

## **RSTS/E Release Notes**

Order No. AA-JB65A-TC

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**January 1987**

These Release Notes describe the new features of the RSTS/E system and explain the differences between this version and previous versions of RSTS/E. System managers and system maintainers should read this document prior to system installation.

|                                      |        |      |
|--------------------------------------|--------|------|
| <b>OPERATING SYSTEM AND VERSION:</b> | RSTS/E | V9.3 |
| <b>SOFTWARE VERSION:</b>             | RSTS/E | V9.3 |

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## Preface

The RSTS/E V9.3 Release Notes describe differences between this and the previous release, RSTS/E V9.2. Because of the V9.0 changes to the installation process, users of earlier versions of RSTS/E should read the RSTS/E System Installation and Update Guide prior to attempting an installation of RSTS/E V9.3. If you are installing a new RSTS/E V9.3 system, refer to PART I of the RSTS/E System Installation and Update Guide. If you are upgrading a pre-V9.0 system to V9.3, refer to PART II of the RSTS/E System Installation and Update Guide. If you are updating a RSTS/E V9.0, V9.1 or V9.2 system to V9.3, refer to PART IV of the RSTS/E System Installation and Update Guide. In addition, users and programmers familiar with RSTS/E V9.2 should read these notes to learn about changes and new features in RSTS/E V9.3. The V9.3 Release notes are divided into four sections:

1. RSTS/E V9.3 New Features
2. Differences between RSTS/E V9.2 and RSTS/E V9.3
3. RSTS/E V9.3 Documentation Changes
4. Known Problems with RSTS/E Version 9.3

### NOTE

If you last used a version of RSTS/E older than V9.2, you should read the release notes for any intermediate versions.





## 1 New Features of RSTS/E V9.3

### 1.1 New Hardware Support

#### 1.1.1 Ethernet Device Drivers

RSTS/E V9.3 provides two new device drivers to support Ethernet communication using DECnet/E on UNIBUS and Q-Bus systems. The UNA driver (for UNIBUS systems) supports the DEUNA and DELUA Ethernet devices. These devices have the device designator XE. The QNA driver (for Q-Bus systems) supports the DEQNA Ethernet device. Its device designator is XH.

#### NOTE

In V9.3, the UNA/QNA device drivers are only supported for use by DECnet/E V4.0. These drivers are only available if both the device and DECnet/E V4.0 are present. There is no direct interface.

In future releases, RSTS/E will support these devices for general use, and then will allow you to access them independently of DECnet/E. At that time, complete documentation describing how to program the devices will be provided.

#### 1.1.2 LA75 Desk-Top Printer

RSTS/E V9.3 supports the new LA75 desk-top printer. The LA75 printer has the following features:

- o Compact size suitable for desk-top location
- o Digital and IBM compatibility
- o ASCII and national character sets
- o VT100 special graphic character set
- o Digital and ISO Multinational and Supplemental character sets
- o Digital Technical character set
- o Katakana character set
- o Downline-loadable characters

- o Graphic printing
- o Four print densities -- draft, memo, near-letter quality and letter quality
- o Bold, italics, superscript, and subscript printing
- o Bidirectional printing
- o High reliability

The DCL commands SET TERMINAL/INQUIRE, SET TERMINAL/DEVICE\_TYPE=LA75 and SHOW TERMINAL now work for the LA75. The terminal type code for the LA75 is 47.

#### 1.1.3 Micro/PDP-11/53 System

RSTS/E V9.3 supports the Micro/PDP-11/53, which offers complete hardware compatibility with the Micro/PDP-11/23, Micro/PDP-11/73, and the Micro/PDP-11/83. RSTS/E V9.2 also supports the Micro/PDP-11/53; however, no version of RSTS/E prior to V9.2 supports it.

#### 1.1.4 RD31 and RD32 Fixed Disks

RSTS/E V9.3 supports the RD31 and RD32 fixed disks, single half-height units containing 5.25 inch nonremovable hard disks enclosed in sealed assemblies. The RD31 can store up to 20 Mbytes of formatted data; the RD32 can store up to 40 Mbytes of formatted data.

#### 1.1.5 RD54 Fixed Disk

RSTS/E V9.3 supports the RD54 fixed disk, a single full-height unit containing a 5.25 inch nonremovable hard disk enclosed in a sealed assembly. The RD54 can store 159 Mbytes of formatted data.

#### 1.1.6 RX33 Diskette

RSTS/E V9.3 supports the RX33 diskette drive, a single unit half-height drive that runs double-sided 5.25 inch RX33 diskettes, capable of storing up to 1.2 Mbytes of formatted data.

#### NOTE

Please note these differences between RX50 and RX33 diskettes:

- DIGITAL ships RX50 diskettes pre-formatted; RX33 diskettes must be formatted before use.
- For the RX33 drive, you can use any diskette capable of storing 1.2 Mbytes in a double-sided format, provided you first format these diskettes on the RX33.
- You can use an RX50 diskette in an RX33 drive (read/write), but you cannot use a formatted RX33 disk in an RX50 drive.

#### 1.1.7 TU81-PLUS Tape Subsystem

RSTS/E Version 9.3 supports the TU81-E tape subsystem on UNIBUS PDP-11 systems.

The TU81-PLUS is a dual-density tape drive, supporting recording densities of 1,600 bits per inch (BPI) in Phase Encoding (PE) mode and 6,250 BPI in Group Coded Recording (GCR) mode.

Currently, RSTS/E permits the use of a single TU81-PLUS tape drive on a system, configured as unit 0 (MU0:). It can be used with other MU-type tape subsystems (such as the TK50), so long as the TU81-PLUS drive is configured as unit 0. RSTS/E makes use of the TU81-PLUS device's cache buffer for data reading, but not for data writing.

The TU81-PLUS is fully compatible with the TU81 tape subsystem. Customers wishing to upgrade their existing TU81 tape subsystem to a TU81-PLUS should contact their local Digital sales representative to learn about the TU81 to TU81-PLUS upgrade kit.

### 1.2 Initialization Code (INIT.SYS)

#### 1.2.1 Expanded Memory Utilization

INIT.SYS for RSTS/E V9.3 has been enhanced to allow the use of expanded memory space on the PDP-11/84 and all Q-Bus processors. On these systems, RSTS/E can now use up to 2044K words of memory, instead of the previous limit of 1920K words. On older processors, such as the PDP-11/70, PDP-11/44, and PDP-11/24, the 1920K limit is controlled by the hardware and cannot be changed.

#### 1.2.2 Support for UNA/QNA Devices

INIT.SYS has been updated to support the new UNA/QNA devices,

described in the previous section. Use the HARDWR LIST option to display each type of Ethernet device on your system, along with the default physical address of the device's controller.

### 1.2.3 Unexpected Interrupt Detection

Defective hardware on a system can cause unexpected interrupts during the device sizing phase of INIT. Previously, this could cause INIT to mistakenly believe that the console terminal interface was interrupting at the wrong priority. INIT then disabled the console terminal, causing the system to hang sometime during the startup procedure. The system had to be rebooted and restarted. INIT.SYS has been enhanced in V9.3 to detect unexpected interrupts and, if they occur, to print a message similar to the following;

```
Unexpected interrupt through the vector at nnnnnn - Possible  
hardware problem
```

## 1.3 Monitor

### 1.3.1 New RSTS/E Error Message

Error code 196 has been defined for use by Basic-Plus-2. The error message associated with this code is:

```
196      ?REMAP string is not static
```

### 1.3.2 New Null Job for PDP-11/84 Systems

A new null job has been added for PDP-11/84 systems. It increments the two-digit display on the 11/84 front panel during system idle time, showing the number of clock ticks since the last second, in octal. This display is a fair indicator of system activity, since it is only updated during system idle time. The new null job also increments the diagnostic display located on the rear panel of Micro PDP-11/73 and 11/83 systems, and the diagnostic LEDs on the PDP-11/23 processor board. No special action is necessary to install or invoke the new null job; it will be selected automatically at system start-up on all systems with the appropriate processor type.

### 1.3.3 Resident Library Size Increased

RSTS/E V9.3 supports resident libraries up to a maximum of 255 K-words. Previously, the maximum resident library size was 127 K-words.

#### 1.3.4 Non-File-Structured Writing to Mounted Disks

Before RSTS V9.0, users could not use non-file-structured access to write to mounted disks. In V9.0, with the introduction of multiple privileges, they could. Users with RDNFS and WRTNFS privileges could write to dismounted disks. With SYSMOD privilege, such users could also use non-file-structured write access to mounted disks. This was potentially dangerous, and was incompatible with previous versions. RSTS/E V9.3 now requires you to specify MODE 16384 when opening a mounted disk to request non-file-structured write access to it. This change makes the handling of non-file-structured write access to mounted disks more compatible with pre-V9.0 versions of RSTS. Any applications that have been written since V9.0 which require non-file-structured write access to mounted disks must to be modified to specify this new mode when opening the disk. For further information about this, see Article 0.1.15 in the November 1986 issue of *The Software Dispatch*.

#### 1.4 DCL

##### 1.4.1 BACKUP/RESTORE Enhancements

###### Program Name Indicates Operation

The Backup/Restore utility now changes its program name (as reported by CTRL/T and the SHOW USERS command) to BACKUP, RSTORE, or VERIFY, to indicate which operation is currently in progress (backup, restore, or verify, respectively).

###### /BLOCK\_SIZE Qualifier accepts MINIMUM and MAXIMUM Argument

The /BLOCK\_SIZE qualifier now accepts the keywords MINIMUM and MAXIMUM. The keyword MINIMUM is translated to 2048 characters. The keyword MAXIMUM is translated to 4080 characters for a backup to tape, and to 7680 characters for a backup to disk.

###### New /CRC Qualifier

A new qualifier, /CRC, has been added to the BACKUP command. This qualifier instructs BACKUP to calculate and include a cyclic redundancy check (CRC) value for each block of data written to the backup file. RESTORE, upon seeing the presence of this check, re-calculates the CRC value and ensures that the new value matches the one written to the backup file. If the two values do not match, RESTORE reports a CRC error and then attempts to recover the block using standard XOR recovery methods. CRC has a significantly higher probability of detecting errors than the checks normally used on tapes and disks. Additionally, CRC detects any corruption which may occur as the data is transferred to or from the computer's memory. There is significant overhead involved in calculating the CRC. Using the /CRC

qualifier may degrade the performance of BACKUP on some systems. In some instances, BACKUP with CRC enabled may not be able to maintain streaming on tape drives capable of streaming. The default for this qualifier is /NOCRC.

#### 1.4.2 Improved DCL Symbol Handling

The DCL symbol table internal structure has changed, providing five to six times more symbol and label storage space and faster symbol table access than in the previous version. This change should not affect users or existing command procedures. Users will notice on occasion that DCL will use more than 4K words of memory per user. DCL will expand its memory in increments of 1K words as necessary for storing symbols and labels. When the memory is no longer in use, DCL will return approximately half of it to the system, and keep half in anticipation of future needs.

#### 1.4.3 Multiple Targets in FORCE and BROADCAST Commands

The FORCE command and the BROADCAST command now accept multiple targets. For example, the command:

```
BROADCAST [193,*],KB0:,[194,*] "Backup is starting"
```

broadcasts the message to any user logged into account [193,\*], to the terminal KB0:, and to any user logged into account [194,\*].

#### 1.4.4 New /RETAIN\_DATES Qualifier for COPY Command

Prior to V9.0, all disk file copy operations, using PIP or the DCL COPY command, by default retained the input file's creation date-time and access date on the output file. PIP provided two switches, /RETAIN and /NEW to control this action. The COPY command provided no similar qualifiers. In V9.0, the default action was changed so that date/time information of the input file was not retained in the output file. Instead, the output file was assigned the current date and time. This action corresponded to PIP's /NEW switch. Users wanting to maintain the previous default could specify /RETAIN in their PIP copy commands, but had no corresponding qualifier to use with the DCL COPY command. RSTS/E V9.3 provides a new COPY command qualifier, /RETAIN\_DATES, to control this action. If you specify /RETAIN\_DATES, then the output file retains the input file's date-time information. If you specify /NORETAIN\_DATES, then the output file receives the current date and time at the time the output file is created. The default is /NORETAIN\_DATES. This new qualifier is documented in the on-line help file for the COPY command.

#### 1.4.5 New /NOWARNINGS Qualifier For RENAME Command

A new qualifier, /NOWARNINGS has been added to the DCL RENAME command. Normally, an error message is displayed if you try to rename a file to the name of a file that already exists. Now you can include the qualifier /NOWARNINGS in the RENAME command to disable displaying this error message. The default is /WARNINGS.

#### 1.4.6 New /SELECT Qualifier

A new qualifier, /SELECT, is now available with several DCL file-related commands to allow you to select files based on their size. The format of the new qualifier is:

/SELECT=SIZE=n Selects only those files with size equal to n.

/SELECT=SIZE=MINIMUM=n Selects only those files with size greater than or equal to n.

/SELECT=SIZE=MAXIMUM=n Selects only those files with size less than or equal to n.

/SELECT=SIZE=(MINIMUM=m,MAXIMUM=n) Selects only those files with size between m and n.

This qualifier can be included with any of the following commands:

- o APPEND
- o COPY
- o DELETE
- o DIRECTORY
- o RENAME
- o SET PROTECTION
- o TYPE

In the DIRECTORY command, if you specify /SELECT together with the /SIZE=ALLOCATION qualifier, then files are selected based on allocated size, not used size. In all other cases, /SELECT causes files to be selected based on used size. Note that the /SELECT qualifier does not apply to remote (DECnet/E) files. DCL issues an error message if you specify /SELECT with a file-spec that includes a node name. All of the on-line help files for the above commands have been updated to describe the new /SELECT qualifier. With the exception of the /SELECT=SIZE=n format, this qualifier is compatible with the COPY command /SELECT qualifier on VAX/VMS systems.

## 1.5 Commonly Used System Programs (CUSPs)

### 1.5.1 DISPLY.TSK

The disk display section of DISPLY.TSK now has column headers similar to SYSTAT.

### 1.5.2 Error Package

The Version 9.3 Error Package includes support for the XE and XH Ethernet devices. Each device has its own error type. In addition, enhancements have been made to the annotations of MSCP and TMSCP error packets.

### 1.5.3 PIP.SAV

#### New PIP Switches to Select Files by Size

Several new switches have been added to PIP to allow you to select files by size. These switches correspond to the new /SELECT qualifier formats described in a previous section of these notes. The new switches are:

| Switch | Meaning                                                         |
|--------|-----------------------------------------------------------------|
| /EQ:n  | Includes only those files with size equal to n.                 |
| /GE:n  | Includes only those files with size greater than or equal to n. |
| /LE:n  | Includes only those files with size less than or equal to n.    |

You can combine the /LE and /GE switches to select files between a minimum and maximum size. For example, if you specify /GE:100/LE:200, PIP includes only those files whose size is between 100 and 200 blocks, inclusive. These new switches are available for all PIP operations. For directory operations (/DI, /LI, /S, /BR, /F), if you specify /EQ, /GE or /LE together with the listing argument :AL (list file's allocated size), then files are selected based on allocated size, not used size. These new switches are described in PIP's own on-line help file (PIP /HELP), as well as DCL's on-line help file for PIP (HELP PROGRAM PIP).

#### New :NO Argument Added to /RE (RENAME) Switch

Normally, PIP issues an error message if you try to rename a file to the name of a file that already exists. You can now append :NO to the /RE (RENAME) switch to disable displaying the error message.



#### 1.5.4 SHUTUP.TSK

##### Improved Defaults for Prompts

Previously, the SHUTUP program prompted,

```
Minutes until logins are disabled (0-99) <0>?  
Minutes until new network activity is disabled (0-99) <5>?
```

(The second prompt only appears on systems with DECnet/E enabled.) The maximum value allowed for these prompts was 99, regardless of how you answered the "Minutes until system shutdown" prompt. Now, SHUTUP uses the value "Minutes until system shutdown" minus 1 as the maximum value allowed for these two prompts. Also, SHUTUP uses the value "Minutes until system shutdown" minus 1 as the default to the "Network activity" prompt, instead of the fixed value 5. The following examples illustrate these changes:

Old prompting sequence:

```
Minutes until system shutdown (0-99) <5>? <CR>  
Minutes until logins are disabled (0-99) <0>? <CR>  
Minutes until new network activity is disabled (0-99) <5>? <CR>  
:  
:
```

New prompting sequence:

```
Minutes until system shutdown (0-99) <5>? <CR>  
Minutes until logins are disabled (0-4) <0>? <CR>  
Minutes until new network activity is disabled (0-4) <4>? <CR>  
:  
:
```

##### Shutdown Message Includes Node Name

If your system has DECnet installed, the system shutdown message now includes the system's node name. For example:

```
11:10 AM 17-Nov-86 FOOBAR:: shutting down in 1 minute. Please finish up  
11:12 AM 17-Nov-86 **** Final Warning!!!!!! FOOBAR:: shutting down. ****
```

If your system does not have DECnet installed, the system shutdown messages are the same as in the past.

```
11:10 AM 17-Nov-86 System shutting down in 1 minute. Please finish up  
11:12 AM 17-Nov-86 **** Final Warning!!!!!! System shutting down. ****
```

### 1.5.5 SYSTAT.TSK

#### New Option to List Open Files by Job

The SYSTAT /O and /W switches have been enhanced to support listing open files by job. You can now include a job number as a parameter to the /O or /W switches. For example:

```
SYS/O:13      ! Brief listing of files opened by job 13
SYS/O:DB1:4   ! Brief listing of DB1: files opened by job 4
SYS/O:13:     ! Brief listing of files opened on logical device 13:
SYS/W:20      ! Long listing of files opened by job 20
SYS/W:DU3:5   ! Long listing of files opened by job 5 on device DU3:
```

The /W switch also shows other jobs that access a file opened by the requested job number. The /W switch displays new information about the open file; it indicates which blocks are currently locked and the use of mode 8. Mode 8 is indicated by the text "Aex" (for "always extend mode"). The text for caching modes has been changed to make it more readable. The text now reads "Rnd" (for "random caching mode") or "Seq" ("for sequential caching mode").

## 1.6 Layered Products

### 1.6.1 Announcing DECnet/E V4.0

DECnet/E V4.0 supersedes DECnet/E V2.1 and is the latest version of the DECnet communications product for the RSTS/E operating system. V4.0 is a major release of the DECnet/E product which implements Phase IV of the Digital Network Architecture and provides Ethernet support for the DEUNA, DELUA, and DEQNA Ethernet controllers. A DECnet/E node may be configured as either an end node or a Level I Router using both DDCMP and Ethernet communications media. Level II Ethernet Routing is not supported by DECnet/E V4.0. DECnet/E is a separately licensed layered product available for RSTS/E and is not a bundled component of the RSTS/E product. For specific details regarding features of DECnet/E V4.0, see the DECnet/E V4.0 documentation set. Please refer to the RSTS/E Layered Product Cross Reference SPD for appropriate order numbers and the DECnet/E V4.0 SPD for specific part numbers of various kits or options.

#### NOTE

RSTS/E V9.3 supports only DECnet/E V4.0; it does not support any earlier versions of DECnet/E. Likewise, no earlier version of RSTS/E supports DECnet/E V4.0.

### Installing DECnet/E V4.0

Prior to RSTS/E V9.3, DECnet/E installation was different from most layered products, since monitor SILs had to be configured to include support for DECnet/E. Now, the DECnet/E monitor code is included in all monitor SILs, but is only loaded into memory at start up if DECnet/E is installed on your system. This greatly simplifies the DECnet/E installation procedure, allowing you to install DECnet/E as you would any other layered product. DECnet/E V4.0 is installed during the layered product phase of the installation process.

Please refer to the *DECnet V4.0 Network Installation Guide* for details on how to install DECnet/E V4.0 on RSTS/E.

### 1.6.2 Announcing DECmail-11 V3.0

DECmail-11 is a menu or command driven electronic messaging system that operates on PDP-11 computers. It provides facilities for creating, editing, sending, reading, printing, deleting, and filing messages. Its features include:

- o User defined commands
- o User defined nicknames
- o System manager defined commands and nicknames (global)
- o The ability to set auto answer
- o The ability to have DECmail-11 act on single messages or sequences of messages
- o Complete on line help
- o Commands such as "NEXT", "PREVIOUS", and "LAST" allow the user to move through a large number of messages quickly and easily.

### Major New Features

#### The One Level Menu Interface

This feature gives each user the choice of either a menu or a command mode interface. The menu contains the major DECmail-11 functions. The design of the menu is similar to ALL-IN-1. Upon user request the menu can be turned off. The user will then be in command mode. The menu can be turned back on at the user's request.

## Remote VMS Message Router Support

DECmail-11 V3.0 supports connections to a remote VMS Message Router (V2.0 or later) via DECnet. DECmail-11 users who wish to use the STORE and FORWARD features of Message Router, or wish to correspond with users of ALL-IN-1 based mail products (without using "MRGATE", the Message Router VMSmail gateway), will be able to do so by using a remote Message Router mailbox located on a VMS node.

## Sending via Batch Mail

DECmail-11 V3.0 includes a mail queue task to handle the delivery of queued messages. The mail queue task automatically restarts after a system has recovered from a crash. In addition, it returns error messages to the user, and users can query the system for the status of their queued messages through the SHOW QUEUE command. When sending messages via the "BA" send menu option, DECmail-11 notifies the user of any errors that prevent the message from being delivered and returns the entire message back to the sender.

## Availability

DECmail-11 V3.0 is now available from DIGITAL. See your DIGITAL sales representative for information on purchasing DECmail-11.

### 1.6.3 Announcing EDT V3.1

EDT V3.1-00 supersedes EDT V3.00-13 and is the latest version of EDT available on RSTS/E. A summary of the problems corrected by this release of EDT is described in Section 2 (Differences).

## 2 Differences between V9.3 and V9.2

### 2.1 System Generation (SYSGEN)

#### 2.1.1 DECnet/E Prompt Removed

Because of the changes to the installation of DECnet/E V4.0, you are no longer asked if you want to include DECnet/E during the monitor configuration dialogue. All RSTS/E V9.3 monitor SILs include code for DECnet/E device drivers, transport and routing layers. At system start up, such code is only loaded into memory if DECnet/E is present on your system.

#### 2.1.2 No UNA/QNA Device Questions

No questions are asked during installation to include drivers for the the new UNA or QNA ethernet devices. The drivers for these devices are present in all V9.3 SILs and are only loaded into memory at system start up if both the device and DECnet/E V4.0 are present on the system.

#### NOTE

In V9.3, the UNA/QNA device drivers are only supported for use by DECnet/E V4.0. As such, these drivers are only loaded into memory if both the device and DECnet/E V4.0 is present. In future releases of RSTS/E, these devices will be supported for general use, and will not require DECnet/E to be present to load their drivers during system start up.

#### 2.1.3 DMP11/DMV11 Question Always Asked

Prior to RSTS/E V9.3, the monitor configuration dialogue only asked for the number of DMP11/DMV11's to configure if you answered Yes to the DECnet/E support question. In V9.3, with the removal of the DECnet/E prompt (see above), the monitor dialogue always asks about DMP11/DMV11.

#### 2.1.4 Corrections

The following SYSGEN problem has been fixed in V9.3:

1. The prompt for the Template monitor's name did not accept a full file specification.

### 2.1.5 Monitor SIL File Size

All RSTS/E V9.3 monitor SIL files include code to support DECnet/E and the Ethernet UNA and QNA device drivers. To compensate for this additional code, the symbol table from each phase of the monitor has been removed where possible. In some cases, this has resulted in a decrease in size of V9.3 monitor SIL files compared to equivalent V9.2 monitor SIL files.

## 2.2 Initialization Code (INIT.SYS)

### 2.2.1 Changes to Default

The ability to set one-time defaults (defaults that are in effect only for the current timesharing session) has been removed in RSTS/E V9.3. When timesharing is started, the defaults used are always the last ones you set using the DEFAULT option of INIT (or ones automatically selected for you by INIT if you are starting a newly created monitor).

With the removal of one-time defaults, the "long START" option now performs the same steps as the "fast START" option except that "long START" prints the list of all disabled devices before starting timesharing. Invoke the "long START" option by typing "ST" at the Option: prompt. Invoke the "fast START" option by typing <CR> at the Option: prompt.

The code that updates the DEFAULT phase of a monitor SIL has been enhanced to detect errors better during reading or writing of the phase, and to display a meaningful error message if errors should occur.

### 2.2.2 Minimum XBUF Size Enforced

Every RSTS/E V9.3 system must now have a minimum XBUF allocation of 3K words to start timesharing. The DEFAULT and START options of INIT have been modified to enforce this requirement.

### 2.2.3 Check for Missing TK50 FCO (Field Change Order)

Older TK50 tape controllers that are missing a required FCO can cause system crashes when used during timesharing. To prevent this from occurring, INIT now checks each TK50 device and will not start

timesharing if any of them does not have the required FCO installed.

Since you can safely use such a device with any of INIT's off-line options, INIT does not disable it. To start timesharing without the device, use the HARDWR option of INIT to disable it.

#### 2.2.4 Improved Memory List Suboption

The LIST suboption of the Memory Allocation section of DEFAULT has been enhanced to show more information about the current system configuration. The memory table now shows a map of the total physical address space of the processor, instead of just showing memory that actually exists. Memory that is not currently addressable is shown as "NXM". LIST also displays how much memory is available to RSTS/E. For example, on a PDP-11/84 system with 512K words of memory installed, the memory table might appear as:

Memory allocation table:

|       |          |   |          |   |        |   |      |
|-------|----------|---|----------|---|--------|---|------|
| 0K:   | 00000000 | - | 00423777 | ( | 69K)   | : | EXEC |
| 69K:  | 00424000 | - | 03377777 | ( | 379K)  | : | USER |
| 448K: | 03400000 | - | 03717777 | ( | 64K)   | : | XBUF |
| 512K: | 03720000 | - | 10217777 | ( | 1532K) | : | NXM  |

Memory available to RSTS/E is now 512K words.

#### 2.2.5 Changes to Date/Time Prompt

The Date and Time prompts in INIT.SYS have been shortened to make them compatible with the ones displayed on Micro/RSTS. They now appear as:

Today's date?

Current time?

The date/time help messages have also been changed to describe the proper format for entering dates and times. If you enter an invalid date or time, type "?" or press RETURN to either prompt, then INIT displays the help text.

#### 2.2.6 Improved Diagnostic Messages

Prior to version V9.3, INIT.SYS displayed limited information for diagnostic failures that occurred on MSCP (RU) and TMSCP (MU) devices. It also did not differentiate between real diagnostic failures and errors that occurred while trying to run the diagnostics. INIT.SYS now performs diagnostic checks on UNA (XE) and QNA (XH) devices in addition to the MSCP and TMSCP devices. If a device diagnostic fails,

INIT.SYS prints a message similar to the following:

<Device> micro-diagnostic failure, code nnnnnn - device disabled

where 'nnnnnn' is the diagnostic error code for the device. Refer to the appropriate hardware manual for a description of the problem indicated by the code. For XE and XH devices, INIT.SYS also displays a message if the probable cause of the failure is that the device is not connected to an active Ethernet transceiver. For all of these devices, if the device takes too long to respond, or an error occurs while trying to execute the device's diagnostic, INIT.SYS prints a message similar to the following;

<Device> initialization failure - device disabled

### 2.2.7 SAVRES Option Correction

In some cases, the off-line SAVRES option incorrectly handled multi-volume magnetic tape savesets, invalidating all but the last volume. This problem has been corrected in V9.3.

### 2.2.8 Corrections to the START Option

The following problem in the START option has been fixed for V9.3:

- o The START option failed if it tried to start a monitor SIL that had a DEFAULT phase that was not contiguous on the disk.

## 2.3 Monitor

### 2.3.1 Small Buffers

Systems which use the High Performance 2780/3780 emulator should now be able to include approximately 80 more small buffers into their system, depending on the configuration.

### 2.3.2 Changes to the MSCP Disk Driver

Enhancements have been made to the MSCP disk driver to increase performance. Consolidation of driver and common code has greatly decreased CPU overhead when accessing DU-type disks.

Also, the MSCP disk driver has been enhanced to handle removable media better. With these changes, the following rules take effect:



- o If an MSCP unit is open in non-file-structured mode, you can take the unit offline and bring it back online. No errors will occur unless I/O is attempted on the unit while it is offline.
- o If an MSCP unit is mounted, and it is taken offline and brought back online, all subsequent requests to the unit will fail with "?Device hung or write locked" errors. The unit must be logically dismounted and remounted to continue using it.
- o An exception to the above rule is the fixed RC25 drive. You can take a fixed RC25 drive offline and bring it back online, even if it is mounted. (This allows for the case in which the RSTS/E system disk is on the fixed RC25 platter and the unit must be spun down in order to remove the removable platter.) However, when the fixed RC25 unit comes back online, the volume serial number will be checked to insure that the unit number is still associated with the same volume.
- o These changes also correct a problem that caused the dismounting and subsequent remounting of RA60 disks to fail.

### 2.3.3 Monitor size

The size of a V9.3 monitor is about the same as a comparable V9.2 monitor in memory. The size on disk, however, will be larger or smaller depending on your configuration.

### 2.3.4 UMR Usage Reduced

The version 9.3 monitor now reserves two less Unibus Mapping Registers (UMRs) for its own use than before, allowing more simultaneous I/O requests on machines which have Unibus disks and/or tapes.

### 2.3.5 Disk Autosize Correction

Disk units are now autosized when the device is allocated as well as when it is mounted. Previously, a problem existed in the RSTS/E monitor where opening a disk non-file-structured failed to autosize the unit.

### 2.3.6 Monitor Corrections

The following monitor problems have been corrected for Version 9.3:

- o A job could not open a non-mounted disk in non-file-structured (NFS) mode on more than one channel simultaneously.
- o The line printer (LP) driver sometimes crashed the system if the character designated as the "special space" character caused a line break.
- o Several problems dealing with access to resident libraries have been corrected.
- o The Add/Remove Run-Time System or Resident Library directive (UU.RTS) caused the system to hang if a 1K word library was added at certain addresses.
- o If the user tried to set a run-time system name of all blanks, the UU.NAM directive sometimes restricted the attempt. The monitor now properly allows this for all non-executable files with a filesize less than 65536 blocks.
- o The RSX emulator incorrectly calculated the initial job size of overlaid I & D space programs. This caused later uses of the GTSK\$ and EXTK\$ RSX directives to fail in unpredictable ways. This problem was most noticable with BASIC-PLUS-2, which uses the GTSK\$ directive on initial program startup. It often noticed the GTSK\$ failure and aborted with an ?Odd address trap. In cases where the GTSK\$ failure or EXTK\$ failures were not detected, programs usually failed with a ?Memory management violation.

This problem has been corrected. The monitor now properly calculates initial job size for overlaid I & D space programs.

- o The MSCP driver calculated the device size incorrectly for disks with device clustersizes greater than 1. This problem has been corrected

### 2.3.7 Terminal Service

#### Performance Improvements

Changes have been made to the terminal driver to help improve output performance. Terminal output performance in this version of the RSTS/E terminal driver has been improved by 7% to 10% over the V9.2 version. This change may or may not be noticable, depending on the configuration and use of terminals on your system.

## Corrections

The following terminal service problems have been corrected in V9.3:

- o The terminal driver failed to wake up controlling jobs when there was output pending on a pseudo-keyboard.
- o When closing or releasing a terminal, the terminal driver incorrectly cleared a flag bit used to indicate that an XOFF had been sent by the device. If there was still pending data to be sent to the device, the terminal driver immediately proceeded to transmit the pending data, causing data overruns.
- o Printers connected to a terminal line could lose data when the device was closed if the current and permanent characteristics, such as the speed of the line, differed. This problem occurred because the terminal driver reset the line characteristics to their permanent settings before all the output text had been sent to the printer. The terminal driver now delays the reset until all output is sent. However, to ensure that all the data has been transmitted to the device from the interface itself, the driver sends two null characters before resetting the characteristics. On some interfaces, if the two null characters have not been sent prior to the reset, they may appear as garbage characters. This is not a bug in the driver, but a function of how the hardware works.
- o The terminal driver failed to XON a dial-up line connected to a DHV11/DHULL multiplexer when the last character received prior to losing the dial-up connection was an XOFF.
- o The terminal driver failed to treat Control\_C (CTRL/C or ^C) as a delimiter when the terminal was opened in echo control mode.
- o The default stop bit setting for terminals connected to DH11, DZ11, and DHV11/DHULL multiplexers was incorrectly defined.
- o Terminal lines set to AUTOBAUD could be set to the wrong default speed. The default speed settings for AUTOBAUD lines is 9600 baud. Under some situations the default speed was set to 600 baud.
- o Typing or forcing a Control\_O (CTRL/O or ^O) to a terminal which is owned by a user but is not the user's console terminal depleted the system's small buffer pool.
- o The system sometimes crashed when opening a slave terminal in binary mode if the terminal was connected to the system by a DHV11/DHULL multiplexer.

- o Output interrupts could be lost on devices connected to DHV11/DHUL1 multiplexers, causing the terminal to temporarily hang.

### 2.3.8 Set Terminal Characteristics SYS Call

#### Reading/Setting Characteristics on Owned Terminals

The Set Terminal Characteristics SYS call (UU.TRM Directive) has been changed in V9.3 to allow a job without HWCFG privilege to read and set the characteristics of any terminal owned by the job. A terminal is owned if it is the job's console terminal, or if it is opened or allocated by the job. UU.TRM returns the error "?Protection Violation" if a job without HWCFG attempts any of the following:

- o Read or change the characteristics of a terminal not owned by the job
- o Change the speed of any terminal
- o Set the permanent characteristics for any terminal
- o Change the input buffer quota for any terminal

#### Planned Change for Handling Disabled Terminals

The Set Terminal Characteristics Part I and Part II SYS calls (UU.TRM directive) will be changed in the next release of RSTS/E (not V9.3) to return the error "?Device not available" if you attempt to set or retrieve information on a terminal that has been disabled by INIT.SYS. This change is consistent with the manner in which the terminal driver prevents access to such devices, and is required for future development. If you have an application which issues this call on disabled terminals, it must to be modified to trap this error and take whatever action is appropriate.

#### Corrections

The following problems have been corrected in the Set Terminal Characteristics SYS Call (UU.TRM monitor directive) for V9.3:

- o Issuing the Set Terminal Characteristics Part I SYS call to set both parity and speed of a line connected to a DHV11/DHUL1 multiplexer resulted in the wrong parity being set.
- o Issuing the Set Terminal Characteristics Part I SYS call to permanently set the line to NOLOCAL\_ECHO failed to work.

- o Issuing the Set Terminal Characteristics Part I SYS call to set or clear TTSYNCH for a non-existent terminal connected to a DHV11/DHUI1 multiplexer caused the monitor to become corrupted and subsequently, the system to crash.

### 2.3.9 Tape Driver Corrections

The following problems associated with magnetic tape drives have been corrected in V9.3:

#### MS/MU Tape Driver

- o During an ANSI file-structured magtape open, there was a timing condition that, together with an error logged by the drive, could cause the system to crash.
- o If asynchronous I/O was outstanding for the drive, while a close and re-open of the device was performed, the system could crash.
- o Under certain conditions, using asynchronous I/O to read an ANSI tape on an MS or MU drive could cause the system to crash when it reached EOT.

#### MS Tape Driver

- o Long "skip forward" or "skip backward" operations timed out and caused unexpected results. This was seen mostly when using the RESTOR package to restore files saved with the pre-V9.0 BACKUP utility.
- o A job using the tape drive hung the system for approximately 45 seconds, then either proceeded normally or aborted with a "?Device hung or write locked" error.
- o Skip operations returned a "?No room for user on device" error when beyond EOT. No error should have been returned.
- o Initial write operations to a blank TK25 tape cartridge timed out, rendering the cartridge useless and possibly hanging the system.
- o During ANSI file-structured processing, the "?End of file on device" and "?End of volume" errors also returned a non-zero byte count. This caused some RMS utilities to produce unexpected results.

- o Prior to V9.3, if a drive timeout or hard error occurred and the drive never became ready to accept commands, the system would hang, waiting for the drive to become ready.

Should a timeout or hard error occur under V9.3, and the recovery attempt fails or is impossible, the error "??Fatal system I/O failure" (ERR = 12) will be returned. All further requests to the drive will receive this error until the drive has been deallocated by the job.

#### 2.3.10 Correction to DB and DR Disk Drivers

The following problem in the DB and DR disk drivers has been fixed for V9.3:

- o The DB and DR disk drivers did not count errors eligible for ECC correction in the unit error count table (UNTERR), even if the error was hard (not correctable). Thus these errors did not show in the SHOW DISKS display.

#### 2.4 System Startup

The INSTALL/SWAP\_FILE=1 command in the SYSINI.COM file has been changed in RSTS V9.3 to include the /NOLOG qualifier to disable the confirmation message.

#### 2.5 Installation

##### 2.5.1 Multi-volume Installation Kits

The RSTS/E installation procedure uses the DCL RESTORE command to copy most software components from the installation and library kits onto your system disk. Previously, if the RESTORE process detected an end-of-volume condition, it prompted you to dismount the current volume and mount the next volume. However, it allowed you to specify a different device than the current volume's device. For example, when the RESTORE process reached the end of the first volume of an RL02 library kit, it issued the prompt:

```
Please dismount present volume
Please mount next volume
Where can this volume be located? <_DL0:>
```

While this "change devices" feature was useful for general BACKUPS and RESTORES, it could not be used during installation. If you elected to

mount the next volume of your installation or library kit on a different device, the installation process terminated with an error. The RSTS/E V9.2 Release Notes noted this problem as a restriction. In V9.3, the RESTORE process during installation no longer allows you to specify a different device for mounting the next volume. Instead, you must mount each volume on the same device. RESTORE prompts you to dismount the current volume and mount the next volume with the (sample) text:

```
Please dismount the current volume
Mount volume 2 on device _DL0:
Press RETURN when ready:
```

After dismounting the current volume and mounting the next volume, press RETURN to continue the installation.

### 2.5.2 Caution - Target Disk Updates

Before updating a target disk other than SY:, you should first update your current system disk. Otherwise, the resultant target disk may contain a mix of current and previous version components. In particular, INIT.SYS and your monitor SIL file may not be the same version, resulting in an error when you try to start timesharing on that disk. The proper sequence is to first update your system disk to the current version, then update other target system disks. You can update target disks either offline by booting the installation kit, or online by issuing the @[0,1]INSTALL command.

### 2.5.3 Installation Corrections

The following installation problems have been corrected in V9.3:

- o The presence of user defined logicals could cause an installation or update to fail. The installation and update command procedures now deassign all user logicals before attempting to assign their own.
- o Under certain conditions, the installation procedure failed to rename the files [0,1]START.090 and [0,1]LOGIN.090 to [0,1]START.COM and [0,1]LOGIN.COM. The installation procedure now renames the files correctly.
- o The installation procedures now allow double-digit device numbers for system disks.
- o The installation/update procedure left CTRL/C disabled (SET TERMINAL/NOCONTROL=C) on exit when running under the SYSGEN monitor. It now properly re-enables CTRL/C before exiting.

## 2.6 DCL

### 2.6.1 SET PROMPT Command Accepts Expression

The SET PROMPT command now accepts an expression for the prompt string. Previously it accepted only a quoted string. For example:

```
$ !Prompt before is "$ "  
$  
$ SET PROMPT F$LEFT(F$NODE,F$LEN(F$NODE)-2)+"> "  
MASTER>  
MASTER> !Prompt after is "MASTER> "
```

The maximum length of a prompt is unchanged. Numeric expressions are permitted and are automatically converted to strings.

### 2.6.2 SHOW DEVICE Command Enhancements

The SHOW DEVICE command now displays the device names TU80, TU81, TS05, TK25, TK50, and the Ethernet devices. For the Ethernet devices, the default physical Ethernet address will also be displayed. Also, the SHOW DEVICE command now performs 3-10 times faster than before, especially when a parameter is specified.

### 2.6.3 SHOW SYMBOL Enhancements

The SHOW SYMBOL command now displays symbols in alphabetical order. The collating sequence is based on the ASCII values of the characters in the symbol names. As before, local symbol names are displayed before global symbol names. Also, the SHOW SYMBOL command now accepts abbreviated symbol names. For example:

```
$ FOO-BAR = "This is a test"  
$ SHOW SYMBOL FOO  
FOO-BAR = "This is a test"
```

### 2.6.4 INITIALIZE Command Supports /NEW\_FILES Qualifier

The INITIALIZE command for disks now accepts the /NEW\_FILES={FIRST|LAST} qualifier. Use this qualifier to indicate whether files stored on the disk should be placed at the beginning of an account (/NEW\_FILES=FIRST) or at the end of an account (/NEW\_FILES=LAST). The default is /NEW\_FILES=LAST.



### 2.6.5 DCL Error Message Removed

The message "?Symbol table almost full" has been removed. DCL now displays the error message, "?Symbol table full" if it cannot find enough available memory to fulfill a request for additional symbol space.

### 2.6.6 Confirmation of BROADCAST and FORCE Commands

Prior to V9.3, the FORCE and BROADCAST commands only printed a confirmation message when the target was a PPN. In RSTS/E V9.3, these commands always print a confirmation message, regardless of the target specified.

### 2.6.7 DCL Corrections

The following problems have been corrected in DCL or its associated commands for V9.3:

#### BACKUP

- o Previously, BACKUP required you to specify a file name in its input ("From") parameter. It now defaults the file name and type to \*.\*.
- o On multi-disk public structures, if you specified \_SY: as the input disk or did not specify an input device, BACKUP only backed up files from the system disk (\_SY0:). Now, BACKUP correctly interprets \_SY: to mean all disks in a public-disk structure.
- o BACKUP did not convert the /OUT\_LABEL and /IN\_LABEL argument names to uppercase. It now does so.

#### DCL Command Interpreter

- o DCL commands which translated into PIP commands (such as DIRECTORY, TYPE, CREATE, RENAME, etc) failed to pass the command line to PIP if the translated command line was longer than 127 characters. This problem was due to a restriction in the RT11 runtime-system which does not allow longer command lines. DCL now reports an error if a user types a command that exceeds the maximum line length of 127 characters.

- o Certain DCL commands such as MACRO/RT11 and FORTRAN/FOR failed if an explicit PPN was given in the input file specification. This has been fixed.
- o Certain commands such as DIRECTORY could not be used to access only SY0: on a multi-disk public structure. Specifying SY0: caused the entire structure to be referenced, not just SY0:.

#### INITIALIZE Command

- o In V9.2, the INITIALIZE command for disks always failed with an "?Invalid clustersize" error (issuing the off-line DSKINT option of INIT.SYS or running the on-line DSKINT program worked). Software Dispatch Article 10.5.1, published in July 1986, corrects this problem in V9.2 as well.
- o Previously, if you typed CTRL/Z in response to the "Proceed (Y or N)?" prompt, the INITIALIZE command terminated with the error message,

?Error trap needs RESUME at line 32767

Now, typing CTRL/Z in response to the "Proceed" prompt causes the command to exit as if you had entered N (No).

- o DSKINT selects optimum clustersizes by default when it initializes the virtual disk. This change was actually made in V9.2 but was not mentioned in those release notes.

#### INSTALL/RUNTIME\_SYSTEM and INSTALL/LIBRARY Commands

- o The INSTALL/RUNTIME\_SYSTEM command and the INSTALL/LIBRARY command ignored the filetype of a filespec if it was specified. Since the monitor requires that the filetype be .RTS for run-time systems and .LIB for resident libraries, these commands now print an error message if the filetype specified is invalid.
- o The INSTALL/LIBRARY command hung the system if a 1K word library was installed at certain addresses (specified by a /ADDRESS qualifier argument).

### INSTALL/ERROR\_FILE, /OVERLAY\_FILE, and /SWAP\_FILE Commands

- o The INSTALL/ERROR\_FILE command, the INSTALL/OVERLAY\_FILE command, and the INSTALL/SWAP\_FILE command ignored the ppn and the filetype of a filespec if it was specified. Since the monitor requires that the ppn be [0,1] and that the filetype be .SYS, these commands now print an error message if the ppn or the filetype specified is invalid.

### MOUNT Command

- o The MOUNT command for tapes reported the wrong density for multi-density tape drives. It now reports the correct density.
- o The MOUNT command for disks will now accept the /NORESTRICT qualifier. Previously, it only accepted the positive form of the qualifier (/RESTRICT).

### LINK Command

- o The DCL LINK command created a zero length file in the system library account, named LB:FDVLIB.TSK, when the command LINK/BP2/FMS=RESIDENT was issued. This problem has been fixed.
- o The /DESCRIPTION qualifier of the LINK command was incorrectly checking for an input file type of ".OBJ". The LINK command reported "?File not found" if a .OBJ file did not exist (even if a .CMD was present). The LINK command now checks for an input file type of ".CMD" when the /DESCRIPTION qualifier is used.

### SHOW ACCOUNT and DELETE/ACCOUNT Commands

- o The SHOW ACCOUNT and DELETE/ACCOUNT commands used \_SY0: as the default device instead of \_SY:. This caused problems for systems using a multi-disk public structure. These commands now use the correct default \_SY:.
- o The DELETE/ACCOUNT command deleted accounts that contained only zero-length files, without first issuing a confirmation prompt. The command now correctly requests a confirmation before deleting such an account.

## **SORT and MERGE Commands**

- o The commands SORT and MERGE failed with the error "?Maximum memory exceeded" if many qualifiers were used. The amount of memory available for qualifiers has been doubled. If this is insufficient, you should consider using a specification file with the SORT or MERGE command. Please refer to the SORT/MERGE User's Guide for further information.

## **SHOW FILE/SYSTEM Command**

- o The SHOW FILE/SYSTEM command displayed "None" if there were any errors encountered looking up the system file; it did not report any unexpected errors. The command now display an error message if it encounters an error looking up the system file.

## **TYPE Command**

- o The TYPE command did not always display Fortran files correctly.

## **2.7 Help Files**

The following on-line help files have been updated for V9.3:

- o ADVANCED DISKS. New disks that are now supported have been added.
- o APPEND, COPY, DELETE, RENAME, SET PROTECTION, TYPE. The qualifier /SELECT=SIZE=n has been added to the DCL commands. These help files also had a reference to time for the date-related switches. This reference has been removed from each help file. The qualifier /[NO]RETAIN\_DATES has been added to the COPY command and the /[NO]WARNINGS qualifier has been added to the RENAME command.
- o BACKUP and RESTORE. The /[NO]PROMPT qualifier has been added. The /BLOCK\_SIZE qualifier has been added to the BACKUP command.
- o BACKUP, MOUNT (Tapes), INITIALIZE (Tapes) and SET SYSTEM. The /DENSITY qualifier topic has been clarified. In some cases, the description of the action taken when this

- qualifier is not specified was incorrect or misleading.
- o CREATE ACCOUNT. The example which referenced an invalid ppn has been corrected. A line-wrapping problem in the help text for CREATE/ACCOUNT/POSITION has also been corrected.
  - o FORTRAN/F77. Miscellaneous corrections have been made.
  - o INITIALIZE (Disks). The /NEW\_FILES qualifier has been added.
  - o LINK. The qualifier /SORT\_AND\_MERGE=[NO]RESIDENT has been added.
  - o PASSWORD. The help file had an incorrect reference to NOLOOKUP passwords when it should have been LOOKUP passwords.
  - o PROGRAMS. The SYSTAT /O and /W switch descriptions have been updated to include the optional job number argument. The help files for PIP have been updated to include the new switches /EQ, /GE, and /LE.
  - o SET DEVICE Examples. The example attempted to disable a disk with the SET DEVICE/DISABLE command, which is not possible. The example has been changed to disable a tape drive instead.
  - o SET SYSTEM. A line-wrapping problem in the help file has been corrected. The qualifier /[NO]LOGINS has been added.
  - o SET TERMINAL/BUFFER\_QUOTA. The word "system" was spelled incorrectly and has been corrected.

## 2.8 Commonly Used System Programs (CUSPs)

### 2.8.1 ANALYS

The following problems have been corrected in ANALYS for V9.3:

- o Some "Odd Peek Address" and "Peek address out of range" errors occurred during annotation.
- o Two "...RSX" runtime systems were listed in the Run-Time System list, one described as "Monitor" under the Comments column, and one listed as residing on the virtual disk.
- o In the memory layout section, the Virtual Disk was not displayed in the memory list. Instead, the area which should have been allocated to the Virtual Disk was listed as being "locked out".
- o The memory list showed job names incorrectly.

- o The UMR printout was incorrect.
- o The disk display in the SYSTAT area did not show any keyword for disks initialized for Date of Last Access. It now shows DLA.
- o The message receiver display sometimes incorrectly printed ??? under the Access field.

### 2.8.2 DISPLY.TSK

The following problems in DISPLY.TSK have been corrected for V9.3:

- o The disk display section reported an incorrect error count.
- o The buffer error count display reported an incorrect error count.

### 2.8.3 Underscore Prefix Added To Null device Name

Prior to RSTS V9.3, several programs did not include an underscore character (\_) with the null device name, NL:. This resulted in random results if there was a system or user logical named NL: defined when these programs were run. The following programs have been changed to include the underscore prefix character with the null device name to avoid any possible conflicts:

- ANALY3.TSK
- EMTCPY.TSK
- ERRCPY.TSK
- ERRINT.TSK
- PBSMGR.TSK
- SPLRUN.TSK
- SHUTUP.TSK

### 2.8.4 HELP.TSK

The following problem in HELP.TSK has been corrected for V9.3:

- o Aborting HELP.TSK with CTRL/C sometimes caused the error message "??Program failure in HELP - ??Programmable C Trap - sy:[0,2]HELP.HLP" to be displayed.

### 2.8.5 HOOK.SAV

The HOOK.SAV program has been modified for RSTS/E V9.3 to use the new open MODE 16384, so that you can continue to HOOK mounted disks.

### 2.8.6 OPSER Spooling Package

The work files SPL???.WRK and BAT???.WRK are now located in OPSER\$: rather than in [1,2]. The following corrections have been made for V9.3:

- o When QU/K removed a queue entry with an /AFTER qualifier, the /AFTER entry in the QUEUE.SYS table did not return to the free list along with the queue entry.
- o In V9.1, users logged into accounts lacking WWRITE or GWRITE privileges could not delete files in their own accounts by using the /DELETE qualifier with OPSER QUE. The Release Notes for V9.2 stated that this problem had been fixed. Because of a coding error, however, the problem still appears in V9.2 in certain cases. It has now been fixed for all cases in V9.3.
- o The QUMRUN program could go into hibernation (HB state) if the first spooler job was unable to receive messages for more than a minute.
- o When the \$JOB line in a BATCH command file specified a non-existent account number, the batch job failed. BATCH now returns the error, "?NO SUCH ACCOUNT".

### 2.8.7 PIP

The following problems have been fixed in PIP.SAV for RSTS/E V9.3:

1. PIP did not honor a file's EOF attribute when copying the file to a terminal.
2. The /RMS:FA switch did not display any Fortran files correctly.
3. PIP did not display fixed-length Fortran files correctly.

### 2.8.8 Print/Batch Services (PBS)

The following problems have been corrected in Print/Batch Services

(PBS) in V9.3:

- o Using a SET ENTRY/PRIORITY command to lower an entry's priority by one did not reposition the entry behind those with the same initial priority. Also, using the same command to raise an entry's priority by one had the same effect as raising it by two. See the January 1987 Software Dispatch article 15.1.2 for further details.
- o Batch jobs submitted via a User Request Packet that included an OWNER field (type 3) by default tried to create the log file in the submitter's account, rather than the owner's account. This often failed because the user did not have enough privilege (WWRITE or GWRITE) to create files in other accounts. See the January 1987 Software Dispatch article 15.1.3 for further details.
- o If the system or user logical name NL: was defined, most PBS commands failed or produced unexpected results. This was caused by the omission of an underscore (\_) prefix in a module's reference to the null device.

#### 2.8.9 REORDR.TSK

Prior to V9.3, the REORDR utility required WRTNFS (write non-file-structured) privilege to run. It did not require WACNT or GACNT privilege, as do all other account management commands. In V9.3, REORDR requires WACNT or GACNT privilege to run. If you attempt to run REORDR without either of these privileges, REORDR issues the error message:

?REORDR requires GACNT or WACNT privilege

and terminates.

Additionally, REORDR requires you to have WACNT privilege to reorder any account outside your own account group. If you specify an account outside your group, and you do not have WACNT privilege, then REORDR issues the error message:

?WACNT privilege required - (account-spec)

and re-prompts.

#### 2.8.10 SAVRES.SAV

The SAVRES.SAV program now acts as it did before RSTS V9.0; it will no longer allow users with sufficient privilege to perform SAVE, RESTORE, or IMAGE operations to or from a mounted disk.



Other programs like SYSTAT will also no longer allow users with sufficient privilege to write non-file-structured to a mounted disk.

#### 2.8.11 SHUTUP.TSK

The following problem in SHUTUP.TSK has been corrected for V9.3:

- o Shutup aborted during the ERRCPY shutdown phase, even when ERRCPY already had shutdown.

#### 2.8.12 SYSTAT.TSK

The following problem in SYSTAT.TSK has been made for V9.3:

- o SYSTAT sometimes printed "???" in the comments field of the message receiver display section.

### 2.9 Unsupported Programs

#### 2.9.1 STATUS.TSK

The following changes have been made to the STATUS.TSK program for V9.3:

- o The maximum number of disks that the program can handle has been increased.
- o you no longer see the message "?Disk data cannot fit on the screen" when you include the /VT5x or /VT100 switch for the output file. Instead, the program prints out as much of the disk data as it can until the screen is filled. The next two changes allow you to display the remainder of the disk data.
- o To display a list of mounted disks only, type 'M'<CR> while the program is running. This allows you to see a list of all the mounted disks on the system. To display a list of the non-mounted disks as well as the mounted disks, type 'N'<CR>. The default is 'M' (display mounted disks only).
- o To remove a list of the first n number of disks from the display, type 'Dn'<CR> while the program is running. Type 'D' or 'D0' to display a list of all the disks again.

## 2.9.2 RSTSFLX Program

The unsupported RSTSFLX program that runs on VAX/VMS systems to read data from RSTS-structured disks has been updated to support some of the newer device types. Specifically, the RX50 is now an allowable device.

## 2.10 RMS

### 2.10.1 Access Methods

The following access methods problems have been corrected for RMS in RSTS/E V9.3:

- o The ORG\$, POOL\$B and GSA\$ macros lost the current psect and redirected the location counter to the blank psect (.BLK.) on exit from the macro. This caused I & D space programs to put data in I-space and sometimes caused programs to abort with memory management violation errors when they later referenced those locations. This problem is corrected by a change to RMSMAC.MLB. All I & D space programs using RMSMAC.MLB should be reassembled. Users should ensure that their RMS-based programs did not rely on these particular RMS-11 macros exiting with the location counter pointing to the .BLK. psect.
- o Programs using Mass Insert in indexed files (including RMSCNV with /MA) could abort with "Dynamic Memory Exhausted" when duplicates were encountered. This problem is corrected by a change to R3IUDR and R3IUDL in RMSLIB.OLB and the RMS resident library.
- o On relative files opened READ access, WRITE shared, a \$GET operation requesting locate mode could fail to read from disk. If the current \$GET involved the same bucket as the previous \$GET then RMS-11 incorrectly assumed it had a valid cache and copied that data to the user buffer. A \$GET operation should always read from the disk, since READERS do not cause bucket locks and a WRITER may have updated the file since the last \$GET. This problem is corrected by a change to module R2GET in RMSLIB.OLB and the RMSLBC.LIB resident library.
- o In write-shared index files, a high priority RMS-11 application could lock out other accessors. In the process of attempting to obtain the target record, RMS-11 often had to sleep while waiting for an intermediate record (in the index tree) to become available. The amount of sleep requested was not always great enough to allow the lower priority job to release the lock on that intermediate record. This problem has been corrected in R0RWBF in both RMSLIB.OLB and the resident library.

#### NOTE

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

### 2.10.2 Network Access Methods

The following network access problems have been corrected for RMS in RSTS/E V9.3:

- o A remote \$CLOSE did not work correctly when a Protection XAB was linked into the extended attributes (XAB) chain, and the remote network partner was not using V6.0 Data Access Protocol (DAP). Please note that V5.6 DAP (supported by RSTS/E) does not allow the modification of the Protection XAB (PRO XAB) on the \$CLOSE operation, while V6.0 DAP (supported by RSX and VMS) does. If the remote node does not use V6.0 DAP, the presence of a PRO XAB is ignored. Thus, if a user wishes to use a PRO XAB and the possibility exists that the remote node uses V5.6 DAP, the user should set up protection XAB values on the \$CREATE operation rather than on the \$CLOSE operation. This correction affects module R0NFRT in the RMSDAP.OLB and the DAPRES library.
- o The protection XAB Owner (PRJ and PRG fields) was incorrectly translated when the remote system was RSX or VMS. The translation always assumed that it was a decimal UIC when in fact it was octal. This error occurred both when files were created and when files were opened. This correction affects modules R0NFRL and R0NFLR in the RMSDAP.OLB and the DAPRES library.

### 2.10.3 RMS-11 Utilities

#### RMSCNV

The following problems have been corrected in the RMSCNV utility in RSTS/E V9.3:

- o RMSCNV did not work correctly when the /MA switch was used. When a sufficiently large number of duplicates were encountered, it reported the error ER\$DME (Dynamic Memory Exhausted).

- o The /EO switch did not work correctly. Before version 9.0 it did not work at all. As a result of a correction issued in version 9.0 it null filled the last block containing valid data in the file (logical end-of-file (EOF)). However it did not null fill to physical EOF. This problem was corrected in version 9.2 but was not documented in the V9.2 Release Notes.

## RMSIFL

RMSIFL does not work correctly when the input file is on magnetic tape. This is due to the fact that it does not transfer the data to a temporary work file as documented, and certain RMS operations fail if directed to a magnetic tape. In some cases RMSIFL reports the error "-880" (illegal operation for file). Where the input file is not a sequential file it may not report an error, however the data may not be handled correctly. If the input file is a sorted sequential file, then you can work around this problem by using "/NOSO". This problem will be addressed in a future release of RMS-11 but is currently a restriction.

### 2.10.4 RMS Documentation

Please add the following text to the *RMS-11 MACRO Programmer's Guide*, Appendix A, page A-6:

|                                           |               |
|-------------------------------------------|---------------|
| ER\$FUL Device or File Allocation Failure | Octal: 176360 |
|                                           | Decimal: -784 |

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.

## 2.11 Layered Products

### 2.11.1 Basic-Plus Patch Removed

Prior to RSTS V9.3, there was a mandatory patch - installed automatically during installation - to clear the I/O buffer whenever a file was opened. This change has been incorporated into the Basic-Plus source code for V9.3 and the patch removed.

### 2.11.2 COBOL-81 Corrections

For RSTS/E COBOL-81 V2.4, the following problems have been corrected:

- o Several files of the COBOL-81 V2.4 kit have improper protection codes. These are corrected during the update.
- o The COBOL-81 V2.4 compiler sometimes generated illegal format object file records when large literal values were used. Module GPDOUT has been replaced in the compiler library to correct this problem.
- o A PERFORM of greater than 65536 iterations in an overlaid program sometimes resulted in an incorrect transfer of control when PERFORM range checking was turned off (the /-PER compile switch). Module PERFO in the OTS libraries has been replaced to correct this error.

### 2.11.3 DECmail-11 V3.0

#### Updates on RSTS/E V9.3:

RSTS/E V9.3 contains updates for DECmail-11 V3.0. Transfer the DECmail-11 V3.0 update components to the PATCH\$ account during the system upgrade from V9.2 to V9.3. Refer to the RSTS/E System Installation and Update Guide, Part IV, Phase:3, Task:4, page 178 for more information about transferring updates for Layered Products.

If you do not transfer DECmail-11 updates during the system upgrade, you will need to mount your RSTS/E Installation media during the DECmail-11 update. The RSTS/E Layered\_Product Update Procedure will transfer the DECmail-11 updates.

#### Requirements for this update:

##### Privileges:

- Refer to the DECmail-11 Installation and System Manager's Guide for information about the privileges needed.

##### Programs:

- SY:[1,2]LBR.TSK
- SY:[1,2]STK.TSK
- SY:[1,2]TKB.TSK

##### Disk space:

- 670 blocks for update files in PATCH\$:
- 5350 blocks for update work files in WORK\$:

NOTE

The 5350 blocks of disk space in WORK\$: will be returned to the system as free space after the update has completed.

- 1350 blocks for updated tasks in MAIL\$:

NOTE

The blocks for the tasks in MAIL\$: should be contiguous for optimum performance.

- The total number of free blocks needed to do this update is 6020 of which 1350 blocks should be contiguous. To reduce the need for disk space, the MAIL update procedure deletes files as soon as they are no longer needed.

NOTE

Use of DECmail-11 during the update may cause unpredictable errors to occur.

Updating your DECmail-11 V3.0 software can be accomplished by invoking the RSTS/E software update procedure. The following is an example of a DECmail-11 update.

```
$ @[0,1]UPDATE LAYERED_PRODUCT MAIL
```

Deleting all global symbols

Patch account <PATCH\$:> :

The following will be updated:

MAIL

Proceed? <yes>

Please enter the name and unit number of the disk to which you want to update the software. This disk should be physically mounted and write-enabled.

Target disk? <\_SY:> :

Assigning system logicals

01-Dec-86 09:49 AM

01-Dec-86 09:49 AM

Please mount the MAIL Library media and enter the name and unit number of the device.  
Valid device types are: 'MM', 'MS', 'MT', 'MU', 'DM' or 'DL'

MAIL Library device? <MM0:> DL0:

The update procedure will complete without user intervention from this point. UPDATE.LOG is a log file of this update procedure, created in your account, and should be checked for possible update errors. Disregard multiply defined symbol errors during the task rebuild phase.

The update should take between 3 and 4.5 hours, depending on your CPU and system disk.

### Corrections

The following problems have been corrected in DECmail-11 V3.0 on RSTS/E V9.3:

- o DECmail-11 ignored the date and time values specified to the /AFTER qualifier when sending a message using the /EDIT qualifier, or if AUTO EDIT was enabled.
- o DECmail-11 cleared out the From: and Subject: fields when sending a message with /EDIT or AUTO EDIT enabled.
- o Batch Mail messages having To: and CC: lines longer than 255 characters resulted in a "?Line too long" error and aborted MAILQ.
- o Entering PRINT<RET> with no current message aborted MAIL with an "?Arguments don't match" error.
- o DECmail-11 displayed "?Integer error" when sending a message greater than 64 blocks in length via Message Router.
- o MAILQ aborted with "?No room for user on device" when it encountered zero free blocks. MAILQ now waits for blocks to become available before re-attempting the delivery.
- o Users sometimes received multiple copies of the same mail message when sent via Batch Mail.
- o Entering "NI" at the Send Menu replaced the CC:+ field with the To:+ field contents, if a CC:+ line had been entered.
- o Files having records with trailing carriage returns, such as RNO and DSR files, did not print correctly when sent to users on other nodes.

- o Users intermittently received messages with an incorrect To: field when sent via Batch Mail.

#### 2.11.4 DIBOL Changes

For RSTS/E DIBOL V5.2, the following changes have been made in RSTS/E V9.3:

- o The replacement files for the DMS-DIBOL resident library (DBADRL) correct the following problems:
  - Potential loss of data to parallel printers if a task terminates immediately after a CLOSE.
  - LPQUE statement not recognizing user logicals.
- o The replacement files for the RMS-DIBOL resident library (DBARRL) correct the following problems:
  - An entry point used by the subroutine ISMCRE unavailable. This update restores that entry point (\$ERCHK).
  - LPQUE statement not recognizing user logicals.
- o The replacement DECFORM components (FOCOMP.SAV, FOCOMR.SAV, DECLIB.OLB, and DECF0.DBL) correct the following problems:
  - EXECUTE string limited to 14 characters (increased to 24).
  - ODL file not being generated properly in all cases.
  - Inability to address beyond column 68 on VT52's (or VT100's in VT52 mode).
  - Use of the password option causing TRAP to 4 in compiler (FOCOM?.SAV).
  - Use of extension in output file causing error in command file created by compiler (FOCOM?.SAV).
  - Use of both range check and if check on the same field causing runtime error.
  - Key fields ordered by sequence number cause error at runtime.
  - RMS-DECFORM programs searching ISAM files linearly instead of by key.



- CHAIN option not working.
- File validation option using a PPN not working.
- Sequential search of an RMS ISAM file causing DIBOL "subscript error".

#### NOTE

These corrections to DECFORM programs require that the DECFORM programs be recompiled (using FOCOMP.SAV or FOCOMR.SAV) and taskbuilt again using TKB.

#### 2.11.5 EDT V3.1-00 Changes

The following list summarizes the differences between EDT V3.1-00 and the previous version, V3.0-13:

- o EDT did not display an error message if erroneous characters followed the EXIT command. For example, \*EX9T created the output file 9T. EDT now correctly displays an "unrecognized command" error message, and reprompts for the correct command.
- o Occasionally EDT changed lowercase text to uppercase while using the SET ENTITY COMMAND. EDT now correctly recognizes all lowercase characters in the SET ENTITY WORD command.
- o The following sequence of nokeypad commands:

D (delete) + EL (end of line)  
UNDL (undelete line)

did not always undelete all the characters in the line. EDT now undeletes all the characters in the line.

- o If a user cleared a buffer (other than the main or paste) that had a select range active, then created the buffer again, or attempted to reset the select range, EDT displayed an internal BUG-CHECK error. EDT now resets the select range when the user clears a buffer other than the main or the paste.
- o The command SUB/ / / ALL 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 failed to continue substituting after the first substitution was

complete. EDT now continues with additional substitutions.

- o EDT displayed a "Must Select Full Lines" error message under the following circumstances even though a full line appeared to be selected:
  - Using nokeypad mode and having the cursor on a character that is not at the beginning of the line.
  - Issuing a BPAR (beginning of paragraph), BL (beginning of line) or a similar entity command and then selecting a full line of text.
  - Issuing a line mode command and the error message is displayed.

EDT no longer displays the error; the command correctly operates on the full line of text.

- o If a "! ^Z" (a comment line with a control Z) was used in an initialization file, EDT ignored the fact that "! ^Z" was a comment and exited the command file. EDT no longer exits the command file if a ^Z is properly commented out.
- o An EDT macro that cleared itself aborted the editing session and displayed an "I/O error on work file" error message. For example:

```
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 trying to read an address that was no longer accessible due to the cleared macro. This problem has been corrected. EDT now treats a macro buffer that no longer exists as it would treat one that reads an EOF.

- o EDT aborted with a "BUG CHECK" error message under conditions similar to the following:

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

Enter five characters on the first line and another five characters on the second line:

```
abcde
abcde
```

Open a new line between them and start inserting "-" signs. After the tenth entry EDT aborted with a "BUG CHECK" error message. EDT no longer aborts on this condition.

- o EDT occasionally aborted while doing a fill with the select going backwards, displaying a "BUG CHECK" error message. EDT no longer aborts under these circumstances.
- o More than one control C in an EDT journal file caused EDT to abort with an "Internal Software Error" error message upon recovery. EDT now handles more than one control C properly.

#### 2.11.6 FMS-11/RSTS V1.5 Changes

Modules HLLDBL.OBJ and DBLDFN.OBJ provide interface support between FMS-11/RSTS V1.5 and RSTS DIBOL V5.2. These modules are meant to replace existing modules in LB:[1,1] of the same name. These modules do not work with DIBOL versions earlier than 5.2. The symbol CHNLST has been removed from these modules. Any reference to it in the Task build command files should be removed.

#### 2.11.7 MENU-11 Calculator Corrections

The following MENU-11 calculator application problems are corrected in RSTS/E V9.3:

- o Terminals printed the British pound sign instead of the American pound sign after exiting from the application.
- o Terminals entered graphics mode during the calculator application.

## 2.11.8 SORT/MERGE Corrections

The following SORT/MERGE problems have been corrected for RSTS/E V9.3:

- o SORT was not always allocating enough RMS pool space when performing a TAG sort of one or more indexed files. When this happens the following error was given:

%SORT\_F\_CNSF00: Error connecting to input file : RMS codes  
-480

We have modified the allocation routine assuring the proper RMS pool space will be allocated and included the fix with this update.

- o MERGE was not always allocating enough RMS pool space when merging indexed input files with large bucket size. When this happens the following error was given:

%MERGE\_F\_CNIF00: Error connecting to input file : RMS codes  
-480

We have corrected this problem and have included the fix with this update.

- o SORT/MERGE allowed only 80 characters per command line instead of the 132 characters allowed in SORT-11 V2.0. In addition continuation characters used within the command line were not always handled properly under the BASIC or RSX runtime systems.

We have corrected these problems by increasing the command line buffer size to accept 132 characters and check for any continuation characters.

- o The /SI switch boundary values were not properly checked. SORT/MERGE was failing to indicate an error when an invalid value was specified.

We have corrected this allowing only valid data between 1 and 255. Any other data will result in an error message.

- o SORT/MERGE did not always work properly on systems that did not support the floating point instruction set. And when floating point numbers were used as key data items on these systems, a "illegal instruction trap" was generated.

Now, instead of using functions that only work on systems which support the floating point instruction set, SORT/MERGE uses its own routines to process the floating point data which work on all systems.

- o SORT/MERGE did not always translate octal or hexadecimal constants properly. In particular, the internal

representation of floating point constants was incorrect. Consequently, statements in specification file involving octal or hexadecimal constants did not always produce the expected results.

Now octal or hexadecimal constants are translated correctly.

### 3 Documentation Changes in RSTS/E V9.3

There are no update pages for the RSTS/E documentation accompanying this release. Use these Release Notes to document any new features or changes on your system. All the on-line help files have been updated, where appropriate, to reflect the changes in these Release Notes.

#### 3.1 Corrections

The following documentation errors will be corrected in a future version of RSTS/E:

- o The *RSTS/E System Installation and Update Guide* has not been updated to reflect the fact that you are no longer asked if you want DECnet or if you want data caching. Both of these are enabled in V9.3 monitors.
- o On page 385 of the *RSTS/E System Installation and Update Guide*, the documentation incorrectly lists "RUN \$DSKCVT" as the command to run DSKCVT. The documentation should read:

\$ RUN AUXLIB\$:DSKCVT

- o In the *RSTS/E System Directives Manual*, page 3-12, under the heading "Data Passed", the first sentence should read:

The only data passed for this directive is byte 0 of the XRB.

- o Page 3-298 of the *RSTS/E System Directives Manual* specifies DEVNFS as the error returned by the Return Pack Attributes SYS call (UU.ATR subfunction -4) in the case of an unmounted disk. The error actually returned is NOTMNT.
- o In the *RSTS/E System Directives Manual*, on page 3-131, the second paragraph states in part, "(Unless data passed and returned show specific values for the XRB, it should be all zeros.)"

The following statement will help to clarify how you should handle FIRQB and XRB:

When using SEND/RECEIVE calls, you must clear both FIRQB and XRB, even if XRB is not used.

- o In the *RSTS/E System Directives Manual* (.SPEC page 3-233.1) and the *RSTS/E Programming Manual* (the MAGTAPE and SPEC%

functions page 2-36), the discussion on returned densities will be corrected as follows:

When you specify a density that is not a valid density, the next highest density for the drive is returned. If the specified density is higher than the maximum density for the drive, the maximum density is returned.

- o In the *RSTS/E Programming Manual*, the discussion of the FIP SYS CALL 26 will be extended as follows:

When you do not have sufficient privileges and attempt to get the status of a job other than your own, the ?Illegal SYS( ) usage error message is returned. The job number is not forced to your own.

- o In the *RSTS/E Quick Reference Guide* (page 27-29), the /USER qualifier was inadvertently omitted for the CREATE/ACCOUNT command. The documentation for the /USER qualifier is:

/[NO]USER

Indicates the type of account to create. /USER means create an account with login attributes and file storage capabilities. /NOUSER means create an account for file storage only.

- o In the *RSTS/E System User's Guide*, on page 8-22, the documentation incorrectly lists /CROSS\_REFERENCE as a valid qualifier for the MACRO command.
- o In the *RSTS/E System User's Guide*, on page 7-19, the documentation incorrectly lists /ALL as a valid qualifier for the DELETE/ENTRY command.
- o On page 381 of the *Installation and Update Guide*, the toggle sequence for the bootstrap is obsolete. The last line presently reads:

010036 005007

This line should be replaced with the following three lines:

010036 010001  
010040 005000  
010042 005007

- o The RSTS/E *Utilities Reference Manual* (page 2-118) incorrectly states that the PIP /BL switch can be used to transfer non-sequential RMS files to tape.

Due to problems PIP has when copying non-sequential RMS files to tape, you should use the RMS utilities RMSBCK and RMSRST to transfer these files to and from tape.



## 4 Known Restrictions in RSTS/E Version 9.3

### 4.1 Initialization Code (INIT.SYS)

If your installed monitor has a Virtual Disk defined (DV:), and you START a monitor that has no Virtual Disk defined, and then START your original monitor containing the Virtual Disk again, you will get "?Device unavailable" errors when you attempt to use the Virtual Disk.

The workaround is to use the DEFAULT option of INIT.SYS to remove and then redefine the Virtual Disk for your original monitor.

### 4.2 Monitor

#### 4.2.1 DB and DR Disk Drivers

The DB and DR disk drivers may count or log errors for the wrong disk unit if there is heavy DB/DR disk activity and an attempt is made to mount a unit that is spun down or offline.

This problem will be corrected in a future release of RSTS/E.

### 4.3 Installation

#### 4.3.1 Booting Magnetic Tape

Magnetic tape distributions of RSTS/E V9.3 or any bootable recovery tapes of V9.3 must be booted from unit zero. This problem will be corrected in the next release.

#### 4.3.2 Flag Files

The installation or update of RSTS/E leaves several zero length flag files - files used by the installation procedure to determine what parts of the installation have been completed - in various system accounts after installation.

Deleting any of these files may cause unpredictable results. In particular, deleting the flag file [1,2]VER093.SYS breaks certain layered product installations and updates.

#### 4.3.3 Deleting CLNUP.COM

The file [0,1]CLNUP.COM should delete itself after performing its intended functions. However, CLNUP.COM is not executed (and therefore not deleted) if you answer "NO" to the prompt "Are you ready to proceed?" If, after base installation or update, you find this file present, execute it by typing @[0,1]CLNUP.COM. This problem will be fixed in the next release.

#### 4.3.4 V8.0 to V9.3 Upgrades

A problem has been discovered in DCL that affects upgrading a RSTS/E V8.0 or earlier system to V9.3.

Step 4 of the Upgrade section in the *RSTS/E System Installation and Update Guide*, page 138, explains that "You will see a number of DCL errors, followed by the \$ prompt." The errors occur because DCL is unable to open its work file for writing on the system disk, since the system disk is mounted read-only. Under such conditions, DCL should report the error and immediately terminate any command procedure currently executing.

In V9.3, DCL will report the error, but will not terminate the installation command procedure. Instead, you will see the prompt:

Do you want to perform an installation or an update? <installation>:

Do not answer this question. Instead, type CTRL/C to abort the command procedure and return to the \$ prompt. You can then proceed with the upgrade as described in the documentation.

This problem will be corrected in a future release of RSTS/E.

#### 4.4 DCL

##### 4.4.1 Odd Address Trap

If DCL finds duplicate parameter (file) qualifiers immediately after a parameter, it issues an "??Odd address trap" error. For example, if you issue the command:

```
$ PRINT FILE.DAT/DELETE/NODELETE
```

DCL displays the error message

```
?Odd address trap at line 3100 in "PBSMGR"  
000000 015162 066550 015101 015162 001672 001646 055334
```

This is a problem in the DCL routines that parse the command language used in PRINT and other commands that include parameter qualifiers.

For a more complete description of this problem refer to *The Software Dispatch* article 20.5.1. This problem will be corrected in a future release of RSTS/E.

#### 4.4.2 Chaining to DCL Command Files

Chaining to a DCL command file at a non-zero line number with parameters in core common does not work as documented. Instead, the first parameter is discarded; P1 will contain the second parameter, P2 will contain the third, etc. This is a change from previous versions of DCL which did not pass any parameters to the command file.

As a workaround, you can either pass an extra leading parameter in core common, or use the Execute CCL Sys call to execute your command file. See *Software Dispatch* article 20.1.5 for further details.

Chaining to DCL command files will work as documented in the next release of RSTS/E.

#### 4.4.3 "?Unexpected Character" Error

If you try to specify more parameters than a command can handle you may get an "?Unexpected character" error message rather than the correct "?Too many parameters" error message. For example, you will get this error message if you try to delete more than six files with one DELETE command. This problem will be fixed in the next release of RSTS/E.

#### 4.4.4 Log File Corruption

If the disk on which a DCL or BATCH log file is being written becomes full, then has space become available, the resultant log file may contain one or two ending blocks of random data.

#### 4.4.5 BACKUP Compatibility Problems with VMS

There are two known BACKUP compatibility problems between RSTS and VMS:

- o Multi-volume RSTS backup sets cannot be restored on VMS. This problem is described in *Software Dispatch* article 6.2.2.

- o RSTS backup sets containing accounting data cannot be restored on VMS V4.4. The attempt fails with an error referring to a physical save set being supplied for a non-physical operation. RSTS backup sets without accounting data do not exhibit this behavior.

Efforts are underway to correct both of these problems.

#### 4.4.6 Print/Batch Services FORMS.SYS File

If the last line of PBS\$:FORMS.SYS ends with the continuation character, the SET SERVER command will go into an infinite loop. To fix this, remove the continuation character from the last line of PBS\$:FORMS.SYS.

This problem will be corrected in the next Release of RSTS/E.

### 4.5 Commonly Used System Programs (CUSPs)

#### 4.5.1 ANALYS Package

In the Monitor Memory dump section of the ANALYS report, the Virtual Disk area of the Memory Layout is shown as locked out memory. This will be changed to correctly annotate the Virtual Disk in a future release of RSTS/E.

#### 4.5.2 LOGIN.TSK and LOGOUT.TSK

The LOGIN and LOGOUT programs control when to drop the carrier on a dial-up line. If you access the system from a captive account over a dial-up line and the command procedure aborts abnormally, carrier will not be dropped. A workaround to this problem is to trap all possible errors within the command procedure and exit by using the LOGOUT command.

#### 4.5.3 ODT.TSK

ODT.TSK produces an integer error when it attempts to examine physical addresses over 177777777 (octal) and receives the line-feed (examine next location) command.

#### 4.6 ONLCLN.TSK

ONLCLN does not honor disk unit numbers higher than 7. Consequently, you cannot mount disks that need rebuilding with unit numbers higher than 7 unless you specify /NOREBUILD. As a workaround, rebuild these disks off-line using the REFRESH option of INIT.SYS.

This problem will be fixed in the next release of RSTS/E.

##### 4.6.1 PIP.SAV

The following are known problems with PIP.SAV in RSTS/E V9.3:

- o PIP cannot access files that are on a tape created on an RT11 system. This problem will be fixed in a future release of RSTS/E to allow access to RT11 tapes.
- o PIP hangs in a run state when accessing ANSI tapes that were created with a block size greater than 2048 bytes. This happens when VMS backup save sets are being transferred by tape to a RSTS system, because the save sets are written by default with a block size of 8464 bytes. This problem will be fixed in a future release of RSTS/E to display an error message and reject the operation.

##### 4.6.2 RSX and RMS Tasks

Typically you are allowed to omit one or both of the PPN (project,programmer number) fields when specifying a file or account. You are also able to use logical names longer than 6 characters, and logical names containing dollar signs. The following is a list of RSX and RMS tasks which do NOT allow you to specify one or more of these new features.

| Task Name | Handles Logical names longer than 6 characters | Handles Logical names containing dollar (\$) signs | Handles omitted field(s) in PPN |
|-----------|------------------------------------------------|----------------------------------------------------|---------------------------------|
| TKB       | YES                                            | YES                                                | Cannot Handle                   |
| MAC       | YES                                            | YES                                                | Cannot Handle                   |
| PAT       | Cannot Handle                                  | YES                                                | Cannot Handle                   |
| LBR       | Cannot Handle                                  | YES                                                | Cannot Handle                   |
| RMSDEF    | YES                                            | Cannot Handle                                      | Cannot Handle                   |
| RMSDSP    | YES                                            | Cannot Handle                                      | Cannot Handle                   |

#### 4.6.3 SAVRES MSCP Disk Restriction

SAVRES, both online and offline, only accepts a single octal digit as a unit number for any volume it deals with. It reports an error of "%% Not a valid device" for units 8 or 9, or "%% Non-existent or hung device" for units 10 through 15. As a temporary workaround, confine unit numbers for SAVRES to units 0 through 7.

This problem will be fixed in a future release of RSTS/E.

#### 4.7 Layered Products

##### 4.7.1 DECmail-11 V3.0

The following restrictions apply to DECmail-11 V3.0 on RSTS/E V9.3:

- o Sending a message via combined MROUTER and MRGATE pathways is not valid. For example, To:+ MROUTER::MRGATE::FAGEN or To:+ MRGATE::MROUTER::BECKER.

The workaround is to choose one method of delivery or the other (Message Router or normal DECmail-11).

- If the addressee is an ALL-IN-1 user, send the message to node::Al::username.
  - If the addressee is a VAX DECmail user, send to node::DECMAIL::name.
  - If you wish to send a message to another DECmail- 11 user via Message Router, send to node::MROUTER::username.
  - Otherwise, let DECmail-11 handle the delivery by not using any alternate delivery mode keywords (MRGATE, MROUTER, DECMAIL, or Al) in the address.
- o SET TERMINAL/WIDTH=132 does not set the terminal hardware to wide screen mode. It only sets the software column count for determining where to wrap the header fields when reading a message.

##### 4.7.2 DECnet/E Installation Guide Error

In the DECnet/E Network Installation and Update Guide, on page 2-6, the documentation incorrectly refers the reader to the section "Restarting Your System." Instead, the reader should refer to the section "Specifying Circuit and Line Parameters."

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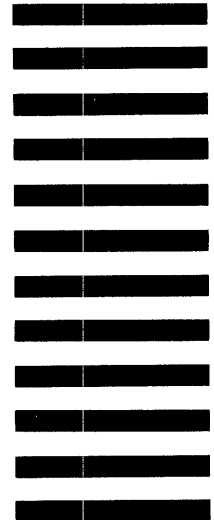
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