

RSX-11M
Version 4.2 Update Notes
Revision D

Order No. AA-W259I-TC

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Order No. AA-W259I-TC

Operating System and Version: RSX-11M Version 4.2

December 1986

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Conventions Used in This Document

The following conventions are observed in this manual.

Convention	Meaning
.	Separates the file name from the file type in a file specification.
;	Separates the file type from the file version number in a file specification.
,	Separates parameters in commands.
n	Indicates a variable for a number.

CTRL/a The symbol **CTRL/a** means that you are to press the key marked CTRL while pressing another key. Thus, **CTRL/Z** indicates that you are to press the CTRL key and the Z key together in this fashion. **CTRL/Z** is echoed on your terminal as ^Z. However, not all control characters echo.

Preface

Manual Objectives

The *RSX-11M Version 4.2 Update Notes Revision D* manual describes the RSX-11M Version 4.2 update software. It includes a list of the RSX-11M layered products that can be updated with this software package.

Intended Audience

System managers and system users familiar with the RSX-11M operating system should read this manual before applying the update software.

Structure of This Document

Chapter 1 describes the procedure for applying the RSX-11M update software.

Chapter 2 describes the existing system problems that are corrected when you apply the update software, and lists the corresponding update correction files.

Chapter 3 describes new and modified software features for the RSX-11M operating system.

Chapter 4 describes new hardware support for the RSX-11M operating system.

Chapter 5 contains corrections to documentation errors in the RSX-11M Version 4.2 documentation set.

Chapter 6 includes a list of the layered products that can be updated with this software.

Associated Documents

The following manuals provide additional information about the update and system generation procedures:

- *RSX-11M System Generation and Installation Guide*
- *RSX-11M/RSX-11S Release Notes*

Chapter 1

Updating Your RSX-11M Operating System

1.1 Applying Your Update Software

The RSX-11M Version 4.2 update software is applied to your RSX-11M operating system using the following steps:

1. Invoke the update command procedure (by entering the command @UPDATE).
2. Run the system generation program.
3. Apply corrections to the layered products.

WARNING

An error has been found in the RSX-11M Version 4.2 distribution kit. The file UPDATE.CMD contains a command line error. This file **cannot** be used to invoke the update software. To correct this error, a new UPDATE.CMD command file has been included with this update distribution kit. After you copy UPDATE.CMD to the user area and invoke it, follow the normal procedure for applying the update software as outlined in the *RSX-11M System Generation and Installation Guide*.

If you are using a disk device, copy UPDATE.CMD as follows:

```
MCR>MOU UP:M42UPDATED
MCR>PIP ddnn:[200,200]UPDATE.CMD/NV=UP:[200,200]UPDATE.CMD
MCR>DMO UP:
```

where

UP Contains the update software kit

ddnn Is your distribution disk

If you are using a tape device, copy UPDATE.CMD as follows:

```
MCR>MOU UP:/FOR (RSX-11M-PLUS and VMS systems only)
MCR>BRU/NOINI/DENS:dens/VER/REW/SUP UP:[200,200]UPDATE.CMD ddnn:
MCR>DMO UP: (RSX-11M-PLUS and VMS systems only)
```

where

UP Contains the update software kit

ddnn Is your distribution disk

dens Is the tape density setting

Be sure to read Chapter 2 of the *RSX-11M System Generation and Installation Guide* and Chapter 1 of the *RSX-11M/RSX-11S Release Notes for Version 4.2* before invoking the update command procedure.

1.2 Applying Corrections to Nonprivileged Task Libraries

The libraries of the following nonprivileged tasks have been modified with the following update software:

- BAD (Bad Block Locator Utility)
- BRU (Backup and Restore Utility)
- EDT (Text Editor)
- FMT (Disk Volume Formatter Utility)
- FTB (Fast Task Builder)
- MAC (MACRO-11 Assembler)
- PIP (Peripheral Interchange Program)
- STK (Slow Task Builder)
- TKB (Task Builder)
- VFY (File Structure Verification Utility)
- VMR (Virtual Monitor Console Routine)

To incorporate the Update D corrections for these tasks, first apply the update software and perform a system generation. After completing these procedures, invoke the command procedure *SYSGEN3.CMD*. This command procedure will rebuild the nonprivileged tasks. For more information, please refer to Chapter 7 of the *RSX-11M System Generation and Installation Guide*.

Chapter 2

System Problems and Correction Files

The RSX-11M Version 4.2 update software contains corrections to the system problems described in the following sections. An explanation of each problem and a list of corresponding correction file(s) are also included.

This chapter has been organized cumulatively. When a new version of the update software is created, a new section is added to this chapter. Each section contains the System Problems and correction files that correspond to the update version. In the software of each update version, corrections are provided for the particular update and all previous update revisions.

2.1 System Problem Statements and Correction Files for Update D

The following paragraphs describe the System Problems that are corrected by the RSX-11M Version 4.2 Revision D software and all subsequent revisions, and list the correction file or files for each problem.

SYSTEM PROBLEM

After Update C corrections are applied, tasks using the Command String Interpreter (CSI) modules accept incorrect command strings as if they were syntactically correct.

Explanation: During the parsing of a command string, the CSI modules return a status of success (that is, the carry bit is cleared) even if an error is encountered.

This problem has been corrected in Update D. The CSI modules now set the carry bit when an error is encountered in the command string.

Correction Files:

[55,60]CSI1.OBJ
[55,60]CSI2.OBJ

SYSTEM PROBLEM

The INITVOLUME command (INI) does not allow the user to specify the Density switch (/DENS) when attempting to initialize a magnetic tape on an MU-type tape drive. INI returns the following error message:

```
INI -- Unit does not support density switch
```

Explanation: INI contains an internal table of information for devices that use the /DENS switch. If there is no entry for a given device type, INI considers the switch to be invalid for that device. Because the MU-type device did not have an entry in the internal table, the /DENS switch was invalid.

This problem has been corrected by adding the MU-type device, with related information, to INI's internal table. This allows the use of the /DENS switch with MU-type tape drives.

This problem is corrected in RSX-11M Version 4.2 Update D.

Correction File:

```
[12,60]INIGCL.OBJ
```

SYSTEM PROBLEM

The Virtual Monitor Console Routine (VMR) command SET /NOECHO=ttnn: does not take effect when the system is bootstrapped. The command appears to execute without errors and the SET /NOECHO command displays the terminal as NOECHO. However, in the bootstrapped system, the terminal is actually set to ECHO.

Explanation: The terminal-characteristic bit for NOECHO was changed for the RSX-11M Version 4.2 operating system. VMR, however, was not changed. VMR set and checked the old characteristic bit instead of the new one. Consequently, when the system was bootstrapped, the terminal driver did not recognize the terminal as NOECHO.

VMR has been changed to set and check the new terminal-characteristic bit.

Correction Files:

```
[70,60]SDSOV.OBJ  
[70,60]SPROV.OBJ  
[1,60]VMRBLD.COR
```

SYSTEM PROBLEM

When using single-user Monitor Console Routine (MCR), the SET /NOMAIN command causes MCR to output extraneous characters and hang until the next command is entered.

Explanation: The problem occurs only with the single-user version of MCR (MCR.TSK) because MCR remains active after every command waiting for the next command to process.

While processing the SET /NOMAIN command, MCR places an extra word on the stack, thus corrupting one of its buffers. While the SET /NOMAIN command removes the partition correctly, MCR tries to use the corrupted buffer to process the next command and extraneous characters are output.

Correction Files:

[12,60]ST30V.OBJ
[1,60]MCRBLD.COR
[1,60]MCMBLD.COR

SYSTEM PROBLEM

When you log out from a heavily loaded system, there may be a 10- to 14-second wait before you are actually logged out and the prompt returns.

Explanation: Two of the operations that BYE spawns are the MARK TIME directive and the DMO /USER command, both of which use the same event flag. When the system is heavily loaded and the dismount completes before the MARK TIME directive is issued, there will be a 10-second delay.

Correction File:

[12,60]BYE.OBJ

SYSTEM PROBLEM

The SHUTUP program does not send notification to HT and RT network terminals.

Explanation: The extension of the RSX-11M SHUTUP task to include notification to HT and RT network terminals was omitted inadvertently.

Corrections have been made to include changes to notify these terminals of impending system shutdown.

Correction File:

[15,64]SHUTUP.OBJ

SYSTEM PROBLEM

Alternate command line interpreter (CLI) prompts specified with the /CPR and /DPR subkeywords that are fewer than three characters in length result in a "Memory Protect" or "SST Abort Bad Stack" trap from Indirect.

Explanation: Characters such as RETURN (<CR>) and LINEFEED (<LF>) must be specified explicitly. The HELLO task assumes that there is a leading RETURN, and Indirect assumes that there are leading RETURN and LINEFEED characters in the prompt. When these tasks concatenate the prompt with the display line, they skip over the assumed characters and move the remainder of the string into an output buffer. If a prompt with zero, one, or two characters is specified, HELLO and Indirect attempt to move a string of zero or negative length. As a result, the HELLO task and the stack become corrupted or an attempt is made to access memory that is outside of task space.

HELLO and Indirect have been modified to skip over leading RETURN and LINEFEED characters only if they are included in the prompt specification.

Correction File:

[12,60]ICPSU.OBJ

SYSTEM PROBLEM

The MCR command QUE/BR/LI:P correctly displays the print queues, print queue assignments, and jobs in the print queues. However, the equivalent DIGITAL Command Language (DCL) command SHOW QUEUE/BRIEF/DEVICE returns the following error message:

```
SHOW -- Illegal, contradictory, or ambiguous qualifier
```

Explanation: The DCL command SHOW QUEUE has been modified to allow use of the /BRIEF qualifier with the /DEVICE qualifier.

Correction File:

[23,60]SHOW.COR

SYSTEM PROBLEM

When a file is queued with the /DELETE qualifier, the file attribute cannot be changed to /NODELETE with the QUE/MOD/EN:n/FI:n/NODELETE command.

Explanation: The /[NO]DELETE qualifier was created with the Create Switch Value Descriptor Table Entry macro (CSI\$SW) using incorrect parameter values. This error prevents the Queue Manager command line interpreter (QMGCLI) from processing the QUE/MOD command file qualifier /[NO]DELETE properly.

The parameter values are now used with the macro CSI\$SW to create the /[NO]DELETE qualifier.

Correction File:

[25,60]QMGCLI.CLI

SYSTEM PROBLEM

The PASTHRU (TC.PTH) and NOECHO (TC.NEC) terminal driver characteristics are not initialized to false when a remote line is answered.

Explanation: TTDRV has been modified to clear the terminal characteristic bits for NOECHO and PASTHRU when a remote line is answered.

Correction Files:

[11,60]TTRW.COR
[11,60]TTICH.COR
[11,60]TTINI.COR
[11,60]TTMOD.COR

SYSTEM PROBLEM

When a control character such as CTRL/A is declared with the out-of-band include characteristic (TC.OOB), its special function is not disabled.

Explanation: The terminal driver (TTDRV) has been modified to disable the special function of control characters that have been set up with the TC.OOB characteristic.

Correction Files:

[11,60]TTRW.COR
[11,60]TTICH.COR
[11,60]TTINI.COR
[11,60]TTMOD.COR

SYSTEM PROBLEM

If you use the DCL command SET PROTECTION with a file name that begins with the letter L, DCL removes the L and translates it into a Network File Transfer (NFT) command.

Explanation: Prior to Update D, DCL did not require SET PROTECTION qualifiers to be preceded by a slash (/). There was no distinction between a qualifier and a file specification. This was not a problem, however, until NFT was added to DCL and the /LOG qualifier was introduced. Subsequently, the DCL command SET PROTECTION tried to parse a file starting with L and the command line interpreter (CLI) translated L into /LOG.

DCL now requires a slash (/) before all SET PROTECTION qualifiers.

Correction File:

[23,60]SET1.COR

SYSTEM PROBLEM

The DCL command SET DEFAULT responds with the following error message when it is issued with no arguments:

SET -- Invalid device

Explanation: The behavior of the SET DEFAULT command was changed inadvertently. The software has been corrected to reflect the behavior of the command as documented.

Correction File:

[23,60]TSET.COR

SYSTEM PROBLEM

The Task Builder (TKB) assignment option (ASG) does not work with values greater than the current number of logical units (UNITS). If no value has been assigned to UNITS, TKB does not accept ASG values greater than the default value of six.

Explanation: TKB compares the number of logical units assigned by ASG to the maximum number of entries declared in the logical unit table by UNITS. By making this comparison, TKB prevents the number of units assigned by ASG from exceeding the number of units currently available.

TKB has been modified to accept the ASG assignment regardless of the unit number. TKB automatically assigns the larger ASG value to the UNITS option. Then, after the options have been processed, TKB reports the following new diagnostic message:

TKB -- *DIAG*-Illegal number of logical units

Units set to maximum assigned

Correction Files:

[1,60]TKBLD.COR
[31,64]P2OPT.OBJ
[31,64]P2POP.OBJ

SYSTEM PROBLEM

The following Executive FORTRAN subroutines do not work:

- Stop for Logical OR of Event Flags (STLORS)
- Wait for Logical OR of Event Flags (WFLORS)

Explanation: The FORTRAN interface routine for the WFLORS and the STLORS Executive subroutines handle the argument count incorrectly.

The FORTRAN interface routine has been modified; WFLORS and STLORS now work correctly.

Correction File:

[52,60]WFLOR.OBJ

SYSTEM PROBLEM

The system spontaneously crashes while servicing unsolicited interrupts from spooled print devices on terminal ports.

Explanation: The problem is caused by the incorrect handling of printers connected to terminal ports by the despooler task, LPP.

The Queue Manager Task (QMG) attaches the terminal port to the despooler by directly placing the Task Control Block (TCB) address of LPP into the terminal Unit Control Block (UCB) location U.ATT instead of using the terminal driver QIO mechanism IO.AATT. However, putting the TCB address in the U.ATT offset of the UCB is not enough for servicing unsolicited interrupts. In order to process unsolicited input, the terminal driver needs the UCB extension UCBX, which is allocated by the driver when servicing the IO.ATT QIO function. Because the terminal is attached but the UCBX address in UCB is zero, the driver crashes the system.

Correction File:

[121,60]INIT.OBJ

SYSTEM PROBLEM

LPP suspends activity at the end of output when the print processor task is initialized with simulated form feeds and the file being printed includes a form-feed character.

Explanation: When a print processor has been initialized with simulated form feeds, LPP performs the following sequence of steps:

1. Scans each print line for a vertical format character (VFC)
2. Issues the Executive directive Queue I/O Request (QIO\$) to print any information preceding the VFC

3. Increments a counter to indicate that I/O is in progress
4. Prints any information that precedes the VFC
5. Executes the VFC action and prints the remainder of the line

LPP increments a counter when the QIO\$ is issued but fails to decrement the counter after the QIO\$ completes. This failure to decrement the counter suspends LPP because LPP is unable to exit until the counter is clear.

LPP has been corrected.

Correction File:

[121,60]IOPRT.OBJ

SYSTEM PROBLEM

When DHU/DHV devices are selected during system generation, responses are not accepted when SYSGEN asks for the vector, control and status register (CSR), highest line number, and terminal speed.

Explanation: The module in SGNPER.CMD that collects the DHU/DHV information does not set the symbol RANGE4 to false, which prohibits responses to the DHU/DHV questions. This problem has been corrected by adding the following line to SGNPER.CMD:

```
.SETF RANGE4
```

Correction File:

[200,60]SGNPER.COR

SYSTEM PROBLEM

When generating an RSX-11M operating system with graphics device support, SYSGEN aborts with a fatal error in the module SGNPER.

Explanation: In the module SGNPER, there is a subroutine call to the label UMR. This statement is executed only when a graphics device has been selected. However, this label did not appear in the module and a fatal Indirect error occurred.

UMR has been added to the module SGNPER.

Correction File:

[200,60]SGNPER.COR

SYSTEM PROBLEM

The Indirect directive .TESTPARTITION does not accept partition names with imbedded periods (for example, MY.PAR). When a period is detected, Indirect returns a "No Such Partition" value in the special string symbol <EXSTRI>.

Explanation: The .TESTPARTITION directive converts the specified partition name to a six-character Radix-50 name by using symbol-conversion routines. Because periods are not allowed in Indirect symbol names, if a period is detected in a partition name, conversion ceases and the balance of the Radix-50 name is filled with blanks.

Indirect has been modified to use the task-name conversion routines, thereby allowing imbedded periods in partition names specified in a .TESTPARTITION directive.

Correction Files:

[12,60]ICPSUI.OBJ
[12,60]ICPTPA.OBJ

SYSTEM PROBLEM

The Peripheral Interchange Program (PIP) reports the number of files on an RA81 disk as a negative number when the disk is initialized with a three-header index file and the number of files on the disk exceeds 32,767₁₀.

Explanation: PIP converts the total number of files from a binary number to a signed decimal number. The total is displayed as a negative number when the total (unsigned) number of files exceeds 32,767.

PIP now converts the total number of files into an unsigned decimal number.

Correction Files:

[32,60]PIPDIR.OBJ
[1,60]PIPBLD.COR

SYSTEM PROBLEM

The stand-alone Backup and Restore Utility (BRU) incorrectly initializes the second and subsequent disks of a multivolume save set during an /IMAGE:SAVE operation. Because the disks are not initialized correctly, it is not possible to copy a multivolume save set created by stand-alone BRU with either stand-alone BRU or online BRU.

Explanation: Stand-alone BRU (BRUSYS/BRU64K) incorrectly initializes disks other than the first one during an /IMAGE:SAVE operation because headers for the system files are created incorrectly. A variable is not initialized at run time; therefore, the following fields in the headers of each of the system files (on volumes other than the first one) contain incorrect values:

Extension Segment Number (M.ESQN)
Extension Relative Volume Number (M.ERVN)
Extension File Number (M.EFNU)
Extension File Sequence Number (M.EFSQ)

The ability to restore a multivolume disk save set created by stand-alone BRU is not affected because BRU does not use this header information when restoring the save set.

Stand-alone BRU has been modified to correctly initialize the headers on system files at run time.

Correction File:

[74,60]BRUINDEX.OBJ

SYSTEM PROBLEM

When performing a /COMPARE/IMAGE:SAVE operation with stand-alone BRU, header verify errors are returned with the following message:

```
BRU -- *WARNING* -- No files found
```

Explanation: The problem was caused by BRU reading the wrong set of retrieval pointers when scanning the Master File Directory (MFD) for entries.

BRU has been modified to read the correct set of retrieval pointers.

Correction File:

```
[74,60]COMLIB.OBJ
```

SYSTEM PROBLEM

When restoring a backup set that contains only empty User File Directories (UFDs) with the /VERIFY qualifier, BRU does not create the UFDs on the output volume correctly. Because of this, attempts to create files in these UFDs fail.

Explanation: In this situation, BRU did not mark the headers for each UFD as "in use" in the index file bit map. BRU has been modified to create UFDs correctly.

Correction Files:

```
[74,60]BRURESROT.OBJ  
[74,60]COMLIB.OBJ  
[74,60]BRUFILE.OBJ  
[74,60]BRUHEAD.OBJ
```

SYSTEM PROBLEM

When an MS device is used, BRU does not skip over the bootable system image at the beginning of a tape.

Explanation: BRU is unable to skip over the bootable system image because the device driver MSDRV does not return the length of the block being read from the tape. Due to hardware limitations, MSDRV returns the number of bytes actually transferred instead of the number of bytes read in the I/O status block.

BRU has been modified to work correctly with all supported tape devices.

Correction Files:

```
[74,60]BACKTP.OBJ  
[74,60]TAPEIO.OBJ
```

SYSTEM PROBLEM

When a disk-to-tape compare operation is attempted on a tape with a bootable system image, the compare fails on all tape devices and BRU displays the following message:

```
BRU -- *WARNING* -- Tape label error on ddnn:  
I/O Error code -13
```

Explanation: The failure of disk-to-tape compare operations on tapes with a bootable system image is due to the omission of the code to provide this capability for compare operations.

BRU is now able to perform disk-to-tape compare operations on tapes with a bootable system image.

Correction Files:

[74,60]TAPEIO.OBJ
[74,60]BACKTP.OBJ

SYSTEM PROBLEM

The terminal driver causes the system to crash if the system was generated without terminal support for extended I/O.

Explanation: The subroutine FPSUI1 for the terminal driver module TTFP unconditionally clears bit S6.EIO in word U.TST6. If extended I/O was not selected, UCB offset U.TST6 does not exist. TTDRV clears a bit in the next UCB instead.

Bit S6.EIO in word U.TST6 is now cleared on the conditional T\$\$EIO.

Correction File:

[11,60]TTFP.COR

SYSTEM PROBLEM

The console device (CO) cannot be initialized as a shared printer from the starting command file.

Explanation: The Queue Manager does not allow a device to be initialized as a printer if it is attached, allocated, or logged in at the time of the attempted initialization. This restriction exists regardless of whether the device is being initialized /SHAREABLE; the system checks only for a nonzero User Identification Code (UIC). The problem occurred because changes were made to log in the console terminal to directory [1,54] instead of the dummy account [,].

Corrections have been made to allow a printer to be initialized /SHAREABLE even if it is logged in at the same time.

Correction File:

[25,64]QMGASS.OBJ

SYSTEM PROBLEM

Nonprivileged terminals are not allowed to issue breakthrough writes to their own TI.

Explanation: The terminal driver TTINI.MAC has been modified to allow breakthrough write requests to the TI of a nonprivileged task.

Correction Files:

[11,60]TTRW.COR
[11,60]TTINI.COR
[11,60]TTICH.COR
[11,60]TTMOD.COR

SYSTEM PROBLEM

When a task issues a read from a remote terminal (RT) and you enter no input characters but terminate the read by pressing the RETURN key or typing CTRL/Z, the terminator is passed to the task as input.

Explanation: TTDRV has been modified to exclude terminators from the input buffer.

Correction Files:

[11,60]TTRW.COR
[11,60]TTINI.COR
[11,60]TTICH.COR
[11,60]TTMOD.COR

2.2 System Problem Statements and Correction Files for Update C

The following paragraphs describe the System Problems that are corrected by the RSX-11M Version 4.2 Revision C software and all subsequent revisions, and list the correction file or files for each problem.

SYSTEM PROBLEM

When system pool is low, the BYE task may suspend activity. In addition, BYE will not exit and remains active on a terminal even after the system recovers from low system pool.

Explanation: During some operations, BYE issues the directive Mark Time (MRKT\$) and then issues the directive Wait for Single Event Flag (WTSE\$). However, if MRKT\$ fails because of insufficient system pool, the event flag may be either set or cleared. If it is cleared, WTSE\$ is never satisfied and BYE remains active.

Corrections have been made so that directives are retried when they require system pool and are critical to the completion of the BYE task.

Correction File:

[12,60]BYE.COR

SYSTEM PROBLEM

LPP performs an infinite loop while trying to print a record that contains a negative record length.

Explanation: LPP determines whether the record length of a file is valid. After issuing the GET\$ directive, the following types of invalid record lengths may occur:

- The actual record length exceeds the limit specified in F.URBD for the device.
- The actual record length is negative.

When either error occurs, LPP performs an infinite loop.

LPP has been corrected and now tests for a negative record length. When this occurs, LPP exits with an error message.

Correction File:

[121,60]PRT.OBJ

SYSTEM PROBLEM

When using the DCL command PRINT /FORM:3 and /FORM:5 qualifiers, the LN03 laser printer prints only 51 lines on a page while using the standard page width of 132 characters. However, the explanation in the file LPPBLD.BLD states that these qualifiers cause 66 lines to be printed on a page.

Explanation: Before the qualifiers /FORM:3 and /FORM:5 are processed, LPP issues escape sequences that initialize the LN03. Because these escape sequences contain incorrect commands, only 51 lines are printed on a page. The LPP source code has been modified to correct this problem.

Correction File:

[121,60]JOBSTR.OBJ

SYSTEM PROBLEM

The VMR command SET /TERM does not accept the following terminal devices:

- LA210
- LQP01
- LQP02
- LQP03

Explanation: This problem occurs because these terminal devices are not included in the VMR command SET /TERM source code. The source code has been modified to include these devices.

Correction Files:

[70,60]SPROV.OBJ

[70,60]SDSOV.OBJ

SYSTEM PROBLEM

Alternate CLI commands that contain 79 characters and end with a carriage return are not executed when they are passed to MCR using the Request and Pass Offspring Information (RPOI\$) directive. Instead, the command is passed repeatedly between MCR and the alternate CLI, causing an infinite loop.

Explanation: This problem occurs when bit 5 of the last byte in a command packet is cleared. This bit is used to instruct MCR to execute commands passed to it by an alternate CLI rather than transferring control of that command to the alternate CLI.

When a command is 79 characters long, the last byte is also used to contain the terminator of the command. However, the RPOI\$ directive changes this byte after the bit has been set. As a result, the commands are not executed.

The RPOI\$ directive has been modified so that bit 5 is left unchanged.

Correction File:

[11,60]DRSPW.COR

SYSTEM PROBLEM

The MCR command SET /TERM does not accept the following terminal devices:

- LQP01
- LQP02

In addition, the MCR command DEV does not display the following terminal devices:

- LA210
- LQP01
- LQP02
- LQP03

Explanation: Both problems occur because these terminal devices are not included in the MCR source code. The source code has been modified to include these devices.

Correction Files:

[12,60]SPSOV.COR
[12,60]SX2OV.COR
[12,60]DV2OV.COR

SYSTEM PROBLEM

On systems that contain a resident loader, MCR aborts operation if the MCR command TAS is entered with an additional character (for example, TASK instead of TAS).

Explanation: Normally, when executing the TAS command, MCR reads the task header to retrieve the task version number and assumes that a register points to the task header. However, the resident loader does not have a task header, so the register points to the end of the original command line. If the command line has three characters, the register is even and MCR prints an incorrect version number for the task loader. If the command line has four characters, the register is odd and MCR traps because of an odd address.

Correction File:

[12,60]TASOV.COR

SYSTEM PROBLEM

The DCL command FORTRAN requires the /F77 qualifier when specifying all FORTRAN-77 qualifiers. However, FORTRAN-77 is the default FORTRAN compiler and should not be required syntax.

Explanation: FORTRAN-77 is the default FORTRAN compiler. However, while FORTRAN-77 support was added to RSX-11M Version 4.2, the source code did not include it. Consequently, the /F77 qualifier became required syntax. DCL now accepts FORTRAN-77 as the default FORTRAN compiler and the /F77 qualifier is no longer required.

Correction File:

[23,60]FORTRAN.COR

SYSTEM PROBLEM

The DCL abbreviated command SET DE defaults to the DCL command SET TERMINAL/DEC_CRT. However, other DCL commands, such as SET DEBUG, SET DEFAULT, and SET DEVICE, also include the SET DE characters.

Explanation: This problem occurs because DCL fails to require a minimum of three characters to properly interpret the command. DCL has been modified to parse the command SET TERMINAL/DEC_CRT for three characters.

Correction File:

[23,60]SET1.COR

SYSTEM PROBLEM

When a system is generated without support for the device-specific function Get Terminal Support (IO.GTS), the terminal driver (TTATT) fails to set or display the terminal characteristics.

Explanation: This problem is caused by a misplaced assembly conditional and has been corrected.

Correction File:

[11,60]TTATT.COR

SYSTEM PROBLEM

The spacing time-out value for the device driver MSDRV is insufficient for spacing a full tape volume using the space files or space blocks QIO functions.

Explanation: This problem occurs because of an error made when the spacing time-out value was changed in RSX-11M Version 4.2. If the logical end-of-volume (LEOV) is not reached before the spacing time-out value expires, the space files (IO.SPF) or space blocks (IO.SPB) QIO functions terminate abnormally and MSDRV returns the "Device not ready" (IE.DNR) error code.

Refer to Section 3.2.6 for more information about the MSDRV spacing time-out value.

Correction File:

[11,60]MSDRV.COR

SYSTEM PROBLEM

MSDRV returns a status code of end-of-file (IE.EOF) for a space files reverse (IO.SPF) QIO function when the magnetic tape reaches the beginning-of-tape (BOT) position.

Explanation: This problem occurs when MSDRV does not process IO.SPF properly. To correct this error, MSDRV now returns a status code of successful completion (IS.SUC).

Correction File:

[11,60]MSDRV.COR

SYSTEM PROBLEM

The device driver DUDRV does not adequately check to see whether an I/O transfer is within a disk boundary.

Explanation: When I/O transfers that contain several blocks and start in a valid logical block occur, DUDRV fails to determine whether the I/O transfer extends past the end of the disk.

Correction File:

[11,60]MSCPDRV.COR

SYSTEM PROBLEM

The Error Logger does not correctly calculate the logical block number (LBN) for RM80 disk devices.

Explanation: This problem occurs when the error log control file module uses the value 32 instead of 31 to calculate the logical block number for RM80 devices. This problem is corrected with the correction file.

Correction File:

[104,60]JERM80.ICF

SYSTEM PROBLEM

BRU does not recover properly when a tape label error occurs during a backup operation.

Explanation: While writing tape labels, BRU issues a warning message when an error occurs. At this point, BRU fails to issue a request for another tape in order to continue the backup operation. Instead, BRU ignores the error and continues processing. Consequently, the tape becomes invalid.

Correction Files:

[74,60]TAPEIO.OBJ

[74,60]BEGIN.OBJ

[74,60]BACKTP.OBJ

SYSTEM PROBLEM

BRU issues the following erroneous error messages when backing up a file with a file identification number (FID) greater than or equal to 100000₈:

BRU -- *WARNING* -- File not found

BRU -- *WARNING* -- File ID sequence number error

In addition, if the file is a directory file, no files from that directory are backed up.

Explanation: This problem occurs when BRU incorrectly uses a signed branch when checking the FID. This may cause a backup operation to fail for a file whose FID is greater than or equal to 100000₈.

Correction File:

[74,60]COMLIB.OBJ

SYSTEM PROBLEM

The BRU qualifier /DIRECTORY displays nonsensical characters when a backup set is created on a TK25 cartridge tape drive using date selection.

Explanation: This problem occurs when BRU fails to wait for all I/O to complete at the end of the directory pass before using a buffer for other purposes. In some circumstances, corrupt data is written to tape. However, because the directory information BRU writes to tape is used separately from the actual backup data, BRU is still able to restore all saved files properly.

Correction Files:

[74,60]DKRDWT.OBJ
[74,60]DBLBUF.OBJ
[74,60]SCNDIR.OBJ

SYSTEM PROBLEM

When restoring a multidisk backup, BRU sometimes displays the "Invalid disk format" and/or "Data was lost due to IO errors" messages. However, the restored files appear to be correct.

Explanation: This problem occurs as a result of an error in a BRU program module that reads the image backup file during an image restore operation. Occasionally, information at the end of a disk of the image backup set may be processed more than once. Consequently, an "Invalid disk format" and/or "Data was lost due to IO errors" error message is returned.

Correction File:

[74,60]DKREAD.OBJ

SYSTEM PROBLEM

When the DCL command BACKUP/LIST MSnn: (BRU /DIR MSnn:) is entered, BRU lists the first backup set and then continues to search for other backup sets before issuing the following error message:

```
BRU -- *FATAL* -- Tape read error  
IO error code -3
```

Explanation: This problem occurs in the device driver MSDRV. While searching for other backup sets, MSDRV times out and aborts the backup procedure.

Correction File:

[11,60]MSDRV.COR

SYSTEM PROBLEM

When the end of the input buffer passed to the Command String Interpreter (CSI) macro routines CSI\$1 or CSI\$2 coincides with the end of the task's virtual address space, the task aborts with a memory protection violation.

Explanation: CSI\$1 and CSI\$2 use a macro routine called NEXTCHR. This routine performs the following actions:

1. Obtains a byte from the input buffer using an autoincrement instruction
2. Checks the index in that buffer to determine whether it is over the specified limit
3. Checks the character

This procedure is incorrect and causes a memory protection error to be issued. The routine has been corrected to first check the index of the input buffer.

Correction Files:

[55,60]CSI1.OBJ

[55,60]CSI2.OBJ

SYSTEM PROBLEM

Autoconfigure (ACF) may not properly build the DV.NUC descriptive parameter field for RS03/RS04 devices. This field resides in the file CONFIG.DAT.

Explanation: This problem occurs when the RS03/RS04 serial number register is not implemented. As a result, ACF does not build the DV.NUC field properly.

Correction File:

[1,54]ACF.BSL

SYSTEM PROBLEM

While trying to build certain tasks, the Task Builder (TKB) sometimes issues odd address traps.

Explanation: This problem occurs when TKB incorrectly translates resident-library symbol references as symbol definitions. In addition, if the symbol is from a supervisor-mode library, TKB may corrupt virtual memory. This occurs only when the following two conditions are present:

- The symbol table entry for the supervisor-mode library symbol reference is allocated to exactly the last seven words of a virtual memory page.
- The virtual memory pages are searched more than 64K times.

Correction File:

[31,60]PRCLM.OBJ

SYSTEM PROBLEM

When a privileged instruction and data space task is built and linked to a memory common and the task erroneously contains data in a program section that has the same name, size, and attributes as a program section in the memory common, the task may not receive the following error message:

***DIAG*-Load address out of range in module module-name**

(This is the message described for this error in the *RSX-11M/M-PLUS and Micro/RSX Task Builder Manual*.) Instead, one of the following may occur:

- The error message **"*FATAL* - IO error on output file"** is returned.
- The task is built noncontiguously.

If the task is built noncontiguously, but then made contiguous and run, the erroneous program section is not initialized.

Explanation: This problem is caused by an error in the setup of address limits. As a result, disk block addresses are not calculated correctly. Depending on the size and configuration of the task image, an incorrect disk block address may cause TKB to extend the task. This results in either the creation of a noncontiguous task image or an attempt to read the task image beyond the end-of-file (EOF), causing the I/O error message.

Correction File:

[31,60]ADRST.OBJ

SYSTEM PROBLEM

While performing a second pass to define global symbols, TKB opens and closes the default library after every segment in a task.

Explanation: TKB has been modified to open and close the default library only once. This occurs at the beginning and end of the search procedure during the second pass.

Correction Files:

[31,60]P3MDS.OBJ

[31,60]P3LBS.OBJ

SYSTEM PROBLEM

The Indirect Command Processor (Indirect) allows equivalent definitions of global and local symbols to exist on the same level. Also, local symbols that assume global names may be deleted.

Explanation: If a local name definition begins with the character "\$" and global symbols are disabled, Indirect fails to set up the correct global symbol flag. As a result, the local symbol may be deleted.

Correction File:

[12,60]ICPERA.COR

SYSTEM PROBLEM

Using the Indirect .ERASE LOCAL or .SETS directives to create logical string symbols may cause memory protection violations or illegal nesting errors. The errors occur when the directives are processed by the following methods:

- Within Begin-End blocks
- By files invoked with the /LO switch

Explanation: Begin-End blocking context (which is stored in the local symbol table) includes pointers to the start of the next highest symbol block. However, these pointers are not maintained properly. If .SETS changes the length of the symbol, a memory protection violation may occur when the task exits.

In addition, files that are invoked with the /LO switch and then execute the .ERASE LOCAL directive from the beginning block level corrupt the Begin-End block pointers. Consequently, an illegal nesting error occurs.

Correction Files:

[12,60]ICPASV.COR
[12,60]ICPIN4.COR
[12,60]ICPERA.COR

SYSTEM PROBLEM

If the Indirect command @/LB:module is entered using either the MCR or DCL command line interpreters (CLIs), the command will not work as documented in the *RSX-11M/M-PLUS Indirect Command Processor Manual* except when the command is contained within an indirect command file.

Explanation: Because the File Descriptor Block (FDB) for the indirect command file does not contain data, Indirect enters interactive mode when the command @/LB:module is issued by either MCR or DCL. Consequently, the command line is not parsed properly and the command does not work as documented.

Correction File:

[55,60]EGCML.OBJ

SYSTEM PROBLEM

An error exists in the macro definition of the command line interpreter (CLI) support directive Get Command Interpreter Information (GCII\$). The error causes the directive to function inefficiently.

Explanation: The error in the macro definition of the GCII\$ directive causes the Directive Parameter Block (DPB) offsets to be redefined every time the macro is invoked rather than just the first time it is invoked. This error has been corrected and the GCII\$ directive now functions properly.

Correction File:

[61,60]GCII.MAC

SYSTEM PROBLEM

If the following conditions exist, records written to a file using the File Control Services (FCS) routine PUT\$ may cross block boundaries:

- The block buffer is in very high virtual memory (for example, 177000).
- The FD.BLK attribute has been set.

Instead, the records should be placed in the next higher block.

Explanation: This problem occurs when the output buffer is in high virtual memory and the procedure that checks whether a record fits within the current block does not function properly. As a result, FCS places the record in the current block instead of in the next higher block.

Correction Files:

[50,60]PUT.*
[50,60]PUTSQ.*

SYSTEM PROBLEM

Postmortem Dump (PMD) does not put postmortem dump files in directory [1,4] on the system disk.

Explanation: This problem occurs because PMD incorrectly uses SY, the user's pseudo system device name, to open postmortem dump files. This has been changed so that the pseudo system device name LB is used.

Correction File:

[1,60]PMDBLD.COR

SYSTEM PROBLEM

When the QIO\$ function Set Multiple Characteristics (SF.SMC) is specified but the Get Multiple Characteristics (SF.GMC) function is not, the MACRO-11 Relocatable Assembler displays an undefined symbol in the terminal driver module TTATT.

Explanation: This problem occurs because the conditionals used to set these functions are not set properly. As a result, TTATT contains an undefined symbol.

Correction File:

[11,60]TTATT.COR

SYSTEM PROBLEM

The Executive module MEMAP.MAC references offset U.ACD when the full-duplex terminal driver option Ancillary Control Driver (ACD) is included.

Explanation: The Executive module MEMAP.MAC references the wrong offset. When this occurs, an undefined symbol reference is made while the file RSX11M.TSK is being created during system generation.

MEMAP.MAC has been modified to reference the correct offset U.ACD.

Correction File:

[11,60]MEMAP.COR

SYSTEM PROBLEM

The error logging Report Generator (RPT) aborts with the following error message while analyzing DU device errors:

ERLPRT-F-CASENOMAT, CASE selection expression has no matching value.

Explanation: This problem results because an ELSE clause for a CASE statement is missing from one of the control dispatch modules.

Correction File:

[104,60]DEVUDA.ICF

SYSTEM PROBLEM

The Bad Block Replacement Control Task (RCT) write-protects the disk and issues the following error message when a bad disk block is encountered and the replacement block is also bad:

```
hh:mm:ss *** DUx -- Write back caching data lost. Unit write locked.
```

Explanation: This problem is caused by an additional check routine that was added to the Update B version of the RCT bad block replacement algorithm. This problem has been corrected.

Correction Files:

[75,60]RCTROT.COR

[75,60]RCTDAT.COR

2.3 System Problem Statements and Correction Files for Update B

The following paragraphs describe the System Problems that are corrected by the RSX-11M Version 4.2 Revision B software and all subsequent revisions, and list the correction file or files for each problem.

SYSTEM PROBLEM

Error log message packets for the TK50 cartridge tape drive are not analyzed properly.

Explanation: This problem occurs because the ETK50 device module did not contain the latest device specifications. The ETK50 device module has been modified to include the new device specifications.

Correction File:

[104,60]ETK50.ICF

SYSTEM PROBLEM

The TK50 cartridge tape drive fails to interrupt when Autoconfigure (ACF) is run on a PDP-11/84 processor configuration. Consequently, SYSGEN fails sometimes to include the MU device in the peripheral configuration.

Explanation: The failure of the TK50 tape drive to interrupt is a result of the PDP-11/84's high processing speed. Autoconfigure is unsuccessful in detecting the presence of the TK50 tape drive and displaying the control and status register (CSR) and vector values. The correction file extends the allotted interrupt time and allows Autoconfigure to include the MU device in the peripheral configuration.

Correction File:

[1,60]ACF.BSL

SYSTEM PROBLEM

If both Autoconfigure (ACF) and a nonstandard Executive are selected, SYSGEN will not use Autoconfigure's data in the Peripheral Options Section.

Explanation: This problem occurs because SYSGEN does not set the symbol that tells it to use the autoconfiguration data. SYSGEN has been corrected to set that symbol when a nonstandard Executive is selected.

Correction File:

[200,60]SYSGEN.COR

SYSTEM PROBLEM

The Micro/RXS File Transfer Utility (MFT) reports transmission errors. In addition, the file transfer may fail.

Explanation: To correct these problems, source code changes have been made to MFT.

Correction File:

[1,60]MFT.TSK

SYSTEM PROBLEM

The Executive \$QRMVT queue removal routine is called with the following information:

- The location that contains the starting address of a queue
- A Task Control Block (TCB) address

\$QRMVT removes an entry from the queue if the address matches either the queue entry or offset 4 within that entry.

Explanation: The \$QRMVT routine was designed to take advantage of certain data structures that have TCB addresses at offset 4. However, this routine is not practical for removing all queue entries. To correct this, certain routines in RSX-11M have been modified to call the \$QRMVA routine. This routine does not check each entry against offset 4 in the data structure.

Correction Files:

[11,60]DRCIN.COR
[11,60]DRSPW.COR
[11,60]REQSB.COR
[11,60]QUEUE.COR
[11,60]DRRAS.COR
[11,60]DRGCL.COR
[11,60]DRATP.COR
[11,60]DRCLI.COR
[12,60]ALTOV.COR
[12,60]FIXOV.COR
[12,60]MCRDEF.COR
[12,60]CLIOV.COR

SYSTEM PROBLEM

Indirect searches the specified UIC for a command file nested within another file. If Indirect fails to find the nested command file, it exits with a "Command file open error" message. Indirect should then return the name of the nested command file that could not be located. Instead, it displays the name of the calling command file.

Explanation: If the nested file is not located, Indirect should return the file name of the nested file as it appears in the command line. Instead, Indirect points to the calling file's File Descriptor Block (FDB) and returns that file name.

Indirect has been modified to return the file name of the unlocated nested file as part of the error message.

Correction File:

[12,60]ICPATS.COR

SYSTEM PROBLEM

If the Indirect special symbol <FILATR> is specified for substitution in a comment line prior to the execution of a .OPENx directive, an "Undefined symbol" error message appears and program execution is halted. A third line of output, displaying a portion of the comment line or the preceding directive line, is also generated.

Explanation: This problem has been corrected by modifying the source code to eliminate the third line of the error message.

Correction File:

[12,60]ICPSY1.COR

SYSTEM PROBLEM

The Indirect directives .SETT and .SETL cannot be used to set the special logical symbol <ERSEEN> to the value of true.

Explanation: When determining the value of the special logical symbol <ERSEEN>, Indirect does not recognize the .SETT or .SETL directives. Modifications have been made to the Indirect source code to correct this error.

Correction Files:

[12,60]ICPSY1.COR

[12,60]ICPIMP.COR

SYSTEM PROBLEM

Although the maximum period for the Indirect directive .DELAY is 24 hours, no error message exists to indicate this.

Explanation: Indirect has been modified to display the following error message when the .DELAY directive exceeds the 24-hour limit:

AT. -- Value not in range

Correction File:

[12,60]ICPPDW.COR

SYSTEM PROBLEM

Indirect fails to display symbol substitution names properly when comment lines contain invalid characters between apostrophe (') delimiters.

Explanation: While a comment line is being processed, symbol substitution cannot occur if the symbol name contains an invalid character. If this substitution cannot occur, the symbol name is displayed in the comment line. However, when Indirect encounters an invalid character that follows a symbol name terminator (for example, a period (.) or a percent sign (%)), the characters that precede the terminator are not displayed.

To correct this, the Indirect source code has been modified to display the entire symbol name (including the apostrophes).

Correction File:

[12,60]ICPSUB.COR

SYSTEM PROBLEM

The error logging Report Generator (RPT) does not recognize user-written control file modules in the library, which causes RPT to abort.

Explanation: This problem occurs when an incorrect Error Logger dispatch module causes RPT to take an erroneous code path and abort. The dispatching module has been removed.

Correction File:

[104,60]DEVSM1.ICF

SYSTEM PROBLEM

The /PRINTER_PORTS qualifier for the DCL command SHOW TERMINAL requires the underscore character (_) as part of the command syntax.

Explanation: Because of an oversight in the source code, the underscore character in the /PRINTER_PORTS qualifier was required syntax.

The source code has been modified so that the underscore character is now optional for the /PRINTER_PORTS qualifier and for all DCL qualifiers.

Correction Files:

[23,60]SET1.COR

[23,60]SHOW.COR

[23,60]TSHOW.COR

SYSTEM PROBLEM

When the DCL command PRINT or the DECnet-11M DCL command SUBMIT are entered without specifying the file type, DCL fails to display the file type in the error message if the file does not exist. For example:

```
PRI -- No such file - DDnn:[directory]file
```

Explanation: The error message routine incorrectly obtains the file type data from the Command String Interpreter (CSI) control block. The error routine has been modified so that the complete file specification is taken from the filename block.

Correction Files:

[25,64]SUBWRN.CLI
[25,64]PRIWRN.CLI

SYSTEM PROBLEM

The DCL command SHOW TERMINAL/NO[device-type] returns the following error message:

SHOW -- Extraneous input

Explanation: This problem has been corrected by remapping the device type qualifiers to allow you to exclude any device types from being displayed.

Correction Files:

[23,60]SHOW.COR
[23,60]TSHOW.COR

SYSTEM PROBLEM

The DCL command SHOW TERMINAL/ALL does not display the remote terminal type RT.

Explanation: The SHOW TERMINAL/ALL translation routines have been modified to include the RT devices in the terminal display.

Correction Files:

[23,60]SHOW.COR
[23,60]TSHOW.COR

SYSTEM PROBLEM

The DECnet-11M DCL command SUBMIT accepts /LOG, but not /LOGFILE, as a valid qualifier.

Explanation: The DCL command SUBMIT has been modified to recognize both /LOG and /LOGFILE as valid qualifiers.

Correction File:

[23,60]SUBMIT.COR

SYSTEM PROBLEM

The MCR interprets the DCL command RUN/STATUS:COMMAND [taskname] as RUN [taskname] instead of as RUN [taskname]/EST=NO.

Explanation: DCL translates the command RUN/STATUS:COMMAND [taskname] to the MCR command RUN [taskname]. In MCR, the default qualifier for /EST [taskname] varies depending on whether the task being run is installed. If the task is installed, the default qualifier is /EST=NO; if the task is not installed, the default qualifier is /EST=YES.

DCL now translates the command RUN/STATUS:COMMAND [taskname] to include the default qualifier /EST=NO.

Correction File:

[23,60]RUN.COR

SYSTEM PROBLEM

The MCR command "HELP /OUT:TTnn: %" does not execute properly. The percent sign is ignored.

Explanation: HELP fails to parse file specifications for either the /OUT or /FIL switches. When a device is specified without a file name and is followed by an additional parameter, HELP considers that parameter to be the file name.

Correction File:

[15,60]HSTTAB.COR

SYSTEM PROBLEM

If the MCR command MOUNT is entered to mount an RA80 or RA81 device, the command may abort with the following error messages:

MOU - failed to set volume valid bit

IE.SZE - unable to size device

Explanation: This problem occurs when the error code IE.SZE (Unable to size device) is passed to the MOUNT command while the RA disk is "spinning down." Because IE.SZE is considered a fatal error, the mount operation aborts.

MOUNT has been corrected to recognize IE.SZE in the same manner as the error code IE.DNR (Device not ready). Thus, IE.SZE is no longer considered a fatal error and MOUNT continues to wait up to one minute for the device to become ready before performing a mount operation.

Correction File:

[12,64]MOUSUB.OBJ

SYSTEM PROBLEM

The MCR command SAV does not accurately determine the size of main memory on Q-bus systems that contain more than 1920K words.

Explanation: SAV cannot determine the size of main memory above 1920K words, which is the maximum size of main memory for a UNIBUS system. Because SAV cannot distinguish between a UNIBUS and a Q-bus system, it does not recognize that Q-bus systems can have up to 2044K words of available main memory.

This problem has been corrected so that SAV now recognizes Q-bus systems and can determine the size of available main memory. Note, however, that although a Q-bus system can contain as many as four megabytes (2048K words) of memory, SAV recognizes only the maximum main memory available (2044K words).

Correction File:

[12,60]SAVSIZ.OBJ

SYSTEM PROBLEM

In some cases, the MCR command SAV does not accurately determine the size of main memory on UNIBUS systems that contain more than 1920K words.

Explanation: Because the nonexistent memory trap is not set, the UNIBUS Mapping Registers (UMRs) point SAV back to low memory when SAV attempts to size available memory. SAV then attempts to size this low memory and, consequently, the memory is accessed and destroyed.

The correction file eliminates this problem. Main memory remains uncorrupted.

Correction File:

[12,60]SAVSIZ.OBJ

SYSTEM PROBLEM

On certain DU devices, the Error Logger reports that some single disk blocks have been identified as bad, but have not been replaced.

Explanation: The Bad Block Replacement Control Task (RCT) algorithm writes and reads standard test patterns to the disk block once. If both tests succeed, RCT concludes that the error is temporary and does not replace the bad block. Some bad blocks read the test pattern correctly, but do not record the user's data properly.

RCT has been modified to use user data and the complement of this data as test patterns. RCT then writes and reads this data repeatedly to replace any bad blocks.

Correction Files:

[75,64]RCTDAT.OBJ
[75,64]RCTSUB.OBJ
[75,64]RCTROT.OBJ
[11,60]MSCPDRV.OBJ

SYSTEM PROBLEM

When the following Peripheral Interchange Program (PIP) command is specified, the most recent version of the file is deleted in only the first User File Directory (UFD):

PIP [G,*]filename.ext:0 /DE

Explanation: In this example, PIP deletes the most recent version of the file in the first UFD. However, in the next UFD (and all subsequent UFDs), PIP deletes the file with the same version number as the file it deleted in the first UFD. However, this file may not be the most recent version of the file marked for deletion. PIP has been corrected so that the appropriate file is deleted in all UFDs.

Correction File:

[32,60]PIPDEL.OBJ

SYSTEM PROBLEM

The Task Builder (TKB) returns the following error message if, when it is building an instruction and data space task, the resident common overlaps the virtual address range of a resident library:

TKB -- *FATAL*-Resident library memory allocation conflict

The option line being processed is also reported. This message occurs when the first Active Page Register (APR) of the resident common or resident library region is explicitly specified.

Explanation: When building an instruction and data space task, TKB checks for memory allocation conflicts between shared regions. When the first APR is specified, the TKB check is changed to further determine if an I-and D-space task build should continue.

Correction File:

[31,64]P20PT.OBJ

SYSTEM PROBLEM

TKB does not function properly when an Overlay Description Language (ODL) file contains a .PSECT directive with multiple references in a single segment. TKB also aborts with an odd address trap.

Explanation: Once TKB detects a multiple reference, it skips the .PSECT directive and fails to insert it into the segment's section list. Consequently, an extra word is removed from the run-time data stack.

TKB has been corrected so that this error no longer occurs.

Correction File:

[31,64]MLSG2.OBJ

SYSTEM PROBLEM

Tasks that build with many options (for example, Indirect) cause the build to process too slowly.

Explanation: When TKB uses the GCML (Get Command Line) routine to access indirect command files, the GE.CLO bit in the G.MODE byte is not cleared. Consequently, TKB opens and closes the file for each option. TKB has been modified to clear the GE.CLO bit while processing all options.

Correction File:

[31,64]P20PT.OBJ

SYSTEM PROBLEM

Tasks that use more than 95 logical unit numbers (LUNs) and are built with the On-Line Debugging Tool (ODT) suspend task activity.

Explanation: When tasks are built with ODT, two additional LUNs are included. ODT incorrectly uses the first LUN as an event flag number to issue the Queue I/O Request (QIO\$) directive to the terminal. If ODT contains an LUN that is higher than any of the legal event flag numbers, task activity is suspended.

Correction File:

[47,60]ODT.OBJ

SYSTEM PROBLEM

The RA60 drive error code table in module MSCP60 does not meet with the latest RA60 specifications.

Explanation: The RA60 drive error code table in the MSCP60 module has been modified to meet the latest RA60 specifications.

Correction File:

[104,60]MSCP60.ICF

SYSTEM PROBLEM

End message packets for MU devices are not analyzed properly.

Explanation: This problem occurs because the end message packets for MU devices are analyzed by the MSCPEN DU device module. A new device module, TMSPE, has been created to analyze MU end message packets properly.

Correction File:

[104,60]DEVUDA.ICF

SYSTEM PROBLEM

The system fails when both the MUDRV and PUCOM device drivers are mapped.

Explanation: This problem occurs when there are no packets in the I/O queue for MUDRV to process. Consequently, the MUDRV acceptance routine fails to properly restore the general purpose registers that contain the Controller State Table (QST) address and the Connection State Table (CST) address. Without these tables, MUDRV is unable to function and the system fails.

The packet acceptance routine now properly restores the necessary registers under all circumstances.

Correction File:

[11,60]MSCPDRV.COR

SYSTEM PROBLEM

When the first command is issued to a DL device, complete drive-status checking is not performed.

Explanation: The complete drive-status check is performed before the first command is issued to the DL device. If that command fails, error recovery checks only the drive-ready state and not the complete status of the drive.

The DL device error recovery code has been modified to check the complete status of the drive.

Correction File:

[11,60]DLDRV.COR

SYSTEM PROBLEM

When files larger than 100 disk blocks are being copied, the TU58 device driver DDDRIV exits when the allotted time is reached.

Explanation: The time needed to rewind the TU58 cassette tape and to perform the data checking is longer than the initial time-out value the driver allows for copying. To correct this problem, the initial time-out value has been extended.

Correction File:

[200,60]SGNPER.COR

SYSTEM PROBLEM

While attempting to restore files, BRU may terminate with the following error message:

Memory protect violation

Explanation: This problem occurs when BRU, in attempting to restore a file, creates a directory entry in the Master File Directory (MFD) and then tries to find adequate space on the output device for that file. If it cannot find enough space, BRU tries, but fails, to delete the file.

BRU has been modified so that when an output device contains inadequate space, BRU returns to the MFD and deletes the directory entry.

Correction File:

[74,60]BRUHEAD.OBJ

SYSTEM PROBLEM

If the Master File Directory (MFD) of an input disk contains more allocated space than is actually used in the file (indicated by the end-of-file pointer), BRU may report verification errors or errors finding files that do not exist. This occurs while BRU is processing the second or succeeding magnetic tapes during a backup operation.

Explanation: After processing a tape or, if an error occurs during the processing of a tape, BRU may return to the beginning of the tape to do the following:

- Perform verification
- Attempt to write a new tape

When this occurs, BRU must restore its context to the point where the processing of the tape began. BRU's context includes such information as the status of the backup operation and the quantity of disk space used by the MFD. While BRU is trying to restore this information to tape, it mishandles the information about the quantity of disk space used by the MFD. Consequently, BRU may ignore the true value of the end-of-file pointer and errors occur.

The BRU source code has been modified to correct this problem.

Correction Files

[74,60]SCNDIR.OBJ

[74,60]COMLIB.OBJ

SYSTEM PROBLEM

The following error message is displayed after entering the BRU /VERIFY qualifier:

```
BRU -- *WARNING* -- No files found
```

Actually, the files were located and verified.

Explanation: This error message is displayed when the number of files equals the number of file extension headers. In addition, if a multitape backup is being performed, some of the magnetic tapes will not be verified.

Correction Files:

```
[74,60]BACKTP.OBJ  
[74,60]BRUDAT.OBJ  
[74,60]COMLIB.OBJ  
[74,60]SCNDIR.OBJ
```

SYSTEM PROBLEM

While performing the verification operation, BRU reports the following error message:

```
BRU -- *FATAL* -- Output disk too fragmented to restore
```

Explanation: When the BRU /VERIFY qualifier is entered, BRU refers to a table that contains information about the data being restored. However, while performing the verification operation, BRU may treat the table as overflowing. This source code error in BRU has been corrected.

Correction Files:

```
[74,60]BRUDAT.OBJ  
[74,60]BRUFILE.OBJ  
[74,60]BRURP.OBJ  
[74,60]COMLIB.OBJ  
[74,60]SCNDIR.OBJ
```

SYSTEM PROBLEM

BRU displays all I/O status codes as negative.

Explanation: When an I/O error occurs, BRU reports the appropriate I/O status code. However, when BRU should report a positive I/O status code, it reports a negative I/O status code.

BRU has been modified to interpret and report positive status codes correctly.

Correction Files:

```
[74,60]BRUBAD.OBJ  
[74,60]ERROR.OBJ
```

SYSTEM PROBLEM

When looking for an image file backup set during a restore or compare operation, BRU sometimes uses the wrong directory or file name.

Explanation: This problem occurs when BRU fails to check all components of the file specification. The source code has been modified so that BRU now checks each component of the file name during restore and compare operations.

Correction Files:

[74,60]DSKIO.OBJ
[74,60]SCNDIR.OBJ

SYSTEM PROBLEM

While performing a backup operation, BRU may fail if the /VERIFY qualifier has been specified.

Explanation: This problem occurs when BRU fails to wait for all output operations to complete before starting the verification process. Note that this problem may occur only when the verify pass is being performed on the last tape (which may be the first and only tape).

Correction Files:

[74,60]DBLBUF.OBJ
[74,60]DKRDWT.OBJ
[74,60]SCNDIR.OBJ

SYSTEM PROBLEM

BRU reports a fatal error message followed by an additional error message that indicates an attach attempt failed.

Explanation: This problem occurs because BRU incorrectly believes that a detach operation has failed when, in fact, it was another operation that failed. In addition, it incorrectly reports an "Attach failed" error message. Only the original fatal error message should have been reported.

Correction Files:

[74,60]BEGIN.OBJ
[74,60]BRUDAT.OBJ
[74,60]DSKINI.OBJ
[74,60]TAPEIO.OBJ

SYSTEM PROBLEM

BRU may terminate abnormally during the verify pass of a restore or copy operation.

Explanation: This problem occurs only during a disk-to-disk copy or restore operation. It results from an error in a routine that might be called during a verify pass if the output disk is very fragmented.

Although the verify pass is not completed, the restore operation is completed and the output disk is unaffected.

Correction File:

[74,60]BRUFILE.OBJ

SYSTEM PROBLEM

If an illegal file name is specified, the Virtual Monitor Console Routine (VMR) reports an "Open failure" error message. Instead, VMR should report an "Illegal file specification" error message.

Explanation: VMR has been corrected to report the "Illegal file specification" error message when an improper file name is specified.

Correction File:

[70,60]SETUP.OBJ

SYSTEM PROBLEM

Even if a system does not include network support, the VMR command SET /NETUIC may be entered. This command changes the system User Identification Code (UIC).

Explanation: If the VMR command SET /NETUIC has been entered, VMR will check to see whether the system includes network support. However, the procedure VMR uses to check for network support is incorrect. Consequently, the SET /NETUIC command is processed and, in turn, the system UIC is changed.

VMR has been corrected so that this problem no longer occurs.

Correction File:

[70,60]SPROV.OBJ

SYSTEM PROBLEM

When VMR is being task-built, it may report an undefined symbol error message for the symbol \$DUINU.

Explanation: This problem is caused by a change to the DU bootstrap in VMR. However, the undefined symbol does not cause a problem and may be ignored. Corrections have been made to VMR so that this problem will not occur.

Correction Files:

[70,60]SADUM.OBJ

[70,60]SADUU.OBJ

Chapter 3

New and Modified Software

This chapter describes new features and restrictions for RSX-11M Version 4.2 software. Also included are corrections and additions to RMS-11. The software for each update version is supported by the particular update, and all subsequent update revisions.

3.1 New and Modified Software for Update D

RSX-11M Version 4.2 Update D includes new or modified software support for the features described in the following sections, in addition to the modifications made in previous update revisions.

3.1.1 Data Terminal Emulator

The Data Terminal Emulator (DTE) is now supported in RSX-11M.

Correction Files:

[66,60]DTE.OLB

3.1.2 Modifications to the Micro/RSX File Transfer Utility

The Micro/RSX File Transfer Utility (MFT) is superseding the Professional File Transfer (PFT) program. The utility is available with both the forms interface and the PFT Command Line Format (CFT).

To execute the forms interface, use the MFT /FORM command or install MFT as a Monitor Console Routine (MCR) spawnable task with the task name ...PFT.

To use the MFT with the PFT Command Line Format, substitute the command MFT for the command PFT on all command lines shown in the *PRO/Communications User's Guide*.

For example, when you transfer a file from a Professional to a host, the CFT command is as follows:

```
>CFT filespec/PRO=filespec
```

The file before the equal sign is the output file specification; the file after the equal sign is the input file specification. The PRO switch (/PRO) identifies whether the Professional is sending or receiving the file.

To transfer a file from a Professional to a host using MFT, substitute MFT in the command line as follows:

```
>MFT filespec/PRO=filespec
```

For a complete description of the PFT and CFT command lines, see Chapter 8 of the *PRO/Communications User's Guide*.

Correction Files:

```
[66,60]MFT.OLB
```

3.1.3 Modifications to BRU

A new stand-alone Backup and Restore Utility (BRU) system has been provided with this update software. It includes all applicable Update D corrections.

To create a hardware-bootable BRUSYS from the update software kit, use the Virtual Monitor Console Routine (VMR) to save the system image on tape as follows:

```
>SET /UIC=[1,51]
>ASN ddnn:=SY:
>ASN ddnn:=LB:
>INS [1,54]VMR
>VMR
ENTER FILENAME:BRUSYS
VMR>SAVE mmnn:BRUSYS
VMR> CTRL/Z
```

To create a hardware-bootable BRU64K from the update software kit, use VMR to save the system image on tape as follows:

```
>SET /UIC=[1,51]
>ASN ddnn:=SY:
>ASN ddnn:=LB:
>INS [1,54]VMR
>VMR
ENTER FILENAME:BRU64K
VMR>SAVE mmnn:BRU64K
VMR> CTRL/Z
```

In both examples, ddnn refers to your Update D software kit and mmnn is any valid tape device. For more information about BRU64K or BRUSYS, please refer to the *RSX-11M System Generation and Installation Guide*.

Correction Files:

```
[1,51]BRUSYS.SYS
[1,51]BRU64K.SYS
```


3.1.4 Modifications to RMS-11 Version 2.0

This section describes corrections made to RMS-11 Version 2.0 for Update D. The following correction file has been included:

[1,1]RMSLIBRSX.INS

3.1.4.1 RMS-11 Access Methods

This section describes corrections to access method problems relating to the previous release of RMS-11 Version 2.0.

- Explicit (nonzero) Default Extension Quantity was ignored by RMS-11.
- RMS-11 has been modified to prevent indexed files from being created with incompatible maximum record size and bucket size.

Previously, RMS-11 allowed such files to be created. Subsequent attempts to access the file returned the error message ER\$MRS.

- The RMS-11 macro XBDOF\$ has been modified to work correctly. Previously, XBDOF\$ attempted to specify field lengths using octal values (instead of decimal values).
- The RMS-11 macro \$GNCAL has been modified to work correctly. Previously, \$GNCAL did not declare the ORG\$ and GSA\$ macros as documented.

3.1.4.2 RMS-11 Utilities

The following corrections apply to RMS-11 utilities:

RMSDES

- RMSDES failed to request the key length for packed decimal keys. RMSDES now issues the correct prompt for packed decimal keys.
- There was no capability for superseding a file design. There are now two commands: SAVE_SUPERSEDE and EXIT_SUPERSEDE.

For a description of these commands, see Chapter 5 of this manual.

- Data area assignments for alternate keys to indexed files were sometimes incorrect when default areas were used. When there was more than one alternate key, the data area for all subsequent keys would still be the same as for the first alternate key.

RMSDES has been modified to correctly assign data areas when alternate keys are used.

- Alternate index allocations were too large in many cases.
- Indexed file allocations were not correct when duplicates were allowed and the anticipated number of duplicates would result in continuation buckets on alternate keys. As an added feature, RMSDES issues a warning message when continuation buckets are required. (Continuation buckets mean decreased performance; see Chapter 6 of the *RSX-11M/M-PLUS RMS-11 User's Guide*.)

A new informational message is issued if overflow occurs during calculations in this area. Also, the prompt "number of duplicates" has been expanded to read "number of duplicates per record on this key" to increase clarity.

- A new error message is issued if the help file LB:[1,2]RMSDES.IDX is not found. This is a feature for small systems that have limited disk space.

3.2 New and Modified Software for Update C

RSX-11M Version 4.2 Update C includes new or modified software support for the features described in the following sections, in addition to modifications made in previous update revisions.

3.2.1 Modifications to MACRO-11

MACRO-11 issues an assembly error for command lines that should not be parsed for assembly. In the following example, MACRO-11 issues an "A" error for the third line:

```
.IF      NE,0
.MACRO  TEST COND,ARG1,ARG2
.IF     COND,<ARG1>-<ARG2>
.ENDC;  COND,<ARG1>-<ARG2>
.ENDM;  TEST
.ENDC;  NE;0
.END
```

Correction File:

[1,24]MAC.OLB

3.2.2 New DCL Qualifier

RSX-11M Version 4.2 Update C now supports the following new qualifier to the Digital Command Language (DCL) command COBOL:

/CONDITIONALS-(a,b,c...)

Identifies lines of source code for conditional compilation. As many as 26 alphabetic conditionals may be specified. Commas between conditionals are optional.

Correction File:

[23,60]COBOL.COR

3.2.3 Enhancements to FMT

The Disk Volume Formatter Utility (FMT) now formats RX33 diskettes. The /DENSITY, /VERIFY, and /NOVERIFY switches are used to format an RX33 diskette. Before using FMT, the RX33 must be mounted using the /FOREIGN qualifier.

While an RX33 cannot be formatted to simulate an RX50 diskette, an RX50 can be formatted to simulate an RX33. This is because of a difference in the magnetic properties on RX50 diskettes. Consequently, you may not be able to perform read or write operations on the diskette.

Correction Files:

```
[112,60]FMTPRS.OBJ
[112,60]FMTDAT.OBJ
[112,60]FMTMSG.OBJ
[112,60]FMTROT.OBJ
[104,60]DEVUDA.ICF
```

[104,60]MSCP60.ICF
[104,60]MSCP80.ICF
[104,60]MSCP5X.ICF
[104,60]MSCPSD.ICF
[104,60]MSCPAT.ICF
[104,60]MSCPEN.ICF

3.2.4 Large Disk Support

Large disk support has been included for the following RSX-11M tasks and utilities:

- The Backup and Restore Utility (BRU)
- Files-11 Ancillary Control Processor (ACP) (F11ACP)
- The File Structure Verification Utility (VFY)
- INITVOLUME (INI)
- The Peripheral Interchange Program (PIP)

This support allows Files-11 initialization and access to disks that contain more than 1,044,480 logical blocks but fewer than 16,777,217 logical blocks.

Note

Please note that even though RSX-11M Version 4.2 Update C does support a larger number of logical blocks, support for a larger maximum number of files has not been included. The maximum number of files allowed on a disk is still limited to 65,500.

Correction Files:

[12,60]INIBIT.OBJ
[12,60]INIUPD.OBJ
[12,60]ININDX.OBJ
[12,60]INIROT.OBJ
[12,60]INIALL.OBJ
[13,60]MOUNT2.OBJ
[74,60]BRUINDEX.OBJ
[74,60]BRUBITMAP.OBJ
[74,60]BRUALLOC.OBJ
[74,60]BRUHEAD.OBJ
[74,60]DSKINI.OBJ
[32,60]PIPFRE.OBJ
[34,60]VFYOPN.OBJ

3.2.5 Modifications to PUCOM.MAC

RSX-11M Version 4.2 distribution kits contain two versions of the PUCOM.MAC file: one version for disk distribution kits and one version for tape distribution kits. To apply update corrections to PUCOM.MAC on both kits, modifications have been included in the update software which delete the first version of PUCOM.MAC and replace it with a new version. As a result, all update corrections are applied to the new version of PUCOM.MAC.

3.2.6 MSDRV Spacing Time-out Value

Beginning with RSX-11M Version 4.2 Update C, the MSDRV spacing time-out value no longer causes the Backup and Restore Utility (BRU) to end abnormally when any of the following conditions exists:

- Including the /DIRECTORY qualifier and spacing to the end of the backup set
- Multiple appends, including the /REWIND qualifier in each command, and spacing to the end of the last backup set
- Restoring a specified backup set (that may or may not exist) that cannot be accessed before the spacing time-out value expires

Correction File:

[11,60]MSDRV.COR

3.2.7 Modifications to EDT Version 3.1

The following list describes problems with EDT that have been corrected in RSX-11M Version 4.2 Update C.

- Previously, EDT would not display an error message if erroneous characters followed the EXIT command. For example, *EX9T would create the output file 9T.

EDT now correctly displays an "Unrecognized command" error message and reprompts for the correct command.

- EDT would occasionally change lowercase text to uppercase while using the SET ENTITY command.

EDT now correctly recognizes all lowercase letters in the SET ENTITY WORD command.

- The following nokeypad sequence of commands would not always undelete all the characters in the line:

```
D (delete)
EL (end of line)
UNDL (undelete line).
```

This problem has been corrected.

- Formerly, if you cleared a buffer (other than the main or paste buffers) that had a select range active, and then created the buffer again or attempted to reset the select range, EDT would display an internal "BUG CHECK" error.

- The SUB/ / / ALL command did not always work properly. If the string used with the ALL qualifier was at or near the end of the text line and the length from the beginning of the string to the end of the text line was shorter than the length of the substitute search string, EDT would fail to continue substituting after the first substitution was complete.

EDT now continues with additional substitutions.

- In some cases, EDT would display a "Must select full lines" error message even though a full line appeared to be selected. This would happen in the nokeypad mode when the cursor was on a character that was not at the beginning of the line. Under those conditions, when a Beginning of Paragraph (BPAR), Beginning of Line (BL), or a similar entity command was

issued, followed by the selection of a full line of text and then a line mode command was issued, the error message was displayed.

The error is no longer given and the command operates correctly on the full line of text.

- When the command "! ^Z" (the EDT command that specifies a comment line with a CTRL/Z) was used in an initialization file, EDT ignored the fact that "! ^Z" was a comment and would exit the command file.
- An EDT macro that cleared itself would abort the editing session and display an "I/O error on work file" error message. The following sequence produced this problem:

```
edit/nocommand x.x
* insert=a
      clear a
      ^Z
* define macro a
* a
I/O error on work file
?End of file on device
```

EDT was attempting to read an address that was no longer accessible due to the cleared macro.

This problem has been corrected.

- EDT would abort abruptly without an error message under conditions similar to the following:

```
edt x.x/nocommand
set word nodelimiter
set wrap 10
set entity word "-"
change
```

The next step was to enter five characters on the first line and another five characters on the second line, as follows:

```
abcde
abcde
```

Then, when you opened a new line between them and started inserting minus signs (-), EDT would abort with a "BUG CHECK" error message after the tenth entry.

EDT no longer aborts under these conditions.

- EDT would abort occasionally while performing the FILL operation with the SELECT command invoked and in the backward direction. Subsequently, the "BUG CHECK" error message would be displayed.
- More than one CTRL/C in an EDT journal file would cause EDT to abort with an "Internal software error" error message upon recovery.

EDT now handles more than one CTRL/C properly.

Correction Files:

[1,60]CHMBEGWRD.OBJ
[1,60]INPUT.OBJ
[1,60]LCLEAR.OBJ
[1,60]LSHOW.OBJ
[1,60]REAJOUTEX.OBJ
[1,60]SCRFIND.OBJ

3.2.8 Modifications to RMS-11 Version 2.0

This section describes corrections made to RMS-11 Version 2.0 for Update C. The following correction files have been included for the RMS-11 Update C corrections:

[1,1]RMSLIBRSX.INS
[1,1]RMSLIBRSX.NEP
[1,1]RMSLIB.OLB
[1,1]RMSDAPRSX.INS
[1,1]RMSDAPRSX.NEP
[1,1]RMSDAP.OLB
[1,1]RMSMAC.MLB
[1,1]RMSRES.TSK
[1,1]RMSRESSUB.TSK
[1,1]DAPRES.TSK
[1,34]RMSRES.MAP
[1,34]RMSRESSUB.MAP
[1,34]DAPRES.MAP
[1,24]RMSUTLRSX.NEP
[1,24]RMSUTL.OLB
[1,24]CNVNON.CMD
[1,24]CNVNRN.CMD
[1,24]CNVNOO.CMD
[1,24]CNVNRN.CND
[1,24]IFLNON.ODL
[1,24]IFLNRN.ODL
[1,54]RMSCNV.TSK
[1,54]RMSIFL.TSK
[1,54]RMSRST.TSK
[1,54]RMSBCK.TSK

3.2.8.1 RMS-11 Access Methods

This section describes corrections to access method problems relating to the previous release of RMS-11 Version 2.0.

Note

In-task RMS-11 applications must be rebuilt against the latest RMSLIB.OLB to incorporate these changes. Tasks built against the RMS resident library do not have to be rebuilt unless a change is noted as occurring in the RMS root code.

- Previously, there was a performance problem with sequential files with fixed-length records and keyed (relative record number) or RFA (record file address) access. In cases where the target record existed in the currently held RMS I/O buffer, the record was not used. Instead, the block was read from the disk again.
- A \$GET operation on a relative file would return invalid (obsolete) data under the following conditions:
 - The file was opened for READ access, allowing WRITE sharing.
 - Locate mode was requested.
 - At least one other user had the file opened for WRITE access.
 - The current \$GET involved the same bucket as the previous \$GET.
 - In the time period since an original \$GET, another user had modified the record sought by the original \$GET.
- There was a potential for deadlock when multikeyed index files were write-shared by two or more applications, one of which was trying to perform a \$DELETE operation. A \$DELETE operation would seem to loop when it attempted to access an alternate index in which other accessors possessed locks. Under this condition, it was necessary to abort the deleting program to allow other accessors to continue their operations. This problem has been corrected so that a deleting operation can now take place simultaneously with other access operations.

Note

If an application aborts before an RMS-11 write operation (for example, \$PUT, \$DELETE, or \$WRITE) is completed, the file is left in an indeterminate state. This is similar to the effect of a system failure. If the file is an indexed file, it should be reloaded by using RMSIFL before any applications are permitted to access it.

- Multiblock \$WRITE operations would fail when the record size exceeded the pack default extension quantity.
- Programs using Mass Insert in indexed files (including RMSCNV with the /MA switch) sometimes displayed the error message ER\$DME (Dynamic memory exhausted) when duplicate keys were encountered during \$PUT operations.
- In assembling instruction and data space programs, the \$ORG, \$GSA, and \$POOL macros would cause the current program section to be lost. These macros redirected to the blank program section (this appears on the map or listing as .BLK., an instruction program section). The assembler would then put any data that immediately followed in instruction space until

a new program section was declared. Later, at run time, when a reference was made to the incorrectly placed data, the program would abort due to memory management violations.

Applications that are impacted by this problem must be reassembled against RMSMAC.MLB and then rebuilt.

3.2.8.2 RMS-11 Remote Access Methods

The following corrections apply to RMS-11 remote access methods:

Note

In-task RMS-11 remote applications must be rebuilt against the latest RMSDAP.OLB to incorporate these changes. Tasks built against the DAPRES library do not have to be rebuilt unless a change is noted as occurring in the RMS root code.

- The programmer (PRG) and project (PRJ) fields of the protection (PRO) extended attribute block (XAB) were translated incorrectly when the remote system was RSX or VMS. For the network transfer (following standard data access protocols), these fields were converted to American Standard Code for Information Exchange (ASCII) and then back to binary. The conversion was incorrect in that it always assumed that the numbers were decimal instead of octal. The result was that remote creation produced an incorrect file owner and remote open reported an incorrect file owner.
- A \$CLOSE operation did not work properly under the following circumstances:
 - The remote network partner was not using Data Access Protocol (DAP) Version 6.0 or above.
 - A protection XAB was linked into the chain of XABs pointed to by the File Access Block XAB pointer (O\$XAB).

Restriction

If there is a possibility that the remote network partner is not using DAP Version 6.0, then correct protection XAB values should be set when the file is created instead of being modified during a \$CLOSE operation (as required by previous versions of DAP).

3.2.8.3 RMS-11 Utilities

The following corrections apply to RMS-11 utilities:

RMSCNV

- The /MA switch did not work correctly due to a problem in the RMS-11 access methods. While loading records into an indexed file, RMSCNV could abort with the message "Dynamic memory exhausted" when a large number of duplicate key values were encountered.

RMSBCK

- The Query (/QU) and No Query (/NOQU) switches did not work properly. No query was performed by RMSBCK in the event that a Read Check (/RC) or Read After (/RA) switch was detected. If either the /QU switch or the default was intended and the error occurred, then a query should have been issued to determine if the processing should continue. When the /NOQU switch was specified, RMSBCK did not terminate processing of the file. Now both the /QU and /NOQU switches work as they should.
- The /RC and /RA switches reported an incorrect block number for detected errors.
- The /RC and /RA switches reported an incorrect total for the number of errors for each file.
- The Rewind (/RW) switch did not cause RMSBCK to rewind the tape. Thus, unless you reinitialized the tape, RMSBCK would write the new files to the end of the tape without overwriting the old files. This could cause confusion when the tape was used to restore files since it is possible to have multiple files with the same name on a backup tape. This problem has been corrected.

3.3 New and Modified Software for Update B

RSX-11M Version 4.2 Update B includes new or modified software support for the features described in the following sections.

3.3.1 Enhancements to the Bad Block Replacement Control Task

The following enhancements have been made to the Bad Block Replacement Control Task (RCT):

- A new bad block location and replacement algorithm has been created for RCT. This algorithm includes a test that ensures the replacement of bad blocks. When a disk is formatted, a forced error bit is placed in the header of each replacement block. To ensure that the block was revectorized correctly, RCT reads the block and checks for the forced error bit. If the block was revectorized correctly, the read operation is directed to the replacement block and the forced error bit is found. If the block was not revectorized correctly and the forced error bit is not found, RCT write-protects the volume and informs you that the disk is corrupted.
- A recursion counter has been included in the new RCT algorithm. If the counter identifies three consecutive bad disk blocks, it aborts the search operation and will not replace the block. Subsequently, if the problem causing the errors is in the data line (thus affecting all I/O), the recursion counter prevents RCT from marking all replacement blocks as bad.
- RCT has been modified to read the user's data in a bad block four times. As a result, data is successfully recovered more often.

Correction Files:

[1,24]RCT.OLB
[1,24]BAD.OLB

3.3.2 Applying the Update B Software on VMS Host Systems

If you use RL02 distribution kits, you must have VAX-11 RSX Version 2.1 or a later version in order to apply the RSX-11M Version 4.2 Update Revision B software.

3.3.3 Modifications to RMS-11 Version 2.0

This section describes corrections made to RMS-11 Version 2.0 for Update B.

3.3.3.1 RMS-11 Access Methods

The following notes apply to RMS-11 access methods:

- Asynchronous record operations could result in an ER\$RAB error. This error occurs when an asynchronous operation is finishing on one record stream while another operation is just beginning execution on a different record stream. An adjustment made to a timing window in the ROEXEC module of RMSLIB.OLB corrects this problem. Because this module is built into the root of the user program, you must treat all RMS-11 applications as in-task RMS-11 and rebuild each application that requires this correction.
- Locate mode is not used in a sequential file that contains fixed-length records if a sequential access includes the last record in a block and that record ends exactly on the block boundary. Because locate mode was not used, the last record in a block was needlessly transferred into the user buffer. This correction is in R1GBLD in RMSLIB.OLB and the resident library.

Note

MACRO programs performing a GET operation should always test the record size before attempting to access data in the record buffer. When locate mode is used, the pointer to the I/O buffer can be advanced beyond the end-of-buffer (EOB) if the current record is a null record that terminates on the block boundary. (A null record is used to obtain carriage control in a sequential variable or vertical format control (VFC) print format file.) Ignoring a zero-length record size could cause the application to access incorrect data or to abort with a memory protection violation.

3.3.3.2 RMS-11 Utilities

The following notes apply to RMS-11 utilities:

RMSCNV

- RMSCNV fails when an indirect command file uses the /ER:filespec switch. The code for this error has been corrected so that the error no longer occurs.
- The /EO switch works incorrectly. RMSCNV has been changed so that null characters fill all blocks from the logical end-of-file (LEOF) to the physical EOF when this switch is specified.

RMSIFL

- The /DE switch fails to handle logical names correctly. Changes have been made to allow the /DE switch to accept new-style logical names.
- Multiple commands do not execute correctly when the /NOER switch is specified and an exception record is found. The next command is rejected and the ER\$ISI (Bad value in ISI field) error message is reported. This problem has been corrected.
- Using large numbers of alternate keys may result in the RMS-11 error ER\$DME (Dynamic memory exhausted). This problem has been corrected.
- If an output file allows duplicates on an alternate record key, and the record header for the duplicate array is situated such that the duplicate count field occurs on a block boundary, RMSIFL corrupts the alternate key root bucket. Subsequently, once the file is loaded, any applications attempting alternate key access fail with the ER\$CHK (Check byte error in bucket) error message. This problem has been corrected.
- RMSIFL improperly references a move data routine in the RMS-11 resident library. Changes to nonvectored code in the library may cause the RMSIFL entry point to be invalid. To correct this, a new module called ROMDAU has been inserted in RMSLIB.OLB. In addition, corresponding changes have been made to the build procedures for RMSIFL in the Overlay Description Language (ODL) files so that RMSIFL will reference its copy of the move data routine.
- RMSIFL has been enhanced to check the FAB DEQ for an extension quantity if no explicit nonzero AREA XAB DEQ value has been provided. Consequently, you cannot set an explicit extension quantity without having to design areas. Note that if you do not provide an extension quantity, RMSIFL uses approximately 50 blocks (aligned with bucket size).

RMSRST

- The /SE: switch incorrectly requires a complete file specification. If the file specification is not provided, RMSRST returns a "File not found" error message. This problem has been corrected.
- RMSRST now terminates immediately when the /SE: switch is specified and all files have been found.
- RMSRST does not always list the file version numbers as part of the summary listing. This problem has been corrected.
- RMSRST does not handle magnetic tape files with decimal version numbers correctly. When files are being restored to a system that supports decimal version numbers, file version numbers are erroneously converted to octal. This problem has been corrected.
- RMSRST sometimes reports an "Unknown error" message when the /FR switch is used to restore a magnetic tape container file. This occurs when you do not have sufficient privileges to create an output file with the protection code and ownership of the original account. Even though this error occurs, the file was restored but with protection code and ownership of the login account. This problem has been corrected.

Chapter 4

New Hardware Support

This chapter describes new hardware features and restrictions for the RSX-11M Version 4.2 operating system. The hardware for each update version is supported by the particular update and all subsequent update revisions.

4.1 New Hardware Support for Update D

There is no new hardware for Update D.

Note

Digital Equipment Corporation (DIGITAL) may announce support for new hardware devices on certain processors. Additional correction files (COR) may be provided to include software support for these devices when and if they are supported. However, only devices listed in the Software Product Description (SPD) are guaranteed to be supported by DIGITAL.

4.2 New Hardware Support for Update C

RSX-11M Version 4.2 Update C includes new hardware support for the following devices:

- MicroPDP-11/53 processor
- DELUA UNIBUS synchronous communications controller
- RD31 20-Mb Winchester disk drive
- RX33 1.2-Mb diskette
- RQDX3/RX33 formatting capability
- TU81 magnetic tape drive
- TU81E magnetic tape drive
- TU81E-DA Q-bus magnetic tape drive

4.3 New Hardware Support for Update B

RSX-11M Version 4.2 Update B includes new hardware support for the TUK50 magnetic tape device.

Chapter 5

Corrections to Documentation

This chapter contains corrections to manuals in the RSX-11M Version 4.2 documentation set. The section headings in this chapter are the titles of the manuals that need to be corrected.

5.1 RSX-11M/M-PLUS Utilities Manual

In Chapter 7, Section 7.1.2, add the following information:

During a selective backup, UFDs that do not contain selected files are not backed up and cannot be recreated during a full restore operation.

5.2 RSX-11M/M-PLUS System Management Guide

In Chapter 8, Section 8.7.1, please make the following correction:

When the delay before system shutdown expires, SHUTUP performs the following functions:

1. Stops the Console Logger (if active)
2. Redirects the console terminal to the TI of SHUTUP
3. Logs out logged-in terminals (multiuser protection systems only)
4. Stops the Queue Manager and holds all active batch and print jobs
5. Stops Resource Accounting (if active)
6. Checkpoints all read/write commons
7. Invokes LB:[1,2]SHUTUP.CMD (if present)
8. Stops the Error Logger task (ERRLOG) (if active)
9. Deallocates checkpoint space and dismounts devices
10. Halts the processor.

5.3 RSX-11M/M-PLUS Guide to Program Development

In Chapter 6, Section 6.2.2, please make the following correction:

```
DCL> LINK/TA:SUPLIB/MAP:SUPLIB FILE, USROBJ/INC:(TTREAD,TTWRIT)
>
```

5.4 RSX-11M/M-PLUS Indirect Command Processor Manual

Please make the following corrections to the *RSX-11M/M-PLUS Indirect Command Processor Manual*:

- In Chapter 2, Section 2.4.5, add the following statement:

The default radix will always be octal unless you specify the character D in the format control string. For example:

```
; NUMBER = 'NUMBER%D'
```

- In Chapter 2, Section 2.6.2, please make the following correction:

The format for timeout is nnu, where nn is the decimal number of time units to wait and u is S (seconds), M (minutes), or H (hours).

- In Chapter 2, Section 2.6.3, please make the following correction:

The format for timeout is nnu, where nn is the decimal number of time units to wait and u is S (seconds), M (minutes), or H (hours).

- In Chapter 2, Section 2.6.4, please make the following correction:

The format for timeout is nnu, where nn is the decimal number of time units to wait and u is S (seconds), M (minutes), or H (hours).

- In Chapter 2, Section 2.6.12, add the following statement:

The initial setting of the .ENABLE directive for GLOBAL mode is disabled (not enabled).

- In Chapter 2, Section 2.6.19.3, please add the following information:

The directives .IFDF symb and .IFT symb should not be used on the same line. Because the .IFDF symb directive evaluates to false, Indirect processes the remainder of the command line looking for a .OR directive. Instead, it encounters .IFT symb, but because the symbol is undefined, an error message is generated.

The following example shows how to test whether a symbol is defined and how to then use that symbol:

```
.IFNDF symbol .GOTO 10$
.IFT symbol <action...>
```

```
.10$:
```

```
.IFNDF symbol .SETF symbol
```


- In Appendix A, Section A.2, add the following error message:

AT. -- File attributes not available

Explanation: An attempt was made to obtain file-attribute information with the <FILATR> symbol before any files were opened.

User Action: A file must be opened with a .OPEN(x) directive before <FILATR> can contain any information.

5.5 RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual

Please make the following corrections to the *RSX-11M/M-PLUS and Micro/RSX Executive Reference Manual*:

- In Chapter 3, Section 3.7.1, make the following correction:
If the length-to-map field is not specified, the window length is not changed.
- In Chapter 3, Section 3.7.2, add the following statement:
The MACRO-11 interface to the fast-mapping facility uses general purpose register 3 (R3) as a "scratch" buffer. Consequently, all data stored by the fast-mapping facility is destroyed.
- In Chapter 3, Section 3.7.4, add the following status message:

Error Code	Meaning
IE.ITS	Inconsistent task state

- In Chapter 5, Section 5.3.34, note the following correction:
The parse block has the following format:
 1. O\$STAT (status word). Indicates the status of the operation. This field can contain the following value:
 SU\$SUC Success

5.6 RSX-11M/M-PLUS Error Logging Manual

In Chapter 3, Section 3.5, please add the following error message:

ERLRPT-F-FORINVCHR, FORMAT error - Invalid character in string in !DP directive.

Explanation: A control file module executed a WRITE_GROUP statement where the string in a !DP directive contained a nonprinting character.

User Action: Correct the user-written module or submit a Software Performance Report (SPR) for DIGITAL-supplied modules.

5.7 RSX-11M/M-PLUS and Micro/RSX I/O Operations Reference Manual

In Chapter 4, Section 4.2.1, please make the following correction:

- R1 Contains the size (in bytes) of the default directory string in program section \$\$FSR2. If no default directory string descriptor words have been written, R1 equals 0.
- R2 Contains the address of the default directory string in program section \$\$FSR2.

5.8 RSX-11M/M-PLUS Batch and Queue Operations Manual

In Chapter 3, Section 3.8, note the following addition:

Any spooled output or maps are also appended to the print job that contains the log file. In addition, the print job also assumes the characteristics of the batch log.

5.9 RMS-11 Macro Programmer's Guide

Please make the following corrections to the *RMS-11 Macro Programmer's Guide*:

- In Appendix A, Section A.1, add the following text to the description of the error ER\$MRS:
Or, the sum of the fixed length record size and the record overhead exceeds the bucket size.
Or, No Span Blocks has been selected with an invalid total record size.
- In Appendix A, Section A.1, add the following text to the description of the error ER\$NOD:
Or, the remote node rejected the operation. (STV contains the Network Services Protocol (NSP) code and can be found in Appendix C of the *DECnet-RSX Programmer's Reference Manual*.)
- In Appendix A, Section A.1, add the following text to the description of the error ER\$FUL:
ER\$FUL, Device or File Allocation Failure

Octal: 176360
Decimal: -784

Explanation: The specified device or directory does not have enough room for file creation or extension. In the case of a contiguous request, it is also possible that there is not enough contiguous space on the device.

5.10 RMS-11 Utilities

Please make the following corrections to the *RSX-11M/M-PLUS RMS-11 Utilities* manual:

- In Chapter 2, Section 2.2.5, add the new command EXIT_SUPERSEDE.

The EXIT_SUPERSEDE command stores the file design in the description file specified in the command string, superseding any existing file by the same name. EXIT_SUPERSEDE then terminates RMSDES and returns the system prompt.

The format for the EXIT_SUPERSEDE command is as follows:

```
EXIT_[SUPERSEDE] filename[.typ]
```

EXIT_SUPERSEDE names the description file in which the file design is stored. The default file type is DES. If you do not want to supersede an existing description file, use the EXIT command.

- In Chapter 2, Section 2.2.5, add the following statement to the description of the EXIT command:

To supersede an existing description file, use the EXIT_SUPERSEDE command.

- In Chapter 2, Section 2.2.9, add the new command SAVE_SUPERSEDE.

The SAVE_SUPERSEDE command stores the file design in the description file specified in the command string, superseding any existing file by the same name. If you do not define areas when you issue the SAVE command, RMSDES prompts you for the areas.

The format for the SAVE_SUPERSEDE command is as follows:

```
SAVE_[SUPERSEDE] filename[.typ]
```

SAVE_SUPERSEDE names the description file in which the file design is saved. The default file type is DES. If you do not want to supersede an existing description file, use the SAVE command.

If you want to design another file, issue a CLEAR ALL command to restore the attribute values in the design buffer to their defaults.

- In Chapter 2, Section 2.2.9, add the following statement to the discussion of the SAVE command:

To supersede an already existing description file, use the SAVE_SUPERSEDE command.

- In Chapter 2, Table 2-1, add the following commands:

Command	Format and Function
EXIT_[SUPERSEDE]	EXIT_[SUPERSEDE] filename[.typ] Names the description file in which the file design is stored.
SAVE_[SUPERSEDE]	SAVE_[SUPERSEDE] filename[.typ] Names the description file in which the file design is saved.

- In Chapter 2, Section 2.8, add the following correction to the explanation of the error message ?DES-F-VOR:

You entered a value in response to an attribute prompt that was not in the legal range of values for that attribute or the values you entered resulted in a calculation that caused an overflow for RMSDES. If the value was not within the legal range, the error message is followed by a display of the incorrect value.

- In Chapter 2, Section 2.6.2, add the following corrections:

— Modify paragraph 3 of the ALLOCATION field discussion to read as follows:

If you intend to create a single-area indexed file and do not require RSX positioning, RMS-11 uses the allocation from the file section if no area section exists in your design buffer. If you are allowing RMSDES to define areas for an indexed file by default, RMSDES will automatically calculate an allocation value for each area it defines.

- Modify paragraph 4 of the EXTENSION field discussion to read as follows:
If you intend to create a single-area indexed file and do not require RSX positioning, RMS-11 uses the extension from the file section if no area section exists in your design buffer. If you are allowing RMSDES to define areas for an indexed file by default, RMSDES will automatically calculate an extension value for each area it defines.
- Modify paragraph 5 of the BUCKETSIZE field discussion to read as follows:
If you intend to create a single-area indexed file and do not require RSX positioning, RMS-11 will use the bucket size from the file section if no area section exists in your design buffer. If you are allowing RMSDES to define areas for an indexed file by default, RMSDES will assign a bucket size value for each area it defines. However, if you choose to define areas explicitly and specify a bucket size value for each area, you should accept the default for the file section and set the bucket size value in each area section.

5.11 RMS-11 User's Guide

According to the *RSX-11M/M-PLUS RMS-11 User's Guide*, RMS-11 cannot perform an UPDATE operation on an alternate key with the key characteristics CHANGES and NODUPLICATES. This description is misleading. To increase the clarity of the description, please add the following information to Chapter 6, Section 6.2.5.2:

Although RMS-11 does not support the CHANGES and NODUPLICATES combination, it does not prevent you from performing an UPDATE operation on an alternate key with these characteristics. When an update would cause a duplicate of an alternate key, RMS-11 returns the completion code ER\$DUP. However, it does not terminate the UPDATE operation. Instead, RMS-11 updates the primary data level for the record without updating the alternate index. As a result, the file contains duplicates of the alternate key.

To prevent RMS-11 from creating duplicates when you make changes on alternate keys, modify your application as follows:

1. Create the file with the key characteristics DUPLICATES and CHANGES.
2. To disallow duplicates, perform a FIND operation on each alternate key. Then, perform an UPDATE operation on the modified record.

5.12 RSX-11M Help Files

Please note the following change for the "HELP INDIRECT PARAMETER" help file text for RSX-11M systems:

Parameters can be passed to an indirect command file that is opened by the at sign (@) by appending a space to the file specification and following it with the space-delimited parameters. For example:

```
CLI>@file arg1 arg2 arg ... argn
```

The entire command line, except for the initial at sign, will appear in the reserved symbol `COMMAN`.

The rest of the text is complete.

Chapter 6

Layered Product Support

6.1 Layered Product Update File Summary

Table 6-1 lists the layered products that are being updated for RSX-11M Version 4.2. Applying the files in this update software to each layered product will result in improved software performance. The corresponding directories and documentation files for each layered product are also included. The documentation files describe the procedure for applying corrections to the specific layered product.

Table 6-1: Layered Product Update File References

Layered Product	Directories Used	Backup Set	Documentation File Name
BASIC-PLUS-2 Version 2.3	[211,200]	BP2	[211,200]BP2D.DOC
COBOL-81/RSX Version 2.4 ¹	[216,200]	C81	[216,200]C81.DOC
DATATRIEVE-11 Version 3.1	[222,200]	DTR	[222,200]DTR.DOC
DCX KMV11-A Development Tools Version 1.0	[224,200]	DCX	[224,200]DCX.DOC
KMV11 X25 Link Level Version 1.0	[322,200]	KXI	[322,200]KXI.DOC

¹Update revisions prior to Update D included corrections for Version 2.3 of COBOL-81.

Table 6-1 (Cont.): Layered Product Update File References

Layered Product	Directories Used	Backup Set	Documentation File Name
KMV11-A HDLC Framing Software Version 1.0	[253,200]	KMV	[253,200]KMV11.DOC
DECnet-11M Version 4.2	[230,200] [230,20] [230,40] [225,20] [225,40]	DECNET	[230,200]DECNET.DOC
DPM (IP11). Version 4.1	[236,200]	DPM	[236,200]DPM.TXT
FMS-11/RSX Version 2.0 ²	[244,200]	FMS	[244,200]FMS.DOC
PDP-11 COBOL Version 4.4	[215,200]	C11	[215,200]C11.DOC
PDP-11 Symbolic Debugger Version 1.0	[247,200]	PDPDBG	[247,200]PDPDBG.DOC
PDP-11 FORTRAN-77/RSX Version 5.0	[246,200]	F77	[246,200]F77.DOC
PDP-11 FORTRAN IV Version 2.6	[245,200]	FORTIV	[245,200]FORTIV.DOC
PDP-11 PASCAL/RSX Version 1.2	[262,200]	PASCAL	[262,200]PASCAL.DOC
PDP-11 SORT/MERGE Version 3.0	[311,200]	SORT	[311,200]SORT.DOC
RSX-11 2780/3780 Protocol Emulator Version 4.1	[301,200] [301,24] [301,26]	2780	[301,200]2780.DOC

²Update revisions prior to Update D included corrections for Version 1.0 of FMS-11/RSX.

**USER'S
COMMENTS**

Your comments and suggestions are welcome and will help us in our continuous effort to improve the quality and usefulness of our documentation and software.

Remember, the system includes information that you read on your terminal: help files, error messages, prompts, and so on. Please let us know if you have comments about this information, too.

Did you find this manual understandable, usable, and well organized? Please make suggestions for improvement.

Did you find errors in this manual? If so, specify the error and the page number.

What kind of user are you? Programmer Nonprogrammer

Years of experience as a computer programmer/user: _____

Name _____ Date _____

Organization _____

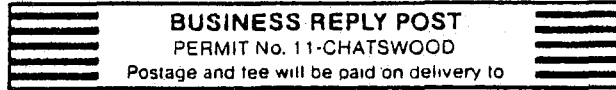
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