



Communicator/1000

for Software Update 6.21

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RTE-A 6.2 Installation Cookbook

Introduction

This introductory chapter provides a brief summary of changes in the 6.21 release software and explains the content and format of the *Communicator/1000 for Software Update 6.21*. A version of the *Communicator/1000* is also provided online in `/HP1000_INFO/COMMUNICATOR621.LST`. The `grep` utility can be used to search the online *Communicator/1000* for keywords. Note that the `/HP1000_INFO/COMMUNICATOR621.LST` online file may vary slightly from the published hard copy of the *Communicator/1000* included with your update shipment due to differences in format and production timing.

The `/HP1000_INFO/` directory is part of the RTE-A (92077A) and RTE-6/VM (92084A) products. This directory also contains an online version of the *Software Release Bulletin* (SRB). For the RTE-A (92077A) product, this directory also provides online master indexes for the RTE-A and NS-ARPA/1000 manuals.

Release 6.21 – Summary of Changes

The following are the key highlights of Release 6.21 which are covered in more detail in Chapter 2 and Chapter 4.

RTE-A Operating System and Utilities:

- Corrections and improvements to COPYL, FOWN, FST, LI, Multi-user/Session, PRINT, and Spooling.

Networking:

- Corrections in BSD Sockets, FTP, Network File Server (FSRV), and TCP/IP.

Note The fixes in this update are necessary for TCP/IP connections to HP-UX revision 10.30 and later.

Generation Considerations

There are no required changes to your answer file for the 6.21 release.

Relinking of User Networking Applications

Although not required to operate, it is recommended that any user applications that use the networking software be relinked to realize the benefits of this 6.21 release. Relinking all applications and servers that use TCP/IP is highly recommended because some platforms will not communicate with the HP 1000 without this update.

Purpose of the Communicator/1000

The *Communicator/1000* accompanies software and/or manual updates. It is designed to be a reference document to describe product changes and to give general considerations for incorporating these changes in the system.

The *Communicator/1000* performs basically three functions:

- Reports the changes that have occurred within a product for both maintenance and enhancements (Chapter 2).

If the change is in response to a Service Request, this is noted. The descriptions are meant to be a quick overview to give the user a condensed look at the changes.

When changes made to a product affect the generation, loading, or installation of that product, mention is made in Chapter 4. Major usage changes are also mentioned in Chapter 4. Again, for specific instructions you should refer to the appropriate manual.

- Lists the Current Revision Codes, Updated Media and Manual Part Numbers for products changing in this release (Chapter 3). This chapter indicates:

- the current revision codes for the software modules and firmware belonging to a product,
- the software media part numbers that are being shipped in this update cycle; these media will contain the updated software for a particular product,

Chapter 3 is not intended to replace the Software Numbering Catalog or Software Numbering File for each product, but rather it is intended to be a quick reference source for revision codes and a help in determining which media and manuals will be received for a particular product.

- Characterizes the different media formats sent to a customer, along with a brief explanation of the Software Update Procedures associated with each media (Chapter 5).

All software media can be read by HP-supported utilities which are described in various manuals. The user is directed to the appropriate reference manual for more specific instructions.

How to Use the Communicator/1000

The following are some suggestions to help you use the *Communicator/1000* as a reference:

- When you receive the *Communicator/1000*, check Chapter 1 for any changes that might have occurred in the *Communicator/1000* format that could affect how you will use it. Chapter 1 also provides an “at a glance” summary of changes implemented within the release.
- Depending on the products for which you have a subscription service and the media you have chosen, you will receive a set of software and/or manuals. If you are unfamiliar with the media you have received, check Chapter 5 for a description of the media format and suggestions for update procedures.
- Before you regenerate your system or load any software online, be sure to look through Chapter 4 to see if there have been any changes to load or generation procedures.
- Chapter 3 can be used to resolve any confusion concerning which software or manuals you should have received. Any software files or manuals that have been deleted from or added to the product will be highlighted there.
- Chapter 2, along with the updates you receive for your manuals, describes the corrections and enhancements made in this update cycle.
- Appendix A is provided to assist you in upgrading your current 6.1 or 6.2 RTE-A system to a new 6.21 system.

Note The *Communicator/1000* is only a quick reference document for an update cycle and is not intended to supersede the product manuals. Refer to the product manuals for the precise information on how to use the product.

Naming and Revision Code Convention

The 5.24 release of NS-ARPA/1000 introduced a new revision numbering scheme. In the past, a revision 5.2 module contained the four-digit code of 5020, where the zero between the 5 and the 2 acted as a placeholder for the period. The next interim release based on the 5.2 minor release would contain the revision code 5021, and so forth.

For the purpose of coordinating the revision numbers of released code and patched code, the numbering scheme now uses all four digits of the revision code. The naming convention is as follows:

W.XYZ

where:

W corresponds to a major operating system release
X corresponds to a minor operating system or subsystem release
Y corresponds to a patch release
Z corresponds to a patch

Note Z will be non-zero for patches that have been distributed to customers through the Response Center or Field Sales Office, but have not been included in a general release.

This naming convention will be used in all references to a particular cycle. This current update cycle is 6.21, that is, a patch release.

Note that in certain literature, such as the *Software Status Bulletin* (SSB), the period “.” is omitted, and the naming convention looks like “revision 6210”. The zero is no longer a placeholder for the period.

As in the past, the software in an update shipment may be of different revision codes. The revision code of a software module or product indicates the update cycle in which that software module or product was last updated. For example, a 6.2 update shipment may contain Graphics software with revision code 6100, Image software with revision code 6000, RTE-A modules with revision code 6200, and so forth.

Revision Code History

The following is a history of the releases of RTE-A and their corresponding revision codes. In addition, there is a description included for the interim releases since 5.2.

RTE-A Release	Revision Code	Comments
C.83	2340	
A.84	2401	
A.85	2440	
4.0	2540	
4.1	4010	
5.0	5000	
5.1	5010	
5.2	5020	
5.21	5021	Original SCSI Release
5.22	5022	SCSI Update
5.23	5023	SCSI Update
5.24	5240	NS-ARPA/1000 Release
5.25	5250	SCSI Boot Release
5.26	5260	C/1000 Release with Debug/1000
5.27	5270	A990 Support, Misc. Enhancements
6.0	6000	HP 1000 Release, CI command line editing/completion, Aliasing/Functions, Environment Variables, Extended EMA, Symbolic Links, UNIX system-like commands
6.1	6100	HP 1000 Release, Networking Performance, LP Spooler
6.2	6200	HP 1000 Release, File Server support for NFS clients
6.21	6210	Corrections for RTE-A and Networking

Description of Software Changes

This chapter describes the rationale for the software changes in this update. Changes that were initiated by Service Requests are listed with their SR numbers.

The entries are categorized into three types: Problem/Solution, Enhancement, and Note. A Problem/Solution entry describes a problem along with the actions taken by Hewlett-Packard to fix it. An Enhancement entry similarly describes a modification to software that improves its utility or simplifies its usage. Finally, a Note contains useful information about a change that may impact the user but is not directly related to a software fix or enhancement.

The products are sorted by their product numbers. For each product, the entries are grouped in alphabetic order by their affected functional area (if applicable). For example, RTE-A might list “Bootex” entries first followed by those of “CI”. Under each functional area, the entries are further grouped by Problem/Solution, Enhancements, then Notes, where the SR numbers are sorted numerically. Please see the SR Index for a numerical list of *all* the SR numbers. We hope that this format makes the *Communicator/1000* easy to use.

For more information on individual file names that have changed, please refer to Chapter 3.

(91790A) NS-ARPA/1000

BSD Sockets

SR# 5003325639

Problem: A problem occurs when attempting to use more than 16 virtual connections with a BSD socket application using C/1000. The symptoms of this problem are: 1) that the BSD sockets program will only accept 16 virtual connections (1 listen plus 15 read/write connections) and 2) when bit 0 is set using FD_SET, bits 0 and 16 are both set. Correspondingly when bit 1 is set, bits 1 and 17 are both set, etc.

The problem is in the FD_SET, FD_ISSET, and FD_CLR macros in types.h. The error causes all operations on bits 16-31 to act on bits 0-15.

(91790A)

From the types.h file the following macros are defined as:

```
FD_SET(n,p) ((p)->fds_bits[(n)/NFDBITS] |= (1 << ((n) %  
NFDBITS)))  
FD_CLR(n,p) ((p)->fds_bits[(n)/NFDBITS] &= ~(1 << ((n) %  
NFDBITS)))  
FD_ISSET(n,p) ((p)->fds_bits[(n)/NFDBITS] & (1 << ((n) %  
NFDBITS)))
```

On each of these, the “(1 << ((n) ...)” should be “(1L << ((n) ...)”. Without the L, the result of the expression on the right side is an int/short when it needs to be a long.

Solution: Fixed in the 6.21 release.

SR# 5003325647

Problem: The FD_ISSET macro in the types.h file did not return consistent results with the library routine of the same name in the BSD_CDS.LIB library. The manual states the return of 0 or 1 and implies a 16 bit integer is returned. The RD_ISSET macro returned a long_int.

Solution: Fixed in the 6.21 release.

FTP

SR# 4701292631

Problem: FTP can occasionally hang while executing a get or recv command. It stops after reporting the following messages.

```
ftp> get test3.txt  
200 PORT command successful.  
150-Opening BINARY mode data connection for  
150 TEST3.TXT:::4:2:128  
226 Closing data connection.
```

At this point, FTP is RN suspended. NSINF shows the FTP data connection in the close-wait state.

Solution: Fixed in the 6.21 release.

SR# 5003263681

Problem: The FTP user program hangs occasionally when executing a put or send command. When this occurs, the FTP program is RN suspended. NSINF will show that the FTP data connection is in the fin-wait-1 state, but the remote system indicates that the connection is in the established state. This problem only occurs for files that are less than 16 Kbytes.

When transferring a file, the FTP server receives the send command and opens the data connection. The FTP user program receives the connection request, sends the file data, and closes the data connection. At the TCP level, the connection request from the server is a segment with the SYN flag set. When the TCP code on the local system receives the SYN, it replies with a SYN+ACK and signals FTP that the connection request has arrived. The local TCP then waits for the ACK from the server which will complete the three part handshake to open the connection. Meanwhile, FTP can put data into the socket buffer and initiate a close on the connection. This problem occurs when ACK is dropped and FTP has initiated the close before the retransmission timer for the ACK+SYN has expired. The close is changing the connection state to fin-wait-1. When the retransmission timer expires the TCP outbound code decides not to send anything because of the state and the send window being 0.

Solution: Fixed in the 6.21 release.

SR# 5003290023

Problem: FTSPSV, the FTP server program, leaves an empty file with a random two character name in its current working directory when no files match a mask in an MGET command.

FTSPSV uses the program FTPLS to create a file in the /SCRATCH directory that contains a list of the files that match the mask given in the MGET command. When no files match the mask, FTPLS returns an unsuccessful status. FTSPSV then attempts to run FTPLS again with the output file in the current working directory. This time the runstring for FTPLS is incorrect causing the creation of the empty file with a random 2 character name.

Solution: Fixed in the 6.21 release. FTSPSV will no longer attempt to run FTPLS a second time if the first attempt with output in the /SCRATCH directory is not successful.

SR# 5003296202

Problem: The FTP program aborts if the remote system type name is shorter than 5 characters. The system type is included in the reply to the FTP SYST command. Remote system types "RTE-A" and "UNIX Type: L8" will work, but shorter names such as "VMS" will cause FTP to abort. The abort occurs after FTP has connected to the remote system and the user has entered a username and password.

There was a programming error in the processing of the reply for the SYST command which caused an error in a Pascal string function. Another error in the FTP Pascal error catcher procedure led to the MP or UI error and subsequent abort.

Solution: Fixed in the 6.21 release.

(91790A)

File Server

SR# 1653185991

Problem: When using NFS on RTE-A 6.2, exporting a directory pathname longer than 17 characters will make the mount command on the remote (client) host fail.

Solution: Fixed in the 6.21 release.

SR# 4701293084

Problem: NFS file access fails when the file's directory entry is in an extent with a disk block address that is less than the address of the directory's main. A stale file handle error is returned to the client.

Solution: Fixed in the 6.21 release.

SR# 4701297473

Problem: FSRV can hang executing an instruction with an infinite loop of indirect addresses. This problem occurs intermittently when FSRV reads or searches directories.

Solution: Fixed in the 6.21 release.

Installation

SR# D500296855

Problem: Installing the NS-ARPA/1000 product using a Primary System as a base fails because of a small error in /NS1000/CMD/INSTALL_NS1000.CMD at line 630:

```
set ns_link_cmds $rte_snap` lib/nssys.lib  
lib/nslib.lib...
```

The absence of the "=" in the above command does not work when using the Non-CDS version of CI on the Primary system.

Solution: Fixed in the 6.21 release.

IP

SR# 1653132522

Problem: ICMP redirect messages are not processed correctly and can cause path records to be corrupted. ICMP redirect messages are sent by gateways to advise a source node that a different gateway should be used to send IP datagrams to a remote host or network. This problem can cause any of the following event log error messages.

```

Error      IEEE-802      14008   156   257   171b   OUTPR/0
    4004
Error      IEEE-802      7003    258    0   171b   INPRO/0
    4004
Error      IEEE-802      14006  4004    0   171b   OUTPR/0
    16 19 449 7 4004

```

Solution: Fixed in the 6.21 release.

SR# 4701304873

Problem: A system connected to more than one network, a gateway, will not forward IP datagrams if the third byte of the destination IP address is zero. This problem occurs in 6.1 and 6.2 RTE-A systems.

Solution: Fixed in the 6.21 release.

Miscellaneous

SR# 4701320085

Problem: The program INPRO is logging error messages in the NS_event.log which are undefined in the *NS-ARPA/1000 Error Messages and Recovery Manual* (part number 91790-90045). The software was incorrectly forming the error messages. Examples of the error messages are given below.

```

Error      PROSW          2    50 22461    161b   INPRO/0
    677 20 385 0 1 0 1 0 0 3840 22695 3840
    22913 0 0 0 0 0 0 0
Error      HP-IP          3854    0    0    161b   INPRO/0
    -1

```

Solution: Fixed in the 6.21 release.

(91790A)

TCP

SR# 4701292623

Problem: The TCP code within INPRO can occasionally signal that the remote system has closed a connection before all the data has arrived. If this happens during an FTP file transfer, the destination file will be missing data from the end of the file.

This problem occurs when the FIN arrives in segment without any data, before the last segment with data, and there is no data in the TCP reassembly queue for the connection. Under those circumstances, the inbound TCP routine was not checking the sequence numbers to see if all the data preceding the FIN had been received.

Solution: Fixed in the 6.21 release.

SR# 4701325415

Problem: The NS-ARPA/1000 and ARPA/1000 software drops TCP segments with a checksum of 0.

Solution: Fixed in the 6.21 release.

SR# 5003290015

Problem: INPRO does not respond to TCP segments with more than 4 bytes of options. Nothing is written in the event log file when this occurs. This problem caused TCP connection requests from a system running OSF/1 to be ignored. Connection from other systems which use newer TCP options may also be affected by this problem.

When the TCP header contained more than 4 bytes or options, the checksum verification would fail and the TCP segment would be dropped.

(NOTE: This problem has been known to cause telnet connection failures on HP-UX 10.30 and later systems.)

Solution: Fixed in the 6.21 release.

(92077A) RTE-A Operating System

D.RTR

SR# 5003346007

Problem: In the RTE-A 6.2 release, RTE-A was enhanced to include a new file type for support of networked file systems. This enhancement included changes to D.RTR to allow FmpRename to change the file type. An error in this algorithm could incorrectly change the record count of a file even when not changing its type. One manifestation of this defect occurred when FST restored a type 1 file with extents when the file already existed in the destination directory. This of course required that the “Dup” option in FST be turned on to replace the existing file before the faulty behavior could be observed.

Solution: Fixed in the 6.21 release.

DS Transparency

SR# 1653175828

Problem: Under some conditions if TRFAS loses its “home” session (TRFAS SESSION), access to files on the system running TRFAS from a remote system specifying a user account may fail.

There were two problems that TRFAS was seeing while doing programmatic log-ons and log-offs. The fundamental problem was that CLGOF would not log off a session if the remaining caller requesting this was a system process. It also returned no error even though the session was still there. The second problem was that the routine to take TRFAS back to its home session did not check to see if the session was still there. When the ATACH failed the error was ignored.

Solution: The solution was to allow the CLGOF request to put the caller (if a system process) in the system session, thereby allowing the original session to be deleted. Also, TRFAS now checks to see if his home session is still there and if not recreates it.

Fixed in the 6.21 release.

(92077A)

Disk Format Utilities

SR# 1653146159

Problem: COPYL is not able to make a physical copy of disks if the track size is greater than 32767.

At 6.1, the maximum number of tracks on a disk LU was increased from 32767 to 65534. COPYL was overlooked when we updated the other utilities to handle the greater number of tracks.

COPYL used single integer values for several calculations. These calculations did not work properly when accessing track numbers greater than 32767. Double integer calculations and single integer EXEC parameters are required for the numbers to work out correctly.

Solution: ©L has been changed to use double integer values for tracks and sectors where appropriate in its calculations. COPYL is now able to make its disk-to-disk copy using disk LUs with up to 65534 tracks.

Fixed in the 6.21 release.

FOWN

SR# 5003306688

Problem: FOWN reports a negative number of files for the individual file owner and for the total number of files if the file is greater than 32767.

FOWN uses single integer calculations in a couple of places where it should be using double integers. The algorithms were changed to use double integer calculations in order to handle numbers greater than 32767.

Solution: FOWN was changed to use double integer values for the calculation and display of the number of files for each owner and the total number of files.

Fixed in the 6.21 release.

ID*52

SR# 5003287359

Problem: In a configuration with two PIC cards connected with the cable specified in the *HP 12006A Parallel Interface Reference Manual* (part number 12006-90001), when level mode is used a data transfer times out or never completes if the write request occurs before the read request.

On completion of a read request with level mode in effect, the DVCMD output signal is left active. Next a write request occurs on the other PIC and its DMA is set up to wait for an SRQ. The SRQ would occur on a transition to the active state on the DEVFLG input line. The writer's DEVFLG input is the reader's DVCMD output. Because this line is already active there is no transition and the data transfer will never get started.

Solution: On a write request when level mode is on and there is not a pending read from the other side, the DVCMD signal is set in order to clear DVCMD on the reader side.

Fixed in the 6.21 release.

LI

SR# 4701302190

Problem: LI is not loadable as non-EMA/VMA per the instructions in the load file. The instructions say that LI_VMA.REL is not needed, but LINK reports undefs without LI_VMA.REL relocated.

The non-EMA/VMA LI is getting undefined symbols because the non-EMA/VMA routines (that are replaced by LI_VMA.REL in EMA/VMA systems) were not compiled in LI.REL. The relocatable shipped with the product was compiled with VMA on. It will not work for a non-EMA/VMA load.

Solution: At 6.21, new non-EMA/VMA versions of LI.REL will be provided (named LI_NONEMA.REL for RTE-A and LI_CDS_NONEMA.REL for VC+). In addition, the load files will be updated, including the new relocatables and instructions on how to use them if you want to link a non-EMA/VMA LI.RUN.

Fixed in the 6.21 release.

SR# 4701302646

Problem: The command "li -r 5120 filename" causes LI to Memory Protect when using the 6.2 version of LI. LI should be able to determine the maximum allowable record length and subsequently use that record length in its processes. It actually appears to do that, announcing that it is reducing the record length to 2998. But, it also MPs in the process.

(92077A)

The MP is being caused by a missed memory overflow check for VMA versions of LI. This check was being done for non-VMA versions, but it was not done for the VMA versions. Code growth in the 6.2 revision reduced the amount of free memory available to LI. Because the VMA version did not use the memory overflow check, it failed to sufficiently reduce the allocated “free” memory and passed an address in protected memory to a clearbuffer request.

Solution: The memory overflow check is now done for VMA versions of LI as well as for non-VMA versions. LI will now correctly reduce the record size from the requested amount to the largest amount actually available. It will still inform the user of the reduction in record size, but it will not Memory Protect.

Fixed in the 6.21 release.

SR# 5003282590

Problem: Following the instructions in LI.LOD for linking LI as a non-EMA/VMA program fails to produce a working copy of LI. The load fails with undefined externals when the RE,LI_VMA.REL command is commented out according to the instructions. LI will load if the relocatable is added back in, but the resulting LI will only work once on a memory-based system. Subsequent runs of LI display nothing.

The first half of this problem has been addressed by SR# 4701302190. The non-EMA/VMA LI gets undefined symbols because the non-EMA/VMA routines (that are replaced by LI_VMA.REL in EMA/VMA systems) were not compiled in LI.REL. The relocatable shipped with the product was compiled with VMA on. It will not work for a non-EMA/VMA load.

The second problem is the result of initialized variables. LI was relying on the initial value of variables set with data statements, which results in LI working correctly the first time it is run. In subsequent runs, the variables start out with the values LI ended up with on the previous run. One of those values tells LI that it is done, so LI starts out thinking it is already done with its display on a memory-based system.

Solution: At 6.21, LI initializes variables with assignment statements rather than data statements. On a memory-based system, the variables will now be initialized before each run of LI. Therefore, LI will now work properly on a disk- or memory-based system each time it is run.

Fixed in the 6.21 release.

Microcode

SR# 5003274043

Problem: C/1000 character (byte) pointers into extended EMA may not function correctly. When a C/1000 EMA byte pointer is dereferenced and used to read/write the last page of an extended EMA segment, an incorrect address is returned and a local or stack location is read/written instead of the EMA location. The problem occurs only on the A990 while using extended EMA/VMA. Also, the problem occurs when using the .LBPC instruction that is emitted only by the the C/1000 compiler.

case 3	em, 4, L	4	OK
case 4	em, 4, x	4	OK

The problem is caused by a defect in the .LBPC instruction in the A990 microcode. When .LBPC is requested to map in the last page of an extended EMA segment it incorrectly returns a word address in the B register instead of the byte address. If the request is for any other page than the last page of each allocated EMA segment then the returned address is correct.

Solution: An A990 microcode down-load patch file is being created to correct the defect by down-loading corrected microcode during boot-up. This file will be included in the 6.21 release of RTE-A.

Fixed in the 6.21 release.

Multuser/Session

SR# 5003299271

Problem: CLGON fails to check if a provided session number is in range. The allowable range of numbers for GETSN, CLGON, and RTNSN is the maximum number of LUs on the system plus one to 319. Using session numbers greater than 319 can crash your system under some circumstances.

Solution: CLGON checks that the provided session number is greater than the maximum number of LUs and smaller than 320. Any other number will result in a -1 error.

Fixed in the 6.21 release.

(92077A)

PRINT

SR# 1653203455

Problem: As of the 6.1 release, PRINT no longer recognizes any changes made in the &FFL module that would change the default option of “printmsgquiet”.

Solution: When PRINT was enhanced in the 6.1 release the common block name was changed in the program but not updated in the &FFL module. This has been corrected. Also, the variable “printwithwait”, being part of the same common block, was added to &FFL. This variable allows the user to set a default for the “+Z” option.

Fixed in the 6.21 release.

SCSI

SR# 4701313809

Problem: An intermittent “SCSI driver error 28” can be reported after a VSCSI down-load test, such as the ZRAMTST.HEX or ZLPBK.HEX test. After the error is reported the driver “downs” the disk LU and an “up” command is then required to recover from the error. The failure rate is low; it usually takes more than 1 day of looping on the test before the error is reported. In some cases VSCSI looped for more than 4 days without reporting an error.

To demonstrate the problem use the command:

```
CI> vscsi <scsi_disk_lu> -loop 32767 -all
```

and let the system run until the error is reported. If the loop-back hood is not connected this command will run only ZRAMTST.

The problem is caused by an incorrect code sequence in the Z180 down-load code while returning the result code of the down-loaded test. If a SCSI card time base interrupt occurs between two critical instructions then an extra interrupt is issued to the HP 1000. This causes the SCSI driver to report error 28, a protocol error. The probability of the interrupt occurring between the two instructions is about 1 in 10,000.

Solution: Fixed in the 6.21 release.

Serial Drivers

SR# 5003270108

Problem: ID100 was setting the schedule program bit in DV20 on completion of each write following receipt of an unsolicited character until a read request was executed. That would cause DDC00 to schedule the primary or secondary program. This problem was introduced in the 6.1 release.

The Data Received (DR) bit in the card status word was not being cleared after an unsolicited interrupt. On completion of a write request this bit is checked to determine if a key was struck during the write.

Solution: Fixed in the 6.21 release.

VSCSI

SR# 1653144154

Problem: Using VSCSI with a valid SCSI LU but with the SCSI card not present and trying to use the commands DI,TS or RAM will cause the system to hang.

Solution: Fixed in the 6.21 release.

(92078A) RTE-A Virtual Code+

D.RTR

SR# 5003346007

Problem: In the RTE-A 6.2 release, RTE-A was enhanced to include a new file type for support of networked file systems. This enhancement included changes to D.RTR to allow FmpRename to change the file type. An error in this algorithm could incorrectly change the record count of a file even when not changing its type. One manifestation of this defect occurred when FST restored a type 1 file with extents when the file already existed in the destination directory. This of course required that the “Dup” option in FST be turned on to replace the existing file before the faulty behavior could be observed.

Solution: Fixed in the 6.21 release.

(92078A)

DS Transparency

SR# 1653175828

Problem: Under some conditions if TRFAS loses its “home” session (TRFAS SESSION), access to files on the system running TRFAS from a remote system specifying a user account may fail.

There were two problems that TRFAS was seeing while doing programmatic log-ons and log-offs. The fundamental problem was that CLGOF would not log off a session if the remaining caller requesting this was a system process. It also returned no error even though the session was still there. The second problem was that the routine to take TRFAS back to its home session did not check to see if the session was still there. When the ATACH failed the error was ignored.

Solution: The solution was to allow the CLGOF request to put the caller (if a system process) in the system session, thereby allowing the original session to be deleted. Also, TRFAS now checks to see if his home session is still there and if not recreates it.

Fixed in the 6.21 release.

GRUMP

SR# 4701312868

Problem: GRUMP aborts when trying to modify a logon/logoff command file and the file namr starts with “/A”.

When the user modifies attributes for an account, GRUMP queries the user for the appropriate responses. Logon and logof files should be able to follow any legal RTE file naming convention, which includes a global directory beginning with the letter “A”. GRUMP has a check for the character string “/A”, in case the user wants to abort the GRUMP session. However, this check for “/A” failed to check if there were additional characters after the first two, which would indicate that a file pathname was being provided as a response.

Solution: GRUMP has been changed to allow the user to specify logon/logof command files of the format “/Axxxx/xxxx” where “xxxx” are any legal characters that can be used in a legal filename. “/A <CR>” or “/a <CR>” will still abort the session of GRUMP.

Fixed in the 6.21 release.

LI

SR# 4701302190

Problem: LI is not loadable as non-EMA/VMA per the instructions in the load file. The instructions say that LI_VMA.REL is not needed, but LINK reports undefs without LI_VMA.REL relocated.

The non-EMA/VMA LI is getting undefined symbols because the non-EMA/VMA routines (that are replaced by LI_VMA.REL in EMA/VMA systems) were not compiled in LI.REL. The relocatable shipped with the product was compiled with VMA on. It will not work for a non-EMA/VMA load.

Solution: At 6.21, new non-EMA/VMA versions of LI.REL will be provided (named LI_NONEMA.REL for RTE-A and LI_CDS_NONEMA.REL for VC+). In addition, the load files will be updated, including the new relocatables and instructions on how to use them if you want to link a non-EMA/VMA LI.RUN.

Fixed in the 6.21 release.

SR# 4701302646

Problem: The command “li -r 5120 filename” causes LI to Memory Protect when using the 6.2 version of LI. LI should be able to determine the maximum allowable record length and subsequently use that record length in its processes. It actually appears to do that, announcing that it is reducing the record length to 2998. But, it also MPs in the process.

The MP is being caused by a missed memory overflow check for VMA versions of LI. This check was being done for non-VMA versions, but it was not done for the VMA versions. Code growth in the 6.2 revision reduced the amount of free memory available to LI. Because the VMA version did not use the memory overflow check, it failed to sufficiently reduce the allocated “free” memory and passed an address in protected memory to a clearbuffer request.

Solution: The memory overflow check is now done for VMA versions of LI as well as for non-VMA versions. LI will now correctly reduce the record size from the requested amount to the largest amount actually available. It will still inform the user of the reduction in record size, but it will not Memory Protect.

Fixed in the 6.21 release.

(92078A)

SR# 5003282590

Problem: Following the instructions in LI.LOD for linking LI as a non-EMA/VMA program fails to produce a working copy of LI. The load fails with undefined externals when the RE,LI_VMA.REL command is commented out according to the instructions. LI will load if the relocatable is added back in, but the resulting LI will only work once on a memory-based system. Subsequent runs of LI display nothing.

The first half of this problem has been addressed by SR# 4701302190. The non-EMA/VMA LI gets undefined symbols because the non-EMA/VMA routines (that are replaced by LI_VMA.REL in EMA/VMA systems) were not compiled in LI.REL. The relocatable shipped with the product was compiled with VMA on. It will not work for a non-EMA/VMA load.

The second problem is the result of initialized variables. LI was relying on the initial value of variables set with data statements, which results in LI working correctly the first time it is run. In subsequent runs, the variables start out with the values LI ended up with on the previous run. One of those values tells LI that it is done, so LI starts out thinking it is already done with its display on a memory-based system.

Solution: At 6.21, LI initializes variables with assignment statements rather than data statements. On a memory-based system, the variables will now be initialized before each run of LI. Therefore, LI will now work properly on a disk- or memory-based system each time it is run.

Fixed in the 6.21 release.

LP

SR# 5003262790

Problem: LPOUT currently limits the hostname to only 8 characters. The code should be change to accommodate longer names.

Solution: The new LP code will handle remote hostnames up to the first 10 characters. If the first 10 characters of the remote hostname contains a ".", then the spooler will replace the "." with a ")". For example, the remote hostname of "bones2.mayfield.hp.com" will be identified as "bones2)may" in the ID field of the spool job.

Fixed in the 6.21 release.

Multiuser/Session

SR# 5003299271

Problem: CLGON fails to check if a provided session number is in range. The allowable range of numbers for GETSN, CLGON, and RTNSN is the maximum number of LUs on the system plus one to 319. Using session numbers greater than 319 can crash your system under some circumstances.

Solution: CLGON checks that the provided session number is greater than the maximum number of LUs and smaller than 320. Any other number will result in a -1 error.

Fixed in the 6.21 release.

SR# 5000094003

Enhancement: Enhancement request to be able to set priority of PROMT, LOGON, and CM. Previously, PROMT was always at a priority of 3 and it always set the priorities of LOGON and CM to 2. This will change in the 6.21 release. Before scheduling CM and LOGON, PROMT now reads its own priority and sets the priorities of CM and LOGON appropriately (decrementing PROMT's priority). PROMT will default to a priority of 3 unless it is set to a different value in the welcome file. Alternatively, you can use the LINK LK command to reset PROMT's priority permanently.

Fixed in the 6.21 release.

Spooling

SR# 5003279497

Problem: When using the SP spooler's "Llist" command to reference a file in the current working directory, the file will not be found and results in an error message to be logged on the system console. For example:

```
sp li cat.txt
```

where cat.txt is in the current working directory, will result in the following message being output to the system console:

```
Spool Output Program encountered an error=      -6  
on file CAT.TXT  
This Spool File Operation Aborted!!
```

If the full path was used, the command worked properly. The fix at 6.2 for SR# 1650120394 caused this new problem.

(98170A)

Solution: The fix for SR# 1605120394 was backed out and a new solution was created to fix SR# 1605120394. The SP spooler will now save the original input file name and path with all the options and use it after the purge of the duplicate file name.

Fixed in the 6.21 release.

(98170A) ARPA/1000

BSD Sockets

SR# 5003325639

Problem: A problem occurs when attempting to use more than 16 virtual connections with a BSD socket application using C/1000. The symptoms of this problem are: 1) that the BSD sockets program will only accept 16 virtual connections (1 listen plus 15 read/write connections) and 2) when bit 0 is set using FD_SET, bits 0 and 16 are both set. Correspondingly when bit 1 is set, bits 1 and 17 are both set, etc.

The problem is in the FD_SET, FD_ISSET, and FD_CLR macros in types.h. The error causes all operations on bits 16-31 to act on bits 0-15.

From the types.h file the following macros are defined as:

```
FD_SET(n,p) ((p)->fds_bits[(n)/NFDBITS] |= (1 << ((n) %  
NFDBITS)))  
FD_CLR(n,p) ((p)->fds_bits[(n)/NFDBITS] &= ~(1 << ((n) %  
NFDBITS)))  
FD_ISSET(n,p) ((p)->fds_bits[(n)/NFDBITS] & (1 << ((n) %  
NFDBITS)))
```

On each of these, the “(1 << ((n) ...)” should be “(1L << ((n) ...)”. Without the L, the result of the expression on the right side is an int/short when it needs to be a long.

Solution: Fixed in the 6.21 release.

SR# 5003325647

Problem: The FD_ISSET macro in the types.h file did not return consistent results with the library routine of the same name in the BSD_CDS.LIB library. The manual states the return of 0 or 1 and implies a 16 bit integer is returned. The RD_ISSET macro returned a long_int.

Solution: Fixed in the 6.21 release.

FTP

SR# 4701292631

Problem: FTP can occasionally hang while executing a get or recv command. It stops after reporting the following messages.

```
ftp> get test3.txt
200 PORT command successful.
150-Opening BINARY mode data connection for
150 TEST3.TXT:::4:2:128
226 Closing data connection.
```

At this point, FTP is RN suspended. NSINF shows the FTP data connection in the close-wait state.

Solution: Fixed in the 6.21 release.

SR# 5003263681

Problem: The FTP user program hangs occasionally when executing a put or send command. When this occurs, the FTP program is RN suspended. NSINF will show that the FTP data connection is in the fin-wait-1 state, but the remote system indicates that the connection is in the established state. This problem only occurs for files that are less than 16 Kbytes.

When transferring a file, the FTP server receives the send command and opens the data connection. The FTP user program receives the connection request, sends the file data, and closes the data connection. At the TCP level, the connection request from the server is a segment with the SYN flag set. When the TCP code on the local system receives the SYN, it replies with a SYN+ACK and signals FTP that the connection request has arrived. The local TCP then waits for the ACK from the server which will complete the three part handshake to open the connection. Meanwhile, FTP can put data into the socket buffer and initiate a close on the connection. This problem occurs when ACK is dropped and FTP has initiated the close before the retransmission timer for the ACK+SYN has expired. The close is changing the connection state to fin-wait-1. When the retransmission timer expires the TCP outbound code decides not to send anything because of the state and the send window being 0.

Solution: Fixed in the 6.21 release.

SR# 5003290023

Problem: FTPSV, the FTP server program, leaves an empty file with a random two character name in its current working directory when no files match a mask in an MGET command.

(98170A)

FTPSV uses the program FTPLS to create a file in the /SCRATCH directory that contains a list of the files that match the mask given in the MGET command. When no files match the mask, FTPLS returns an unsuccessful status. FTPSV then attempts to run FTPLS again with the output file in the current working directory. This time the runstring for FTPLS is incorrect causing the creation of the empty file with a random 2 character name.

Solution: Fixed in the 6.21 release. FTPSV will no longer attempt to run FTPLS a second time if the first attempt with output in the /SCRATCH directory is not successful.

SR# 5003296202

Problem: The FTP program aborts if the remote system type name is shorter than 5 characters. The system type is included in the reply to the FTP SYST command. Remote system types "RTE-A" and "UNIX Type: L8" will work, but shorter names such as "VMS" will cause FTP to abort. The abort occurs after FTP has connected to the remote system and the user has entered a username and password.

There was a programming error in the processing of the reply for the SYST command which caused an error in a Pascal string function. Another error in the FTP Pascal error catcher procedure led to the MP or UI error and subsequent abort.

Solution: Fixed in the 6.21 release.

File Server

SR# 1653185991

Problem: When using NFS on RTE-A 6.2, exporting a directory pathname longer than 17 characters will make the mount command on the remote (client) host fail.

Solution: Fixed in the 6.21 release.

SR# 4701293084

Problem: NFS file access fails when the file's directory entry is in an extent with a disk block address that is less than the address of the directory's main. A stale file handle error is returned to the client.

Solution: Fixed in the 6.21 release.

SR# 4701297473

Problem: FSRV can hang executing an instruction with an infinite loop of indirect addresses. This problem occurs intermittently when FSRV reads or searches directories.

Solution: Fixed in the 6.21 release.

IP

SR# 1653132522

Problem: ICMP redirect messages are not processed correctly and can cause path records to be corrupted. ICMP redirect messages are sent by gateways to advise a source node that a different gateway should be used to send IP datagrams to a remote host or network. This problem can cause any of the following event log error messages.

```

Error      IEEE-802      14008   156   257   171b   OUTPR/0
    4004
Error      IEEE-802      7003    258    0   171b   INPRO/0
    4004
Error      IEEE-802     14006   4004    0   171b   OUTPR/0
    16 19 449 7 4004

```

Solution: Fixed in the 6.21 release.

SR# 4701304873

Problem: A system connected to more than one network, a gateway, will not forward IP datagrams if the third byte of the destination IP address is zero. This problem occurs in 6.1 and 6.2 RTE-A systems.

Solution: Fixed in the 6.21 release.

Miscellaneous

SR# 4701320085

Problem: The program INPRO is logging error messages in the NS_event.log which are undefined in the *NS-ARPA/1000 Error Messages and Recovery Manual* (part number 91790-90045). The software was incorrectly forming the error messages. Examples of the error messages are given below.

```

Error      PROSW                2    50 22461    161b   INPRO/0
    677 20 385 0 1 0 1 0 0 3840 22695 3840
    22913 0 0 0 0 0 0 0
Error      HP-IP              3854    0    0    161b   INPRO/0
    -1

```

Solution: Fixed in the 6.21 release.

(98170A)

TCP

SR# 4701292623

Problem: The TCP code within INPRO can occasionally signal that the remote system has closed a connection before all the data has arrived. If this happens during an FTP file transfer, the destination file will be missing data from the end of the file.

This problem occurs when the FIN arrives in segment without any data, before the last segment with data, and there is no data in the TCP reassembly queue for the connection. Under those circumstances, the inbound TCP routine was not checking the sequence numbers to see if all the data preceding the FIN had been received.

Solution: Fixed in the 6.21 release.

SR# 4701325415

Problem: The NS-ARPA/1000 and ARPA/1000 software drops TCP segments with a checksum of 0.

Solution: Fixed in the 6.21 release.

SR# 5003290015

Problem: INPRO does not respond to TCP segments with more than 4 bytes of options. Nothing is written in the event log file when this occurs. This problem caused TCP connection requests from a system running OSF/1 to be ignored. Connection from other systems which use newer TCP options may also be affected by this problem.

When the TCP header contained more than 4 bytes or options, the checksum verification would fail and the TCP segment would be dropped.

(NOTE: This problem has been known to cause telnet connection failures on HP-UX 10.30 and later systems.)

Solution: Fixed in the 6.21 release.

Current Revisions & Changes

This chapter lists the current revision codes for the products that have changed in this update and notes any changes that occurred to the product in this update cycle.

In the past, this chapter of the *Communicator/1000* has included the current revision codes for all HP 1000 products; however, for this revision, Chapter 3 will only reflect the four products that are updated in the 6.21 revision. Refer to the *Communicator/1000 for Revision 6.2* for the current revision codes of the other HP 1000 software products that are not included in the 6.21 revision.

The listing also includes Manuals and Software Media that were updated (or added) in this update cycle and that are being distributed with the subscription services for this product.

If software was updated for a product, then those modules that were changed, added, or deleted are marked with a "*" to the left of the file name and the type of update is shown to the right of the current revision code: updated files show the new revision code; added or deleted files are marked as "New" or "Deleted" (respectively).

Note that updated products may have only manual changes or only software changes. This is noted in the manual or media lists. The manual changes are listed in the format "Edition#/Update#" and/or "Print Code". For example, "2/2" means edition 2, update 2 and "3/-" means edition 3, no update. Print codes are in the format of Emmy for editions and Ummmy for updates, where mm is the month the edition or update was printed and yy is the year the edition or update was printed.

(91790A)

(91790A) NS-ARPA/1000

Filename	Part Number	Rev	Change
Directory: /NS1000/			
A91790_EZ_INSTAL.TXT	91790-17091	6200	
A91790_INSTALL.TXT	91790-17034	6200	
Directory: /NS1000/CATALOGS/			
INETD.C000	91790-16310	6000	
Directory: /NS1000/CMD/			
* INSTALL_NS1000.CMD	91790-17033	6200	--> 6210
NSSTART_EZ.CMD	91790-17089	6200	
N_LINK.CMD	91790-17105	5240	
OF_NS.CMD	91790-17106	6000	
Directory: /NS1000/DOC/			
BREVL.HELP	91790-17094	5020	
BRTRC.HELP	91790-17095	5020	
DSCOPY.HELP	91790-17103	5020	
DSCOPY.HLP	91790-17037	5016	
EVMON.HELP	91790-17096	5020	
EXPORTS.HELP	91790-17113	6200	
FMTRC.HELP	91790-17097	5020	
FSRV.HELP	91790-17112	6200	
FTP.HELP	91790-17102	6200	
FTP.HLP	98170-17014	6200	
INETD.HELP	91790-17107	6200	
LOGCHG.HELP	91790-17098	5020	
NRLIST.HELP	91790-17099	5020	
NSTRC.HELP	91790-17100	5020	
PING.HELP	91790-17101	5240	
RDATE.HELP	91790-17114	6200	
TELNET.HELP	91790-17104	5020	
TELNET.HLP	91790-17079	5000	
TZTAB.HELP	91790-17117	6200	
Directory: /NS1000/DSREL/			
!COPY3	91750-16213	5000	
%ADV00	91750-16286	5270	
%APLDL	91750-16040	6200	
%CNSLM	91750-16048	2340	
%CXL66	91750-16269	6000	
%DDA66	91750-16292	2340	
%DLIS2	91750-16073	5000	

%DSLIN	91750-16263	5020
%DSTES	91750-16100	2013
%DSVCP	91750-16102	5020
%EXECM	91750-16111	5020
%EXECW	91750-16112	5000
%ID*66	91750-16126	6100
%IOMAP	91750-16130	5020
%LOG3K	91750-16132	2540
%LUMAP	91750-16133	5000
%LUQUE	91750-16134	2201
%MDFCL	91750-16293	2340
%MVCP3	91750-16212	5020
%OPERL	91750-16142	2440
%POPNI	91750-16148	2540
%PROGL	91750-16150	5240
%PROGZ	91750-16226	5240
%PTOPM	91750-16151	2340
%QUEX1	91750-16155	5020
%QUEZ1	91750-16157	2401
%RESA	91750-16283	2540
%RFAM2	91750-16165	2440
%RMOT1	91750-16168	5020
%RPCNV	91750-16170	5020
%RQCNV	91750-16171	5020
%SGXL	91750-16234	2201
%SYSAT	91750-16202	5020
%TRC3K	91750-16178	5020
%VCPMN	91750-16180	2226

Directory: /NS1000/ETC/

INETD.CONF	91790-17109	6200
SERVICES	91790-18301	6200
TZTAB	91790-17116	6200

Directory: /NS1000/EXAMPLES/

#ANSNS	91790-17063	6100
ALL_NODES.NRIN	91790-17061	5240
BSDCLIENT.C	91790-18295	6200
BSDCLIENT.FTN	91790-18290	6200
BSDCLIENT.LOD	91790-17110	6200
BSDCLIENT.PAS	91790-18292	6200
BSDSERVER.C	91790-18296	6200
BSDSERVER.FTN	91790-18291	6200
BSDSERVER.LOD	91790-17111	6200
BSDSERVER.PAS	91790-18293	6200
CHILD.FTN	91790-18269	5010
CLIENT.FTN	91790-18265	5010
CLIENT.PAS	91790-18263	5010
COPY.FTN	91790-18240	5240
COPY.PAS	91790-18239	5240
DATAFILE	91790-17084	5010
DEFAULT.NSIN	91790-17088	6200

(91790A)

EX_LAN_WORKSHEET.TXT	91790-17055	6100
EX_RTR_WORKSHEET.TXT	91790-17056	6100
HOSTS	91790-18298	6100
IPC1.PAS	91790-18236	5240
IPC2.PAS	91790-18241	5240
IPC3.FTN	91790-18237	5240
IPC4.FTN	91790-18238	5240
NETWORKS	91790-18299	6100
NODE1_LAN.NSIN	91790-17062	6200
NODE1_RTR.NSIN	91790-17050	6200
NODE2_LAN.NSIN	91790-17051	6200
NODE2_RTR.NSIN	91790-17068	6200
NSSTART.CMD	91790-17054	6100
NS_WORKSHEET.TXT	91790-17045	6100
PARENT.FTN	91790-18270	5240
PROTOCOLS	91790-18300	6100
RPM1.PAS	91790-18267	5240
RPM2.PAS	91790-18268	5000
SERVER.FTN	91790-18266	5010
SERVER.PAS	91790-18264	5010

Directory: /NS1000/INCLUDE/

ERRNO.H	91790-18302	6200
EXTCALLS.PASI	91790-18279	6200
FCNTL.H	91790-18285	5240
IN.H	91790-18283	5240
NETDB.H	91790-18282	5240
SOCKET.FTNI	91790-18288	6200
SOCKET.H	91790-18281	6200
SOCKET.PASI	91790-18278	6200
* TYPES.H	91790-18280	6100 --> 6210

Directory: /NS1000/LIB/

\$D3N25	91750-12029	2401
\$D3X25	91750-12028	2440
* BSD_CDS.LIB	91790-12017	6200 --> 6210
DS3K.LIB	91790-12014	5240
NSINFLB.LIB	91790-12015	6200
NSLIB.LIB	91790-12003	6200
NSLIB_CDS.LIB	91790-12004	6200
* NSSYS.LIB	91790-12012	6200 --> 6210
* NSSYS_CDS.LIB	91790-12013	6200 --> 6210

Directory: /NS1000/LOD/

#SEND.LOD	91790-17046	5240
BREVL.LOD	91790-17001	5240
BRTRC.LOD	91790-17002	5240
CONSM.LOD	91790-17003	5240
DSCOPY.LOD	91790-17004	5240
DSLIN.LOD	91790-17005	5240

DSMOD.LOD	91790-17006	5240
EVMON.LOD	91790-17007	5000
FMTRC.LOD	91790-17008	6000
FSRV.LOD	91790-17115	6200
FTP.LOD	98170-17002	6200
FTPSV.LOD	98170-17003	6200
GRPM.LOD	91790-17040	5000
IFPM.LOD	91790-17039	5000
INETD.LOD	91790-17108	6200
INPRO.LOD	91790-17009	6200
LOG3K.LOD	91790-17010	5240
LOGCHG.LOD	91790-17011	5240
MATIC.LOD	91790-17043	5000
MMINIT.LOD	91790-17012	5240
NFTMN.LOD	91790-17013	6100
NRINIT.LOD	91790-17014	5240
NRLIST.LOD	91790-17015	5240
NSINF.LOD	91790-17017	6200
NSINIT.LOD	91790-17018	6200
NSLINK.LOD	91790-17092	5005
NSTRC.LOD	91790-17026	5240
OUTPRO.LOD	91790-17027	6000
PING.LOD	98170-17004	5240
PRDC1.LOD	91790-17028	5240
PRODC.LOD	91790-17029	6000
QCLM.LOD	91790-17044	5000
QUEUE.LOD	91790-17038	5000
QUEX.LOD	91790-17041	5020
QUEZ.LOD	91790-17042	5000
RMOTE.LOD	91790-17030	5240
RMOTE_X25.LOD	91790-17065	5240
RPMMN.LOD	91790-17075	6100
RQCNV.LOD	91790-17067	5240
RQCNV_X25.LOD	91790-17066	5240
TELNET.LOD	91790-17078	5240
TNSRV.LOD	91790-17077	5240
UPLIN.LOD	91790-17032	5240
UPLIN_X25.LOD	91790-17064	5240

Directory: /NS1000/MISC/

A91790.MNF	91790-17998	6200	
* A91790.SNF	91790-17999	6200	--> 6210
NSERRS.MSG	91790-17036	6100	
NSINIT.MSG	91790-17035	5240	

Directory: /NS1000/REL/

#SEND.REL	91790-16010	5240
BREVL.REL	91790-16022	6000
BRTRC.REL	91790-16023	6000
CONSM.REL	91790-16024	6200
DSCOPY.REL	91790-16032	6100
DSMOD.REL	91790-16037	6000

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DS_CDSERRORCATCH.REL	91790-16039	6100	
DS_ERRORCATCHER.REL	91790-16041	6100	
ERRNODEC.REL	91790-16287	5240	
EVMON.REL	91790-16045	6200	
* FMTRC.REL	91790-16059	6000	--> 6210
* FSRV.REL	91790-16339	6200	--> 6210
* FTP.REL	98170-16046	6200	--> 6210
FTPLIB2.REL	98170-16004	6200	
* FTPSLIB.LIB	98170-16002	6200	--> 6210
FTPSV.REL	98170-16047	6200	
* FTPULIB.REL	98170-16003	6200	--> 6210
GRPM.REL	91790-16065	5240	
IFPM.REL	91790-16072	6000	
INDEC.REL	91790-16074	6000	
INEHTAB.REL	91790-16075	6200	
INETD.REL	91790-12019	6200	
* INPRO.REL	91790-16087	6200	--> 6210
LOGCHG.REL	91790-16111	6000	
MATIC.REL	91790-16113	5240	
MMINIT.REL	91790-16118	6200	
NFTMN.REL	91790-16132	6000	
NRERR.REL	91790-16235	6200	
NRINIT.REL	91790-16139	6200	
NRLIST.REL	91790-16140	6100	
NSABP.REL	91790-16031	6200	
NSINF.REL	91790-16145	6200	
NSINIT.LIB	91790-12002	6200	
NSTRC.REL	91790-16168	6000	
OTEHTAB.REL	91790-16171	5240	
OUTDEC.REL	91790-16172	6000	
OUTPRO.REL	91790-16173	6200	
PING.REL	98170-16006	6200	
PRDC1.REL	91790-16178	6000	
PRODC.REL	91790-16181	6000	
PROSW_CDS.REL	91790-16182	2608	
QCLM.REL	91790-16187	5240	
QUEUE.REL	91790-16188	2608	
RDATE.REL	91790-16353	6200	
REMAT.REL	91790-16189	6000	
RPMMN_CDS.REL	91790-16248	6200	
TELNET.REL	91790-16255	6100	
TNSRV.REL	91790-16254	6200	
UPLIN.REL	91790-16229	6100	
UPLN2.REL	91790-16230	6200	

Manual Part#	Title	Edition/ Update	Print Date
91790-91001	NS-ARPA/1000 cover letter	-/-	E0495
91790-90020	NS-ARPA/1000 User/Programmer Ref Manual	7/-	E0495
91790-90030	NS-ARPA/1000 Gen. & Initialization Manual	9/-	E0495
91790-90031	NS-ARPA/1000 Maint. & Principles of Oper.	6/-	E1193
91790-90040	NS-ARPA/1000 Quick Reference Guide	6/-	E0495
91790-90045	NS-ARPA/1000 Error Msg. and Recovery	5/-	E1193

91790-90050	NS-ARPA/1000 DS/1000-IV Compat. Svcs.	3/-	E0891
91790-90054	File Server Reference Guide	1/-	E0495
91790-90060	BSD IPC Reference Manual	4/-	E0495
5958-8523	NS Message Formats Reference Manual	4/-	E1292
5958-8563	NS Cross System NFT Reference Manual	3/-	E0891

Media Part#	Media Option
91790-13301	022
91790-13502	051
91790-13600	AAH

(92077A) RTE-A Operating System

Filename	Part Number	Rev	Change
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Directory: /HP1000_INFO/

* COMMUNICATOR62.LST	05963-04402	6200	--> Deleted
* COMMUNICATOR621.LST	05965-04439	New	--> 6210
NS1000_INDEX.MAN	91790-17900	6200	
RTEA_INDEX.MAN	92077-17900	6200	
* SRB	05958-09515	6200	--> 6210

Directory: /RTE_A/

* !FORMC	92570-16286	6200	--> 6210
* !RESTORE	92077-16639	6200	--> 6210
* !VSCSI	92077-15031	6200	--> 6210
"CDSL B	92059-18027	2326	
"EDIT	92074-17004	6100	
"FCHLP	92084-17150	2226	
"MACLB	92059-18026	2326	
#AB2MI	92077-17030	5000	
#ARSTR	92077-17101	5000	
#ASAVE	92077-17100	5000	
#AUTOR	92077-17042	5020	
#BUILD	92077-17036	5000	
#CIX	92570-17032	6000	
#COMND	92077-17043	5000	
#COPYL	92077-17038	5000	
#CSYS	92077-17035	5000	
#DRSTR	92077-17110	5000	
#DSAVE	92077-17111	5000	
#DSRTR	92570-17075	6000	
#ED1KA	92074-17005	2540	
#ERTSH	92077-17214	5000	
#EXER	24398-17016	5010	
#EXER1	24398-17015	6100	

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#FCA	92077-17008	5000	
#FMGR	92077-17032	6100	
#FORMA	92077-17286	5010	
#FORMC	92077-17034	5000	
#FORMF	92077-17104	5000	
#FORMT	92077-17041	5000	
#FPUT	92077-17013	5000	
#FSCON	92077-17014	5000	
#HPMDM	92077-17280	6200	
#INSTL	92077-17039	5000	
#IS	92077-17112	5000	
#LIF	92077-17033	5000	
#MACRO	92059-17004	6000	
#METER	92077-17130	5000	
#MEXPL	92077-17287	5000	
#MI2AB	92077-17031	5000	
#MSGM	92089-17002	2440	
#MTEXR	92077-17288	5000	
#NLSID	92089-17013	2540	
#OLDRE	92059-17002	2213	
#PRIN0	92077-17025	5000	
#PRINT	92077-17024	5000	
#RMTERM	92077-17279	5000	
#RS	92077-17115	5020	
#RTAGN	92077-17040	5000	
#TRFAS	92077-17017	5020	
\$CMDLB	92077-12004	6000	
\$COMPT	92077-12031	5000	
\$CRLIB	92570-12017	6200	
\$DBULB	92077-12027	5020	
\$DKLIB	92077-12024	5020	
\$DTCLB	92071-12015	6200	
\$ED1KA	92074-12011	6200	
\$EMCLB	92077-12007	2214	
\$FCL1	92084-12085	2540	
\$FCL2	92084-12086	2540	
\$FDSL B	24998-12004	5000	
\$FLIB	24998-12008	5010	
\$FMGR	92077-12005	6200	
* \$FMP	92570-12008	6200	--> 6210
\$FMPC	92570-12027	6200	
\$FN DLB	92570-12032	6100	
\$FNEW F	24998-12010	6200	
\$FOLDF	24998-12009	5000	
\$FSTA	92077-12037	6200	
\$HPIB	92077-12021	5020	
\$LDRLN	92084-12038	6200	
\$MATH	24998-12007	5010	
\$PBULB	92077-12019	6100	
\$PRINT	92077-12008	6100	
* \$SFMP	92570-12031	6200	--> 6210
\$SYSA	92570-12003	6200	
* \$SYSLB	92570-12006	6200	--> 6210
* \$UFMP	92570-12034	6200	--> 6210

\$VLB6B	12829-12002	2214	
\$VLBA1	92570-12004	6000	
\$WFCLB	92077-12022	2327	
;%IDRPL	92570-16009	6200	
;%M000	92089-16002	6000	
;%AB2MI	92077-16433	2441	
;%ABORT	92570-16010	6000	
;%ALARM	92077-16870	5000	
;%ARSTR	92077-16587	6100	
;%ASAVE	92077-16586	6100	
;%ATRAN	92059-16013	2540	
;%AUTOR	92077-16385	5020	
* %BIGLB	92570-16180	6200	--> 6210
;%BUILD	92570-12012	6100	
;%CI000	92570-16161	6200	
;%CIX	92570-16164	6200	
;%CKTRM	92077-16748	2441	
;%CL000	92570-16155	6000	
;%CLASS	92570-16022	6200	
;%COMND	92077-16076	2214	
* %COPYL	92070-16336	6100	--> 6210
;%CR000	92570-16159	6200	
;%CSYS	92077-16636	6000	
;%CX000	92570-16232	6200	
;%DD*00	92077-16699	2540	
;%DD*12	92077-16758	2441	
;%DD*20	92077-16727	2441	
;%DD*23	92077-16730	2441	
;%DD*24	92077-16648	6000	
;%DD*30	92077-16669	5000	
;%DD*33	92077-16668	6000	
;%DD*36	92077-16732	2441	
;%DDC12	92077-16386	6200	
;%DDM30	92077-16666	5000	
;%DE000	92570-16190	6200	
;%DECAR	24306-16001	2540	
;%DL000	92570-16152	6000	
;%DRSTR	92077-16701	5000	
;%DSAVE	92077-16702	6100	
;%DSQ	92570-16024	6000	
;%DSRTR	92570-16257	6200	
;%ED000	92074-16055	5020	
;%EDIT	92074-12008	6200	
;%ERLOG	92570-16030	6100	
;%ERTLB	92077-16816	2526	
;%ERTSH	92077-16815	2526	
;%EXEC	92077-16136	6100	
;%EXER	24398-16062	5020	
;%EXER1	24398-16066	6000	
;%FC0	92084-15042	2540	
;%FC000	92077-16787	6100	
;%FC1	92084-15043	2540	
;%FC2	92084-15044	2540	
;%FC3	92084-15045	2540	

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%FC4	92084-15046	5000	
%FC5	92084-15047	2540	
%FC6	92084-15048	2540	
%FCMA	92077-12016	5000	
* %FFL	92077-16067	6100	--> 6210
%FMGR	92077-16310	6100	
%FORMA	92077-16814	6000	
%FORMC	92077-16786	6100	
%FORMF	92077-16393	6000	
%FORMT	92077-16697	6100	
%FP000	92570-16178	6100	
%FPUT	92077-16452	6100	
%FS000	92570-16111	6200	
%FSCON	92077-16453	6100	
%FT000	92077-16773	5010	
%FV000	92570-16174	6200	
%GEN27	92077-16629	5020	
%ID*00	92077-16756	2540	
%ID*01	92077-16390	2540	
%ID*27	92077-16628	5020	
%ID*36	92077-16722	2441	
%ID*37	92077-16696	5020	
%ID*43	92077-16096	5020	
%ID*50	92077-16667	5010	
* %ID*52	92077-16753	6000	--> 6210
%ID*67	91830-16001	6200	
%ID000	92089-16059	2540	
%IDM00	92077-16754	5020	
%IDM37	92077-16700	2402	
%IDS00	92077-16755	5000	
%INSTL	92077-16090	6200	
%IOMOD	92570-16020	6000	
%IORQ	92570-16021	6200	
%IS	92077-16724	5010	
%LIF	92077-16638	6000	
%LOAD	92570-16016	6100	
%LOCK	92570-16023	6000	
%MACR0	92059-16015	6200	
%MACR1	92059-16016	6200	
%MACR2	92059-16017	6200	
%MACR3	92059-16018	6200	
%MACR4	92059-16019	5000	
%MACR5	92059-16020	6200	
%MACR6	92059-16021	6200	
%MACR7	92059-16022	6200	
%MACRE	92059-16030	6000	
%MACRL	92059-16029	6000	
%MACRO	92059-16014	6200	
%MAPOS	92077-16728	5000	
%MAPS	92570-16011	6000	
%MDMLB	92077-16392	5000	
%MEMRY	92570-16012	6000	
%METER	92077-16733	5020	
%MEXPL	92077-16663	2401	

%MI2AB	92077-16432	6000	
%MODEM	92077-16391	2540	
%MSGM	92089-12001	2440	
%MSGTB	92089-16001	6000	
%MSOUT	92077-16776	2540	
%MTEXR	92077-16649	5020	
%MUXUP	92077-16660	6200	
%NLSID	92089-16057	2540	
%OLDRE	92059-16023	6200	
%OPMSG	92077-16151	5000	
%PERR	92570-16014	6000	
%PR000	92077-16714	6100	
%PRIN0	92077-16054	6100	
%PRINT	92077-16009	6100	
%PROGS	92570-16013	6100	
%RPL40	92077-16949	6000	
%RPL41	92077-16948	6000	
%RPL42	92078-16103	6000	
%RPL43	92078-16104	6000	
%RPL60	92077-16475	6000	
%RPL61	92077-16476	6000	
%RPL70	92077-16477	6000	
%RPL71	92077-16478	6000	
%RPL90	92077-16479	6000	
%RS	92077-16731	2540	
%RS000	92077-16784	2540	
%RTAGN	92570-12022	6100	
%RTIOA	92077-16470	6000	
%SAM	92077-16443	6000	
%SCHED	92570-16025	6200	
%SECON	92077-16783	5000	
%SIGNL	92570-16031	6000	
%SPCOM	92077-16744	5000	
%SPSLG	92077-16745	5010	
%STAT	92077-16154	6100	
%STRNG	92077-16444	5000	
%SWAP	92077-16735	2540	
%SYCOM	92570-16026	6000	
%TIME	92077-16438	6200	
%TRFAS	92077-16461	6200	
%UTIL	92570-16017	6100	
* %VCTR	92570-16018	6200	--> 6210
%VEMA	92570-16019	6000	
%VISOA	92077-16383	2302	
%XCMND	92570-16015	6000	
&AUTOR	92077-18385	5020	
&CDSONOFF	92059-18024	6200	
* &FFL	92077-18067	6100	--> 6210
&MUXUP	92077-18660	6200	
>FS000	92570-16112	6200	
>LG000	92089-16028	2440	
>LG001	92089-16029	2440	
>LG002	92089-16030	2440	
>LG003	92089-16031	2440	

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>LG004	92089-16032	2440	
>LG005	92089-16033	2440	
>LG006	92089-16034	2440	
>LG007	92089-16035	2440	
>LG008	92089-16036	2440	
>LG009	92089-16037	2440	
>LG010	92089-16038	2440	
>LG011	92089-16039	2440	
>LG012	92089-16040	2440	
>LG013	92089-16041	2440	
>LG041	92089-16042	2440	
>LG291	92089-16043	2440	
>MS000	92089-16008	2440	
>TF000	92570-16194	6200	
* A92077	92077-18999	6200	--> 6210
A990FWID.LOD	12990-17001	6000	
A990FWID.REL	12990-16020	6100	
ASK.REL	92077-16964	6200	
BIGLB.MRG	92570-17038	6000	
* BOOTEX	92570-16071	6200	--> 6210
CALLB.FTN	92077-18941	6000	
CALLM.REL	92570-16262	6000	
CALLS.LOD	92077-17317	5020	
CALLS.REL	92077-12044	6100	
CINC.LOD	92570-17030	6000	
CINC.REL	92570-16156	6200	
* CINFO	24998-16620	6200	--> 6210
* CINFR	24998-16628	6200	--> 6210
CISUB.R000	92570-16158	6000	
CISUBNC.REL	92570-15072	6000	
CLOCK.LOD	92570-17080	6200	
CLOCK.REL	92570-16267	6200	
CLOSE.LOD	92570-17028	6000	
CLOSE.REL	92570-16154	6000	
CMNDO.REL	92570-16294	6100	
DDC00.REL	92077-16888	6200	
DDC01.REL	92077-16889	6200	
DDERR.LOD	92570-17042	6000	
DDERR.REL	92570-16189	6000	
DDLIB.REL	92570-16191	6000	
DDQ24.REL	92077-15024	6100	
DDQ24_GEN.MAC	92077-19025	6000	
DDQ24_GEN.REL	92077-15025	6000	
DDQ30.MAC	92077-19020	6200	
DDQ30.REL	92077-15020	6200	
DDQ30_GEN.MAC	92077-19021	6200	
DDQ30_GEN.REL	92077-15021	6200	
DDRTR.LOD	92570-17037	6100	
* DDRTR.REL	92570-12019	6200	--> 6210
DDSEND.REL	92570-16299	6100	
DL.LOD	92570-17012	6000	
DL.REL	92570-16074	6200	
DOWNLOAD.LOD	12990-17002	6000	
DOWNLOAD.REL	12990-16022	6000	

FOWN.LOD	92570-17069	6000	
FOWN.R000	92570-16239	6100	
* FOWN.REL	92570-16237	6100	--> 6210
FPACK.LOD	92570-17036	6000	
FPACK.REL	92570-16176	6100	
FREES.C000	92077-16770	6100	
FREES.LOD	92077-17011	5020	
FREES.REL	92077-16450	6200	
FST.LOD	92570-17023	6100	
FST.REL	92570-12014	6200	
FSTLIB.LIB	92570-12015	6200	
FSTP.LOD	92570-17024	6100	
FSTP.REL	92570-16113	6200	
FVERI.LOD	92570-17035	6000	
FVERI.REL	92570-16173	6200	
GETFWID.REL	12990-16021	6000	
GREP.LOD	92570-17020	6000	
GREP.REL	92570-12013	6200	
HPCRT.LIB	92077-12035	6200	
HPC_NR.LIB	92571-16010	3400	
HPC_NRE.LIB	92571-16013	3400	
HPMDM.FTN	92570-18291	6200	
HPMDM.FTNI	92570-18292	6100	
HPMDM.REL	92570-16291	6200	
HPMDM_LIB.MAC	92077-18939	6200	
HPMDM_LIB.REL	92077-16939	6200	
HPMDM_TABLE.MAC	92077-18940	6200	
HPMDM_TABLE.REL	92077-16940	6200	
* ID100.REL	92077-16885	6200	--> 6210
* ID101.REL	92077-16886	6200	--> 6210
ID200.REL	92077-16996	5270	
ID400.REL	92077-16883	5270	
ID800.REL	92077-16887	6200	
ID801.REL	92077-16957	6200	
IDQ35.REL	92077-15019	6200	
IDR37.REL	92077-15008	6000	
IDZ00.REL	92077-16968	6200	
IO.LOD	92077-17027	5010	
IO.R000	92077-16761	6000	
IO.REL	92077-16446	6200	
KTEST.REL	92570-16311	6200	
LAN8023.CMD	91830-17018	6200	
* LBPC_PATCH.MIC	12990-16024	New	--> 6210
* LI.LOD	92077-17108	6000	--> 6210
LI.R000	92077-16977	6000	
* LI.REL	92077-16646	6200	--> 6210
LINDX.LOD	92570-17087	6200	
LINDX.REL	92570-12029	6100	
LINK.C000	92570-16007	6200	
LINK.CALL	92570-16296	6100	
LINK.LOD	92570-17003	6100	
LINK.R000	92570-16008	6000	
LINK60.LOD	92570-17109	6100	
LINK60.REL	92570-12026	6100	

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LINKA.REL	92570-12001	6200	
LINKB.REL	92570-12002	6200	
* LI_NONEMA.REL	92570-16313	New	--> 6210
LI_VMA.REL	92077-16986	6200	
LS.LOD	92570-17082	6000	
LS.REL	92570-16270	6200	
M92077	92077-18998	6200	
MENU	91830-17009	5000	
MERGE.LOD	92077-17023	5010	
MERGE.R000	92077-16980	5010	
MERGE.REL	92077-16431	6200	
MONITOR.LOD	92077-17257	5010	
MONITOR.REL	92077-12033	5020	
MPACK.LOD	92570-17034	6100	
MPACK.R000	92570-16166	6100	
MPACK.REL	92570-16165	6200	
MSG.M	92089-17005	2440	
NM.LOD	91830-17024	5000	
NM.REL	91830-16004	6100	
NM2.LOD	91830-17015	5000	
NM2.REL	91830-16005	6200	
NMGR.LOD	91830-17016	5000	
NMGR.REL	91830-16006	6100	
NMSTK.LIB	91830-12001	6100	
PASCAL.LIB	92833-16113	6200	
PASCAL_ERR.REL	92833-16125	5000	
PASCAL_ERR_ALT.REL	92833-16222	5000	
PASCAL_FMGR.LIB	92833-16107	6200	
PASCAL_FMGR_ALT.LIB	92833-16210	6200	
PRIMARY.ANS	92077-17326	6200	
REV9TO12UPGRADE.MIC	12990-16023	6100	
RMTERM.FTN	92077-18942	5010	
RMTERM.REL	92077-16942	5010	
RPL_A900_REV4.REL	92077-15018	6000	
RPL_A990.REL	92077-15030	6000	
RTEA1.CMD	92077-17194	6200	
RTEA2.CMD	92077-17195	6200	
RTE_INSTALL.CMD	92570-17123	6200	
RTE_LINK.CMD	92570-17124	6200	
SAM.LOD	92570-17009	6000	
SAMU.R000	92570-16067	6100	
SAMU.REL	92570-16065	6200	
SBIGLB.MRG	92570-17090	6000	
SCOM.C000	92077-16985	5010	
SCOM.LOD	92084-17036	5010	
SCOM.REL	92077-16983	6200	
SEC1000.LIB	92570-12011	6000	
SETVCPSTRING.LOD	92570-17081	5270	
SETVCPSTRING.REL	92570-16268	5270	
SHSLB.LIB	92833-16220	5000	
SHSLB_ALT.LIB	92833-16221	5000	
SPORT.LOD	92077-17303	5010	
SPORT.REL	92077-16963	6100	
SYSTZ.REL	92570-16312	6200	

TF.LOD	92570-17043	6000	
TF.REL	92570-16192	6000	
TFLIB.LIB	92570-12021	6200	
* TINFO	24998-16622	6200	--> 6210
* TINFR	24998-16626	6200	--> 6210
UBIGLB.MRG	92570-17114	6200	
UPGRADE60.CMD	92570-17101	6100	
VSCSI.LOD	92077-17322	6000	
* VSCSI.REL	92077-15022	6200	--> 6210
VSCSILIB.REL	92077-15023	5270	
WH.LOD	92570-17014	6000	
WH.R000	92570-16079	6000	
WH.REL	92570-16075	6200	
XFMP.LIB	92077-12010	6200	
XMB.REL	92077-16864	5000	
* ZLPBK.HEX	12016-16212	6000	--> 6210
* ZRAMTST.HEX	12016-16211	6000	--> 6210

Directory: /RTE_A/HELP/

?? .HELP	92077-17099	5020	
ADVLINK.HELP	92077-17258	6200	
AS.HELP	92077-17048	5020	
ASK.HELP	92077-17301	6200	
AT.HELP	92077-17049	5020	
BR.HELP	92077-17050	5020	
CALLM.HELP	92570-17078	6000	
CALLS.HELP	92570-17077	6000	
CD.HELP	92077-17051	6000	
CI.HELP	92077-17045	5020	
CL.HELP	92077-17052	6000	
CLOCK.HELP	92570-17122	6200	
CLOSE.HELP	92570-17029	6000	
CN.HELP	92077-17053	6000	
CO.HELP	92077-17054	6200	
CR.HELP	92077-17055	6000	
CRDIR.HELP	92077-17056	6000	
CZ.HELP	92078-17085	6000	
DC.HELP	92077-17057	6000	
DL.HELP	92570-17021	6000	
DT.HELP	92077-17059	6000	
ECHO.HELP	92077-17117	6000	
EX.HELP	92077-17061	5020	
FOWN.HELP	92570-17070	6100	
FPACK.HELP	92077-17065	6000	
FREES.HELP	92077-17062	6100	
FVERI.HELP	92077-17064	6000	
GO.HELP	92077-17066	5020	
GREP.HELP	92570-17019	6000	
IF.HELP	92077-17118	5020	
IN.HELP	92077-17067	6000	
IO.HELP	92077-17068	6000	
IS.HELP	92077-17119	5020	
KTEST.HELP	92570-17120	6200	

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LI.HELP	92077-17069	6000
LINDX.HELP	92077-17070	6100
LINK.HELP	92077-17044	6100
LS.HELP	92570-17083	6100
MACRO.HELP	92059-17003	5020
MASK.HELP	92570-17022	6000
MC.HELP	92077-17072	6000
MERGE.HELP	92077-17073	6000
METER.HELP	92077-17128	5020
MO.HELP	92077-17074	6200
MPACK.HELP	92077-17310	6100
NOTIFY.HELP	92077-17319	6000
OF.HELP	92077-17075	5020
OWNER.HELP	92077-17076	6000
POLL.HELP	92077-17324	6000
PR.HELP	92077-17077	5020
PRINT.HELP	92077-17079	6100
PROT.HELP	92077-17080	6200
PS.HELP	92077-17120	6000
PU.HELP	92077-17081	6200
PWD.HELP	92077-17329	6000
RN.HELP	92077-17082	6200
RP.HELP	92077-17083	6000
RS.HELP	92077-17121	5020
RU.HELP	92077-17084	6000
SAM.HELP	92077-17129	5020
SCOM.HELP	92077-17307	5020
SET.HELP	92077-17123	5020
SS.HELP	92077-17086	5020
STACK.HELP	92077-17311	5020
SYSTZ.HELP	92570-17121	6200
SZ.HELP	92077-17087	6000
TM.HELP	92077-17088	6200
TO.HELP	92077-17089	6000
TR.HELP	92077-17090	5020
UL.HELP	92077-17091	6000
UNPU.HELP	92077-17092	6200
UNSET.HELP	92077-17125	5020
UP.HELP	92077-17093	5020
VS.HELP	92077-17094	6000
WD.HELP	92077-17095	5020
WH.HELP	92077-17096	6000
WHILE.HELP	92077-17126	5020
WS.HELP	92077-17097	6000
XQ.HELP	92077-17098	6000

Directory: /RTE_A/MAIL/

ADDRESSBOOK.MAIL	92511-17013	5020
CDS_MAIL1K.LIB	92511-12006	6200
CDS_SENDMAIL.LOD	92511-17034	6200
CDS_SENDMAIL.REL	92511-16058	6200
DNS_RESOLVER.LIB	92511-12008	6100
DNS_SENDMAIL.LOD	92511-17021	6000

DNS_SENDMAIL.REL	92511-12009	6200
DNS_SMTP.LOD	92511-17022	6000
DNS_SMTP.REL	92511-12010	6000
DUMMYDS.REL	92077-15014	5020
INSTALLMAIL.CMD	92511-17014	6200
M1KSS.LOD	92077-17320	5020
M1KSS.REL	92077-15015	6000
MAIL.C000	92511-17006	6200
MAIL.CALL	92511-16029	6100
MAIL.CF	92511-17015	6200
MAIL.HELP	92511-17012	6200
MAIL.LOD	92511-17001	5020
MAIL.REL	92511-12001	6200
MAIL1K.LIB	92511-12005	6200
MAILSUBS.LIB	92511-12002	6100
MAILSUBS_CDS.LIB	92511-12014	6100
MAIL_CDS.LOD	92511-17030	6200
MAIL_CDS.MRG	92511-17031	6100
MAIL_CDS.REL	92511-12015	6200
NAMED.BOOT	92511-17026	6000
NAMED.LOD	92511-17032	6100
NAMED.REL	92511-12013	6100
NEWMAIL.LOD	92511-17008	5020
NEWMAIL.R000	92511-16023	5020
NEWMAIL.REL	92511-16020	6100
NOTIFY.LOD	92077-17318	5020
NOTIFY.REL	92077-15017	6000
NSLOOKUP.HELP	92511-17028	6100
NSLOOKUP.LOD	92511-17029	6100
NSLOOKUP.REL	92511-16056	6100
RDMSG.LOD	92511-17010	5020
RDMSG.REL	92511-16021	6200
RESOLV.CONF	92511-17024	6000
RESOLVER.FTNI	92511-18044	6000
RMAIL.LIB	92511-12004	6200
RMAIL.LOD	92511-17003	5020
RMAIL.REL	92511-12003	6200
SENDMAIL.LOD	92511-17007	5020
SENDMAIL.REL	92511-16018	6200
SIG_NAMED.HELP	92511-17027	6000
SIG_NAMED.REL	92511-16054	6000
SMTP.LOD	92511-17016	5020
SMTP.REL	92511-16033	6000
UUDECODE.REL	92511-12011	6200
UUENCODE.HELP	92511-17025	6000
UUENCODE.REL	92511-12012	6200

Manual Part#	Title	Edition/ Update	Print Date
12016-90001	SCSI Host Bus Adapter Card Inst. & Ref.	3/-	E1292
12076-90002	LAN/1000 Link Node Manager's Manual	2/-	E0394
59310-90064	HP-IB Users Manual	8/-	E1292
92059-90001	MACRO/1000 Reference Manual	3/-	E1292

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92074-90001	EDIT/1000 User's Manual	3/-	E1292
92077-90002	RTE-A User's Manual	8/-	E0495
92077-90007	RTE-A Programmer's Reference Manual	8/-	E0495
92077-90011	RTE-A Driver Reference Manual	8/-	E0495
92077-90013	RTE-A System Design Manual	7/-	E0495
92077-90019	RTE-A Driver Designer's Manual	3/1	E0790
92077-90020	RTE-A Quick Reference Guide	9/-	E0495
92077-90034	RTE-A System Gen. & Install. Manual	8/-	E0495
92077-90035	RTE-A LINK User's Manual	5/-	E1193
92077-90036	RTE-A Index and Glossary	7/-	E0495
92077-90037	Relocatable Libraries Reference Manual RTE-A/RTE-6/VM	6/-	E1193
92077-90038	RTE-A Primary System Software Install.	11/-	E0495
92077-90039	Getting Started With RTE-A	2/1	E0189
92077-90050	RTE-A Software Entry Point Directory	9/-	E0495
92077-90056	RTE-A System Manager's Manual	5/-	E0495
92077-90248	RTE-A Print & Spooling Reference Manual	2/-	E0495
92077-90249	RTE-A Backup & Disk Formatting Utilities Reference Manual	2/-	E0495
92511-90001	RTE-A Mail/1000 User's Manual	4/-	E0495

The information contained in the RTE-A Utilities Reference Manual, part number 92077-90004, was incorporated into the following manuals at revision 6100 (print code E1193).

RTE-A User's Manual	92077-90002
RTE-A Print and Spooling Reference Manual	92077-90248
RTE-A Backup and Disk Formatting Utilities Reference Manual	92077-90249

The RTE-A Utilities Reference Manual has been put into support life until January 1, 1999.

Media	Part#	Media Option
-----	-----	-----
	92077-13305	022
	92077-13311	022
	92077-13312	022
	92077-13511	050
	92077-13512	051
	92077-13519	061
	92077-13520	061
	92077-13512	061
	92077-13605	AAH
	92077-13601	AAH
	92077-13603	AAH

(92078A) RTE-A Virtual Code+ (VC+)

Filename	Part Number	Rev	Change
-----	-----	----	-----
Directory: /VCPLUS/			
#OUTPT	92078-17003	6100	
#PATH	92078-17020	5000	
#PROMT	92078-17007	5000	
#RESTR	92078-17030	5000	
#RINFO	92078-17014	5000	
#SINFO	92078-17016	5000	
#SMP	92078-17004	6100	
#SP	92078-17001	6100	
#SPGET	92078-17002	6100	
* \$CDS	92570-12025	6200	--> 6210
\$FCDS	24998-12011	6000	
* \$SCDS	92570-12030	6200	--> 6210
* \$UCDS	92570-12035	6200	--> 6210
* %BGCDs	92570-16252	6200	--> 6210
%CDSFH	92570-16233	6000	
%CR000	92570-16159	6200	
%DL000	92570-16152	6000	
%ENVRN	92570-16279	6100	
%KI000	92078-16098	5000	
%OUTPT	92078-16005	6100	
%PATH	92570-16282	6000	
* %PM000	92078-16027	5010	--> 6210
* %PROMT	92078-16015	6100	--> 6210
%PT000	92078-16024	5010	
%RE000	92078-16032	5000	
%RESTR	92078-16031	5000	
%RI000	92078-16096	5010	
%RINFO	92078-16019	5010	
%RPL40	92077-16949	6000	
%RPL41	92077-16948	6000	
%RPL42	92078-16103	6000	
%RPL43	92078-16104	6000	
%RPL63	92078-16009	6000	
%RPL72	92078-16010	6000	
%RPL73	92078-16011	6000	
%RPL91	92078-16012	6000	
%SI000	92078-16095	5010	
%SINFO	92078-16020	5010	
%SL000	92078-16100	5000	
%SMP	92078-16007	2540	
* %SP	92078-16002	6200	--> 6210
%SP000	92078-16022	6100	
%SPGET	92078-16004	6200	
%SPOOL	92570-16027	6100	
%SPRT	92078-16006	6100	
* A92078	92078-17999	6200	--> 6210

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ALGRP.HLP	92570-17047	6000	
ALUSR.HLP	92570-17048	6000	
BGCDS.MRG	92570-17072	6200	
CHECK.REL	92570-16033	6000	
CI.LOD	92570-17013	6200	
CI.R000	92570-16157	6200	
CI.REL	92570-16073	6200	
CIALOGOF.LOD	92078-17066	5000	
CIALOGOF.REL	92078-16105	5020	
CIENV.REL	92078-16131	6200	
CIENVNC.REL	92570-16285	6200	
CISUB.REL	92570-16072	6000	
CIX.LOD	92570-17031	6200	
CIX.R000	92570-16160	6200	
CIX.REL	92570-16163	6200	
CMNDO_CDS.REL	92570-16295	6100	
CMPLT.LOD	92570-17068	6000	
CMPLT.REL	92570-16235	6100	
CRLINKS.CMD	92570-17093	6200	
CRON.LOD	92570-17117	6200	
CRON.REL	92570-16307	6200	
CRONLIB.LIB	92570-12036	6200	
CRONTAB.LOD	92570-17119	6200	
CRONTAB.REL	92570-16310	6200	
CROUT.LIB	92570-12010	6200	
CVTUSR.REL	92078-16101	5000	
DDMAX.MAC	92570-18264	6100	
DDMAX.REL	92570-16264	6100	
DDRTR_CDS.LOD	92570-17039	6100	
* DDRTR_CDS.REL	92570-12020	6200	--> 6210
DDSEND.REL	92570-16299	6100	
DL_CDS.LOD	92570-17033	6000	
DL_CDS.REL	92570-16153	6200	
GREP_CDS.LOD	92570-17085	6000	
GREP_CDS.REL	92570-12028	6200	
GRLIB.LIB	92078-12006	5020	
GRUMP.LOD	92570-17046	6000	
GRUMP.R000	92570-16230	6000	
* GRUMP.REL	92570-12023	6200	--> 6210
GRUMPAB.HLP	92570-17049	6000	
GRUMPCMDS.HLP	92570-17050	6000	
GRUMPEX.HLP	92570-17051	6000	
GRUMPHE.HLP	92570-17052	6000	
GRUMPHLP.CMD	92078-17272	5020	
GRUMPKI.HLP	92570-17053	6000	
GRUMPPA.HLP	92570-17054	6000	
GRUMPRU.HLP	92570-17055	6000	
GRUMPTR.HLP	92570-17056	6000	
HPC.LIB	92571-16009	3400	
HPCRTCDS.LIB	92078-12011	6100	
HPC_E.LIB	92571-16012	3400	
KILLSES.LOD	92078-17061	5000	
KILLSES.REL	92078-16097	5000	
LIGRP.HLP	92570-17057	6000	

LIUSR.HLP	92570-17058	6000	
* LI_CDS.LOD	92570-17111	6200	--> 6210
* LI_CDS.REL	92570-16303	6200	--> 6210
* LI_CDS_NONEMA.REL	92570-16314	New	--> 6210
LI_VMA.RELC	92570-16304	6200	
LNS.LOD	92570-17097	6200	
LNS.REL	92570-16103	6200	
LOGON.LOD	92078-17005	6100	
LOGON.R000	92078-16028	6100	
LOGON.REL	92570-16076	6200	
LOGONNLS.LIB	92078-16029	6000	
LOGONSEC.R000	92078-16172	6100	
LS_CDS.LOD	92570-17084	6000	
LS_CDS.REL	92570-16271	6200	
M92078.MNF	92078-17998	6200	
NEGRP.HLP	92570-17059	6000	
NEUSR.HLP	92570-17060	6000	
PASCAL_CDS.LIB	92833-16104	6200	
PUGRP.HLP	92570-17061	6000	
PUUSR.HLP	92570-17062	6000	
REGRP.HLP	92570-17063	6000	
RESIZE.REL	92570-16284	6000	
REUSR.HLP	92570-17064	6000	
RPL_A990_CDS.REL	92078-16130	6000	
SBGCDS.MRG	92570-17091	6200	
SEC01.REL	92078-16039	5020	
SEC02.REL	92078-16040	5000	
SEC1000.LIB	92570-12011	6000	
SEC1000CDS.LIB	92078-12005	5020	
SECCOMMAND.HLP	92078-17062	5010	
SECOS.REL	92570-16032	6000	
SECTL.LOD	92078-17035	5000	
SECTL.REL	92078-16057	5000	
SECTLMSG.CAT	92078-18085	5000	
SECTLMSG.REL	92078-16085	5000	
SECURITY.REL	92078-16102	6100	
SECURITY.TBL	92078-18102	6100	
SESLU.LOD	92078-17060	5000	
SESLU.REL	92078-16099	5000	
STGEN.LOD	92078-17036	5000	
STGEN.REL	92078-16059	6100	
STGENMSG.CAT	92078-18084	5000	
STGENMSG.REL	92078-16084	5000	
TOUCH.REL	92570-16263	6100	
UBGCDS.MRG	92570-17115	6200	
VC1.CMD	92078-17023	6200	
VC2.CMD	92078-17024	6200	
WC.REL	92570-16290	6100	
WHOSD.LOD	92570-17066	6000	
WHOSD.REL	92570-16234	6100	
XFMP_CDS.LIB	92570-12033	6200	

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Directory: /VCPLUS/HELP/

ALIAS.HELP	92078-17088	6000
CD.HELP	92570-17094	6000
CI.HELP	92078-17092	6200
CP.HELP	92570-17099	6100
CRON.HELP	92570-17116	6200
CRONTAB.HELP	92570-17118	6200
FUNCTION.HELP	92078-17090	6000
FUNCTIONS.HELP	92078-17091	6000
GRUMP.HELP	92570-17065	6000
KILLSES.HELP	92078-17041	5020
LNS.HELP	92570-17018	6100
MV.HELP	92570-17098	6000
PATH.HELP	92078-17022	5020
PWD.HELP	92570-17095	6000
RESIZE.HELP	92570-17074	6000
RINFO.HELP	92078-17015	5020
RM.HELP	92570-17100	6000
SESLU.HELP	92078-17042	5020
SET.HELP	92078-17086	6000
SINFO.HELP	92078-17017	5020
SP.HELP	92078-17011	6100
SYMLINK.HELP	92570-17017	6000
TOUCH.HELP	92570-17079	6000
UNALIAS.HELP	92078-17089	6000
UNSET.HELP	92078-17087	6000
USERS.HELP	92078-17009	5020
VISUAL.HELP	92570-17102	6000
WC.HELP	92570-17103	6100
WHOSD.HELP	92570-17067	6100

Directory: /VCPLUS/LANVCP/DOC/

CONFIG.READ	92078-17067	5020
INSTALL.READ	92078-17068	5020
IPL_BUILD.READ	92078-17069	5020

Directory: /VCPLUS/LANVCP/INSTALL/

BOOT_VCP.CMD	92078-17072	5270
INSTALL_VCP.CMD	92078-17073	6200

Directory: /VCPLUS/LANVCP/LOD/

IPL_BUILD.LOD	92078-17077	6200
IPL_EDIT.LOD	92078-17078	6200
RMVCP.LOD	92078-17076	6200
VCPMT.LOD	92078-17079	6200
VCPMT1_0.LOD	92078-17080	6200
VCPMT2_0.LOD	92078-17081	6200

Directory: /VCPLUS/LANVCP/REL/

BUILDTBUF.REL	92078-16108	5020
DISPATCH.REL	92078-16109	5020
IPL_BUILD.REL	92078-16111	5270
IPL_EDIT.REL	92078-16112	5270
RMVCP.REL	92078-16110	5020
TEST_PROCS.REL	92078-16126	5020
TRY_RECOVER.REL	92078-16114	5020
VCPMT_IPL_T.REL	92078-16115	5020
VCPMT_MAIN.REL	92078-16116	6000
VCPMT_MAIN1_0.REL	92078-16127	6000
VCPMT_MAIN2_0.REL	92078-16128	6000
VCPMT_TRACE.REL	92078-16118	5020
VCP_DECLS.REL	92078-16120	5020
VCP_DECLS1_0.REL	92078-16121	5020
VCP_DECLS2_0.REL	92078-16122	5020
VTIMR_SUB.REL	92078-16124	5270

Directory: /VCPLUS/LP/

ACCEPT.HELP	92078-17096	6100	
* ACCEPT.REL	92078-16149	6100	--> 6210
CANCEL.HELP	92078-17097	6100	
* CANCEL.REL	92078-16143	6100	--> 6210
DISABLE.HELP	92078-17098	6100	
ENABLE.HELP	92078-17099	6100	
* ENABLE.REL	92078-16151	6100	--> 6210
LP.HELP	92078-17100	6100	
* LP.REL	92078-16141	6100	--> 6210
LPADMIN.HELP	92078-17101	6100	
* LPADMIN.REL	92078-16139	6100	--> 6210
LPALT.HELP	92078-17102	6100	
* LPDEFS.FTNI	92078-18138	6100	--> 6210
LPFENCE.HELP	92078-17103	6100	
* LPLIB.LIB	92078-12007	6100	--> 6210
* LPLIB_CDS.LIB	92078-12008	6100	--> 6210
LPMOVE.HELP	92078-17104	6100	
* LPMOVE.REL	92078-16153	6100	--> 6210
* LPOUT.FTN	92078-18158	6100	--> 6210
LPOUT.FTNI	92078-18159	6100	
LPOUT.LOD	92078-17095	6100	
* LPOUT.REL	92078-16158	6100	--> 6210
LPOUT_IF.FTN	92078-18160	6100	
LPOUT_IF.REL	92078-16160	6100	
LPOUT_M.MAC	92078-18161	6100	
LPOUT_M.REL	92078-16161	6100	
LPOUT_PASSTHRU.FTN	92078-18164	6100	
LPOUT_PASSTHRU.REL	92078-16166	6100	
LPOUT_RTESTD.FTN	92078-18162	6100	
LPOUT_RTESTD.FTNI	92078-18163	6100	
LPOUT_RTESTD.REL	92078-16162	6100	
LPSCHED.HELP	92078-17105	6100	
* LPSCHED.REL	92078-16145	6100	--> 6210

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LPSHUT.HELP	92078-17106	6100	
LPSTAT.HELP	92078-17107	6100	
* LPSTAT.REL	92078-16147	6100	--> 6210
MKLP.CMD	92078-17109	6200	
PCL.FTN	92078-18155	6100	
PCL.FTNI	92078-18156	6100	
PCL.REL	92078-16156	6100	
PCL_CDS.REL	92078-16157	6100	
REJECT.HELP	92078-17108	6100	
RLPDAEMON.LOD	92078-17093	6200	
* RLPDAEMON.REL	92078-12010	6100	--> 6210
RLPOUT.LOD	92078-17094	6200	
RLPOUT.REL	92078-12009	6100	

Directory: /VCPLUS/LP/MODEL/

GENERIC	92078-17110	6100
HPNP_PASSTHRU	92078-17111	6100
HPNP_PCL	92078-17112	6100
PASSTHRU	92078-17113	6100
PCL	92078-17114	6100
RBSD	92078-17115	6100
RHPUX	92078-17116	6100
RRTE	92078-17117	6100

Manual Part#	Title	Edition/ Update	Print Date
92078-90001	RTE-A Virtual Code+ Installation Guide	8/-	E0495

Media Part#	Media Option
92078-13301	022
92078-13501	050
92078-13502	051
92078-13601	AAH

(98170A) ARPA/1000

Filename	Part Number	Rev	Change
Directory: /ARPA1000/			
A98170_INSTALL.TXT	98170-17005	6200	
Directory: /ARPA1000/CATALOGS/			
INETD.C000	91790-16310	6000	
Directory: /ARPA1000/CMD/			
* INSTALL_ARPA.CMD	98170-17006	6200	
N_LINK.CMD	91790-17105	5240	
Directory: /ARPA1000/DOC/			
BREVL.HELP	91790-17094	5020	
BRTRC.HELP	91790-17095	5020	
EVMON.HELP	91790-17096	5020	
EXPORTS.HELP	91790-17113	6200	
FMTRC.HELP	91790-17097	5020	
FSRV.HELP	91790-17112	6200	
FTP.HELP	91790-17102	6200	
FTP.HLP	98170-17014	6200	
INETD.HELP	91790-17107	6200	
LOGCHG.HELP	91790-17098	5020	
NRLIST.HELP	91790-17099	5020	
NSTRC.HELP	91790-17100	5020	
PING.HELP	91790-17101	5240	
RDATE.HELP	91790-17114	6200	
TELNET.HELP	91790-17104	5020	
TELNET.HLP	91790-17079	5000	
TZTAB.HELP	91790-17117	6200	
Directory: /ARPA1000/DSREL/			
%RESA	91750-16283	2540	
Directory: /ARPA1000/ETC/			
INETD.CONF	91790-17109	6200	
SERVICES	91790-18301	6200	
TZTAB	91790-17116	6200	

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Directory: /ARPA1000/EXAMPLES/

#ANSARPA	98170-17016	6100
ARPASTART.COMD	98170-17010	6100
BSDCLIENT.C	91790-18295	6200
BSDCLIENT.FTN	91790-18290	6200
BSDCLIENT.LOD	91790-17110	6200
BSDCLIENT.PAS	91790-18292	6200
BSDSERVER.C	91790-18296	6200
BSDSERVER.FTN	91790-18291	6200
BSDSERVER.LOD	91790-17111	6200
BSDSERVER.PAS	91790-18293	6200
HOSTS	91790-18298	6100
NETWORKS	91790-18299	6100
NODE1.NETI	98170-17015	6200
PROTOCOLS	91790-18300	6100

Directory: /ARPA1000/INCLUDE/

ERRNO.H	91790-18302	6200	
EXTCALLS.PASI	91790-18279	6200	
FCNTL.H	91790-18285	5240	
IN.H	91790-18283	5240	
NETDB.H	91790-18282	5240	
SOCKET.FTNI	91790-18288	6200	
SOCKET.H	91790-18281	6200	
SOCKET.PASI	91790-18278	6200	
* TYPES.H	91790-18280	6100	--> 6210

Directory: /ARPA1000/LIB/

\$D3N25	91750-12029	2401	
* BSD_CDS.LIB	91790-12017	6200	--> 6210
DS3K.LIB	91790-12014	5240	
NETINFLB.LIB	98170-12006	6200	
NSLIB.LIB	91790-12003	6200	
NSLIB_CDS.LIB	91790-12004	6200	
* NSSYS.LIB	91790-12012	6200	--> 6210
* NSSYS_CDS.LIB	91790-12013	6200	--> 6210

Directory: /ARPA1000/LOD/

BREVL.LOD	91790-17001	5240
BRTRC.LOD	91790-17002	5240
EVMON.LOD	91790-17007	5000
FMTRC.LOD	91790-17008	6000
FSRV.LOD	91790-17115	6200
FTP.LOD	98170-17002	6200
FTPSV.LOD	98170-17003	6200
INETD.LOD	91790-17108	6200
INPRO.LOD	91790-17009	6200
LOGCHG.LOD	91790-17011	5240
MMINIT.LOD	91790-17012	5240

NETINF.LOD	98170-17020	6200
NETINIT.LOD	98170-17019	6200
NRINIT.LOD	91790-17014	5240
NRLIST.LOD	91790-17015	5240
NSLINK.LOD	91790-17092	5005
NSTRC.LOD	91790-17026	5240
OUTPRO.LOD	91790-17027	6000
PING.LOD	98170-17004	5240
TELNET.LOD	91790-17078	5240
TNSRV.LOD	91790-17077	5240
UPLIN.LOD	91790-17032	5240

Directory: /ARPA1000/MISC/

A98170.MNF	98170-17998	6200	
* A98170.SNF	98170-17999	6200	--> 6210
NETINIT.MSG	98170-17017	5015	
NSERRS.MSG	91790-17036	6100	

Directory: /ARPA1000/REL/

BREVL.REL	91790-16022	6000	
BRTRC.REL	91790-16023	6000	
DS_CDSEERRORCATCH.REL	91790-16039	6100	
DS_ERRORCATCHER.REL	91790-16041	6100	
ERRNODEC.REL	91790-16287	5240	
EVMON.REL	91790-16045	6200	
* FMTRC.REL	91790-16059	6000	--> 6210
* FSRV.REL	91790-16339	6200	--> 6210
* FTP.REL	98170-16046	6200	--> 6210
FTPLIB2.REL	98170-16004	6200	
* FTPSLIB.LIB	98170-16002	6200	--> 6210
FTPSV.REL	98170-16047	6200	
* FTPULIB.REL	98170-16003	6200	--> 6210
INDEC.REL	91790-16074	6000	
INEHTAB.REL	91790-16075	6200	
INETD.REL	91790-12019	6200	
* INPRO.REL	91790-16087	6200	--> 6210
LOGCHG.REL	91790-16111	6000	
MMINIT.REL	91790-16118	6200	
NETINF.REL	98170-16049	6200	
NETINIT.LIB	98170-12001	6200	
NRERR.REL	91790-16235	6200	
NRINIT.REL	91790-16139	6200	
NRLIST.REL	91790-16140	6100	
NSABP.REL	91790-16031	6200	
NSTRC.REL	91790-16168	6000	
OTEHTAB.REL	91790-16171	5240	
OUTDEC.REL	91790-16172	6000	
OUTPRO.REL	91790-16173	6200	
PING.REL	98170-16006	6200	
PROSW_CDS.REL	91790-16182	2608	
RDATE.REL	91790-16353	6200	
TELNET.REL	91790-16255	6100	

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TNSRV.REL	91790-16254	6200
UPLIN.REL	91790-16229	6100
UPLN2.REL	91790-16230	6200

Manual Part#	Title	Edition/ Update	Print Date
98170-91001	ARPA/1000 cover letter	-/-	E0495
98170-90001	ARPA/1000 Node Manager's Manual	6/-	E0495
98170-90002	ARPA/1000 User's Manual	6/-	E0495
91790-90054	File Server Reference Guide	1/-	E0495
91790-90060	BSD IPC Reference Manual	4/-	E0495

Media Part#	Media Option
98170-13301	022
98170-13502	051
98170-13600	AAH

Usage Considerations

This chapter discusses enhancements and any significant changes in generation, installation, and product usage, and the impact to products changing in this release. Operating system module and system library size changes are also included. Products are discussed in order of product number. Page headers include the product number discussed on a given page for ease of locating information for a particular product. Please also refer to Chapter 2 for individual SRs addressed in this release.

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(91790A) NS-ARPA/1000

Installation Considerations

We strongly recommend using `RTE_INSTALL.CMD` to install NS-ARPA/1000. This command file (introduced with the 6.2 release) facilitates NS-ARPA/1000 installation and other selected products from one installation file.

Refer to “Installation Considerations” in the (92077A) RTE-A Operating System section for the list of installed products and for more information on the `RTE_INSTALL.CMD` installation process.

Libraries

Even though the NS-ARPA/1000 library changes are minimal for 6.21, we recommend you relink your applications that use these libraries. The `NSSYS.LIB` (and `NSSYS_CDS.LIB`) change was due to SR# 5003263681. The `BSD_CDS.LIB` change was due to SR# 5003325639 and SR# 5003325647 (due to the changes in the include file types.h). See Chapter 2 for the details of these changes.

Unlike the previous two revisions to NS-ARPA/1000, programs linked with the 6.2 networking libraries will be compatible with the 6.21 networking software. The DSAM state variable has not changed so the routines in the 6.2 revision of the networking libraries will function properly when they access DSAM. For more information see the “Libraries” section in the NS-ARPA/1000 product section of Chapter 4 of the *Communicator/1000 for Revision 6.2* (part number 5963-4402).

(92077A) RTE-A Operating System

Installation Considerations

A new installation process was introduced at the 6.2 release and it is recommended that this process also be used as the easiest way to update your system for the 6.21 release. Included below is the information for using the RTE_INSTALL.CMD file. Also see Chapter 8 in the *RTE-A System Generation and Installation Manual* (part number 92077-90034) and comments in the RTE_INSTALL.CMD file.

RTE_INSTALL.CMD

The RTE_INSTALL.CMD file allows you to customize your installation requirements. You can specify which products to install, the target directory names, and also set the installation variables for the various products. You may want to create your own customized command file to set all the necessary variables for your environment before transferring to RTE_INSTALL.CMD.

The default installation variables that the RTE_INSTALL.CMD file uses are based on the premise that you will be building a system for another target system (not the local host). Therefore the defaults were chosen so as not to disrupt the local host system activity (for example, MAIL and LP). In view of this, the RTE_INSTALL.CMD defaults for subsystem variables may differ from those in the individual subsystem installation files. RTE_INSTALL.CMD will override the defaults in the individual subsystem installation files.

The RTE_INSTALL.CMD file can be used to link RTE-A and a number of other RTE-A subsystems and products. When used with a CDS version of CI, RTE_INSTALL.CMD can be used to install the current revisions of the following products and subsystems:

- RTE-A
- VC+
- NS-ARPA/1000
- ARPA/1000
- LP
- MAIL/1000
- LANVCP
- FTN7X
- PASCAL/1000
- C/1000
- DEBUG/1000
- XDB
- IMAGE/1000-II
- FORMS/1000

(The LP and LANVCP subsystems are part of the VC+ product and XDB is included with the DEBUG/1000 product.)

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Note When using a non-CDS version of CI, RTE_INSTALL only installs RTE-A, FTN7X, and DEBUG/1000. (The non-CDS version of CI does not have enough free memory for all of the installation variables.)

Warning RTE_INSTALL will only work with the current revision of all of these products. This command file will not install previous revisions of any of these products correctly.

Using RTE_INSTALL.CMD

Usage:

```
RTE_INSTALL snap , [RTE-A dir], [Q], [I]
```

snap Full path for the target system snap file. (This cannot be a relative path.)

RTE-A dir Directory containing the RTE-A relocatables (default = /RTE_A).

Q Quiet mode. Do not ask for verification after displaying the list of products to be installed.

I Inhibit product defaults. Do not install any product whose product directory variable is undefined. (By default RTE_INSTALL tries to install every product that is not defined.)

Return values:

\$RETURN1	-1	A fatal error was reported by RTE_INSTALL before the product installation phase.
	0	All products were successfully installed.
	1	No fatal errors were reported, but, some LINK errors were reported. (When this occurs RTE_INSTALL displays a list of the programs that could not be successfully linked.)
	2	A fatal error was reported during the installation of a product and RTE_INSTALL terminated.

Product Installation Defaults

The product installation is controlled by CI variables. To change defaults, you can set the CI variable to a different value prior to invoking RTE_INSTALL or you may change the default by editing the file RTE_INSTALL.CMD. (The “I” runstring parameter can be used to inhibit all product defaults.)

<u>Product</u>	<u>Variable</u>	<u>Default Setting (directory)</u>
RTE-A	\$RTE_A	/RTE_A
VC+	\$VCPLUS	/VCPLUS
NS/1000	\$NS1000	/NS1000
ARPA/1000	\$ARPA	/ARPA1000
LP	\$LP	/VCPLUS/LP
MAIL/1000	\$MAIL	/RTE_A/MAIL
LANVCP	\$LANVCP	/VCPLUS/LANVCP
FTN7X	\$FTN7X	/FTN7X
PASCAL/1000	\$PASCAL	/PASCAL
C/1000	\$C1000	/C1000
DEBUG/1000	\$DEBUG	/DEBUG
XDB	\$XDB	/DEBUG
IMAGE/1000-II	\$IMAGE2	/IMAGE2
FORMS/1000	\$FORMS	/F1000

Setting a directory path for a product causes RTE_INSTALL to try to install the product from the given directory. If the directory cannot be found, an error message will be reported and the installation will continue, skipping the product.

By default RTE_INSTALL tries to install every product that it finds. To disable the installation of a product, set the variable to a blank string before using this command file or use the “I” runstring parameter to inhibit the product defaults.

For example, to disable the installation of LANVCP:

```
CI> set lanvcp =
```

After RTE_INSTALL successfully installs a product, the associated product directory variable is set to a blank. This allows RTE_INSTALL to skip products that it has already installed if the command file is re-run from the same session.

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Target Directory Defaults

The target directories are defined by CI variables. To override a default, you can set the CI variable to a different value prior to invoking RTE_INSTALL. The target directory defaults are generated by concatenating \$RTE_DIR with the directory name. \$RTE_DIR defaults to /TARGET/. If left as this default, the default values for the remaining directories would be used as indicated:

<u>Variable</u>	<u>Default Setting</u>	<u>(Directory)</u>
\$RTE_DIR	/TARGET/	
\$RTE_CATS	\$RTE_DIRcatalogs	(/TARGET/catalogs)
\$RTE_ETC	\$RTE_DIRetc	(/TARGET/etc)
\$RTE_HELP	\$RTE_DIRhelp	(/TARGET/help)
\$RTE_INC	\$RTE_DIRinclude	(/TARGET/include)
\$RTE_SYS	\$RTE_DIRsystem	(/TARGET/system)
\$RTE_USERS	\$RTE_DIRusers	(/TARGET/users)
\$RTE_USR	\$RTE_DIRusr	(/TARGET/usr)
\$RTE_PROGS	\$RTE_DIRprograms	(/TARGET/programs)
\$RTE_MAPS	<none>	(link map files are not saved)
\$RTE_LIBS	/LIBRARIES	
\$RTE_SCR	/SCRATCH	

These defaults assume that the disk on which /TARGET resides has a large amount of free space. By altering the \$RTE_DIR variable, you can change all of defaults to be global directories instead of subdirectories.

To update the current system's global directories, you can set \$RTE_DIR to "/". This will cause the target catalogs directory to be "/CATALOGS", for example. Note that \$RTE_PROGS cannot be set to /PROGRAMS if you are updating RTE-A or VCPLUS.

Note If you are updating your current system's global directories, you should shut down any subsystems that are currently running before installing the new version.

\$RTE_DIR has no effect on target directory variables that have already been set. You must either use a new copy of CI or unset all of the target directory variables.

Disk Space Requirements

Approximate disk space requirements for RTE-A/VC+ and other subsystems are listed below:

Approximate disk space requirements in RTE blocks.
(1 RTE block = 256 bytes)

Product	programs	libraries	help	catalogs	system	maps
RTE-A	13200	6400	1150	650	165	4600
VC+	9250	2950	550			2950
NS/1000	12100	3100	256	12	500	5400
ARPA/1000	7900	1770	235	12	450	3500
LP	2925		200			820
MAIL	3050		425	165		1150
LANVCP	1275					460
FTN7X	805					145
PASCAL	3285	2400			35	1225
C/1000	3175	5400		170		775
DEBUG	800			125		400
XDB	1025			160		400
IMAGE-II	9575	6275		120	335	3000
FORMS/1000	1550					550

Note

It is not necessary to purge files in the required global directories (such as /LIBRARIES or /CATALOGS) as the installation process will update the necessary files in these directories. Other applications may have files in these directories that are used for their operation.

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RTE Variable Defaults

<u>Variable Name</u>	<u>Default Setting</u>	<u>Description</u>
\$RTE_CDS	T	Will target system use CDS utilities? (T F)
\$RTE_NFS	F	Will target system support the FSRV file server and/or type 12 files? (T F)
\$RTE_SLINK	T	Will target system support symbolic links? (T F)
\$RTE_RETURN	C	(A)abort, (C)ontinue, or (S)uspend installation after link errors? Where, A = Abort the installation if an error is encountered when linking a program. C = Continue the installation and only report link errors. S = Suspend the installation process and allow the user to correct the problem before proceeding.
\$RTE_A990	*	Link the A990 programs? (T F, *see below)
\$RTE_HPMDM	*	Link the HPMDM program? (T F, *see below)
\$RTE_MKLNKS	*	Create symbolic links on the target system? (T F, *see below)

* RTE_INSTALL determines the defaults for these variables at runtime. \$RTE_A990 is set to "T" if the target snap file contains the A990 RPLS. \$RTE_HPMDM is set to "T" if the target system was generated with the \$HPMDM_TABLE common block. \$RTE_MKLNKS is set to "T" if \$RTE_SLINK is set to "T" and if the host system supports symbolic links.

Setting the variable \$RTE_NFS to "T", causes versions of \$BIGLB.LIB and \$BGCD.S.LIB to be created that support type 12 byte stream files. It also causes the FSRV monitor to be installed when NS-ARPA/1000 or ARPA/1000 is installed. Type 12 file support is required for any system that uses the FSRV file server or on any system that performs remote access to files created by the file server. Due to the FMP code growth associated with the type 12 file support, \$RTE_CDS will also be set to "T" when \$RTE_NFS is enabled.

NS/1000 Defaults

<u>Variable Name</u>	<u>Default Setting</u>	<u>Description</u>	
\$NS_DS3K	N	DS/3000 access?	(Y N)
\$NS_X25	N	X.25 connection to DS/3000?	(Y N)

LP Spooler Defaults

<u>Variable Name</u>	<u>Default Setting</u>	<u>Description</u>	
\$LP_UPDATE	T	Update the target spool/help directories?	(T F)
\$LP_LOADPROGS	T	Cause the LP spooler programs to be linked?	(T F)
\$LP_REMOTE	T	Install incoming/outgoing remote printer support?	(T F)
\$LP_LOCAL	F	Shutdown/restart the local LP spooler?	(T F)

Mail/1000 Defaults

<u>Variable Name</u>	<u>Default Setting</u>	<u>Description</u>	
\$MAIL_START	N	Start Mail?	(Y N)
\$MAIL_SMTP	Y	Install the SMTP software?	(Y N A(sk))
\$MAIL_DNS	N	Install the DNS software?	(Y N A(sk))

Pascal/1000 Defaults

The \$RTE_CDS variable is used to determine if the CDS versions of the compiler should be used. By default, the compilers are linked such that the default code generation is set to CDSOF. The default working set for PASCOMP.RUN is set to 250 pages.

Image/1000-II Defaults

Remote data base support is enabled if the target system contains the RD.TB common block.

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Examples

Example 1: This example builds a target system that supports the HP 1000 file server. The target system does not require the LANVCP or the MAIL/1000 subsystems.

```
*****
* Build versions $BIGLB.LIB and $BGCD.S.LIB that support type 12
* byte-stream files. This is required if the HP 1000 file server,
* FSRV, is going to be used.
*
set rte_nfs = T
*
* Abort the installation if any LINK errors are encountered.
*
set rte_return = A
*
* Create the /target directory on a disk that has enough
* free space for all of the products being installed.
* (It requires around 100,000 free blocks to install all
* of the products and keep the link map files.)
*
crdir /target 50
*
* Save the link map files in /target/maps/
*
set rte_maps = /target/maps
*
* Skip the LANVCP and MAIL/1000 subsystems.
*
set lanvcp =
set mail =
/rte_a/rte_install/system/newsys.snp
*
*****
```


Example 2: This example updates PASCAL and DEBUG on a system that has already been updated to revision 6200.

```
*****
*
* Suspend the installation if any LINK errors are encountered.
*
set rte_return = S
*
* Set the target directories to the current system's global
* directories. (The type 6 files will be placed in /programs.)
*
set rte_dir = /
*
* Only install PASCAL and DEBUG.
*
set pascal = /pascal
set debug = /debug
/rte_a/rte_install/system/snap.snp,/rte_a,Q,I
*
*****
```

Example 3: This example installs RTE-A and VC+ and updates the current system's global directories. The target programs directory is "/newprogs".

```
*****
*
* Set the target programs directory to /newprograms and set
* the rest of target directories to the current system's global
* directories.
*
set rte_progs = /newprogs
crdir /newprogs 17
set rte_dir = /
*
* Disable symbolic links on the target system.
*
set rte_slink = F
*
* Only install RTE-A and VCPLUS
*
set rte_a = /rev6200/rte_a
set vcplus = /rev6200/vcplus
/rte_a/rte_install/system/newsys.snp,$rte_a,Q,I
*
*****
```

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Microcode

A downloadable microcode patch for the A990 (SR# 5003274043) is being provided with the RTE-A software. The file (LBPC_PATCH.MIC) can be downloaded with the DOWNLOAD utility which is provided with RTE-A. To install the patch on an A990 with EPROM Firmware Revision 12 use the following command in your welcome file:

```
download <path>lbpc_patch.mic
```

Where <path> is the path where the file currently resides. We recommend that you copy the file to your /SYSTEM directory in case you remove the /RTE_A directory after installation.

If you are currently using Revision 9 of the A990 microcode and are currently downloading the Rev9to12upgrade.Mic file, you can still use this patch. You will need to merge the LBPC_PATCH file with the Rev9to12upgrade.Mic file being sure that the LBPC_PATCH file is *after* the Rev9to12upgrade.Mic file. The following commands will accomplish this for you:

```
CI>> wd /rtea  
CI>> merge Rev9to12upgrade.Mic LBPC_patch.MIC /system/A990_upgrade.MIC
```

You now can specify “download /system/A990_upgrade.MIC” in your welcome file. We recommend that you execute the download as the first command in the welcome file. If you are not sure what revision of microcode you have on your A990 you can use the A990FWID program to determine this. (For more information on downloading A990 firmware see section “Upgrading A990 Firmware” in Chapter 9 of the *RTE-A System Generation and Installation Manual* (part number 92077-90034).

Note For more information about this SR see Chapter 2.

Size Changes

As an aid for your software development efforts, the size differences are listed here from the last update in the operating system modules and system libraries. Dots are placeholders, meaning that the module did not exist at that release. The percentage difference reported on the last row of the table is the average percentage change of *those* modules that have been changed. There is a summary following the table. The “# of size differences =” is the number of modules that existed in the 6.2 release and have changed in size. The “# of unique names: Rev.6200 =” line is the number of modules that existed in the 6.2 release and have been deleted at 6.21 release. The “# of unique names: Rev.6210 =” line is the number of modules that are new for the 6.21 release.

With the addition of another FMP library (\$UFMP) at the 6.2 release, we have also added a comparison of sizes between the libraries that support symbolic links to the new library that supports both symbolic links and byte stream files (type 12).

Operating System Size Differences

There are no differences.

Driver Size Differences

Drivers Size Differences					
Rev.6200		Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
ID.52	: 471 -->	ID.52	: 459	-12	-2
ID100	: 1035 -->	ID100	: 1036	1	0
ID101	: 1168 -->	ID101	: 1169	1	0
	-----		-----	-----	-----
	2674		2664	-10	0
# of size differences	=	3			
# of unique names: Rev.6200	=	0			
		Rev.6210	=	0	
Total file size change	=	-10			
Total file % change	=	0%			

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BIGLB Size Differences

BIGLB Size Differences Rev.6200		Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGOF	: 269	--> CLGOF	: 284	15	5
CLGON	: 167	--> CLGON	: 173	6	3
LOCALSESSION	: 86	--> LOCALSESSION	: 94	8	9
	-----		-----	-----	-----
	522		551	29	5
# of size differences	=	3			
# of unique names: Rev.6200	=	0			
Rev.6210	=	0			
Total file size change	=	29			
Total file % change	=	0%			

BIGLB Size Differences with Symbolic Links

BIGLB Size Differences with Symbolic Links Rev.6200		with Symbolic Links Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGOF	: 269	--> CLGOF	: 284	15	5
CLGON	: 167	--> CLGON	: 173	6	3
LOCALSESSION	: 86	--> LOCALSESSION	: 94	8	9
	-----		-----	-----	-----
	522		551	29	5
# of size differences	=	3			
# of unique names: Rev.6200	=	0			
Rev.6210	=	0			
Total file size change	=	29			
Total file % change	=	0%			

BIGLB Size Differences with Type 12 File Support

BIGLB Size Differences with type 12 files Rev.6200		with type 12 files Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGOF	: 269	--> CLGOF	: 284	15	5
CLGON	: 167	--> CLGON	: 173	6	3
LOCALSESSION	: 86	--> LOCALSESSION	: 94	8	9
	-----		-----	-----	-----
	522		551	29	5

of size differences = 3
of unique names: Rev.6200 = 0
Rev.6210 = 0
Total file size change = 29
Total file % change = 0%

BGCDS Data Size Differences

BGCDS: Data Size Differences Rev.6200		Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGON	: 26	--> CLGON	: 27	1	3
	-----		-----	-----	-----
	26		27	1	3

of size differences = 1
of unique names: Rev.6200 = 0
Rev.6210 = 0
Total file size change = 1
Total file % change = 0%

(92077A)

BGCDS Code Size Differences

BGCDS: Code Size Differences

Rev.6200		Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGOF	: 228 -->	CLGOF	: 246	18	7
CLGON	: 140 -->	CLGON	: 145	5	3
	-----		-----	-----	-----
	368		391	23	6

of size differences = 2
of unique names: Rev.6200 = 0
Rev.6210 = 0
Total file size change = 23
Total file % change = 0%

BGCDS Data Size Differences with Symbolic Links

BGCDS: Data Size Differences
with Symbolic Links

Rev.6200		Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGON	: 26 -->	CLGON	: 27	1	3
	-----		-----	-----	-----
	26		27	1	3

of size differences = 1
of unique names: Rev.6200 = 0
Rev.6210 = 0
Total file size change = 1
Total file % change = 0%

BGCDS Code Size Differences with Symbolic Links

BGCDS: Code Size Differences
with Symbolic Links with Symbolic Links
Rev.6200 Rev.6210 Difference

Module Name	Size	Module Name	Size	Words	%
CLGOF	: 228 -->	CLGOF	: 246	18	7
CLGON	: 140 -->	CLGON	: 145	5	3
	-----		-----	-----	-----
	368		391	23	6

of size differences = 2
of unique names: Rev.6200 = 0
 Rev.6210 = 0
Total file size change = 23
Total file % change = 0%

BGCDS Data Size Differences with Type 12 File Support

BGCDS: Data Size Differences
with type 12 files with type 12 files
Rev.6200 Rev.6210 Difference

Module Name	Size	Module Name	Size	Words	%
CLGON	: 26 -->	CLGON	: 27	1	3
	-----		-----	-----	-----
	26		27	1	3

of size differences = 1
of unique names: Rev.6200 = 0
 Rev.6210 = 0
Total file size change = 1
Total file % change = 0%

(92077A)

BGCDS Code Size Differences with Type 12 File Support

BGCDS: Code Size Differences

with type 12 files Rev.6200		with type 12 files Rev.6210		Difference	
Module Name	Size	Module Name	Size	Words	%
CLGOF	: 228 -->	CLGOF	: 246	18	7
CLGON	: 140 -->	CLGON	: 145	5	3
	-----		-----	-----	-----
	368		391	23	6

of size differences = 2
of unique names: Rev.6200 = 0
Rev.6210 = 0
Total file size change = 23
Total file % change = 0%

(98170A) ARPA/1000

Installation Considerations

We strongly recommend using RTE_INSTALL.COMD to install ARPA/1000. This command file (introduced with the 6.2 release) facilitates ARPA/1000 installation and other selected products from one installation file.

Refer to “Installation Considerations” in the (92077A) RTE-A Operating System section for the list of installed products and for more information on the RTE_INSTALL.COMD installation process.

Libraries

Even though the ARPA/1000 library changes are minimal for 6.21, we recommend you relink your applications that use these libraries. The NSSYS.LIB (and NSSYS_CDS.LIB) change was due to SR# 5003263681. The BSD_CDS.LIB change was due to SR# 5003325639 and SR# 5003325647 (due to the changes in the include file types.h). See Chapter 2 for the details of these changes.

Unlike the previous two revisions to ARPA/1000, programs linked with the 6.2 networking libraries will be compatible with the 6.21 networking software. The DSAM state variable has not changed so the routines in the 6.2 revision of the networking libraries will function properly when they access DSAM. For more information see the “Libraries” section in the ARPA/1000 product section of Chapter 4 of the *Communicator/1000 for Revision 6.2* (part number 5963-4402).

Media Installation and Update Procedures

Customers on Update Media subscription services will receive updates to software on magnetic tapes, CTDs, or DDS tapes, depending on the option they have ordered. This chapter contains information concerning the format of update/new media and should be used in conjunction with product configuration/installation manuals when removing software from the media.

Note Look at the media label and determine what format is used. Then find the section in this chapter that corresponds to the media format (sections are organized by format). Follow the instructions in that section to restore the files from the media.

General Information for Update Customers

1. *BACK UP YOUR DISK BEFORE PROCEEDING.*
This will ensure that you can always return to your original system and start over.
2. *VERIFY YOUR BACKUP COPY.*
It is suggested that you make two copies and verify them both.
3. The typical procedure for updating your system is to replace the existing files on your system with the files supplied on the media. When possible, you may want to store the new files to disk on a different CRN or volume. Then, when you are sure the new files have transferred correctly, purge your old copies. This ensures that you have a good copy of the new files before you destroy your old ones.

After you have installed your software:

1. Generate your new system right away. If there have been any errors in the transfer process, they will probably be detected this way.
2. Check the revision codes of your software as they appear in the generation map against those listed in the software numbering catalog or file, and make sure you have not left out any modules.
3. Boot, initialize, and use your newly generated system to make sure that it works correctly.
4. Make backup copies of your newly generated system. Use a new tape to back up your system. Keep the old copy until it is time to update once again, and then use it to back up the next “new” system. This way you will keep at least two revisions backed-up by rotating your media.
5. Keep the update media together with your old backup media. If you discover problems later, you will always be able to get back to where you started and go through the installation procedure again.

Note If Operating System software has not changed and there are no changes affecting your generation (for example, generated-in libraries), then regeneration is not necessary and online reloading will be sufficient. Otherwise regeneration is necessary before reloading online.

Media Installation Procedures

Software is stored on media in one of several formats. Note that each physical media carries a label identifying the part number of the media, a description, and a revision code.

On media with files to be restored to hard disk there is a file called “HPHPHP” that describes each of the software parts. Information provided for each part includes:

- Part number
- Software revision code
- Module number
- File type
- File name
- Directory path

All media (that is, each tape) with a revision code greater than 2340 has an HPHPHP file. The exception to this rule is diagnostics; they do not have an HPHPHP file.

The information in HPHPHP is helpful if you want to know which files are on the medium. For example, if the medium was missing a software module that was listed in HPHPHP, you would call your support office and request the missing software.

On each tape, HPHPHP is the first file. The HPHPHP file has no part number. Diagnostics and primary systems do not require an HPHPHP file.

FST Format for Restoring TF or FST Format Tapes

Please consult the *RTE-A Backup and Disk Formatting Utilities Reference Manual*, part number 92077-90249 or the *RTE-6/VM Utility Programs Reference Manual*, part number 92084-90007, for more information on how to use the FST utility.

A tape contains one or more products, each product being identified by a global directory. The HPHPHP file contains a list of all files on that tape. Below are examples of how to use FST.

```
CI> fst
FST> mt, <lu>
FST> verify
FST> re (Note: If tape is in FST format, FST will report the file count.)
FST> go
FST> ex
```

This copies all files from the tape LU to your disk under the directory names that the files are stored on the tape.

To selectively restore only certain products using the FST utility:

```
CI> fst
FST> mt, <lu>
FST> verify
FST> re /global1/
FST> go
FST> ex
```

where *global1* is the global directory identifying the files for a given product on the tape.

Note FST may be used to restore tapes in FST or TF standard format.

TF Format for Restoring TF Format Tapes

Please consult the *RTE-A Backup and Disk Formatting Utilities Reference Manual*, part number 92077-90249 or the *RTE-6/VM Utility Programs Reference Manual*, part number 92084-90007, for more information on how to use the TF utility.

A tape contains one or more products, each product being identified by a global directory. The HPHPHP file contains a list of all files on that tape. Here is an example of how to use TF:

```
CI>tf
TF: co,<lu>,v
```

This copies all files from the tape LU to your disk under the directory names that the files are stored on the tape.

The above is the preferred and less complicated way. However, if you want to selectively restore certain products, follow the directions below.

```
CI> tf
TF: co,<lu>{/global1/@},/global2/@,v
```

where:

<code><lu></code>	= LU of the tape
<code>global1</code>	= Global directory identifying the files for a given product on the tape
<code>global2</code>	= Global directory on your system
<code>v</code>	= verify

This copies all the files from the tape with global directory `/GLOBAL1` onto the disk on directory `/GLOBAL2`, and verifies each transfer. Files with duplicate names are not copied and cause duplicate file errors to occur. To replace duplicate files, use the “D” option.

VCP Bootable Format for CS/80 CTD

“VCP Bootable” means that these files are loaded directly from tape into memory, then executed by following the instructions in the appropriate diagnostic manual. The CTD media update in this format replaces the older version of the media. Refer to the appropriate diagnostic manual.

Customized Tapes

The Update tapes for the RTE-A and RTE-6/VM Operating System software are in FST standard format. Subsystem software is combined on a separate media from the operating system and is customized in TF format.

DIRECTORIES	PROD.NAME	PROD.NUMBER	STANDARD FMT
-----	-----	-----	-----
/RTE_A/	RTE-A	92077A	FST
/RTE_6/	RTE-6 VM/OS	92084A	FST

The following products are currently shipped on Customized Update tapes; only products that have changed for this release will be shipped:

DIRECTORIES	PROD.NAME	PROD.NUMBER	STANDARD FMT
-----	-----	-----	-----
/LAN/	LAN/1000	12076A	TF
/DS1000/	DS/1000	91750A	TF
/X25/	X.25	91751A	TF
/RJE/	RJE/1000-II	91781A	TF
/MRJE/	MRJE/1000	91782A	TF
/PMF/	PMF/1000	91784A	TF
/NS1000/	NS-ARPA/1000	91790A	TF
/DATAPAIR/	Datapair/1000	92050A	TF
/VCPLUS/	VCPlus	92078A	TF
/IMAGE2/	Image/1000-II	92081A	TF
/C1000/	C/1000	92571A	TF
/Pascal/	Pascal/1000	92833A	TF
/FTN7X/	Fortran 77	92836A	TF
/BASIC/	Basic/1000-C	92857A	TF
/DEBUG/	Symbolic Debug	92860A	TF
/GRAPHICSV2/DGL/	DGL/1000 V2	92861A	TF
/GRAPHICSV2/AGP/	AGP/1000 V2	92862A	TF
/PCIF/	PCIF/1000 #1	94200B	TF
/PCIF/	PCIF/Get_Start #2	94200B	TF
/PCIF/AB/	PCIF/AB Handler	94202A	TF
/PCIF/GM/	PCIF/GM Handler	94203A	TF
/FORMS/	Forms/1000A	94250A	TF
/F1000/	Forms/1000B	94250B	TF
/ARPA/	ARPA/1000	98170A	TF

Refer to the FST and TF sections earlier in this chapter for information on restoring all products from the customized update tape to disk in one step.

The following are examples of selectively restoring products from the customized update tape to hard disk using the FST or TF utilities:

1. To selectively copy a product directory (in this example, Fortran) from the customized update tape using the FST utility:

```
CI> fst
FST> mt, <lu>
FST> verify
FST> re /ftn7x/
FST> go
FST> ex
```

2. To selectively copy product directories from tape using the TF utility, for example, enter TF and use the group copy command to copy the desired products directly to disk. This method is used if your system does not have a CI volume with enough space to contain all the files on the customized update tape.

```
CI> tf
TF: gr
TF: co <lu>{/Directory/} , , v      (One TF CO command for each product
                                     whose standard format is TF)

TF: eg
TF: ex
```

For example, suppose Pascal, PCIF, Fortran 77, and Image-II are all on a single customized update tape. You would use the following command sequence:

```
CI> tf
TF: gr
TF: co 9{/Pascal/} , , v           (Copy Pascal to directory /PASCAL)
TF: co 9{/Image2/} , , v         (Copy Image II to directory /IMAGE2)
TF: co 9{/Ftn7x/} , , v         (Copy Fortran 7X to directory /FTN7X)
TF: co 9{/PCIF/} , : :D2 , v    (Copy PCIF to cartridge D2)
TF: eg
TF: ex
```

In this example, LU 9 is the LU of the tape drive on which the customized update tape is mounted. Cartridge D2 must exist on the system.

As you can see from the examples above, you can copy down products selectively if you do not have enough disk space.

Additional Formats

For media in other formats such as ASAVE, PUSHBUTTON SAVE, LSAVE, and READT/WRITT, refer to the appropriate utilities manual and/or installation guide.

Note that some subsystem software may have a transfer file or other means of restoring files from media. See the appropriate configuration guide or reference manual for specific information.

RTE-A 6.21 Installation Cookbook

This appendix is intended as a guide to assist you in updating your HP 1000 RTE-A system from versions 6.1 or 6.2 to version 6.21. Before beginning, read the “Installation Considerations” sections in Chapter 4 of this *Communicator/1000* which explains any changes and their impact on your system. The RTE-A section also explains any changes and their impacts, and lists the names and sizes of each system library module.

1. Back up your system with ASAVE.

Make sure you have a memory-based ARSTR system that you can use to restore the ASAVE of your system. Refer to Chapter 3 of the *RTE-A Backup and Disk Formatting Reference Manual* (part number 92077-90249) for details on ASAVE and ARSTR.

2. Copy the 6.21 version of the RTE-A and VC+ products from tape to /RTE_A and /VCPLUS.

- a. Begin by clearing some room on a CI volume and creating the global directories /RTE_A and /VCPLUS. Create the subdirectory /GEN/REV621 to hold the answer, system, and snap files. If /RTE_A and /VCPLUS already exist, then purge everything in them (including everything in subdirectories) before loading the 6.21 software onto the system.

Example:

```
CI> crdir /rte_a
CI> crdir /vcplus
CI> crdir /gen/rev621
```

/RTE_A will require about 42500 blocks (which includes the /HP_INFO directory), /VCPLUS will require about 16600 blocks, /NS1000 will require about 18500 blocks, and /ARPA1000 will require about 15300 blocks.

- b. Use FST to copy the software off the update tape(s) to the newly created or cleared directories. For additional details on FST, consult the *RTE-A Backup and Disk Formatting Utilities Reference Manual* (part number 92077-90249).

Copy the RTE-A Operating System files from the operating system update tape:

```
CI> FST mt<tape lu>|re \@|ve|go
```

For VC+ and other subsystems, restore the software from your customized subsystem tape.

3. Modify your answer file to include the 6.2 changes in your 6.21 system. (This step is only required if you are updating from a 6.1 system.)

Refer to the “Generation Considerations” section in Chapter 4 of the *Communicator/1000 for Software Update 6.2* (part number 5963-4402) for more details.

a. SCSI Disks.

The 6.2 revision of DDQ30_GEN.MAC has added information to help you generate the new C2490A 2Gb SCSI disk drive into your system.

Information for the HP C1716T Optical Disk Drive has also been added. This drive can accommodate two different physical media, the HP 92880T Optical Disk Cartridge which has 1024-byte sectors, and the HP 92279A Optical Disk Cartridge which has 512-byte sectors. Model information is as follows:

<u>Model</u>	<u>Description</u>
M512MB:0 M512MB:1 M512MB:2 M497MB:A	C2490A 2-Gigabyte SCSI disk drive
M1.2GB_1	C1716T optical disk drive with 92279T Optical Disk Cartridge (with 512-byte sectors)
M1.3GB_3	C1716T optical disk drive with 92280T Optical Disk Cartridge (with 1024-byte sectors)

Important When generating MO drives into the system, bit 15 of driver parameter 2 should be clear for the C1701A. For all other MO drives, however, this bit should be set. Failure to do so could cause catastrophic loss of data on other devices attached to the same SCSI bus. See the *RTE-A Driver Reference Manual* (part number 92077-90011) for more information on DDQ30 driver parameters.

- b.** DS/1000-IV and NS-ARPA/1000 DS Compatible Services memory-based systems which use APLDR to load programs into memory from remote FMGR files no longer need the operating system module \$MWB1. The file %\$MWB1 has been deleted from the RTE-A (92077A) product. The following command to relocate %\$MWB1 should be deleted from the generation answer file:

```
re /rte_a/%$mwb1,, APLDR inter-map data move
```

4. Generate your new 6.21 system.

Use the following CI commands to generate the system, where `rtea621.ans` is a copy of your 6.21 answer file:

```
CI> wd /gen/rev621
CI> ru rtagn rtea621.ans - - -
```

The last line will cause the generator to create:

```
rtea621.LST
rtea621.SYS
rtea621.SNP
```

Be sure that the 6.21 relocatables and libraries are used in the generation.

5. Make modifications for SCSI MO devices. (SCSI MO users only)

- a. Modify D.RTR load files if your system contains a SCSI MO device.

If your system contains a SCSI MO device, the load files for D.RTR must be modified to relocate the DDSEND.REL module. The load files to modify are /RTE_A/DDRTR.LOD and/or /VCPLUS/DDRTR_CDS.LOD.

- b. Modify the DDMAX.MAC file for SCSI MO device spin-up/down and eject on dismount feature. (Optional)

If you have a SCSI MO device and want to use the CN40b and CN41b spin-up/down and eject on dismount feature (defined in Driver Parameter 8), you must modify the DDMAX.MAC file and recompile it using Macro. This feature is available with the CDS version of D.RTR and is disabled by default. You can enable this feature at link time by modifying the /VCPLUS/DDMAX.MAC file and running Macro to regenerate DDMAX.REL. For example,

```
CI> MACRO DDMAX.MAC - -
```

See further instructions inside the DDMAX.MAC file.

6. Create /TARGETPROGRAMS and use RTE_INSTALL.CMD to install RTE-A and VC+:

Approximate size requirements for a 6.21 RTE-A system with VC+ without subsystems are as follows:

/TARGETPROGRAMS	22500 blocks
/LIBRARIES	18000 blocks
/HELP	2600 blocks
/CATALOGS	650 blocks

The number of blocks required for the target programs and libraries can vary depending on which FMP library is used. The values shown here are for a system that uses the largest FMP library, \$UFMP and \$UCDS.

- a. Create the directory for the 6.21 programs.

```
CI> crdir /targetprograms
```

The variables used in the cookbook example will update the host's global directories (with the exception of /PROGRAMS). We recommend that all subsystems that will be updated be shut down on the host system in this scenario.

Note

Refer to “Installation Considerations” in the (92077A) RTE-A Operating System section of Chapter 4 for more information on the variables and defaults used by the RTE_INSTALL.COMD file.

- b. Set the CI variables needed by the RTE_INSTALL.COMD file.

```
CI> set rte_progs = /targetprograms
CI> set rte_dir = /
```

RTE_INSTALL.COMD uses the default settings indicated below:

Variable name	Default setting	Description
\$RTE_CDS	T	Will target system use CDS utilities? (T = True, F = False)
\$RTE_NFS	F	Will target system support the FSRV file server and/or type 12 files? (T = True, F = False)
\$RTE_SLINK	T	Will target system support symbolic links? (T = True, F = False)
\$RTE_RETURN	C	Abort, Continue, or Suspend installation after link errors? Where, A = Abort the installation if an error is encountered when linking a program. C = Continue the installation and only report link errors. S = Suspend the installation process and allow the user to correct the problem before proceeding.

If you wish to change any of the defaults, you can use the SET command to set the variable to the desired state.

The setting of \$RTE_NFS and \$RTE_SLINK determine the type of FMP libraries that are used to build \$BIGLB.LIB and \$BGCDS.LIB. If \$RTE_NFS is set to T, \$UFMP and \$UCDS are used to build the libraries. These libraries offer support of symbolic links and the type 12 byte stream file type required by the file server functionality offered with the NS-ARPA/1000 or ARPA/1000 products. Setting \$RTE_NFS to T forces \$RTE_CDS and \$RTE_SLINK to also be set to T.

\$RTE_NFS controls whether the file server program FSRV will be linked by the install process and whether a system will support type 12 files. When building a system, \$RTE_NFS needs to be set to T if you are going to use the file server on the system or if you intend to use DS Transparency from the system you are building to read type 12 files on another RTE system.

- c. Use RTE_INSTALL to install RTE-A and VC+.

Set CI variables to the directories containing the revision 6210 relocatables for RTE-A and VC+.

```
CI> set rte_a = /rte_a
CI> set vcplus = /vcplus
```

You can also install most of the subsystems at this time using the RTE_INSTALL.CMD file. The product installation is controlled by CI variables that contain the directory path for the relocatables product being installed. For more information about the RTE_INSTALL.CMD file, see Chapter 4 of this document or consult the 6.2 version of the *RTE-A System Generation and Installation Manual* (part number 92077-90034).

Caution RTE-INSTALL.CMD can only install the 6.2x revisions of the subsystem products.

Caution Note that RTEA1.CMD, which is called by RTE_INSTALL, can be used to build the target libraries in a directory other than /LIBRARIES; but, you must make sure that the default library search path specified in your snap file matches the target library directory. Otherwise, RTEA1.CMD will build the new libraries in the specified target, but, LINK will use the old existing libraries to build the target programs. If you need to build and use different libraries refer to instructions within the RTE_INSTALL.CMD file.

For example, to also install the LP spooler and NS/1000 subsystems, set the product variables to the directories containing the revision 6210 relocatables.

```
CI> set lp = /vcplus/lp
CI> set ns1000 = /ns1000
```

Now transfer to RTE_INSTALL to install the new revision.

```
CI> /rte_a/rte_install, /gen/rev621/rtea621.snp, /rte_a, Q, I
```

Note

RTE_INSTALL.COMD manages the calling of RTEA1.COMD, RTEA2.COMD, VC1.COMD, and VC2.COMD. When the installation parameters are displayed, RTEA1.COMD will show “Transfer to RTEA2.COMD = NO”, and VC1.COMD will show “Transfer to VC2.COMD = NO”. This is because these files will complete under the direction of RTE_INSTALL.COMD, not RTEA1.COMD and VC1.COMD.

7. BUILD your 6.21 memory-based system (if needed).**8. Copy new system and snap files to the bootable LU.**

For a bootable LU 16 as a FMGR cartridge, use the following:

```
CI> wd, /gen/rev621
CI> co rtea621.snp snp621::16
CI> co rtea621.sys sys621::16
```

If your bootable LU is a CI volume, or if you are booting from a CI volume but your BOOTEX is on a FMGR cartridge, then you will need to copy the system and snap files to the /SYSTEM directory.

9. Prepare to boot the 6.21 system.

- a. Set up the boot command file (usually BOOT.COMD) and Welcome file (usually WELCOME n .CMD where n is a number from 1-99). Copies of your 6.1 or 6.2 boot command and welcome files can be used. Place these files on your bootable LU and on /SYSTEM, respectively. Be sure to specify your 6.21 system and snap files in the boot command file.

It is recommended you comment out any references to subsystem and application start-up at this time. After you have successfully booted your RTE-A/VC+ system, you can remove the comments and bring up your subsystems and applications.

- b. Set up the /PROGRAMS directory.

After doing this, you will no longer be able to boot your old system. If you wish to have a way to boot the 6.1 or 6.2 system again in case your 6.21 system does not boot correctly, you need to make another boot.cmd file and another welcome file. You should use your existing 6.1 or 6.2 boot.cmd and welcome files for this step. In the boot.cmd file, you need to access all programs in the /OLD_PROGS directory. Be sure to RP CIX from the /OLD_PROGS directory in the boot command file. In the welcome file, the following two lines must be added at the top:

```
rn /programs /targetprograms
rn /old_progs /programs
```

To set up the /PROGRAMS directory for 6.21, use the following:

```
CI> wd /programs
CI> rn /programs /old_progs
CI> rn /targetprograms /programs
```

10. If running DATAPAIR/1000, then run PREPAIR on the 6.21 system file.

Systems running DataPair/1000 must be processed by the PREPAIR utility before booting.

11. Boot your 6.21 system.

If you placed your BOOTEX at sector 0, your bootstring will look something like this:

```
VCP> %BDC27<boot command filename>
```

Note

Perform the following steps only if you are satisfied that your new 6.21 system is working.

12. Load Security/1000.

There are two programs that must be loaded, SECTL and STGEN, for Security/1000. If you used the VC+ transfer files VC1.CMD and VC2.CMD, then these programs should already be loaded.

13. Initialize Security/1000.

To initialize and turn on the security each time the system is booted, the following line *must be the first command* in the Welcome file:

```
ru,sect1,+in[:<snap file name>,+on
```

If the snap file name is not supplied, `/system/snap.snp` will be the default name used. For more details please refer to the *RTE-A System Manager's Manual* (part number 92077-90056).

14. Load other RTE subsystem software.

Load any subsystems needed for your RTE-A/VC+ system, such as languages, networking, DEBUG/1000, Mail/1000, and so forth, if you did not already do so in step 6.c. Note that the CDS version of a subsystem should be loaded if it is available and the subsystem will support type 12 files.

For more information about using the new RTE_INSTALL.CMD file to load subsystem software, see the 6.2 revision of the *RTE-A System Generation and Installation Manual* (part number 92077-90034) or Chapter 4 of this document.

15. Relink your own application software.

Although not required to operate, it is recommended that any user applications that use the networking software be relinked to realize the benefits of this 6.21 release. Relinking all applications and servers that use TCP/IP is highly recommended because some platforms will not communicate with the HP 1000 without this update.

16. Back up your new system.

- a.** Build a new memory-based ARSTR system. Using the 6.21 BUILD, ARSTR, and the current 6.21 system and snap files, create the type 1 file holding the memory-based system. Use CI's "CO" command to copy that file to magnetic tape (or use CSYS to put it on Linus tape) and then put this tape in a safe place to be used for restoring the system if you have a disk crash. You should check to see that you can boot the ARSTR system from the tape you just made.
- b.** Before this new 6.21 system is complete, make an ASAVE of your system that you can restore in the case of a disk crash.

See the *RTE-A Backup and Disk Formatting Utilities Reference Manual*, part number 92077-90249, for details on the above utilities.

This completes the update. The new system is now generated, installed, verified, and backed up.

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