of mapping pointers to be allocated for file windows. A file window consists of a number of mapping pointers and is stored in memory when the file is opened. (See the RSX-11M/MPLUS and Micro/RSX I/O Operations Reference Manual for a description of mapping pointers.) The retrieval-pointer-count must be in the range of 1 to 127(decimal).

The default is /WIN=7.

Examples:

>INI DK1:ICTSVOL2/UIC=[[2,5]]/INDX=BEG/FPRO=[[RWED,RWE,RW,R]] RET

The INITVOLUME parameters used in the example are:

DK1:	Device unit
ICTSVOL2	Volume label
/UIC	User Identification Code of the volume owner: group=2, member=5
/INDX=BEG	Index file location, forced to beginning of volume
/FPRO	Default file protection, specified by class as:

system:	Read,Write,Extend,Delete
owner:	Read,Write,Extend
group:	Read,Write
world:	Read-only

INI (Cont.)

```
>INI DK0:TEST/EXT=100./VI  RET

** Volume information for DK0: **

Label   = TEST
/Bad    = [Auto]
/Cha    = []
/Ext    = 100.
/Fpro   = [RWED,RWED,RWED,R]
/Indx   = Mid
/Inf    = 147.
/Lru    = 3.
/Mxf    = 294.
/Pro    = [RWED,RWED,RWED,RWED]
/Uic    = [1,1]
/Win    = 7.

Theoretical maximum files = 2357.
```

Command Error Messages:

INI -- Allocation for SYS file exceeds volume limit

The system was unable to allocate a system file from the specified block because of intermediate bad blocks or end-of-volume.

INI -- Bad block file corrupt - data ignored

Although automatic bad block recognition was selected, the bad block data on the disk was not in the correct format and was therefore ignored.

INI -- Bad block file full

The disk had more than 102(decimal) bad regions on it.

INI -- Bad block header I/O error

An error was detected in writing the bad block file header.

INI -- Block(s) exceed volume limit

The specified block (or blocks) exceeded the physical size of the volume.

INI -- Boot block write error

An error was detected in writing the volume boot block.

INI -- Checkpoint file header I/O error

An error was detected in writing the checkpoint file header.

INI -- Command I/O error

INI encountered an I/O error while reading the command line.

INI (Cont.)

INI -- Command too long

The command, including continuation lines, exceeded the maximum length of 512(decimal) characters.

INI -- Data error

The command specified a bad block number or contiguous region that was too large.

INI -- Device not allocated to this terminal - <ddnn>

The command line specified a private device that was allocated to a terminal other than the one from which the command was issued.

INI -- Device not in system

The command line specified a device not in the current system configuration.

INI -- Device not mounted foreign

On RSX-11M-PLUS operating systems, a volume must be mounted as a foreign volume (by using the /FOR keyword with the MOUNT command), before it can be initialized (or modified by HOME).

On RSX-11M operating systems, a volume can be unmounted or mounted as foreign.

INI -- Device not ready - <ddnn>

The command line specified a device that was not ready (not up to speed).

INI -- Device offline

The specified device is in the system but not presently on-line.

INI -- Device write locked - <ddnn>

The command line specified a volume that was write-locked and therefore could not be initialized as a Files-11 volume.

INI -- Disk is alignment cartridge

The last track on an RK06/RK07, RL01/RL02, RM02/RM03/RM05 or RM80 disk identified the volume as an alignment cartridge, which cannot be initialized as a Files-11 volume. An alignment cartridge is specifically formatted for aligning disk read/write heads.

INI -- Driver not loaded

The command line specified a device for which the driver has not been loaded.

INI (Cont.)

INI -- Duplicate block(s) found

    INI attempted to define a block as bad that had already been
    defined as such.

INI -- Failed to attach device - <ddnn>

    INI could not attach the specified device.

INI -- Failed to read bad block file

    The command was unable to read the bad block information
    from the last track of an RK06/RK07, RL01/RL02,
    RM02/RM03/RM05, or RM80 disk.

INI -- Failed to read manufacturer's bad sector file

    A disk read (hardware) error occurred when INI attempted to
    read the the manufacturer-recorded bad block data on a
    last-track device. Reenter the command line and include the
    /BAD=OVR option.

INI -- Failed to read software bad sector file

    The software-detected bad sector file could not be read.
    Reenter the command line and include the /BAD=OVR option.

INI -- Home block allocate write error

    While INI was overwriting a bad home-block area, a write
    error occurred.

INI -- Home block I/O error

    An error was detected in writing the Volume Home Block.

INI -- Illegal argument value

    This message can occur for one or more of the following
    reasons:

    ● The value specified with /EXT was greater than
       200(decimal).

    ● The value specified with /INF was less than 16(decimal).

    ● The value specified with /INF or /MXF was too large for
       the device type.

    ● The value specified with /LRU was greater than
       127(decimal).

    ● The value specified with /WIN was greater than
       127(decimal).

INI -- Illegal keyword value

    The value you specified with the keyword is illegal. Check
    the description of the keyword for the legal values.

INI -- Illegal UIC

The UIC you specified with the /UIC keyword is not a valid
one or is in an incorrect format. Legal values for UICs are
1 to 377(octal) and are in the format [g,m].

INI -- Index file bit map I/O error

An error was detected in writing the index-file bitmap.

INI -- Index file I/O error

An error was detected in writing the index-file header.

INI -- I/O error on device <ddnn:>

A fatal hardware error occurred on the specified device.

INI -- I/O error sizing device - <ddnn>

The system encountered an I/O error while sizing an RF11
disk.

INI -- Magtape label must be specified

The command attempted to initialize a magnetic tape without
specifying the required volume label.

INI -- Magtape device error - <ddnn>

While positioning the magnetic tape, the system encountered
an I/O error.

INI -- Magtape write error - <ddnn>

While writing to the magnetic tape, the system encountered
an I/O error.

INI -- Manufacturer's bad sector file corrupt

The manufacturer-recorded bad block data on a last-track
device is in an inconsistent format. Reenter the command
line and include the /BAD=OVR option.

INI -- MFD file header I/O error

An error was detected in writing the Master File Directory
(MFD) file header.

INI -- MFD write error

An error was detected in writing a block in the Master File
Directory (MFD).

INI (Cont.)

INI -- Mutually exclusive switches specified

This message can occur for the following reasons:

- The keywords /ACCESS, /OWNER, and /UIC cannot be specified in the same command line.

- The keyword /POS cannot be specified with any other keyword except /VI.

INI -- No bad block data found

Although automatic bad block specification was selected, no bad block file was found on the volume. This is only a warning; INI continues and initializes the volume.

INI -- Not file structured device

The system does not support Files-11 on the specified device.

INI -- Null file header I/O error

An error was detected in writing null-file headers to the index file.

INI -- Preallocated too many headers for single header index files

The number you specified with the /INF keyword was greater than 25598(decimal); therefore, the volume would have to have a multiheader index file.

INI -- Preallocation insufficient to fill 1st index file header

The number you specified with the /INF keyword was less than 25588(decimal).

INI -- Preallocation insufficient to fill 1st and 2nd index file headers

The number you specified with the /INF keyword was less than 51694(decimal).

INI -- Privilege violation

This message can occur for the following reasons:

- Only privileged users can use the /OVR keyword. (This is an error message for the HOME command.)

- Only privileged users can initialize volumes in a nonmultiuser protection system.

INI -- Public device - <ddnn:>

The command line specified a public device. Only private devices can be initialized.

INI (Cont.)

INI -- Storage bitmap file header I/O error

A fatal hardware error occurred while the storage bitmap file header was being initialized.

INI -- Storage bitmap file I/O error

An error was detected in writing the storage allocation file header.

INI -- Switch is not legal for this device type

A keyword was specified that cannot be used with the specified device. Check the description of the keyword for the valid devices.

INI -- Switch is not legal in this mode

You attempted to use HOME keywords and/or their options with the INI command.

INI -- Syntax error

This message can occur for the following reasons:

- The value specified with the /ACCESS keyword was more than one character long.

- The volume label for an ANSI magnetic tape contained an invalid character.

- Illegal syntax was used during the manual input of bad block numbers.

- A keyword was specified immediately after the command name in the command line, instead of after the volume name (for example, INI /UPD DD:).

INI -- This program must be invoked as an MCR function

The task must be installed with the task name ...HOM or ...INI.

INI -- Undefined density selection

The command line specified an illegal density value.

INI -- Unit does not support 800 bpi

The command line specified 800 bpi for a drive that does not support 800 bpi.

INI -- Unit does not support 1600 bpi

The command line specified 1600 bpi for a drive that does not support 1600 bpi.

INI (Cont.)

INI -- Unit does not support 6250 bpi

   The command line specified 6250 bpi for a drive that does
   not support 6250 bpi.

INI -- Unit does not support HIGH/LOW density selection

   The command line specified HIGH or LOW density for a device
   for which the /DENS HIGH and LOW options are undefined.

INI -- Unit does not support density switch

   The command line specified multiple densities for a device
   that does not have multiple density capability.

INI -- Unit is not at LOW density

   The command line specified that a diskette in an RX02 drive
   be initialized at low density, but the diskette was
   formatted at high density.

INI -- Unit is not at HIGH density

   The command line specified that a diskette in an RX02 drive
   be initialized at high density, but the diskette was
   formatted at low density.

INI -- Value of (INF + 5) exceeds /MXF

   The value specified with the /INF keyword plus 5 (for the
   five system files) is greater than the maximum number of
   files specified with /MXF.

INI -- Volume mounted Files-11

   An attempt was made to initialize a mounted Files-11 volume.
   Mounted Files-11 volumes cannot be initialized.

INI -- Volume mounted foreign with ACP

   (RSX-11M-PLUS operating systems only.) The command line
   specified a device that was mounted foreign, but with an
   ACP. To initialize a volume on an RSX-11M-PLUS operating
   system, you cannot include an ACP name when the volume is
   mounted as foreign.

INI -- Volume name too long - (volume name)

   The command line specified a volume label that exceeded 6
   characters for magnetic tape devices or 12(decimal)
   characters for disk or DECtape devices.

INI (Cont.)

INI -- Warning -- Block 0 is bad

Block 0 of the specified volume, the boot block, was bad. Therefore, a bootable image cannot be placed on this volume. This is only a warning; INI continues and initializes the volume.

INI -- Warning -- This volume is not backwards compatible

INI has created a structure level 402 volume because the value specified with the /MXF keyword was greater than 25,593. Level 402 volumes cannot be used on versions of RSX-11M prior to Version 4.0 or on versions of RSX-11M-PLUS prior to Version 3.0.

INS

3.30 INSTALL (P)

The INSTALL command makes a specified task executable by the system. An installed task is dormant (not active) until the Executive receives a request for the task to run. INSTALL accepts optional keywords that provide parameters that were not specified when the task was built or that override previously specified parameters.

When you install a task, the system creates a Task Control Block (TCB) for the task in a memory-resident table called the System Task Directory (STD). The task parameters contained in the TCB enable the system to run the task when requested to do so by an MCR command or a system directive. You cannot run a task until it has been installed (see Section 2.5). (Note that the RUN command has an option that automatically installs and removes a task before and after running it.)

A TCB contains both the address of the load-device Unit Control Block (UCB) and the Logical block number (LBN) of the task image file. Because task image files are contiguous, the Executive can load the task image in one transfer when an MCR command or system directive requests an installed task. (However, if the task is greater than 32K words, loading requires more than one transfer.)

When you install a task in a unsaved system, the system stores the task image file's LBN in the task header. When the system is saved, the SAVE task places the file identification, rather than the file's LBN, in the TCB. Then when the system is rebooted, it opens the task file and stores the new current LBN of the task in the TCB. If a task has been deleted, the system cannot open the task file when the system is rebooted. The system then automatically removes the task's TCB from the STD.

A saved system does not retain the physical addresses of installed tasks. The Disk Save and Compress (DSC) and Backup and Restore (BRU) utilities can compress and copy a disk containing a saved system, thus moving the task files to different physical locations. However, because the TCB entries contain task file identifications rather than LBNs, the system can function normally when it is rebooted.

On RSX-11M operating systems, when you install a resident library, INSTALL loads it into a common partition.

On RSX-11M-PLUS operating systems, when you install a resident library, INSTALL makes an entry for the resident library in the Common Block Directory (CBD). The system loads the resident library when a task that uses it runs and removes the resident library when no task is attached to it.

Format:

>   INS[TALL] [$]filespec[/keyword(s)]

filespec

>   The file specification in the form:

>>   ddnn:[g,m]filename.type;version

>   The type defaults to TSK; standard defaults apply to the remaining fields.

INS (Cont.)

$

When you specify $ in the command line, ddnn: defaults to LB:, and [g,m] defaults to the current system UIC (usually, [1,50] for an unmapped system and [1,54] for a mapped system).

On RSX-11M-PLUS operating systems, if you specify $ and the file cannot be found under the system UIC, INSTALL searches the library directory on device LB:. By convention, LIBUIC is [3,54].

Note that if LB: has been reassigned to another device and that device's system UIC contains privileged tasks built for another system, your system will crash.

Keywords:

/AFF=[CPx,UBy]

   (RSX-11M-PLUS multiprocessor operating systems only.) Allows you to specify the specific resources (affinity) required for task execution. The square brackets are required syntax. Legal values for the processor specification (x) are A, B, C, and D. Legal values for UNIBUS run specifications (y) are E, F, H, J, K, L, M, N, P, R, S, and T.

   When you specify the /AFF keyword, the installed task runs only on the processor to which the specified URMs are connected.

/CKP=option

   Specifies whether or not a task will be checkpointable. The options are YES and NO. If you specify /CKP=YES (the default for tasks that can be checkpointed), checkpointing is allowed. If you specify /CKP=NO, checkpointing is disabled for the task.

   The /CKP keyword overrides the /CP switch specified at task build.

   On systems that support the dynamic allocation of checkpoint space, the task image file does not need to contain allocated checkpoint space. The presence of the /CKP=YES keyword instructs the system to allocate checkpoint space, when required, for the task from a checkpoint file. (See the ACS command for more information on allocating checkpoint space.)

   On RSX-11M operating systems, if a task was built with the /XH switch, the /CKP keyword is disabled for the task.

/CLI=option

   Specifies that the task being installed is a command line interpreter (CLI). The options are YES and NO. You must install a CLI with the YES option before you can set a terminal to that CLI (SET /CLI) or work with the CLI by means of the CLI command. However, if the task was built

INS (Cont.)

with the /CL option, you do not need to install the task
with CLI=YES. For more information on the /CL option of the
Task Builder, refer to the RSX-11M-PLUS and Micro/RSX
Version 3.0 Release Notes.

/FMAP=option

(RSX-11M-PLUS operating systems only.) The options are YES
and NO. /FMAP=YES specifies that the task uses the
fast-mapping feature of the Executive. This keyword can be
used only with tasks that have external headers (headers
external to system pool). See the description of the /XHR
keyword for more information about external headers. For
more information about fast mapping, refer to the
RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual.

/INC=size

(Mapped systems only.) Increments the address space
allocated to a task that runs in a system-controlled
partition. The variable size is the number of additional
words of address space to allocate. The increment is
usually expressed in octal, but may also be expressed in
decimal by appending a period.

This keyword overrides the EXTTSK or PAR option used at
task-build time. Tasks that specify the size of the
partition in which they are running use this keyword to
identify how much dynamic space they may allocate to symbol
tables or buffers. Tasks such as MAC, TKB, PIP, VFY, and
AT. use the space from the end of the task image to the end
of their address space as dynamic memory. In effect, the
/INC keyword defines the number of words in this dynamic
region.

You cannot extend a task that uses memory-resident overlays.
(See the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual.)
Also, you cannot extend a task if you want it to be
checkpointed to its original task image file. Therefore,
you cannot specify the /INC keyword with the /WB=YES
keyword.

The default is either the size specified at task-build time,
or zero.

/IOP=option

Specifies that a privileged task can overmap the I/O page.
The options are YES and NO. If you specify /IOP=YES,
INSTALL assumes that the task will overmap the I/O page (APR
7) and, if the task is larger than 8K words, issues a
warning message. If you specify /IOP=NO, INSTALL assumes
that the task does not need to to use the I/O page, and it
does not issue a warning message.

/IOP complements the Task Builder /IP switch. Specifying
/IP informs INSTALL that the task is intentionally
overmapping the I/O page.

The default is /IOP=YES.

INS (Cont.)

/PAR=pname

Overrides the partition name specified at task-build time. In an unmapped system, the specified partition must have the same base address as the partition for which the task was built.

On RSX-11M operating systems, if the partition specified for the task is a user-controlled partition, the size of the task is extended to the size of the partition. Consequently, if the task is built with checkpoint space allocated in the task image file and the partition is extended (thereby extending the size of the task when the task is reinstalled), the allocated checkpoint space may no longer be large enough to hold the task.

If the keyword specifies a nonexistent partition, the system issues a warning message and attempts to install the task in the GEN partition.

By default, TKB uses the name GEN. (See the RSX-11M or RSX-11M-PLUS System Generation and Installation Guide for an explanation of multiuser system defaults.)

/PMD=option

Requests a Postmortem Dump if the task aborts. The options are YES and NO. If you specify /PMD=YES, a Postmortem Dump occurs if the task aborts because of an SST error condition. If you specify /PMD=NO, no dump is requested at SST abort time.

To generate a dump, the Postmortem Dump task PMD... must be installed in the system. This keyword overrides the /PM switch specified at task-build time.

The default is specified at task-build time.

/PRI=number

Specifies the priority for the task. The value of number can be between 1 and 250(decimal), where 250 is the highest priority. The standard numbering conventions apply; that is, the default is octal, and the value is a decimal number if it is followed by a period.

The default is /PRI=50.

/PRO=[system,owner,group,world]

(RSX-11M-PLUS operating systems only.) Specifies the protection for an installed common region. Access codes consist of four groups of four codes in the access rights word of the common region as follows:

    R - Read access
    W - Write access
    E - Extend access
    D - Delete access

INS (Cont.)

In each instance, the absence of the code means that the user class is denied the access right. The square brackets are required syntax.

Substitute an asterisk (*) for the access codes to force the default value for a specific class.

The default is /PRO=[RWED,RWED,RWED,RWED].

Note that you cannot specify protection options for a read-only common region or the read-only portion of a multiuser task.

/RON=option

(RSX-11M-PLUS operating systems only.) Specifies read/write access for a common region. The options are YES and NO. If you specify /RON=YES, the region is installed as read-only. If you specify /RON=NO, the region is installed with read/write access. This keyword overrides the effect of the /PRO keyword.

The default is /RON=NO (the region is installed with read/write access).

/ROPAR=parname

(RSX-11M-PLUS operating systems only.) Installs the read-only portion of a multiuser task into the specified read-only system partition (parname).

The partition you specify overrides the partition name supplied at task build. If the named partition does not exist, MCR issues a warning message and attempts to install the read-only portion of the task into the partition containing the read/write portion of the task.

/SEC=option

(RSX-11M-PLUS operating systems only.) Places into secondary pool the Task Control Block (TCB) for the task that is being installed. This keyword is only valid for tasks with names in the form ...xxx or xxx$$$. The options are YES and NO. If you specify /SEC=NO, the TCB for the task is placed in primary pool instead of secondary pool.

By default, the TCB is placed in secondary pool.

/SLV=option

Specifies slave status for the task. The options are YES and NO. If you specify /SLV=YES, data sent to the installed task is marked with the terminal number (TI:) of the task sending it. When the installed task receives the data, the system sets the task's TI: to that associated with the data. This keyword overrides the /SL switch specified at task build.

If you specify /SLV=NO, the TI: of the task does not change when the task receives data.

INS (Cont.)

On RSX-11M-PLUS operating systems, the /SLV keyword cannot
be used with tasks whose names are in the form ...xxx.
These tasks are prototype tasks and cannot be installed as
slaved tasks.

The default is specified at task-build time.

/SYNC=option

(RSX-11M-PLUS   multiprocessor   operating   systems
only.) Synchronizes task use of a common. The options are
YES and NO. This keyword permits several tasks to share a
common and use the common for synchronization. If you
specify /SYNC=YES for two or more tasks, only one of the
tasks can execute at one time. Note that if one of the
tasks becomes blocked, the others compete to execute.

The /SYNC keyword prevents inconsistent data that occurs as
the result of race conditions. For example, if two tasks
access a common, the /SYNC keyword ensures that only one
task executes at one time. This prevents the second task
from reading or writing the common while the first task is
executing.

The default is /SYNC=NO.

/TASK=taskname

Specifies the name by which the system refers to the task.

The default taskname is the name specified at task-build
time, or the first six characters of the file name. (See
the RSX-11M or RSX-11M-PLUS System Generation and
Installation Guide for an explanation of multiuser system
defaults.)

/TIME=nM or /TIME=nS

(RSX-11M-PLUS operating systems with Resource Accounting
only.) Sets a time limit for the task being installed when
it uses the CPU. When the time limit expires, the task is
aborted and a message is displayed.

You can specify the time limit in minutes (M) or seconds
(S); the default is minutes. The number of time units (n)
can be octal (the default) or decimal if followed by a
period. The maximum value allowed is 65,536(decimal).

If the task is privileged, the keyword is ignored.

Resource Accounting is a system generation option.

/UIC=[group,member]

Specifies the UIC for the task. The square brackets are
required syntax. You can also override the UIC with the RUN
command.

INS (Cont.)

The task UIC determines the file-protection class (system, owner, group, world) to which a task belongs and thus directly influences file access. Note that file protection may differ from file to file.

The default is specified at task-build time. This default applies only to tasks started by a RUN$ directive or a RUN command that specifies a time delay before run time. Tasks started by typing the name as a command (for example, PIP and TKB) run under the default UIC of the terminal from which the command was issued.

/WB=option

(RSX-11M-PLUS operating systems only.) Specifies the file to which a read/write common will be checkpointed. The options are YES and NO. By default, a common is checkpointed to a system checkpoint file.

If /WB=YES, the common is checkpointed to its original task image file; also, when the common is removed, it is written back to its original task image file. However, on mapped systems, if a common is installed with an increment, it will no longer fit into its original task image file. Therefore, when installing a common, you cannot specify /WB=YES with /INC=size.

If /WB=NO, the common is checkpointed to a system checkpoint file, and it is not written back to the original task image file when it is removed.

If a common is read-only, there is no need to checkpoint it. Thus, INSTALL ignores the /WB switch if a common is installed with /RON=YES.

The default is /WB=NO.

/XHR=option

(RSX-11M-PLUS operating systems only.) Specifies that the Executive's copy of the task's header will be in an area external to the system's dynamic storage region (pool).

The options are YES and NO. If you specify /XHR=YES, the task is installed with an external header. If you specify /XHR=NO, the task is installed with a resident header.

When you specify /XHR=YES, the task's header is not kept in pool. Instead, a copy of the header is placed in a reserved area immediately below the task image. The Executive uses the copy of the header rather than the actual header. When the task is checkpointed, the system writes the entire task image and the copy of the header into the checkpoint file. The header in the task image is left unchanged.

/XHR correlates with the /XH option for the Task Builder. The default for /XHR and the ability to override the option specified at task-build time depend on the way the INSTALL task was built during system generation.

INS (Cont.)

You can change the effect of the /XHR keyword by selecting one of the options described in the remainder of this section. The options determine the default action the system takes when a task is installed. To select an option, your system manager must modify the build command file for the INSTALL task (INSBLD.CMD). To do this, INSBLD.CMD must include the following command line (where n is the number of the desired option):

    GBLPAT = INSROT:$HDDEF:n

If you do not specify an option number in the command line, option 1 is the default.

After the command file has been modified, the INSTALL task must be rebuilt and then reinstalled in the system with VMR (see the RSX-11M/M-PLUS System Management Guide.)

Note that the options do not apply to tasks that were built with the /-XH switch specified. The headers for these tasks are always in pool when the tasks are installed, regardless of the option selected, because the /XHR keyword cannot override the /-XH switch.

The following options are available:

1. By default, every task is installed with an external header. You can override this option by specifying /XHR=NO.

    This option is provided for users who want their system to always install tasks with external headers. This option also prevents users from unnecessarily or accidentally using headers in pool.

    For RSX-11M-PLUS sites, selecting option 1 allows the use of external headers without having to rebuild the nonprivileged application system.

2. By default, the headers for privileged tasks are in pool and the headers for nonprivileged tasks are external. This option can be overridden when a task is built or installed.

    Option 2 is provided for users who have user-written privileged code that needs to be converted before it can execute with an external header.

    The application system does not have to be rebuilt to use external headers.

3. By default, the headers for all tasks are in pool. You can override this option when the task is built (/XH) or when the task is installed (/XHR=YES).

    This option is provided for users who have user-written ACPs or privileged code that examines the header of another task.

INS (Cont.)

If this option is selected, a task must be either rebuilt or installed with an external header (TKB /XH or INS /XHR=YES) before it can execute with an external header. Because any user can specify the /XH switch, its use is recommended if you want your system to be more friendly to nonprivileged users (only privileged users can specify the /XHR keyword).

4. By default, the headers for all tasks are in pool. The option can be overridden by a privileged user by specifying /XHR=YES when the task is installed.

   This option is similar to option 3, but it cannot be overridden by the Task Builder's /XH switch. Option 4 gives the system manager more control over the environment, and it must be selected for those systems that cannot allow any code, including nonprivileged code, to execute with external headers.

5. By default, the headers for all tasks are in pool. This option cannot be overridden.

   Selecting this option is not recommended. The effect of this option is similar to choosing a nonstandard Executive during system generation, so that support for external headers is not included.

   Option 5 must be selected, however, for those systems that cannot allow any code, including nonprivileged code, to execute with external headers.

   For a detailed description of the Task Builder /XH switch, refer to the RSX-11M/M-PLUS Task Builder Manual.

Examples:

>INSTALL SCAN (RET)

   Installs task SCAN. Priority and directory are defaulted.

>INSTALL DM1:[1,111]SCAN.TSK;4/PRI=103 (RET)

   Installs task SCAN, file type TSK, version 4 on device DM1:, group number 1, member number 111, with a priority of 103(octal).

>INS MAC/INC=4096./PAR=SYSCTL (RET)

   Installs task MAC in the system-controlled partition SYSCTL and increases the task size by 4096 words.

Notes:

1. On RSX-11M operating systems, changes made in a common are made only in the memory image of the common. If the common is removed and then reinstalled, there is a fresh image in memory of the common and the previously made changes are no longer present.

INS (Cont.)

On RSX-11M-PLUS operating systems, changes made in the memory image of a common may be preserved when the common is checkpointed or removed. If the common was installed with the WB=YES option, the REMOVE command writes the common, with its changes, into the common's original task image file. The previous version of the common is lost. When the common is reinstalled, the new version (the common as it was upon removal from memory) is returned to memory. However, if you have not specified WB=YES (the default system action is WB=NO), changes to the common are not preserved, and the original image file is returned to memory when the common is reinstalled.

2. On RSX-11M-PLUS operating systems, you cannot use the INSTALL command to install device commons that have been created with the SET /PAR command. (A device common is a special type of common that occupies physical addresses in the I/O page.) When you use the SET command to create a partition, the following operations occur:

    ● If the device partition being created is the first device partition in the system, the system automatically creates a main partition called IO PAR. The partition being created then becomes a subpartition of IO PAR.

    ● The system creates an entry for the new device partition in the Common Block Directory (CBD) and inserts the partition into the directory. The device partition is now a device common.

    Because the system creates a common block for the device partition automatically, there is no need to install it as a common. If you attempt to do so, you will receive an error message.

Command Error Messages:

INS -- Addressing extensions not supported

The command tried to install a task with a VSECT (virtual section) into a system that does not support the feature.

INS -- Base address must be on 4K boundary

The base virtual address of the task was not on a 4K boundary. This message applies only to mapped systems.

INS -- Base mismatch common block <commonname>

The base address of the partition did not match that of the common block.

INS -- Cannot install privileged task from nonprivileged terminal

This message applies to multiuser protection systems only. A nonprivleged user attempted to install a privileged task. Only a privileged user can install a privileged task.

INS (Cont.)

INS -- Can't install directive common

An attempt was made to install a task in a directive common, which the system does not support.

INS -- Can't install executive common

The executive commons (on systems that support executive partitions) cannot be installed at run time. The commons must be installed with the VMR INSTALL command. (See the RSX-11M/M-PLUS System Management Guide).

INS -- Can't run a common block

(RSX-11M-PLUS operating systems only.) An attempt was made to run a common block.

INS -- Checkpoint area too small

The area allocated for checkpointing the task was smaller than the partition into which the task was being installed. This message applies only to systems that do not support the dynamic allocation of checkpoint space.

INS -- Checkpoint space too small, using checkpoint file

This is a warning message only. The checkpoint space allocated in the task image file is too small for the size of the task (usually because of the /INC keyword). The system supports the dynamic allocation of checkpoint space and will therefore use a checkpoint file to contain the checkpointed task.

INS -- Common block is task partition <commonname>

A task's request for access to a common block was rejected because the requested partition was a task partition.

INS -- Common block not loaded <commonname>

The specified common block was linked to the task but had not been installed in the system. Install the common block, then install the task.

INS -- Common block occupied

An attempt was made to load a task into a common block that was already occupied.

INS -- Common block parameter mismatch <commonname>

Parameters of a common block did not match those in the task's label block.

INS -- Common block segment count error

The command installed a resident library with overlays, but the number of overlay segments specified in the task header was different from the number specified in the segment descriptions.

INS (Cont.)

INS -- External headers not supported

(RSX-11M-PLUS operating systems only.) INSTALL first checks
to see that the task was built with /XH specified. Then, it
checks the feature mask bit of the system to see if external
headers are supported. When external header support is not
included in the system, you cannot install a task with an
external header.

INS -- Fast map not supported

An attempt was made to install a task with the /FMAP=YES
keyword, but during system generation support for fast
mapping was not selected for your system.

INS -- File not contiguous

An attempt was made to install a noncontiguous task image
file. Task images can only be contiguous files.

INS -- File not properly closed

An attempt was made to install a file that was not properly
closed (that is, locked). Since the file is locked, it is
probably corrupted. Install a new copy of the file.

INS -- File not task image

Data in the label block was not correct, indicating that the
file was not a task image.

INS -- File protection violation

An attempt was made to install a task to whose image file
you do not have proper access. You must have read access to
install a task image file.

INS -- Illegal device <ddnn:>

The device specified at task build by the assign (ASG)
option does not exist in the system. This is a warning
message only. The task is installed.

INS -- Illegal device/volume

The specified device was not a valid task-residence device.

INS -- Illegal first APR

(Mapped systems only.) A privileged task, built to run
using APR 4 or 5 as its base, was too large. Using APR 4,
the task was larger than 12K; using APR 5, the task was
larger than 8K.

If the Executive has been built to support 20K of address
space, APR 5 is the only valid base APR for tasks mapping
into the Executive. A privileged task that does not map
into the Executive must use APR 0 as its base. (See the
RSX-11M/M-PLUS and Micro/RSX Task Builder Manual for a
description of the /PR switch.)

INS (Cont.)

INS -- Illegal priority

The value of the priority specified in the command was outside the valid range, which is 1 to 250(decimal).

INS -- Illegal slave attribute

(RSX-11M-PLUS operating systems only.) An attempt was made to install a task with the /SLV keyword, but the task's name is in the form ...xxx. The task is a prototype task and cannot be installed as a slaved task.

INS -- Illegal use of <name> partition or common

(RSX-11M-PLUS operating systems only.) An attempt was made to install a task in a CPU or secondary pool partition.

INS -- Length mismatch common block <blockname>

The length parameter for the common block, as described in the label block for the task image, did not match the corresponding length parameter defined in the system. A task's label block data must match system data for that task before it can be installed.

INS -- Low pool, try later

(Systems with pool monitoring support only.) During low pool conditions, the Pool Monitor Task (PMT...) temporarily disables install-run-remove and /CMD requests for nonprivileged users.

INS -- No checkpoint space, assuming not checkpointable

This is a warning message only. The command attempted to install the task as checkpointable, but the task was not built as checkpointable and therefore had no checkpoint space allocated in its task image file. Because the system does not support the dynamic allocation of checkpoint space, it considers the task unable to be checkpointed.

INS -- No checkpoint space or dynamic checkpoint file

An attempt was made to install a task with external headers (/XHR=YES), or a checkpointable task (/CKP=YES), but no checkpoint space or dynamic checkpoint file was available for it.

INS -- No room available in STD for new task

No dynamic memory was available to enter the Task Control Block (TCB) in the System Task Directory (STD). The task could not be installed.

INS -- Not enough APRs for task image

(Mapped systems only.) The Task Builder allows the user to specify the virtual base address of a task image as a multiple of 4K. Privileged tasks that access the Executive

INS (Cont.)

start at either virtual address 100000(octal) for a 16K Executive or at virtual address 120000(octal) for a 20K Executive. If the virtual base address is set too high, there are not enough APRs remaining to map the task image. (See the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual for information on privileged tasks.)

INS -- Partition not common

A partition specified for a common area or library is not defined as a common partition.

INS -- Partition <parname> not in system, defaulting to GEN

This is a warning message only. The specified partition does not exist, so the system attempts to install the task in the GEN partition.

INS -- Privileged task larger than 12K

A privileged task was larger than 12K words. Privileged tasks on an unmapped system have a maximum size of 12K.

INS -- Privileged task not mapped to I/O page

A privileged task was larger than 8K and therefore overlapped the I/O page. This message occurs if the task is installed with the /IOP=YES option.

INS -- R/O partition <pname> not in system, defaulting to task's

A read-only partition that does not exist in the system was specified in the command line. INSTALL will place the read-only portion of the multiuser task in the same partition in which the read/write portion of the task is placed.

INS -- Specified partition for common block

An attempt was made to install a task in a common block.

INS -- Specified partition too small

The task being installed was larger than the partition into which it was being installed.

INS -- Task and partition bases mismatch

(Unmapped (RSX-11M) operating systems only.) The base of the partition did not match the base of the task being installed.

INS -- Task image already installed

The requested task image, which was checkpointable, had already been installed. On systems that do not support the dynamic allocation of checkpoint space, checkpointable tasks that have checkpoint space allocated can be installed only once; other tasks can be installed more than once (under different names).

INS (Cont.)

INS -- Task image I/O error

INSTALL could not read the task image file or could not rewrite the task image header. (The device is write-locked.)

INS -- Task image virtual address overlaps common block <blockname>

The virtual addresses reserved for the task image overlap those reserved for the common block specified in the message. A corruption of the task image file probably caused the overlap.

INS -- Task may not be run

This message can be issued for the following reasons:

- An attempt was made to run a CLI task. CLI tasks are activated by the system; they cannot be activated with the install-run-remove option of the RUN command.

- (RSX-11M-PLUS operating systems only.) An attempt was made to run a task whose name is in the form ...xxx or xxx$$$. Such tasks must be started by the system with the task name xxxTnn (TTnn: is the issuing terminal).

INS -- Task name already in use

An attempt was made to install a task with the same name as one already in the system.

INS -- Task not in system

An attempt was made to install a task that is not built into the system, or the task name was specified incorrectly.

INS -- Task not installed with external header

(RSX-11M-PLUS operating systems only.) This is a warning message to indicate that the specified task is installed with its header in pool (the dynamic storage region).

INS -- Task requires system controlled partition

(RSX-11M operating systems only.) An attempt was made to install a task that was built with external header (/XH) support and as checkpointable (TKB /CP, INS /CKP=YES). Such tasks must be installed in a system-controlled partition.

INS -- Too many common block requests

A task made too many requests for common blocks. A task is limited to seven requests.

INS -- Too many LUNs

A task requested more than 255(decimal) LUNs to be assigned.

INS (Cont.)

INS -- Undefined common block <blockname>

> A task referenced a common block that had not been defined in the system. Usually, this message indicates that the task was built for another system.

INS -- User D-space not supported

> (RSX-11M-PLUS operating systems only.) An attempt was made to install a task with separate instruction and data space on a system that does not support user data space. (User data space is a system generation option.)

INS -- Warning -- Privileged task overmaps the I/O page

> A privileged task that is mapped into the Executive is usually also mapped into the I/O page to access the registers for the KT11 and other devices. Many tasks do not require this access and can use the additional 4K words of virtual address space for the task image. This message warns that a task that may require access to the I/O page might have grown too large.

LOA

3.31 LOAD (P)

The LOAD command reads a nonresident (loadable) device driver into memory and, if necessary, relocates the data base constructs and interrupt-vector linkages required to allow access to the device. On RSX-11M-PLUS operating systems, the task CON constructs interrupt-vector linkages.

The LOAD command eliminates the need to link infrequently used device drivers permanently into the Executive. (Executive support of loadable device drivers is a system generation option on RSX-11M operating systems but is always included on RSX-11M-PLUS operating systems.) The result is the potential for an increase in the amount of system dynamic memory.

You can load drivers that are up to 8K words in length. Note, however, that the loadable device driver itself must map to any locations above 4K.

The driver for a device, for example ZY:, can indicate association with a partition by allocating one word in the driver and labeling it with the global symbol $ZYCOM. If $ZYCOM is defined in a driver, you cannot load the driver until you create ZYCOM (LOA writes the PCB address of ZYCOM into $ZYCOM).

Format:

    LOA[D] dd:[/keyword(s)]

dd:

    A 2-character ASCII loadable device driver name.

Keywords:

    /CTB=cca[,b...]

        (RSX-11M-PLUS operating systems only.) Specifies that the multidriver controller Controller Table Block (CTB) in the resident data base be modified instead of the symbol $ddCTB in the loadable data base. Note that the keyword is necessary only if the driver contains a loadable data base; to load most drivers, this keyword is not required. (See the RSX-11M-PLUS Guide to Writing an I/O Driver for more information.)

        When specifying a CTB, cc is the multidriver controller mnemonic and a[,b...] are slots in the CTB's Controller Request Block (KRB) table pointing to the KRBs in the loadable data base. The slots are named A, B, C, D, E, F, H, J, K, L, M, N, P, R, S, and T.

        For example, if a system contains a DB:-type device on RHA, you can issue the following command to load a DR:-type device with a loadable data base for RHB:

            >LOA DR:/CTB=RHB

LOA (Cont.)

/EXP=expname

> Specifies the name or file specification of an extended
> Executive partition to be loaded into memory.

/HIGH

> If the partition is system-controlled, /HIGH causes the
> driver to be loaded as high in the partition as possible;
> absence of /HIGH loads the driver as low in the partition as
> possible.
>
> If the partition is not system-controlled, the driver
> occupies the entire partition whether or not you specify
> /HIGH.

/PAR=parname

> Specifies the partition (parname) into which the driver is
> to be loaded.
>
> On RSX-11M operating systems, the specified partition can be
> a task partition or a system-controlled partition.
>
> On RSX-11M-PLUS operating systems, the specified partition
> can only be a system-controlled partition.
>
> All loadable drivers are usually placed in the same
> partition, by convention DRVPAR. This has the advantage of
> preventing fragmentation of the GEN partition.
>
> On RSX-11M operating systems, this convention normally
> ensures that all loadable drivers drivers remain below 124K
> in memory (the maximum system image size for the SAVE task
> on RSX-11M).
>
> When the command line omits this keyword, the system loads
> the driver into the partition specified when the driver was
> built.

/SIZE=parsize

> Specifies the minimum size (in words) of the partition into
> which the driver is to be loaded. If the partition is
> system-controlled, a subpartition will be created at this
> size.
>
> The value of parsize is rounded up to the next highest unit
> of 100 (octal) words and must be less than 100000.

/VEC

> Specifies that the driver to be loaded is vectored.
> Vectoring avoids the normal comparison of the driver symbol
> table file and the system symbol table file.

LOA (Cont.)

Examples:

>LOAD   MM: (RET)   !LOAD TU16 DRIVER (MMDRV)

> Loads the MMDRV driver into the partition that was specified
> when the driver was built.

>LOA   LP:/PAR=DRVPAR (RET)   !LOAD LP11 DRIVER (LPDRV) INTO DRVPAR

> Loads the LPDRV driver into the DRVPAR partition.

>LOAD /EXP=LB:[1,54]DCMEXP/PAR=GEN (RET)

> Loads the data cache manager (DCM) extended Executive
> partition into the GEN partition.

Notes:

- Rigid instructions for building loadable device-driver tasks
  are defined in the RSX-11M or RSX-11M-PLUS Guide to Writing an
  I/O Driver. Note that the system generation procedures
  include provisions to simplify the task building of drivers.

- It is not possible to make all device drivers loadable. Also,
  not all loadable drivers can have loadable data bases.

- The LOAD command requires that a driver's TSK and STB files
  reside under the system UIC on the system disk (LB:). For
  example, the following command requires that the files
  DTDRV.TSK and DTDRV.STB reside on LB: under the appropriate
  system UIC:

      LOA DT:

  The command SET /SYSUIC displays and defines the system UIC;
  the usual values, however, are [1,50] for an unmapped system
  and [1,54] for a mapped system.

- The LOAD command does not initiate checkpointing to free a
  space in a partition.

- The LOAD command requires pool space as follows:

  - If the driver data base is being loaded, the data base
    needs contiguous pool space equal to its size.

  - In a mapped system, each interrupt entry in the driver
    needs pool space for an Interrupt Control Block (ICB).

  - If the driver is being loaded into a system-controlled
    partition, the Partition Control Block (PCB) needs pool
    space.

Command Error Messages:

LOA -- Cannot LOAD/UNLOAD a pseudo device

> The device you attempted to load is a pseudo device. Pseudo
> devices do not have drivers.

LOA (Cont.)

LOA -- CTB <name> does not exist

   (RSX-11M-PLUS operating systems only.) The Controller Table
   name specified with the /CTB keyword does not exist in the
   resident data base.

LOA -- CTB name <name> is a duplicate

   (RSX-11M-PLUS operating systems only.) The loadable data
   base contains a Controller Table (CTB) with a name that is
   the same as a CTB name in the resident data base. CTB names
   must be unique.

LOA -- CTB <name> is not supported by driver, not loaded

   (RSX-11M-PLUS operating systems only.) The device driver's
   dispatch table does not have all the Controller Table
   mnemonics that the rest of the data base (the DCBs and CTBs)
   implies that it has, or the CTB is defective. A defective
   CTB may contain a wrong name or its link to the DCB may be
   wrong.

LOA -- DCB table for CTB <name> is full

   (RSX-11M-PLUS operating systems only.) LOAD attempted to
   write the address of the Device Control Block (DCB) for the
   loadable data base into the DCB table of the specified
   resident Controller Table, but there were no null entries in
   the DCB table. (Refer to the RSX-11M-PLUS Guide to Writing
   an I/O Driver.)

LOA -- Device <dd:> not in system

   The data base for the device driver was not in the system or
   in the driver's task image.

LOA -- Device not mounted

   The system device (LB:) was not mounted.

LOA -- Driver already resident

   The specified device driver had already been loaded or is
   permanently resident.

LOA -- Driver being loaded or unloaded

   The Executive was effecting another request to load or
   unload the driver.

LOA -- Driver built with wrong executive STB file

   The STB file for the driver was not compatible with the
   current Executive. The task build probably specified an
   RSX11M.STB file that was not for the current system.

LOA (Cont.)

LOA -- Driver dispatch table is inconsistent

(RSX-11M-PLUS operating systems only.) The device driver's dispatch table is formatted illegally. Refer to the RSX-11M-PLUS Guide to Writing an I/O Driver.

LOA -- Driver load/unload calls not supported

(RSX-11M operating systems only.) The requested driver included the global symbols $ddLOA or $ddUNL in its source. These symbols are reserved for future use by the LOAD and UNLOAD commands.

LOA -- File <filename> has illegal STB format

The driver's STB file contained an illegal object code or data record format.

LOA -- File <filename> not a valid driver task image

The driver's task image was either overlaid or had a task header.

LOA -- File ddDRV.TSK not contiguous

The file ddDRV.TSK was not contiguous. Device drivers (like all task image files) must be contiguous.

LOA -- Illegal driver task APR usage

A device driver must be built for APR 5 and must be less than 8K (for example, PAR=DRVPAR:120000:40000). This message applies to mapped systems only.

LOA -- Illegal use of partition or region <name>

(RSX-11M-PLUS operating systems only.) The partition into which the driver was to be loaded was a secondary pool or CPU partition.

LOA -- Illegal value for symbol <symname> in file <filename>

The symbol symname is defined to an illegal value in file ddDRV.STB. This can occur for several reasons, some general and some specific to individual symbols. For example, symbols cannot have odd values, most symbols cannot be defined as as zero, $ddTBL must exist and have a value less than $ddEND, and mapped loadable drivers cannot reference $INTSV.

LOA -- Insufficient pool space

The required amount of system dynamic memory was not available.

LOA -- Insufficient ICB pool space for CPU CPx

There is not enough processor-dependent dynamic memory to allocate an Interrupt Control Block for the CPU designated in the error message. This message applies only to RSX-11M-PLUS multiprocessor, I- and D-space systems.

LOA (Cont.)

LOA -- Interrupt vector already in use

> (RSX-11M operating systems only.) A driver interrupt vector
> does not point to one of the nonsense interrupt entry
> points.

LOA -- Invalid driver data base at offset <xxxx> in file <filename>

The driver had an invalid data base value at offset xxxx
relative to the symbol $ddDAT. This can occur for three
general reasons:

1. An invalid value, for example, D.UCB was odd.

2. The value for a word is not within the bounds of the
    loadable data base. LOAD produces an error message
    citing the offending value.

3. An element is missing from the loadable data base. LOAD
    attempts to verify one kind of data structure as another
    kind. For example, if a DCB is missing, LOAD tries to
    verify the following UCB as the DCB. LOAD cites the DCB
    as being incorrect.

LOA -- Invalid interrupt vector

> (RSX-11M operating systems only.) The interrupt vector
> address specified in the driver data base was too high for
> the current system.

LOA -- KRB <name> not in loadable data base

> (RSX-11M-PLUS operating systems only.) You are attempting
> to load the driver for a MASSBUS device with a loadable data
> base. The special symbol (KRBname), which defines the
> location of the KRB, is not defined in the loadable data
> base. Refer to the RSX-11M-PLUS Guide to Writing an I/O
> Driver.

LOA -- KRB table of CTB <name> will not accept KRB <name>

> (RSX-11M-PLUS operating systems only.) You are attempting
> to load the driver for a MASSBUS device with a loadable data
> base. If this operation is to be successful, two conditions
> must exist:
>
> 1. The appropriate slot in the CTB (Controller Table) must
>   exist.
>
> 2. The slot in the CTB must be unused.
>
> When you get this error message, one of these conditions
> does not exist. Refer to the RSX-11M-PLUS Guide to Writing
> an I/O Driver.

LOA -- Loadable driver support not in system

The system generation option to support loadable device
drivers was not chosen or necessary routines are not in the
Executive.

LOA (Cont.)

LOA -- Open failure on file <filename>

LOAD encountered an error in attempting to open the specified file.

LOA -- Partition <parname> busy

(RSX-11M operating systems only.) The user-controlled partition or subpartition into which the driver was to be loaded was already occupied.

LOA -- Partition <parname> is a common

(RSX-11M operating systems only.) An attempt was made to load a device driver into a common partition. A device driver cannot be loaded into a common partition.

LOA -- Partition/region <name> is a common

(RSX-11M-PLUS operating systems only.) An attempt was made to load a device driver into a common partition or region. A device driver cannot be loaded into a common partition or region.

LOA -- Partition <parname> is not a common

(RSX-11M operating systems only.) The symbol $ddCOM is globally defined in the driver. The partition ddCOM exists, but it is not a common partition.

LOA -- Partition/region <name> is not a common

(RSX-11M-PLUS operating systems only.) The symbol $ddCOM is globally defined in the driver. The partition ddCOM exists, but it is not a common partition or region.

LOA -- Partition <parname> not in system

(RSX-11M operating systems only.) The partition specified either in the LOAD command or at task build was not in the system.

LOA -- Partition/region <name> not in system

(RSX-11M-PLUS operating systems only.) You are attempting to load a driver into a partition that does not exist in the system, or LOAD found a symbol $xxCOM in the driver and the region xxCOM does not exist in the system.

LOA -- Partition <parname> too small

The partition into which the driver was to be loaded was not large enough to contain it.

LOA -- Region/partition <name> is a common

You have attempted to load a device driver into a common partition or region. A device driver cannot be loaded into a common partition or region.

LOA (Cont.)

LOA -- Symbol <symname> is doubly defined by file <filename>

The symbol symname is defined twice in the specified file. Duplicate symbols are illegal. The driver is not loaded.

LOA -- Symbol <symname> is undefined in file <filename>

The symbol symname was found in the specified file, but the symbol was not defined.

LOA -- Task and partition <parname> bases mismatch

(RSX-11M systems only.) The base address of the partition into which the driver was to be loaded did not match the base address of the partition address for which the driver task was built. This message applies to unmapped systems only.

LOA -- Task image I/O error in file <filename>

The device is probably write-locked. LOAD could not read the task image file or could not rewrite the task image header.

LOA -- Too many symbols of the form $xxTMO in file <filename>

(RSX-11M-PLUS operating systems only.) LOAD is attempting to extract global symbols of the form $xxTMO from the driver's symbol definition file. There are more symbols of this form than LOAD can process.

LOA -- Warning - KRB <name> interrupt vector <nnn> in use

(RSX-11M-PLUS operating systems only.) You have attempted to load a driver that specifies an interrupt vector that is not pointing to a nonsense interrupt entry point address. This is usually caused by a previously loaded driver that has used this vector.

LOAD has correctly loaded the driver. The problem must be corrected before the device is brought on line.

LOA -- Warning - KRB <name> interrupt vector <nnn> too high

(RSX-11M-PLUS operating systems only.) You have attempted to load a driver that specifies an interrupt vector address that is higher than the highest permissible vector address in your system.

When you get this message, LOAD has loaded the driver correctly. You must use the reconfiguration services to adjust the vector address in the driver before placing the device on line. (See the RSX-11M/M-PLUS System Management Guide for more information on the reconfiguration services.)

LOA -- Warning - Loadable driver larger than 4K

Loadable drivers can be up to 8K words in length. The driver must explicitly map to any location above 4K words.

LUN

3.32 LOGICAL UNIT NUMBERS (NP)

The LUN command displays the static logical unit number (LUN) assignments for a specified task. (Static assignments are those recorded in the task's disk image file.) The display consists of a list of physical device units in one column and their corresponding LUNs in an adjoining column.

When the specified task is running, the display does not necessarily reflect the running task's assignments. For example, an Executive directive issued from within the task (ASSIGN LUN) can alter the LUN assignments.

If the specified task was initiated by the install-run-remove option of the RUN command, the task has no static LUN assignments. In this case, LUN displays the message:

    LUN -- Task not in system

Format:

    LUN[S] taskname

Example:

    >LUN XKE (RET)
    TI0: 1.
    SY0: 2.
    SY0: 3.
    SY0: 4.
    LB0: 5.

        The display shows static assignments for LUNs 1, 2, 3, 4, and 5, which are recorded in the task image file header; no other LUNs are statically assigned to the task XKE.

Command Error Messages:

    LUN -- No LUNs

        The task that is the argument of the LUN command did not have any logical assignments. This is an informational message.

    LUN -- Task not in system

        The specified task is not installed or the task was initiated by the install-run-remove option of the RUN command. This is an informational message.

    LUN -- LUNs not available because task image is deleted

        The LUN assignments for the specified task could not be displayed because the task's image has been deleted from the system.

MOU

3.33 MOUNT (NP,P)

The MOUNT command allows the file system software access to physical devices. For all volumes on these devices, MOUNT creates the file system control blocks that the Ancillary Control Processors (ACPs) use to support data access on the device. MOUNT also declares, provided an on-line access path exists, that the volume is logically on line for access. The command then requests the ACP to mount the volume or volume set. Mounting a volume also resets the QIO and Error counts to zero. These counts are used by the Error Logging facility.

The MOUNT command supports the following three types of devices:

1. File-structured devices. Disks and DECtapes are examples of file-structured devices.

2. Sequential devices. Magnetic tapes are an example of sequential devices.

3. Non-file-structured devices. Devices with unformatted or nonstandard file structures are examples of non-file-structured devices.

File structured devices are usually controlled by the Files-11 Ancillary Control Processor (F11ACP), which supports Files-11 Structure Level 1. Magnetic tapes are usually controlled by the Magnetic Tape Ancillary Control Processor (MTAACP), which supports both ANSI (X3.27-1978) and unlabeled tape formats. Non-file-structured devices do not have to be mounted on RSX-11M operating systems, but they must be mounted as foreign devices on RSX-11M-PLUS operating systems.

When you mount a Files-11 or magnetic tape volume, there are several default ACPs that MOUNT can use. MOUNT first defaults the ACP name to ddnnF1. This allows you to tailor the ACP that controls a specific volume and then name that ACP after the volume. For example, if you tailor F11ACP for an RK06 disk and install it as DM01F1, then when you issue a MOUNT command for DM1:, MOUNT searches for the ACP DM01F1. For disks, if MOUNT cannot find an ACP whose name is in the form ddnnF1, it searches for an ACP whose name is in the form ddAACP and then F11ACP. For magnetic tapes, the default ACPs are ddnnF1, ddAACP, and then MTAACP. Note that (for privileged users) these defaults can be overridden by using the /ACP keyword.

It is recommended for slow disk devices such as DECtape that a separate ACP be used. Thus, you should install a copy of F11ACP as DTAACP for DECtape and a copy as DDAACP for DECtape II.

RSX-11M operating systems permit specific tasks, such as INI and DSC, access to unmounted volumes. However, it is necessary to mount a magnetic tape if it is an ANSI standard tape or if you want to process the tape as an unlabeled tape with FCS or RMS-11 on a system that supports ANSI magnetic tapes. If the system does not support ANSI tapes, FCS processes unmounted magnetic tapes as unit record devices.

RSX-11M-PLUS operating systems deny access to unmounted volumes. The /FOR (FOREIGN) keyword allows you to issue MOUNT commands for unformatted or nonstandard volumes. For example, to initialize a disk as a Files-11 volume, you must first mount the volume as foreign and then issue the INI command. (You should not specify an ACP.)

MOU (Cont.)

When a device is dismounted, outstanding I/O is allowed to complete, but no additional files can be accessed on that volume (see the description of the DISMOUNT command).

MOUNT also classifies devices and volumes into three other types: public, shared, and nonshared. A public volume is one that all system users can access. Public volumes are the only type supported by nonmultiuser systems. A shared volume is one that can be mounted multiple times by multiple users. A nonshared volume (private) is one allocated to a single user. See Chapter 2 for more information on device types.

A nonprivileged user can only mount a volume on:

- The user's private device. No other user can access or mount the volume until the volume is dismounted and deallocated.

- Any other device that has not been allocated or set public. If another user mounts the volume, that user can also access it.

Only one user can mount a magnetic tape volume (or volume set) at one time.

Some file attributes and positioning information can be supplied after the volume is mounted with the MAG utility. For more information, see the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual.

If the device is not ready when you attempt to mount the volume, MOUNT waits from 30 to 60 seconds for the device to become ready. If the device is still not ready after the waiting period has elapsed, MOUNT issues an error message.

The following descriptions of the MOUNT command formats illustrate the parameters and keywords associated with Files-11 volumes and with ANSI magnetic tapes. All the keywords are collectively described following the format descriptions.

You can use a hyphen (-) as a line terminator to extend the MOUNT command line when selected keywords cause the command to exceed 80 characters (or whatever buffer size has been specified for the entering terminal). You can use any number of continuation lines, but the total command line cannot exceed 255 (decimal) characters.

Note that since the override volume label keyword (/OVR) is a privileged option of the MOUNT command in a multiuser protection system, a nonprivileged user must always specify a volume label.

Formats:

   Files-11 Disk or DECtape Format:

      MOU [NT] ddnn: [label] [/keyword(s)]

   ddnn:

      Device unit on which the volume is to be mounted. There is no default device unit; you must specify one.

MOU (Cont.)

label

>The Files-11 volume label may be null or up to 12 characters in length. It is used to ensure that the correct volume is being mounted. In a multiuser protection system, the command must include a volume label unless the privileged /OVR keyword is present.

/keyword(s):

>MOUNT keywords for Files-11 devices override corresponding values in the volume's home block.

>Note that in the syntax of the following keywords, you can use either an equal sign (=), or a colon (:).

/ACP=option	/PRO=option
/CACHE=option	
/DENS=density	/PUB
/EXT=block-count	/[NO]SHARE
/FOR	/UIC=uic-spec
/FPRO=[system,owner,group,world]	/UNL
/LOCK=option	/VI
/LRU=directory-count	/[NO]WAIT
/OVR	/WIN=option
/PARM="user parameters"	/[NO]WRITE

ANSI Magnetic Tape Format:

Magnetic tapes, unlike disks and DECtapes, can be mounted by the set as well as individually. In fact, when you mount a single magnetic tape, you are mounting a set consisting of only one tape. A tape set consists of logically related records or files written on one or more reels of tape. Only the first tape in the set has to be loaded on a device at the time the MOUNT command is issued, but all tapes in the set can be loaded on different devices when the command is issued.

The tape set is identified by a File Set Identifier. Each tape in the file set is identified by a Volume Identifier. By default, the File Set ID is the same as the Volume ID of the first reel of tape in the set. If this is true for your tape set, it is not necessary to specify the Volume IDs for the tapes (although it is recommended).

Volume Identifiers should be assigned by the system manager and should be unique within the installation. The Volume ID is usually the reel number of the physical tape. A File Set Identifier, however, is a name chosen by the user to refer to his or her own tape.

MOU (Cont.)

If your tape set processing uses more volumes than you specified with the /VOL keyword, you can use any expired or newly initialized tape for the output volume. For input, you can use only the next volume in the tape set. To determine if the new input tape is the correct one, the system checks the tape's File Set ID, file sequence number, and file section number. If specified, the system also checks the Volume ID.

> MOU[NT] device-list:[file-set-ID] [/keyword(s)]

device-list

One or more device names on which the volume or volume set is to be mounted. More than one device name can be specified only for multivolume ANSI magnetic tape sets. If the command specifies more than one device name, the names must be separated by commas and enclosed in parentheses, as follows:

> (ddn:,ddn:,ddn:...).

Note that when you specify more than one device name, you must always access the tapes through the first name given in the device list. (This also applies when you dismount the tape set.) If you attempt to access a tape through another device name, you will get an error message.

file-set-ID

The File Set Identifier (or File Set ID) can be up to six characters long. The File Set ID is the name you choose for the tape set. By default, it is the same as the first Volume Identifier (Volume ID) in the volume set. To create a tape set with a File Set ID that is different from the Volume ID of the first tape in the set, specify both the File Set ID and the first tape's Volume ID.

If you are mounting a newly initialized tape, you can specify your own File Set ID by using a form of the following command line (note that the /VOL keyword is used because the File Set ID and the Volume ID are not the same):

> >MOU MM:MYSET/VOL=A234 (RET)

See the description of /VOL for more information about Volume IDs.

File Set IDs can use the digits 0 to 9, the uppercase letters A through Z, and the following special characters:

> <space> ! " % & ' ( ) * + , - . / : < = > ? ;

To use a name that contains a special character, enclose the name in quotation marks. To use a quotation mark in the name, you must use two quotation marks within the quoted string. For example, the label T"1% should be specified as "T""1%".

MOU (Cont.)

Any lowercase letters specified in a File Set ID or Volume ID are converted to uppercase before any operations are performed on the tape. Any other invalid character is converted to a question mark (?). Also, you can use either an equal sign (=) or a colon (:) wherever an equal sign is indicated in the keyword syntax.

/keyword(s):

/ACP=option	/OVRFSID
/BS=n	/PARM="user parameters"
/CC=option	/PRO=option
/DENS=density	/PUB
/FOR	/RS=n
/FPRO=protection-spec	/[NO]SHARE]
/[NO]HDR3	/TR=option
/[NO]LABEL	/UIC=[uic]
/LOCK=option	/VI
/OVR	/VOL=(list)
/OVRACC	/[NO]WAIT
/OVREXP	/[NO]WRITE

Keywords:

/ACP=option (P)

Specifies the name of the ACP to be used as the file processor for the volume being mounted. The option can be the name of a task that is installed as an ACP or it can be UNIQUE, which specifies that a dedicated ACP is to be used for the volume.

You only need to specify an ACP in special cases. If an ACP has been written for a customer application in your installation, you will need to use that ACP for volumes used by that application.

When you specify the UNIQUE option, MOUNT creates a copy of the F11ACP if the device is a disk or DECtape or of MTAACP if the device is a magnetic tape. This unique ACP is given a name in the form ddnnF1 or ddnnAP. When the volume is dismounted and the file processor exits, the ACP is automatically removed.

The default depends on the device type.

MOU (Cont.)

/BS=n

Specifies the block size for an unlabeled magnetic tape
volume or the block size for files on an ANSI labeled tape
that are Level 1 or 2 (do not have an HDR2 record). The
value for n can be from 14 (for unlabeled tapes) or 18 (for
ANSI tapes) through 16000. /BS also specifies the default
block size for newly created files on an ANSI magnetic tape.

/[NO]CACHE=option

(RSX-11M-PLUS operating systems only.) Specifies whether
disk data caching is to be enabled for the specified device,
mounts the device with disk data caching enabled, or
modifies the caching behavior for the device. Enabling data
caching is recommended for the system disk and for disks
that are relatively slow in finding data.

The following list shows you the options that you can
specify with the /CACHE keyword:

CREATE[=[region][:[mainpar][:[size]]]

Creates a cache region in memory and associates caching
for the specified device with that region. You can
specify the name of the region to be created, the main
partition the region is to be created in, and the size
of the region. You specify the size of the region in
decimal number of disk blocks. By default, the /CACHE
keyword uses a region called CACHE in the GEN partition
with a size of 100(decimal) disk blocks.

REGION=name

Associates caching for the specified device with an
already existing cache region. The default region is
CACHE.

[NO]DIRECTORY[=extent_size]

Enables or disables caching of directory and other
volume-structure I/O; that is, logical I/O from an ACP
(for example, F11ACP). By default, the DIRECTORY
option is enabled. The default extent size for the
DIRECTORY option is 1 block.

[NO]LOGICAL[=extent_size]

Enables or disables caching of logical I/O. By
default, the LOGICAL option is disabled. The default
extent size for the LOGICAL option is 1 block.

[NO]OVERLAY[=extent_size]

Enables or disables caching of overlay I/O. By
default, the OVERLAY option is enabled. The default
extent size for the OVERLAY option is 4 blocks.

MOU (Cont.)

[NO]VIRTUAL[=extent_size]

    Enables or disables caching of virtual I/O. By
    default, the VIRTUAL option is enabled. The default
    extent size for the VIRTUAL option is 5 blocks.

[NO]READ_AHEAD[=extent_size]

    Enables or disables reading of the next extent before
    reading is explicitly requested. By default, the
    READ_AHEAD option is disabled. The default extent size
    for the READ_AHEAD option is 5 blocks.

In the /CACHE keyword options, the value of extent_size
specifies the maximum size (in decimal disk blocks) of an
I/O request that will be considered for caching. The
minimum acceptable value for extent_size is 1 block; the
maximum acceptable value is 15 blocks. Extent sizes can be
modified for cached devices using the SET command (see the
description of the SET /CACHE keyword).

If you specify more than one option for /CACHE= in the
command line, enclose the options within parentheses and
separate them with commas.

For more information on disk data caching, see the
RSX-11M/M-PLUS System Management Guide.

/CC=option

    Specifies the record type for an unlabeled magnetic tape
    volume, or the record type for files on ANSI labeled tapes
    that are Level 1 or 2 (do not have an HDR2 record) or that
    are Level 3 but do not have a system code (HDR CP 61)
    beginning with DEC or OS. The options are:

        FOR
        LIST
        NONE

    These options correspond to the FORTRAN keywords for the
    OPEN statement.

/DENS=density

    The density (bits per inch or bpi) of the medium loaded on
    the drive. Acceptable density values depend on the device
    type as indicated below:

Device	Density
TE16	800 bpi (or LOW) or 1600 bpi (or HIGH)
TS11	1600 bpi
TSV05	1600 bpi
TU45	800 bpi (or LOW) or 1600 bpi (or HIGH)
TU77	800 bpi (or LOW) or 1600 bpi (or HIGH)
TU78	1600 bpi or 6250 bpi
TU80	1600 bpi

MOU (Cont.)

The default density values are:

```
TE16      /DENS=800
TS11      /DENS=1600
TSV05     /DENS=1600
TU45      /DENS=800 (or LOW)
TU77      /DENS=800
TU78      /DENS=6250
TU80      /DENS=1600
```

If you specify more than one device type in the command line but you do not specify a density, the default density is the lowest density supported by all of the devices.

/EXT=block-count

Specifies the number of blocks by which a file can be extended when it exhausts its space allocation. The block-count must be between 1 and 255(decimal).

The default is the value specified when the volume was initialized.

/FOR

Indicates a foreign (non-Files-11) volume.

On RSX-11M operating systems, this keyword is recommended but not required for mounting foreign volumes. If you do not mount the volume, access to the volume is unrestricted. If you specify /FOR when you mount a volume on a private device, no one else can access it.

On RSX-11M-PLUS operating systems, you must always specify /FOR when mounting a foreign volume.

If you do not specify an ACP name (with /ACP=option), a file system (an ACP) cannot access the volume. Absence of an ACP name permits tasks (such as INI, DSC, BAD, or user tasks executing non-file-structured device QIOs) access to non-Files-11 volumes.

/FPRO=protection-spec

Specifies the default file protection for files created on a Files-11 disk or magnetic tape while the disk is mounted. The protection specification has two formats:

(SYSTEM:RWED,OWNER:RWED,GROUP:RWED,WORLD:RWED)

   or

[RWED,RWED,RWED,RWED]

The access codes consist of four groups of four codes in the access rights word as follows:

```
R - Read access
W - Write access
E - Extend access
D - Delete access
```

MOU (Cont.)

In each instance, the absence of the code means that the applicable user is denied the access right.

The defaults are the values taken from the Volume Home Block.

/[NO]HDR3

Specifies whether an HDR3 label is to be written when creating new files. The /NOHDR3 keyword is needed only when it is known that the target system cannot handle a tape with an HDR3 label. This keyword has no other effect or application.

The default is /HDR3.

/[NO]LABEL

Specifies that a magnetic tape volume is in ANSI format (/LABEL) or unlabeled (/NOLABEL). The default is /LABEL.

/LOCK=option

Specifies the default value for the DISMOUNT /LOCK keyword.

On RSX-11M operating systems, this keyword is valid only for magnetic tape volumes.

On RSX-11M-PLUS operating systems, this keyword is valid for magnetic tapes and for DB:, DM:, and DU: type disks.

The options are:

    Nounload
    Unload
    Virtual

When you specify the Nounload option (/LOCK=N), the volume valid bit is cleared, but the disk is not spun down or the tape unloaded. This is the default option for volumes mounted foreign and no ACP specified. For example, when you want to initialize a volume as a Files-11 volume, you first issue a MOUNT command with the /FOR keyword. After initializing the volume, the usual procedure is to dismount it and then issue another MOUNT command, using a standard ACP. Since the default lock value is N, the volume remains spinning or loaded and you can immediately issue the MOUNT command that specifies the ACP.

When you specify the Unload option (/LOCK=U) for disks, the volume valid bit is cleared and, if the drive supports the spin-down function, the disk is powered down. When you specify this option for tapes, the tape is rewound and unloaded. This option is the default lock value for all volumes mounted with a standard ACP.

MOU (Cont.)

On RSX-11M-PLUS operating systems, you cannot specify
/LOCK-U for a multiunit device (for example, an RC25) unless
you are a privileged user. See the description of the
DISMOUNT command for more information.

The Virtual option is privileged. When you specify /LOCK=V,
the volume valid bit is not cleared and the disk is not spun
down or the tape unloaded.

See the description of the DISMOUNT command for more
details.

/LRU=directory-count

Specifies the approximate number of directories that will be
accessed simultaneously while the volume is mounted. The
F11ACP maintains a list of the most recently used
directories. The value specified for /LRU sets the number
of entries in this list. In general, directory operations
can be speeded up significantly by increasing the number of
entries.

If a directory appears in the list, no device I/O is
required for finding the directory in the Master File
Directory (MFD). In addition, directory operations do not
require the directory file header to be read.

Legal values for directory-count range from 0 to
127(decimal). Note that increasing the value for /LRU
increases the number of File Control Blocks (FCBs) used and
may increase the amount of system pool used. See the
appropriate system generation manual for more information.

Also note that if you specify /LRU=0, the F11ACP will not
keep a list of directories. This is not recommended and
could have an adverse effect on system efficiency.

If you do not use /LRU, the default for directory-count is
the value specified when the volume was initialized.

/OVR (P)

For disks and DECtapes, instructs the MOUNT command to
override label processing so that a volume can be mounted
without specifying a volume label.

For magnetic tapes, instructs the MOUNT command to override
File Set ID processing on the first tape of a tape set so
that a volume can be mounted without specifying a File Set
ID.

When you specify /OVR, the File Set ID is taken from the
first volume in the set. However, MOUNT still checks the
IDs for the remaining volumes in the set. This prevents
improper tape processing. (Note that Volume IDs for the
tape volumes are overridden if they are not specified,
whether or not you use /OVR.)

MOU (Cont.)

/OVRACC (P)

Instructs the MOUNT command to override the protection for an ANSI magnetic tape volume.

/OVREXP (P)

Instructs the MOUNT command to override the expiration date on the tape volume(s).

/OVRFSID (P)

Instructs the MOUNT command to ignore File Set Identifiers on the second and subsequent magnetic tape volumes of a multivolume set. /OVRFSID may cause improper tape processing. This keyword should be used only if you know the volume does not conform to the ANSI standard.

/PARM="user-parameters"

Instructs the MOUNT command to pass nonstandard parameters from the command line to a foreign ACP. The user-parameter string can consist of up to a maximum of 40(decimal) characters enclosed in quotes ("). The quotation marks are not included when the characters are counted.

If the quoted parameter itself includes a quotation mark, the quotation mark must be followed by another quotation mark.

This keyword is valid only with foreign (/FOR) volumes.

/PRO=protection-spec

Specifies the default volume protection for a Files-11 disk or magnetic tape. The protection specification has two formats:

    (SYSTEM:RWCD,OWNER:RWCD,GROUP:RWCD,WORLD:RWCD)

    or

    [RWCD,RWCD,RWCD,RWCD]

The access codes consist of four groups of four codes in the access rights word as follows:

    R - Read access
    W - Write access
    C - Create access at volume level; extend access
        at file level
    D - Delete access

In each instance, the absence of the code means that the applicable user is denied the access right.

The defaults are the values specified when the volume was initialized.

MOU (Cont.)

/PUB

>   Specifies that the volume is accessible by all users,
>   depending on the volume and file protection set for the
>   volume. The drive on which the volume is mounted is
>   deallocated and set public if necessary.
>
>   The defaults are:
>
>>   /PUB if the volume is public
>>   /SHARE if the volume is not allocated or set public
>>   /NOSHARE if the volume is allocated to a user
>
>   See Chapter 2 for more information on public devices.

/RS=n

>   Specifies the number of characters in a record for unlabeled
>   magnetic tape volumes or the number of characters in a
>   record for files on ANSI labeled tapes that are Level 1 or 2
>   (do not have an HDR2 record). The value for n can be from 1
>   through the value specified with /BS.

/[NO]SHARE

>   /SHARE specifies that a volume can be mounted multiple times
>   by one or more users. Each user who mounts the volume gains
>   access to it based on the volume and file protection
>   established for the volume when it was first mounted. After
>   all users have issued a DISMOUNT command and all file
>   activity has ceased, the volume is released by the file
>   processor. The volume is deallocated and set nonpublic if
>   necessary.
>
>   /NOSHARE specifies that the volume is reserved for dedicated
>   use by the first user who mounted the volume. No other
>   users can access the volume. The drive on which the volume
>   is mounted is allocated to the user's terminal and set
>   nonpublic if necessary.
>
>   The defaults are:
>
>>   /PUB if the volume is public
>>   /SHARE if the volume is not allocated or set public
>>   /NOSHARE if the volume is allocated to a user

/TR=option

>   Specifies the kind of character translation used in read and
>   write operations on an unlabeled magnetic tape volume. The
>   options are:

NONE	No translation takes place.
EBCDIC	Translation from EBCDIC to ASCII for read; ASCII to EBCDIC for write. (Note that translations are not completely symmetrical. Some characters in one set do not have equivalent characters in the other set.)

MOU (Cont.)

UT1, UT2, UT3	Translation done by user-supplied Translation tables that have been previously linked into MTAACP. Up to three tables may be linked.

By default, no translation takes place. (See the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual for more information on character translation.)

/UIC=[uic]

Specifies the User Identification Code (UIC) for the volume owner in the form [group,member]. The square brackets are required syntax. The numbers for group and member range from 1 to 377(octal). This UIC overrides the one specified when the volume was initialized.

/UNL

Specifies that the volume index file should be unlocked for write access by a system user. When locked, the index file is read-only; when unlocked, it is read or write. This keyword is typically required when you are recovering lost blocks or performing other maintenance with the VFY utility. (See the RSX-11M/M-PLUS Utilities Manual for more information.) Note that this keyword has nothing to do with device write-locking.

The default is locked.

/VI

Displays the volume information on the entering terminal. The information displayed is the characteristics with which the volume was mounted.

For Files-11 volumes, the volume information format is:

```
Volume Information
Class:       Files-11
Device:      ddnn
Volume label:label
Owner:       [uic]
Protection:  [system,owner,group,world]
Default:     [system,owner,group,world]
Processor:   ACP name
```

For last-track devices (for example, DL:, DM:, and DR:) and for DU:-type devices, /VI also displays, in octal, the pack serial number of the volume.

For foreign volumes, the volume information format is:

```
Volume Information
Class:       Foreigr
Device:      ddnn
Volume label:label
```

MOU (Cont.)

For magnetic tape volumes, the volume information format is:

```
Volume Information
Class:       ANSI labeled tape or Unlabeled tape
Device:      ddnn
Fileset ID:  id
Volume ID:   id
Owner:       [uic]
Processor:   ACP name
```

For magnetic tape, the volume information repeats the device and label lines if multiple units were specified and omits the volume protection and characteristics defaults (volume protection and characteristics do not apply to magnetic tapes).

/VOL=(list)

Specifies the Volume Identifier (Volume ID) for an ANSI magnetic tape. If you specify more than one Volume ID (for a multivolume tape set), the Volume IDs must be separated by commas.

Initially, the tape with Volume-ID1 must be physically loaded on the first device unit specified in the command line. The remaining tapes may or may not be loaded on other units specified in the command line. You must specify Volume IDs in the order in which the volumes make up the volume set because the system searches for or requests each successive volume in the specified Volume ID order.

The second and succeeding volumes should be mounted on the additional units in the order in which they were specified in the command line or as requested by console messages from MTAACP.

If more tapes are required than were specified at mount time, MTAACP automatically adds additional volumes to the set.

When the command line is issued, the system checks the tape on the first drive to ensure that it is the first volume of file-set-ID (see the format for MOUNT command lines for magnetic tapes). If you do not specify the /VOL keyword, the system does not check the Volume ID for the tape.

For compatibility with previous RSX-11M/M-PLUS releases, the command line

>MOU MM:(A,B,C)

is equivalent to the command line

>MOU MM:A /VOL=(A,B,C)

/[NO]WAIT

Specifies whether you require operator assistance in performing the mount. The main use of this keyword is for batch jobs, indirect command files, or terminals distant from the machine room.

MOU (Cont.)

If you specify /WAIT in an interactive mount, a message concerning the mount is sent to the operator's console and the mount is not completed until the operator takes action.

If you specify /NOWAIT in a batch job or indirect command file, or if the mount is interactive, no message appears. The volume must have been previously placed on the device and readied for access (spun up/brought on-line).

The default is /NOWAIT.

/WIN=option

Specifies the number of mapping pointers to be allocated for file windows. A file window consists of a number of mapping pointers and is stored in memory when the file is opened. (See the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual for a description of retrieval pointers.) The number of retrieval pointers must be less than 129.

/WIN accepts the following options:

n	All files are set up with this default unless overridden on access; legal values are 1 to 127(decimal) or the FULL option.
USER:n	User default value for the volume.
INDEX:n	Number of pointers to allocate to the index file window
(USER:n,INDEX:n)	If n is not the same for both of these, defaults to the user default value for the volume default and to the number specified for the index file
FULL	Windows are created that map as much of the file as possible; FULL can be used for n in all of these options.

The default is the number of pointers specified in the home block with either the INI or HOME command.

/[NO]WRITE

/WRITE specifies that write operations are allowed on the volume (the volume is software write-enabled) within the limits of volume and file protection.

/NOWRITE specifies that write operations are not allowed on the volume (the volume is software write-locked).

By default, write operations are allowed.

MOU (Cont.)

Examples:

>MOU DM1:AMBER (RET)

> Mounts the volume on device unit DM1:. (In this example,
> the optional parameters have not been specified. Therefore,
> MOUNT uses the parameter values in the volume's home block.)
> No volume information is displayed.

>MOU (MT0:,MT1:,MT2:)MYSET /VOL=(VOL1,VOL2,VOL3) (RET)

> Mounts the volume set MYSET on units MT0:, MT1:, and MT2:.
> Initially, VOL1 must be physically loaded on MT0:; the first
> volume in a set must always be loaded on the first unit
> specified in the command. VOL2 and VOL3 may or may not be
> loaded when the command line is issued. If they are loaded,
> they can reside on the remaining units in any order (for
> example, VOL3 could be loaded on MT1:).

> The system searches for the next volume in a set by Volume
> ID rather than by unit number; the order in which volumes
> are listed in the command line is the order in which the
> system searches for and/or requests the volumes. If VOL2
> and and VOL3 are not loaded, the system requests each in
> turn. The volumes can be loaded on either MT0:, MT1:, or
> MT2:.

>MOU DM1:SYS004/LRU=9/VI/WIN=20 (RET)

> Mounts the volume labeled SYS004 on DM1:. The command line
> reserves space for nine directory File Control Blocks (FCBs)
> to remain in the ACP's pool or system pool, displays the
> volume information, and changes the default window block
> size for files opened on this volume to 20(decimal).

>MOU DB3: /CACHE=(CREATE=::100,READ_AHEAD=10) (RET)

> Mounts DB3: with data caching enabled and a partition
> called CACHE in the GEN partition with a size of
> 100(decimal) disk blocks. Also, enables reading ahead of
> the next extent with an extent size of 10 blocks. Note the
> proper /CACHE keyword syntax: if you specify multiple
> options for the keyword, you must separate the options with
> commas and enclose them in parentheses. Also, unless you
> specify a main partition, double colons are necessary to
> delimit the partition size.

Command Error Messages:

See the RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference
Manual for definitions of the I/O error codes.

MOU -- Ambiguous keyword
<command-line>

> The abbreviation used for a keyword in the command line was
> too short for MOUNT to distinguish it from another keyword.
> Reenter the command line, using a longer form of the
> keyword.

MOU (Cont.)

MOU -- Command input error
<I/O error code and text>

    An error occurred while MOUNT was attempting to read the command line. Correct the error condition listed and reenter the command line.

MOU -- Command syntax error
<command-line>

    The command line is not in the proper format. The incorrect part of the command line is enclosed in brackets. Reenter the command line, using the correct syntax.

MOU -- Device driver not loaded

    The device driver for the specified device is not loaded. Load the device driver, using the LOAD command, and reenter the command line.

MOU -- Device not mountable

    The specified device cannot be mounted. Some devices do not require mounting although the media are removable. Verify that you are using the correct device and reenter the command line if necessary.

MOU -- Device not ready

    The specified device returned a device-not-ready status or failed to respond within approximately 60 seconds. Verify that you are using the correct device, ready the device, and reenter the command line.

MOU -- Device status changed during mount

    The device status for the specified device changed between the initial device classification and the final setting up of the data structures. This is usually the result of another user mounting or dismounting the volume simultaneously with the command in error. Verify the device status and reenter the command line.

MOU -- Failed to allocate sufficient dynamic storage

    Mounting a volume may require a significant amount of primary or secondary pool for data structures and the ACP. Either MOUNT or the ACP was unable to allocate enough space in pool. Wait until activity on the system has lessened and then reenter the command line.

MOU -- Failed to allocate sufficient dynamic storage for caching

    Your disk was mounted, but there was not sufficient space in pool to activate data caching. Wait until activity on the system has lessened and then reenter your command line.

MOU (Cont.)

MOU -- Failed to set volume valid bit
<I/O error code and text>

    (RSX-11M-PLUS operating systems only.) A hardware volume
    valid bit is maintained by certain hardware. When the
    attempt was made to set this hardware status bit, the driver
    returned an error. Correct the hardware problem and reenter
    the command line.

MOU -- Failed to start Ancillary Control Processor

    The Executive was unable to start the ACP task. The task
    may be exiting or there may not be sufficient resources.
    Reenter the command line at a later time.

MOU -- F11MSG not installed

    The task F11MSG is not installed. Ask your system manager
    to install it.

MOU -- I/O error on device
<I/O error code and text>

    An I/O error occurred in the file system software while
    accessing the device. The line enclosed in brackets
    contains the specific error code returned by the system or
    the device driver. Correct the error condition and reenter
    the command line.

MOU -- Incompatible devices for multi-volume set

    The specified devices are incompatible in one or more of the
    following ways:

        ● All must be either disk or magnetic tape devices.

        ● All must be either public, allocated, or not
          allocated.

        ● If magnetic tapes, they must all support either
          7-track or 9-track and they must all support a
          common density.

        Verify the device specifications and reenter the
        command line.

MOU -- Incorrect File Set Identifier

    The File Set ID specified in the command line does not match
    that in the File Set ID field of the HDR1 label. Determine
    the correct File Set ID and reenter the command line, or
    reenter the command line specifying the /OVRFSID keyword.

MOU -- Incorrect Volume Identifier

    The Volume ID specified in the command line does not match
    that in the Volume ID field of the VOL1 label. Determine
    the correct Volume ID and reenter the command line, or
    reenter the command line without specifying any Volume ID.

MOU (Cont.)

MOU -- Incorrect volume label

The volume label specified in the command line does not match the volume label in the home block. Determine the correct volume label and reenter the command line, or mount the volume specifying the /OVR keyword.

MOU -- Insufficient privilege for attempted operation

An option specified in the command line requires that the user be privileged.

MOU -- Internal logic error

An internal programming error has been detected. This may be the result of an unusual software or hardware configuration or option selection. Retry the operation. If the error persists, vary the options selected. In any case, submit a Software Performance Report (SPR) with a console listing of the command lines and error messages and as much information on the circumstances of the error as possible.

MOU -- IO.STC VV$CHE DC$SET OR DC$ACT FAILED

Data caching attributes could not be set for the disk you specified. The disk has been mounted, but data caching has not been activated.

MOU -- Magtape is not shareable, device in use

The specified device is already mounted, or the command line requested shared or public access to the device. Magnetic tapes are sequential devices and are are processed sequentially. Only one user can access a tape at one time. Reenter the command line, specifying the /NOSHARE keyword.

MOU -- Main cache partition does not match existing one

You can receive this message for several reasons:

- The region that you specified with the CREATE option of the /CACHE keyword already exists.

- The region that you specified with the REGION option of the /CACHE keyword is not a common region.

- The region that you specified with the REGION option of the /CACHE keyword is not a cache region.

When you receive this message, the disk you specified in the MOUNT command has been mounted, but data caching for the disk could not be activated.

MOU -- Main cache partition not found, defaulting to GEN

You specified a partition that cannot be found, so your disk is being mounted with data caching defaulted to the GEN partition.

MOU (Cont.)

MOU -- Mount is not necessary for cassettes

This is an informational message only. Cassettes do not have to be mounted.

MOU -- MOUNT not supported for device class

Although the specified device is mountable, MOUNT is unable to process the command line for this class of device. MOUNT supports only Files-11 random-access devices and labeled (ANSI) and unlabeled sequential tape devices. MOUNT does not support communications class devices such as DECdataway or DECnet.

MOU -- Multi-volume disk not supported

MOUNT only supports multivolume ANSI magnetic tape sets.

MOU -- Neither main cache partition nor GEN exists

Neither the partition you specified or the GEN partition could be found, so your disk was mounted but data caching could not be activated.

MOU -- No home block found or structure not supported

F11ACP was unable to locate a valid home block on the volume. The volume is either uninitialized, corrupted, or in an unsupported format such as Files-11 Structure Level 2 or RT-11. (Certain utilities such as FLX support other formats such as DOS-11 and RT-11.) These volumes must be mounted with the /FOR keyword.

MOU -- No such device available

The specified device name and unit was not found in the logical or physical device tables. Determine the correct device name and unit number and reenter the command line.

MOU -- Not enough memory in main cache partition

There is not enough space in the main cache partition to accomodate data caching for the volume you have specified.

MOU -- Not first volume of tape set

Tape sets must be read from the first volume. The first tape volume of the tape set was not loaded on the first tape drive specified in the command line.

MOU -- Operation invalid to spooled device

The specified device has been redirected to an intermediate device for spooling. Generally, only unit record devices are spooled and are usually not mountable. If the device is mountable, the queue spooler processor servicing the device must be stopped and the device unspooled.

MOU (Cont.)

MOU -- Parameter conflict with already mounted volume

The volume was already mounted foreign and Files-11 access was requested or the volume was mounted Files-11 and foreign access was requested.

MOU -- Requested density not available

The density specified in the command line is not supported by the specified devices. Either specify the correct density or select hardware that supports the desired density.

MOU -- Tape not ANSI or incorrect tape format

The tape labels did not conform to the ANSI standard or the tape is not an ANSI labeled tape. Specify other tape formats with the /NOLABEL and /FOR keywords.

MOU -- Unit allocated to or in use by another user

Another user has allocated the device or a task has the unit attached. Verify that the volume is loaded in the correct unit, that the correct unit is specified, and that no other user has allocated the device.

MOU -- Unit offline

(RSX-11M operating systems only.) The specified device unit was not on line when the system was booted. Select another unit or, if the unit is now available, reboot the system and reenter the command line.

(RSX-11M-PLUS operating systems only.) The specified device unit was not on line or was in use for privileged diagnostic operations. Select another unit or, if the unit is now available, place the device on line with the reconfiguration services. Reenter the command line. (See the RSX-11M/M-PLUS System Management Guide for information on the reconfiguration services.)

MOU -- Unit specified more than once in multi-volume set

A device can only be specified once for a multivolume tape set.

MOU -- Unrecovered device error

After the standard number of retries, the I/O operation still could not be successfully completed. This error message usually indicates an error in the media. Correct the problem and reenter the command line.

MOU -- Volume already mounted

The volume is already mounted as nonshareable or is a public volume and cannot be mounted a second time.

MOU (Cont.)

MOU -- Volume mounted but cache not activated

> You receive this informational message when the disk you
> specified has been mounted, but data caching could not be
> enabled for the disk. This message may be preceded by a
> message that tells you the specific reason why data caching
> could not be enabled for your disk.

Mounted Magnetic Tape Messages

Messages that begin with xxxxxx are from the Ancillary Control
Processor (ACP) that is servicing your ANSI magnetic tape volume.
The messages are generated by volume-switching operations for
multivolume tape sets.

A message first appears on the console terminal. If no action is
taken before a timeout interval elapses, the message appears
again on the console terminal and on the terminal that issued the
command line.

These messages do not occur during the execution of the MOUNT
command, but rather as a result of operations performed by a
system utility or user application program.

xxxxxx -- Expiration date not reached on volume <volume-id> on <ddnn:>
          Mount another volume on drive <ddnn:> or place on-line to use

A new output volume is being opened and the expiration date
has not been reached. A new volume can be placed on line,
in which case its expiration date is also checked. If the
same volume or another volume with the same Volume ID is
placed on line, the volume is overwritten even though it is
not expired.

This message occurs only on volume switching. If a program
is creating a file and specifies the file position of a file
whose expiration date has not been reached, the create
operation terminates with IE.EXP.

xxxxxx -- Mount next volume on drive <ddnn:>

The ACP does not know the name of the next volume in the
tape set. The next volume must be placed on the drive
specified. When this message appears, the action to be
taken depends on whether a program is currently reading or
writing the set as follows:

* When writing, the ACP accepts any tape that has been
  properly initialized. The expiration date of the
  first file on the tape is checked to verify
  overwrite access. If the write ring is missing when
  the tape is placed on line, the program writing to
  the tape will receive an error message.

* When reading, the next volume of the current volume
  set must be placed on the drive specified in the
  message. The Volume ID is not checked, but other
  consistency checks are made, depending on the type
  of read operation currently in progress.

MOU (Cont.)

xxxxxx -- Mount <volume-id> on drive <ddnn:>

Place the volume specified in the message on the drive
indicated. The ACP knows the name of the volume because
either multiple Volume IDs were specified in the command
line or the ACP has already processed (and therefore
remembers) the Volume ID while the tape set has been
mounted.

xxxxxx -- Place drive <ddnn:> on-line

The next device drive requested in a multivolume, multiunit
operation is off line.

xxxxxx -- Requested action for drive <ddnn:> not completed

This is a reminder message. It indicates that a condition
reported in a previous message from xxxxxx has not yet been
taken care of.

xxxxxx -- Requested action for task <taskname> on drive
          <ddnn:> not completed/Please complete or abort task

This is a reminder message. It is displayed after a long
delay.

xxxxxx -- Wrong volume mounted on drive <ddnn:>

A subsequent volume of a multivolume tape set has been
placed on line, but the ACP does not think it is the correct
volume. This condition can occur for the following reasons:

- The MOUNT command line specified explicit volume IDs
  and the volume that should be mounted is not the one
  on the drive.

- The ACP has learned the volume sequence of the
  current tape set because of previous processing
  while the set has been mounted and the volume that
  should be mounted is not the one on the drive.

- The volume on the drive is not in ANSI format.

- A hardware error prevented the ACP from reading any
  of the labels in the label set at the beginning of
  the volume.

- Some other inconsistency in the volume label set has
  been encountered.

OPE

3.34 OPENREGISTER (P)

The OPENREGISTER command allows examination and optional modification of a word of memory. To open a location within a task, the task must be fixed in memory.

By default, OPEN displays a location and its contents in octal. Special control characters allow you to also have the information displayed in ASCII, Radix-50, double-byte, or decimal format. To specify a different format, type the desired control character followed by the ESC key. You can do multiple conversions for the same location on one line. The display remains on the same line until you open the next location.

You use the same control characters to insert new values into a location in ASCII, Radix-50, double-byte, or decimal format. In this case, type the desired control character followed by the new value and then press the RETURN key to insert the new value and open the next location.

Format:

    OPE[N] memory-address [+ or - n][/keyword]

    memory-address /contents [control-character][value]line-terminator

    The first line is the OPEN command line. The second line is the general format in which OPEN displays the contents of the location. After that, you can display and change the contents in various formats.

memory-address

    A 1- to 8-digit octal memory address (location).

+ or - n

    One or more optional octal numbers to be added to or subtracted from the memory address.

/keyword

    One of the keywords defined later in this text. The keywords apply only to mapped systems.

control-character

    One or more optional special characters used to display values or insert new values in octal, ASCII, single-character ASCII, Radix-50, double-byte, or decimal format. The special characters and their related formats are:

        / - octal (default format)
        " - ASCII
        ' - single-character ASCII
        % - Radix-50
        \ - double-byte
        . - decimal

OPE (Cont.)

line-terminator

    The line terminator directs the subsequent action of OPEN. Any value that is entered replaces the contents of the word whose address and current value are shown in the first part of the display line. The slash (/) is part of the display line.

       ESC

          ESC or ALTMODE: ESC (or ALTMODE) terminates acceptance of further input and is the only exit from the OPEN command. If used after a special control character, it converts the contents of a location from octal to the desired format.

       RET

          RETURN: the next sequential location is opened. If used after a special control character and new value sequence, it inserts the new value in the specified format into a location.

    ^ RET

          Circumflex (up-arrow on some terminals)/RETURN: the previous location is opened.

    * RET

or @ RET

          Asterisk/RETURN or at sign/RETURN: the location pointed to by the contents of the opened location is opened.

    > RET

          Right-angle bracket/RETURN: the contents of the open location is treated as a branch instruction. The effective address of the branch is the next opened location. You cannot supply a value (modify the current open location) and close the location with a right-angle bracket/RETURN.

Keywords:

   /AFF=[CPx,UBy]

       (RSX-11M-PLUS multiprocessor operating systems only.) Accesses an address relative to the specified processor's I/O page. The square brackets are required syntax.

   /CPU=CPx

       (RSX-11M-PLUS multiprocessor operating systems only.) Accesses an address relative to the specified CPU partition.

OPE (Cont.)

/DRV=dd:

> Accesses an address relative to the beginning of the partition that contains the loadable driver for the specified device.

/KNL

> Accesses the first 32K of Executive memory.

> On an RSX-11M-PLUS operating system supporting instruction space (I-space) and data space (D-space), the keyword accesses and prints the contents of addresses in the Executive data space. On systems that do not support instruction space and data space, the keyword accesses and prints the contents of addresses in the Executive instruction space.

/KNLD

> (RSX-11M-PLUS operating systems only.) Accesses and prints the contents of addresses in the Executive data space. (Valid only on systems that support instruction and data space.)

/KNLI

> (RSX-11M-PLUS operating systems only.) Accesses and prints the contents of addresses in the Executive instruction space. (Valid only on systems that support instruction and data space.)

/PAR=partition-name

> (RSX-11M operating systems only.) Accesses an address relative to the beginning of the specified partition.

/REG=region-name

> (RSX-11M-PLUS operating systems only.) Accesses an address relative to the beginning of the specified region.

/TASK=taskname

> Accesses an address relative to the specified task (the task partition). Note that the task must be fixed.

> On an RSX-11M-PLUS system that supports user instruction and data space, the keyword accesses and prints the contents of addresses in the user data space.

/TASKD

> (RSX-11M-PLUS operating systems only.) Accesses and prints the contents of addresses in the data space of an instruction and data space task. Note that the task must be fixed. (Valid only on systems that support user instruction and data space.)

OPE (Cont.)

/TASKI

    (RSX-11M-PLUS operating systems only.) Accesses and prints the contents of addresses in the instruction space of an instruction and data space task. Note that the task must be fixed. (Valid only on systems that support user instruction and data space.)

After accepting the first input line, OPEN finds the memory location to be accessed by using either:

- The keyword (in a mapped system)

- The specified address as the actual address

When /DRV, /PAR, /REG, and /TASK are used, the supplied memory address (a virtual address in the partition) is modified by + or - n. The absolute address thus formed is used to display the second line shown in the command format. In particular, the virtual address (task, partition, or kernel) and its contents are displayed. You may then enter an optional replacement value, followed by a line terminator.

On mapped RSX-11M operating systems, an attempt to specify an illegal location or access beyond the limits of the partition causes an error message. You are limited to the specified memory region (TASK, PAR, or DRV). However, if you do not use a keyword in the command line, OPEN can access any address of physical memory. On unmapped RSX-11M systems, any location in physical memory can be accessed.

On RSX-11M-PLUS operating systems, an attempt to specify an illegal location or access beyond the limits of the partition causes an error message. You are limited to the specified memory region (TASK, REG, or PAR). However, if you do not use a keyword in the command line, OPEN can access any address of physical memory. On multiprocessing systems, to access an address in a device page (the processor's I/O page), you must treat the location as absolute and use the /AFF keyword. Likewise, to access an address in a CPU partition, you must treat the location as absolute and use the /CPU keyword.

Examples:

```
>OPE 4+10/TASK=CYCLE (RET)
000014 /60014 350 (ESC)
```

    In this example, the specified virtual address in the task CYCLE is 4 while n equals 10, yielding the effective task-relative address of 000014. The system responds by printing the virtual address (000014) and the contents of the address (060014), followed by the slash. The user responds by entering the new value 350 and the ESC character. The value 350 replaces the previous contents of the task's virtual location 000014.

```
>OPE 0/PAR=TSTPAR (RET)
00000000/50712
```

    This command opens the partition TSTPAR at location 0 and displays in octal the current value at the location.

OPE (Cont.)

```
>OPE 0/PAR=TSTPAR (RET)
00000000/50712 % (ESC) MCR

    This command opens location 0 of TSTPAR, displays the
    current value in octal, and then displays the Radix-50 value
    in ASCII format.

>OPE 0/PAR=TSTPAR (RET)
00000000/50712 % (ESC) MCR %DCL (RET)
00000002/00000 (RET)
00000004/14604

    This command sequence displays the current value at location
    0 in octal and then Radix-50 format, and then changes the
    value.  The new value is also in Radix-50 format.   Pressing
    the RETURN key enters the new value into location 0 and
    displays it in octal, opens the next location in memory, and
    displays its contents in octal.
```

Command Error Messages:

OPE -- Byte address

The address specified as the argument to the OPEN command
was an odd address.

An even address (for example, 3000) is legal. An odd
address (for example, 3001) is illegal.

OPE -- Input I/O error

In attempting to read the next command, OPEN detected an
error.

OPE -- Invalid address

The address specified as an argument by the OPEN command
referenced a nonexistent memory location, an address outside
of the specified partition, an address outside of the task's
virtual address space, or an address in a task without
instruction and data space.

OPE -- Task not fixed

An attempt was made to open a virtual location in a task.
Since the task was not fixed, it may or may not have been in
memory when you issued the OPEN command. This message
indicates that the task was not in memory.

PAR

3.35 PARTITION DEFINITIONS (NP)

The PARTITION DEFINITIONS (PAR) command displays a description of each memory partition in the system.

On RSX-11M operating systems, the display consists of six columns that specify:

1. Partition name

2. Address of Partition Control Block (PCB)

3. Starting address of partition (octal)

4. Size of partition (octal)

5. Partition kind: main partition (MAIN) or subpartition (SUB)

6. Partition type:

TASK	User-controlled
COM	Common
DEV	Device registers
SYS	System-controlled
taskname	Task region
DYNAMIC	Dynamically created region
DRIVER	Region occupied by a loadable driver

COM partitions are used for resident libraries and common data areas. DEV partitions are used to allow tasks to communicate with specific device registers, such as the UDC and ICS/ICR-11 industrial control subsystems. See Chapter 2 for a description of system and user-controlled partitions as well as subpartitions. Dynamic and task regions are defined in the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual. See the description of the LOAD command for information about loadable drivers.

On RSX-11M-PLUS operating systems, the display consists of six columns that specify:

1. Partition name

2. Address of Partition Control Block (PCB)

3. Starting address of partition (octal)

4. Size of partition (octal)

5. Partition type:

MAIN	Main partition
TASK	Partition contains a task
DRIVER	Partition contains a device driver
RO COM	Partition is a read-only common
RW COM	Partition is a read/write common
DEVICE	Partition is a common and is mapped to the I/O page
SEC POOL	Partition is in secondary pool
CPU	Partition is a CPU partition in a multiprocessor system

PAR (Cont.)

6. Description of partition occupant in the form:

[taskname]	An inactive resident task
< taskname >	An active task
(dd:)	The specific device driver
+ xxxx +	The name of the first installed task that is associated with an unnamed common, usually the read-only segment of a multiuser task
! xxxx !	The name of the common

Format:

    PAR[TITIONS]

Examples:

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```
>PAR (RET)
TTPAR  114670  00120000  00040000  MAIN  TASK
EXCOM1 114624  00160000  00014500  MAIN  COM
EXCOM2 114560  00174500  00006100  MAIN  COM
SYSPAR 114514  00202600  00010000  MAIN  TASK
TKNPAR 114450  00212600  00010000  MAIN  TASK
DRVPAR 114404  00222600  00030300  MAIN  SYS
       114340  00222600  00002100  SUB   DRIVER -DB:
       114240  00224700  00001200  SUB   DRIVER -DK:
       114140  00226100  00003100  SUB   DRIVER -DM:
       114040  00231200  00003000  SUB   DRIVER -DR:
       113240  00245000  00001300  SUB   DRIVER -LP:
       113104  00246300  00004300  SUB   DRIVER -MM:
       112450  00252600  00000300  SUB   DRIVER -CO:
LDRPAR 112404  00253100  00002500  MAIN  TASK
BASIC2 112340  00255600  00040000  MAIN  COM
FCSRES 112274  00315600  00040000  MAIN  COM
TSTPAR 112230  00355600  00100000  MAIN  TASK
GEN    112164  00455600  03322200  MAIN  SYS
       045214  00455600  00006200  SUB   (PMT...)
       072740  01151100  00035600  SUB   (DCLT5 )
       074670  01206700  00020300  SUB   (...MCR)
       072240  01242600  00037600  SUB   (...HEL)
       102350  01302400  00132300  SUB   (...PIP)
       074624  01472500  00131300  SUB   (...EDT)
       074334  01714100  00057100  SUB   (TT13  )
       063724  01773200  00060000  SUB   (AT.T51)
```

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```
>PAR (RET)
       SYSPAR 117734  00174400  00010000  MAIN
       065230  00174400  00010000  TASK     <TKTN  >
SPLPAR 117767  00204400  00012000  MAIN
```

PAR (Cont.)

```
DRVPAR 117624 00216400 00140000 MAIN
       117340 00216400 00003100 DRIVER  (DB:)
       117274 00221500 00001300 DRIVER  (DK:)
       117164 00226100 00001300 DRIVER  (DS:)
       117120 00227400 00004000 DRIVER  (DM:)
       036314 00233400 00001600 DRIVER  (DX:)
       116744 00236400 00001100 DRIVER  (LP:)
       116700 00237500 00003600 DRIVER  (MM:)
       116634 00243300 00035300 RW COM !TTCOM !
       116550 00300600 00015600 DRIVER  (TT:)
       116504 00316400 00001300 DRIVER  (RD:)
       116440 00317700 00001300 DRIVER  (VT:)
       116374 00321200 00000100 DRIVER  (NL:)
       036044 00321300 00001300 DRIVER  (DT:)
       036504 00322600 00003200 DRIVER  (DR:)
LDRPAR 117560 00356400 00002600 MAIN
       116054 00356400 00002600 TASK    <...LDR>
TSTPAR 117514 00361200 00040000 MAIN
SECPOL 117450 00421200 00022000 SEC POOL
GEN    117404 00443200 04734600 MAIN
       115454 00443200 00070600 TASK    <F11ACP>
       073400 00534000 00006000 TASK    <TT36  >
       052274 00542600 00003500 RO COM  +...EDI+
       060774 00571400 00020100 TASK    <QMG...>
       037210 00620100 00036100 TASK    <HRC...>
       045104 00656200 00026400 TASK    <RMDEMO>
       040240 00716200 00070600 TASK    <DS00F1>
       043300 01007000 00070600 TASK    <DS01F1>
       044474 01077600 00070600 TASK    <LSTACP>
       062254 01170400 00040000 TASK    <SYSLOG>
       061340 01230400 00012100 TASK    <LPP0  >
       061674 01242500 00012100 TASK    <LPP1  >
       061774 01254600 00037100 TASK    <BAP2  >
       063050 01313700 00037100 TASK    <BAP1  >
       070100 01401400 00035400 TASK    <AT.T36>
       071114 01437000 00035400 TASK    <AT.V3 >
       037474 01474400 00074500 TASK    <EDTT3 >
       072244 01571100 00026500 TASK    <PARV3 >
       042100 01631100 00064500 TASK    <TT47  >
       037540 01715600 00102700 TASK    <EDIT25>
       064534 02050500 00033500 TASK    <TTF6  >
       037724 02143000 00134300 RW COM  !RMSRES!
       070574 02340500 00041700 TASK    <LOGT17>
```

REA

3.36 REASSIGN (P)

The REASSIGN command reassigns a task's logical unit numbers (LUNs)
from one physical device unit to another. The reassignments affect
only the static assignments recorded in the task's image file on disk.

The command does not affect a memory-resident task.   Hence, REASSIGN
has no effect on the assignments of a currently executing task, or on
the assignments of a task that is fixed in memory.

Format:

    REA[SSIGN] taskname lun ddnn:

taskname

    The name of the task.

lun

    The logical unit number of the task.

ddnn:

    The new device unit, which can be a physical, logical, or pseudo
    device.

Examples:

    >REA TSK1 3 TT0:(RET)

        Reassigns LUN 3 of task TSK1 to device TT0:.

    >REA GNRL 2 TT1:(RET)

        Reassigns LUN 2 of task GNRL to device TT1:.

    >REA TEST 3 XX:(RET)

        Reassigns LUN 3 of task TEST to logical device XX:.

Command Error Message:

    REA -- LUN out of range

        An attempt was made to reassign a LUN that was greater than
        the maximum number of LUNs allocated to the task when it was
        built.

RED

3.37 REDIRECT (P)

The REDIRECT command redirects all I/O requests previously directed to one physical device unit to another physical device unit. The REDIRECT command is especially useful if I/O units required for a task are not working. The command does not affect any I/O requests already in the I/O queue.

You cannot redirect the following device units:

- The pseudo device TI: (nor can a device be redirected to TI:)

- An attached device

- A device unit containing a mounted volume

- A spooled device (RSX-11M-PLUS operating systems)

In addition, you cannot redirect a pseudo device to itself, nor can you redirect a terminal to the null device.

You can redirect a logged-in terminal to a device other than a terminal (except for the null device), but it is not generally advisable to do so because terminal I/O would be written to the device and that could destroy the boot block. If you do redirect a terminal to another type of device, you should redirect the terminal to itself before you log out.

Format:

    RED[IRECT] nddnn:=oddnn:

nddnn:

    The new device unit to which subsequent requests will be directed.

oddnn:

    The old device unit from which requests have been redirected.

Example:

    >RED TT3:=TT6: RET

        Redirects all I/O requests for device TT6: to device TT3:.
        (RED TT6:=TT6: restores I/O requests for TT6:.)

Command Error Messages:

    RED -- Circular redirect error

        The attempt to redirect a device would result in a circular list of redirections.

    RED -- Device not redirectable

        An attempt was made to redirect a device that cannot be redirected.

RED (Cont.)

RED -- New device not known to system

The new device specified by the REDIRECT command was not known to the system (did not exist in the device tables).

RED -- Old device attached

An attempt was made to redirect an attached device.

RED -- Old device mounted

An attempt was made to redirect a mounted device.

RED -- Old device not known to system

An attempt was made to redirect an unknown device (the device did not exist in the device tables).

RED -- Pseudo device redirect error

An attempt was made to redirect one pseudo device to another pseudo device.

RED -- TI redirect error

An attempt was made to redirect the pseudo device TI:. This device cannot be redirected.

RED -- TT redirect error

An attempt was made to redirect a terminal to the null device. This combination is not allowed.

3.38 REMOVE (P)

The REMOVE command deletes an entry (a task name) from the System Task Directory (STD) and thereby removes the task from the system. The removal of a task from the system makes the task unrecognizable to the system. This action is the complement of INSTALL. All that remains of the task in the system is the task image file.

REMOVE also checks to see if the task is an initialized CLI. If so, REMOVE issues an error message.

To remove a task that is currently executing, you must first abort the task.

Format:

    REM[OVE] taskname

taskname

    The name of the task to be removed.

On RSX-11M-PLUS operating systems, the REMOVE command accepts a keyword that allows users to remove regions from the Common Block Directory (CBD). The format is:

    REM regionname /REG

Example:

    >REM SCAN RET

        Removes the task named SCAN from the system. The task image
        file is not deleted.

Notes:

1. If a task that is the object of a REMOVE command is fixed, the command unfixes the task and then removes it.

2. REMOVE cancels all time-based schedule requests for the specified task.

3. REMOVE unlinks a task from all ICS/ICR interrupts.

4. REMOVE deallocates all receive-by-reference and receive-data packets for the task and detaches all attached regions. (See the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual for more information.)

5. On RSX-11M-PLUS operating systems, a region cannot be removed if there are tasks installed in the system that reference that region.

6. On RSX-11M operating systems, changes made in a common are made only in the memory image of the common. If the common is removed and then reinstalled, the new image of the common that is reinstalled in memory does not include the previous changes.

REM (Cont.)

On RSX-11M-PLUS operating systems, changes made in the memory image of a common may be preserved when the common is checkpointed or removed. If the common was installed with the WB=YES option, the REMOVE command writes the common, with its changes, into the common's original task image file. The previous version of the common is lost. When the common is reinstalled, the new version (the common as it was upon removal from memory) is returned to memory.

Command Error Message:

REM -- CLI in use

An attempt was made to remove a CLI that was still active. Before a CLI can be removed, its CPB must be eliminated with the CLI command.

REM -- Partition busy

(RSX-11M-PLUS operating systems only.) You attempted to remove a region that is referenced by tasks installed in the system.

RES

3.39 RESUME (NP,P)

The RESUME command continues execution of a previously suspended task.

A nonprivileged user can issue the RESUME command only for tasks initiated from the issuing terminal. A privileged user can direct the RESUME command to any suspended task.

Format:

    RES[UME] taskname [/TERM=ttnnn:]

taskname

    The name of the task to be resumed. If you omit the task name, the command attempts to resume task TTnn (where nn is the octal unit number of the issuing terminal).

/TERM=ttnnn:

    (RSX-11M-PLUS operating systems only.) A privileged keyword that resumes a task initiated from the specified terminal.

Example:

    >RES RX7 (RET)

        Resumes task RX7.

Note:

    A task cannot suspend any task other than itself. The RESUME command allows such a suspended task to proceed.

Command Error Message:

    RES -- Task not suspended

        The task specified in the RESUME command line was not suspended.

RUN

3.40 RUN (NP,P)

The RUN command initiates the execution of a task.   The   command   can
cause a task to be:

- Run immediately (NP)

- Run at a time increment from now (P)

- Run at a time increment from clock unit synchronization (P)

- Run at an absolute time of day (P)

- Installed, immediately run, and removed on exit (NP)

All of these options, except install-run-and-remove,   are   available
with or without rescheduling.

On RSX-11M-PLUS operating systems, you cannot run a task using the
...xxx form of the task name, that is, you cannot specify RUN ...xxx.
The ...xxx (and xxx$$$) form is used for the prototype copy of the
task, which is never executed.

Formats:

RUN has five format variations.

1. Run immediately (nonprivileged option).

    RUN taskname [/UIC=[g,m]]

taskname

    A 1- to 6-character task name.

/EST=option

    Specifies whether exit status is to be returned from the
    RUN command or from the task being run with the RUN
    command. The options are YES and NO.   If you specify
    EST=YES,   the exit status returned from the RUN command
    is the status of the task being run. RUN waits for the
    task to emit status and returns that status. If you
    specify EST=NO, the exit status returned from the RUN
    command is the status of the command only. RUN does not
    wait for the task to emit status.   It returns status
    indicating   only   whether   the   task was initiated
    successfully.

    The default is /EST=NO.

/UIC

    (Privileged option on multiuser systems only.)   The   UIC
    under which the task will be requested to run.   This UIC
    also determines which files the task can access.

RUN (Cont.)

The UIC has the format [g,m], where g and m represent the group and member numbers, respectively. Legal group and member numbers range from 1 to 377(octal). The square brackets are required syntax.

When you use /UIC, RUN locates the task image file in the specified UIC (on device SY:) and runs the task from that UIC. The specified UIC also becomes the default and protection UICs for the task.

When you do not use /UIC, RUN looks for the task image file in the System Task Directory (STD) to see if the task is already installed. If RUN finds the task, it proceeds to run it. If RUN does not find the task, it looks for the file in the UIC (on device SY:) to which the terminal requesting the task is set, and then installs and runs the task. The terminal's UIC becomes the default and protection UICs for the task.

Note that on mapped systems, you can request a task to run that is not in the STD. MCR invokes a catchall task to install and run the uninstalled task. See the RSX-11M/S Release Notes or the RSX-11M-PLUS Release Notes for information about the catchall task.

See the description of /UIC under Format 5 for its use by nonprivileged users and tasks.

The default is the UIC of the terminal that issued the RUN command (/UIC is not specified).

2. Run at a time increment from now (privileged option).

    RUN taskname dtime [/RSI=magu][/UIC=[g,m]]

taskname

    A 1- to 6-character task name.

dtime

    The time at which the task will be initiated in time units from command issuance. This time parameter consists of two fields: a magnitude field and a units field. The parameter is in the form magu where mag is the magnitude and u is one of the following time units: T, S, M, or H.

    The magnitude is the number of units to be clocked. It cannot exceed 24 hours in the specified unit and is decimal by default.

    The unit fields are T, S, M, and H:

        T

            Ticks. A tick is a clock interrupt. The rate at which interrupts occur depends on the type of clock installed in the system. For a line frequency clock, the tick rate is either 50 or

RUN (Cont.)

> 60 per second, depending on the line frequency. For a programmable clock, a maximum of 1000 ticks per second is available. The frequency is selected at system generation.
>
> T can be any positive value from 0 to a maximum length of 15 bits.

S

> Seconds. S can be any positive value from 0 to a maximum length of 15 bits.

M

> Minutes. M can be any positive value from 0 to 1440(decimal).

H

> Hours. H can be any positive value from 0 to 24(decimal).

/RSI

> The reschedule interval. The format is the same as for dtime. The reschedule interval specifies how often the task is to be rerun. Thus, each time the specified interval of time lapses, an initiation request is made for the specified task.
>
> If the magnitude is equal to 0 (zero), then the reschedule interval is set to 1. Specifying /RSI=0H is the same as specifying /RSI=1H.
>
> Note that the CANCEL and REMOVE commands negate the effect of this keyword.
>
> The default is no rescheduling.

/UIC

> See Format 1.

3. Run at a time increment from clock unit synchronization (privileged option).

    The system determines the task start-time by waiting for the first specified time unit (hour, minute, second, tick) to increment and then waiting for the specified time to elapse.

    > RUN taskname sync [dtime][/RSI=magu][UIC=[uic]]

    taskname

    > A 1- to 6-character task name.

RUN (Cont.)

sync

    H - Synchronize on the next hour
    M - Synchronize on the next minute
    S - Synchronize on the next second
    T - Synchronize on the next tick

dtime

    See Format 2. If present, dtime is added to the synchronization unit to produce the actual run time for running the task.

/RSI

    See Format 2.

/UIC

    See Format 1.

4. Run at an absolute time of day (privileged option).

    RUN taskname atime [/RSI=magu][/UIC=[uic]]

taskname

    A 1- to 6-character task name.

atime

    Absolute time of day at which to initiate this task. Input format is hh:mm:ss.

    hh - Hours (decimal assumed)
    mm - Minutes (decimal assumed)
    ss - Seconds (decimal assumed)

/RSI

    See Format 2.

/UIC

    See Format 1.

5. Install, run immediately, and remove on exit.

    RUN [ddnn:][$]filename [/keyword(s)]

ddnn:

    The device unit on which the task image file resides.

$

    Specifies that the file can be found in the System Task Directory on device LB: (if ddnn: is not specified).

RUN (Cont.)

The SET /SYSUIC command defines the system directory. By convention, the directory is [1,50] on an unmapped system and [1,54] on a mapped system.

If you do not specify $, RUN searches for the task image file in the UIC (on device SY:) to which the terminal requesting the task is set. (This is similar to Format 1 when /UIC is not specified.)

On RSX-11M-PLUS operating systems, if you specify $ and the task image file cannot be found in the system directory, RUN searches the library directory on device LB:. By convention, LIBUIC is [3,54].

Note that if LB: has been reassigned to another device and that device's system UIC contains privileged tasks built for another system, your system will crash.

filename

The name of the task image file to be run.

Keywords:

/CKP=option

Specifies whether or not a task will be checkpointable. The options are YES and NO. If you specify /CKP=YES (default for checkpointable tasks), checkpointing is allowed. If you specify /CKP=NO, checkpointing is disabled for the task.

The /CKP keyword overrides the /CP switch specified at task build.

On systems that support the dynamic allocation of checkpoint space, the task image file does not need to contain allocated checkpoint space. The presence of the /CKP=YES keyword instructs the system to allocate checkpoint space for the task when required from a checkpoint file.

/CMD="command-line"

Passes the specified command line to the task for processing. The command line must begin with the task's acronym and it must be valid for the task (for example, if the task being installed is MAC, "command-line" must be a valid MACRO-11 command line) or a syntax error will occur. When the task has finished executing the command line, the task is removed.

/EST=option

Specifies whether exit status is to be returned from the RUN command or from the task being run with the RUN command. The options are YES and NO. If you specify EST=YES, the exit status returned from the RUN command is the status of the task

RUN (Cont.)

being run. RUN waits for the task to emit status and returns that status. If you specify EST=NO, the exit status returned from the RUN command is the status of the command only. RUN does not wait for the task to emit status. It returns status indicating only whether the task was initiated successfully.

The default is /EST=YES.

/INC=size

Increments the address space allocated to a task that runs in a system-controlled partition. The variable size is the number of additional words of address space to allocate. The increment is usually expressed in octal, but can also be expressed in decimal by appending a period.

This keyword overrides the EXTTSK or PAR option used at task-build time. Tasks that specify the size of the partition in which they are running use this keyword to identify how much dynamic space they may allocate to symbol tables or buffers. Tasks such as MAC, TKB, VFY, and AT. use the space from the end of the task image to the end of their address space as dynamic memory. In effect, the /INC keyword defines the number of words in this dynamic region.

On RSX-11M/M-PLUS systems, you cannot extend a task that uses memory-resident overlays. (See the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual.)

The default is the size specified at task-build time.

/IOP=option

Specifies that a privileged task can overmap the I/O page. The options are YES and NO. If you specify /IOP=YES, RUN assumes that the task will overmap the I/O page (APR7) and, if the task is larger than 8K words, issues a warning message. If you specify /IOP=NO, RUN assumes that the task does not need to use the I/O page. No warning message is issued.

/IOP complements the Task Builder /IP switch. Specifying /IP informs RUN that the task is intentionally overmapping the I/O page.

The default is /IOP=YES.

/PAR=parname

Specifies the partition in which the task is to be installed.

The default is the partition specified at task-build time.

RUN (Cont.)

/PMD=option

> Requests a Postmortem Dump when the task aborts.
> The options are YES and NO. If you specify
> /PMD=YES, a Postmortem Dump is requested for the
> task if it aborts because of an SST error
> condition. If you specify /PMD=NO, no dump is
> requested at SST abort time.
>
> To generate a dump, the Postmortem Dump task PMD...
> must be installed in the system. This keyword
> overrides the /PM switch specified at task-build
> time.
>
> The default is specified at task-build time.

/PRI=number

> (Privileged keyword.) Specifies the priority of the
> task. The value range is 1 to 250(decimal), where
> 250 is the highest priority. Standard number
> conventions apply: octal by default, decimal if
> followed by a period. (This keyword is ignored if
> specified by a nonprivileged user.)
>
> The default is /PRI=50.

/ROPAR=pname

> (RSX-11M-PLUS operating systems only.) Installs the
> read-only portion of a multiuser task into a
> specified partition (pname). If the specified
> partition does not exist, the read-only segment is
> installed in the same partition as the task.

/SLV=option

> Specifies the slave status of the task. The two
> options are YES and NO. If /SLV=YES, data sent to
> the installed task is marked with the TI: of the
> sending task. When the installed task receives the
> data, the system sets the task's TI: to that
> associated with the data. This keyword overrides
> the /SL switch that was specified at task build.
>
> If /SLV=NO, the TI: of the task does not change
> when receiving data.
>
> The default is specified at task-build time.

/TASK=taskname

> Specifies the name the task will use while it is
> running. This name is a temporary assignment only.
> If taskname is not found in the STD, MCR names it
> TTnn by default, where nn is the unit number of the
> requesting terminal.

RUN (Cont.)

/TIME=nM or /TIME=nS

(RSX-11M-PLUS operating systems with Resource Accounting only.) Sets a time limit for a task that uses the CPU. When the time limit expires, the task is aborted and a message is displayed.

You can specify the time limit in minutes (M) or seconds (S); M is the default. The number of time units (n) can be octal (the default) or decimal if followed by a period. The maximum value allowed is 65,536(decimal).

If the task is privileged, the keyword is ignored.

Resource Accounting is a system generation option.

/UIC=[g,m]

Specifies the UIC under which the task will be requested to run. The square brackets are required syntax.

If you specify a UIC, the UIC becomes the default UIC for the task. However, your protection UIC becomes the protection UIC for the task. If you do not specify a UIC, your default and protection UICs become the default and protection UICs for the task. (See the previous description of /UIC for the effects for privileged users and tasks.)

The default is the UIC of the terminal that issues the RUN command.

Examples:

>RUN TR7 15M (RET)

Runs task TR7 15 minutes from the time the command was issued.

>RUN XKE 15M/RSI=90S/UIC=[3,1] (RET)

Runs task XKE 15 minutes from the time the command was issued, rescheduling it every 90 seconds, with a UIC of [3,1].

>RUN DK2:$MAC (RET)

Runs the task in file DK2:MAC.TSK from the system directory. The task is automatically installed, run, and removed on exit.

Notes:

● If the command requests the task to run immediately (Format 1), it establishes the terminal from which the task was initiated as the pseudo device TI:. For Formats 2, 3, and 4, the system establishes the issuing terminal as the pseudo device CO:.

RUN (Cont.)

- A run-immediately command (Format 1), if terminated with an ESC character instead of a RETURN, echoes the default prompt when the requested task exits and not when MCR has finished initiating the task. This facility enables you to determine when a task that is not producing output on a terminal has exited.

- The install-run-remove format (Format 5) also establishes the terminal from which the command was issued as the pseudo device TI: and causes the default prompt to be displayed on TI: when the task exits. This form of the command is especially useful when the space available in the dynamic storage region (pool) is low because the memory necessary for a Task Control Block (TCB) returns to pool when the task exits.

Command Error Messages:

RUN -- Invalid time parameter

A specified time field was incorrect.

RUN -- Task being aborted

A request for the execution of a task was made, but the task was being aborted either because of an unrecoverable error or an abort command or directive issued by a user.

RUN -- Task may not be run

The task you have specified cannot be executed for one of the following reasons:

- You specified a task with the ...tsk form of the task name. The ...tsk form of a task name identifies a task that was installed with a prototype TCB. Thus, the task cannot be run. Instead, specify only the 3-character task name (tsk); or install and run the task under a different name (such as tskTnn).

- You specified a task with the tsk$$$ form of the task name. The tsk$$$ form of a task name identifies a special network task. Such tasks cannot be run.

- You specified a task that is installed as a CLI. CLI tasks cannot be run.

- The RUN command encountered a spawn failure when it tried to spawn the specified task.

SAV

3.41 SAVE (P)

The SAVE command copies the current RSX-11M/M-PLUS operating system
image (the contents of main memory) into the system image file from
which the current image was booted. (The system image file is a
special task image file named, by convention, RSX11M.SYS.) The
command saves the image so that a hardware bootstrap or the BOOT
command can later be used to reload and restart it.

On RSX-11M operating systems, the system image cannot be greater than
124K.

On RSX-11M-PLUS operating systems, there is no size restriction.   The
size of the system image file determines the maximum size that can be
saved on RSX-11M-PLUS, but there are other restrictions on the system
image file: it must be contiguous and it must be large enough to
contain all of secondary pool. (SAVE saves secondary pool because
prototype Task Control Blocks are contained in it.)

All RSX-11M/M-PLUS system images reside on a file-structured volume as
a specially formatted task image: the image does not have a task
header. There may be more than one system image on a volume (for
example, a program development system and a production or test
system), and nonprivileged tasks can be installed in several system
images at the same time.

To determine the minimum size for a system image file, compute the
formula of four times the size plus two (4*SYSIZ+2). For example:

     28K requires 114. blocks

     32K requires 130. blocks

     124K requires 498. blocks

     256K requires 1026. blocks

You can save system images on any of the following devices:

RSX-11M systems		RSX-11M-PLUS systems	
RL01/02	RD52	RL01/02	RP02/03
RK05	RP02/03	RK05	RP04/05/06
RK06/07	RP04/05/06	RK06/07	RC25
RM02/03/05/80	RX01/02	RM02/03/05/80	RD51/52/53
RA60	RX50	RA60	RX50
RA80/81	RS03/04	RA80/81	ML11
RC25	DECtape		
RD51	ML11		
	RD53		

On RSX-11M-PLUS operating systems, system images saved on   the
following devices are considered to be compatible; that is, a system
image saved on one of the devices can be transported with the Backup

SAV (Cont.)

and Restore Utility (BRU) to any of the other devices. (See the
RSX-11M/M-PLUS Utilities Manual for information on BRU.) The
compatible devices are:

```
ML11            RA80/81         RC25
RK06/07         RP04/05/06      RD52
RM02/03/05/80   RD53
RA60            RD51            RX50
```

To successfully save a system, the SAVE command requires that:

- On an RSX-11M operating system, SAVE must run from CO:.

- Error logging is not active.

- All tasks must be installed from LB:.

- No checkpoint files are active.

- No volumes except the load device are mounted.

- The load device can be successfully dismounted.

- No tasks have outstanding I/O.

- No tasks are connected to interrupts.

- All drivers, active tasks, fixed tasks and, on RSX-11M-PLUS
  operating systems, all loaded commons and secondary pool
  reside within the amount of main memory that SAVE will write
  to the system image file.

On RSX-11M-PLUS operating systems, SAVE also requires that:

- Resource Accounting must be turned off.

- All checkpointable commons must be installed from LB:.

- All device units and device controllers, except the load
  device, the TI: of SAVE, any other pseudo devices, and the
  reconfiguration driver (RD:), must be off line. An unsaved
  system image satisfies this requirement. For all other
  systems, take the units and controllers off line with the
  reconfiguration services (see the RSX-11M/M-PLUS System
  Management Guide).

- On multiprocessor systems, SAVE run on the only active
  processor.

An error is reported if any of these requirements are not met.

SAVE is active when the memory-resident system image is copied to
disk. Because of this, VMR considers SAVE to be an active task in the
system image. This is correct because SAVE is the task that starts
the system after a boot.

The Executive references the file images of installed tasks by
physical addresses (logical block numbers, or LBNs). A saved system
does not always retain the physical disk addresses of installed tasks.
For example, the Disk Save and Compress Utility Program (DSC) can

SAV (Cont.)

compress and copy a disk containing a saved system, thus moving the task files to different physical locations. Therefore, SAVE converts the LBNs of all installed tasks into file identifications and stores these in the TCBs. Since the TCB entries contain task file identifications rather than LBNs after a system save, the system can function normally when it is rebooted even if LBNs have changed in the meantime.

Upon system rebooting, SAVE reopens the task file and stores the new LBN of the task in the TCB. If a task has been deleted, the system cannot open the task file when the system is rebooted. In this case, the system automatically removes the task's TCB from the STD.

On RSX-11M-PLUS operating systems, since installed common regions and read-only segments of multiuser tasks face a similar problem, SAVE also converts the absolute pointers for these into relative pointers and restores the pointers when the system is booted.

When the bootstrap block is written, the physical disk-block address of the system image file is stored with it. However, the file can be deleted. If there is file system activity, the blocks previously allocated to the system image may be reallocated to another file. A subsequent bootstrap that uses the boot block could possibly cause random data to be loaded.

Upon rebooting a saved system, SAVE:

- Selects the system clock

- If the last memory partition is system-controlled, sizes memory and extends the partition so that it uses all available memory

- On multiuser protection systems, validates that the boot device is not allocated and then sets it public

- Sets the context of the console terminal as logged in, privileged, and nonslaved

- Sizes the boot device (RSX-11M-PLUS operating systems)

- Outputs a system identification message

- Redirects all pseudo devices to the boot device

- Mounts the system disk

- Initiates the file [1,2]STARTUP.CMD on the booted device

Format:

    SAV[E] [/keyword(s)]

SAV (Cont.)

Keywords:

/WB

> Indicates that a hardware boot block pointing to the system image is to be written to the system device. The new boot block points to the file that is saved with the SAVE command. Thus, on the next hardware bootstrap, this saved file will be loaded. If the command line omits the /WB keyword, the boot block still points to the prior system image, which may have been overwritten.

/MOU="string"

> Automatically issues a MOUNT command at system startup to mount the system disk.

> The MOUNT command line ("string") that you specify must be enclosed within quotes and must be in the proper format (that is, including all necessary slashes (/) or equal signs (=)). Note that SAVE does not check the syntax of the string.

/SFILE="filespec"

> Automatically initiates an indirect command file ([1,2]STARTUP.CMD) on the boot device at system startup. This keyword allows you to specify another indirect command file.

> The command file you specify must be enclosed within quotes. Note that SAVE does not check the syntax of filespec.

/CSR=x

> (RSX-11M-PLUS operating systems only.) Permits you to specify the CSR address for the boot device. The options for x are SY and an octal number that is greater than 157777 and even.

> If you do not specify /CSR, SAVE uses the address the bootstrap left in R1 as the CSR address for the boot device. If you specify /CSR=SY, SAVE uses the CSR address that was used to save the system. If x is an octal number, SAVE uses the number as the CSR address.

> Note that if you are transporting the saved system image to a system that has a different CSR address, you must use the VMR CON command to adjust the data base CSR and vector addresses for the image before you can boot it. (See the RSX-11M/M-PLUS System Management Guide for information on VMR.)

> You do not have to specify /CSR for compatible devices (see previous list).

SAV (Cont.)

Example:

>SAV (RET)

The current status of the system is saved on the system
disk. System changes made by the REDIRECT command or other
MCR commands are also saved with the system image that is
resident in main memory.

Command Error Messages

(Error messages that apply only to RSX-11M-PLUS operating systems
are described last):

SAV -- Bad task file VBN, task removed - <taskname>

SAVE removed the specified task because it contained a bad
virtual block number (VBN) in its file header. The task
image file has probably been corrupted.

SAV -- Booted device's driver not loaded

VMR has been used to unload the driver for the system
(booted) disk. Using another system, use VMR to load the
driver and then reboot the system.

SAV -- Booted device not in system - <dd nnn mmmmmm>

When the system was booted, SAVE could not find the booted
device (device name dd, physical unit number nnn, CSR
mmmmmm) in the system data structures. For example, the
system was booted from DB3:, but the system data structures
include only DB0: and DB1:.

On RSX-11M-PLUS multiprocessor operating systems, the boot
device must be directly connected to the target processor;
it cannot be connected by a bus switch.

SAV -- Cannot find home block

SAV could not find the device's home block when searching
for it or, on RSX-11M-PLUS operating systems, an error
occurred while SAV was attempting to read the home block.

SAV -- Checkpoint file still in use on <ddnn:>

The system cannot be saved because a checkpoint file on the
specified device is still active. Deallocate the checkpoint
file (see the ACS command) and reenter the SAVE command
line.

SAV -- CO: redirected to CO:

(RSX-11M operating systems only.) The console output driver
is active. If it is not active, the system may be
corrupted. You can use the OPEN command to redirect CO: to
the terminal from which you are running SAVE.

SAV (Cont.)

SAV -- Common, driver or task above system image file limit

A system cannot be saved if addresses for a memory-resident structure are higher than the highest address of main memory written to the system image file. Use the PARTITION DEFINITIONS command (PAR) to determine the cause of the problem. This includes the running task image of SAVE.

SAV -- Dismount complete for <ddnn:>

This is an informational message. The message indicates that TKTN is not installed in the running system. If the load device is mounted when SAVE starts, SAVE attempts to dismount it. Since TKTN is not installed, the dismount complete message from DMO is not displayed on the console terminal. As a substitute, SAVE writes this message to the terminal.

SAV -- Error attempting to dismount <ddnn:>

If the load device is mounted when SAVE is initiated, SAVE issues a DISMOUNT command to MCR when the save operation is complete. This message indicates that the dismount operation was not successful. The system may be usable, but it is recommended that you reboot and issue a DISMOUNT command.

SAV -- Error logging still active

A system cannot be saved while error logging is active. Disable error logging and reenter the SAVE command line.

SAV -- Home block read error

(RSX-11M operating systems only.) The home block of the booted device could not be read. Try another drive. If unsuccessful, the disk has been corrupted or the area of the home block is bad. This error halts the system.

SAV -- Index file header checksum error

While rebooting a saved system, SAVE detected a checksum error in the file header of the index file. The error causes the system to halt. The disk has probably been corrupted.

SAV -- Index file header read error

While rebooting a saved system, SAVE detected an error in the file header of the index file. The error causes the system to halt.

SAV -- Label block I/O error

In attempting to save the system image, SAVE wrote the transfer address in the label block of the system image file. An error occurred during this write attempt. The disk could be corrupted.

SAV (Cont.)

SAV -- MCR is not installed

When a system is booted, SAVE uses MCR to mount the system disk. Use VMR to install the MCR... task.

SAV -- Must be run from terminal CO:

(RSX-11M operating systems only.) SAVE is not being run from the terminal to which the pseudo device CO: is redirected.

SAV -- No pool space

There is not enough space in pool to contain checkpoint information when SAVE tries to force resident read/write commons to their file images.

SAV -- Not a valid save device

An attempt was made to save a system on a device that is not part of the system I/O data structures (this generally implies that $SYSIZ+2 and $SYSIZ+6 are corrupted) or SAVE does not support the device.

SAV -- Open file(s) on <ddnn:>

There are open files on ddnn:. Ensure that the Queue Manager is stopped.

SAV -- Partition <parname> not in system, task removed - <taskname>

(RSX-11M operating systems only.) If a task is installed in more than one system, the Partition Control Block (PCB) addresses in its header mapping windows may not be for the booted system. The task's label block indicates that the task maps to parname, but parname is not in the current system. The label block has probably been corrupted.

SAV -- Processor does not support EIS

(RSX-11M operating systems only.) Support for the Extended Instruction Set (EIS) has been selected, but the current processor cannot support it.

SAV -- System may not boot correctly

The file [system-uic]SAV.TSK was not found on the boot device. If SAVE must be checkpointed to redirect and mount the booted device, the system disk will be overwritten, causing unpredictable results.

SAV -- System may not work - Larger than main memory

This message indicates that the booted system has less main memory than the saved system image file and that a structure resident in the system image file is completely or partially absent in the booted system. If the system can run without the structure, the UNLOAD and UNFIX commands can be used to remove the nonexistent structures.

SAV (Cont.)

SAV -- $SYSIZ does not point at system image file

> SAVE determines the location of the system image file on the
> system disk by examining the locations near the Executive
> label $SYSIZ. SAVE then makes several validation checks on
> that file. If those checks fail, SAVE does not write to the
> disk on the assumption that it could corrupt the disk by
> writing to something that is not a system image file. The
> system image or the system image file has been corrupted.
> Examine several locations after $SYSIZ and then reboot.

SAV -- Task active in another system, task removed - <taskname>

> The task is installed in another system as well as in the
> booted system. Since the task is active and mapped to
> dynamic regions in the other system, it cannot be run in the
> booted system.

SAV -- Task file deleted, task removed - <taskname>

> While rebooting a saved system, a file identification that
> appears in the Task Control Block (TCB) could not be found
> in the index file on the boot device. This indicates that
> the file has been deleted.

SAV -- Task file header error, task removed - <taskname>

> When SAVE read the task header to restore the LBN of the
> task file, the checksum was bad or there was a file number
> mismatch. Therefore, the task was removed.

SAV -- Task file header read error, task removed - <taskname>

> SAVE removed the specified task because it could not read
> the task's file header.

SAV -- Task file header write error, task removed - <taskname>

> When SAVE attempted to reassign the LUNs of the task or to
> rewrite a mapping window PCB address, it could not
> successfully rewrite the task header. Therefore, the task
> was removed.

SAV -- Task header read error

> SAVE detected an I/O error while reading in a task header to
> write the file identification into the TCB. This error
> causes the system to halt.

SAV -- Task header read error, task removed - <taskname>

> SAVE detected an I/O error while reading in a task header to
> reassign LUNs or to remap the mapping windows. Therefore,
> the task was removed.

SAV -- Task label block read error, task removed - <taskname>

> When SAVE attempted to reassign the LUNs of the task to the
> current system, the task's label block could not be read
> (the label block contains the static LUN assignments).
> Therefore, the task was removed.

SAV (Cont.)

SAV -- Task too big for partition, task removed - <taskname>

    The current CPU has less memory than the system image file. This message indicates that the last partition has contracted such that the indicated task cannot fit into it, even if everything else is removed from the partition.

SAV -- Task <taskname> has outstanding I/O

    A system cannot be saved if a task is waiting for I/O to complete.

SAV -- Task <taskname> is active and checkpointed

    You cannot save a system if it contains an active and checkpointed task. This restriction prevents a possible system crash because, if the task was installed in another system image file, the task image could be corrupted when the task was run in the second system.

SAV -- Task <taskname> is connected to an interrupt vector

    Disconnect the task from the interrupt vector or abort it, and reenter the SAVE command line.

SAV -- Task <taskname> not installed from an LB:

    All tasks must be installed from an LB:. Use the TAS command to determine which tasks are not. Reenter the SAVE command line after removing the tasks or installing them from an LB:.

SAV -- Volume still mounted on <ddnn:>

    The volume on device ddnn: was still mounted when the SAVE command line was issued. A system cannot be saved with volumes mounted. Dismount the volumes and reenter the SAVE command line. If necessary, use the DEVICES command to determine which volumes are mounted.

SAV -- Volume structure not supported

    While rebooting a saved system, SAVE determined from the disk's home block that the disk's structure is not supported by the current version of RSX-11M/M-PLUS. This error causes the system to halt.

SAV -- (Warning) Nonexistent LUN assignment for task <taskname>

    The physical device to which SAVE was attempting to reassign a LUN does not exist in the booted system. This condition is resolved if the task performs a run-time assignment to the LUN; otherwise, the task will encounter an error condition when it attempts to use the LUN.

Additional RSX-11M-PLUS Operating System Command Error Messages:

SAV -- Accounting is active

    SAVE cannot save a system if Resource Accounting is still active.

SAV (Cont.)

```
SAV -- Booted device cannot be brought online

     There was an error when SAVE attempted to bring  either  the
     unit  or  controller  of  the  booted  device  on line.  The
     Executive is corrupted, the device driver does not work,  or
     the device does not work.  There is no recovery procedure.

SAV -- Common <commonname> not installed from an LB:

     All checkpointable commons must be installed  from  an  LB:.
     Remove the common and reenter the SAVE command line.

SAV -- Could not size booted device

     SAVE recognized the device name as a device that  it  should
     be able to size but could not.

SAV -- Proper controllers and/or units are not offline

     When  a  system  is  saved,  all  device  units  and  device
     controllers  except  the  TI:   for SAVE and the load device
     must be off line.  Use the CON DISPLAY command to  determine
     which  devices  are on line and then issue a CON OFFLINE ALL
     command.

SAV -- Secondary pool does not fit into system image

     The system image file is not large enough to contain all  of
     secondary  pool.   You  must  either  use  the  VMR SET /PAR
     command to place  secondary  pool  in  a  lower  portion  of
     memory, or use the PIP utility to make the system image file
     larger and then run VMR to reinitialize the file.

SAV -- System may not work - Corrupted file for common <commonname>

     When SAVE attempted to convert the file-ID for  the  common,
     SAVE  found that the task image of the checkpointable common
     was corrupted or had been deleted.  SAVE altered the  system
     data  structures to prevent checkpointing of the common into
     what may now be another task image.
```

SET

3.42 SET (NP,P)

The SET command dynamically changes characteristics of and displays information about the system, tasks, and devices.

Nonprivileged users can change the characteristics of their own terminals (pseudo device TI:) and any privately allocated device. Privileged users can change the characteristics of any device and also of any task and of the system. All users can display information about any device or task or about the system.

The following two lists describe most of the available options for nonprivileged and privileged users.

Nonprivileged options:

- Establish characteristics for the issuing terminal (TI:) and for private devices

- Set the default UIC for the issuing terminal

- Display the status (determined by the keyword specified) of all terminals and other devices

- Display statistics about system dynamic memory

- On RSX-11M-PLUS operating systems, establish disk data caching for a private disk

Privileged options:

- Establish characteristics for any device in the system

- Establish the default UIC for any terminal in the system

- Establish the default directory for DECnet-related tasks

- Establish the system UIC

  On RSX-11M-PLUS operating systems, also establish the library directory used by the LOAD command and the install-run-remove option of the RUN command

- On RSX-11M-PLUS operating systems, establish disk data caching for a public disk

- Set a device to public status so that any system user can access the device

- Create partitions and subpartitions

- Move the top boundary of a partition

- Add space to the dynamic core pool

- Modify the pool limit parameters used by the Pool Monitor Task

- Enable write check on devices that support it

SET (Cont.)

- Specify I/O queue optimization for a device (RSX-11M-PLUS operating systems only)

- Specify the maximum number of I/O packets to be preallocated to optimize I/O performance

- Specify the maximum size to which a task can extend itself

- Enable or disable the ability to log in on terminals in a multiuser protection system

Improper use of the SET command from a privileged terminal can result in a situation in which privileged user input will not be accepted. Avoid the following two situations:

- All privileged terminals in +he system are slaved and cannot enter unsolicited input to MCR, and logins are disabled. Nonprivileged terminals cannot enter privileged commands and therefore cannot reset the privileged terminals to be nonslaved. See the description of the /SLAVE keyword in the "Keywords" section.

- The buffer length of all the nonslaved, privileged terminals is shorter than 14(decimal) bytes. In this case, the terminal buffer is then too small for a privileged user to enter many important commands required to continue system operation or to alter the status of other terminals. See the description of the /BUF keyword in the "Keywords" section.

On RSX-11M operating systems, a number of SET command keywords (/CRT, /ESCSEQ, /HOLD, /LOGON, /LOWER, /MAXEXT, /MAXPKT, /PLCTL, /PUB, and /WCHK) are features that you must include during system generation. If you did not include support during system generation, the specified keyword has no effect.

Also, some keywords (for example, /ABAUD, /FDX, /HHT, /LINES, /TYPEAHEAD, and /WRAP) are supported only with the full-duplex terminal driver. The full-duplex terminal driver is a system generation option on RSX-11M operating systems but is always included on RSX-11M-PLUS systems. Note that if you select the full-duplex driver on an RSX-11M system, you must also select the get/set multiple characteristics option to display or set any terminal-related characteristics.

Note: You can also use any DCL SET command from MCR. Refer to the RSX-11M or the RSX-11M-PLUS Command Language Manual for information about DCL commands.

Format:

    SET /keyword=values

Only one keyword per command line is permitted. You can prefix most keywords with NO to negate or disable the function of the keyword. (Exceptions are noted in Table 3-2. The system returns a syntax error message whenever NO precedes one of these keywords.) The keywords are described in alphabetical order following Table 3-2.

SET (Cont.)

Table 3-2
SET Keywords

Type	Keywords
Changing Password	/PASSWORD (RSX-11M-PLUS systems only)
Console Output Task	/COLOG
Crash Dump	/CRASHDEV and /CRASH_DEVICE:ddnn:[CSRaddr] (RSX-11M-PLUS systems only)
Device Characteristics	/[NO]ABAUD[=ttnn:]
	/[NO]ANSI[=ttnn:]
	/[NO]AVO[=ttnn:]
	/[NO]BLKMOD[=ttnn:]
	/[NO]BRO[=ttnn:]
	/BUF=ddnn:[size]
	/[NO]CACHE[=ddnn:(option[,,,])] (RSX-11M-PLUS systems only)
	/CLI=ttnn:[cli]
	/[NO]CRT[=ttnn:]
	/DCL[=ttnn:]
	/[NO]DEC[=ttnn:]
	/[NO]EBC[=ttnn:]
	/[NO]ECHO[=ttnn:]
	/[NO]EDIT[=ttnn:]
	/[NO]ESCSEQ[=ttnn:]
	/[NO]FDX[=ttnn:]
	/[NO]FORMFEED[=ttnn:]
	/HFILL=ttnn:[value]
	/[NO]HHT[=ttnn:]
	/[NO]HOLD[=ttnn:]
	/[NO]HSYNC[=ttnn:]

SET (Cont.)

Table 3-2 (Cont.)
SET Keywords

Type	Keywords
	/INQUIRE
	/LINES=ttnn:[value]
	/[NO]LOWER[=ddnn:]
	/MCR[=ttnn:]
	/[NO]OPT=[ddnn:opttyp:fairness-count] (RSX-11M-PLUS systems only)
	/[NO]OVLP[=ccn] (RSX-11M-PLUS systems only)
	/[NO]PARITY[=ttnn:[option]]
	/[NO]PASTHRU[=ttnn:]
	/[NO]PRINTER_PORT[=ttnn:]
	/[NO]PRIV[=ttnn:]
	/[NO]PUB[=ddnn:]
	/[NO]REGIS[=ttnn:]
	/[NO]REMOTE[=ttnn:[speed]]
	/[NO]RPA[=ttnn:]
	/[NO]SERIAL[=ttnn:] (RSX-11M-PLUS systems only)
	/[NO]SLAVE[=ttnn:]
	/[NO]SOFT[=ttnn:]
	/SPEED=ttnn:[recv:xmit]
	/TERM=ttnn:[value]
	/[NO]TTSYNC[=ttnn:]
	/[NO]TYPEAHEAD[=ttnn:[size]]
	/UIC[=[uic][:ttnn:]]
	/[NO]VFILL[=ttnn:]
	/[NO]WCHK[=ddnn:]

SET (Cont.)

Table 3-2 (Cont.)
SET Keywords

Type	Keywords
	/[NO]WRAP[=ttnn:]
Directories	/DEF[=[ddnn:][[directory]]] (RSX-11M-PLUS systems only) /[NO]DPRO[=[protectioncodes]] (RSX-11M-PLUS systems only) /[NO]NAMED (RSX-11M-PLUS systems only)
Enable/Disable Login (privileged options)	/[NO]LOGON
I/O Packet	/MAXPKT[=n]
Library or System UICs	/LIBUIC[=[uic]] (RSX-11M-PLUS systems only)
	/NETUIC[=[uic]]
	/SYSUIC[=[uic]]
Memory Allocation (see notes before error messages)	/MAIN=pname[:base:size:type] (RSX-11M systems; synonym for /PAR on RSX-11M-PLUS systems) /NOMAIN=pname (RSX-11M systems; synonym for /NOPAR on RSX-11M-PLUS systems) /MAXEXT[=size] /NOCEX (RSX-11M-PLUS systems only) /PAR=pname[:base:size[:type]] (RSX-11M-PLUS systems only) /NOPAR=pname (RSX-11M-PLUS systems only) /POOL[=top] /SECPOL (RSX-11M-PLUS systems only) /SUB=mname:sname[:base:size] (RSX-11M systems only)

(Continued on next page)

SET (Cont.)

Table 3-2 (Cont.)
SET Keywords

Type	Keywords
	/NOSUB=mname:sname (RSX-11M systems only)
	/TOP=pname:value
Networking	/HOST[=node[::]]
Pool Monitor Task	/PLCTL[=[high][:[low][:[frz][:[basep]]]]
System Tuning	/RNDC[=nn]
	/RNDH[=nn]
	/RNDL[=nn]
	/SWPC[=nn]
	/SWPR[=nn]

Keywords:

/ABAUD[=ttnn:]

> (Full-duplex terminal driver only.) Enables autobaud detection for the remote dial-up line for the specified terminal. The terminal driver samples the line's first input character, tries to determine the incoming baud rate, and sets the interface speed accordingly.

> A nonprivileged user can display all the terminals that have autobaud detection enabled, but only a privileged user can enable the option for a specific terminal.

> When you omit =ttnn:, the system displays all of the terminals that have autobaud detection enabled.

> Examples:

>> >SET /ABAUD=TT10: RET

>> Enables autobaud detection for TT10:.

>> >SET /ABAUD RET
>> ABAUD=TT4:
>> ABAUD=TT5:
>> ABAUD=TT6:
>> ABAUD=TT10:

>> Displays all terminals that have autobaud detection enabled.

SET (Cont.)

/NOABAUD[=ttnn:]

> (Full-duplex terminal driver only.) Disables autobaud detection for the specified terminal. The terminal driver does not attempt to determine the incoming baud rate for the remote dial-up line.
>
> A nonprivileged user can display all of the terminals that have had autobaud detection disabled, but only a privileged user can disable the option for a specific terminal.
>
> When you omit =ttnn:, the system displays all of the terminals that do not have autobaud detection.
>
> Examples:
>
>> >SET /NOABAUD=TT6: (RET)
>>
>> Disables autobaud detection for TT6:.
>>
>> >SET /NOABAUD (RET)
>> NOABAUD=CO0:
>> NOABAUD=TT4:
>> NOABAUD=TT6:
>> NOABAUD=TT7:
>>
>> Displays all terminals that do not have autobaud detection enabled.

/ANSI[=ttnn:]

> (Full-duplex terminal driver only.) Informs the system that the specified terminal supports ANSI standard escape sequences.
>
> When you omit =ttnn:, the system displays all of the terminals that support the ANSI standard escape sequences.
>
> Examples:
>
>> >SET /ANSI=TT10: (RET)
>>
>> Enables support of ANSI standard escape sequences for TT10:.
>>
>> >SET /ANSI (RET)
>> ANSI=TT6:
>> ANSI=TT10:
>> ANSI=RT7:
>>
>> Displays all terminals that support ANSI standard escape sequences.

/NOANSI[=ttnn:]

> (Full-duplex terminal driver only.) Informs the system that the specified terminal does not support ANSI standard escape sequences.

SET (Cont.)

When you omit =ttnn:, the system displays all of the
terminals that do not support the ANSI standard escape
sequences.

Examples:

>SET /NOANSI=TT5: (RET)

    Disables support of ANSI standard escape sequences
    for TT5:.

>SET /NOANSI (RET)
NOANSI=CO0:
NOANSI=TT5:
NOANSI=HT8:

    Displays all terminals that do not support ANSI
    standard escape sequences.

/AVO[=ttnn:]

    (Full-duplex terminal driver only.) Specifies that a
    VT100-series terminal has the advanced video option. This
    option enables the terminal to blink, bold, and flash parts
    of the screen, and to set the screen at 132(decimal)
    columns. If the word SET-UP blinks in set-up mode, the
    terminal has the advanced video option. See your system
    manager for more information.

    When you omit =ttnn:, the system displays all of the
    terminals that have the advanced video option.

    Examples:

    >SET /AVO=TT7: (RET)

        Enables the advanced video option on TT7:.

    >SET /AVO (RET)
    AVO=TT7:
    AVO=TT13:
    AVO=RT27:

        Displays all of the terminals that have the
        advanced video option.

/NOAVO[=ttnn:]

    (Full-duplex terminal driver only.) Disables the advanced
    video option for the specified terminal.

    When you omit =ttnn:, the system displays all of the
    terminals that do not have the advanced video option.

    Examples:

    >SET /NOAVO=TT5:

        Disables the advanced video option for TT5:.

SET (Cont.)

```
>SET /NOAVO (RET)
NOAVO=TT5:
NOAVO=TT15:
NOAVO=TT25:
```

Displays all of the terminals without the advanced video option.

/BLKMOD[=ttnn:]

(Full-duplex terminal driver only.) Enables local editing and block-mode transmission for the specified terminal.

When you omit =ttnn:, the system displays all of the terminals that have the block-mode option enabled.

Examples:

```
>SET /BLKMOD=TT3: (RET)
```

Enables the block-mode option for TT3:.

```
>SET /BLKMOD (RET)
BLKMOD=TT3:
BLKMOD=TT17:
BLKMOD=RT23:
```

Displays all of the terminals that have the block-mode option enabled.

/NOBLKMOD[=ttnn:]

(Full-duplex terminal driver only.) Disables local editing and block-mode transmission for the specified terminal.

When you omit =ttnn:, the system displays all of the terminals that have the block-mode option disabled.

Examples:

```
>SET /NOBLKMOD=TT3: (RET)
```

Disables the block-mode option for TT3:.

```
>SET /NOBLKMOD (RET)
NOBLKMOD=TT3:
NOBLKMOD=TT7:
NOBLKMOD=HT14:
```

Displays all of the terminals that have the block-mode option disabled.

/BRO[=ttnn:]

Enables the broadcast option for the specified terminal. The terminal can receive messages sent from other terminals with the BROADCAST command.

SET (Cont.)

When you omit =ttnn:, the system displays all of the terminals that can receive messages.

/BRO is valid only on systems that have multi-CLI support.

Examples:

>SET /BRO=TT7: ⓡⒺⓣ

Enables the broadcast option for TT7:.

>SET /BRO ⓡⒺⓣ
BRO=CO0:
BRO=TT4:
BRO=TT5:
BRO=TT6:
BRO=TT7:

Displays all of the terminals that have the broadcast option enabled.

/NOBRO[=ttnn:]

Disables the broadcast option for the specified terminal. The terminal cannot receive messages sent from other terminals. The terminal also cannot receive messages from the SHUTUP program until the last five minutes before system shutdown. It is recommended that you not use the /NOBRO keyword unless you need to because you could miss important messages.

When you omit =ttnn:, the system displays all of the terminals that cannot receive messages.

/NOBRO is valid only on systems that have multi-CLI support.

Examples:

>SET /NOBRO=TT4: ⓡⒺⓣ

Disables the broadcast option for TT4:.

>SET /NOBRO ⓡⒺⓣ
NOBRO=TT4:
NOBRO=TT10:

Displays all of the terminals that have the broadcast option disabled.

/BUF=ddnn:[size]

Sets or displays the default buffer size of the specified device. A nonprivileged user can display the buffer size of any device but can only set the buffer size of TI:. A privileged user can set the buffer size for any device.

SET (Cont.)

The specified size must be at least 14(decimal) and less than or equal to 255(decimal). If ddnn: is a terminal, the specified size must be greater than 15(decimal) and less than or equal to 255(decimal). /BUF is particularly useful for defining line printer width (80 or 132 decimal columns) and the maximum number of characters allowed in a command line.

When you omit size, the system displays the buffer size of the specified device.

Example:

>SET /BUF=LP0: (RET)
BUF=LP0:132.

    Displays the current buffer size of LP0:.

>SET /BUF=TT1:40. (RET)

    Sets TT1: buffer size to 40(decimal).

/CACHE[=ddnn:(option[,,,])]

Enables disk data caching for the specified device, or modifies the caching behavior for the specified device. Enabling data caching is recommended for the system disk and for disks that are relatively slow in finding data.

When you omit =ddnn: and option, the system displays all of the devices that have disk data caching enabled.

The following list shows you the options that you can specify with the /CACHE keyword:

CREATE[=[region][:[mainpar][:[size]]]

    Creates a cache region in memory and associates caching for the specified device with that region. You can specify the name of the region to be created, the main partition the region is to be created in, and the size of the region. You specify the size of the region in decimal number of disk blocks. By default, the /CACHE keyword uses a region called CACHE in the GEN partition with a size of 100(decimal) disk blocks.

REGION=name

    Associates caching for the specified device with an already existing cache region. The default region is CACHE.

[NO]DIRECTORY[=extent_size]

    Enables or disables caching of directory and other volume-structure I/O; that is, logical I/O from an ACP (for example, F11ACP). By default, the DIRECTORY option is enabled. The default extent size for the DIRECTORY option is 1 block.

SET (Cont.)

```
[NO]LOGICAL[=extent_size]

    Enables or disables caching of logical I/O.    By
    default, the LOGICAL option is disabled.  The default
    extent size for the LOGICAL option is 1 block.

[NO]OVERLAY[=extent_size]

    Enables or disables caching of overlay I/O.    By
    default, the OVERLAY option is enabled.  The default
    extent size for the OVERLAY option is 4 blocks.

[NO]VIRTUAL[=extent_size]

    Enables or disables caching of virtual I/O.    By
    default, the VIRTUAL option is enabled.  The default
    extent size for the VIRTUAL option is 5 blocks.

[NO]READ_AHEAD[=extent_size]

    Enables or disables reading of the next extent before
    reading is explicitly requested.  By default, the
    READ_AHEAD option is disabled.  The default extent size
    for the READ_AHEAD option is 5 blocks.

In the /CACHE keyword options, the value of extent_size
specifies the maximum size (in decimal disk blocks) of an
I/O request that will be considered for caching.  The
minimum acceptable value for extent_size is 1 block; the
maximum acceptable value is 15 blocks.

If you specify more than one option for /CACHE= in the
command line, enclose the options within parentheses and
separate them with commas.

For more information on disk data caching, see the
description of the MOUNT command in this manual, or refer to
the RSX-11M/M-PLUS System Management Guide.

Examples:

    >SET /CACHE=DB3:(CREATE=CACHE::10,READ_AHEAD=2)(RET)

        Enables data caching for device DB3:  with a
        region called CACHE in the default data cache
        partition, which is the GEN partition.   The size
        of the region is 10 blocks and reading ahead is
        enabled with an extent size of 2 blocks.

    >SET /CACHE (RET)
    CACHE=DB1:
    CACHE=DB2:
    CACHE=DB3:

        Displays all devices that have data caching
        enabled.
```

SET (Cont.)

/NOCACHE[=ddnn:]

Disables disk data caching for the specified device.

When you omit =ddnn:, the system displays all of the devices
that do not have disk data caching enabled.

Example:

>SET /NOCACHE=LB: (RET)

Disables data caching for device LB:.

>SET /NOCACHE (RET)
NOCACHE=LB:
NOCACHE=DL0:

Displays all devices that do not have data caching
enabled.

/CLI=ttnn:[cli]

Defines the default command line interpreter (CLI) for the
specified terminal. The CLI can be MCR, DCL, or a
user-written CLI. (However, note that before a CLI can be
used, it must be installed with the INSTALL /CLI=YES
command.)

A nonprivileged user can display the default CLI for any
terminal but can only set the CLI for TI:. A privileged
user can set the default CLI for any terminal.

When you omit cli, the system displays the current default
CLI for the specified terminal.

/CLI is valid only on systems that have multi-CLI support.

Examples:

>SET /CLI=TI: (RET)
CLI=TI:MCR

Displays the current default CLI for TI:.

>SET /CLI=TI:ACLI (RET)

Sets the default CLI for TI: to ACLI.

/COLOG

This keyword is documented with the Console Output Task
(COT) in the RSX-11M/M-PLUS System Management Guide.

/CRASHDEV or /CRASH_DEVICE:ddnn:[CSRaddr]

(RSX-11M-PLUS operating systems only.) Note that these
keywords are valid only for pregenerated kits. See the
RSX-11M-PLUS System Generation and Installation Guide for
more information.

SET (Cont.)

/CRT[=ttnn:]

Defines the specified terminal as a Cathode Ray Tube (CRT) terminal and enables the backwards deletion option. Typing the RUBOUT or DELETE key moves the printing position one space to the left and erases any character displayed in that position.

A nonprivileged user can display all terminals defined as CRTs but can only define TI: as a CRT. A privileged user can define any terminal as a CRT.

When you omit =ttnn:, the system displays all of the terminals that are defined as CRTs.

Examples:

>SET /CRT=TT3: (RET)

Enables the backwards deletion option for terminal TT3:.

>SET /CRT (RET)
CRT=TT3:
CRT=TT4:

Displays all the terminals that have the backwards deletion option enabled.

/NOCRT[=ttnn:]

Deletes the CRT status of the specified terminal and disables the backwards deletion option.

A nonprivileged user can display all the terminals not defined as CRTs but can only delete CRT status for TI:. A privileged user can delete CRT status for any terminal.

When you omit =ttnn:, the system displays all terminals that are not defined as CRTs.

Examples:

>SET /NOCRT=TT4: (RET)

Disables the backwards deletion option for TT4:

>SET /NOCRT (RET)
NOCRT=TT0:
NOCRT=TT1:
NOCRT=TT2:
NOCRT=TT4:

Displays all the terminals that have the backwards deletion option disabled.

SET (Cont.)

/DCL[=ttnn:]

Enables the recognition of DIGITAL Command Language (DCL) commands at the specified terminal. Commands entered in response to the default prompt are submitted to DCL.

To return a terminal to MCR command recognition, type the DCL command SET TERMINAL MCR.

A nonprivileged user can display all of the terminals that recognize DCL commands, but can only enable DCL recognition for TI:. A privileged user can enable any DCL command recognition for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have DCL command recognition enabled.

/DCL is valid only on systems that have multi-CLI support.

Examples:

>SET /DCL=TT3: (RET)

Enables DCL command recognition for TT3:.

>SET /DCL (RET)
DCL=TT3:
DCL=TT7:
DCL=TT10:
DCL=TT12:

Displays all of the terminals that recognize DCL commands.

/DEC[=ttnn:]

(Full-duplex terminal driver only.) Indicates that the specified terminal is upward-compatible with the VT100-series of terminals.

When you omit =ttnn:, the system displays all of the terminals that are upward-compatible.

Examples:

>SET /DEC (RET)
DEC=TT5:
DEC=TT1:

Displays all of the terminals that are upward-compatible with the VT100-series of terminals.

/NODEC[=ttnn:]

(Full-duplex terminal driver only.) Indicates that the specified terminal is not upward-compatible with the VT100-series of terminals.

SET (Cont.)

When you omit =ttnn:, the system displays all of the terminals that are not upward-compatible.

Examples:

>SET /NODEC (RET)
NODEC=TT4:
NODEC=RT23:

Displays all of the terminals that are not upward-compatible with the VT100-series of terminals.

/DEF[=[ddnn:][[directory]]]

(RSX-11M-PLUS operating systems only.) This command functions in two different ways, depending on whether you are in named or nonamed directory mode. If you are in nonamed mode, /DEF is a synonym for /UIC. A device, therefore, is invalid and the directory must be numeric. Note that for a privileged user in nonamed directory mode, SET /DEF changes both the user default directory and the protection UIC. This function is offered for compatibility with previous versions of RSX operating systems. See the descriptions of the /NAMED and /NONAMED keywords for more information.

If you are in named mode, /DEF changes your default location in the system to the device and directory that you specify. The keyword establishes your default device or directory, or both. When you do not explicitly specify a device or a directory in a file specification or command, the system supplies these defaults. (Note that /DEF does not change your UIC. The default directory is used for the location of files. The UIC is used to identify the protection of the user.)

The protection codes for the directory and its files control your activity in the directory. If you are a nonprivileged user, you have the directory and file access rights of the world category and, depending on your UIC, the group category. If you are a privileged user, you have the access rights of the system category. If your UIC matches the directory owner's, you, of course, have the privileges of the owner category.

You use the parameter ddnn: to specify the name and unit number of the device that you want to be your default device. The device must be a Files-11 device. The device name can be a logical name, such as SY:. When you change your default device, the system generates an equivalent assignment of the logical name SY0: and assigns it to the physical device that you named.

The directory parameter specifies the name of the directory that you want to be your default directory. On RSX-11M-PLUS operating systems, either a named or a numeric ("nonamed") directory may be specified.

SET (Cont.)

When you omit =ddnn: and directory, the system displays your current defaults. Note that even if you specify a logical name for the device, the system displays the name of the actual physical device.

Examples:

```
>SET /DEF (RET)
DB2:[303,24]  Nonamed  TT4:
Protection UIC:  [303,24]
```

Displays the current default device and directory for a user in nonamed directory mode.

```
>SET /DEF (RET)
DB0:[JOYCE]  Named  TT0:
Protection UIC:  [7,124]
```

Displays the current default device and directory for a user in named directory directory mode. Even though the default directory is a named directory, the protection UIC remains numeric (it is the UIC with which the named directory is associated).

/DPRO=[RWED,RWED,RWED,RWED]

(RSX-11M-PLUS operating systems only.) Establishes your personal default protection code for all of the files you create after you issue this command. A protection code specifies the type of access to your files that you want other users to have. The system recognizes four classes of users. The position of the user classes in the protection code string is fixed in this order: [SYSTEM, OWNER, GROUP, WORLD]. The location in the string defines which user class you are specifying.

Also, the system recognizes four types of access for file protection purposes:

```
R - Read access
W - Write access
E - Extend access
D - Delete access
```

You specify protection codes in the following ways:

- Enter the types of access that you want to allow each user class. The absence of a type denies that type of access to the user class.

- Enter commas to separate the entries for each user class.

- Enter a comma instead of any access types if you want to deny all types of access to a user class. The comma tells the system which user class is to be denied access. You must have some entry for each of the four user classes, but you cannot enter a comma for every class (/DPRO=[,,,] or /DPRO=[,,,,]). If you do, you will receive an error message.

SET (Cont.)

- Enter the asterisk wildcard (*) instead of access types if you want to retain the current default access code for a user class.

- Enter the /DPRO keyword only (without specifying any codes) if you want to see a display of your current default file protection code.

The /DPRO keyword establishes a default file protection for your current session at the terminal. If you want to enter a default protection code for all of your future sessions at the terminal, specify the code as a command in your LOGIN.CMD file. Also, whenever the system is rebooted, it will reset your file protection to the system default protection (or to the default protection in your account file if one was specified when your account was created). Therefore, to ensure that your personal default file protection is set for all future sessions at the terminal, you should specify the protection code that you want as a command in your LOGIN.CMD file.

For a detailed description of file protection codes, refer to Section 2.1.2.

Examples:

>SET /DPRO=[RW,RWED,,*] (RET)

      Sets your default file protection code as: read and write access for the system; all types of access for the file owner; no access for the group; and the current default access for the world.

>SET /DPRO (RET)
SYSTEM:RW,OWNER:RWED,GROUP:NO ACCESS,WORLD:R

      Displays the current user-specified default file protection code, if there is one. If you have not specified a default file protection code, you receive the following message: "No user default protection specified."

>SET /DPRO=[,,,] (RET)
SET -- No protection specified for any field

      You did not specify access for any of the user classes. Therefore, no default file protection is set. You must specify at least one type of access for at least one user class.

/NODPRO

Directs the system to create files using the default volume protection rather than a personal default file protection specified by the user. See the description of the /FPRO keyword (HOM, INI, and MOU commands), for further information about default volume protection.

SET (Cont.)

Example:

>SET /NODPRO (RET)

Assigns the default volume protection to all files created after you enter this command.

/EBC[=ttnn:]

(Full-duplex terminal driver only.) Enables the eight-bit character option. The terminal driver passes all eight bits of the input characters to the specified terminal.

A nonprivileged user can display all terminals that have the option enabled but can only enable the EBC option for TI:. A privileged user can enable the EBC option for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have the EBC option enabled.

Examples:

>SET /EBC=TT3: (RET)

Enables the EBC option for terminal TT3:.

>SET /EBC (RET)
EBC=TT3:
EBC=TT5:

Displays all of the terminals that have the EBC option enabled.

/NOEBC[=ttnn:]

(Full-duplex terminal driver only.) Disables the eight-bit character option.   Before passing the input characters to the device, the terminal driver clears the eighth bit.

A nonprivileged user can display all terminals that have the option disabled but can only disable the EBC option for TI:. A privileged user can disable EBC for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have the EBC option disabled.

Examples:

>SET /NOEBC (RET)
NOEBC=TT0:
NOEBC=TT1:
NOEBC=TT2:
NOEBC=TT4:

Displays all terminals that have the EBC option disabled.

>SET /NOEBC=TT3: (RET)

Disables the EBC option for terminal TT3:.

SET (Cont.)

/ECHO[=ttnn:]

>   Instructs the terminal driver to display each character
>   typed on the specified terminal.
>
>   A nonprivileged user can display all of the terminals that
>   echo typed characters but can only enable the echo option
>   for TI:. A privileged user can enable the echo option for
>   any terminal.
>
>   When you omit =ttnn:, the system displays all of the
>   terminals that have the echo option enabled.
>
>   Examples:
>
>   >SET /ECHO=TT3: (RET)
>
>   Enables the echo option for terminal TT3:.
>
>   >SET /ECHO (RET)
>   ECHO=TT1:
>   ECHO=TT3:
>
>   Displays all of the terminals that have the echo
>   option enabled.

/NOECHO[=ttnn:]

>   Instructs the terminal driver to inhibit the display of all
>   input characters typed on the specified terminal.
>
>   Note that on RSX-11M operating systems with the half-duplex
>   terminal driver, unsolicited input is always echoed. Only
>   input solicited by a task is not echoed when you specify
>   /NOECHO.
>
>   A nonprivileged user can display all terminals that do not
>   echo typed characters but can only disable the echo option
>   for TI:. A privileged user can disable the echo option for
>   any terminal.
>
>   When you omit =ttnn:, the system displays all of the
>   terminals that have the echo option disabled.
>
>   Examples:
>
>   >SET /NOECHO (RET)
>   NOECHO=TT0:
>   NOECHO=TT2:
>   NOECHO=TT4:
>
>   Displays all of the terminals that do not echo
>   typed characters.
>
>   >SET /NOECHO=TT3: (RET)
>
>   Disables the echo option for terminal TT3:.

SET (Cont.)

/EDIT[=ttnn:]

> (Full-duplex terminal driver only.) Indicates that the specified terminal can perform ANSI-defined advanced editing functions. The VT102 is an example of such a terminal.
>
> When you omit =ttnn:, the system displays all of the terminals that can perform the advanced editing functions.
>
> Examples:
>
>> >SET /EDIT=TT22: (RET)
>>
>>> Sets advanced editing functions for TT22:.
>>
>> >SET /EDIT (RET)
>> EDIT=TT7:
>> EDIT=TT22:
>> EDIT=TT35:
>>
>>> Displays all of the terminals that have advanced editing functions.

/NOEDIT[=ttnn:]

> (Full-duplex terminal driver only.) Indicates that the specified terminal cannot perform ANSI-defined advanced editing functions.
>
> When you omit =ttnn:, the system displays all of the terminals that cannot perform the advanced editing functions.
>
> Examples:
>
>> >SET /NOEDIT=TT22: (RET)
>>
>>> Disables advanced editing functions for TT22:.
>>
>> >SET /NOEDIT (RET)
>> NOEDIT=TT22:
>> NOEDIT=TT37:
>> NOEDIT=RT44:
>>
>>> Displays all of the terminals that do not have advanced editing functions.

/ESCSEQ[=ttnn:]

> Enables the recognition of escape sequences from the specified terminal. The terminal driver treats the ESC character as the beginning of an escape sequence rather than as a line terminator. See the RSX-11M/M-PLUS I/O Drivers Reference Manual for further information about escape sequences.

SET (Cont.)

A nonprivileged user can display all terminals that can send and receive escape sequences but can only enable escape sequence recognition for TI:. A privileged user can enable escape sequence recognition for any terminal.

When you omit =ttnn:, the system displays all of the terminals that can send and receive escape sequences.

Examples:

>SET /ESCSEQ=TT3: (RET)

Establishes TT3: as a terminal that can send and receive escape sequences.

>SET /ESCSEQ (RET)
ESCSEQ=TT3:
ESCSEQ=TT5:
ESCSEQ=TT10:

Displays all of the terminals that can send and receive escape sequences.

/NOESCSEQ[=ttnn:]

Disables the recognition of escape sequences from the specified terminal.

A nonprivileged user can display all terminals that do not recognize escape sequences but can only disable the option for device TI:. A privileged user can disable escape sequence recognition for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have escape-sequence recognition disabled.

Examples:

>SET /NOESCSEQ=TT3: (RET)

Disables escape sequence recognition for TT3:.

>SET /NOESCSEQ (RET)
NOESCSEQ=TT0:
NOESCSEQ=TT1:
NOESCSEQ=TT2:
NOESCSEQ=TT3:
NOESCSEQ=TT4:

Displays all of the terminals that cannot send or receive escape sequences.

/FDX[=ttnn:]

(Full-duplex terminal driver only.) Instructs the terminal driver to accept input from the specified terminal while simultaneously outputting to it.

SET (Cont.)

A nonprivileged user can display all the full-duplex
terminals but can only enable the option for TI:. A
privileged user can enable the full-duplex option for any
terminal.

When you omit =ttnn:, the system displays all of the
full-duplex terminals (if there are any).

Examples:

>SET /FDX=TT3: (RET)

Declares that TT3: is a full-duplex terminal.

>SET /FDX (RET)
FDX=TT1:
FDX=TT3:

Displays all the full-duplex terminals.

/NOFDX[=ttnn:]

(Full-duplex terminal driver only.) Disables the
full-duplex option; the terminal driver does not
simultaneously process input and output from the specified
terminal.

A nonprivileged user can display all terminals that have the
full-duplex option disabled but can only disable the option
for TI:. A privileged user can disable the full-duplex
option for any terminal.

When you omit =ttnn:, the system displays all of the
terminals that have the the full-duplex option disabled.

Examples:

>SET /NOFDX=TT3: (RET)

Disables the full-duplex option for terminal TT3:.

>SET /NOFDX (RET)
NOFDX=TT0:
NOFDX=TT2:
NOFDX=TT3:
NOFDX=TT4:

Displays all of the terminals that do not process
input and output simultaneously.

/FORMFEED[=ttnn:]

Indicates that the specified terminal has a hardware form
feed.

A nonprivileged user can display all terminals that have a
hardware form feed, but can only declare it for TI:. A
privileged user can declare it for any terminal.

When you omit =ttnn:, the system displays all of the
terminals that have a hardware form feed.

SET (Cont.)

Examples:

>SET /FORMFEED (RET)
FORMFEED=TT1:

Displays all of the terminals that have a hardware
form feed.

>SET /FORMFEED=TT3: (RET)

Declares that TT3: has a hardware form feed.

/NOFORMFEED[=ttnn:]

Indicates that the specified terminal will not have a
hardware form feed.

A nonprivileged user can display all terminals that do not
have a hardware form feed, but can only specify the option
for TI:. A privileged user can specify the option for any
terminal.

When you omit =ttnn:, the system displays all of the
terminals that do not have a hardware form feed.

Examples:

>SET /NOFORMFEED (RET)
NOFORMFEED=TT0:
NOFORMFEED=TT2:
NOFORMFEED=TT4:

Displays all of the terminals that do not have a
hardware form feed.

>SET /NOFORMFEED=TT3: (RET)

Specifies that TT3: will not have a hardware form
feed.

/HFILL=ttnn:[value]

(Full-duplex terminal driver only.) Specifies the number of
fill characters (value) that the terminal driver places
after a carriage return when outputting to a terminal. The
range for the value is 0 to 7.

A nonprivileged user can display the number of fill
characters for any terminal but can only change the value
for TI:. A privileged user can specify the number of fill
characters for any terminal.

When you omit value, the system displays the fill character
value for the specified terminal.

Examples:

>SET /HFILL=TT3: (RET)
HFILL=TT3:0

Displays the number of fill characters for TT3:.

SET (Cont.)

>SET /HFILL=TT3:3 (RET)

      Specifies for TT3:   that three fill characters follow a carriage return.

/HHT[=ttnn:]

(Full-duplex terminal driver only.) Indicates to the terminal driver that the specified terminal has a hardware horizontal tab.

A nonprivileged user can display all terminals that have a hardware horizontal tab but can only declare it for TI:. A privileged user can declare it for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have a hardware horizontal tab.

Examples:

    >SET /HHT (RET)
  HHT=TT4:
  HHT=TT6:
  HHT=TT7:

      Displays all of the terminals that have a hardware horizontal tab.

    >SET /HHT=TT3: (RET)

      Declares that TT3: has hardware horizontal tabs.

/NOHHT[=ttnn:]

(Full-duplex terminal driver only.) Indicates that the specified terminal does not have a hardware horizontal tab.

A nonprivileged user can display all terminals that do not have a hardware horizontal tab but can only declare it for TI:. A privileged user can declare it for any terminal.

When you omit =ttnn:, the system displays all of the terminals that do not have a hardware horizontal tab.

Examples:

    >SET /NOHHT (RET)
  NOHHT=TT0:
  NOHHT=TT1:
  NOHHT=TT2:

      Displays all of the terminals that do not have a hardware horizontal tab.

    >SET /NOHHT=TT3: (RET)

      Declares that TT3: does not have a hardware horizontal tab.

SET (Cont.)

/HOLD[=ttnn:]

>   Enables hold-screen mode at the specified CRT terminal. When hold-screen mode is enabled, the terminal displays output one screenful at a time. The screenful of output remains on the screen until you type the SCROLL key while pressing the SHIFT key. The terminal then refills the screen. You can also advance the screen contents one line at a time by typing the SCROLL key.
>
>   Hold-screen mode is useful when copying files to terminals that normally transmit output at high baud rates (9600, for example). Note, however, that hold-screen mode may not be appropriate for use with certain types of programs (editors or terminals using different speeds for input and output, for example).
>
>   A nonprivileged user can display all terminals currently in hold-screen mode but can only place TI: in hold-screen mode. A privileged user can place any terminal in hold-screen mode.
>
>   When you omit =ttnn:, the system displays all of the terminals that are currently in hold-screen mode.
>
>   Examples:
>
>   >SET /HOLD=TT3: (RET)
>
>>   Enables hold-screen mode for CRT terminal TT3:. The terminal erases its screen and positions the cursor at the top left (home) of the screen.
>
>   >SET /HOLD (RET)
>   HOLD=TT3:
>   HOLD=TT7:
>   HOLD=TT12:
>
>>   Displays all of the terminals that have hold-screen mode enabled.

/NOHOLD[=ttnn:]

>   Disables hold-screen mode at the specified CRT terminal.
>
>   A nonprivileged user can display all terminals not in hold-screen mode but can only disable the option for TI:. A privileged user can disable hold-screen mode for any terminal.
>
>   When you omit =ttnn:, the system displays all of the terminals that have hold-screen mode disabled.
>
>   Examples:
>
>   >SET /NOHOLD=TT3: (RET)
>
>>   Disables hold-screen mode for terminal TT3:.

SET (Cont.)

```
>SET /NOHOLD (RET)
NOHOLD=TT0:
NOHOLD=TT3:
```

> Displays all of the terminals that have hold-screen mode disabled.

/HOST[=node[::]]

Establishes the specified node as the host system for the user.

When you use the /HOST keyword, the Network Command Terminal (NCT...) task is activated to establish a DECnet link. If NCT... is not installed in the system, MCR searches for the task ...RMT. If ...RMT is not installed in the system, an error message is issued. (For a complete description of NCT... error messages, see the DECnet documentation.)

After issuing the /HOST keyword, you may enter terminal management mode by typing CTRL\<CR> (that is, the control key, the backslash key, and the RETURN key). Valid commands for terminal management mode are CONTINUE and CLEAR HOST. Typing CONTINUE and then pressing the RETURN key exits you from terminal management mode and returns you to the remote session. CLEAR HOST followed by RETURN terminates the remote session.

When you omit =node[::], the system displays the host system for the terminal.

The /HOST keyword executes only on systems that select Network Command Terminal (NCT) support during system generation. On RSX-11M-PLUS operating systems, if DECnet is selected during system generation, support for NCT is included. On RSX-11M operating systems, if DECnet is selected during system generation, support for NCT may also be selected.

Examples:

```
>SET /HOST=FRIEND:: (RET)
```

> Sets node FRIEND as the host node for your terminal.

```
>SET /HOST (RET)
Host=FRIEND RSX-11M-PLUS V3.0 BL24
```

> Displays the name of the host node for your terminal. The display line includes the name and version number of the operating system that the host node runs.

/HSYNC[=ttnn:]

(Full-duplex terminal driver only.) Enables synchronization between the host system and the specified terminal. Synchronization between the host and terminal controls the typeahead buffer to keep it from overflowing. When the

SET (Cont.)

typeahead buffer is nearly full, the terminal temporarily locks the keyboard, which prevents you from typing and entering information that the system is not yet ready to accept. After the terminal driver transmits the characters in the typeahead buffer to the system and there is again available space in the buffer, the terminal driver unlocks the keyboard. You can then resume typing. When you specify /HSYNC, the system generates a CTRL/S to lock the keyboard and a CTRL/Q to unlock it.

The /HSYNC keyword is recommended for users of terminals that transmit information in blocks; for example, the DIGITAL VT131 or VT132 terminals, or any other terminal that emulates those two models. If you do not have such a terminal, it is unlikely that you will fill the typeahead buffer. (If you would like the typeahead buffer of your terminal to be a different size, you may be able to use the /TYPEAHEAD keyword to change it.)

The default for the VT100-series of terminals is /HSYNC.

When you omit =ttnn:, the system displays all of the terminals that have synchronization between the host and the terminal.

Examples:

>SET HSYNC=TT2: ⟨RET⟩

    Enables synchronization between the host and TT2:.

>SET HSYNC ⟨RET⟩
HSYNC=TT2:
HSYNC=TT4:
HSYNC=RT7:

    Displays all synchronized terminals.

/NOHSYNC[=ttnn:]

(Full-duplex terminal driver only.) Disables synchronization between the host system and the terminal for the specified terminal. The terminal does not lock the keyboard when the typeahead buffer becomes full. Therefore, any characters that you subsequently enter (until the typeahead buffer is cleared again) will be lost.

The default for VT52 terminals is /NOHSYNC.

When you omit =ttnn:, the system displays all of the terminals that do not have host/terminal synchronization.

Examples:

>SET /NOHSYNC=TT20: ⟨RET⟩

    Disables synchronization for TT20:.

SET (Cont.)

```
>SET /NOHSYNC (RET)
NOHSYNC=TT12:
NOHSYNC=TT20:
NOHSYNC=RT28:
```

> Displays all of the terminals that are not synchronized.

/INQUIRE[=ttnn:]

> Sets all appropriate attributes, including a buffer size of 80 for the specified terminal. The keyword sends a query to the terminal to find out what model it is and then issues the SET command for that terminal model. The following DIGITAL terminals are set explicitly: VT50; VT52; VT55; VT61; the VT100-series (the VT100, VT101, and VT105 are all set as VT100s); VT125; VT131; VT132; the VT200-series; LA34; LA38; LA120; VK100 (which is treated as a VT100); the DECmate II and Rainbow 100-series (all of which are treated as VT102s); and the PC300-series. All other terminals are set to /NOCRT and /BUF:TI:80, and are considered to be unknown models. Also, terminals that do not support escape sequences (such as the LA36), display the characters "Z[CC" when queried.

> If you include SET /INQUIRE in your login command file, you may not need to set any attributes for the terminal because SET /INQUIRE sets most of them for you.

> Examples:

>> >SET /INQUIRE=TT3: (RET)

>> Inquires as to the type of terminal that TT3: is, and then sets the appropriate attributes for that terminal type.

/LIBUIC[=[uic]]

> (RSX-11M-PLUS operating systems only.) Establishes the UIC for the nonprivileged system task library files. This UIC usually contains nonprivileged tasks as well as utility tasks. When you issue an INSTALL or RUN command and precede the task name with a dollar sign ($taskname), the system first searches for the task under SYSUIC. If the file cannot be found, the system searches LIBUIC. The default LIBUIC is [3,54].

> A nonprivileged user can only display the LIBUIC.

> When you omit =[uic], the system displays the current LIBUIC.

> Examples:

>> >SET /LIBUIC (RET)
>> LIBUIC=[3,54]

>> Displays the current library UIC.

SET (Cont.)

>SET /LIBUIC=[6,54] (RET)

Sets the library UIC to [6,54].

/LINES=ttnn:[value]

(Full-duplex terminal driver only.) Establishes the number of lines per page (value) for the terminal. The range for value is 1 to 255(decimal). To specify a decimal value, place a period (.) after the number.

A nonprivileged user can display the number of lines per page for any terminal but can only specify the number for TI:. A privileged user can specify the number of lines per page for any terminal.

When you omit value, the system displays the number of lines per page for the specified terminal.

Examples:

>SET /LINES=TT3: (RET)
LINES=TT3:24.

Displays the number of lines per page for TT3:.

>SET /LINES=TT3:20 (RET)

Specifies in octal the number of lines per page for TT3:.

/LOGON

(Privileged keyword.) Enables logging in on terminals in a multiuser protection system.

/NOLOGON

(Privileged keyword.) Disables logging in on terminals in a multiuser protection system.

/LOGON and /NOLOGON clear and set a flag checked by the HELLO command when a user attempts to log in on a terminal. /NOLOGON provides a means of preventing users from accessing the system during such activities as system maintenance or account file maintenance.

/LOWER[=ddnn:]

Specifies that lowercase characters on a terminal or line printer are not to be converted to uppercase when they are received from the device driver. Note that this keyword only affects input from a terminal, not output to a terminal.

A nonprivileged user can display all devices that do not convert lowercase characters to uppercase but can only specify the option for TI:. A privileged user can specify the option for any terminal or line printer.

SET (Cont.)

When you omit =ddnn:, the system displays all the devices for which lowercase characters are not converted to uppercase.

Examples:

>SET /LOWER=TT3: (RET)

Inhibits conversion of lowercase characters to uppercase when they are received from TT3:.

>SET /LOWER (RET)
LOWER=LP0:
LOWER=TT1:
LOWER=TT3:
LOWER=TT7:

Displays all the devices for which lowercase characters are not converted to uppercase.

/NOLOWER[=ddnn:]

Resets the characteristics for the terminal or line printer. For terminals, lowercase characters received on input are automatically converted to uppercase and echoed as uppercase. The keyword has no effect on characters output to the terminal. For line printers, lowercase characters output to the device are printed as uppercase.

A nonprivileged user can display all the devices that perform this conversion but can only specify the option for TI:. A privileged user can specify the option for any terminal or line printer.

When you omit =ddnn:, the system displays all the devices for which conversion to uppercase is specified.

Examples:

>SET /NOLOWER (RET)
NOLOWER=LP1:
NOLOWER=TT0:
NOLOWER=TT2:
NOLOWER=TT4:

Displays all the devices that automatically convert lowercase characters to uppercase.

>SET /NOLOWER=TT3: (RET)

Resets TT3: so that lowercase characters are automatically converted to uppercase.

/MAIN=pname[:base:size:type]

(On RSX-11M-PLUS operating systems, synonym for /PAR.) Establishes the specified partition as a main partition. A nonprivileged user can only display the base size, and type of a main partition.

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SET (Cont.)

pname

> The 1- to 6-character alphanumeric partition name.

:base

> The physical base address of the partition, specified as a number of 64-byte blocks.

:size

> The size of the partition, specified as a number of 64-byte blocks.

:type

> The partition type:

> TASK   A user-controlled task partition (RSX-11M operating systems only)

> SYS   A system-controlled task partition

> COM   A common partition

> DEV   A common partition mapping into the device registers

User-controlled and system-controlled task partitions contain user tasks. Common partitions are used for resident libraries and common blocks. Device partitions are used by nonprivileged tasks to access device registers in the external page, such as those for the UDC and ICS/ICR-11.

Base and size can be entered in any of the following formats (nnnn is a number in bytes to which the system applies a multiplication factor to determine the value used):

Format	Calculated Value
nnnn	Octal (nnnn*100)
nnnn.	Decimal (nnnn.*64.)
nnnK	Octal K (nnn*4000)
nnn.K	Decimal K (nnn.*2048.)

Valid ranges of calculated values (in words) are:

Octal	0<=base<177777	0<size<2000
Decimal	0.<=base<65535	0.<size<1024.
Octal K	0K<=base<3777K	0K<size<40K
Decimal K	0.K<=base<2047.K	0.K<size<32.K

For system-controlled partitions, size may range from 0 to 1920.K, or any valid representation of these limits.

SET (Cont.)

For example, any of the following inputs for size will allocate a partition of 2048 bytes.

```
40
32.
1K
1.K
```

If you omit base, size, and type, the system displays the values of these parameters for the named partition. If the named partition is a task partition, the system also displays the parameters of all its subpartitions.

Examples:

>SET /MAIN=SYSPAR:420:140:TASK (RET)

Defines a main partition named SYSPAR as a user-controlled partition whose base address is 42000(octal) and whose length is 14000(octal) bytes.

>SET /MAIN=SYSPAR (RET)
MAIN=SYSPAR:0420:0140:TASK

Displays the parameters of the main partition SYSPAR. Note that if the main partition is a task partition and contains subpartitions, the parameters of the subpartition are also displayed.

/NOMAIN=pname

(On RSX-11M-PLUS operating systems, synonym for /NOPAR; privileged keyword.) Eliminates the specified partition from the system.

Example:

>SET /NOMAIN=SYSPAR (RET)

Eliminates the main partition SYSPAR from the system.

/MAXEXT[=size]

(Privileged keyword.) Establishes the maximum size to which a task can extend itself beyond its mapped array area by means of the EXTEND TASK directive (see the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual for information about arrays and the RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual for a description of the directive).

The keyword is only valid on mapped RSX-11M systems that selected the EXTEND TASK directive option during system generation and on all RSX-11M-PLUS systems. Note that a nonprivileged user can display the maximum size to which a task can extend itself (but not change the size).

SET (Cont.)

The maximum size can be expressed in four formats:

        n
        nK
        n.
        n.K

See the description of the /MAIN or /PAR keyword for a definition of these size values.

When you omit =size, the system displays the current maximum size in the format:

        MAXEXT=m

where m is an octal number equal to the maximum size in 64-byte blocks allowed for a task (for example, 1200 indicates 20K words).

Examples:

        >SET /MAXEXT=20.K (RET)

                Establishes 20.K as the maximum size to which a task can extend itself.

        >SET /MAXEXT (RET)
        MAXEXT=12000

                Displays the current maximum size to which a task can extend itself.

/MAXPKT[=n]

        Specifies the maximum number of I/O packets to be retained in a separate queue for use by the QIO directive. The number of retained packets (n) is used to optimize the servicing of QIO requests. The range for n is 0 to 15(decimal).

        A nonprivileged user can only display the maximum and current number of available I/O packets.

        When you omit =n, the system displays the maximum number and the current number of available I/O packets in the format:

                MAXPKT=m.:c.

        where m. is the maximum number of and c. is the current number of available I/O packets.

        Examples:

                >SET /MAXPKT=12. (RET)

                        Sets the maximum number of I/O packets retained for optimization of I/O servicing to 12(decimal).

SET (Cont.)

```
>SET /MAXPKT (RET)
MAXPKT=12.:3.
```

> Displays the maximum and current number of I/O packets. The maximum number of of I/O packets to be retained explicitly for QIO processing is 12(decimal). Three packets are currently available.

/MCR[=ttnn:]

> Enables MCR command recognition at the specified terminal. Commands entered in response to the default prompt are submitted to MCR.

> A nonprivileged user can display all the terminals that recognize MCR commands but can only specify the option for TI:. A privileged user can enable MCR command recognition for any terminal.

> When you omit =ttnn:, the system displays all of the terminals that recognize MCR commands.

> /MCR is valid only on systems that have multi-CLI support.

> Examples:

```
>SET /MCR (RET)
MCR=TT1:
MCR=TT2:
MCR=TT3:
```

> Displays all of the terminals that recognize MCR commands.

```
>SET /MCR=TT4: (RET)
```

> Enables MCR command recognition for TT4:.

/NAMED

> (RSX-11M-PLUS operating systems only.) Sets you to named directory mode. In named directory mode, you can use the SET /DEF command to change your default directory to either a named directory or a numeric ("nonamed") directory. The format for a named directory is [directory], where directory is between one and nine characters long, and consists of the 26 letters A through Z and/or the numbers 0 to 9. Examples of named directories are [JWB], [CASEYCAT], [303024], and [DIRECT7].

> You can also specify numeric ([g,m]) directories while in named directory mode. The letters g and m are octal numbers from 1 to 377 that represent the group and member numbers of your UIC, respectively. Examples of numeric directories are [7,124] and [303,24].

SET (Cont.)

Example:

>**SET /NAMED** (RET)

Sets you to named directory mode. In named directory mode, you can use either named or numeric directories, and you can set your default directory to be a named directory. To exit from named directory mode, enter the /NONAMED keyword.

/NONAMED

(RSX-11M-PLUS operating systems only.) Sets you to nonamed (numeric) directory mode. From now on, you can use either named or numeric directories, but you cannot set your default directory to be a named directory. You specify a numeric directory as [g,m], where g is a group number, and m is a member number.

Examples:

>**SET /NONAMED** (RET)

Sets you to nonamed directory mode. You can now use either named or numeric directories in commands, but you cannot set your default directory to be a named directory.

The following example shows the difference in the way the SET /DEF command functions in named and nonamed directory modes. When the user (Jones) logs in and issues the SET /DEF command, the default directory is [JONES].

>**SET /DEF** (RET)
DR5:[JONES] Named TT3:
Protection UIC: [301,1]

Displays the default directory, which is the named directory [Jones].

>**SET /NONAMED** (RET)
>**SET /DEF** (RET)
DR5:[301,1] Nonamed TT3:
Protection UIC: [301,1]

SET /NONAMED switches directory mode from named to nonamed. SET /DEF then displays the new default numeric directory ([301,1]). Note that this is an actual directory only if it has been created previously. This directory name is based on the user's User Identification Code (UIC). Anytime you change your terminal's default from /NAMED to /NONAMED, the name of your default directory is the same as your UIC.

SET (Cont.)

```
>SET /NONAMED (RET)
>SET /DEF=[NAMEDMODE] (RET)
SET -- Invalid UIC
```

> If you try to set your default directory to a
> named directory while you are in nonamed directory
> mode, you receive an error message. However, in
> named directory mode, you can set your default
> directory to both named and numeric directories.

```
>SET /NAMED (RET)
>SET /DEF=[100,100] (RET)
>SET /DEF (RET)
DR5:[100,100]  Named  TT3:
Protection UIC:  [301,1]
```

> Sets the default directory to the numeric
> directory [100,100]. Notice that although the
> default directory is [100,100], the protection UIC
> remains [301,1]. See the description of the /UIC
> keyword for information about changing your UIC.

```
>SET /NAMED (RET)
>SET /DEF=[JONES] (RET)
>SET /DEF (RET)
DR5:[JONES]  Named  TT3:
Protection UIC:  [301,1]
```

> Returns the default directory to the original
> named directory [JONES].

Note:

On a privately allocated device, the operating system
may assign different UICs to your files, depending on
whether you create them in a named or numeric
directory. If you set your default to a named
directory, such as [ADDRESS], any file that you create
in that directory is owned by your own UIC. However,
if you set your default to a numeric directory, such as
[7,20], any file that you create in that directory is
owned by UIC [7,20]. This difference in file
ownership, and therefore in file protection, does not
affect you adversely. You always have full access to
all files on a privately allocated device.

If your default on a privately allocated device is a
named directory, you have the option of changing the
UIC that owns the files created there. If you are a
privileged user, you may use the SET /UIC command,
which is a privileged command in named directory mode.

Some application programs do not recognize named
directories. If a task that you want to run fails for
this reason, you can try the following recommendations:

SET (Cont.)

1. Rebuild your task using the most recent version of FCS or RMS-11 supplied with RSX-11M-PLUS. Note that you should try to rebuild your task only if the task contains FCS or RMS-11 routines or if the task used FCSFSL to build the task file. If your task uses either FCSRES or RMSRES, you do not need to rebuild your task. If rebuilding your task is not possible, try the next recommendation.

2. Use the PIP utility (either the copy function or the /RE switch) to place the files that the task uses in a numeric directory. Note that only a privileged user, such as a system manager, can create directories on a public volume.

    Next, use the SET /DEF command to make the numeric directory your default. Finally, run the task.

/NETUIC[=[uic]]

Specifies the UIC in which all DECnet-related tasks are stored. The keyword applies only to systems that selected the external communication products option during system generation.

On RSX-11M operating systems, if you did not select support for DECnet at system generation, NETUIC defaults to SYSUIC.

A nonprivileged user can display the current network UIC, but only a privileged user can set or change it.

When you omit =[uic], the system displays the current network UIC.

Examples:

        >SET /NETUIC (RET)
        NETUIC=[20,34]

            Displays the current network UIC.

        >SET /NETUIC=[110,3] (RET)

            Sets the network UIC to [110,3].

/NOCEX

(RSX-11M-PLUS operating systems only.) Deallocates Executive space reserved for use by DECnet on the pregenerated RL02 and RC25 kits.

The startup command file for the RL02 and RC25 kits automatically deallocates the reserved space, so if you intend to use DECnet, you must delete the SET /NOCEX command line from the command file.

SET (Cont.)

Example:

>SET /NOCEX (RET)

Deallocates space reserved in the Executive for DECnet use so that the system can use it.

/OPT[=ddnn:opttyp:fairness-count]

(RSX-11M-PLUS operating systems only.) Enables disk I/O queue optimization for the specified device. For more information on optimization and on the algorithm (opttyp) and fairness count parameters for this keyword, see the RSX-11M/M-PLUS System Management Guide.

A nonprivileged user can display all the devices that use I/O queue optimization, but only a privileged user can enable optimization for a device.

ddnn:

The device that will use I/O queue optimization. Legal devices are DB:, DL:, DM:, and DR: type devices. When you do not specify a device, the system displays all the devices that use optimization.

opttyp

The algorithm for optimization. The algorithms are:

NEAR[EST]

ELEV[ATOR]

CSCAN

The default algorithm set at system generation is NEAR with a fairness count of 10(decimal).

fairness-count

The fairness count for the device. The value for this is an integer from 0 to 127(decimal).

When you omit =ddnn:opttyp:fairness-count, the system displays all the devices that use I/O queue optimization.

Examples:

>SET /OPT=DM1:NEAR:15 (RET)

Enables I/O queue optimization for DM1:, using the NEAR algorithm with a fairness count of 15(octal).

SET (Cont.)

```
        >SET /OPT (RET)
        OPT=DB0:NEAR
        OPT=DB1:NEAR:10
        OPT=DM0:NEAR:10
        OPT=DM1:NEAR:15

            Displays all the disk devices that have I/O  queue
            optimization enabled.

/NOOPT[=ddnn:]

    (RSX-11M-PLUS operating systems  only.)  Disables disk  I/O
    queue   optimization   for   the   specified  device.    A
    nonprivileged user can display all the devices that  do  not
    use  optimization,  but  only  a privileged user can disable
    optimization for a device.

    When you omit =ddnn:, the system displays  all  the  devices
    that do not use I/O queue optimization.

    Examples:

        >SET /NOOPT=DB1: (RET)

            Disables I/O queue optimization for DB1:.

        >SET /NOOPT (RET)
        NOOPT=DB1:

            Displays all the devices  that  do  not  have  I/O
            queue optimization enabled.

/OVLP[=ccn]

    (RSX-11M-PLUS       operating      systems       only.) Enables
    overlapped-seek support for the specified device controller.
    Overlapped-seek support is  available  only  on  DM  and  RH
    device  controllers  (RH  controllers  are  for DB:  and DR:
    type devices).

    A nonprivileged user can only display the device controllers
    that  have  overlapped-seek  support  enabled. A privileged
    user can enable overlapped seeks for any  device  controller
    that supports it.

    When you omit =ccn,  the  system  displays  all  the  device
    controllers that have overlapped-seek support enabled.

    Examples:

        >SET /OVLP=DMA (RET)

            Enables overlapped seeks for DMA.

        >SET /OVLP (RET)
        OVLP=RHB
        OVLP=DMA

            Displays all  the  device  controllers  that  have
            overlapped-seek support enabled.
```

SET (Cont.)

/NOOVLP[=ccn]

    (RSX-11M-PLUS operating systems only.) Disables overlapped-seek support for the specified device controller.

    A nonprivileged user can only display the device controllers that support overlapped seeks but have it disabled. A privileged user can disable overlapped-seek support for any device controller that supports it.

    When you omit =ccn, the system displays all the device controllers that support overlapped seeks but have it disabled.

    Examples:

        >SET /NOOVLP (RET)
      NOOVLP=RHA
      NOOVLP=RHE

        Displays all the device controllers that support overlapped seeks but have it disabled.

        >SET /NOOVLP=RHB (RET)

        Disables overlapped-seek support for RHB.

/PAR=pname[:base:size[:type]]

    (RSX-11M-PLUS operating systems only.) Establishes a partition or displays an existing partition's boundaries.

    A nonprivileged user can only display the base, size, and type of a partition.

pname

    The 1- to 6-character alphanumeric partition name.

:base

    The physical base address of the partition, specified as a number of 64-byte blocks.

:size

    The size of the partition, specified as a number of 64-byte blocks. The maximum size is 0 to 1920.K words for a task, common, or main partition.

:type

    he partition type:

        SYS   A main partition

        DEV   A common partition mapping into the device registers

        DIAG   A diagnostic partition

SET (Cont.)

Partition type is an optional parameter; the default type is SYS.

SYS partitions are used for user tasks and/or loadable drivers.

DEV partitions are for device commons, which are used by tasks to access the device registers or the I/O page. The first time you create a DEV partition, the system automatically creates a main partition, named IO PAR, over the entire I/O page. The DEV partition is then created as a subpartition of IO PAR. Future device partitions are created as additional subpartitions of IO PAR. Once created, IO PAR cannot be eliminated.

DIAG partitions are for diagnostic functions on multiprocessor systems. The specified partition is created without checking the top of memory.

Base and size can be entered in any of the following formats where nnnn is a number to which a multiplication factor is applied to determine the value used:

Format	Calculated Value
nnnn	Octal (nnnn*100)
nnnn.	Decimal (nnnn.*64.)
nnnK	Octal K (nnn*4000)
nnn.K	Decimal K (nnn.*2048.)

Valid ranges of calculated values (in words) are:

Octal	0<=base<177777	0<size<2000
Decimal	0.<=base<65535	0.<size<1024.
Octal K	0K<=base<3777K	0K<size<40K
Decimal K	0.K<=base<2047.K	0.K<size<32.K

For SYS partitions, size may range from 0 to 1920.K or any valid representation of these limits. For example, any of the following inputs for size will allocate a partition of 2048 bytes:

```
40
32.
1K
1.K
```

When you omit base, size, and type, the system displays the values of these parameters for the specified partition.

In a multiprocessor system, when you create or add device partitions, you must specify the I/O page of the desired processor. The format is

```
/AFF=[CPx]
```

where x is A, B, C, or D.

SET (Cont.)

/NOPAR=pname

(RSX-11M-PLUS operating systems only.) Eliminates the specified partition from the system. You cannot eliminate a partition if any tasks or commons are installed or attached to it; MCR issues an error message.

/PARITY[=ttnn:[option]]

(Full-duplex terminal driver only.) Enables and determines the type of parity generation and checking for the specified terminal. Parity generation and checking is used to verify the transmission of data between the terminal and the computer. Verification is done by sending an extra bit with each character, which serves as a check that the transmitted character was received properly.

When parity checking is enabled, an additional bit called a parity bit is generated and sent with each character output from the computer.

The options for /PARITY are EVEN and ODD. The state of the parity bit, which is either 0 or 1, is determined by the option used with the keyword. If you specify /PARITY=ttnn:EVEN, the state of the parity bit is selected to force the total of "1" bits to be even. If you specify /PARITY=ttnn:ODD, the total number of "1" bits is odd. The terminal driver checks the state of the parity bit to see if it is correct. If it is not, a transmission error has occurred. The terminal driver performs the same parity bit generation when you enter a character and the system checks for parity when it receives the character.

Note that the terminal hardware must be set to the same mode of parity generation and parity checking for correct data transmission to occur. On VT100- and VT200-series terminals, this is done through the terminal's SET-UP mode.

The /PARITY keyword is not related to the /EBC (Eight-Bit Character) keyword. If parity is selected, an extra bit is physically transmitted with each character, whereas the eight-bit character option affects only whether the eighth data bit should be cleared or left alone.

When you omit =ttnn:, the system displays all of the terminals that have parity generation and checking enabled.

Examples:

>SET /PARITY=TT27:ODD ⒭⒠⒯

Enables odd parity checking for TT27:.

>SET /PARITY ⒭⒠⒯
PARITY=TT4:
PARITY=TT17:
PARITY=TT27:

Displays all of the terminals that have parity checking enabled.

SET (Cont.)

/NOPARITY[=ttnn:]

> (Full-duplex terminal driver only.) Disables parity generation and checking for the specified terminal. Data transmitted between the terminal and the system is not verified.

> When you omit =ttnn:, the system displays all of the terminals that do not have parity generation and checking enabled.

> Examples:

>> >SET /NOPARITY=TT10: (RET)

>> Disables parity checking for TT10:.

>> >SET /NOPARITY (RET)
>> NOPARITY=TT7:
>> NOPARITY=TT10:
>> NOPARITY=TT12:

>> Displays all of the terminals that do not have parity checking enabled.

/PASSWORD

> (RSX-11M-PLUS operating systems only.) Changes your password for the system. The format for setting a password is as follows:

>> >SET /PASSWORD (RET)
>> Old password:
>> New password:
>> Verification:

> Nothing that you type in response to these prompts is echoed. To enhance security, choose passwords that are not obvious. For example, do not use your name or the name of your spouse or a close friend. Also, do not use the same password on more than one system. To make a password more difficult for someone else to guess, use as many characters as possible. The maximum acceptable length of a password is 39 characters for systems that do not use DECnet communications software, and eight characters for systems that do use DECnet. The following Radix-50 characters are allowed in a password: the 26 uppercase letters A through Z, the numbers 0 to 9, the period (.), and the dollar sign ($).

> The /PASSWORD keyword invokes a task called PSW, which is installed as ...PSW. The PSW task encrypts passwords, and this encryption cannot be removed. Also, passwords are not displayed on the terminal screen. Therefore, if a nonprivileged user forgets his or her password, a privileged user will have to set a new password for the account by running the Account File Maintenance program (ACNT).

SET (Cont.)

Example:

```
>SET /PASSWORD RET
Old password: <SHORT>
New password: <LONGER>
Verification: <LONGER>
>
```

Changes the user's password from SHORT to LONGER. (The angle brackets in the example indicate that the passwords are not echoed on the terminal.) In response to the "Verification" prompt, you must type your new password a second time. This verifies that the new password is correct. If you type in different responses to the "New password" and "Verification" prompts, the system does not change your password.

/PASTHRU[=ttnn:]

(Full-duplex terminal driver only.) Requests that the system ignore the standard functions of special characters that are typed at the specified terminal. Instead, when /PASTHRU is enabled, the terminal driver passes special characters to a program in their binary form.

/PASTHRU allows you to suppress standard operating system responses to special characters (for example, CTRL/C and CTRL/O), thereby controlling output to the terminal screen. When a terminal is set to /PASTHRU, it does not respond to special characters in the usual ways. The terminal does not recognize any control characters (except CTRL/S and CTRL/Q if the terminal is set to /TTSYNC), and it does not respond to carriage-return and line-feed characters. Also, any programs that are running from a terminal that has /PASTHRU enabled will not process the standard special character functions.

If your terminal does not seem to be working properly, it may be because it has been set to /PASTHRU.

When you omit =ttnn:, the system displays all of the terminals that are set to /PASTHRU.

Examples:

```
>SET /PASTHRU=TT1: RET
```

Enables the pass-through option for TT1:.

```
>SET /PASTHRU RET
PASTHRU=TT1:
PASTHRU=TT2:
PASTHRU=TT3:
```

Displays all of the terminals that are set to /PASTHRU.

SET (Cont.)

/NOPASTHRU[=ttnn:]

>   (Full-duplex terminal driver only.) Requests that the system
>   treats special characters typed at the specified terminal
>   according to their standard function.
>
>   The default terminal setting is /NOPASTHRU.
>
>   When you omit =ttnn:, the system displays all of the
>   terminals that are not set to /PASTHRU.
>
>   Examples:
>
>>   >SET /NOPASTHRU=TT12: (RET)
>>
>>   Disables the pass-through option for TT12:. The
>>   terminal driver will process special characters
>>   entered from TT12: in the standard fashion.
>>
>>   >SET /NOPASTHRU (RET)
>>   NOPASTHRU=TT10:
>>   NOPASTHRU=TT12:
>>
>>   Displays all of the terminals that have /PASTHRU
>>   disabled.

/PRINTER_PORT[=ttnn:]

>   (Full-duplex terminal driver only.) Informs the system that
>   the specified terminal has a printer port. A terminal with
>   a printer port can be connected to a local printer so that
>   you can print a hard copy of the display on your terminal
>   screen. VT200-series terminals have printer ports.
>
>   When you omit =ttnn:, the system displays all of the
>   terminals that have a printer port.
>
>   Examples:
>
>>   >SET /PRINTER_PORT=TT15: (RET)
>>
>>   Indicates that terminal TT15: has a printer port.
>>
>>   >SET /PRINTER_PORT (RET)
>>   PRINTER_PORT=TT15:
>>   PRINTER_PORT=TT16:
>>
>>   Displays all of the terminals that have printer
>>   ports.

/NOPRINTER_PORT

>   (Full-duplex terminal driver only.) Informs the system that
>   the specified terminal does not have a printer port.
>
>   When you omit =ttnn:, the system displays all of the
>   terminals that do not have a printer port.

SET (Cont.)

Examples:

>SET /NOPRINTER_PORT=TT6: (RET)

Indicates that terminal TT6: does not have a printer port.

>SET /NOPRINTER_PORT (RET)
NOPRINTER_PORT=TT2:
NOPRINTER_PORT=TT6:

Displays all of the terminals that do not have printer ports.

/PLCTL[=[high][:[low][:[frsiz][:basep]]]]

(Privileged keyword.) Sets the pool limit parameters used by the Pool Monitor Task (PMT). The following list defines the parameters:

high   The high pool limit in bytes.

low   The low pool limit in bytes.

frsiz   The minimum byte size of the largest free pool block required for avoiding low-pool action by the PMT.

basep   The base task priority, which is the lowest priority a nonprivileged task can have and still be eligible for memory contention during times of low pool. This priority remains in effect until pool conditions improve. Note that only those tasks requested while the system is in a low pool state are affected.

The following list defines the limits of the parameters:

84. <= low <= high <= total size of system pool

84. <= frsiz <= high

0. <= basep <= 250.

The following list gives the defaults for the parameters:

high   1600. bytes

low   600. bytes

frsiz   200. bytes

basep   51.

See the RSX-11M/M-PLUS System Management Guide for information on determining the values for the parameters.

When you omit the parameters, the system displays the current parameters for the system.

SET (Cont.)

Example:

```
>SET /PLCTL (RET)
PLCTL=1600.:600.:200.:51.
```

Displays the current settings for the pool limit parameters.

/POOL [=top]

Increases the size of the dynamic storage region (pool). The parameter top specifies the first location in memory to be used for user partitions. You specify the location in units of 64-byte blocks. The location can be given as an octal or decimal number.

A nonprivileged user can only display the size of the dynamic storage region.

When you omit =top, the system displays the size of the dynamic storage region in the format:

POOL=top:max.:total.

top

The first location for user partitions (displayed in bytes with two trailing zeros suppressed).

max.

The longest free block (displayed in words).

total.

The total pool space (displayed in words).

Examples:

```
>SET /POOL=1200 (RET)
```

Establishes 120000(octal) as the beginning location for user partitions.

```
>SET /POOL (RET)
POOL=1200:03380.:06322.
```

Displays the first location for user partitions, the longest free block, and the total of all pool space (the first free block is at 120000, the longest free block is 3380 decimal words, and the total pool space is 6322 decimal words).

/PRIV [=ttnn:]

Establishes the specified terminal as a privileged terminal.

A nonprivileged user can only display the terminals that are privileged. A privileged user can set any terminal to be privileged.

SET (Cont.)

When you omit =ttnn:, the system displays all of the privileged terminals.

Examples:

>SET /PRIV=TT1: (RET)

Establishes TT1: as a privileged terminal.

>SET /PRIV (RET)
PRIV=TT0:
PRIV=TT1:

Displays all the privileged terminals.

/NOPRIV[=ttnn:]

Establishes the specified terminal to be nonprivileged.

A nonprivileged user can only display the terminals that are nonprivileged. A privileged user can set any terminal to be nonprivileged.

When you omit =ttnn:, the system displays all of the nonprivileged terminals.

Examples:

>SET /NOPRIV (RET)
NOPRIV=TT2:
NOPRIV=TT3:

Displays all the nonprivileged terminals.

>SET /NOPRIV=TT1: (RET)

Establishes TT1: as a nonprivileged terminal.

/PUB[=ddnn:]

(RSX-11M multiuser protection and RSX-11M-PLUS operating systems only.) Establishes the specified device as a public device. A public device is one that can be accessed by all system users. Note that allocated and already mounted devices cannot be set public. (Devices can be set public before they are mounted.)

A nonprivileged user can display all the public devices, but only a privileged user can establish a device as public.

When you omit =ddnn:, the system displays all the public devices.

Examples:

>SET /PUB=LP: (RET)

Establishes LP0: as a public device.

SET (Cont.)

```
>SET /PUB (RET)
PUB=DB0:
PUB=DB1:
PUB=LP0:
```

    Displays all the public devices.

/NOPUB=[ddnn:]

    (RSX-11M multiuser protection and RSX-11M-PLUS operating systems only.) Establishes the specified device as a nonpublic device. A nonprivileged user can display the devices that were previously set public but are now nonpublic, but only a privileged user can make a public device nonpublic. Note that mounted devices cannot lose their public status.

    When you omit =ddnn:, the system displays all of the devices that are in use and are nonpublic devices.

    Examples:

```
>SET /NOPUB (RET)
NOPUB=DK0:
NOPUB=DK1:
```

        Displays all the private and unowned (nonpublic) devices.

```
>SET /NOPUB=LP0: (RET)
```

        Establishes LP0: as a nonpublic device.

/REGIS[=ttnn:]

    (Full-duplex terminal driver only.) Indicates that the specified terminal supports the ReGIS graphics character set. The VT125 and the VT240 are two such terminals.

    When you omit =ttnn:, the system displays all of the terminals that support the ReGIS graphics character set.

    Examples:

```
>SET /REGIS=TT17: (RET)
```

        Indicates that terminal TT17: supports the ReGIS graphics character set.

```
>SET /REGIS (RET)
REGIS=TT1:
REGIS=TT17:
```

        Displays all of the terminals that support the ReGIS graphics character set.

SET (Cont.)

/NOREGIS[=ttnn:]

> (Full-duplex terminal driver only.) Indicates that the specified terminal does not support the ReGIS graphics character set.

> When you omit =ttnn:, the system displays all of the terminals that do not support the ReGIS graphics character set.

> Examples:

>> >SET /NOREGIS=TT13: ⟨RET⟩

>>> Indicates that terminal TT13: does not support the ReGIS graphics character set.

>> >SET /NOREGIS ⟨RET⟩
>> NOREGIS=TT11:
>> NOREGIS=TT13:

>>> Displays all of the terminals that do not support the ReGIS graphics character set.

/REMOTE[=ttnn:[speed]]

> Declares that the specified terminal is connected to a modem and can be connected to the system by means of a dial-up network. The terminal has a line to a DH11, DHU11, DHV11, DL11, DLV11, DZ11, DZQ11, or DZV11 multiplexer.

> A nonprivileged user can display all remote lines, but only a privileged user can declare a terminal as a remote line.

> Specifying speed establishes the initial baud rate (answer speed) of the remote dial-up line for the specified terminal. You may specify an answer speed only for DH11s, DHU11s, DHV11s, DZ11s, DZQ11s, and DZV11s, which are variable-speed multiplexers. (You cannot specify an answer speed for DL11s or DLV11s.)

> Valid speeds for the DH11 are 0, 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, EXTA (user-specified baud rate A), and EXTB (user-specified baud rate B).

> Valid speeds for the DHU11 and the DHV11 are 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, and 19200.

> Valid speeds for the DZ11, DZQ11, and DZV11 are 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, and 9600.

> When you omit =ttnn:, the system displays all of the remote terminals. When you omit speed, the current setting for the terminal remains in effect.

SET (Cont.)

        Examples:

                >SET /REMOTE (RET)
                REMOTE=TT1:1200
                REMOTE=TT2:0
                REMOTE=TT4:0

                        Displays all of the terminals that are currently
                        set as remote dial-up lines.

                >SET /REMOTE=TT3:1200 (RET)

                        Sets the terminal line corresponding to TT3: as a
                        remote dial-up line. The initial baud rate
                        (answer speed) for the line will be 1200.

/NOREMOTE[=ttnn:]

        Declares that the terminal's line is a local line not
        connected to a modem.

        A nonprivileged user can display all local lines, but only a
        privileged user can declare a terminal as local.

        When you omit =ttnn:, the system displays all the local
        lines.

        Examples:

                >SET /NOREMOTE=TT3: (RET)

                        Declares that the terminal line for TT3: is a
                        local line.

                >SET /NOREMOTE (RET)
                NOREMOTE=TT0:
                NOREMOTE=TT3:

                        Displays all the local lines.

/RNDC[=nn]

        Defines the length of the Executive round-robin scheduling
        in ticks. The nn can be an octal value, or decimal if
        followed by a period (.). The minimum value for nn is zero.
        See the RSX-11M System Generation and Installation Guide or
        the RSX-11M-PLUS System Generation and Installation Guide
        for more information.

        A nonprivileged user can display the value for the interval,
        but only a privileged user can change the value.

        When you omit =nn, the system displays the current value for
        the interval.

SET (Cont.)

Examples:

>SET /RNDC (RET)
RNDC=6.

    Displays the current length of the round-robin
    scheduling interval.

>SET /RNDC=10. (RET)

    Sets the length of the interval to 10(decimal)
    ticks.

/RNDH[=nn]

Defines the highest priority (1 to 250 decimal) that will be
considered for Executive round-robin scheduling. The class
must be higher than the one specified with /RNDL. See the
RSX-11M System Generation and Installation Guide or the
RSX-11M-PLUS System Generation and Installation Guide for
more information.

A nonprivileged user can display the value for the priority,
but only a privileged user can change the value.

When you omit =nn, the system displays the current value for
the priority.

Examples:

>SET /RNDH (RET)
RNDH=150.

    Displays the current highest priority class that
    is considered for round-robin scheduling.

>SET /RNDH=120. (RET)

    Sets the highest priority class to 120(decimal).

/RNDL[=nn]

Defines the lowest priority (in a range from 1 to 250
decimal) that will be considered for Executive round-robin
scheduling. The class must be lower than the one specified
with /RNDH. See the RSX-11M System Generation and
Installation Guide or the RSX-11M-PLUS System Generation and
Installation Guide for more information.

A nonprivileged user can display the value for the priority,
but only a privileged user can change the value.

When you omit =nn, the system displays the current value for
the priority.

SET (Cont.)

Examples:

>SET /RNDL (RET)
RNDL=1

Displays the current lowest priority class that is considered for round-robin scheduling.

>SET /RNDL=20. (RET)

Sets the lowest priority class to 20(decimal).

/RPA[=ttnn:]

(Full-duplex terminal driver only.) Enables the read-pass-all option of the terminal driver. The terminal driver passes all input characters (including special function characters such as CTRL/C) to the driver input buffer.

A nonprivileged user can display all terminals that have the option enabled but can only enable the read-pass-all option for TI:. A privileged user can enable the read-pass-all option for any terminal.

When you omit =ttnn:, the system displays all the terminals that have the read-pass-all option enabled.

Examples:

>SET /RPA (RET)
RPA=TT0:
RPA=TT1:

Displays all of the terminals where input characters are passed directly to the input buffer for the full-duplex terminal driver.

>SET /RPA=TT3: (RET)

Enables the read-pass-all option for TT3:.

/NORPA[=ttnn:]

(Full-duplex terminal driver only.) Disables the read-pass-all option. The terminal driver does not pass special function input characters (such as CTRL/C) from the terminal to the driver input buffer.

A nonprivileged user can display all terminals that have the option disabled but can only disable the read-pass-all option for TI:. A privileged user can disable the read-pass-all option for any terminal.

When you omit =ttnn:, the system displays all of the terminals that do not pass special function characters to the terminal driver input buffer.

SET (Cont.)

Examples:

```
>SET /NORPA RET
NORPA=TT2:
NORPA=TT4:
```

Displays all of the terminals that have the read-pass-all option disabled.

```
>SET /NORPA=TT3: RET
```

Specifies that TT3: not pass special function input characters to the input buffer for the full-duplex terminal driver.

/SECPOL

(RSX-11M-PLUS operating systems only.) Displays secondary pool use on the system. The display is in the following format:

SECPOL=secfr:secsiz:pctfr

secfr

The number of free blocks in secondary pool in units of 32(decimal)-word blocks.

secsiz

The size of secondary pool in units of 32(decimal)-word blocks.

pctfr

The percentage of free blocks in secondary pool.

Example:

```
>SET /SECPOL RET
SECPOL=285.:640.:44%
```

Displays the amount of secondary pool currently being used.

/SERIAL[=ttnn:]

(RSX-11M-PLUS operating systems only.) Causes unsolicited input from the specified terminal to be processed serially rather than in parallel. Usually, if you enter another command line before a previous command line has completed executing, the system processes the second line in parallel with the first. When you request serial execution of command lines, however, the system processes the first command line and then the second command line after the first is finished.

SET (Cont.)

A nonprivileged user can display all of the terminals that have the serial option enabled but can only enable the option for TI:. Privileged users can enable the option for any terminal.

When you omit =ttnn:, the system displays all the serial terminals.

Example:

```
>SET /SERIAL=TI: (RET)
>MAC TEST=TEST (RET)
TKB TEST=TEST
>
```

        Sets TI: to be a serial terminal. MCR processes the MAC command line and then processes the TKB command line. If the terminal had not been set for serial execution, the TKB command line would have failed because TEST.OBJ would not have been created yet. Note that the TKB command line is not echoed until it is selected for execution.

/NOSERIAL[=ttnn:]

(RSX-11M-PLUS operating systems only.) Causes unsolicited input from the specified terminal to be executed in parallel rather than serially.

A nonprivileged user can display all the terminals that do not have the serial option enabled but can only disable the option for TI:. Privileged users can disable the option for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have the serial option disabled.

Examples:

```
>SET /NOSERIAL (RET)
NOSERIAL=TT1:
NOSERIAL=TT5:
NOSERIAL=TT20:
```

        Displays all terminals that do not have the serial option enabled.

```
>SET /NOSERIAL=TT16: (RET)
```

        Establishes TT16: as a terminal whose unsolicited command lines will be executed in parallel rather than serially.

/SLAVE[=ttnn:]

Establishes the specified terminal as one that can enter data only if it is solicited from a task by a READ QIO$. Thus, the specified terminal always rejects unsolicited input (other than CTRL/O, CTRL/Q, and CTRL/S).

SET (Cont.)

A nonprivileged user can display all slave terminals but can only establish TI: as a slave terminal. Privileged users can establish any terminal as a slave terminal.

When you omit =ttnn:, the system displays all of the terminals that are currently classified as slaved.

Examples:

>SET /SLAVE=TT3: ⒭⒠⒯

Establishes TT3: as a terminal that can only enter data solicited by a task.

>SET /SLAVE ⒭⒠⒯
SLAVE=TT3:

Displays all of the slave terminals currently in the system.

/NOSLAVE[=ttnn:]

Removes slave status from a specified terminal.

A nonprivileged user can only display the nonslave terminals. A privileged user can set any slave terminal to be nonslave.

When you omit =ttnn:, the system displays all the nonslave terminals.

Examples:

>SET /NOSLAVE ⒭⒠⒯
NOSLAVE=TT0:
NOSLAVE=TT1:
NOSLAVE=TT2:
NOSLAVE=TT4:

Displays all the nonslave terminals.

>SET /NOSLAVE=TT3: ⒭⒠⒯

Sets TT3: to a nonslave terminal.

/SOFT[=ttnn:]

(Full-duplex terminal driver only.) Indicates that the specified terminal can accept software-defined character sets. The VT200-series of terminals can accept these character sets.

When you omit =ttnn:, the system displays all of the terminals that accept software-defined character sets.

Examples:

>SET /SOFT=TT4: ⒭⒠⒯

Indicates that terminal TT4: can display software-defined character sets.

SET (Cont.)

```
        SET /SOFT (RET)
        SOFT=TT2:
        SOFT=TT3:
        SOFT=TT4:
```

Displays all of the terminals that can display software-defined character sets.

/NOSOFT[=ttnn:]

(Full-duplex terminal driver only.) Indicates that the specified terminal cannot accept software-defined character sets.

When you omit =ttnn:, the system displays all of the terminals that do not accept software-defined character sets.

Examples:

```
    >SET /NOSOFT=TT17: (RET)
```

Indicates that terminal TT17: cannot display software-defined character sets.

```
    >SET /NOSOFT (RET)
    NOSOFT=TT1:
    NOSOFT=TT16:
    NOSOFT=TT17:
```

Displays all of the terminals that cannot display software-defined character sets.

/SPEED=ttnn:[recv:xmit]

Establishes the receive and transmit baud rate for terminals attached to the system through a DH11, DHU11, DHV11, DZ11, DZQ11, or DZV11 variable-speed multiplexer. The recv argument is the baud rate at which characters are input to the computer from the terminal. The xmit argument is the baud rate at which characters are output to the terminal from the computer. You must specify both arguments when setting the speed. If you do not specify either argument, the system displays the current settings.

A nonprivileged user can display the speed settings for any terminal, but can set the speed only for TI:. A privileged user can set the speed for any terminal.

Valid baud rates for the DH11 are 0, 50, 75, 110, 134.5, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, EXTA (user-specified baud rate A), and EXTB (user-specified baud rate B).

Valid baud rates for the DHU11 and the DHV11 are 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, and 19200.

SET (Cont.)

Valid baud rates for the DZ11, DZQ11, and DZV11 are 50, 75, 110, 134.5, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, and 9600.

If you have a DZ11, DZQ11, or DZV11, the receive and transmit baud rates must be the same because these multiplexers do not support split speeds.

Examples:

```
>SET /SPEED=TT3: RET
SPEED=TT3:2400:2400
```

Displays the current speed setting for TT3:.

```
>SET /SPEED=TT3:9600:9600 RET
```

Sets the receive and transmit baud rates for TT3: to 9600.

/SUB=mname:sname[:base:size]

(RSX-11M operating systems only.) Establishes a subpartition. Subpartitions can only be established in user-controlled main partitions.

mname

The 1- to 6-character main partition name. The subpartition being defined becomes a subpartition in this partition.

:sname

The 1- to 6-character subpartition name. The subpartition being defined becomes a subpartition of the main partition specified in mname.

:base

The physical base address of the subpartition, specified as a number of 64-byte blocks.

:size

The size of the subpartition, specified as a number of 64-byte blocks.

Base and size can be entered in any of the following formats (nnnn is a number in bytes to which the system applies a multiplication factor to determine the value used):

Format	Calculated Value
nnnn	Octal (nnnn*100)
nnnn.	Decimal (nnnn.*64.)
nnnK	Octal K (nnn*4000)
nnn.K	Decimal K (nnn.*2048.)

SET (Cont.)

Valid ranges for calculated values (in words) are:

Octal	0<=base<10000	0<size<2000
Decimal	0.<=base<4096.	0.<size<1024.
Octal K	0K<=base<200K	0K<size<40K
Decimal K	0.K<=base<2047.K	0.K<size<32.K

For example, any of the following inputs for size will allocate a partition of 2048 bytes.

```
40
32.
1K
1.K
```

When you omit base and size, the system displays the current values for the named subpartition.

Example:

    >SET /SUB=SYSPAR:MCRPAR:445:56 RET

        Defines a subpartition named MCRPAR in the main partition SYSPAR. The base address for MCRPAR is 44500(octal) and its length is 5600(octal) bytes.

/NOSUB=mname:sname

(RSX-11M operating systems only; privileged option.) Eliminates the named subpartition (sname) from the specified main partition (mname).

Example:

    >SET /NOSUB=SYSPAR:MCRPAR RET

        Eliminates the subpartition MCRPAR from the main partition SYSPAR.

/SWPC[=nn]

Defines the number of clock ticks for a single Executive swapping interval. The parameter nn is in the range 0 to 45,568(decimal) and can be an octal value, or decimal if followed by a period (.). See the RSX-11M System Generation and Installation Guide or the RSX-11M-PLUS System Generation and Installation Guide for more information.

A nonprivileged user can display the value for the interval, but only a privileged user can change the value.

When you omit =nn, the system displays the current value for the interval.

Examples:

    >SET /SWPC RET
    SWPC=30.

        Displays the current number of clock ticks for the swapping interval.

SET (Cont.)

>SET /SWPC=60. (RET)

     Sets the new swapping interval to 60(decimal).

/SWPR[=nn]

    Defines a priority range for Executive swapping. The
parameter nn can be between 0 and 127(decimal), and it can
be an octal value, or a decimal value if it is followed by a
period (.).

    The value for /SWPR affects the installed priority of all
tasks. Each task is initiated at its installed priority
plus the value for nn (priority + nn). While the task is
executing, its priority is decremented until it becomes the
installed priority minus the value for nn (priority - nn).
When the priority reaches this lower limit, the task is
swapped out so that another task with a higher priority can
execute. The priority for the new task changes in the same
way. See the RSX-11M System Generation and Installation
Guide or the RSX-11M-PLUS System Generation and Installation
Guide for more information.

    A nonprivileged user can display the value for the priority,
but only a privileged user can change the value.

    When you omit =nn, the system displays the current value for
the priority range.

    Examples:

        >SET /SWPR (RET)
        SWPR=5.

        Displays the current value for the swapping
priority range.

        >SET /SWPR=10. (RET)

        Sets the new priority range to 10(decimal).

/SYSUIC[=[uic]]

    Establishes the UIC for the system and all system tasks. On
most unmapped systems, the system UIC is [1,50]; on most
mapped systems, the system UIC is [1,54]. These UIC values
are the initial defaults on unsaved systems. The UIC also
becomes the default UIC used by the LOAD command and the
install-run-remove option of the RUN command.

    A nonprivileged user can display the system UIC, but only a
privileged user can change it.

    When you omit =[uic], the system displays the current system
UIC.

SET (Cont.)

Examples:

>SET /SYSUIC ⒭ⒺⓉ
SYSUIC=[1,54]

Displays the current system UIC.

>SET /SYSUIC=[3,54] ⒭ⒺⓉ

Sets the system UIC to [3,54].

/TERM=ttnn:[value]

(Full-duplex terminal driver only.) Establishes the terminal type (value) for the specified terminal. Supported standard terminal types are:

ASR33	LA30P	LA50	LQP02	VT50	VT101	VT132
ASR35	LA30S	LA100	LQP03	VT52	VT102	VT2xx
DTC01	LA34	LA120	LN03	VT55	VT105	
KSR33	LA36	LA180S	PC3xx	VT61	VT125	
LA12	LA38	LA210	VT05B	VT100	VT131	

A nonprivileged user can display the terminal type for any terminal but can only establish the terminal type for TI:. A privileged user can establish the terminal type for any terminal.

When you omit the value parameter, the system displays the terminal type for the specified terminal.

MCR also accepts an alternate form of the command. You can specify the terminal type and equate it to the desired terminal. This automatically associates certain characteristics of the particular terminal type with the specified terminal. (See the RSX-11M/M-PLUS I/O Drivers Reference Manual for a list of the implicit characteristics for each terminal type.) The command is in the format:

SET /term-type=ttnn:

where term-type is one of the standard terminal types. Note that the terminal types are mutually exclusive.

The half-duplex terminal driver also accepts the /term-type form of the command. However, the only legal terminal types for the half-duplex driver are /ASR33, /LA30S, and /VT05B. The command associates implicit characteristics of the terminal type with the specified terminal, but, unlike the full-duplex terminal driver, the types are not mutually exclusive.

The following list describes the effects of the keywords for the half-duplex terminal driver:

/ASR33   Converts lowercase letters to uppercase before they are output to the terminal.

SET (Cont.)

/LA30S   Indicates that fill characters necessary for the LA30S terminal are used after a carriage return. The number of fill characters used depends on the current carriage position at the time the carriage return occurs.

/VT05B   Sets a vertical fill of three nulls after a line feed on 60 Hz systems and of four nulls on 50 Hz systems.

Examples:

```
>SET /TERM=TT3: RET
TERM=TT3:VT52
```

     Displays the terminal type for TT3:.

```
>SET /TERM=TT1:LA36 RET
```

     Establishes TT1: as an LA36 terminal.

```
>SET /LA36=TT1: RET
```

     Same effect as previous example; establishes TT1: as an LA36 terminal.

You can also use an alternate command form to display all of the terminals that are not a specific type. The format is as follows:

```
SET /NOterm-type
```

Note that you cannot negate a terminal type for a terminal. You can only display the terminals that are not a specific type. Negating terminal type returns a syntax error since the terminal would be an indeterminate type.

/TOP=pname:value

Directs MCR to move the top boundary of the specified system-controlled partition up or down the amount indicated by the value parameter, or sets the partition size to that amount. The keyword modifies the top boundary of a partition even if the partition has tasks installed in it. If you modify the partition so that it may be too small to hold the tasks installed in it, MCR displays a warning message but modifies the partition anyway.

pname

     The 1- to 6-character alphanumeric name for the system-controlled partition.

value

     The number of 64-byte blocks.

     The value parameter can be supplied in five formats: +value, -value, value, +* or *, and -*.

SET (Cont.)

+value

> Moves the top boundary up by the specified amount. Moving the top boundary up makes the partition larger.

> NOTE

> You can supply the value in the same units as the base and size parameters in the /MAIN or /PAR keywords described previously.

-value

> Moves the top boundary down by the specified amount. Moving the top boundary down makes the partition smaller.

value

> Establishes the total partition size equal to the specified value by moving the top boundary.

+* or *

> Moves the top boundary up as far as possible. This format causes the top boundary to move to the bottom boundary of the partition above it or to the top of memory if the partition is the top partition in memory.

-*

> Moves the top boundary down as far as possible. This format causes the top boundary to move down to the top of the first fixed task, common, or driver in the partition at the time the /TOP keyword is executed. If nothing is loaded into the partition, the partition assumes a size of one 64-byte block.

Examples:

>SET /TOP=TSTPAR:+5 (RET)

> Moves the top boundary of TSTPAR up by five 64-byte blocks.

>SET /TOP=PAR23:-* (RET)

> Moves the top boundary of PAR23 down as far as possible.

SET (Cont.)

/TTSYNC[=ttnn:]

> (Full-duplex terminal driver only.) Enables the terminal synchronization option for the specified terminal. When /TTSYNC is enabled, you can press CTRL/S to halt output to the terminal screen, and CTRL/Q to resume output to the terminal screen.
>
> The default terminal setting is /TTSYNC.
>
> When you omit =ttnn:, the system displays all of the terminals that have terminal synchronization.
>
> Examples:
>
>> >SET /TTSYNC=TT20: (RET)
>>
>>> Enables terminal synchronization for TT20:.
>>
>> >SET /TTSYNC (RET)
>> TTSYNC=TT7:
>> TTSYNC=TT11:
>> TTSYNC=TT20:
>> TTSYNC=RT5:
>>
>>> Displays all of the terminals that have terminal synchronization enabled.

/NOTTSYNC[=ttnn:]

> (Full-duplex terminal driver only.) Disables the terminal synchronization option for the specified terminal. If terminal synchronization is disabled on your terminal, the system does not respond when you press CTRL/S or CTRL/Q.
>
> Note that, if you set your terminal to /NOTTSYNC, the NO SCROLL key on VT100-series terminals and the HOLD SCREEN key on VT200-series terminals will no longer work.
>
> When you omit =ttnn:, the system displays all of the terminals that do not have terminal synchronization.
>
> Examples:
>
>> >SET /NOTTSYNC=TT13: (RET)
>>
>>> Disables terminal synchronization for TT13:.
>>
>> >SET /NOTTSYNC (RET)
>> TTSYNC=TT13:
>>
>>> Displays all of the terminals that have terminal synchronization disabled.

/TYPEAHEAD[=ttnn:[size]]

> (Full-duplex terminal driver only.) Instructs the terminal driver to store input characters in a buffer before passing the characters to a requesting task. Thus, characters input between requests are not lost.

SET (Cont.)

If size is specified (RSX-11M-PLUS operating systems that support kernel data space only), the typeahead buffer size is set accordingly. The value for size can be from 0 to 255 (decimal). If you specify 0 or 1, the terminal will not have the typeahead option enabled (same effect as /NOTYPEAHEAD). The default for size is 86.

A nonprivileged user can display all terminals that have the typeahead option enabled but can only enable the option for TI:. A privileged user can enable typeahead for any terminal. These rules also apply to the size of the typeahead buffer.

When you omit =ttnn:, the system displays all of the terminals that have typeahead enabled.

Examples:

>SET /TYPEAHEAD=TT3: (RET)

    Enables the typeahead option for TT3:.

>SET /TYPEAHEAD (RET)
TYPEAHEAD=TT1:
TYPEAHEAD=TT2:
TYPEAHEAD=TT7:
TYPEAHEAD=TT12:

    Displays all of the terminals that have the typeahead option enabled.

/NOTYPEAHEAD[=ttnn:]

    (Full-duplex terminal driver only.) Disables the typeahead option; the terminal driver does not store input characters in a buffer to prevent their loss.

    A nonprivileged user can display all terminals that have the typeahead option disabled but can only disable the option for TI:. A privileged user can disable typeahead for any terminal.

    When you omit =ttnn:, the system displays all of the terminals that have typeahead disabled.

    Examples:

        >SET /NOTYPEAHEAD=TT3: (RET)

            Disables the typeahead option for TT3:.

        >SET /NOTYPEAHEAD (RET)
        NOTYPEAHEAD=TT0:
        NOTYPEAHEAD=TT4:

            Displays all of the terminals that have typeahead disabled.

SET (Cont.)

/UIC[=[uic][:ttnn:]]

    Establishes the specified UIC as the default UIC for the
terminal. Unless ttnn: is specified, the default UIC is set
for TI:. If the system supports multiuser protection (some
RSX-11M and all RSX-11M-PLUS operating systems) and you are
a privileged user, the command also sets the terminal's
protection UIC (see Section 2.2.1).

    In a single-user system, all tasks run from the terminal are
run with the UIC of the terminal. In a multiuser protection
system, a privileged user can override the terminal UIC with
the /UIC keyword for the RUN command. External MCR function
tasks are also requested with the terminal's UIC. These
tasks are: the MCR MOUNT, INSTALL, DISMOUNT, and UFD
commands (which run as tasks), and all system-supplied
software.

    A nonprivileged user can only display and change the default
UIC for TI:. A privileged user can display and change the
default UIC for any terminal.

    When you omit =[uic], the system displays the current
default UIC for TI:. When you omit =[uic] but specify
=ttnn:, the system displays the current default UIC for that
terminal.

    On RSX-11M-PLUS operating systems, if you are in named
directory mode, you must be a privileged user to issue the
SET /UIC command. When you use the /UIC keyword, the system
changes your protection UIC, but does not change your
default directory. For more information about named
directory mode, see the description of the /NAMED and
/NONAMED keywords.

    Examples:

        >SET /UIC (RET)
        UIC=[10,10]

            Displays the current default UIC for terminal TI:.

        >SET /UIC=[303,3] (RET)

            Sets the default UIC for terminal TI: to [303,3].

        >SET /UIC=TT12: (RET)
        UIC=[12,20]

            Displays the current default UIC for TT12:.

        >SET /DEF (RET)
        DR5:[1,1] Named TT3:
        Protection UIC: [1,1]

            Displays the current default directory and
            protection UIC.

SET (Cont.)

```
>SET /UIC=[12,10] (RET)
>SET /DEF (RET)
DR5:[1,1]   Named   TT3:
Protection UIC:   [12,10]
```

> Sets the default UIC to [12,10], but the default directory does not change when you change the default UIC in named directory mode.

```
>SET /NONAMED (RET)
>SET /DEF (RET)
DR5:[12,10]   Nonamed   TT3:
Protection UIC:   [12,10]
```

> In nonamed (numeric) directory mode, the default directory changes to match the specified UIC.

```
>SET /UIC=[200,200] (RET)
>SET /UIC (RET)
Default UFD:   [200,200]   Protection UIC:   [200,200]
```

> Changes both the default User's File Directory (UFD), and protection UIC. In nonamed directory mode, this behavior is compatible with previous versions of RSX. Remember that the default UFD is used for the location of files while the protection UIC is used to determine privilege for file protection purposes.

/VFILL[=ttnn:]

> (Full-duplex terminal driver only.) Enables the vertical fill characters option for the specified terminal. The option instructs the terminal driver to add four fill characters following each line feed.
>
> A nonprivileged user can display all terminals that have the vertical fill characters option enabled but can only enable it for TI:. A privileged user can enable the option for any terminal.
>
> When you omit =ttnn:, the system displays all of the terminals that have the vertical fill characters option enabled.
>
> Examples:

```
>SET /VFILL (RET)
VFILL=TT0:
VFILL=TT1:
```

> Displays all of the terminals with the vertical fill characters option enabled.

```
>SET /VFILL=TT3: (RET)
```

> Instructs the full-duplex terminal driver to add four fill characters following each line feed at TT3:.

SET (Cont.)

/NOVFILL[=ttnn:]

    (Full-duplex terminal driver only.) Disables the vertical fill characters option for the specified terminal.

    A nonprivileged user can display all terminals that have the vertical fill characters option disabled but can only disable it for TI:. A privileged user can disable the option for any terminal.

    When you omit =ttnn:, the system displays all of the terminals that have the vertical fill characters option disabled.

    Examples:

        >SET /NOVFILL (RET)
        NOVFILL=TT2:
        NOVFILL=TT4:

            Displays all of the terminals that have the vertical fill characters option disabled.

        >SET /NOVFILL=TT3: (RET)

            Disables the option for TT3:.

/WCHK[=ddnn:]

    Specifies that all write operations are to be followed by a write check for all Files-11 disk devices except DX: and DY:. The checks assure the reliability of data transfers to the specified disk. However, writing is slowed because there are two I/O operations instead of just one.

    On RSX-11M operating systems, Executive support for write checking is a system generation option and must be selected for this command to have any effect. On RSX-11M-PLUS operating systems, support for write checking is always included.

    A nonprivileged user can only display the devices that have write checking enabled. A privileged user can enable write checking for any device that supports it.

    When you omit =ddnn:, the system displays all the Files-11 disk devices that have write checking enabled.

    Examples:

        >SET /WCHK (RET)
        WCHK=DB0:
        WCHK=DK0:

            Displays all the Files-11 disk devices that have write checking enabled.

        >SET /WCHK=DK1: (RET)

            Enables write checking for DK1:.

SET (Cont.)

/NOWCHK[=ddnn:]

> Specifies that write checking is to be disabled for the specified device.
>
> A nonprivileged user can only display the devices that have write checking disabled. A privileged user can disable write checking for any device.
>
> When you omit =ddnn:, the system displays all the Files-11 disk devices except DX: and DY: that have write checking disabled.
>
> Examples:
>
>> >SET /NOWCHK (RET)
>> NOWCHK=DB1:
>>
>>> Displays all the devices that support write checking but have it disabled.
>>
>> >SET /NOWCHK=DK1: (RET)
>>
>>> Disables write checking for DK1:.

/WRAP[=ttnn:]

> (Full-duplex terminal driver only.) Enables the wrap-around option. The wrap-around option instructs the terminal driver to generate a carriage return/line feed sequence when the number of input characters exceeds the terminal's buffer size. The carriage return/line feed sequence is transparent and does not appear in the input buffer.
>
> A nonprivileged user can display all terminals that have the wrap-around option enabled but can only enable it for TI:. A privileged user can enable wrap-around for any terminal.
>
> When you omit =ttnn:, the system displays all of the terminals that have the wrap-around option enabled.
>
> Examples:
>
>> >SET /WRAP (RET)
>> WRAP=TT1:
>> WRAP=TT2:
>>
>>> Displays all of the terminals that have the wrap-around option enabled.
>>
>> >SET /WRAP=TT3: (RET)
>>
>>> Enables the wrap-around option for TT3:.

/NOWRAP[=ttnn:]

> Disables the wrap-around option; the terminal driver does not accept input characters beyond the buffer size for the terminal.

SET (Cont.)

A nonprivileged user can display all terminals that have the wrap-around option disabled but can only disable it for TI:. A privileged user can disable the option for any terminal.

When you omit =ttnn:, the system displays all of the terminals that have the wrap-around option disabled.

Examples:

>SET /NOWRAP (RET)
NOWRAP=TT0:
NOWRAP=TT4:

Displays all of the terminals that have the wrap-around option disabled.

>SET /NOWRAP=TT3: (RET)

Disables the wrap-around option for TT3:.

Notes on Memory Allocation Keywords (see Table 3-2):

- If a partition contains an installed task common or loaded driver and a keyword (for example, /NOMAIN or /NOSUB) attempts to eliminate the partition, the system rejects the command.

- On RSX-11M operating systems, a keyword that eliminates a main partition also eliminates all its subpartitions. A keyword that eliminates a specified subpartition eliminates only that specified subpartition.

- On RSX-11M operating systems, if a keyword attempts to eliminate a main partition that has subpartitions in which tasks are installed, the system rejects the keyword until those tasks are removed from the subpartitions.

- When defining a main partition or a subpartition, the name must not already be defined as a partition. In addition, a main partition cannot overlap any other main partition, nor can a subpartition of a main partition overlap any other subpartition of the main partition. An exception is for DEV partitions, which can overlap. Subpartitions cannot be created on the I/O page.

- On RSX-11M operating systems, all partitions except the resident loader partition, LDRPAR, are considered to be user partitions by the /POOL keyword. For example, SYSPAR is considered to be a user partition.

- Once you allocate space to the dynamic storage region (pool), the space can never be recovered for use in partitions.

- System-controlled partitions cannot include subpartitions explicity defined by the SET command. An attempt to define subpartitions in system-controlled partitions in this way will be rejected. The Executive dynamically defines subpartitions in a system-controlled partition as they are needed for tasks installed in the partition.

SET (Cont.)

Command Error Messages:

SET -- Alignment error

An attempt was made to create a partition, but the base address or size conflicted with existing partitions or physical memory size.

SET -- Cannot inquire remote terminal

You specified a remote terminal of the type HTn: with the SET /INQUIRE keyword. This is not allowed.

SET -- Cannot remove driver common

On systems with a Q-bus, the driver common DYCOM cannot be removed if the DY driver is loaded. Also, the driver common PUCOM cannot be removed if either the DU driver or the MU driver is loaded.

SET -- Cannot remove executive common

The executive commons (on systems that support executive partitions) cannot be removed from the running system. The executive commons must be installed and removed with VMR (see the RSX-11M/M-PLUS System Management Guide).

SET -- Cannot use set host from remote terminal

You issued the SET /HOST command from a remote terminal. The SET /HOST command can be issued only from physical, local terminals.

SET -- CLI is restricted

An attempt was made to set a terminal to a CLI, but the CLI was initialized with the /RESTRICT subkeyword. This means that only the CLI itself can set a terminal to the CLI.

SET -- CLI requires the terminal to be logged in

An attempt was made to set a terminal to a CLI, but the terminal is not logged in. The CLI will only accept commands from logged-in terminals.

SET -- Crash device <ddnn:> has been successfully loaded

This is an informational message. It tells you that the device specified with the SET /CRASH_DEVICE keyword has been successfully loaded as the crash device for the system.

SET -- Default directory operation failed

This error usually occurs because of low pool conditions. Wait a few minutes and retry the operation.

SET -- Device busy

An attempt was made to set a terminal characteristic for a terminal that is busy (attached).

SET (Cont.)

SET -- Device <ddnn:> is not in system

> You specified a device with the SET /CRASH_DEVICE keyword that is not in the current system configuration but you did not specify the address of the device's CSR.

SET -- Device not in system

> You specified a device in the command line that is not in the current system configuration.

SET -- Device not terminal

> An attempt was made to set terminal characteristics for a device that is not a terminal.

SET -- Device not variable speed multiplexer

> An attempt was made to set the baud rate for a terminal that was not attached to a DH11, DHV11, DZ11, DZQ11, or DZV11 multiplexer.

SET -- Device offline [<ddnn:>] or privileged diagnostic

> The device specified in the command line, although generated into the system, was not physically present in the host configuration. If the off-line device is a magnetic tape, the message includes the device unit.

SET -- ERROR, Task PSW is not installed

> The task that changes passwords is not installed in the system. Ask your system manager to install PSW, or have your password changed with the ACNT utility (see Chapter 2).

SET -- Failed to allocate sufficient dynamic storage for caching

> Your disk was mounted, but there was not sufficient space in pool to activate data caching. Wait until activity on the system has lessened and then reenter your command line.

SET -- Feature not supported

> The command keyword specified a feature or device that is currently not incorporated into the system.

SET -- Illegal password syntax

> You typed a password using incorrect syntax. Type in a password consisting of 39 or fewer Radix-50 characters. The Radix-50 characters are the 26 uppercase letters A through Z, the numerals 0 to 9, the period (.), and the dollar sign ($).

SET -- Illegal user default protection code

> You entered a wildcard character (*) for a user class that does not have a current default file protection code.

SET (Cont.)

SET -- Invalid command in named directory mode

An attempt was made to enter a command that is not valid in named directory mode.

SET -- Invalid speed

The multiplexer line does not support the requested speed, or the command specified unequal receive and transmit baud rates for a DZ11, DZQ11, or DZV11. These multiplexers do not support split speeds.

SET -- IO.STC VV$CHE DC$SET OR DC$ACT FAILED

Data caching attributes could not be set for the disk you specified.

SET -- Line not DZ11

The command attempted to set to remote a line that was not attached to a DZ11 multiplexer.

SET -- Main cache partition does not match existing one

You can receive this message for several reasons:

● The region that you specified with the CREATE option of the /CACHE keyword already exists.

● The region that you specified with the REGION option of the /CACHE keyword is not a common region.

● The region that you specified with the REGION option of the /CACHE keyword is not a cache region.

SET -- Main cache partition not found, defaulting to GEN

You specified a partition that cannot be found, so the default GEN partition will be set as the data cache partition for your disk.

SET -- Neither main cache partition nor GEN exists

Neither the partition you specified or the GEN partition could be found, so data caching could not be set for your disk.

SET -- New password verification error

The password you typed in response to the "Verification" prompt was not the same as the one you typed in response to the "New password" prompt. The password remains unchanged. Try again.

SET -- No protection specified for any field

You entered commas instead of access codes in every field of a default file protection code. You must specify access for at least one user class.

SET (Cont.)

SET -- Nonexistent memory

    An attempt was made to define a partition in nonexistent memory.

SET -- Not enough memory in main cache partition

    There is not enough space in the main cache partition to accomodate data caching for the volume you have specified.

SET -- Old password validation error - password unchanged

    You typed in your old password incorrectly. Check for the correct password and retype it.

SET -- Overlapped seeks not supported

    (RSX-11M-PLUS operating systems only.) The command attempted to enable overlapped seeks support for other than a DM or RH device controller.

SET -- Partition already exists

    An attempt was made to define a partition with a name already in use.

SET -- Partition not system-controlled

    An attempt was made to move the top boundary of a partition with the /TOP keyword. This can be done only with system-controlled partitions.

SET -- Space used

    An attempt was made to create a partition or subpartition in a storage area that is already occupied.

SET -- System disk chosen as crash device

    This is a warning message. It warns you that you specified the system device as the crash dump device with the SET /CRASH_DEVICE keyword. The system device will be loaded as the crash dump device, but it is recommended that you do not use the system device as the crash dump device.

SET -- Task installed in partition

    An attempt was made to eliminate a partition or subpartition that contains installed tasks.

SET -- Timeout on response

    You issued the SET /PASSWORD command, but allowed a prompt to wait 60 seconds without typing in a response. Your password remains unchanged. Try again.

SET (Cont.)

SET -- Too many subpartitions

(RSX-11M operating systems only.) An attempt was made to
define more than seven subpartitions.   A partition is
limited to a maximum of seven subpartitions.

SET -- Unknown main partition

(RSX-11M operating systems only.) An attempt was made to
define a subpartition in a nonexistent main partition.

SET -- User partition >32K not permitted

(RSX-11M operating systems only.) The command attempted to
create   a   partition   greater than 32K.   User-controlled
partitions greater than 32K cannot be created in systems
that do not support extended logical address space, a system
generation option.

SET -- Virtual terminal error

(RSX-11M-PLUS operating systems only.) An attempt was made
to set a terminal characteristic for a virtual terminal.
This cannot be done.

SET -- Write check not supported

An attempt was made to enable write checking on a device
that does not support it. See the description of the /WCHK
keyword for the valid devices.

SSM

3.43   SYSTEM SERVICE MESSAGE (P)

The SYSTEM SERVICE MESSAGE (SSM) command inserts text into the error
log file. The text appears in error log reports produced by the error
log report generator.

For information on the report generator, see the RSX-11M/M-PLUS Error
Logging Manual.

Format:

    SSM message

message

    Any text string up to a maximum of 79 characters.

Example:

    >SSM TESTING VOLUME INTEGRITY ON DM1:, POSSIBLE FORMAT ERRORS. RET

        Inserts the message into the error log file.

SWR

3.44 SWITCH REGISTER (P)

The SWITCH REGISTER (SWR) command executes on RSX-11M-PLUS multiprocessing operating systems only.

The SWR command either displays the current value or sets or clears a bit in the switch register. Diagnostic functions use the values in the switch register to interrupt diagnostic processing and to select specific diagnostics to execute.

Formats:

    SWR
    SWR value
    SWR bitposition/keyword

value

    An octal number. When you include a value, the command deposits this number into the switch register.

bitposition

    The bit number (0 through 15). The command sets, clears, or displays the value of the specified bit.

/keyword

    One of the following:

        /SET   Sets bit in bitposition

        /CLE   Clears bit in bitposition

        command /DIS Displays value of bit in bitposition

Examples:

    >SWR (RET)
    177640

        Displays the current value of the switch register.

    >SWR 177660 (RET)

        Deposits 177660 into the switch register.

    >SWR 3/SET (RET)

        Sets the bit in bit position 3 (changes the switch register value in the previous example to 177664).

TAL

3.45 TASKLIST - ATL FORMAT (NP)

The TAL command displays the names and status of all tasks or of a
specific task installed in the system. The display format is the same
as that of the ACTIVE TASK LIST (ATL) command. See the ATL command
for a description of the printout.

Format:

        TAL [taskname]

taskname

        The name of a specific task.

Examples:

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```
>TAL RET
LDR... 112050  LDRPAR 112404 00253100-00255600  Pri - 248.  Dpri - 248.
   Status:  -CHK FXD STP -PMD PRV NSD
   TI - CO0:  IOC - 0.  BIO - 0.  Eflg - 000001 000000  PS - 170000
   PC - 120354 Regs 0-6 120212 010364 177777 107646 074714 107614 120166
RMDEMO 053550  GEN    046020 01036700-01065600  Pri - 225.  Dpri - 225.
   Status:  -CHK WFR -PMD PRV MCR
   TI - TT0:  IOC - 0.  BIO - 0.  Eflg - 000021 040000  PS - 170010
   PC - 125234 Regs 0-6 000000 136257 132066 000000 136321 134560 121166
F11ACP 111550  GEN    067150 01164600-01230600  Pri - 149.  Dpri - 149.
   Status:  STP ACP -PMD PRV NSD CAL
   TI - CO0:  IOC - 0.  BIO - 0.  Eflg - 000002 000001  PS - 170000
   PC - 135244 Regs 0-6 000010 000066 000016 000000 067420 111550 120244
MCR... 110160  SYSPAR 114514 00202600-00212600  Pri - 160.  Dpri - 160.
   Status:  STP -PMD PRV MCR CLI NSD CAL
   TI - TT51:  IOC - 0.  BIO - 0.  Eflg - 000001 040000  PS - 170000
   PC - 122436 Regs 0-6 000000 120476 122032 120432 010554 043552 120366
```

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```
>TAL RET
...RMD 006246+ GEN    114020 00741000-00770200  Pri - 225.  Dpri - 225.
   Status:  -EXE -CHK -PMD PRV PRO XHR
   TI - None IOC - 0.  BIO - 0.  Eflg - 001400 000000
...DMO 006224+ GEN    114020 00741000-00756500  Pri - 160.  Dpri - 160.
   Status:  -EXE -PMD PRV PRO
   TI - None IOC - 0.  BIO - 0.  Eflg - 001326 000000
```

On RSX-11M-PLUS operating systems, the plus sign (+) following the TCB
field for a task indicates that the task is installed in secondary
pool. In the TAL display, these tasks follow the tasks installed in
primary pool.

TAS

3.46 TASKLIST (NP)

The TASKLIST command displays a description of each installed task. The display contains the following information:

1. Task name

2. Task version identification

3. Partition name

4. Task priority

5. Size of task in bytes (octal)

6. Load device identification

7. Disk address logical block number (octal)

8. Task memory state

On RSX-11M-PLUS operating systems, the display lists the tasks installed in primary pool and then those installed in secondary pool.

Format:

    TAS[KLIST] [taskname][/DEV=ddnn:]

taskname

    The name of a specific task.

/DEV=ddnn:

    Displays the names and status of all tasks installed from the specified device.

    If you specify both taskname and /DEV, the system displays information about the task installed from that device.

Examples:

```
>TAS (RET)
LDR... 07.05  LDRPAR 248. 00002200 LB0:-01035303 FIXED
TKTN   03.3   SYSPAR 248. 00010000 LB0:-01126742
RMDEMO X03.03 GEN    225. 00013700 SY0:-00352100
MTAACP 0006   GEN    200. 00013000 DS0:-00000777
F11MSG V0010  GEN    200. 00005400 SY0:-01053030
MCR... 3.2    SYSPAR 160. 00010000 LB0:-01051626
TAST17 01     GEN    160. 00025000 LB0:-01051676
...STO 000005 SYSPAR 151. 00010000 SY0:-01136540
...BYE 01.5   GEN    150. 00040000 LB0:-01051337
F11ACP M0235  FCPPAR 149. 00040000 LB0:-01052445
SECFCP M0235  GEN    149. 00026200 SY0:-00055463
DTAACP M0235  GEN    149. 00026200 SY0:-01052554
...DMO 03.2   GEN    140. 00040000 LB0:-01051403
...INI 03.1   GEN    140. 00040000 LB0:-01051561
...MOU 03.01  GEN    140. 00040000 LB0:-01051653
...UFD V0407  GEN    140. 00040000 LB0:-010
```

TAS (Cont.)

(User typed CTRL/O to suppress further output.)

```
>TAS /DEV=DR0: (RET)
DR00F1 M0323  SYSPAR 149. 00055700 LB0:-00475656 FIXED
F11ACP M0323  GEN    149. 00044000 LB0:-00315566
DB01F1 M0323  GEN    149. 00044000 LB0:-00315566
DB07F1 M0323  SYSPAR 149. 00044000 LB0:-00315566 FIXED
ERRLOG V1.01  GEN    148. 00042200 LB0:-00335276
PMD... 04.0   GEN    140. 00015200 LB0:-00503535
HRC... 02     GEN    140. 00055100 LB0:-00505331
SYSLOG 1.02   GEN    130. 00016300 LB0:-00504250
...INS 06     GEN    100. 00035400 LB0:-00502750
```

The displays contain from left to right: task name, task version, task version identification, partition name, task priority, task size, load device identification, logical block number on the load device, and task memory state. On a processor with less than 124K words of memory, the size field (fifth column) contains 6-digit rather than 8-digit numbers.

FIXED indicates that the task is fixed in memory.

CHECKPOINTED indicates that the task has been swapped out of memory to make room for a task with a higher priority.

If the task version identification field is blank (the rest of the line is offset to the left) or contains meaningless output, the task was installed from a disk that has since been replaced or removed from the drive.

Command Error Message:

TAS -- Task not in system

The task specified in the command line is not currently installed in the system.

TIM

3.47 TIME (NP,P)

The TIME command allows you to:

- Set the current time of day (privileged)

- Set the current date (privileged)

- Display the current time and date

Format:

TIM[E] [hrs:mins[:secs]] [ml/day/year]

                 or

TIM[E] [hrs:mins[:secs]][day-m2-year]

hrs

The value for hours, which can be between 0 and 23.

mins

The value for minutes, which can be between 0 and 59.

secs

The value for seconds, which can be between 0 and 59.   (The value
for seconds is an optional parameter.)

ml

The value for the month, specified as a number between 1 and 12.

m2

The value for the month, specified as a 3-letter abbreviation.

day

The value for the day of the month, which can be between 1 and
31.

year

The value for the year, which can be between 0 and 99.   The year
is relative to 1900, so that 1985 is specified as 85.

Notes:

- When the command specifies neither time nor date, the system
  displays the current time and date on the entering terminal.

- If a privileged user specifies the time and date, the command
  sets the clock and calendar. If only the time is specified,
  only the clock is set; if only the date is specified, only the
  calendar is set.

TIM (Cont.)

- A privileged user can specify the time and date in either order.

- The form used to specify the date does not affect the display format. The date is always displayed as day-month-year.

- All numeric values are decimal. No terminating period is necessary (or permitted).

Examples:

```
>TIM RET
10:23:31 26-SEP-85
```

    Displays the current time and date.

```
>TIM 01:02 9/23/85 RET
```

    Sets the time to 01:02:00 and the date to 23-Sep-85.

UFD

3.48 USER FILE DIRECTORY (NP,P)

The USER FILE DIRECTORY (UFD) command creates a User File Directory (UFD) on a Files-11 volume and enters its name into the Master File Directory (MFD). (See Section 2.1.1 for further information about UFDs.)

Before creating a UFD, you must first initialize and mount (INI and MOU) the volume.

On multiuser protection systems, a nonprivileged user can create a directory only on a volume mounted on a privately allocated device. A privileged user can create a directory on any mounted volume.

Format:

    UFD ddnn:[volume-label][g,m][/keyword(s)]

ddnn:

    Device unit containing the volume on which the directory being created will reside.

    There is no default device unit; you must specify one.

volume-label

    If specified, the label is compared with the label on the volume. If the names match, a directory can be created. If they do not match, the command is rejected.

    By default, the volume-label is null; no check is made if you do not specify a volume-label.

[g,m]

    Specifies the directory that you want to create. On RSX-11M operating systems, the directory must be a numeric directory of the form [g,m]. The variables g and m represent the group and member numbers, respectively, and their values can be between 1 and 377(octal). On RSX-11M-PLUS operating systems, the directory can be a named or a numeric directory. The square brackets are required parts of the directory syntax.

    There is no default for the directory, you must specify one.

/ALLOC=number

    The number of directory entries for which space in the UFD is to be allocated. The specified number is rounded up to the next multiple of 32(decimal).

    The default is 32(decimal).

UFD (Cont.)

/PRO=[system,owner,group,world]

Establishes access rights for the directory file. Access codes consist of four groups of four codes in the access rights word, as follows:

    R - Read access
    W - Write access
    E - Extend access
    D - Delete access

In each instance, the absence of a code means that the user class is denied that type of access.

The square brackets are required syntax.

The defaults are: [RWED,RWED,RWED,R].

Example:

>UFD DM1:[1,1] (RET)

Creates a directory for the UIC [1,1] on DM1:. The name and file number of the number of the UFD file are entered into the MFD. The name of the UFD is 001001.DIR;1, and its owner is UIC [1,1].

Command Error Messages:

UFD -- Can't read MCR command buffer

The directory was initiated by a RUN command rather than as an MCR command.

UFD -- Directory already exists

The requested directory already exists on the volume.

UFD -- Failed to create directory

No space existed on the volume or an I/O error occurred.

UFD -- Failed to enter in MFD

There was no room in the MFD or on the volume, or an I/O error occurred on the volume.

UFD -- Home block I/O error

An error was detected while the Volume Home Block was being read.

UFD -- Not Files-11 device

The volume on which the directory was to be created was not a Files-11 volume and therefore could not support UFDs.

UFD (Cont.)

UFD -- Volume not mounted

> The volume on which a directory is to be created must be mounted.

UFD -- Write attributes failure

> An error was encountered while the attributes of either the MFD or the newly created UFD were being written.

UFD -- Wrong volume

> The volume label and the label specified in the command line did not match.

UNB

3.49 UNBLOCK (NP,P)

The UNBLOCK command continues the execution of a previously blocked active task or allows a previously blocked dormant task to execute if it is requested to do so. (See the description of the BLOCK command.)

On systems with multiuser protection, a nonprivileged user can unblock any active task running from the issuing terminal. A privileged user can unblock any task. On systems without multiuser protection, any user can unblock any task.

The system automatically unblocks an active task when it is aborted.

Format:

    UNB[LOCK] [taskname][/TERM=ttnn:]

taskname

    The name of the task. If you omit taskname, the command unblocks the task requested from the issuing terminal (task ttnn).

/TERM=ttnnn:

    A privileged RSX-11M-PLUS keyword that clears the block bit for a task being run from the specified terminal.

Examples:

    >UNB TST (RET)

        Unblocks task TSTT36 and allows it to continue executing.
        (TT36: is the number of the terminal from which the task is
        running.)

    >UNB MAS/TERM=TT23: (RET)

        Unblocks task MAST23 and allows it to continue executing.

UNF

3.50 UNFIX (P)

The UNFIX command frees a fixed task from memory. This allows tasks
that have been waiting for the partition in which the fixed task
resides to compete for the partition. However, if a fixed task exits
or aborts, it still occupies the physical memory in the partition.

UNFIX is the complement of the FIX command.

Format:

    UNF[IX] taskname

taskname

    The name of the task.

On RSX-11M-PLUS operating systems, the UNFIX command accepts two
keywords that allow users to free common task regions from a
partition. These keywords are:

    /REG - Unfix a common region

    /RON - Unfix the read-only segment of a multiuser task

Formats:

    UNF[IX] regionname/REG

    UNF[IX] taskname/RON

When freeing a common, read-only segment of a multiuser task, you must
type the full name of the multiuser task.

Examples:

    >UNFIX XKE (RET)

        Unfixes task XKE, freeing the partition in which it resides
        for task competition.

    >UNF FCSRES/REG (RET)

        Frees the resident library for FCS from its partition.

    >UNFIX ...MAC/RON (RET)

        Unfixes the read-only segment of the MACRO-11 Assembler from
        its partition.

Command Error Message:

    UNF -- Task not fixed

        An attempt was made to unfix a task that was not fixed.

3.51   UNLOAD (P)

The UNLOAD command removes a loadable device driver from memory. If a
device is mounted, attached, or has outstanding I/O, its driver cannot
be unloaded. Also, the UNLOAD command cannot remove a data base from
memory, even if the data base was loaded by means of the LOAD command.

To unload a device driver from memory, the driver's symbol table (STB)
file must reside on the system device (LB:) in the system directory.
The SET /SYSUIC command displays and defines the system directory, but
usual values are [1,50] for unmapped systems and [1,54] for mapped
systems.

Format:

     UNL[OAD] dd:[/keyword]

dd:

     A 2-character ASCII device name.

Keyword:

     /VEC

          (RSX-11M-PLUS operating systems only.) Specifies   that   the
          device driver or extended Executive partition (EXP) to be
          unloaded is vectored.

Example:

     >UNL LP: ⟨RET⟩

          Unloads the loadable device driver for device LP:.

Command Error Messages:

     UNL -- Device <ddnn:> is attached, busy, online and/or mounted

          (RSX-11M-PLUS operating systems only.) Device ddnn: is   the
          first or only unit that is attached, on line, mounted,
          and/or has outstanding I/O. Therefore, the driver cannot be
          unloaded.

     UNL -- Device <ddnn:> has units attached, busy, and/or mounted

          (RSX-11M operating systems only.) Device ddnn: is the first
          or   only unit that is attached, mounted, and/or has
          outstanding I/O. Therefore, the driver cannot be unloaded.

     UNL -- Device <dd:> not in system

          No such device exists in the system.

     UNL -- Device not mounted

          The system device (LB:) was not mounted.

UNL (Cont.)

UNL -- Driver built with wrong Executive STB file

The STB file for the driver is not compatible with the current Executive.

UNL -- Driver cannot be unloaded

The UNLOAD command attempted to remove a permanently resident device driver (that is, a driver built as part of the Executive).

UNL -- Driver not loaded

The device driver specified in the UNLOAD command line was not resident in memory.

UNL -- File <filename> has illegal STB format

The driver's STB file contained illegal object code or data.

UNL -- Illegal value for symbol <symname> in file <filename>

The symbol symname is defined to an illegal value by the file ddDRV.STB. Since ddDRV.STB had to pass a previous inspection by the LOA command, there probably has been a procedural error or ddDRV.STB has been corrupted.

UNL -- KRB <krbname> is not offline

All controllers of a device type must be off line before the driver can be unloaded. Issue an OFFLINE command to the reconfiguration facility. (Reconfiguration commands are described in the RSX-11M/M-PLUS System Management Guide.)

UNL -- Loadable driver support not in system

(RSX-11M operating systems only.) The option to support loadable device drivers was not chosen when the system was generated.

UNL -- Symbol <symname> is doubly defined by file <filename>

The symbol symname is defined twice in the specified file. Duplicate systems are illegal. The driver remains loaded.

UNL -- Symbol <symname> is undefined by file <filename>

The symbol symname was found in the specified file, but the symbol is not defined.

UNS

3.52 UNSTOP (NP,P)

The UNSTOP command continues execution of a task that has been stopped internally by the Executive. Examples of stopped tasks are tasks that have issued a STOP$S or RCST$ (RECEIVE DATA OR STOP) directive.

A nonprivileged user can only unstop tasks being run from the issuing terminal. A privileged user can unstop any stopped task.

Format:

       UNS[TOP] [taskname][/TERM=ttnnn:]

taskname

       The name of the task. If you omit taskname, the command unstops
       the task being run from the issuing terminal (task ttnnn).

/TERM=ttnnn:

       A privileged RSX-11M-PLUS keyword that clears the stop bit for a
       task being run from the specified terminal.

Examples:

RSX-11M/M-PLUS operating systems:

       >UNS TST (RET)

              Clears the stop bit for task TSTT17 and allows it to
              continue executing.   (TT17: is the number of the terminal
              from which the task is running.)

RSX-11M-PLUS operating systems only:

       >UNS LAR/TERM=TT131: (RET)

              Clears the stop bit for task LARTD1 and allows it to
              continue executing.   The task is being run from TT131:
              (TD1).

APPENDIX A

MCR AND TKTN MESSAGES

Messages from MCR and TKTN appear in this appendix in alphabetical
order. Some messages include remedial action to be taken by the user.
This is not included with messages for which the required action is
obvious or contained in the description of the message.

The XXX in the messages indicates the 3-character component of MCR
that detected the error.

11/40 F.P. exception

    Explanation: This is a TKTN message. The task encountered a
    floating point exception while executing on a PDP-11/40 and no
    SST routine was specified to process the trap.

Aborted via directive or CLI

    Explanation: This is a TKTN message. Either an Executive
    directive or a CLI command issued by another task caused the task
    to be aborted.

Aborted via CLI

    Explanation: This is a TKTN message. A CLI command aborted the
    task.

XXX -- Account file open failure

    Explanation: The account file was open for another user or the
    disk containing the account file was not mounted.

    User Action: Reenter the command line.

XXX -- Account file record(s) locked

    Explanation: (RSX-11M-PLUS operating systems only.) An account
    record could not be accessed.

    User Action: Reenter the command line.

Accounting sec. pool allocation failure for '<name>'

    Explanation: (RSX-11M-PLUS operating systems only.) This is a
    TKTN message. The Resource Accounting system could not find
    sufficient space in secondary pool to allocate a block.

XXX -- Addressing extensions not supported

    Explanation: The command tried to install a task with a VSECT
    (virtual section) into a system that does not support the
    feature.

XXX -- Alignment error

Explanation: An attempt was made to create a partition, but the base address or size conflicted with existing partitions or physical memory size.

*** Allocation failure on task account block for '<taskname>'

Explanation: (RSX-11M-PLUS operating systems only.) This is a TKTN message. Resource Accounting could not find sufficient space in secondary pool to allocate a Task Account Block for the specified task.

XXX -- Allocation for SYS file exceeds volume limit

Explanation: The system was unable to allocate the system file from the specified block because intermediate bad blocks or end-of-volume was encountered.

XXX -- Ambiguous help qualifier

Explanation: The qualifier does not specify a unique part of the help file.

User Action: Reenter the command line, specifying the qualifier more completely.

XXX -- Ambiguous help synonym

Explanation: The qualifier referenced as a synonym was not unique.

XXX -- Assign failure

Explanation: The HELLO command could not complete login logical assignments.

AST abort. Bad stack

Explanation: This is a TKTN message. An AST cannot be effected because the AST parameters cannot be pushed onto the task's stack.

XXX -- Bad block file corrupt - data ignored

Explanation: The bad block file contained bad data.

XXX -- Bad block file full

Explanation: The disk had more than 102(10) bad regions on it.

XXX -- Bad block header I/O error

Explanation: A write error was detected in writing the bad-block file header.

XXX -- Bad task file VBN, task removed - <taskname>

Explanation: The system removed the specified task because it contained a bad Virtual Block Number (VBN) in its file header. The task image file has probably been corrupted.

XXX -- Base address must be on 4K boundary

Explanation: The base virtual address of the task is not on a 4K boundary. This message applies only to mapped systems.

XXX -- Base mismatch common block <commonname>

Explanation: The base address of the partition, as recorded in the task image, did not match the base address of the common block.

XXX -- Block(s) exceed volume limit

Explanation: The specified block (or blocks) exceeded the physical size of the volume.

XXX -- Boot block write error

Explanation: An error was detected in writing the volume boot block.

XXX -- Booted device cannot be brought online

Explanation: (RSX-11M-PLUS operating systems only.) There was an error when SAVE attempted to bring either the unit or controller of the booted device on line. The Executive is corrupted, the device driver does not work, or the device does not work. There is no recovery procedure.

XXX -- Booted device's driver not loaded

Explanation: VMR has been used to unload the driver for the system (booted) disk.

XXX -- Booted device not in system -- <dd nnn mmmmmm>

Explanation: When the system was booted, SAVE could not find the booted device (device name dd, physical unit number nnn, CSR mmmmmm) in the system data structures. For example, the system was booted from DB3:, but the system data structures include only DB0: and DB1:.

XXX -- Byte address

Explanation: The address specified as the argument to the OPEN command was an odd address. For example, the address 3000 is a legal address, but the address 3001 is not.

XXX -- Cannot install privileged task from non-privileged terminal

Explanation: This message applies to multiuser protection systems only. A nonprivileged user attempted to install a privileged task. Only a privileged user can install a privileged task.

XXX -- Cannot LOAD/UNLOAD a pseudo device

Explanation: The device you attempted to load is a pseudo device. You must specify the name of a physical device.

XXX -- Can't read MCR command buffer

Explanation: The UFD was initiated by a RUN command rather than as an MCR command.

XXX -- Checkpoint area too small

Explanation: The area allocated for checkpointing the task was smaller than the partition into which the task was being installed. This message applies only to systems that do not support the dynamic allocation of checkpoint space.

Checkpoint failure. Read error

> **Explanation:** This is a TKTN message. The task could not be read back into memory after being checkpointed.

XXX -- Checkpoint file already in use on device

> **Explanation:** A previous ACS command established a checkpoint file on the volume mounted on the specified device unit. A volume can contain only one checkpoint file.

XXX -- Checkpoint file header I/O error

> **Explanation:** An error was detected in writing the checkpoint file header.

XXX -- Checkpoint file now inactive

> **Explanation:** This message appears after an ACS command has been issued to discontinue a checkpoint file and the file does not contain any checkpointed tasks. The message indicates that use of the file was discontinued immediately after the command was issued. If the file is still in use, TKTN will issue a message when the file is finally discontinued.

*** <ddnn:> -- Checkpoint file now inactive

> **Explanation:** This is a TKTN message. A request to discontinue use of a checkpoint file on device ddnn: has been satisfied. The need to return checkpointed tasks from the discontinued file back into memory caused the delay between the request and this message.

XXX -- Checkpoint file still active

> **Explanation:** The command attempted to dismount a volume that contained an active checkpoint file. The volume cannot be dismounted until the checkpoint file has been discontinued.

> **User Action:** Issue an ACS command to discontinue the file and reissue the DMO command when the system issues a message to indicate that the checkpoint file is inactive.

XXX -- Checkpoint file still in use on <ddnn:>

> **Explanation:** The system cannot be saved because a checkpoint file on the specified device is still active.

> **User Action:** Deallocate the checkpoint file (see the ACS command) and reenter the SAVE command line.

*** <taskname> Checkpoint space allocation failure

> **Explanation:** This is a TKTN message. The checkpoint file did not contain enough space for the specified task to be checkpointed.

XXX -- Checkpoint space too small, using checkpoint file

> **Explanation:** This is a warning message only. The checkpoint space allocated in the task image file is too small for the size of the task (usually because of the /INC keyword). The system supports the dynamic allocation of checkpoint space and will therefore use a checkpoint file to contain the checkpointed task.

*** \<taskname\> \<ddnn:\> -- Checkpoint write error

> **Explanation:** This is a TKTN message. A write failure occurred while the system was attempting to checkpoint the specified task.

XXX -- Circular redirect error

> **Explanation:** The attempt to redirect a device would result in a circular list of redirections.

XXX -- CO: redirected to CO:

> **Explanation:** (RSX-11M operating systems only.) The console output driver is active. If it is not active, the system may be corrupted.

> **User Action:** If it is not active, use the OPEN command to redirect CO: to the terminal from which you are running SAVE.

XXX -- Command input error

> **Explanation:** Circumstances prevented the BROADCAST task from receiving the command line (usually an indirect command file could not be found); or, a system directive or the RUN command, rather than the HELLO command, has initiated the HELLO task; or an error occurred while MOUNT was attempting to read the command line.

> **User Action:** In the case of BROADCAST, reenter the command line.

XXX -- Command I/O error

> **Explanation:** An I/O error was encountered while the command line was being read.

XXX -- Command syntax error

> **Explanation:** The command line had an improper format.

XXX -- Command too long

> **Explanation:** An INI or MOUNT command, including continuation lines, exceeded the maximum length of 512(10) characters.

XXX -- Common block is task partition \<commonname\>

> **Explanation:** A task's request for access to a common block was rejected because the requested partition was a task partition.

XXX -- Common block not loaded \<commonname\>

> **Explanation:** The specified common block was linked to the task but had not been installed in the system.

> **User Action:** Install the common block, then install the task.

XXX -- Common block occupied

> **Explanation:** An attempt was made to load a task into a common block that was already occupied.

XXX -- Common block parameter mismatch \<commonname\>

> **Explanation:** Parameters of a common block did not match those in the task's label block.

XXX -- Common block segment count error

> **Explanation:** The command installed a resident library with overlays, but the number of overlay segments specified in the task header is different from the number specified in the segment descriptors.

XXX -- Common <commonname> not installed from an LB:

> **Explanation:** (RSX-11M-PLUS operating systems only.) All checkpointable commons must be installed from an LB:.

> **User Action:** Remove the common and reenter the SAVE command line.

XXX -- Common, driver or task above system image file limit

> **Explanation:** A system cannot be saved if addresses for a memory-resident structure are higher than the highest address of main memory written to the system image file.

> **User Action:** Use the PAR command to determine the cause of the problem.

XXX -- Could not size booted device

> **Explanation:** (RSX-11M-PLUS operating systems only.) SAVE recognized the device name as a device that it should be able to size but could not.

CPU time limit exceeded

> **Explanation:** (RSX-11M-PLUS operating systems only.) This is a TKTN message. The task exceeded the CPU time limit specified with the /TIME keyword when the task was installed.

XXX -- CTB <name> does not exist

> **Explanation:** (RSX-11M-PLUS operating systems only.) The Controller Table name specified with the /CTB keyword does not exist in the resident data base.

XXX -- CTB name <name> is a duplicate

> **Explanation:** (RSX-11M-PLUS operating systems only.) The loadable data base contains a Controller Table (CTB) with a name that is the same as a CTB name in the resident data base. CTB names must be unique.

XXX -- CTB <name> is not supported by driver, not loaded

> **Explanation:** (RSX-11M-PLUS operating systems only.) The device driver's dispatch table does not have all the Controller Table mnemonics that the rest of the data base (the DCBs and CTBs) implies that it has, or the CTB is defective. A defective CTB may contain a wrong name or its link to the DCB may be wrong.

XXX -- DCB table for CTB <name> is full

> **Explanation:** (RSX-11M-PLUS operating systems only.) LOAD attempted to write the address of the Device Control Block (DCB) for the loadable data base into the DCB table of the specified resident Controller Table, but there were no null entries in the DCB table. (Refer to the RSX-11M or RSX-11M-PLUS Guide to Writing an I/O Driver.)

XXX -- Data error

    Explanation: The specified bad-block number or the specified contiguous region size is too large.

    User Action: Reenter a valid number or size.

XXX -- Device attached

    Explanation: The specified device cannot be allocated because it is attached to a running task or the CLI command cannot do a /SHOW display because the terminal is attached to another task.

XXX -- Device <ddnn:> has units attached, busy, and/or mounted

    Explanation: (RSX-11M operating systems only.) Device ddnn: is the first or only unit that is attached, mounted, and/or has outstanding I/O. Therefore, the driver cannot be unloaded.

XXX -- Device not allocated to this terminal

    Explanation: The command line specified a private device that was allocated to a terminal other than the one from which the command was issued.

XXX -- Device not in system

    Explanation: The device specified in the command line is not in the current system configuration.

XXX -- Device <dd:> not in system

    Explanation: The specified device driver does not exist in the system, or the data base for the device driver is not in the system or in the driver's task image.

XXX -- Device not mounted

    Explanation: The device specified in the file specification was not mounted. In response to a LOAD or UNLOAD command, the system device (LB:) was not mounted.

XXX -- Device not redirectable

    Explanation: The specified device cannot be redirected.

XXX -- Device not ready - <ddnn:>

    Explanation: The command line specified a volume that was not ready (not up to speed).

XXX -- Device not terminal

    Explanation: An attempt was made to set terminal characteristics for or the /TERM keyword was specified for a device that is not a terminal.

XXX -- Device not variable speed multiplexer

    Explanation: An attempt was made to set the baud rate for a terminal that was not attached to a DH11 or DZ11 multiplexer.

XXX -- Device offline[-ddnn:]

Explanation: The device specified in the command line, although generated into the system, was not physically present in the host configuration. If the off-line device is a magnetic tape drive, the message includes the device unit.

XXX -- Device write locked - <ddnn:>

Explanation: The command line specified a volume that was write-locked.

XXX -- Directory already exists

Explanation: The requested UFD already exists on the volume.

XXX -- Disk is alignment cartridge

Explanation: The last track on an RK06/07, RL01/02, or RM02/03/05/80/RP07 disk identified the volume as an alignment cartridge, which cannot be initialized as a Files-11 volume. An alignment cartridge is specifically formatted for aligning disk read/write heads.

*** <ddnn:> -- Dismount complete

Explanation: This is a TKTN message. This message indicates that the device requested for dismount is now logically disconnected from the system (that is, all files are deaccessed and the VCB is deallocated).

XXX -- DPB error

Explanation: A bad Directive Parameter Block was created by MCR. This error indicates that the system itself has faulted.

User Action: If the error persists, submit a Software Performance Report (SPR) to DIGITAL.

XXX -- Driver already resident

Explanation: The specified device driver had already been loaded or is permanently resident.

XXX -- Driver being loaded or unloaded

Explanation: The Executive was effecting another request to load or unload the driver.

XXX -- Driver built with wrong Executive STB file

Explanation: The STB file for the driver was not compatible with the current Executive.

XXX -- Driver cannot be unloaded

Explanation: The UNLOAD command attempted to remove a permanently resident device driver (that is, a driver built as part of the Executive).

XXX -- Driver dispatch table is inconsistent

Explanation: (RSX-11M-PLUS operating systems only.) The device driver's dispatch table is illegally formatted. Refer to the RSX-11M-PLUS Guide to Writing an I/O Driver.

XXX -- Driver load/unload calls not supported

Explanation: The requested driver included the symbols $ddLOA or $ddUNL in its source. These symbols are reserved for future use by the LOAD and UNLOAD commands.

XXX -- Driver not loaded

Explanation: The device driver specified in the UNLOAD command was not resident in memory, or the INI or MOUNT command specified a device for which a driver was not loaded.

XXX -- Duplicate block(s) found

Explanation: A block that had been specified as bad was being defined as bad a second time.

XXX -- Dynamic allocation of checkpoint space not supported

Explanation: (RSX-11M operating systems only.) The ACS command was issued on a system that did not include support of dynamic allocation of checkpoint space at system generation.

XXX -- Error logging still active

Explanation: A system cannot be saved while error logging is active. Disable error logging and reenter the SAVE command line.

XXX -- Failed to attach device - <ddnn:>

Explanation: The specified device could not be attached.

XXX -- Failed to create directory

Explanation: No space existed on the volume or an I/O error occurred.

XXX -- Failed to enter in MFD

Explanation: No space existed in the Master File Directory (MFD) or on the volume, or an I/O error occurred on the volume.

XXX -- Failed to read bad block file

Explanation: The INI command was unable to read the bad block information from the last track of an RK06/07, RL01/02, or RM02/03/05/80/RP07 disk.

XXX -- Feature not supported

Explanation: The command keyword specified a feature or device that was not incorporated into the system at system generation, or the command itself cannot be used.

XXX -- File <filename> has illegal STB format

Explanation: The driver's STB file contained illegal object code or data.

XXX -- File I/O error nnn.

Explanation: The ACS command detected an error when it tried to allocate or open the checkpoint file. The code nnn. is an FCS error code that defines the cause of the error. See the RSX-11M/M-PLUS I/O Operations Reference Manual.

XXX -- File <filename> not a valid driver task image

Explanation: The driver's task image was either overlaid or had a task header.

XXX -- File not contiguous

Explanation: An attempt was made to boot a system or install a task from a noncontiguous file. System images and task images must be contiguous.

XXX -- File <filename> not contiguous

Explanation: The file specified was not contiguous. The file must be contiguous.

XXX -- File not found

Explanation: The requested file was not in the directory on the specified volume.

XXX -- File not in use

Explanation: A checkpoint file was not in use on the device specified in the ACS command.

XXX -- File not properly closed

Explanation: An attempt was made to install a file that was not properly closed (that is, locked). Since the file is locked, it is probably corrupted. Install a new copy of the file.

XXX -- File not task image

Explanation: Data in the label block was not correct, indicating that the file was not a valid task image.

XXX -- Home block allocate write error

Explanation: A write error occurred while the system was overwriting a bad home-block area.

XXX -- Home block I/O error

Explanation: An error was detected in reading or writing the volume home block.

XXX -- Home block read error

Explanation: (RSX-11M operating systems only.) The home block of the booted device could not be read. Try another drive. If unsuccessful, the disk has been corrupted or the area of the home block is bad. This error halts the system.

XXX -- Illegal device <ddnn:>

Explanation: The device specified at task-build time by the assign (ASG) option does not exist in the system. This is a warning message only.

XXX -- Illegal device specified

Explanation: The specified device was not a terminal.

XXX -- Illegal device/volume

   Explanation: The specified device was not a valid task-residence
   device.

XXX -- Illegal driver task APR usage

   Explanation: A device driver must be built for APR 5 and must be
   less   than   8K (for   example,   PAR=DRVPAR:120000:40000).   This
   message applies to mapped systems only.

XXX -- Illegal first APR

   Explanation: A privileged task, built to run using APR 4 or 5 as
   its base, was too large. Using APR 4, the task was larger than
   12K; using APR 5, the task was larger than 8K.

   If the Executive has been built to support 20K of address space,
   APR 5 · is the only valid base APR for tasks mapping into the
   Executive.   A privileged task that does not map into the
   Executive must use APR 0 as its base. (See the RSX-11M/M-PLUS
   and Micro/RSX Task Builder Manual for a description of the /PR
   keyword.)

   This message applies only to mapped systems.

XXX -- Illegal function

   Explanation: A command was entered that MCR could not recognize
   or an inappropriate keyword was specified.

XXX -- Illegal keyword value

   Explanation: A string or value entered for a keyword was
   invalid.

   User Action: Enter a legal string or value.

XXX -- Illegal priority

   Explanation: The value of the priority in the command was out of
   range (that is, not 1 through 250 decimal).

XXX -- Illegal UIC

   Explanation: The command line specified an illegal UIC.

XXX -- Illegal value for symbol <symname> in file <filename>

   Explanation: The symbol symname is defined to an illegal value
   in the file ddDRV.STB. This can occur for several reasons, some
   general and some specific to individual symbols.   For example,
   symbols cannot have odd values, most symbols cannot be defined as
   zero, $ddTBL must exist and have a value less than $ddEND, and
   mapped loadable drivers cannot reference $INTSV.

XXX -- Improper help file format

   Explanation: The help file is not in proper format and cannot be
   used. Either edit the file or reenter it in the proper format.

XXX -- Index file bit map I/O error

   Explanation: An error was detected in writing the index-file
   bitmap.

XXX -- Index file header checksum error

Explanation: While rebooting a saved system, the system detected a checksum error in the file header of the index file. The error causes the system to halt. The disk has probably been corrupted.

XXX -- Index file header read error

Explanation: While rebooting a saved system, the system detected an error in the file header of the index file. The error causes the system to halt.

XXX -- Index file I/O error

Explanation: An error was detected in writing the index-file header.

XXX -- Input I/O error

Explanation: In attempting to read the next command, OPEN detected an error.

XXX -- Insufficient pool space

Explanation: The required amount of pool space was not available.

XXX -- Interrupt vector already in use

Explanation: (RSX-11M operating systems only.) A driver interrupt vector does not point to one of the nonsense interrupt entries. This message can appear when you issue the LOAD command.

XXX -- Invalid account

Explanation: The name or UIC specified in the command line is not stored in the account file or the password specified does not match the name or UIC given.

XXX -- Invalid address

Explanation: The address specified as an argument by the OPEN command referenced a nonexistent memory location, an address outside of the specified partition, or an address outside of the task's virtual address space.

XXX -- Invalid driver data base at offset <xxxx> in file <filename>

Explanation: The driver had an invalid data base value at offset xxxx relative to the symbol $ddDAT.

XXX -- Invalid keyword

Explanation: A keyword was specified in the command line that cannot be used with the command.

XXX -- Invalid interrupt vector

Explanation: (RSX-11M operating systems only.) The interrupt vector address specified in the driver data base was too high for the current system.

XXX -- Invalid load device

   Explanation: The BOOT or INSTALL command detected a device that
   was invalid as a system- or task-residence device.

XXX -- Invalid speed

   Explanation: The multiplexer line does not support the requested
   speed, or the command line specified unequal receive and transmit
   baud rates for a DZ11 or DZV11. The DZ11 and DZV11 do not
   support split speeds.

XXX -- Invalid time parameter

   Explanation: A specified time field was incorrect.

XXX -- Invalid UIC

   Explanation: A value of zero was detected for either the group
   number or the member number.

IOT execution

   Explanation: This is a TKTN message. The task executed an IOT
   instruction and no SST routine was specified to process the trap.

XXX -- I/O error sizing device - <ddnn:>

   Explanation: The system encountered an I/O error while sizing an
   RF11 disk.

XXX -- KRB <name> not in loadable data base

   Explanation: (RSX-11M-PLUS operating systems only.) You are
   attempting to load the driver for a MASSBUS device with a
   loadable data base. The special symbol (KRBname), which defines
   the location of the KRB, is not defined in the loadable data
   base. Refer to RSX-11M-PLUS Guide to Writing an I/O Driver.

XXX -- KRB table of CTB <name> will not accept KRB <name>

   Explanation: (RSX-11M-PLUS operating systems only.) You are
   attempting to load the driver for a MASSBUS device with a
   loadable data base. If this operation is to be successful, two
   conditions must exist:

      1. The appropriate slot in the CTB (controller table) must
          exist.

      2. The slot in the CTB must be unused.

   When you get this error message, one of these conditions does not
   exist. Refer to the RSX-11M-PLUS Guide to Writing an I/O Driver.

XXX -- Label block I/O error

   Explanation: In saving the system image, the SAVE command writes
   the transfer address in the label block of the system image file.
   An error occurred during this write attempt. The disk could be
   corrupted.

XXX -- Label block read error

   Explanation: The BOOT command could not read the label block of
   the system image.

XXX -- Length mismatch common block <blockname>

Explanation: The length parameter for the common block, as described in the label block for the task image, did not match the corresponding length parameter defined in the system. A task's label block data must match system data for that task before it can be installed.

XXX -- Line not DZ11

Explanation: The command attempted to set to remote a line that was not attached to a DZ11 multiplexer.

XXX -- Listing device not available

Explanation: The device unit on which MCR was attempting to display information was attached and unavailable for use.

XXX -- Load device not LB:, task removed - <taskname>

Explanation: The system removed the specified task while saving a system because the task had not been installed from LB:.

Load failure. Read error

Explanation: This is a TKTN message. The task could not be loaded because of a hardware error.

XXX -- Loadable driver support not in system

Explanation: The system generation option to support loadable device drivers was not chosen or necessary routines are not in the Executive.

XXX -- Logical device not in system

Explanation: The specified logical device name was not defined in the logical device tables.

XXX -- Logins are disabled

Explanation: The system was in the process of shutting down or the command SET /NOLOGON has been issued. A user cannot log in at these times.

XXX -- LUN out of range

Explanation: An attempt was made to reassign a LUN that was greater than the maximum number of LUNs allocated to the task when it was built.

XXX -- Magtape label must be specified

Explanation: An INI command attempted to initialize a magnetic tape without specifying the required volume label.

XXX -- Magtape device error - <ddnn:>

Explanation: While positioning a magnetic tape before initializing it, the system encountered an I/O error.

XXX -- Magtape write error - <ddnn:>

Explanation: While writing to the magnetic tape during initialization, the system encountered an I/O error.

XXX -- MCR is not installed

Explanation: When a system is booted, SAVE uses MCR to mount the system disk. Use VMR to install the MCR... task.

*** Memory parity error in partition '<pname>'

Explanation: This is a TKTN message. The error logging subsystem detected a memory parity error in the specified partition.

Memory protect violation

Explanation: This is a TKTN message. The task encountered a memory protect violation and no SST routine was specified to process the trap.

XXX -- Message file error nnn.

Explanation: The system could not open the file LOGIN.TXT for a reason indicated by the FCS code nnn. See the RSX-11M/M-PLUS I/O Operations Reference Manual for a definition of the FCS code.

XXX -- MFD file header I/O error

Explanation: An error was detected in writing the Master File Directory (MFD) file header.

XXX -- MFD write error

Explanation: An error was detected in writing a block to the Master File Directory.

*** Micro code loader not installed

Explanation: This is a TKTN message. For systems that include the KMC11 line printer driver (LKDRV), this message indicates that the task LPINIT is not installed in the system.

XXX -- Must be run from terminal CO:

Explanation: (RSX-11M operating systems only.) SAVE is not being run from the terminal to which the pseudo device CO: is directed.

XXX -- New device not known to system

Explanation: The new device specified by the REDIRECT command was not known to the system (that is, it does not exist in the device tables).

XXX -- No bad block data found

Explanation: Although automatic bad-block specification was selected, no bad-block file was found on the volume. This is a warning message only.

XXX -- No checkpoint space, assuming not checkpointable

Explanation: This is a warning message only. The command attempted to install the task as checkpointable, but the task was not built as checkpointable and therefore had no checkpoint space allocated in its task image file. Because the system does not support the dynamic allocation of checkpoint space, it considers the task not to be checkpointable.

XXX -- No LUNs

Explanation: A LUN command line specified a task that had no current logical unit number assignments.

XXX -- No pool space

Explanation: The Executive could not currently satisfy MCR's request for dynamic memory.

XXX -- No room available in STD for new task

Explanation: No dynamic memory is available for making an entry in the System Task Directory (STD). The task cannot be installed.

XXX -- No transfer address

Explanation: BOOT did not consider the file to be a system image file because the specified transfer address in the label block appears to be corrupted.

XXX -- No volume list

Explanation: The command line specified a magnetic tape drive for which a mounted volume list does not exist.

XXX -- Non existent memory

Explanation: An attempt was made to define a partition in nonexistent memory.

Non-RSX EMT execution

Explanation: This is a TKTN message. The task executed an EMT instruction having an argument other than 377(8) or, in the case of a privileged task switching to system state, 376(8), and no SST routine was specified to process the trap.

XXX -- Not a system image

Explanation: The BOOT command determined that the file was not a system image.

XXX -- Not a valid save device

Explanation: An attempt was made to save a system on a device that is not part of the system I/O data structures or SAVE does not support the device.

XXX -- Not enough APRs for task image

Explanation: The Task Builder allows the user to specify the virtual base address of a task image as a multiple of 4K. Privileged tasks that access the Executive start at either virtual address 100000(8) for a 16K Executive or at virtual address 120000(8) for a 20K Executive. If the virtual base address is set too high, there are not enough APRs remaining to map the task image. (See the RSX-11M/M-PLUS and Micro/RSX Task Builder Manual for information on privileged tasks.) This message applies only to mapped systems.

XXX -- Not file structured device

Explanation: The system does not support Files-11 on the specified device.

XXX -- Not Files-11 device

Explanation: The command line specified a device that did not contain a Files-11 disk. The specified device unit must contain a mounted Files-11 disk.

*** <ddnn:> -- Not ready

Explanation: This is a TKTN message. The specified device was not ready.

XXX -- Null file header I/O error

Explanation: An error was detected in writing null file headers to the index file.

Odd address or other trap four

Explanation: This is a TKTN message. The task executed a word instruction with an odd address or referenced a nonexistent memory location in an unmapped system, and no SST routine was specified to process the trap.

XXX -- Old device attached

Explanation: An attempt was made to redirect an attached device.

XXX -- Old device mounted

Explanation: An attempt was made to redirect a mounted device.

XXX -- Old device not known to system

Explanation: An attempt was made to redirect an unknown device (the device does not exist in the device tables).

XXX -- Open file(s) on <ddnn:>

Explanation: There are open files on ddnn:. Ensure that the Queue Manager is stopped.

XXX -- Other user logged on

Explanation: Another user is currently logged in on the terminal. Only one user at a time can be logged in on a terminal.

XXX -- Output error

Explanation: An MCR terminal-write operation failed.

XXX -- Overlap seeks not supported

Explanation: The command attempted to enable overlapped-seek support for other than a DM or an RH device controller.

XXX -- Parameter conflict with already mounted volume

Explanation: The volume was already mounted foreign and Files-11 access was requested or the volume was mounted Files-11 and foreign access was requested.

Parity error

   Explanation: This is a TKTN message. A parity error occurred
   while the task was executing. The task was fixed in memory so
   that the memory cannot be reused for another task.

XXX -- Partition already exists

   Explanation: An attempt was made to define a partition with a
   name already in use.

XXX -- Partition busy

   Explanation: The partition in which the task was to be fixed was
   occupied, so the task could not be fixed.

XXX -- Partition <pname> busy

   Explanation: (RSX-11M operating systems only.) The
   user-controlled partition or subpartition into which the driver
   was to be loaded was already occupied.

XXX -- Partition <pname> is a common

   Explanation: (RSX-11M operating systems only.) An attempt was
   made to load a device driver into a common partition. A device
   driver cannot be loaded into a common partition.

XXX -- Partition not common

   Explanation: A partition specified for a common area or library
   was not defined as a common partition.

XXX -- Partition <pname> not in system

   Explanation: (RSX-11M operating systems only.) The partition
   specified either in the LOAD command line or at task build was
   not in the system.

XXX -- Partition <pname> not in system, defaulting to GEN

   Explanation: This is a warning message only. The specified
   partition does not exist, so the system attempts to install the
   task in the GEN partition.

XXX -- Partition <pname> not in system, task removed - <taskname>

   Explanation: (RSX-11M operating systems only). If a task is
   installed in more than one system, the Partition Control Block
   addresses in its header mapping windows may not be for the booted
   system. The task's label block indicates that the task maps to
   pname, but pname is not in the current system. The label block
   has probably been corrupted.

XXX -- Partition/region <pname> not in system

   Explanation: (RSX-11M-PLUS operating systems only.) An attempt
   was made to load a driver into a partition that does not exist in
   the system, or LOAD found a symbol $xxCOM in the driver and the
   region xxCOM does not exist in the system.

XXX -- Partition <pname> too small

   Explanation: The partition into which the driver was to be
   loaded was not large enough to contain it.

XXX -- Partition too small to buffer information

Explanation: The command resulted in excessive output to the buffer. The information in excess of the buffer size is not displayed.

Postmortem Dump not possible

Explanation: This is a TKTN message. A Postmortem Dump was requested (or the task was built specifying a Postmortem Dump), but the dump could not be generated. For example, the PMD task was not installed, the PMD task and the aborted task were in the same partition and not checkpointable, or there was not enough memory available.

Postmortem Dump will be generated

Explanation: This is a TKTN message that indicates that a Postmortem Dump was requested and will be generated.

XXX -- Privileged command

Explanation: A command that is available only to privileged users was issued by a nonprivileged user.

XXX -- Privileged task larger than 12K

Explanation: A privileged task was larger than 12K words. Privileged tasks on an unmapped system have a maximum size of 12K.

XXX -- Proper controllers and/or units are not offline

Explanation: (RSX-11M-PLUS operating systems only.) When a system is saved, all device units and device controllers except the TI: for SAVE and the load device must be off line. Use the DEVICES or CON DISPLAY command to determine which devices are on line and then issue a CON OFFLINE ALL command.

XXX -- Pseudo device error

Explanation: The specified device is a pseudo device. Pseudo devices cannot be allocated.

XXX -- Pseudo device redirect error

Explanation: An attempt was made to redirect one pseudo device to another pseudo device.

XXX -- Public device [- ddnn:]

Explanation: The command attempted to allocate or initialize a public device. Public devices cannot be allocated or initialized.

*** <ddnn:> -- Read failure. Check hardware status

Explanation: This is a TKTN message. The card reader driver detected a hardware error.

XXX -- Region/partition <name> is a common

Explanation: An attempt was made to load a device driver into a common partition or region. A device driver cannot be loaded into a common partition or region.

*** <ddnn:> -- Remount verification task not installed

    Explanation: (RSX-11M-PLUS operating systems only.) This is a TKTN message. An attempt to remount the specified multiunit disk with the remount verification task (VER...) has failed because the task is not installed.

    This problem occurs when a disk has been spun down and any I/O in progress to the disk stalled. The disk is then spun back up and the driver tries to request VER... to remount the disk. But because VER... is not installed, the disk cannot be remounted and the stalled I/O cannot complete.

    To recover, you must reboot the system. To avoid future recurrences of the problem, install and fix VER... in the system.

*** <ddnn:> -- Replacement control task not installed

    Explanation; This is a TKTN message. While bringing the specified device on line or detecting a bad block on the device, the driver could not call the replacement control task (RCT) because it is not installed. Install RCT.

Required bus runs are offline or not present

    Explanation: (task, or a common that it is mapped to, was installed with an affinity for a CPU or a bus run that is off line.

Reserved inst execution

    Explanation: This is a TKTN message. The task executed an illegal instruction and no SST routine was specified to process the trap.

*** <ddnn:> -- Select error

    Explanation: This is a TKTN message. The selected device was not ready or more than one drive had the same unit number.

XXX -- Shadow recording is active on <ddnn:>

    Explanation: (RSX-11M-PLUS operating systems only.) The device specified in a DISMOUNT command line was being used in shadow recording. Shadow devices cannot be dismounted; first stop shadow recording and then reenter the command line.

XXX -- Space used

    Explanation: An attempt was made to create a partition or a subpartition in a storage area already occupied.

XXX -- Specified partition for common block

    Explanation: An attempt was made to install a task in a common block.

XXX -- Specified partition too small

    Explanation: The task being installed was larger than the partition into which it was being installed.

SST abort. Bad CSM parameters

    Explanation: (RSX-11M-PLUS operating systems only.) This is a TKTN message. The task executed a CSM (Call to Supervisor Mode) instruction with invalid parameters.

SST abort. Bad stack

    Explanation: This is a TKTN message. An SST cannot be effected because the SST parameters cannot be pushed onto the task's stack, or a stack overflow was detected in an unmapped system, as indicated by a nonzero value in the header guard word.

XXX -- Storage bitmap file I/O error

    Explanation: An error was detected in writing out the storage allocation file header.

XXX -- Symbol <symname> is doubly defined by file <filename>

    Explanation: The symbol symname is defined twice in the specified file. Duplicate symbols are illegal.

XXX -- Symbol <symname> is undefined in file <filename>

    Explanation: The symbol symname was found in the specified file, but the symbol was not defined.

XXX -- Syntax error

    Explanation: This message generally indicates that the required information was entered incorrectly.

    User Action: You can usually correct this condition by retyping the arguments according to the command specifications.

XXX -- System may not boot correctly

    Explanation: The file [system-uic]SAV.TSK was not found on the boot device. If SAVE must be checkpointed to redirect and mount the booted device, the system disk will be overwritten, causing unpredictable results.

XXX -- System may not work - corrupted file for common <commonname>

    Explanation: (RSX-11M-PLUS operating systems only.) When SAVE attempted to convert the file-ID for the common, SAVE found that the task image of the checkpointable common was corrupted or had been deleted. SAVE altered the system data structures to prevent checkpointing of the common into what may now be another task image.

XXX -- Task active

    Explanation: The task used as the argument of the command was active.

XXX -- Task active in another system, task removed - <taskname>

    Explanation: The task is installed in another system as well as in the booted system. Since taskname is active and mapped to dynamic regions in the other system, it cannot be run in the booted system.

XXX -- Task already fixed

    Explanation: The task used as the argument of the FIX command is already fixed in memory.

XXX -- Task and partition bases mismatch

    Explanation: The base of the partition did not match the base of the task being installed. This message applies only to unmapped systems.

XXX -- Task and partition <pname> bases mismatch

    Explanation: The base address of the partition into which the driver was to be loaded did not match the base address of the partition for which the task was built. This message applies to unmapped systems only.

XXX -- Task being aborted

    Explanation: A request for the execution of a task was made, but the task was being aborted either because of an unrecoverable error or an abort command or directive issued by a user.

XXX -- Task being fixed

    Explanation: An attempt was made either to fix or to alter the priority of a task that was already being fixed.

XXX -- Task checkpointable

    Explanation: An attempt was made to fix a checkpointable task in memory. A checkpointable task cannot be fixed in memory.

Task exit with outstanding I/O

    Explanation: This is a TKTN message. The task exited with one or more outstanding I/O requests. Tasks should terminate all I/O operations before exiting. The system does, however, process all outstanding I/O.

XXX -- Task file deleted, task removed - <taskname>

    Explanation: While rebooting a saved system, a file identification that appears in the Task Control Block (TCB) could not be found in the index file on the boot device. This indicates that the file has been deleted.

XXX -- Task file header error, task removed - <taskname>

    Explanation: When SAVE read the task header to restore the LBN of the task file, the checksum was bad or there was a file number mismatch. Therefore, the task was removed.

XXX -- Task file header read error, task removed - <taskname>

    Explanation: The system removed the specified task because it encountered a failure while reading the task's file header.

XXX -- Task header read error

    Explanation: The system detected an I/O error while reading in a task header to write the file identification into the TCB. This error causes the system to halt.

XXX -- Task image already installed

Explanation: The requested task image, which was checkpointable, had already been installed. On systems that do not support the dynamic allocation of checkpoint space, checkpointable tasks that do not have checkpoint space allocated can be installed only once; other tasks can be installed more than once (under different names).

XXX -- Task image I/O error

Explanation: INSTALL could not read the task image file or it could not rewrite the task image header. (The device is write-locked.)

XXX -- Task image I/O error in file <filename>

Explanation: The device is probably write-locked. MCR could not read the task image file or could not rewrite the task image header.

XXX -- Task image virtual address overlaps common block <blockname>

Explanation: The virtual addresses reserved for the task image overlap those reserved for the common block specified in the message. A corruption of the task image file probably caused the overlap.

Task installed in more than one system

Explanation: This is a TKTN message. The task image file has been installed in more than one system. The task's header contains pointers for the last system in which the task was installed. The pointers are not valid for the current system. Remove the task and reinstall it in the current system.

XXX -- Task installed in partition

Explanation: An attempt was made to eliminate a partition or subpartition that contains installed tasks.

Task load device dismounted

Explanation: (RSX-11M-PLUS operating systems only.) This is a TKTN message. The task cannot be loaded into memory because its load device has been dismounted.

XXX -- Task marked for abort

Explanation: A previous request has already been made to abort the specified task, but the abort has not yet occurred. The task marked for abort is probably not currently resident in memory or it has outstanding I/O.

XXX -- Task name already in use

Explanation: An attempt was made to install a task with the same name as one already in the system.

XXX -- Task not active

Explanation: The specified task is not currently active.

XXX -- Task not fixed

Explanation: An attempt was made to unfix a task that was not
fixed or to open a virtual location of a task that was not fixed.

XXX -- Task not in system

Explanation: The specified task has not been installed or the
task was initiated by the install-run-remove option of the RUN
command.

XXX -- Task not suspended

Explanation: The task specified in the RESUME command line was
not suspended.

*** Task "<taskname>" does not contain a debugging aid

Explanation: (RSX-11M-PLUS operating systems only.) This is a
TKTN message. The DEBUG command was issued for a task that does
not contain a debugging aid.

XXX -- Task <taskname> has outstanding I/O

Explanation: A system cannot be saved if a task is waiting for
I/O to complete.

XXX -- Task <taskname> is active and checkpointed

Explanation: You cannot save a system if it contains an active
and checkpointed task.   This restriction prevents a possible
system crash because, if the task was installed in another system
image file, the task image could be corrupted when the task was
run in the second system.

XXX -- Task <taskname> is connected to an interrupt vector

Explanation: Disconnect the task from the interrupt vector or
abort it, and reenter the SAVE command line.

XXX -- Task <taskname> not installed from an LB:

Explanation: All tasks must be installed from the system device
(LB:).   Use the TAS command to determine which tasks are not
installed. Reenter the SAVE command line after removing the
tasks or installing them from LB:.

T-bit trap or BPT execution

Explanation: This is a TKTN message. The task has either set
the T-bit in the Processor Status Word or executed a Breakpoint
Trap instruction, and no SST routine was specified to process the
trap.

XXX -- Terminal allocated to other user

Explanation: The issuing terminal is already allocated to
another user.   A user cannot log in on a terminal allocated to
someone else.

XXX -- TI redirect error

Explanation: An attempt was made to redirect the pseudo device
TI:. This device cannot be redirected.

TI: virtual terminal eliminated

    Explanation: (RSX-11M-PLUS operating systems only.) This is a TKTN message. The terminal from which the task was initiated (its TI:) was a virtual terminal that has since been eliminated. This happens to an offspring task when its parent task issues an ELIMINATE VIRTUAL TERMINAL directive and exits or aborts. The offspring task cannot continue running without a TI: and is aborted.

XXX -- Too many common block requests

    Explanation: A task is limited to seven common block requests.

XXX -- Too many LUNs

    Explanation: A task attempted to assign more than 255(10) LUNs.

XXX -- Too many subpartitions

    Explanation: An attempt was made to assign more than seven subpartitions. A partition is limited to a maximum of seven subpartitions.

XXX -- Too many symbols of the form $xxTMO in file <filename>

    Explanation: (RSX-11M-PLUS operating systems only.) LOAD is attempting to extract symbols of the form $xxTMO from the driver's symbol definition file. There are more symbols of this form than LOAD can process.

TRAP execution

    Explanation: This is a TKTN message. The task executed a TRAP instruction and no SST routine was specified to process the trap.

XXX -- Undefined common block <blockname>

    Explanation: A task referenced a common block that had not been defined in the system. Usually, this message indicates that the task was built for another system.

XXX -- Undefined density selection

    Explanation: The command line specified an illegal density value.

XXX -- Unit does not support 800 bpi

    Explanation: The command line specified 800 bpi for a drive that does not support 800 bpi.

XXX -- Unit does not support 1600 bpi

    Explanation: The command line specified 1600 bpi for a drive that does not support 1600 bpi.

XXX -- Unit does not support 6250 bpi

    Explanation: The command line specified 6250 bpi for a drive that does not support 6250 bpi.

XXX -- Unit does not support density switch

    Explanation: The command line specified multiple densities for a device that does have multiple-density capability.

XXX -- Unit does not support HIGH/LOW density selection

Explanation: The command line specified HIGH or LOW density for a device for which the HIGH and LOW options are undefined.

XXX -- Unit is not at LOW density

Explanation: The command line specified that a floppy disk in an RX02 drive be initialized at LOW density, but the floppy was formatted at HIGH density.

XXX -- Unit is not at HIGH density

Explanation: The command line specified that a floppy disk in an RX02 drive be initialized at HIGH density, but the floppy was formatted at LOW density.

XXX -- Unknown main partition

Explanation: An attempt was made to define a subpartition in a nonexistent main partition.

XXX -- Unknown help qualifier

Explanation: The help file does not contain the last qualifier displayed in the command line below the error message.

*** <ddnn:> -- Unrecoverable hardware device error

Explanation: This is a TKTN message. Error Logging recorded an unrecoverable hardware error.

XXX -- User logged on terminal

Explanation: The command attempted to allocate a terminal that has been logged in by another user. Logged-in terminals cannot be allocated.

XXX -- User partition >32K not permitted

Explanation: (RSX-11M operating systems only.) The command attempted to create a partition greater than 32K. User-controlled partitions greater than 32K cannot be created in systems that do not support extended logical address space, a system generation option.

XXX -- Volume mounted Files-11

Explanation: An attempt was made to initialize a mounted Files-11 volume. Mounted Files-11 volumes cannot be initialized.

XXX -- Volume mounted foreign with ACP

Explanation: (RSX-11M-PLUS operating systems only.) The command line specified a device that was mounted foreign but with an ACP. To initialize a volume on an RSX-11M-PLUS operating system, you cannot include an ACP name when the volume is mounted as foreign.

XXX -- Volume name too long - (volume name)

Explanation: The command line specified a volume label that exceeded six characters for magnetic tape devices or 12(10) characters for disk or DECtape devices.

XXX -- Volume not mounted

    Explanation: An attempt was made to dismount or to create a UFD on a volume that is not mounted. A volume on which a UFD is to be created must be mounted.

XXX -- Volume not mounted by TI:

    Explanation: The command line specified a dismount operation for a volume that was not mounted from the issuing terminal or the command line specified the wrong device name for a magnetic tape set.

XXX -- Volume(s) still mounted on <ddnn:>

    Explanation: A system with mounted volumes cannot be saved.

    User Action: To correct the problem, dismount the volumes and retry the command. The DEVICES command can be used to display the mounted volumes.

XXX -- Volume structure not supported

    Explanation: Your operating system does not support the Files-11 structure level of the volume being mounted.

    In response to a SAVE command, while rebooting a saved system, the system determined from the disk's home block that the disk's structure is not supported by the current version of your operating system. This error causes the system to halt.

XXX -- Warning -- Block 0 is bad

    Explanation: Block 0 of the specified volume, the boot block, was bad. A bootable image cannot be placed on this volume. This is a warning message only.

XXX -- Warning - KRB <name> interrupt vector nnn in use

    Explanation: (RSX-11M-PLUS operating systems only.) An attempt was made to load a driver that specifies an interrupt vector that is not pointing to a nonsense interrupt entry point address. This is usually caused by a previously loaded driver that has used this vector.

    When you get this message, LOAD has loaded the driver correctly, but the problem must be corrected before the device is brought on line.

XXX -- Warning - KRB <name> interrupt vector <nnn> too high

    Explanation: (RSX-11M-PLUS operating systems only.) An attempt was made to load a driver that specifies an interrupt vector address that is higher than the highest permissible vector address in your system.

    When you get this message, LOAD has loaded the driver correctly, but the problem must be corrected before the device is brought on line.

XXX -- Warning - Loadable driver larger than 4K

    Explanation: Loadable drivers can be up to 8K words in length. The driver must explicitly map to any locations above 4K words.

XXX -- (Warning) Nonexistent LUN assignment for task <taskname>

Explanation: The physical device to which SAVE was attempting to reassign a LUN does not exist in the booted system. This condition is resolved if the task performs a run-time assignment to the LUN; otherwise, the task will encounter an error condition when it attempts to use the LUN.

XXX -- Warning - Privileged task overmaps the I/O page

Explanation: A privileged task that is mapped into the Executive is usually also mapped into the I/O page to access the registers for the KT11 and other devices. Many tasks do not require this access and can use the additional 4K words of virtual address space for the task image. This message warns that a task that may require access to the I/O page might have grown too large.

XXX -- Write attributes failure

Explanation: An error was encountered while the attributes of either the MFD or the newly created UFD were being written.

*** <ddnn:> -- Write back caching data lost. Unit write locked

Explanation: This is a TKTN message. When the specified device was brought on line, RCT detected that its cache contained corrupted data, so the device was write-locked for protection. After correcting the cache data, mount the device as write-enabled (MOUNT /WRITE).

Note that every time the device is brought on line, TKTN will display this message.

XXX -- Write check not supported

Explanation: An attempt was made to support write checking on a device that does not support it.

XXX -- Wrong volume label

Explanation: The volume's current label and the label specified in the command line did not match.

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City _____ State _____ Zip Code _____
                                                          or Country
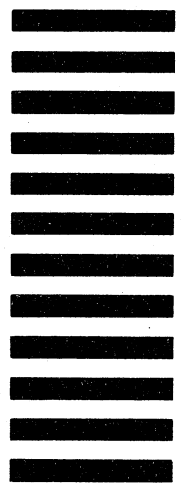
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