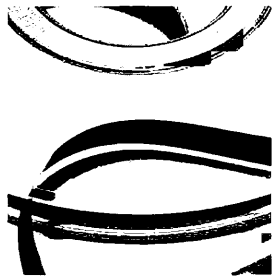
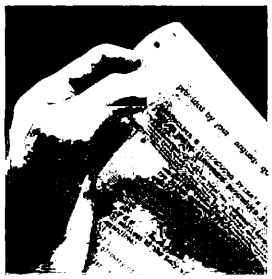
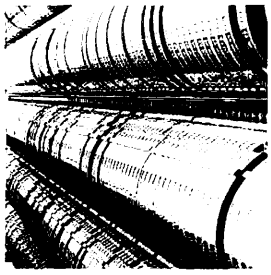
Prime Computer, Inc.

DOC6053-3LA
Remote Job Entry
Phase II Guide

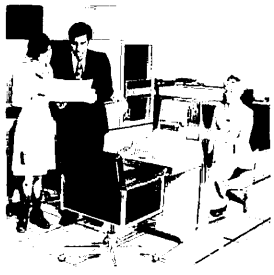









Remote Job Entry Phase II Guide

Third Edition

by
Paul F. Ganley

This guide documents the software operation of the Prime Computer and its supporting systems and utilities as implemented at Master Disk Revision Level 20.0 (Rev. 20.0).

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Contents

About This Book

The Remote Job Entry Phase II Guide describes the function and operation of Prime's Remote Job Entry emulators at Revision 20.0. PRIME/SNA™ RJE is an Independent Product Release (IPR) that may also run on PRIMOS® Revision 19.4.

- Chapter 1 briefly describes the Prime emulator products and how RJE emulation works.
- Chapter 2 briefly describes the the Remote Job Queue (RJQ) Command User Interface program, which allows users to queue files for transmission to remote hosts and to check the status of various job queues.
- Chapter 3 describes the RJOP (Remote Job Operator) Command Operator Interface program for setting up and monitoring an emulator system.
- Chapter 4 describes the syntax and functions of the RJOP commands.
- Chapter 5 explains how the PRIME/SNA family of products supports emulation of the IBM 3770 Series RJE workstation.
- Chapter 6 presents the general structure of Phase II Emulators and describes the process of installing one on a Prime system.
- Chapter 7 presents typical areas where common errors occur both at the user and the operator level.

- Appendix A gives guidance on using and writing EOFDET/DSTDET routines.
- Appendix B describes the protocol handler COMO file messages.
- Appendix C describes the worker log file messages.
- Appendix D describes the SNA/RJE Command messages.
- Appendix E lists the Phase II files and suggested minimum PRIMOS Revision 20.0 Access Control Lists (ACLs) protection/rights for each file. Listings are organized into three file accessor categories: RJE System Installer, RJE Operator, and RJE Users submitting file transfer jobs.
- Appendix F lists the PRIMOS Revision 20.0 translation tables.
- Appendix G provides Prime Site Definition File (SDF) examples.
- Appendix H provides background information on the operation of SNA networks.

Associated Books

This book contains the information you need to set up and use Prime's RJE Phase II emulators.

It is also recommended that every Prime site have the following set of documents available for reference:

- The Prime User's Guide (DOC4130-4LA)
- The System Administrator's Guide (DOC5037-3LA)
- The PRIMOS Commands Reference Guide (FDR3108-5LA)
- The ICS2 User's Guide (DOC10044-2LA)
- The Advanced Programmer's Guide, Volume 0: Introduction and Error Codes (DOC10066-1LA)

In addition if you are running the PRIME/SNA RJE product you should have the following documents for reference.

- The PRIME/SNA Operator's Guide (DOC8909-2LA)
- The PRIME/SNA Administrator's Guide (DOC8908-2LA)

PRIME DOCUMENTATION CONVENTIONS

The following conventions are used in command formats, statement formats, and in examples throughout this document. Command and statement formats show the syntax of commands. Examples illustrate the uses of these commands and statements in typical applications. Terminal input may be entered in either uppercase or lowercase, except where explicitly prescribed as one or the other.

Convention	Explanation	Example
UPPERCASE	In command formats, words in uppercase indicate the actual names of commands, statements, and keywords. They can generally be entered in either uppercase or lowercase.	TOSITE tosite
Abbreviations	If a command or statement has an abbreviation, it is indicated by underlining.	CONCAT
Lowercase	In command formats, words in lowercase indicate items for which the user must substitute a suitable value.	ABTJCL string
underlining in examples	In examples, user input is underlined but system prompts and output are not.	SYS> RJQ -CANCEL 9 RJ0009 has been canceled. SYS>
Brackets [ ]	Brackets enclose a list of one or more optional items. Choose none, one, or more of these items (0 to n).	RJQ -LIST [entry list -TO queuename -WITH protocol -DEFER time]

Braces { }	Braces enclose a vertical list of items. Choose one and only one of these items.	CODE { ASCII BCD BCD2 EBCDIC XS3 }
Default Indicator ●	In a list of options, the default choice, if one exists, is indicated by a bullet "●". If the user selects no options, the system automatically chooses the default option.	PUNCH CPn [{ TRANSLATE BINARY SPOOL● }]
Hyphen -	Wherever a hyphen appears in a command line option, it is a required part of that option.	RJQ -RESET RJ0001
(CR)	The (CR) symbol indicates a single carriage return, which is generated by hitting the RETURN key on most terminals.	SIA> OPMESS SIA: "First Line" SIA: "Second Line" SIA: "Last Line" SIA: (CR) SIA>

Note

Where braces are used inside brackets, for example:

DELSITE [{ sitename
ALL }]

only one, if any, of the enclosed items can be chosen.

1

RJE Phase II Emulators

INTRODUCTION

Prime's Remote Job Entry (RJE) emulator products allow Prime systems to emulate IBM, CDC, Univac, Honeywell, and ICL remote job entry terminals. This enables communications between a Prime system and a host (mainframe) computer.

Communications are usually accomplished via the transfer of files from one system to another. These files are normally batch jobs for execution by the host. The host's output from processing these jobs is also in the form of files, which are returned to the Prime system.

How RJE Emulation Works

The Prime RJE Phase II communications emulators allow a Prime computer to emulate any of these remote job entry terminals:

Vendor	Terminal
IBM	3776-3 SNA RJE Workstation 2780 Data Transmission Terminal 3780 Data Communication Terminal HASP (Houston Automatic Spooling Program) Workstation
CDC	200UT (User Terminal)

Vendor	Terminal
Honeywell	GRTS (General Remote Terminal Supervisor)
Univac	1004 Remote Batch Terminal
ICL	7020 Remote Batch Terminal C03 (XBM RJE protocol)

Prime RJE emulation is accomplished by connecting the Prime system (emulator) to the host via a synchronous communications link — often a standard telephone line. The Prime system can queue the jobs to be sent to run on the host and receive the output from those jobs. By appearing to the host as one of its standard RJE terminals, the Prime system can appear to a Univac host as a 1004 Remote Batch Terminal; to a Honeywell host it can appear as a GRTS RJE Terminal, and so forth.

Prime's emulators have many advantages over the RJE systems they emulate:

- Through time sharing, an emulator runs concurrently with ordinary local work in the Prime machine, and with other emulators.
- The Prime emulators can communicate with multiple host sites simultaneously. This is not normally possible with standard RJE stations or terminals.
- Jobs or files can be submitted to Prime RJE for transmission from terminals that are directly connected, connected via modems, and connected via PRIMENET™. Prime RJE does not require a dedicated terminal for operation.
- Several emulators can be controlled from a single terminal. When no interactive RJE activity is required, the emulators will run in the background without connection to a terminal.

Prime's various RJE emulators are a consistent set of user software, whose major facilities and commands are common to all of the emulators. In addition to these general facilities, each emulator has specific commands that enable the user or operator to communicate with the particular type of host machine for that emulator.

EMULATOR OPERATION OVERVIEW

Emulator operation involves five major software modules:

- RJQ (Remote Job Queuing) Command User Interface Program
- RJOP (Remote Job Operator) Command Operator Interface Program

- Worker Translation/Line Control Process
- Protocol Handler Process (RJPROC or symbiont)
- PRIME/SNA Server (substitutes for the protocol handler in PRIME/SNA RJE)

The primary functions of these modules and their relationship to each other are described below.

THE RJQ COMMAND PROGRAM

The RJQ Command program, invoked via the PRIMOS level RJQ command, enables the user to queue a file for transmission to a specific remote site. The general RJQ command line format is:

```
RJQ  pathname  [-TO]  { queuename }
                      { sitename  }
```

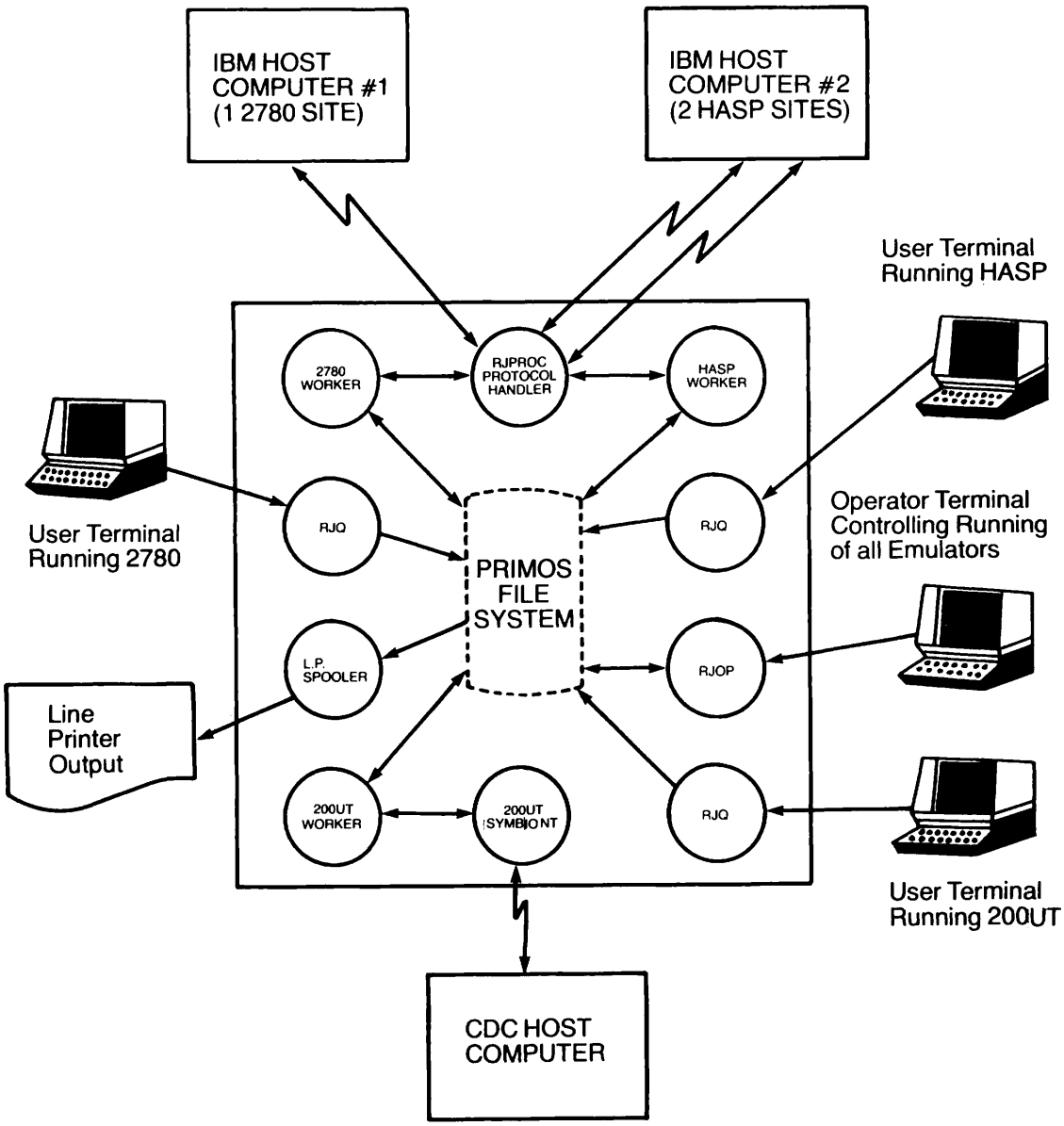
These additional RJQ commands allow the user to examine and modify the RJE general and specific queues of files waiting to be transmitted:

Command	Function
RJQ -LIST	Lists all RJQ queues
RJQ -CANCEL	Deletes queue entries
RJQ -RESET	Restarts aborted queue entries
RJQ (with no command line options)	Builds concatenated files

See Chapter 2 for more information about the RJQ command and its options.

THE RJOP COMMAND PROGRAM

The RJOP Command program enables the operator to interface with the worker module when interactive communication is required in order to control and monitor one or more emulators. When no interface is required, the RJOP need not be running, which frees the terminal for other uses. The dynamic nature of the RJOP also enables it to talk to more than one worker at a time. Figure 1-1 shows the location of the RJOP in the communications process of Phase II RJE emulation.



Typical Prime RJE Phase II Emulator Configuration
Figure 1-1

The RJOP program is invoked via the PRIMOS level RJOP command, whose general command line format is:

```
RJOP
```

This invokes an RJOP subsystem command mode indicated by the program's display of various subsystem prompts such as >.

RJOP handles input from:

- A terminal
- An RJE Site Definition File (SDF)
- A COMINPUT file (started internally using the RJOP's COMINPUT command, or externally under PRIMOS)
- A CPL file

RJOP initiates the running of the worker and the protocol handler. RJOP also displays any messages from those processes. During an emulator run, the RJOP can be used to control and monitor the transmission and reception of files, and to send operator messages to the remote machine. In the case of PRIME/SNA RJE, the running of the PRIME/SNA Server is not controlled by the RJOP. Instead, the PRIME/SNA Server is controlled by separate PRIMOS level commands.

To run an emulator, use the RJOP to bring in the appropriate worker and the appropriate protocol handler. For PRIME/SNA RJE, invoke the PRIME/SNA Server before using RJOP to invoke the PRIME/SNA RJE worker. Then ensure that the connection is made to the remote machine. Finally, exit from the RJOP, leaving the emulator running in the background. Later, when the run is to be terminated, or when some special message has to be sent to the remote machine, the RJOP can be reinvoked, reestablishing communication with the worker.

However, by running multiple RJOPs more than one emulator can be run, with each being controlled from a separate terminal. It is also possible to run more than one RJOP talking to a single emulator. The single restriction for non-SNA emulators is that only one RJOP may control the running of each synchronous controller line.

All the facilities available in the RJQ command are also available from within the RJOP, enabling the operator to queue files for transmission and to examine the RJE queues. Additionally, the RJOP provides the operator with commands to manipulate the RJE queues and to control access to those queues.

Chapter 3 describes the RJOP command and its subsystem commands in detail. If you are running the PRIME/SNA RJE Subsystem, refer to Chapters 2, 3, 4, and 5 for more information.

THE WORKER PROCESS

The worker process checks the RJE queue for the next file to be transmitted by the particular emulator associated with that worker. Having determined the next file, the worker reads the file, performs the necessary code translation and formatting, and passes the data to the protocol handler or to the PRIME/SNA Server for transmission to the remote machine. The worker also takes data received by the protocol handler or the PRIME/SNA Server from the remote machine, does the code translation as specified, and writes the received data to the appropriate place; for example, the printer spool queue and the punch card directory.

There is a separate worker for each of the Prime RJE emulators, but each of the workers interfaces to a standard RJOP. This means that more than one worker may be connected to an RJOP at any time. Alternatively, each worker may be run by its own dedicated RJOP, if this is more convenient to the operator(s). A single worker may also be run by multiple RJOPs.

THE PROTOCOL HANDLER PROCESS

The protocol handler process communicates with the remote host via a communications link. It transmits data to, and receives data from, one or more remote machines using the appropriate protocol. Each protocol handler is designed to appear to the remote machine as a particular remote job entry terminal, but each protocol handler may communicate with several machines at the same time, which are all running the same protocol.

RJPROC

The 2780, 3780, GRTS, HASP, and XBM emulators share a common PRIMOS Ring 0 protocol handler process, also event driven, called the RJPROC Line Driver. RJPROC consists of:

- The Event Handler
- The specific code to process each protocol
- The supporting line routines

As shown in Figure 1-2, RJPROC communicates with its workers via the Ring 0 RJI (Remote Job Interface).

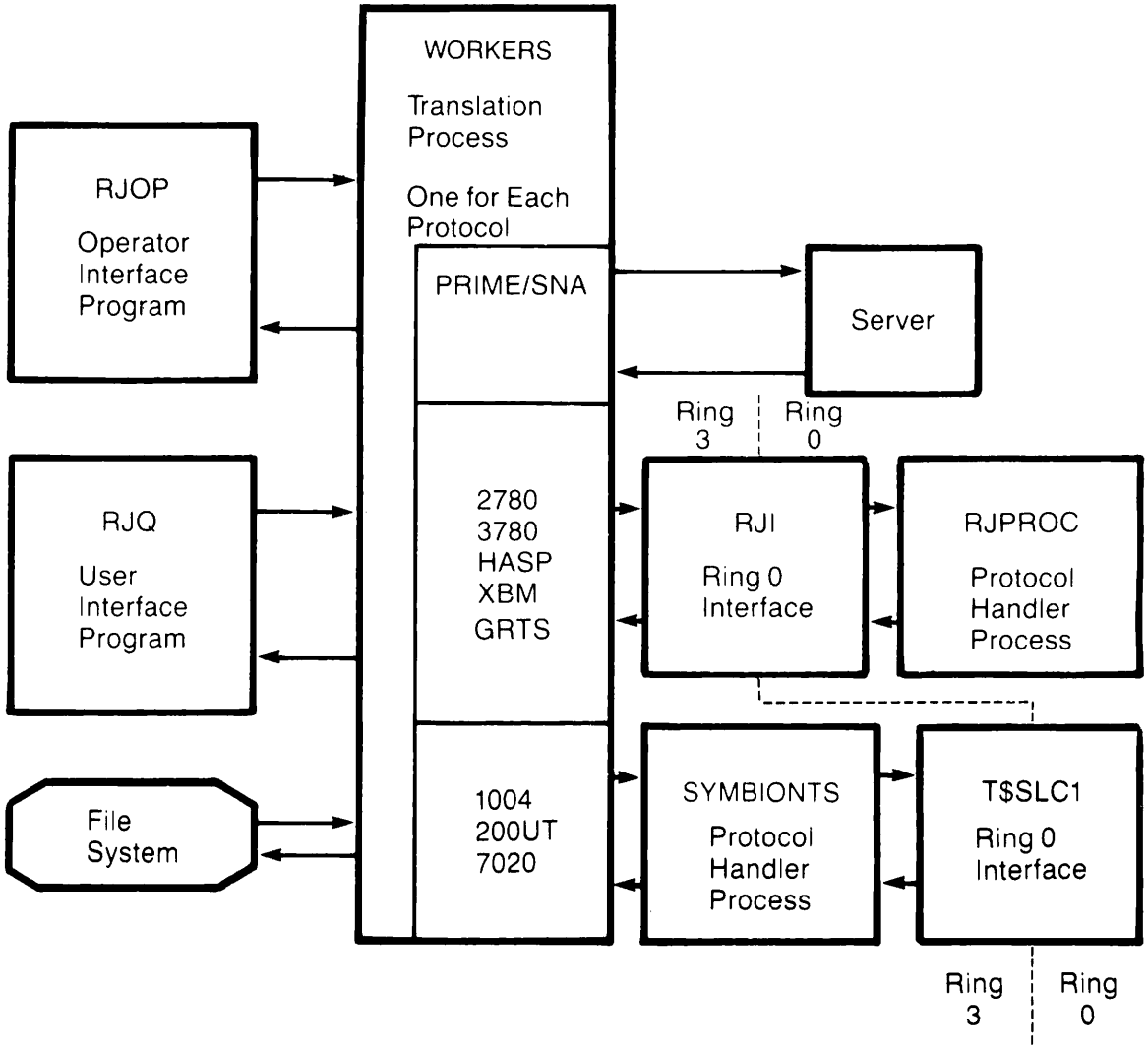
Symbionts

In the case of 200UT, 7020, and 1004 emulators, protocol handling is performed by three separate PRIMOS Ring 3 processes known as symbionts. Symbionts are event-driven processes. When a message arrives from a remote host, it triggers a response from the symbiont associated with the protocol in operation. Typical events include operator commands from the worker, timeouts, synchronous controller status changes, and received/transmitted message block detection. Each symbiont — through the PRIMOS Ring 0 interface T$SLC1 — can handle up to four lines and is capable of double buffering the received and transmitted data, thus minimizing line turnaround time.

THE PRIME/SNA SERVER

PRIME/SNA RJE uses the PRIME/SNA Server in place of the protocol handler. The PRIME/SNA Server manages the communication between an IBM host in an SNA network and PRIME/SNA RJE. If you are running the PRIME/SNA RJE worker, the PRIME/SNA Server forms a logical substitute for the protocol handler process.

See Chapter 5 for more information about PRIME/SNA RJE. Also refer to the appropriate Server chapters in the PRIME/SNA Administrator's Guide and the PRIME/SNA Operator's Guide.



Prime RJE Phase II Emulation Showing PRIME/SNA RJE Modules
Figure 1-2

Protocol Handler Summary

The RJPROC Line Driver is a system process able to handle multiple protocols, and up to eight lines at a time, whereas a symbiont can handle a maximum of four lines at a time. For example, three different emulators may be running at the same time on the same Prime system, all controlled by one RJOP. The 2780 uses one line to IBM host number 1, and the HASP uses two lines to IBM host number 2. The 200UT has a single line to a CDC host. Both the 2780 and the HASP protocol operations are handled by the RJPROC Line Driver. The protocol operations of the 200UT are handled by its own symbiont.

Although the protocol handlers vary among emulators as described, the basic commands for running Prime's RJE Phase II emulators are common to

all of them. You need not be concerned with the nature of the protocol handler for the particular emulator you are using.

PRIME/SNA RJE uses the PRIME/SNA Server in place of RJPROC. The PRIME/SNA Server manages the logical mapping of a PRIME/SNA site to a remote system. In the case of SNA, many remote systems can be supported on one physical line, or they can be distributed over a number of physical lines. In addition, remote systems for the PRIME/SNA RJE Subsystem may share the same physical line as the PRIME/SNA Interactive Subsystem. This is a major difference compared with the other RJE emulators.

2
The RJQ Command

INTRODUCTION

The RJQ Command User Interface program in PRIME/SNA RJE allows users of any emulator to:

- Queue files for transmission to a remote site
- Obtain a list of the RJE general queue and specific queues
- Cancel unwanted file entries from queues
- Restart aborted file transmissions
- Build concatenated files

This chapter describes the minimum options in RJQ and additional options allowable in the RJQ command line to queue a file for transmission. The other RJQ command capabilities are then presented.

If you are using the PRIME/SNA RJE emulator you will find that there are variations in the command options. This chapter discusses those differences and new RJQ capabilities for the PRIME/SNA RJE Subsystem.

QUEUING A FILE (MINIMUM OPTIONS)

If you are queuing a file for transmission, the RJQ command line is typed as follows.

RJQ pathname [-TO] { queuename | sitename }

Argument	Description
pathname	A PRIMOS pathname for the file containing the user data to be queued for transmission to a remote site. If just a filename is specified, the system assumes the file to be in the currently attached directory. If the -NO_COPY option (see the section entitled Queuing a File (Additional Options) is not present, a temporary copy of the file will be made. This copy will be queued for transmission, thus allowing the original file to then be modified or deleted. If the -NO_COPY option is present, the pathname must be fully qualified; that is, it must contain all necessary passwords and no *. No copy of the file will be made, but an entry for it will be created on the appropriate transmission queue. Before subsequently modifying or deleting the file, the user should first determine that the file has been sent. (See the RJQ -LIST command in the section entitled Listing the RJE General Queue and Specific Queues.)
queuename	A valid queuename for the remote site to which the file is to be sent. A queuename can be one to eight characters in length. The RJE operator can create and associate this name with a remote site's sitename by using the RJOP's QUEUE ADD command. The sitename is one to four characters in length. The operator specifies a sitename for a remote site when creating a site definition file for the site, as described in Chapter 3. The default queuename for a site is the sitename as created by the operator in the site's site definition file. Until additional queuenames have been created via RJOP, they are unknown to the rest of the system. This minimizes the possibility of files being queued for nonexistent sites. Files may, however, be queued for a site that is not currently running, provided the queue exists. If the queuename appears as the third item in the RJQ command line, the -TO need not be supplied.

User/System Dialog Examples

In the following examples of user/system dialog in an RJQ operation, user input is underlined. Explanations of the operations performed are provided using comment lines that begin with /*. These comments are entered at the PRIMOS level.

```
/*  ------------------------------------------------------------ */
/*  Submit file PAYCHECK-JOB to queue IBM3.

OK, RJQ PAYCHECK-JOB  IBM3
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

Your RJE Transmit queue entry is RJ0001

/*  ------------------------------------------------------------ */
/*  Submit file FRIDAY from UFD DAY-JOBS to queue CDCX.
/*  Note that the use of the option -TO, has no effect and
/*  is provided for compatibility with older RJE products.

OK, RJQ DAY-JOBS>FRIDAY -TO CDCX
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

Your RJE Transmit queue entry is RJ0002
```

QUEUING A FILE (ADDITIONAL OPTIONS)

The full allowable syntax of the RJQ command line for queuing a file is as follows:

Command Line	Option
RJQ pathname [-TO] queuename	-WITH protocol -DEFER time -NO_COPY -DELETE -NO_TRANSLATE -AS internal-name -DEVICE { CRn | LPn | CPn } -VFC [{ NONE● | FTN }] -KEEP_REQUEST -LU lu_port_name -MEDSUB med_subaddress

Option	Description
-WITH protocol	Ensures that the worker will check that protocol matches the protocol identified in the site definition file before sending the file. Valid protocol names are SNA, 2780, 3780, HASP, GRTS, 7020, XBM, 1004, and 200UT.
-DEFER time	Delays transmission until the specified time is reached. The time is in 24-hour hh:mm format (colon is optional).
-NO_COPY	Inhibits a temporary copy of the user data from being made and queued for transmission. The original file will still be checked to verify that the pathname supplied is valid. Remember that the pathname must be fully qualified. It will not be displayed with passwords by RJQ -LIST.
-DELETE	Deletes the user's source file after the queue entry has been successfully made. If the -NO_COPY option has also been specified, the file will be deleted after it has been sent.
-NO_TRANSLATE	Sends the file without translation. For PRIME/SNA RJE this option only applies to card medium data. If specified, it indicates that at the beginning of each transmitted data record, PRIME/SNA RJE inserts a special SNA Character String (SCS) control character (TRN or transparent) with an associated count indicating that the record contains transparent data. Transparent data consists of control or formatting characters that the user wants to pass unprocessed to the end user. For example, this allows binary numbers to be sent without the possibility of a binary number being misinterpreted as text. Transparent data does not undergo translation from ASCII to EBCDIC before being transmitted to the host system.

Option	Description
-AS alias	Defines the name that will appear in the name field when RJQ -LIST is typed where n = Device Number 1-7. If this name is not supplied, the pathname will be printed without passwords.
-DEVICE { CRn / LPn / CPn }	Defines the device that the file is being sent to or from. In slave (emulator) mode, files may only be sent as card reader (CR) input. In master (host) mode, a file may be sent to a remote line printer (LP) or a remote card punch (CP). In HASP and XBM, there may be more than one of each type of device on the system (for example, LP3). The PRIME/SNA RJE emulator does not support this option.

Note

For card reader data, records over 80 characters in length are truncated. Line printer data is truncated when it is greater than the value specified in the site definition width command. (See Chapter 3 for more information about truncated data records.)

-VFC [{ NONE● / FTN }]	Defines the vertical forms translation codes to be sent with line printer files in master (host) mode. In 2780, 3780 and HASP, the protocol defines special carriage control codes for printers. The Forms Translation (FTN) argument is supported only for 2780, 3780, and HASP emulators. The NONE argument causes no forms control information to be sent; however, a line feed is sent after each line. (Prime Spooler code translation is not supported.) The PRIME/SNA RJE emulator does not support this option.
-KEEP_REQUEST	Stops the emulator from deleting the queue entry after transmission, but marks the entry as Sent in the queue.

Option	Description
-LU lu_port_name	Defines the LU-LU session on which a file should be sent. The LU port name must be an LU port defined in the site definition file and the SNA configuration file. If the -LU option is not specified with the RJQ -TO command, the option defaults to any available LU-LU session. This option is valid for the PRIME/SNA RJE emulator only.
-MEDSUB med/subaddress	A two- or three-character code (medium/subaddress) that identifies a logical address at a remote system. This option is only supported for the PRIME/SNA RJE emulator. The first character indicates the medium as follows: K = Console C = Card E = Exchange Data The next two numbers indicate the subaddress with possible values between 0 and 15. If no medium/subaddress is specified with the RJE -TO command, the medium/subaddress defaults to medium card subaddress 0. This option is valid for the PRIME/SNA RJE emulator only. This option is mutually exclusive with the -DEVICE option, which is not used by the PRIME/SNA RJE Subsystem.

Examples

```
/*  ------------------------------------------------------------ */
/*  Submit file HAPPY-JOB in the current directory to queue
/*  CDCX, defer transmission until after 16.00 hours.

OK, RJQ HAPPY-JOB CDCX -DEFER 16:00
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

Your RJE Transmit queue entry is RJ0003

/*  ------------------------------------------------------------ */
/*  Submit file BIG-JOB from UFD STUFF to queue BIRD.  The
/*  user has decided that the file is too big to be moved
/*  into the queue, so only a pointer to the file is
/*  entered by using the -NO_COPY option.  In this example,
/*  PRIME/SNA RJE is acting as the host, and queuename BIRD
/*  represents a slave.  The user wants the job to be directed
/*  to line printer 3 with FORTRAN-style carriage control.

OK, RJQ STUFF>BIG-JOB -TO BIRD -NO_COPY -DEVICE LP3 -VFC FTN
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

Your RJE Transmit queue entry is RJ0004
```

LISTING THE RJE GENERAL QUEUE AND SPECIFIC QUEUES

Users may list queue entries using the RJQ -LIST command line:

```
RJQ -LIST [ entry list     ]
          | -TO queuename  |
          | -WITH protocol |
          [ -DEFER time    ]
```

The options are described below.

Option	Description
entry list	Can be one of the following:
OWN	Lists all the specific queue entries for file transmission requests submitted under the user's login name.
ALL	Lists all entries in the queue of submitted file transmission requests.
RJxxxx	Lists only the queue entry number xxxx.

Option	Description
xxxx,YYYY,zzzz	Lists only queue entries where xxxx,YYYY,zzzz are the numbers of the queue entries.

Note

If no entry list argument is supplied, ALL is assumed.

-TO queuename	Qualifies the list of queue entries to be displayed. Only entries that are in the specified queue will be listed.
-WITH protocol	Qualifies the list of queue entries to be displayed. Only those entries queued with the given protocol will be listed. In PRIME/SNA RJE you must enter SNA as the protocol type.
-DEFER time	Qualifies the list of queue entries to be displayed. Only those entries that are deferred beyond the specified time are listed. (If the time is not specified, the current time is assumed.) Time is specified in 24-hour hh:mm format.

Example

```
OK, RJQ -LIST
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

user  rj   name          size   qname    protcl dev opts defer state

BOB   0001 PAYCHECK-JO   1200   IBM3     HASP                    Sent
                          :  :   :
BOB   0002 DAY-JOBS>FR   6202   CDCX     HASP                    Sent
                          :  :   :
BOB   0003 HAPPY-JOB     12000  CDCX     HASP          16:00
                          :  :   :
SGGC  0005 JES2PUNCH      300   NOD1     SNA    ^C0              Aborted
                                         LU=11
                          :  :
SGGC  0006 JES2JOB       5621   NOD1     SNA    ^C2
                                         LU=10
                                    :    :
SGGC  0007 JES2FILE       905   NOD1     SNA

SANZ  0004 STUFF>BIG-J 1298762  BIRD     3780   LP3 FN           Aborted
                       789:BIRD: Aborted-By operator
```

In the example above, all entries in the general queue are listed because an entry list argument was not supplied.

The fields shown in the example are described in the following list:

Field	Description
user	The login name of the submitting user.
rj	The queue entry number.
name	The user-supplied internal name for the entry. This defaults to the filename of the file that was queued.
size	The size of the file in words (size = 0 when -NO_COPY is used).
qname	The queue to which the file was submitted.
protcl	The protocol with which the user requires the file to be sent.

Field	Description
dev	For the non-PRIME/SNA RJE emulators it represents the device to or from which the file is being transmitted. For PRIME/SNA RJE this field contains the medium/subaddress of the file being sent to the host. If this field represents the medium/subaddress the first character is a ^. This is followed by a character representing the medium; followed by a character representing the subaddress where subaddresses 0 through 9 are represented by the numbers 0 through 9 and subaddresses 10 through 15 are represented by the letters A through F.
opts	Other file options. The letters can be decoded using the following keys: C File is concatenated. B File contains binary data. N There is no temporary copy of the data. D The original has been deleted. F Translate FORTRAN carriage control to protocol specified in SDF.
defer	The defer time in hours and minutes.
state	The file status, if any, for the non-PRIME/SNA emulators. For PRIME/SNA-only state can be one of two items. It can define either the first two characters of the LU port name or if there is state information it will supply it. The state information will appear first with the first two characters of the LU port name following. The possible states are listed below: Blank — File was not sent. Opened — Emulator has opened the queue. Translated — Emulator has completed transmit file translation. Aborted — Emulator has aborted transmission. Sent — Emulator has completed transmission.

If the -LU lu_port_name option is used to queue the job for transmission there is an additional second line of status. This appears in the format LU=XX where XX represents the first two characters of the LU port name. This only appears on jobs bound for transmission by the PRIME/SNA RJE emulator.

The fields shown in the last line of the example (without headings) above are described in the following list:

Field	Description
Checkpoint	If the file is aborted, this is the number of words known to be transmitted. In this example, 789 is the number of words.
Sitename	The last site to successfully open the file. In this example, the sitename is BIRD.
Message	Additional information describing the file's condition. In this example, the transmission was aborted by the operator.

The following messages may appear when you are queuing files for transmission. Refer to Appendix D for RJQ messages needed for PRIME/SNA RJE.

- Warning - Can't send binary

  This message is displayed when transmission of binary data is attempted for an emulator that does not support transmission of binary data.

- Warning - Can't send this stream

  This message is displayed when an attempt has been made to transmit data on an illegal device.

- Aborted - By operator

  The file being transmitted has been aborted by the operator.

- Aborted - Unsolicited abort

  The file being transmitted has been aborted by the remote end.

- Aborted - By symbiont

  The symbiont has found an error in sending the file, so transmission of this file was aborted.

- Aborted - Can't send binary

  An attempt has been made to transmit binary data within a concatenated file. This is not allowed.

- Aborted - Can't translate

  An error has occurred in file transmission, so the file has been aborted.

- Aborted - BAD PASSWORD!!!

  An attempt has been made to open a file, using a treename supplied with the -NO COPY option, with a bad password. Transmission of the file has been aborted.

- Warning - Line too long

  The lengths of some lines in the transmit file are too long. They have been truncated to the maximum size allowed for this device. The line will be transmitted with the overlength line truncated. But, it will not be automatically removed from the transmit queue when the transmission is completed. This must be done manually.

- Warning - Can't read entry

  An error has occurred in reading an entry from the queue. The file will be transmitted with the overlength line truncated, but it will not be automatically removed from the transmit queue when transmission is completed. This must be done manually.

- Aborted - Can't read data

  An error has occurred in reading the file for transmission. The file has been aborted.

- Aborted - Null concat. file

  An attempt has been made to transmit a null concatenated file. The file has been aborted.

- Warning - Illegal chars. in file

  Illegal characters have been found in the transmit file.

When the list of files is more than 10 entries in length, the listing will not automatically continue after a page has been displayed. Instead the prompt:

```
DO YOU WANT NEXT PAGE?
```

will be displayed. If you want the next page of the listing displayed, type in YES or press RETURN. If you do not want the next page, type in QUIT or NO.

CANCELING UNWANTED QUEUE ENTRIES

Users may delete entries from the queue with the RJQ -CANCEL command line:

```
RJQ -CANCEL [ entry list      ]
            [ -TO queuename   ]
            [ -WITH protocol  ]
```

where:

Option	Description
entry list	See the discussion of RJQ -LIST earlier in this chapter. Users may only cancel queue entries that they personally have submitted. If the user is logged in as SYSTEM, this restriction is lifted. If the user is logged in as SYSTEM, the -CANCEL ALL option will cause all entries in the referenced queue to be canceled.
-TO queuename	Specifies which queuename the queue-entry-list is to be searched for. The default is to check all queues.
-WITH protocol	Qualifies the list of queuename entries to be canceled. Only queuename entries that have this protocol will be canceled. The default is to consider all protocols.

Unwanted Queue Entries Example

```
/*  ------------------------------------------------------------ */
/*  Use the -CANCEL option in RJQ to cancel (delete) RJ0002 and
/*  RJ0003 from the queue for CDCX.
/*  Then do an RJQ -LIST to display the results.

OK, RJQ -CANCEL 2 3
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

RJ0002 has been canceled
RJ0003 has been canceled


OK, RJQ -LIST
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

user  rj   name          size qname    protcl dev opts defer state

BOB   0001 PAYCHECK-JO   1200   IBM3    HASP                    Sent

SGGC  0005 JES2PUNCH      300   NOD1    SNA    ^C0              Aborted
                                          LU=11
                         : :
SGGC  0006 JES2JOB       5621   NOD1    SNA    ^C2
                                          LU= 10
                                     :    :
SGGC  0007 JES2FILE       905   NOD1    SNA

SANZ  0004 STUFF>BIG-J 1298762 BIRD    3780   LP3 FN           Aborted
                       789:BIRD: Aborted-By operator
```

RESTARTING ABORTED FILE TRANSMISSIONS

If there is an error while transmitting a file, its queue entry will be marked Aborted. The user or RJE operator may wish to reset the state so the file may be rescheduled for transmission. For this, the RJQ -RESET command is provided:

```
RJQ -RESET [ entry list      ]
           [ -TO queuename   ]
           [ -WITH protocol  ]
```

Option	Description
entry list	See the -LIST command above for valid options. Users may only reschedule their own entries. The ALL option will behave as if it were OWN.

Option	Description
-TO queuename	Qualifies the list of queue entries to be searched for an Aborted entry. Only entries in queuename will be rescheduled.
-WITH protocol	Only those entries that have the specified protocol will be rescheduled. In Prime SNA/RJE the protocol must be specified as SNA.

Aborted File Example

```
/*  ------------------------------------------------
/*  Use the RJQ -RESET option to mark an aborted job as
/*  available, then do an RJQ -LIST to display the results.

OK, RJQ -RESET RJ0004
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

RJ0004 has been restarted

OK, RJQ -LIST
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

user  rj   name          size qname   protcl dev opts defer state

BOB   0001 PAYCHECK-JO   1200   IBM3    HASP                  Sent

                         :  :   :
SANZ  0004 STUFF>BIG-J   1298762 BIRD   3780    LP3 FN        Aborted
                         :  :
SGGC  0005 JES2PUNCH      300   NOD1    SNA     ^C0           Aborted
                                        LU=11
                         :  :
SGGC  0006 JES2JOB       5621   NOD1    SNA     ^C2
                                        LU=10
                                    :   :
SGGC  0007 JES2FILE       905   NOD1    SNA
```

BUILDING CONCATENATED FILES

To submit files to remote sites, it is often necessary to prefix the file with some JCL (job control language) to describe what follows. In addition, it is useful to be able to fit several files together to form one job.

For these reasons, an interactive mode is provided within RJQ to build concatenated files. It is entered by typing RJQ with no command line options, as shown in this example:

```
OK, RJQ
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

Concat. > /*File concatenation mode has now been entered.
```

As shown, RJQ will return the subsystem prompt Concat. >.

The following commands build the concatenated file. Data is appended to the file in the order that the commands are typed.

Command	Argument	Description
TEXT	pathname	The contents of the file referenced by the PRIMOS pathname specified will be appended to the concatenated file.
BINARY	pathname	The contents of the file referenced by the PRIMOS pathname specified will be appended to the concatenated file, and marked so this data will be sent untranslated. The BINARY command for PRIME/SNA RJE informs RJQ that the pathname of the file should not be translated to EBCDIC before transmission to the host system. PRIME/SNA precedes every record transmitted with an SCS TRN control character and associated count that indicates the presence of transparent data in the record. The BINARY command is only valid for card medium data when applied to PRIME/SNA emulation. This function is the same as the -NO_TRANSLATE option for sending a single file.
JCL		This mode is distinguished by a new prompt, JCL>. All lines of text typed while in this mode will be appended to the concatenated file as if they were text. Exit concatenated mode by entering either a null line (a single carriage return), which returns the terminal to concatenated mode, or >QUIT, which deletes the JCL text previously entered and then returns the terminal to concatenated mode.

The following two commands are used to exit from the file concatenation utility:

Command	Argument	Description
QUIT		Exits from the file concatenation utility, abandons the job built up so far, and returns the terminal to the PRIMOS command level.
SEND	rjq options	Exits from the file concatenation utility if the concatenated file is successfully queued with the options provided and returns to the PRIMOS command level. If the file is not queued, the user is provided with an opportunity to retry the operation. The SEND command supports the new options of the PRIME/SNA RJE -TO commands described earlier in the chapter. The -NO_TRANSLATE option is not supported in concatenation mode as its function is performed by the BINARY command.

The remaining two commands are supplied for your convenience.

ABTJCL	string	Modifies the JCL mode escape string used to delete the text typed previously in JCL mode. It then returns the terminal to concatenated mode without abandoning the entire job built up so far. The escape string can be one to eight alphanumeric characters entered as all uppercase, all lowercase, or any combination. The default value for the string is: >QUIT (all characters in uppercase). When JCL mode is entered, the escape string is displayed in the second of two information lines. (See the example below.)
HELP	option	Invokes the RJOP HELP facility. (See Chapter 3 for more information about HELP.)

Concatenated File Example

```
/*  ------------------------------------------------------------
/*  Use the concatenated mode of RJQ to build a job and submit
/*  it to queue IBM3.  The job is composed of some JCL entered
/*  by the user, a binary file, a text file, and some more JCL.
/*  The user specifies that the job is not to be transmitted
/*  before 17:00 hours.

OK, RJQ
[RJQ Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

Concat. > JCL
To finish JCL entry, type an empty line
To abort JCL entry, type >QUIT

Jcl > //STARTJOB,ACCOUNT=TUNAFISH,REMOTE=SANDWICH,REMOTE=99
Jcl > $$EXEC BUILD.MASTER.FILE
Jcl > DD 33 MOOSE.HEAD,INPUT
Jcl > $$ASSIGN TAPE,XYZZY
Jcl > //NEARLY END.OF.JOB
Jcl > //ALMOST END.OF.JOB
Jcl > //ENDJOB
Jcl >
Concat. > BINARY PLOTTER DATA.BIN
Concat. > TEXT BANNER DATA.RUNO
Concat. > JCL

To finish JCL entry, type an empty line
To abort JCL entry, type >QUIT

Jcl > //LASTCARD
Jcl >
Concat. > SEND -TO IBM3 -DEFER 17:00

Your RJE Transmit queue entry is RJ0002
```

3

The RJOP Command

INTRODUCTION

As explained in Chapter 1, the RJOP Command Operator Interface program is used to initiate, control, and monitor the running of an emulator system. This chapter describes the environment of the RJOP and the commands available for setting up and managing sites.

DEFINING A SITE

A site is usually another computer, but can also be a collection of communications equipment, such as an RJE station. A site is made known to the Prime emulator software through a site definition file that describes certain characteristics of the site, including its sitename. If one remote computer communicates with the PRIME/SNA RJE emulator over more than one communications line, the remote computer will possess more than one site and will be known by more than one sitename. Each of the three symbiont-style emulators (that is, 200UT, 1004, and 7020) support up to four sites, and each of the RJPROC-style ones (2780/3780, HASP, GRTS, and XBM) support up to eight sites. PRIME/SNA RJE supports up to eight sites. In addition, PRIME/SNA RJE by the nature of SNA/SDLC can support more than one site on a single communications line.

RJE Phase II software imposes no limit on the number of PRIME/SNA RJE site definition files you can create. However, only 32 RJE Phase II sites can be active at once, and a maximum of eight may be active for a single RJOP.

A Site Definition File (SDF) contains a set of RJOP commands that specify the attributes of a remote site. The name of the file is the same as the sitename. All site definition files are kept in the UFD RJSPLQ*>SDF. For example, the attributes of the site IBM1 would be held in the file RJSPLQ*>SDF>IBM1. Every site must have a corresponding site definition file that exists in the UFD RJSPLQ*>SDF.

Commands for Site Definition

This section discusses some of the commands typically used for creating a site definition file (SDF). A full list of SDF commands and their use with specific emulators is given at the end of this chapter.

The first requirement for an SDF is the name of the site being defined. Use the DEFSITE command to define this. For example:

```
DEFSITE SYS
```

indicates that SYS is the name of the site being defined. Note that the name of the site being defined must be the same as the name of the SDF in which the DEFSITE command appears.

When defining an SDF, the first command issued is DEFSITE. The parameters for this site are then defined. After all the necessary definitions have been entered, use the ENDSITE command to terminate the definition sequence.

Between the DEFSITE and ENDSITE commands, a series of commands define:

- The attributes of the computer with which the Prime emulator will communicate
- How the two computers will communicate
- How the worker process will modify data before sending it to or after receiving it from the other computer

Because there are no defaults for the site definition parameters located between the DEFSITE and the ENDSITE commands, all site definition commands relevant to the particular emulator must be specified. When the SDF is first read via the TOSITE command (described later in this chapter), any errors in the construction of the SDF are reported to the RJOP operator when the ENDSITE command is encountered.

CONNECT is a site specific command that must immediately follow the ENDSITE command in the SDF except for PRIME/SNA RJE. It specifies the logical-synchronous-line number to be used with this site. The CONNECT command, also associates the site defined in the DEFSITE command with

an HSSMLC/MDLC line number. PRIME/SNA RJE does not support the CONNECT command because line configuration is handled by the PRIME/SNA Server.

The site definition file may optionally contain initialization commands following the CONNECT command (or the ENDSITE command for PRIME/SNA RJE). Typically, the SIGNON command is defined here, statistics recording is turned on, and so forth.

Sample SDF

Below is an example of a typical SDF. This file, RJSPLQ*>SDF>SYS, is for the IBM 2780 emulator. Note that any command line in the SDF may be commented by preceding the comment with /*. Literal fields, such as operator messages and signon card, must not be commented as the entire line is read as command data.

All input to the RJOP (from the terminal or SDF) may be in either uppercase or lowercase. The parameters YES and ON are interchangeable, as are NO and OFF. For example, COMPRESS ON is the same as COMPRESS YES.

```
/*
/* EXAMPLE SITE DEFINITION FILE FOR THE 2780 EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE B278            /* SITENAME IS B278
BAUD 2400               /* LINE SPEED IS 2400 BAUD
DSTKEY 0                /* SWITCH OFF DESTINATION DETECTION
PRIMARY YES             /* WE ARE THE PRIMARY
CODE EBCDIC             /* EBCDIC TRANSLATION
PROTOCOL 2780           /* THE LINE PROTOCOL IS 2780
PAD YES                 /* RECORDS ARE TO BE PADDED ON XMIT
BLOCK 400               /* THE BLOCKSIZE IS 400 BYTES
EOFKEY 0                /* NO END OF FILE DETECTION (NORMAL FOR 2780)
AUTOSIGN YES            /* SIGNON SENT ON ENABLE
MODE SLAVE              /* WE ARE A SLAVE STATION
RECORDS MULTIPLE        /* MULTIPLE RECORDS IN THE BLOCK
DATASET SWITCHED        /* REQUEST TO SEND IS TO BE RAISED
TRANSPARENT NO          /* SEND BLOCKS NONTRANSPARENT
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 2 B278          /* USE SMLC02
/*
/* THE FOLLOWING ARE SOME OPTIONAL COMMANDS FOR A 2780 EMULATOR
/*
FORM LP1 JOKE           /* SPOOL QUEUE FORM TYPE IS 'JOKE'
PUNCH CP1 TRANSLATE     /* TRANSLATE INCOMING PUNCH FILES
SAVE YES                /* SAVE THE UNTRANSLATED DATA
SONDEF                  /* DEFINE THE SIGNON CARD
```

```
/*SIGNON              REMOTE999        XXXXXX
SOFDEF                /* DEFINE THE SIGNOFF CARD
/*SIGNOFF
STATS ON              /* KEEP TRANSLATION STATISTICS
CO TTY                /* END OF SITE DEFINITION FILE
```

RUNNING THE EMULATOR

Having defined the sites required, the operator starts the emulator with the command:

```
RJOP
```

The RJOP command level prompt > is then displayed indicating RJOP command mode. RJOP level commands may then be entered. In the command formats that follow, the minimum required abbreviation for each command is underlined.

The HELP Command

Whenever an RJOP command level prompt > is displayed, the HELP facility available in RJOP may be used to display descriptions of command syntax and usage:

```
HELP command-name
```

where command-name is any valid emulator command or command abbreviation.

To obtain a list of Prime's RJE emulator commands, plus details on how to get further help on a specific command, type:

```
HELP HELP
```

HELP is also available for error messages, which are described next.

Error Messages

Error messages displayed by the RJOP and RJQ programs are in this format:

```
Error XXnn:  text of message
```

where XX is a two-character identifier of the program that reported the error and nn is the error number. The possible values for XX are:

Program Identifier	Indicates
SE	RJQ program error
RE	RJOP program error
JE	RJI program error
WE	Worker program error
NE	PRIME/SNA RJE worker error
RP	RJOP program error from PRIMOS
WP	Worker program error from PRIMOS

If an error message is displayed, type HELP after the message appears. An explanation of that message will be displayed.

Typing HELP XXnn will display a message corresponding to that program and error number combination.

Appendix D contains the error messages for the PRIME/SNA RJE emulator.

Refer to the Advanced Programmer's Guide, Volume 0: Introduction and Error Codes for information about RP and WP error mesages. These error messages are listed by error message number only.

The TOSITE Command

The primary task of an RJE emulator is to communicate with another computer by sending files to or receiving files from it. The RJE operator must first specify the site with which this communication is to take place by using the TOSITE command. The format of this command is:

```
TOSITE tosite
```

where tosite is the name of the site with which the emulator will communicate.

For example:

```
> TOSITE SYS
```

If the tosite's communications line is not enabled when the command is given, RJOP now obeys the commands read from the site definition file RJSPLQ*>SDF>SYS. If this file has any errors, appropriate messages are displayed, followed by the original command level prompt. Otherwise, the RJOP will attempt to start communication with the appropriate worker process (selected by the PROTOCOL command in the SDF), making it a phantom process if necessary. When communication is established with the worker, the RJOP command level prompt is replaced by the current tosite name prompt (in this case SYS>).

If the line is already enabled, it remains enabled, and the tosite's SDF configuration options are passed from the associated worker to the RJOP. Additionally, the TOSITE command is used to specify the target site for subsequent RJOP commands.

TOSITE Example

```
/*  ------------------------------------------------------
/*  RJOP is started, the active site list is empty.  A TOSITE
/*  is done for site CDCX and it is added to the list.

OK, RJOP
[RJOP Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

No Workers running
Emulator status.
Tues. 24 Sept. 1985
------------------

> TOSITE CDCX

> HASP Worker phantomed, user number is: 107

CDCX> STATUS
CDCX> CDCX - Line 0 Not Enabled...
          State       State       State
  ------------------------------------------

        OP1 ..............
          ..
            ..


CDCX>
```

Enabling and Disabling the Line

The ENABLE command is used to enable the line for the current tosite name (or optionally to enable the lines for ALL sites defined by a TOSITE command). The ENABLE command first checks whether the protocol handler for the particular emulator is running. If the protocol handler is not running, ENABLE starts it as a phantom process. Next, ENABLE sends various instructions and configuration parameters to the protocol handler. As these are sent, information messages are displayed on the operator's terminal; the exact form of these messages depends on which type of emulator is being enabled. A typical ENABLE message transaction is shown in the sample 200UT emulator run later in this chapter. The effect of this command is reversed by the DISABLE command. See Chapter 5 for an explanation of enabling and disabling PRIME/SNA RJE.

Receive and Transmit Processing

The worker process contains separate modules to do the receive and transmit processing.

The receive processor takes data from the protocol handler, translates it into Prime format (optional for punch data), and places it either in the Prime Spooler queue or in a UFD for later retrieval by the user.

The transmit processor takes files from the RJE queue, translates them into a form acceptable to the remote site, and passes them on to the protocol handler.

Before data can be received or transmitted by the emulator, these two modules have to be switched on by the operator. For transmit processing, use this command:

```
START { TRANSMIT }
      { XMIT     }
      { TX       }
```

For receive processing, use this command:

```
START { RECEIVE }
      { RECV    }
      { RX      }
```

Note

This command is not required for the 2780/3780, HASP, XBM, GRTS, and PRIME/SNA RJE emulators.

Similarly, to stop the transmit module, use:

```
STOP { TRANSMIT }
     { XMIT     }
     { TX       }
```

To stop the receive processor, use the NOW option to abort the processing of the current receive job. Thus the complete syntax of the STOP RECEIVE command is:

```
STOP { RECEIVE  [NOW] }
     { RECV           }
     { RX             }
```

Note

As with the START RECEIVE command, STOP RECEIVE is not required for the 2780/3780, HASP, XBM, GRTS, and PRIME/SNA RJE emulators.

Once the line has been enabled, and receive and transmit processing are switched on, the RJOP can be exited by using the EXIT command, leaving the worker and protocol handler running. An implicit DELSITE command (see below) takes effect for each site that is currently connected. From this time, until the RJOP is reinvoked, all messages displayed by the worker (received operator messages, error messages, and so forth) will be placed in the RJE log file. See Chapter 5 for receive and transmit processing in PRIME/SNA RJE.

RUNNING MORE THAN ONE SITE

PRIME/SNA RJE allows up to 32 sites and queuenames to be configured at the same time. The protocol managers and the PRIME/SNA Server can support eight (four for 200UT, 1004, and 7020) active sites simultaneously.

The TOSITE command within RJOP is used to mark a site as the current (or target) site. The sitename is added to the list of active sites if it is not already there. Before RJOP adds the site to its internal list, it checks:

1. That there is room in RJOP tables for another site. Up to eight active sites for 2780/3780, HASP, XBM, GRTS, and PRIME/SNA RJE. Up to four sites for 200UT, 1004, and 7020.

2. That all configuration directives have correct syntax, and that the required directives are present.

3. That synchronous line number specified in the configuration directive CONNECT is not already in use by another site. RJOP cannot detect if the line specified in the CONNECT directive is in use by other products (like DPTX or PRIMENET). If another software product is using the line, or the line simply does not exist, an error message will be displayed when the line is ENABLED. This is not a condition necessary for PRIME/SNA RJE, which does not support the CONNECT command.

Using the TOSITE Command Example

```
/*  ------------------------------------------------------------
/*  Site CDCX is the current sitename.  Site IBM3 is added
/*  to the active site list, which also makes it the current
/*  site.  Notice the change in the prompt displayed by RJOP.


CDCX> TOSITE IBM3
CDCX> HASP worker already running.
CDCX> STATUS

IBM3> IBM3 - Line 1 Not Enabled. Receive Off. Transmit Off. (HASP)

        Device   Suspend    Transmit    Receive    Filename
                   State      State       State
        ------------------------------------------------------
        OP1          -          -           -
        OR1          -          -           -
        LP1          -          -           -
        OP1          -          -           -

/*  ------------------------------------------------------------
/*  The current site (the target of the next RJOP command) can
/*  be switched by using the TOSITE command.  Since both sites
/*  already exist in the active site table, they will not be
/*  added again.  Notice the change in the prompt.

IBM3> TOSITE CDCX
CDCX> TOSITE IBM3
IBM3>

IBM3> EXIT
IBM3> CDCX - Disconnected.
IBM2> IBM3 - Disconnected.

Emulator status.

HASP worker running.

Size of log file is 2 record(s).

OK,
```

Sites can be removed from the active site list by using the DELSITE command. It can be necessary to do this for several reasons:

1. Another site is required, but the active site list is full. A disabled entry can be removed from the site list using DELSITE and the required site added using TOSITE.

2. Another site is required that uses the same synchronous communications line that is connected to a site in the active site list. For example, there is a single line connected to a dialup modem (for example, Codex 1100), which was being used by site IBM1. Now there are jobs in the queue for site IBM2, so site IBM1 is removed from the active list using DELSITE, and IBM2 is added using TOSITE. Before issuing the DELSITE a DISBALE must be issued; otherwise, the site and the line (for non PRIME/RJE SNA emulators) will remain active in the worker, and the line will not be freed.

All sites can be removed from the active site list by using ALL as the sitename to be removed. The DELSITE only removes the site from the active site list. It does not delete the site definition file.

SENDING FILES

As described in Chapter 2, users submit files into the RJE queue using the RJQ command. This command is also available in a similar form to the operator when running the RJOP. The difference is that the queuename parameter, if not specified, defaults to the current tosite. The operator can override this by specifying a different queuename.

RJQ Command Example

```
SYS> RJQ TESTFILE
Your RJE transmit queue entry is RJ0009
SYS> RJQ -CANCEL 9
RJ0009 has been canceled.
SYS>
```

A SAMPLE EMULATOR RUN

Here is an example of a typical emulator startup for site BOC, a HASP site.

```
OK, RJOP
[RJOP Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]
Fri. 27 Sept. 1985 08:50:41
```

Emulator status.

No workers running.

```
> to bocl                /* enter the TOSITE command for required site
                            HASP worker phantom, user number is: 71
BOCl> en                 /* enable the data line
BOCl - Protocol handler phantomed - User no. is  70
BOCl - Line enabled
BOCl> - Dataset ready
BOCl> -   8.54.11    $HASP200 RMT134   STARTED ON LINE85  NODE SUNBURY
BOCl> - Receive file open LP1 - PRT005       /* initial acknowledgment
BOCl> - Receive file open LP2 - PRT006       /* and information jobs
BOCl> - Receive file closed LP2 - PRT006     /* from the host site
BOCl> - Receive file closed LP1 - PRT005
BOCl> rjq andrew>testfile                    /* queue a file up for the
Your RJE transmit queue entry is RJ0002.     /* current site
BOCl> opmo                 /* enter opmode to converse with host
BOCl: $sr134.pul           /* start the card reader on the host
BOCl: -   8.55.14        $HASP000 OK       /* acknowledgment from host
BOCl:                             /* exit from opmode
BOCl> start tx                    /* start transmission to host
BOCl> - Transmit file open CR1 - RJ0001
BOCl> -   8.55.58 JOB 9575 $HASP100 XNXMP000 ON R134.RD1
BOCl> rjq -1

 user   rj   name       size   qname   protcl dev  opts.  defer state
ANDREW 0001 TESTFILE     36608 BOCl                              Opened
                                        :BOCl:
ANDREW 0002 TESTFILE     36608 BOCl
                                        :    :
BOCl> rjq -cancel 2          /* cancel unwanted job
RJ0002 has been canceled.
BOCl> status                 /* see current state of our devices
BOCl - Line 2 Enabled.     Receive On.        Transmit On.       (HASP)

          Device Suspend  Transmit  Receive  Filename
                  State    State     State
          OP1       -      Idle      Idle
          CR1       -      Active    Idle    RJ0001
          LP1       -      Idle      Idle
          LP2       -      Idle      Idle
          CP1       -      Idle      Idle

BOCl> - Last block of file has been queued CR1
BOCl> - Transmit file closed CR1 - RJ0001
BOCl> - Transmit processing finished
BOCl> - Transmit file sent CR1
BOCl> lsite                  /* list the site parameters for site BOCl
Listing of site BOCl, Protocol HASP, Line number 2.
```

Site Definition Parameters:

```
  Autosign.......Yes      Baud.........2400      Block.........512
  Code........EBCDIC      Dataset...Switched     Dstkey..........0
  Eofkey..........0        Mode.........Slave
```

Configurable options:

```
  Banner.........No

  Debug..........0        Log..........Yes       Restart....Disable
  Retain.........No       Save.........No        Stats.........Yes
  Todevice......none
```

Signoff card:

```
/*SIGNOFF
```

Signon card:

```
/*SIGNON       ANDREW_OSBORNE                                  6512ID
```

Do you wish to see the Device configurations ? yes

Device	Forms	Width	Punch	Vfcfile	Prstyle
OP1	—	—	—	—	—
CR1	—	—	—	—	—
LP1	LP1	132	—	MVFC	—
LP2	LP2	132	—	MVFC	—
CP1	—	—	Translate	—	—

RJQ queuenames:

```
  BOC1
```

```
BOC1> status
BOC1 - Line 2 Enabled.     Receive On.        Transmit On.       (HASP)
```

Device	Suspend State	Transmit State	Receive State	Filename
OP1	-	Idle	Idle	
CR1	-	Idle	Idle	
LP1	-	Idle	Idle	
LP2	-	Idle	Idle	
CP1	-	Idle	Idle	

```
BOC1> dis          /* disable the line as no incoming or outgoing files
BOC1 - Line disabled
BOC1> ex           /* leave RJOP and return to PRIMOS
BOC1 - Disconnected.
```

Emulator status.

HASP worker running.

Size of log file is 25 record(s).

OK,

RJOP COMMAND SUMMARY

The first part of this chapter explained the basic RJOP commands. The remaining commands generally fall into one of four categories:

- PRIMOS Compatible Commands
- Site Independent Commands
- Site Definition Commands
- Site Specific Commands

All RJOP commands are described in detail in Chapter 4.

PRIMOS Compatible (PC) Commands

The following commands perform the same operations as the equivalent PRIMOS commands but within the RJOP environment:

```
/*
COMINPUT
CONCAT
MESSAGE
RJQ
```

Site Independent (SI) Commands

These commands may be issued at any time. Their effect is identical regardless of the current tosite. They are supported by all emulators unless otherwise indicated.

```
EXIT
HELP
STATUS
TIME
TOSITE
```

VFCDEF 2780/3780, GRTS, and HASP
VFCLIST 2780/3780, GRTS, and HASP

Site Definition SD Commands

These SD commands, with the exception of CONFIG (optional) and restart (optional), must be included in a site's SDF, between the commands DEFSITE and ENDSITE. These commands may not be issued from the operator's terminal.

Command	Emulators Supported
ADDRESS	200UT, 7020, and XBM
AUTOREAD	200UT
AUTOSIGN	2780/3780, GRTS, HASP, and PRIME/SNA RJE
BAUD	All except PRIME/SNA RJE
BLOCK	2780/3780 and HASP
CODE	All except PRIME/SNA RJE
COMPRESS	GRTS
CONFIG	HASP and XBM
DATASET	All except PRIME/SNA RJE
DEFSITE	All emulators
DSTKEY	All except PRIME/SNA RJE
ENDSITE	All emulators
EOFKEY	All except PRIME/SNA RJE
LU	PRIME SNA/RJE
MODE	All except PRIME SNA/RJE
MULTIDROP	XBM
MULTSIG	PRIME/SNA RJE
PAD	2780
PADCHAR	200UT
PRIMARY	2780/3780
PROTOCOL	All emulators
RECORDS	2780/3780
REMOTE	PRIME/SNA RJE
RESTART	Optional, but allowed for 2780/3780, GRTS, HASP, and XBM
RUS/CHAIN	PRIME/SNA RJE
SCONFIG	PRIME/SNA RJE
SPLIT	GRTS
TRANSPARENT	2780/3780

Note

The name of the SDF must be identical to the name specified with the DEFSITE command.

Site Specific SS Commands

The following commands can be issued interactively from the operator's terminal. They act with respect to the current tosite as shown by the sitename preceding the prompt character or the tosite given as a parameter in the command itself.

Command	Emulators Supported
ABORT	All emulators
ATOUT	PRIME/SNA RJE
BANNER	All emulators except PRIME/SNA RJE
CONNECT	All emulators except PRIME/SNA RJE
DEBUG	All emulators except PRIME/SNA RJE
DELSITE	All emulators
DETOUT	PRIME/SNA RJE
DISABLE	All emulators
ENABLE	All emulators
FORMS	All emulators except PRIME/SNA RJE
GO	1004
HALT	1004
LISTSAVE	All emulators except PRIME/SNA RJE
LOG	All emulators
LQUEUE	200UT, 1004, and 7020
LSITE	All emulators
LTABLE	2780/3780, HASP, and PRIME/SNA RJE
OPMESS	2780/3780, GRTS, HASP, XBM, and PRIME/SNA RJE
OPMODE	All except 1004
PRSTYLE	2780/3780, GRTS, and HASP
PUNCH	All except 200UT, XBM, and PRIME/SNA RJE
QUEUE	All emulators
READER	2780/3780, GRTS, and HASP
RECOVER	All emulators
RELEASE	All emulators except PRIME/SNA RJE
REPROCESS	All emulators except PRIME/SNA RJE
RETAIN	200UT, 7020, 1004
RFILE	200UT, 7020, 1004
RSHUTDOWN	PRIME/SNA RJE
SAVE	All emulators except PRIME/SNA RJE
SIGNOFF	2780/3780, 1004, HASP, and PRIME/SNA RJE
SIGNON	2780/3780, GRTS, HASP, and PRIME/SNA RJE
SOFDEF	2780/3780, HASP, and PRIME/SNA RJE
SONDEF	2780/3780, 1004, GRTS, HASP, and PRIME/SNA RJE
START	All emulators
STATS	All emulators
STOP	All emulators
SUSPEND	All emulators except PRIME/SNA RJE
TODEVICE	2780/3780, GRTS, HASP, and XBM
TTABLE	2780/3780, HASP, and PRIME/SNA RJE
VFCFILE	2780/3780, GRTS, and HASP
VOICE	1004
WIDTH	2780/3780, GRTS, and HASP

RJOP COMMANDS LIST

ABORT	SS	ENABLE	SS	PADCHAR	SD	SIGNON	SS
ADDRESS	SD	ENDSITE	SS	PRIMARY	SD	SOFDEF	SS
ATOUT	SS	EOFKEY	SD	PROTOCOL	SD	SONDEF	SS
AUTOREAD	SD	EXIT	SI	PRSSTYLE	SS	SPLIT	SD
AUTOSIGN	SD	FORMS	SS	PUNCH	SS	START	SS
BANNER	SS	GO	SS	QUEUE	SS	STATS	SS
BAUD	SD	HALT	SS	READER	SS	STATUS	SI
BLOCK	SD	HELP	SI	RECORDS	SD	STOP	SS
CODE	SD	LISTSAVE	SS	RECOVER	SS	SUSPEND	SS
COMINPUT	PC	LOG	SS	RELEASE	SS	TIME	SI
COMPRESS	SD	LQUEUE	SS	REMOTE	SD	TODDEVICE	SS
CONCAT	PC	LSITE	SS	REPROCESS	SS	TOSITE	SI
CONFIG	SD	LTABLE	SS	RESTART	SD	TRANSPARENT	SD
CONNECT	SS	LU	SD	RETAIN	SS	TTABLE	SS
DATASET	SD	MESSAGE	PC	RFILE	SS	VFCDEF	SI
DEBUG	SS	MODE	SD	RJQ	PC	VFCFILE	SS
DEFSITE	SD	MULTIDROP	SD	RSHUTDOWN	SS	VFCLIST	SI
DELSITE	SS	MULTSIG	SS	RUS/CHAIN	SD	VOICE	SS
DETOUT	SS	OPMESS	SS	SAVE	SS	WIDTH	SS
DISABLE	SS	OPMODE	SS	SCCONFIG	SD		
DSTKEY	SD	PAD	SD	SIGNOFF	SS		

4

The RJOP Commands Dictionary

INTRODUCTION

This chapter is an alphabetic list and description of the RJOP commands. There are about 70 commands, but not all commands apply to each emulator. Some of the site definition commands are used only to set up a site definition file. Therefore, you might use 30 different RJOP commands on a daily basis, and 10 of these with great frequency.

Abbreviation of Commands

Each command may be abbreviated. The underlined letters in the command name show the minimum required abbreviation.

The HELP Command

The command descriptions are in the UFD RJSPLQ*>CMDHELP, with each description being in a file named after the command. The HELP command, itself described in this dictionary, displays the appropriate file.

Site Definition File Commands

All site definition commands associated with a particular emulator must be used between the DEFSITE and ENDSITE commands.

CONNECT is a site specific command that must immediately follow the ENDSITE command in an SDF except when using the PRIME/SNA RJE emulator.

Other initialization commands (PUNCH, FORMS, etc.) may optionally follow CONNECT in the SDF.

Command Usage Protocol

There are certain commands that are not allowed before other commands. For example, you cannot send operator messages with the OPMESS command before the site you are talking to is defined and its logical-synchronous-line is enabled.

Comment Lines

The /* string begins a comment line unless the emulator is in text input mode (entered by the JCL, OPMESS, OPMODE, SONDEF, and SOFDEF commands); any characters following /* are treated as a comment on that line.

RJOP COMMANDS (IN ALPHABETICAL ORDER)

▶ ABORT { CRn | LPn | CPn | ALL CR | ALL LP | ALL CP | XMIT | Transmit | TX | Receive | RX | RECV | ALL }

For PRIME SNA/RJE:

-ALL
-LU lu_port_name
RECV -MEDSUB medium/subaddress
RX -MEDSUB medium/subaddress
Receive -MEDSUB medium/subaddress
XMIT -MEDSUB medium/subaddress
TX -MEDSUB medium/subaddress
Transmit -MEDSUB medium/subaddress

where:

n = Device Number (1-7)
CR = Card Reader
LP = Line Printer
CP = Card Punch

This command aborts the file(s) currently being transmitted from or received to the device specified. Operator messages are not affected.

Usage:

1. ABORT CRn, LPn, or CPn aborts the file being transmitted from or received to the device specified.

Note

n can only be 1, except for HASP and XBM.

2. ABORT ALL CR
ALL LP
ALL CP

Abort all files being transmitted from or received to all devices of the type specified.

3. ABORT XMIT
   RECV

   Abort all files being transmitted from, or abort all files being received to, all devices.

4. ABORT ALL

   Abort all files being transmitted from or received to all devices.

5. ABORT -ALL in PRIME/SNA RJE indicates that the transmission and reception on all LU-LU sessions should be aborted.

6. ABORT -LU in PRIME/SNA RJE indicates that the transmission or reception of files on LU-LU sessions specified by the lu_port_name should be aborted.

7. ABORT RECV -MEDSUB medium/subaddress indicates that the transmission of all files received from the host should be aborted. If the -MEDSUB option is specified, only the file with the medium/subaddress is aborted.

8. ABORT XMIT -MEDSUB medium/subaddress indicates that the transmission of all files transmitted to the host should be aborted. If the -MEDSUB option is specified, only the file with the specified medium/subaddress is aborted.

9. ABORT command applicability:

Emulator	Arguments	Emulator	Arguments
1004	LP1	7020	CR1
	ALL LP		ALL CR
	CP1		ALL
	ALL CP		XMIT
	ALL		Transmit
			TX
	RECV	GRTS	ALL
	Receive		XMIT
	RX		Transmit
			TX
			RECV
			Receive
			RX

Emulator	Arguments	Emulator	Arguments
200UT	CRl	HASP	any
	ALL CR		
	ALL	XBM	any
	XMIT		
	Transmit		
	TX		
2780/3780	ALL		
	XMIT		
	Transmit		
	TX		
	RECV		
	Receive		
	RX		
PRIME/SNA	-ALL		
	-LU lu_port_name		
	RECV -MEDSUB medium/subaddress		
	Receive -MEDSUB medium/subaddress		
	RX -MEDSUB medium/subaddress		
	XMIT -MEDSUB medium/subaddress		
	Transmit -MEDSUB medium/subaddress		
	TX -MEDSUB medium/subaddress		

The -MEDSUB argument is a two- or three-character code (medium/subaddress) that identifies a logical address at a remote system. This option is only supported for the PRIME/SNA RJE emulator. The first character indicates the medium as follows:

K = Console (transmit only)

C = Card

E = Exchange Data

P = Printer (receive only)

The next one or two numbers indicate the subaddress. It has possible values between 0 and 15. If no medium/subaddress is specified with the RJE -TO command, the medium/subaddress defaults to medium card, subaddress 0. This option is valid for the PRIME/SNA RJE emulator only. This option is mutually exclusive with the -DEVICE option, which is not used by PRIME/SNA RJE.

▶ ABTJCL string (All except PRIME/SNA RJE)

This command is allowed only in CONCAT command mode. It modifies the JCL mode escape string used to delete the text typed previously in JCL mode. It also returns the terminal to CONCAT command mode without abandoning the entire job built up so far. The escape string can be one to eight alphanumeric characters entered as all uppercase, all lowercase, or any combination (the default value for the string is >QUIT). When JCL mode is entered, the escape string is displayed in the second of two information lines. For example:

```
BOC> CONCAT
Concat. > JCL
To finish JCL entry, type an empty line
To abort JCL entry, type >QUIT
JCL > >QUIT
Concat. > ABTJCL JCLABORT
Concat. > JCL
To finish JCL entry, type an empty line
To abort JCL entry, type JCLABORT
JCL > //STARTJOB
JCL > $$FILES
JCL > JCLABORT
Concat. > QUIT
BOC>
```

▶ ADDRESS address (200UT, 7020, and XBM)

This site definition file command specifies a decimal value that represents the address that the host site uses to identify a remote station.

The address parameter values are:

200UT:	157 < address < 200 (a decimal number)	
Normal usage:	Leased Line 161 Switched Line 160	
7020:	0 < address < 13	(a decimal number)
XBM:	0=< address=< 31	(a decimal number)

Note

To calculate and specify the decimal address for an XBM site, you must first know the site's hexadecimal group address, which the ICL host uses for polling purposes.

▶ ATOUT pathname -MEDSUB med/subaddr [options] (PRIME/SNA RJE)

The ATOUT command defines the attachment of a medium/subaddress to a specified PRIMOS file or directory. A medium/subaddress is a three-character address used by the IBM host to address different logical devices in the peripheral node (in this case PRIME/SNA RJE). The ATOUT command is used by the PRIME/SNA RJE operator to associate the medium/subaddress with a logical device (file or directory) on the Prime computer.

The first character indicates the medium as follows:

P = Print — Print medium defines the SNA Character String (SCS) subset of parameters which may be received in the associated data. Thus print medium will contain the subset of SCS characters necessary for controlling a printer. Print medium defines the maximum record length of the print data to be 132 characters.

C = Card — (Logical Punch) Card medium defines the SCS subset of characters which may be received in the associated data. Card medium defines the maximum record length of the card data to be 80 characters.

E = Exchange — Exchange medium defines the SCS subset of characters which may be received in the associated data. Exchange data will contain a subset of SCS characters to define data suitable for the IBM Basic Exchange diskette. Exchange medium defines the maximum record length of the exchange data to be 128 characters.

The next two numbers indicate the subaddress. It has possible values between 00 and 15. Note that a medium/subaddress is a required argument.

When data is received from the host for a specific medium/subaddress, it is stored in the designated PRIMOS file.

If the pathname is a PRIMOS directory (UFD), each individual file received for the medium/subaddress is stored in a separate file in the directory using a unique filename generated by PRIME/SNA RJE. The unique name will be in the form:

SNmnndd-mm-yy.hh.mm.ss.hh

where mnn is the medium/subaddress; dd-mm-yy is the current date; and hh.mm.ss.hh is the time the file was received to the nearest hundredth of a second.

If data is received from the host for a specific medium/subaddress for which no ATOUT command has been issued, a warning message is displayed on the RJOP console. If, after a two-minute timeout period, no ATOUT command has been issued, or if no RJOP was currently communicating with the worker, a negative response canceling the file is issued by PRIME/SNA RJE.

ATOUT supports the following options:

Option	Description
-PRINT spool options	Directs PRIME/SNA RJE to spool the file with the specified PRIMOS spool options. Spool options supported by PRIME/SNA RJE are described below. The spool options must be typed on the command line within single quotes.
-NO_TRANSLATE	This option is only relevant for card medium data. If present, this option indicates that the received data will not be translated from EBCDIC to ASCII regardless of whether SCS TRN characters are present.
-ACTIVE	This option indicates that the association of medium/subaddress to pathname of a file (rather than a UFD) should remain in place even though the host has completed sending a file (or group of files). If ACTIVE has been specified, the only way the association can be broken is if an RJE operator issues the DETOUT command. Note that the ACTIVE option is only relevant to file pathnames.

ATOUT supports the following -PRINT options:

Option	Description
-AS alias	Replaces the pathname on the file header and in SPOOL -LIST displays with alias.
-AT destination	Denotes the printer (or printers) that can print the file.

Option	Description
-COPIES n	Specifies the number of times the file is to be printed.
-DEFER time	Defers printing of the file to the time specified. time is entered in the format: HH:MM[AM/PM].
-DELETE	Deletes the file after spooling.
-DISK { disk-name / dev-number }	Specifies the spool queue on another disk. dev-number is the logical device number of the disk.
-FORMAT { none / page● }	Enables (page) or disables (none) pagination and header generation. page is the default mode.
-FORM type	Specifies a form file created by EDIT_EFU, or, if a form file does not exist, an environment FORM in a file created using the PRIMOS PROP command.
-NOHEAD	Suppresses printing of both banner and trailer pages.
-NO_PAGE_HEADER	Removes one-line page headers.

If the ATOUT command is used to associate a medium/subaddress with a UFD, or if the -ACTIVE option is used, the DETOUT command is the only way to break the association of the medium/subaddress to the pathname. If the ATOUT command is used to associate a medium/subaddress with a pathname to a file without using the -ACTIVE option, the association between the medium/subaddress and pathname breaks after the first file associated with the medium/subaddress is received.

If the -PRINT option is used in the case of an ATOUT to a file, the file is spooled when the association between the medium/subaddress and the pathname is broken. In the case of an ATOUT to a UFD, each file within the UFD is printed when it is received.

The pathnames provided to the ATOUT command should be protected by ACLs so that both the worker phantom and the RJOP user are able to open and write to the files of the given phantoms.

For example, assume that the RJOP user and the worker phantom have the same user identification (often the case) and that the user identification is within the ACL group .ADMIN. A suitable ACL for a UFD for storing PRIME/SNA RJE files might be:

```
.ADMIN: LURW
$REST : NONE
```

For information on ACLs refer to the PRIMOS Administrator's Guide.

When the PRIME/SNA RJE worker needs to print files as a result of the -PRINT option, it phantoms a separate process to spool the files to the PRIMOS Spooler. The new process will have the same user identification as the PRIME/SNA RJE worker.

If the -PRINT option is not used, the file received may be printed at a later date. Card and exchange medium files may be printed using the PRIMOS SPOOL command. Alternatively, all three receive medium types may be printed using the PRINT_SCS PRIMOS-level command described in Chapter 5.

Both the -PRINT option of ATOUT and the PRINT_SCS command may reference a -FORM type. This is a reference to a .FORM file created by EDIT_EFU. The .FORM file should reside in the current directory of the PRINT_SCS user or in the RJSPLQ* directory for the -PRINT option.

The .FORM file defines page formatting for the print output. If the -FORM option is used, a form defined to the spooler by the PROP command should also exist; however, the formatting information in that form is ignored. The PROP-defined form is used simply to route files to printers associated with the specified PROP forms. If the -FORM option is not specified, no EDIT_EFU .FORM file is referenced and the form of the spooler is not used. For information on EDIT_EFU refer to the PRIME/SNA Administrator's Guide.

For example:

```
ATOUT printufd>print_file -MS P0 -PRINT '-FORM WHITE'
```

This command expects a file of filename WHITE.FORM previously created by EDIT_EFU to reside in the UFD RJSPLQ*. The format control defined by EDIT_EFU is used to format the output data. The file then appears on the PRIMOS spool queue as:

```
spool -list
[SPOOL Rev. 20.0 Copyright (c) Prime Computer, Inc. 1985]

System  BIG
user          prt    time    name         size   opts/#  form    defer  at
____________  ____   _____   _________    ____   _____   ____    _____  __
RJOP_ADMIN    006    13:44   PRINT_FILE   450            white
```

Only the printers defined by PROP as printing form white will attempt to print the file. Refer to the PRIME/SNA Operator's Guide for information on using EDIT_EFU.

▶ AUTOREAD { YES / NO } (200UT)

This is a site definition file command.

YES: The first block of each transmit file is preceded by the READ user message, requesting that the host poll for the card file.

NO: You must send the READ message before every transmit file by using the OPMODE command.

▶ AUTOSIGN { YES / NO } (PRIME/SNA RJE, 2780/3780, GRTS, and HASP)

This is a site definition file command.

YES: A signon card is automatically sent to the host when this line is enabled.

NO: A signon card is not sent when the line is enabled, and the user must use the SIGNON command. (This option must be specified as NO for a master mode site.)

For GRTS, AUTOSIGN specifies whether or not to insert the signon card before an operator message while in OPMODE. It does not insert the signon card before a normal transmit file.

▶ BANNER { OFF / 'text' } (All except PRIME/SNA RJE)

This command, when issued with the OFF option, ensures that files sent to the printer appear with no banner at their heads.

When 'text' is supplied, it is used as the second line of a standard Prime banner that precedes each printed file. The first line is the emulator name. This identifies listings produced at a printer not dedicated to the emulator.

When this command is not specified, a two-line banner is produced with the name of the site from which the job was received as the second line.

The maximum banner length is 22 characters. If spaces or lowercase letters are required, then the text should be enclosed in single quotes. For the PRIME/SNA RJE emulator, the same effect is achieved by using the ATOUT command with the -PRINT option, and the -PRINT option -AS.

▶ BAUD line-speed-bps (All except PRIME/SNA RJE)

This site definition directive is used to configure the speed in bits per second (bps) for logical-sync-line-# (specified in the CONNECT directive). The decimal value specified for line-speed-bps is used to calibrate internal RJPROC and symbiont timers.

Maximum values vary depending on the RJE protocol:

Protocol	Maximum Speed
2780	38400 bps
3780	56000 bps
HASP	56000 bps
XBM	9600 bps
200UT	9600 bps
1004	9600 bps
7020	9600 bps
GRTS	56000 bps

PRIME/SNA RJE's ability to support multiline configurations as well as high-speed lines depends on processor size, central processor memory

size, overall system load, and communication controller type. Do not assume that RJE can operate at maximum speeds without first providing adequate processor power and memory to support it.

▶ BINARY filename

This command is allowed only in CONCAT command mode. The command adds the contents, untranslated, of file filename to the current CONCAT file. Unlike the TEXT command, code translation is not performed.

▶ BLOCK blocksize (2780/3780 and HASP)

This site definition file command defines the maximum transmit/receive file blocksize. Blocksize is in bytes and has the following restrictions:

2780	149<blocksize<601	Typical value is 400
3780	149<blocksize<1021	Typical value is 512
HASP	149<blocksize<1019	Typical value is 512

The user should be aware of the maximum blocksize accepted by the host machine when it is not a Prime machine, as many IBM machines will limit the blocksize to considerably less than 1020 bytes.

▶ CODE { ASCII | BCD | BCD2 | EBCDIC | XS3 } (All except PRIME/SNA RJE)

This site definition file command defines the line translation code. Most emulators handle only one code, and it must be specified.

Emulators	Available Codes
1004	XS3
200UT	BCD, BCD2, or ASCII
2780	EBCDIC or ASCII
3780	EBCDIC or ASCII
7020	ASCII
GRTS	ASCII
HASP	EBCDIC
XBM	ASCII

Note

PRIME SNA/RJE communicates in EBCDIC with an IBM host. This is not variable and therefore not specified.

▶ COMINPUT { TTY | PAUSE | filename | CONTINUE | -END }

This RJOP command is used to read a command input stream specified by the filename. If the file contains a PAUSE parameter, control is returned to the RJOP terminal at the point that PAUSE is encountered. You return to processing the input stream by typing CO CONTINUE. Input streams are terminated by an imbedded CO TTY command.

COMINPUT may be initiated externally or internally to the RJOP, and is implemented in PRIMOS compatible manner, except that COMINPUT files may not be nested.

▶ COMPRESS { YES | NO } (GRTS)

YES: The GRTS emulator performs character compression on files sent to the Honeywell host.

NO: No character compression is performed.

The GRTS COMPRESS option requires special microcode support, available with the HSSMLC and MDLC communications controllers. This support is contained in microcode option packages #5369 for the HSSMLC, and #5654 for the MDLC.

▶ CONCAT

This command lets you build temporary concatenated files from a combination of acceptable commands (that is, TEXT, BINARY, JCL, ABTJCL, and SEND) and data files. You invoke CONCAT from the RJOP level; CONCAT mode is then indicated by the new prompt Concat. >. CONCAT mode concatenation operations are completed by a SEND command, which returns you to the RJOP level and enqueues the file for transmission. A QUIT command, on the other hand, returns you to RJOP level and deletes the CONCAT temporary file. A detailed description of the CONCAT command,

with an example, is given in Chapter 2, in the section entitled Building Concatenated Files.

▶ CONFIG { OPn / CRn [id] / LPn / CPn } (HASP and XBM)

where:

OP = Operator Message Device
CR = Card Reader Device
LP = Line Printer Device
CP = Card Punch Device
n = Device Number (1-7)
id = Configuration Name

This command defines the devices supported for this site, and when used repeatedly in the SDF, allows specifying more than one device of each type on a line for HASP and XBM emulators.

This command is a site definition file command, but it is not mandatory. If the CONFIG command is not present, the following default values are assumed: OP1, CR1, LP1, and CP1.

Notes

1. In HASP, the total number of print and punch devices may not exceed eight. The following combinations are thus NOT allowed:

Total Print Devices	Total Punch Devices
7	2
6	3
5	4
4	5
3	6
2	7

2. In XBM, id defines the address of the device as set by the host site, and is specified as a two-digit hexadecimal number; for example, 6E.

3. Both Prime and the remote site should be configured identically.

▶ CONNECT logical-synchronous-line-# site (All except PRIME/SNA RJE)

This site definition file command connects a site to a logical-synchronous line. The value logical-synchronous-line-# is a number from 0 to 7 and site is the sitename specified in the DEFSITE command.

This command must immediately follow the ENDSITE command in the site definition file. For example:

```
CONNECT 2 IBM1
```

The logical-synchronous-line-# corresponds to the logical line number specified in the SMLC SMLCnn PRIMOS configuration directive. Sufficient defaults exist in PRIMOS to provide for basic configuration of HSSMLC/MDLC hardware. For ICS1 hardware, the controller address must be specified using the SMLC CNTRLR configuration directive.

▶ DATASET { LOOPBACK | LEASED | SWITCHED | DSC nnn } (All except PRIME/SNA RJE)

This configuration directive defines how data set control is to be done for the logical-synchronous-line-# specified in the CONNECT directive.

1. LOOPBACK (2780/3780, GRTS, and HASP)

   This option allows PRIME/SNA RJE products that can operate in host mode to be logically looped back to themselves. This is done using a special debug mode available with HSSMLC and MDLC, which will logically connect line 0 to 1, or 2 to 3, or 4 to 5, or 6 to 7. It is usually used by Prime for testing and training, and is not useful for anything else. Note that DATASET LOOPBACK does not apply to the ICS2 board.

2. LEASED

   LEASED represents a standard method of data set control used with 4-wire, full-duplex data sets.

   On enable, RJE will

   raise : Data Terminal Ready (DTR)
   expect : nothing

On transmit, RJE will

raise : nothing
wait for: nothing
expect : nothing

On HSSMLC and MDLC lines, receive is enabled at the same time as transmit, which allows for very fast host responses.

This option allows RJE, which by nature is half duplex, to be used on full-duplex lines. It can greatly improve performance, but there is some risk that the host will return a response before RJE is ready for it, or while RJE is transmitting.

The ICS1 is unable to have both the receiver and transmitter enabled at the same time. The ICS1 may fail to receive data if the remote system (that is, host) responds to messages sent by PRIME/SNA RJE with little or no delay. In this case, it will be necessary to configure the line as switched, and set up the modem or data set to supply at least 8.5 ms RTS/CTS delay.

3. SWITCHED

SWITCHED represents a standard method of data set control used with switched, half-duplex, dialup, 2-wire lines.

On enable, RJE will

raise : Data Terminal Ready (DTR)
expect : Data Set Ready (DSR)

On transmit, RJE will

raise : Request to Send (RTS)
wait for: Clear to Send (CTS)
expect : nothing

On HSSMLC and MDLC lines, receive is enabled at the same time transmit is, which allows for very short line turnaround times.

4. DSC n n n (2780/3780, GRTS, HASP, and XBM)

This option allows the operator to tailor the emulator to the specific modem in use. There are three decimal n arguments to the DSC option, as follows.

The first n argument is the data set Lead Strap Word, consisting of four bits which are actually specified by a total decimal number between 0 and 15:

To Raise	Add Number Below to Total
Data Terminal Ready (DTR)	1
Request to Send (RTS)	2
Standby Select (SS)	4
Data Rate Select (DRS)	8

Thus to raise DTR and DRS, the total decimal number for n is 9.

The second n argument is the type of modem, as follows:

Modem	Description
Type 1	A full-duplex (4-wire) modem. Request to Send will not be raised when transmitting, nor will Carrier Detect be checked.
Type 2	A half-duplex (2-wire) modem. Request to Send will be raised, and Clear to Send will be checked before transmitting. The emulator will not start until Data Set Ready is on.
Type 3	Similar to modem type 2, except that Request to Send will not be raised until Carrier Detect is down. This option is for modems that will accept Request to Send while Carrier Detect is still high.

The third n argument defines when the receiver is to be enabled:

Option	Enable
0	Enable receiver and transmitter together.
1	Enable receiver only after transmitter has finished.

Option 0 is the preferred option, as this has the shorter turnaround time on leased or high-speed lines. Option 1 is useful for excessively noisy lines, where spurious messages may be received when transmitting, or for certain types of modems that echo their transmit data back on the receive line.

Note

DATASET LEASED is equivalent to DATASET DSC 1 1 0.
DATASET SWITCHED is equivalent to DATASET DSC 1 2 0.

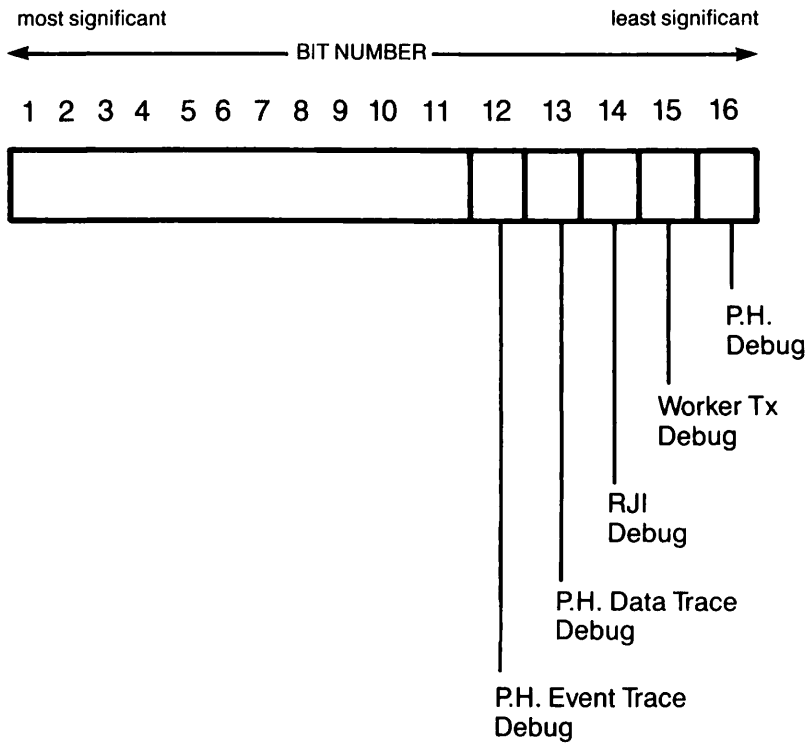
▶ DEBUG number (All except PRIME/SNA RJE)

This command is used for debugging purposes. Number is a decimal value that represents a bit pattern used to enable various debug options. If number is greater than 0, the debugger is on. If it is equal to 0, the debugger is off. The values of number are shown in Figure 4-1.

The currently supported values for DEBUG, the emulations that currently support them, and the emulations that currently do not support them follow.

Emulators	Values
HASP, 2780/3780, GRTS, XBM	Five debug values are currently defined. DEBUG=1 will cause RJPROC to produce a debug trace in its COMOUTPUT file (RJSPLQ*>RJPROC.COMO) for that line only. DEBUG=2 will cause the worker to produce transmit debug files (called site number) in the UFD RJSPLQ*>Qxxx (where xxx = emulator name). These contain the actual blocks that were queued for the RJPROC to send. DEBUG=4 will turn on debug for the RJI routines. This information is written to the WSxxxx.COMO file, which will be found in the UFD RJSPLQ*>Qxxxx (where xxxx = emulator name). DEBUG=8 will produce a data trace debug. (See Appendix C.) DEBUG=16 will produce an event trace debug. (See Appendix C.)
1004, 200UT, 7020	None are defined.

Any combination of the above debug options can be enabled together. Add the values of the options required and then set the DEBUG command to the result of the addition.



Values of Number
Figure 4-1

▶ DEFSITE site

This site definition file command must be the first command specified in a site definition file. This file has the same name as the site and is contained in the sub-UFD RJSPLQ*>SDF. The commands in a site definition file do not vary during the course of a session. (See also Chapter 3.)

The DEFSITE command enters DEFSITE input mode for the named site, during which time only site definition file commands are allowed. The ENDSITE command terminates this mode, and returns the system to the normal command level.

The site definition file is checked on receipt of the ENDSITE command.

To obtain a list of all the site definition file commands for a particular emulator, you can use a dummy site definition file, which consists of the following commands:

```
DEFSITE  name
PROTOCOL xxxx
ENDSITE
```

Then, a TOSITE name command will give an error message that lists all the mandatory site definition file commands for that protocol.

▶ DELSITE [{ sitename }]
          [{ ALL   }]

This command disconnects the named site (or current tosite if none is specified) from the RJOP. The RJOP cannot issue commands or receive messages from the protocol handler until the connection is reestablished with a TOSITE command.

If the line to the named site (or current tosite) is enabled when DELSITE is given, the protocol handler and worker are left running in background mode without RJOP intervention. If the line is not enabled when DELSITE is given, the worker will delete the entry for that site from its tables (allowing another site to run on that line). If there are then no sites left enabled, the worker will log itself out (after a time delay).

If ALL is specified, all sites currently connected to the RJOP are disconnected.

An implicit DELSITE ALL occurs when the EXIT command is given.

▶ DETOUT -MEDSUB medium/subaddress (PRIME/SNA RJE)

The DETOUT command tells the PRIME/SNA RJE site to break the attachment between medium/subaddress and pathname previously made by the ATOUT command.

▶ DISABLE [{ sitename }]
          [{ ALL   }]

This command causes the line for the named site (or current tosite if none is specified) to be disabled. This causes file transfer between the site and the protocol handler to end, and the Data Terminal Ready (DTR) signal to be dropped on switched lines.

If ALL is specified, then the DISABLE command is invoked for each site connected to the RJOP.

The emulator protocol handler is logged out if the last line under its control is disabled. For PRIME/SNA RJE the logical connections with the PRIME/SNA Server established by the ENABLE command are broken.

▶ DSTKEY dstkey (All except PRIME/SNA RJE)

This site definition file command is used in writing destination detection subroutines. If DSTKEY equals 0, then destination detection is not required; all print files received will therefore be spooled. For more information on situations requiring this feature, and thus a non-zero value for DSTKEY, see Chapter 5 and Appendix C. (The destination detection example supplied with the emulator software uses the value DSTKEY=1.)

▶ ENABLE [{ sitename }]
         [{ ALL   }]

This command enables the line for the current tosite or specified sitename. If this site is the first for a particular protocol, then the protocol handler will be executed as a phantom process.

If the ALL parameter is specified, all sites for which the TOSITE command has been given are enabled.

For PRIME/SNA RJE, the ENABLE command causes PRIME/SNA RJE to attempt to establish logical connections with the PRIME/SNA Server for each LU command held in its site definition file.

▶ ENDSITE

The ENDSITE command in the site definition file terminates DEFSITE input mode and initiates site definition checking to ensure the integrity of the site definition file options. Any detected errors are displayed on the user terminal and the site definition request is ignored.

▶ EOFKEY eofkey (All except PRIME/SNA RJE)

This site definition file command is used to define end of file detection. The value for EOFKEY defines the specific mechanism used. Currently three values are implemented.

Value	Meaning
0	No end of file detection is required (each physical receive file is treated as a logical file).
1	The normal (non-1004 emulator) PRIME-supplied end of file mechanism is used.
2	1004-only emulator end of file detection is used.

For more information on situations requiring this feature, see Chapter 6 and Appendix A. Generally, with 2780/3780, HASP, GRTS, and XBM, end of file detection is not needed, and EOFKEY can be set to zero.

▶ EXIT

This command returns you from RJOP to PRIMOS command level while leaving RJOP and protocol handlers running in the background. An implicit DELSITE ALL takes effect for each site currently connected.

▶ FORMS { CRn / LPn / CPn } [form type] (All except PRIME/SNA RJE)

This command sets the form type for the Prime Spooler files produced by the worker. Note that, depending on the setting of MODE, devices may or may not have a form type associated with them. (See the MODE command.)

If form type is omitted, the default is no special forms.

Form types can only be set on configured devices that are legal for the particular emulator being run.

▶ GO (1004)

This RJOP command sends a READY message to the host to restart after either:

- HALT command (see HALT)
- HALT-GO-VOICE situation (see VOICE)

▶ HALT (1004)

This RJOP command sends a HALT message to the host. Upon receipt of the reply HALT from the host, the message HALT ACKNOWLEDGED is displayed on the user's terminal.

▶ HELP option

The HELP command displays the syntax and usage of a given command:

```
HELP command-name
```

where command-name may be any valid emulator command (abbreviated form accepted).

To obtain a list of Prime's RJE emulator commands and details of how to get further help on a specific command, type:

```
HELP HELP
```

HELP is also available for error messages, which are in this format:

```
Error XXnn:  text of message
```

where XX is a two-character identifier identifying the program that reported the error, and nn is the number of the error. The possible values for XX are:

Identifier	Program
SE	RJQ program error
RE	RJOP program error
JE	RJI program error

Identifier	Program
WE	Worker program error
NE	PRIME/SNA RJE worker error

If an error message is displayed, typing HELP as the first command after the message appears will display an explanation of that message.

Typing HELP XXnn, where XX and nn represent any program type and error number, will display an explanation of that message.

▶ JCL

This command is allowed only in CONCAT command mode. The command enters JCL text input mode. This changes the prompt to JCL > and any text following is added to the current CONCAT file.

This mode is terminated by either:

- A carriage return (CR), which enters a null line and returns the terminal to CONCAT command mode.
- The JCL escape string set up or modified by the ABTJCL command when in CONCAT command mode. The escape string, which can be one to eight alphanumeric characters (the default value for the string is >QUIT), deletes the text previously entered in JCL mode and returns the terminal to CONCAT command mode, without abandoning the job built up so far. (When JCL mode is entered, the escape string is displayed in the second of two information lines.) For example:

```
BOC> CONCAT
Concat. > JCL
To finish JCL entry, type an empty line
To abort JCL entry, type >QUIT
Jcl > //STARTJOB
Jcl > $$FILES
Jcl > >QUIT
Concat. > QUIT
BOC>
```

▶ LISTSAVE [sitename] (All except PRIME/SNA RJE)

This command lists the current save files for the specified sitename (or current tosite if none is supplied). Included in the list are the filename, when it was created, and the destination medium type.

▶ LOG { YES / NO } (All emulators)

This command controls the logging of worker messages for the current tosite. It takes effect only when the worker is not talking to an RJOP on that line. (All worker messages to the RJOP are logged regardless of this setting.)

The log file used by all workers and RJOP is called LOG and is in UFD RJSPLQ*.

▶ LQUEUE [sitename] (1004, 200UT, and 7020)

The LQUEUE command displays the current receive file queue for the named site (or for the current tosite if sitename is not given).

▶ LSITE [sitename]

This command lists the site definition file of the named site (or for the current tosite if the sitename parameter is not given).

▶ LTABLE [RECEIVE]

Receive	Pathname	(2780/3780, HASP,
RECV	Filename	and PRIME/SNA RJE)
RX	Default	
Transmit		
XMIT		
TX		

The LTABLE command lists the translation tables in use by a particular site. When LTABLE is issued with no argument, all of the translation tables for a particular file are displayed. Refer to Appendix F for more information on this command.

▶ LU lu_port_name (PRIME/SNA RJE)

The LU command defines an LU port name that must match an LU port name defined in the SNA configuration file. There must be at least one LU command specified for a PRIME/SNA RJE site. A maximum of 10 LU commands can be specified per PRIME/SNA RJE site. The first two characters of each LU port name must be unique to the PRIME/SNA RJE site.

▶ MESSAGE [options]

This command sends a one-line message to the system console, or a specified user. It is identical to the PRIMOS MESSAGE command.

▶ MODE { MASTER [PRIME] | SLAVE [PRIME] }

This is a site definition file command that allows an emulator to be configured at either end of the RJE communications link.

1. MODE MASTER [PRIME] (2780/3780, GRTS, and HASP)

   The RJE emulator can communicate with a remote RJE station, for example, an IBM 2780/3780 workstation. This mode allows the Prime computer to act as a limited host for remote RJE stations.

   In this mode, files are transmitted on device types LP (line printer) for printing on the remote RJE station printer, and CP (card punch) for punching at the remote RJE station card punch. Card decks submitted at the remote RJE station are received by the Prime computer on device type CR (card reader) and spooled in the Prime computer spool queue or put in a UFD. (See the PRSTYLE and READER commands.)

   The optional argument PRIME indicates to the emulator that Prime-to-Prime transmission is taking place, and allows a larger blocksize to be used.

2. MODE SLAVE (terminal) (All except PRIME/SNA RJE)
   MODE SLAVE (terminal) [PRIME] (2780/3780 and HASP)

   The RJE emulator can communicate with a remote host computer. This mode allows the Prime computer to act as a remote RJE station, for example, an IBM 3780 RJE station.

   In this mode, files are transmitted on device type CR (card reader) for processing by the host, and output data from the host is received on device types LP (line printer) and CP (card punch). Line printer files are spooled, and card punch files are either spooled or put in a UFD. (See the PUNCH command.)

   The optional argument PRIME indicates to the emulator that Prime-to-Prime transmission is taking place, and allows a larger blocksize to be used.

Note

In both modes, device OP1 is the operator message device for those protocols supporting operator messages.

▶ MULTIDROP { YES / NO } (XBM)

This site definition file command determines the action to be taken by the RJPROC when running XBM protocol.

If MULTIDROP is set to YES, RJPROC will ignore messages sent to it that contain an incorrect station address. (See the ADDRESS command.) This is to allow RJPROC to function on a multidropped line.

If MULTIDROP is set to NO, RJPROC will report as errors any messages with an incorrect address.

▶ MULTSIG { YES / NO } (PRIME/SNA RJE)

MULTSIG is an optional command indicating that PRIME/SNA should transmit two Data Flow Control (DFC) SIGNAL commands where one would normally be required. The SIGNAL command is used by a PRIME/SNA operator to interrupt the normal flow of data from a host application program. This feature is required for some host applications programs, particularly JES2. Check with personnel at the IBM host site to determine if application programs that you access require multiple SIGNAL interrupts.

▶ OPMESS (PRIME/SNA RJE, 2780/3780, XBM, and HASP)

OPMESS [-LU lu_port_name] (PRIME/SNA RJE)

This command, indicated by the : in the current tosite prompt, allows you to enter multiple lines of text to be sent to the remote site as a single message.

A null line (a carriage return) sends the message and exits from OPMESS, whereas :QUIT deletes the whole message. In either case, the terminal returns to the current tosite prompt mode. The OPMESS command should not be used while a file is being transmitted or received. Doing so violates the protocol.

Example of a Message To Be Sent

```
SIA> OPMESS
SIA: First Line
SIA: Second Line
SIA: Last Line
SIA: (CR)
SIA>
```

Example of a Message To Be Abandoned

```
SIA> OPMESS
SIA: First Line
SIA: Second Line
SIA: rubbish
SIA: :QUIT
SIA>
```

For a PRIME/SNA site, the operator can specify a specific LU-LU session using the optional -LU option. The specific LU port is identified by the lu_port_name argument. If the -LU option is not specified, PRIME/SNA RJE selects the best available LU-LU session on which to send the message.

▶ OPMODE (All except 1004 and PRIME/SNA RJE)

OPMODE [-LU lu_port_name] (PRIME/SNA RJE)

This command places the terminal into operator mode, indicated by the : in the current tosite prompt. Single messages can then be entered and sent to the remote site one line at a time; each message is terminated with a carriage return. OPMODE should not be used while a file is being transmitted or received. Doing so violates the protocol. OPMODE is particularly useful for holding a dialog with the remote site operator. To leave operator mode, enter a null line (a carriage return). In the example below, underlined characters are typed by the user:

```
UCL> OPMODE
UCL: RECOGNITION REQUESTED
UCL: UCL-----PASSWORD:
UCL: TOPDOG
UCL: UCL-----YOU ARE RECOGNIZED
UCL: (CR)
>UCL
```

For PRIME/SNA RJE it performs in the same manner as OPMODE for other RJE Phase II emulators except that the operator can select a specific LU-LU session on which to carry on the dialog.

▶ PAD { YES / NO } (2780)

YES: Pad records to 80 characters (or to PRINTER line width for print files) with the appropriate pad character.

NO: Do not pad records.

The PAD site definition command applies only to the 2780 protocol. Data in the 3780 protocol is always padded.

▶ PADCHAR { SYNC / BLANK / NULL } (200UT)

This site definition file command is used to specify the character padding required for a 200UT emulator. Some remote hosts using 200UT protocol require the EOT (End of Text) character to be in a predefined position when receiving operator or data messages. If this is the case, any padding to position the EOT must be with either a synchronous or blank character.

SYNC: Pad up to the EOT position with synchronization characters.

BLANK: Pad up to the EOT position with blanks.

NULL: Do not pad operator/data messages.

▶ PRIMARY { YES / NO } (2780/3780)

This command specifies that an emulator is a primary or secondary station in line contentions.

YES: The emulator is the primary station and takes precedence in a BID FOR THIS LINE clash. A slave station is normally the primary station.

NO: The emulator is the secondary station and yields to the primary station in a BID FOR THIS LINE clash. A master station is normally the secondary station.

▶ PROTOCOL { 1004 | 200UT | 2780 | 3780 | 7020 | GRTS | HASP | XBM | SNA }

This site definition file command defines the emulator with which the RJOP communicates.

▶ PRSTYLE [{ FORTRAN | NORMAL● }] (2780/3780, GRTS, and HASP)

This command is applicable only to files transmitted in master mode. (See the MODE command.) It specifies whether print files to be transmitted to the slave will have FORTRAN or NORMAL (that is, PRIME ASCII) style format control characters. With PRSTYLE NORMAL no translation is performed. PRSTYLE FORTRAN causes FORTRAN style carriage control characters to be used according to the protocol in use.

▶ PUNCH CPn [{ TRANSLATE | BINARY | SPOOL● }] (All except 200UT, XBM, and PRIME/SNA RJE)

This command defines how files received by the emulator's punch will be processed.

TRANSLATE: The punch files will be translated according to the character set defined by the CODE command and the translated files will be placed, by default, in the sub-UFD RJSPLQ*>PUNCH.

BINARY: The files are converted to Prime file format without code conversion, and placed in the sub-UFD RJSPLQ*>BINARY.

SPOOL: The files should be code translated, converted to Prime file format, and spooled (this is the default option).

For all except HASP, n should be 1; for example, CP1. For HASP, n is the punch device number. The default destination of a punch file can be changed by using the destination detection option.

▶ QUEUE { ADD list / DELETE list / LIST list / BLOCK list / UNBLOCK list } Queuename

This command allows the operator to modify the queuename lists.

As explained in Chapter 2, each site has a default queue that has the same name as the site.

1. QUEUE ADD list queuename

   This command allows the operator to create queuenames and associate them with the current tosite. If queuename never existed, it is created and added to the list of valid queuenames, contained in the file RJSPLQ*>RJQTAB.

   For example, if the current tosite is called IBM3, and you wish users to be able to queue files in queues EXPRESS and STANDARD, use the commands:

```
IBM3> QUEUE ADD EXPRESS
IBM3> QUEUE ADD STANDARD
```

2. QUEUE DELETE list queuename

   This command deactivates the specified queuename, and will cause the worker to stop dequeuing files on that queuename (after the current file has finished).

   Note that this command does not remove the queuename from the list of valid RJQ queuenames — this has to be done by editing the file RJSPLQ*>RJQTAB.

3. QUEUE LIST arguments

   This command lists all of the valid RJQ queuenames, and whether they are blocked or unblocked (see below). A list of the queuenames added to a worker's site may be obtained using the LSITE command (see above).

4. QUEUE { BLOCK queuename | UNBLOCK queuename }

   These two commands allow the operator to temporarily block and unblock the submission of new jobs to a queue. When a queue is blocked, the worker can still dequeue files, but users cannot add any more files to the queue.

Additional queues can be created and used in two ways:

1. A single site can be servicing several queues. This method provides the RJE operator with a simple method of assigning priority for transmission. For example, one queue could be named EXPRESS and the other STANDARD. By using the DELETE option with the QUEUE command, the operator can prevent the worker from transmitting jobs from queue STANDARD until after peak load hours.

2. Several sites can be servicing a single queue. This allows load balancing between multiple lines to a single host.

   For example, a queuename of IBM is created and two sites are defined, IBM1 and IBM2. These two sites have queue IBM added to their list of queues to search by using the ADD option to the QUEUE command. Users submit jobs to queue IBM, which can be transmitted by site IBM1 or IBM2 (two synchronous lines) to the same host.

Note

All of the QUEUE commands operate on a list of queues. For example:

```
QUEUE ADD EXPRESS STANDARD
```

▶ QUIT

This command allows RJOP users to exit from CONCAT and OPMESS command modes. The user is returned to the RJOP or TOSITE command level, and the temporary file built up so far is deleted and not transmitted.

Similarly, had the RJOP user invoked the RJQ command with no command line options, in order for some reason to enter CONCAT command mode through RJQ, the QUIT command may be used to exit CONCAT and RJQ and return to RJOP command level.

▶ READER CRn [{ TRANSLATE / BINARY / SPOOL● }] (2780/3780, GRTS, and HASP)

This command is a master mode command and defines the destination of files received from the remote machine's card reader. For 2780/3780, and GRTS, n should be 1; for example, CR1. For HASP, n is the reader device number.

The options are the same as those for the PUNCH command.

▶ RECORDS { DOUBLE / MULTIPLE } (2780/3780)

The standard 2780/3780 RJE terminal transmits up to two records per block. As an option, it can support up to seven records per block. This configuration command is used to support this option.

DOUBLE: Only one or two records may be present in each block sent to the mainframe.

MULTIPLE: Up to seven records may be sent in each block.

▶ RECOVER [{ sitename / ALL }]

This command performs a recovery procedure for the named site, or for the current tosite if no parameter is given, or for all sites for which a TOSITE command has been given if the ALL parameter is specified. The RECOVER command has the same effect as issuing a DISABLE followed by an ENABLE command for a PRIME/SNA RJE site.

For each line to be recovered, the procedure is to:

1. Disable the line.
2. For 1004, 200UT, and 7020: check, repair, and list the worker to symbiont queue.
3. Reenable the line.

For sites configured with DATASET SWITCHED dialup lines, DTR is maintained high during the RECOVER command.

▶ RELEASE { CRn | LPn | CPn | ALL CR | ALL LP | ALL CP | XMIT | RECV | ALL } (All except PRIME/SNA RJE)

This command enables the operator to release a previously suspended device or devices.

For usage, see the ABORT command.

Applicability

This command applies only to HASP, XBM, 2780/3780, and GRTS. 2780/3780 and GRTS use only the options ALL, XMIT, or RECV.

▶ REMOTE (PRIME/SNA RJE)

The REMOTE command specifies a remote system defined in the SNA configuration file of the PRIME/SNA Server. The remote system configuration defines the Server resources required to support the host communications for the PRIME/SNA RJE site. This command must be present in the site definition file.

▶ REPROCESS n[m] (All except PRIME/SNA RJE)

This command applies to the tosite. It specifies that either the file n, or files n through m, should be reprocessed.

This command can only be used when the site is either not enabled or not receive processing.

The translation code used in the reprocessing is specified in the current tosite and not by the site active at the time when the file was saved.

The files are not deleted by the REPROCESS command.

▶ RESTART [{ DISABLE● }] (2780/3780, GRTS, XBM, and HASP)
[{ ENABLE }]
[{ RECOVER }]

This optional site definition file command defines the action to be taken when the RJPROC protocol handler gets a fatal error in the protocol or, in the case of 2780/3780, GRTS, and HASP, when a disconnect sequence (DLE/EOT) is received from the remote end.

The option DISABLE, which is the default, instructs the worker to disable the line. This action will also hang up (disconnect) a dialup modem if one is connected, by dropping DTR.

The option ENABLE instructs the worker to disable the line, and then reenable it. This also will cause the modem to be reset, by dropping and raising DTR, and is useful for master mode dial-in use.

The final option, RECOVER, instructs the worker to recover the line, without resetting data set control.

▶ RETAIN [{ YES }] (1004, 200UT, 7020)
[{ NO● }]

This command acts for the current tosite and defines whether or not an untranslated copy of the data is to be retained. For all these protocols, YES indicates that the 'R' files are not deleted but are renamed 'S' files.

This command is useful for debugging. The YES option will degrade emulator performance.

▶ RFILE wssn sysn (1004, 200UT, and 7020)

This command defines the next receive file sequence numbers for the worker (wssn) and symbiont (sysn):

wssn = worker sequence number
sysn = symbiont sequence number

It is possible for these numbers to be different, as the symbiont places files at the top of the queue (that is, high-numbered files) while the worker reads files from the bottom of the queue (that is, low-numbered files). The LQUEUE command will give the current receive file queue state, and the current value of the worker's receive file pointer.

If either sequence number is given as zero, then the previous value for that number remains unchanged.

▶ RJQ -- See Chapter 2.

▶ RSHUTDOWN { -LU lu_port_name | -ALL } (PRIME/SNA RJE)

The RSHUTDOWN command causes an SNA RSHUTD Data Flow command to be transmitted for each configured LU port that has established an LU-LU session with the host computer. This causes the remote application subsystems (for example, JES2 or POWER) to sign off the sessions logically. This command has the same net effect as the SIGNOFF command except that the SIGNOFF command has an immediate effect regardless of the session state. The RSHUTDOWN command has two options. The LU lu_port_name option shuts down a specific LU-LU session. The ALL option shuts down all LU-LU sessions.

▶ RUS/CHAIN nn (PRIME/SNA RJE)

The RUS/CHAIN command defines the limit of consecutive request units or RUs that will be transmitted to the host computer before a definite response from the host is requested. RUs are SNA units of data.

The purpose of the RUS/CHAIN command is to enforce a primitive flow control mechanism for data inbound to the host. Normally, flow control is defined by communications controller software at the host site by a parameter called pacing. The RUS/CHAIN command provides an additional means of flow control from the PRIME/SNA RJE side.

The number of allowable consecutive RUs is specified by nn which is an integer ranging from 0 through 99. If nn is 0, the number of RUs becomes unlimited.

▶ SAVE [{ YES | NO● }] (All except PRIME/SNA RJE)

This command acts for the current tosite and defines whether or not received data should be saved for possible later reprocessing. The default is NO.

The data (if saved) will be kept untranslated in files such that each file contains data for only one job from one device. (This implies that the correct EOF detection is needed.) This command can only be accepted if receive processing is not in operation. Saved files are stored in the UFD RJSPLQ*>SAVE.

Note

The YES option degrades emulator performance.

▶ SCONFIG server_config_pathname (PRIME/SNA RJE)

The SCONFIG command specifies the pathname of a PRIME/SNA Server configuration file to PRIME/SNA RJE. This pathname is used by PRIME/SNA RJE at startup to insure that the anticipated SNA configuration file is the same as the one currently in use by the Server Subsystem. The pathname may be up to 128 characters long.

If you attempt to start up PRIME/SNA RJE while another PRIME/SNA Server configuration file other than the one defined in your site definition file is running with the Server, the attempt will be aborted.

▶ SEND send options

This command is allowed only in CONCAT command mode. It completes the concatenation and returns the user to the RJOP command level after queuing the file for transmission. For send options, see the RJQ command line options in Chapter 2.

▶ SIGNOFF [sitename] { -LU lu_port_name / -ALL } (2780/3780, 1004, HASP, and PRIME/SNA RJE)

This command sends the signoff card defined by the SOFDEF command to the current tosite (or sitename if supplied). The SIGNOFF command sends the string defined in the SOFDEF command to a specific SSCP-LU session or all SSCP-LU sessions for a site. SIGNOFF has several options:

- sitename - indicates a specific site. If no sitename is specified, RJOP assumes the site activated by the current TOSITE command.
- -ALL - is valid for a PRIME/SNA RJE site, and specifies that the signoff card should be transmitted via all configured LU ports capable of transmitting the card.

- -LU lu_port_name - indicates that the signoff message is to be sent to a specific LU port. It is valid for a PRIME/SNA RJE site.

If no option is specified, the -ALL option is assumed for a PRIME/SNA RJE site.

▶ SIGNON [sitename] { -LU lu_port_name / -ALL } (2780/3780, GRTS, HASP, and PRIME/SNA RJE)

This command sends the signon card defined by the SONDEF command to the current tosite (or sitename if supplied). The SIGNON command sends the string defined in the SONDEF command to a specific SSCP-LU session or all SSCP-LU sessions for a site. SIGNOFF has several options:

- sitename - indicates a specific site. If no sitename is specified, RJOP assumes the site activated by the current TOSITE command.
- -ALL - is valid for a PRIME/SNA RJE site and specifies that the signon card should be transmitted via all configured LU ports capable of transmitting the card.
- -LU lu_port_name - indicates that the signon message is to be sent to a specific LU port. It is valid for PRIME/SNA RJE sites.

If no option is specified, the -ALL option is assumed for a PRIME/SNA RJE site.

Note

For GRTS, this command (which is optional) sends the identifier card that may be sent before every operator message.

▶ SOFDEF (PRIME/SNA RJE, 2780/3780, and HASP)

This command defines the RJE signoff card for the current tosite. The command is followed by the signoff card to be entered. For example:

```
BOC> SOFDEF
BOC: "signoff card"
```

This card may be up to 80 characters in length.

▶ SONDEF (PRIME/SNA RJE, 2780/3780, 1004, GRTS, and HASP)

This command defines the RJE signon card for the current tosite. The command is followed by the signon card to be entered.

```
UCL> SONDEF
UCL: "signon card"
```

The card may be up to 80 characters in length.

Note

For GRTS, this command (which is optional) defines an identifier card that may be sent before each operator message.

▶ SPLIT { YES / NO } (GRTS)

This command allows users of GRTS protocol emulators to specify whether or not a logical record can be split across block boundaries. Splitting records allows transmitting bigger blocks, with resulting increases in throughput.

YES: Records may be split across block boundaries.

NO: Records may not be split across block boundaries.

Note

Some Honeywell hosts do not support this feature. GRTS users should check with the site staff.

▶ START { TRANSMIT / XMIT / TX / RECEIVE / RECV / RX }

This command invokes TRANSMIT or RECEIVE processing. For 200UT, 1004, or 7020, this implies that the worker is to start dequeuing/enqueuing files from/to the worker-symbiont queue.

For 2780/3780, GRTS, XBM, HASP, and PRIME/SNA RJE, RECEIVE processing is always enabled. Only START TRANSMIT is allowed. It instructs the worker to begin processing jobs from all queues associated with the current tosite.

▶ STATS [{ YES / NO● }]

This command controls the recording of statistical information about files transmitted and received.

NO: Only the filenames will be recorded.

YES: Additional information is recorded, such as the number of characters processed, number of lines, and blocks.

The stats are recorded in two files in RJSPLQ*>Qxxxx (where xxxx is the emulator name) that have the names:

RJSPLQ*>Qxxxx>STATS	for the current run
RJSPLQ*>Qxxxx>LAST STATS	for the previous run

▶ STATUS [{ sitename / ALL }]

This command displays status for the site specified (or for the current tosite if sitename is not given), including:

- Line enabled or disabled
- Whether or not the site is scheduled to receive files

If ALL is given, the status of the workers is also displayed.

▶ STOP { TRANSMIT | XMIT | TX | RECEIVE [NOW] | RECV [NOW] | RX [NOW] }

This command negates the START command and takes effect upon receive completion of the current file. As with the START RECEIVE command, STOP RECEIVE is not required for the 2780/3780, XBM, GRTS, HASP, and PRIME/SNA RJE emulators.

(Note that for stopping the receive processor, the optional NOW argument aborts the processing of the current receive job.)

▶ SUSPEND { CRn | LPn | CPn | ALL CR | ALL LP | ALL CP | XMIT | RECV } (All except PRIME/SNA RJE)

where:

n = Device Number (1-7)
CR = Card Reader
LP = Line Printer
CP = Card Punch

This command enables the operator to temporarily suspend one or all of the transmit or receive devices.

For usage, see the ABORT command.

For applicability, see the RELEASE command.

▶ TEXT pathname

This command is allowed only in CONCAT command mode. It performs code translation (as defined in the CODE command of the site definition file) and appends the result to the current CONCAT file.

▶ TIME increment

This command sets the interval for displaying the current system time to the RJOP user and log files. The increment is in minutes and may not be greater than 60.

An increment of 0 means the time is not displayed. This is an RJOP command and has no relationship to any site or emulator.

▶ TODEVICE { CRn / LPn / CPn } (2780/3780, GRTS, XBM, and HASP)

where:

n = Device Number (1-7)
CR = Card Reader
LP = Line Printer
CP = Card Punch

This command sets the default device at sitename, to which jobs will be sent.

In master mode, the device must be either LPn or CPn.

In slave mode, the device must be CRn.

The default TODEVICE is the lowest numbered card reader for slave and the lowest numbered line printer for master.

▶ TOSITE tosite

This command defines the site to which operator commands, operator messages, and user transmit files are to be sent. Also, it defines the site to which any site specific commands refer (see Chapter 3).

If the tosite's line is not enabled when TOSITE is given, the site definition file (SDF) named tosite in UFD RJSPLQ*>SDF is processed, and communication with the appropriate emulator worker process is started. (The contents of the tosite SDF are not displayed unless the SDF contains an error.)

If the line is already enabled, it remains enabled, and the tosite's SDF configuration options are passed from the associated worker to the RJOP.

Upon the successful processing of the site definition file, the RJOP prompt is preceded by tosite. For example:

```
UCL> LOG ON
UCL> TO BOC
BOC>
```

▶ TRANSPARENT { YES / NO } (2780/3780)

The bisynchronous protocol used by 2780/3780 has two modes: transparent and nontransparent. This command is used to define which mode is to be used for this site. The values YES and NO have the following meanings:

YES: Data is to be sent in transparent mode. (This allows binary data to be sent without the possibility of a bit string being misinterpreted for control information.)

NO: Data is to be sent in nontransparent mode. This is the usual option.

▶ TTABLE

Receive	pathname
RECV	filename
RX	DEFAULT
Transmit	
XMIT	
TX	

The pathname is a Prime pathname with at least one >, and filename is a Prime filename.

The command may only be given when the line is in the configured state (that is, not when the line is running or reprocessing is in progress). More than one TTABLE command may be issued for a given table.

The first parameter determines whether the receive or transmit translation table for the line is to be modified. The second parameter tells RJE how to modify the translation table. By default, the tables are set to the contents of RJSPLQ*>PRIME_code.RJE and RJSPLQ*>code_TO_PRIME.RJE where code is either ASCII or EBCDIC.

If the second parameter is a filename, the translation table is read from RJSPLQ*>filename[.RJE]. If the second parameter is the pathname of a SAM, DAM, or CAM file, then the modification is read from that file.

If the DEFAULT option is given, the appropriate table is set back to the default. Refer to Appendix F for more information on this command.

▶ VFCDEF filename lnecnt (2780/3780, GRTS, and HASP)

c1line
.
.
.
c16line

This command creates a Vertical Forms Control (VFC) file for use with 2780/3780, GRTS, and HASP emulators where filename is a one- to four-character VFC file to be created under RJSPLQ*, and lnecnt is the number of lines per page (<lnecnt<145). If the lnecnt parameter is left blank, then no maximum page size is defined. If the file already exists, it will be overwritten.

c1line, c2line...c16line are the absolute line numbers assigned to a given channel.

This command creates a vertical forms control file called filename containing the following:

- Number of lines/page (lnecnt).
- Remaining parameters (1-16) are the absolute line positions for control channels which are also numbered 1 to 16. Each line must be numbered 1 or greater, and must be less than or equal to lnecnt.

It is not essential to specify all channel line numbers; any unspecified channel line numbers are set null.

An example of the use of the command is:

```
> vfcdef vfc1 68,,1,20,,,60
> vfclist vfc1

Listing of VFC File VFC1

Pagesize is 68
Channel  1 is not defined
Channel  2 is line  1
Channel  3 is line 20
Channel  4 is not defined
Channel  5 is not defined
Channel  6 is line 60
```

Listing of VFC File VFC1

```
Channel  7 is not defined
Channel  8 is not defined
Channel  9 is not defined
Channel 10 is not defined
Channel 11 is not defined
Channel 12 is not defined
Channel 13 is not defined
Channel 14 is not defined
Channel 15 is not defined
Channel 16 is not defined
```

▶ VFCFILE LPn { filename | -OFF } (2780/3780, GRTS, and HASP)

This command, which can be present in the site definition file or issued interactively from RJOP, defines the name of the vertical forms control file for the current tosite. If specified, the filename parameter should be the name of one of the files previously created with the VFCDEF command. If the parameter -OFF is supplied then no special VFC is required. In this case a default forms control file called VFCD is used with a form length of 60 lines and throw to Top Of Form as the only channel defined (channel 1=TOF). There must always be a VFC file present in RJSPLQ*, whether it is the default VFCD or a user-supplied one.

The n value in LPn may only be 1, except for HASP.

▶ VFCLIST filename (X80, HASP, and GRTS)

This command lists the Vertical Forms Control (VFC) file of the specified filename. The file must have been previously created with the VFCDEF command and the filename must not be more than four characters in length. The VFC file contains the following information:

- Number of lines per page, where 0 < #lines < 145.
- The line position for each control channel (1-16) where each line number must be greater than zero, and less than the number of lines per page. Any channel numbers that are not specified will be printed as not defined.

For example:

```
BOC> VFCLIST   VFCD
```

Listing of VFC File VFCD

```
Pagesize is 66
Channel  1 is line 1
Channel  2 is not defined
Channel  3 is not defined
Channel  4 is not defined
Channel  5 is not defined
Channel  6 is not defined
Channel  7 is not defined
Channel  8 is not defined
Channel  9 is not defined
Channel 10 is not defined
Channel 11 is not defined
Channel 12 is not defined
Channel 13 is not defined
Channel 14 is not defined
Channel 15 is not defined
Channel 16 is not defined
```

If the file is corrupt, then an error message will be displayed instead of the listing.

▶ VOICE [sitename] (1004)

This command sends a HALT-GO-VOICE sequence to the mainframe for the current tosite (or sitename if given).

▶ WIDTH LPn width (2780/3780, GRTS and HASP)

This command is used to set the maximum line width, in characters, of printer output (excluding the return) for the current tosite.

For 2780/3780 and GRTS, n must be 1. If the width is not specified, the value defaults to 132. This command applies both to line printer files transmitted in master mode and line printer files received in slave mode.

5
PRIME/SNA RJE Emulation

INTRODUCTION

This chapter describes how the PRIME/SNA family of products supports emulation of the IBM 3770 Series RJE workstation.

This chapter covers the following topics:

- PRIME/SNA fundamentals
- Installing PRIME/SNA RJE
- Configuring your PRIME/SNA RJE site
- PRIME/SNA RJE as an IBM 3776-3 terminal emulator
- Supporting IBM 3776-3 operator commands by PRIME/SNA and PRIMOS commands
- Queuing files to a host system (modifications to the RJQ command interface applicable to PRIME/SNA RJE)
- Controlling your PRIME/SNA site (modifications to the RJOP command interface applicable to PRIME/SNA RJE)
- Printing PRIME/SNA RJE files using the PRINT_SCS command

There are differences between the user and operator interfaces for bisynchronous emulators and PRIME/SNA RJE. PRIME/SNA RJE uses the same basic command set to define site configuration parameters and move

files to and from a host system. However, new commands are present, some commands are absent, and common commands have a different set of options.

Like the other emulators, PRIME/SNA RJE has a specific worker defined for protocol translation. But major differences exist from the point where data is received and transmitted from the workers to the point where it leaves or arrives at a host system. These differences also affect how a PRIME/SNA RJE site is configured.

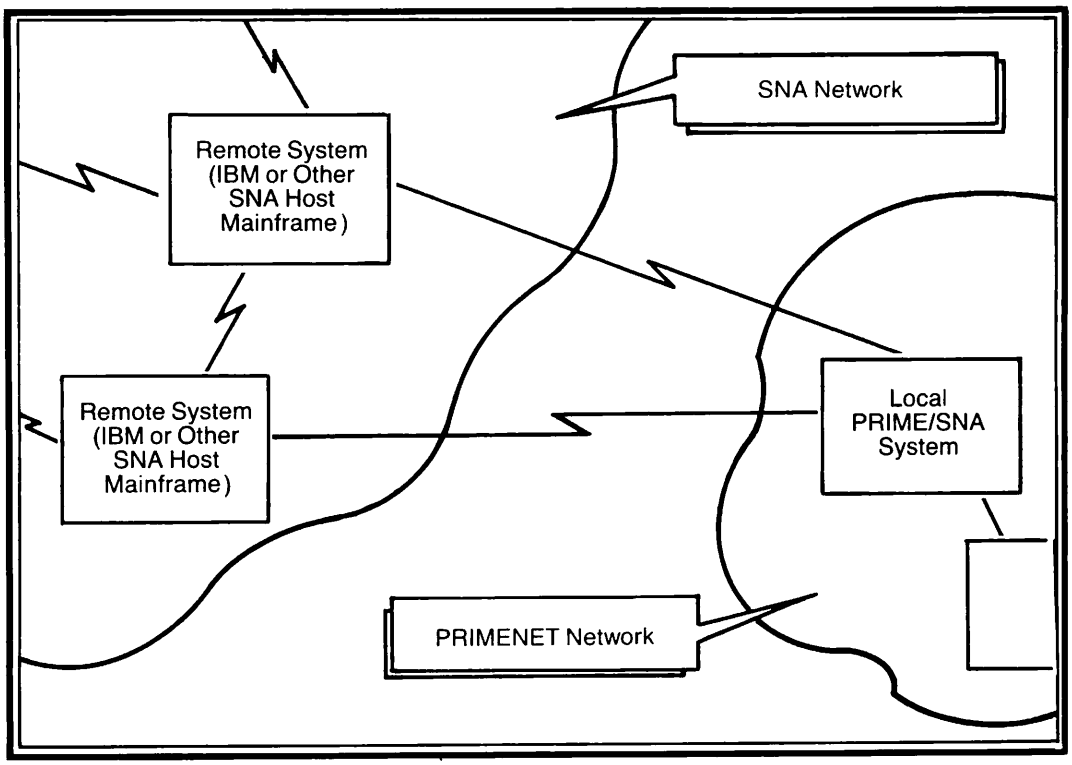
PRIME/SNA RJE uses the PRIME/SNA Server in the place of the protocol handler as shown in Figure 1-2. The PRIME/SNA Server manages the communication between an IBM host in an SNA network and PRIME/SNA RJE. PRIME/SNA RJE acts as the worker and processes host-related protocol information (in this case, SNA protocols). The PRIME/SNA RJE worker processes data it receives from the IBM host and passes the data to the PRIMOS file system, the PRIMOS print spool queue, or to an RJOP terminal operator's user process. Similarly the PRIME/SNA RJE worker processes data received from the RJE Phase II transmission queue and an RJOP terminal operator's user process and transmits the data to the IBM host. To make this relationship clear, it is important that you understand a little about the components of the PRIME/SNA product family.

In addition, if you are not familiar with the operation of SNA networks, Appendix H provides some basic information about SNA networks. You may want to read Appendix H before you continue reading this chapter so that you can familiarize yourself with SNA terminology and concepts referred to in this chapter. You also can find a more detailed description of PRIME/SNA and SNA network operation in the PRIME/SNA Administrator's Guide.

PRIME/SNA FUNDAMENTALS

PRIME/SNA is a group of subsystems that allows Prime users to access application programs running on one or more IBM host systems in an SNA network.

Figure 5-1 illustrates the relationship between a system running PRIME/SNA software and two IBM host systems in an SNA network.



PRIME/SNA and an SNA Network
Figure 5-1

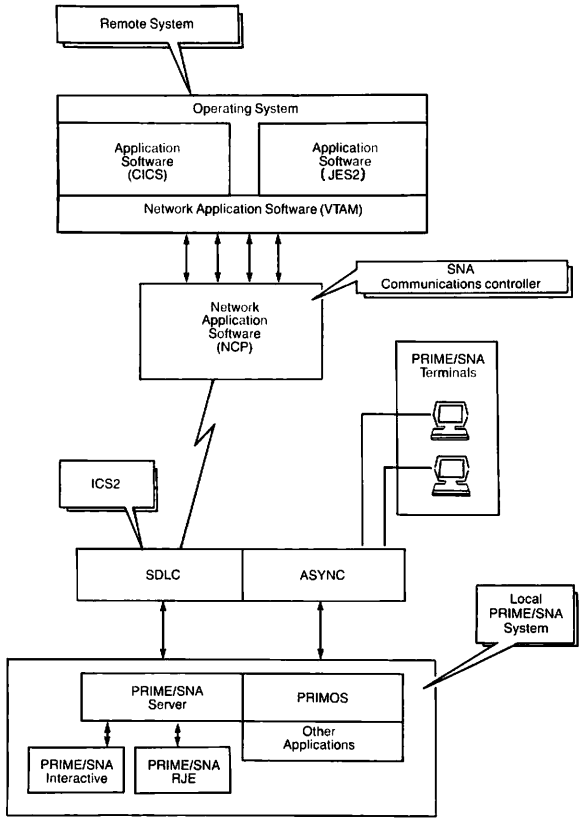
The main components of PRIME/SNA are:

- The PRIME/SNA Server Subsystem (PRIME/SNA Server)
- The PRIME/SNA Interactive Subsystem (PRIME/SNA Interactive)
- The PRIME/SNA RJE Subsystem (PRIME/SNA RJE)

The PRIME/SNA Server manages the communication between an IBM host and the PRIME/SNA Interactive and PRIME/SNA RJE Subsystems. The PRIME/SNA Interactive and PRIME/SNA RJE Subsystems rely on the support of the Server. Before users can access IBM host applications, the Server must be running.

The PRIME/SNA Interactive Subsystem manages logical devices (defined as CRTs and printers) that are used by PRIME/SNA users to communicate with applications programs on an IBM host.

The PRIME/SNA RJE Subsystem manages one or more PRIME/SNA RJE sites. Each PRIME/SNA site emulates an SNA RJE workstation and allows bulk data file transfer to and from an IBM host. Figure 5-2 illustrates PRIME/SNA components and their organization.



PRIME/SNA Components and Organization
Figure 5-2

Note that it is not necessary to own both the PRIME/SNA Interactive and PRIME/SNA RJE Subsystems. These two subsystems share resources but operate independently under the management of the PRIME/SNA Server.

Communication With an IBM Host

SNA (Systems Network Architecture) allows different types of computers and devices that support a common architecture to communicate, to share resources, and to share application programs.

SNA defines sets of rules (protocols) that govern how data is transported through an SNA network. Because SNA makes it possible for many different types of computers and devices to communicate, SNA is very complex. PRIME/SNA implements a subset of SNA that allows Prime users to access SNA network applications to make bulk file transfers as an RJE workstation and communicate interactively as an IBM 3270 Display Terminal.

Using PRIME/SNA commands, you establish and maintain connections with one or more IBM host systems. The physical part of the connection, the actual passing of bits across a communications medium (for example, microwave link and dialup lines) is handled by communications

controllers at each end of the communications link. PRIME/SNA uses the ICS2 (Intelligent Communications Subsystem II) communications controller to transmit and receive data across a physical link.

SNA usually uses a protocol called SDLC (Synchronous Data Link Control), for communications across a physical link. SDLC software, resident in the ICS2, passes data received from an IBM host to the PRIME/SNA Server. This data consists of control information (used by the PRIME/SNA Server and its counterpart on the IBM host to manage the connection) and user data (from a batch file transfer or interactive application being run by one of the PRIME/SNA users on your system).

In the case of batch transfer applications, the PRIME/SNA Server passes user data and some control information to the PRIME/SNA RJE Subsystem.

For example, in a typical PRIME/SNA environment, PRIME/SNA RJE users at a branch office of a large corporation send and receive files to and from an IBM host at the main office. The files sent to the host might consist of customer orders received by the branch during the day. Files sent from the host might include report files generated at the host from a previous day's customer files and weekly payroll records for the branch. The transfer may be performed outside normal working hours.

Most likely, PRIME/SNA will also be sharing CPU processing with other users accessing local applications such as Prime Information or Office Automation.

The resources available to PRIME/SNA RJE and PRIME/SNA Interactive Subsystem users are defined in the SNA configuration file by your PRIME/SNA Administrator using a PRIME/SNA configuration utility. PRIME/SNA RJE requires that you supply matching information to the site definition file for the SNA RJE site using site definition commands provided exclusively for PRIME/SNA RJE.

For those familiar with the 3776-3 RJE operator commands, some of the configuration information contained in the SNA configuration file corresponds to options that an operator would supply using the Terminal Initialization Procedure (TIP) command. The TIP command defines terminal initializing parameters for a 3776-3 RJE workstation. A 3776-3 RJE operator uses TIP to specify line, communications adapter, and device control characteristics such as full-duplex or half-duplex mode for a leased line.

You can use the STATUS command available for the PRIME/SNA Server to check the status of PRIME/SNA resources that are configured for your system or network and for checking PRIME/SNA Server resources used by PRIME/SNA RJE. Similarly, use the RJE Phase II RJOP STATUS command to display the status of a site. Checking RJE status is described later in this chapter.

INSTALLING PRIME/SNA RJE

Before you install PRIME/SNA RJE software, the PRIME/SNA Server Subsystem software should be installed as described in the PRIME/SNA Administrator's Guide.

The following UFDs are required to install PRIME/SNA RJE:

- RJSPLQ* - the RJE Phase II UFD installed with PRIMOS which contains run files for RJE Phase II and installation files required by the RJE Phase II build.

- EMSNA_RJE - UFD which contains EPF and installation files for installing the PRIME/SNA RJE worker. The installation file copies QSNA into the RJSPLQ* UFD structure and creates other sub-UFDs in RJSPLQ*. Versions of RJOP and RJQ required by PRIME/SNA RJE are installed in CMDNC0.

The RJQ and RJOP processes are common to all emulators (including PRIME/SNA RJE).

As with other RJE Phase II software, the RJSPLQ* subdirectories are created as necessary by the installation command files. Certain installation command files residing in RJSPLQ* should exist which will have to be run later as part of the installation process.

The installation process consists of the following steps:

1. Attach to the PRIME/SNA RJE UFD:

   ```
   OK, A EMSNA_RJE
   ```

2. Execute the installation file as follows:

   ```
   OK, CO EMSNA_RJE.INSTALL.COMI
   ```

   The SNA_RJE.INSTALL file does the following:

   - Creates certain directories if they do not exist

   - Copies the contents of the directories in EMSNA_RJE to the appropriate system directories and subdirectories in RJSPLQ*

EMSNA_RJE contains the following directories:

- CMDNC0 - Run files of EDIT_EFU, PRINT_SCS, RJOP, and RJQ

- SYSTEM - PRIME/SNA RJE share files

- PRIME/SNA* - Message file for EDIT_EFU
- CMDHELP - Command HELP files for SNA commands
- ERRHELP - Error HELP files for SNA error messages
- MESSAGES - New RJSPLQ* message file directory
- QSNA - PRIME/SNA RJE command files and run files
- SDF - SDF_SNA example file
- RJSPLQ* - New installation file to be run whenever an emulator is installed

RJOP and RJQ are now built as EPFs by PRIME/SNA RJE. RJOP.RUN and RJQ.RUN are copied to both CMDNC0 and RJSPLQ*>CMDNC0 during the PRIME/SNA RJE installation. EMSNA_RJE>RJSPLQ* contains a new installation file, RJE_EPF.INSTALL.COMI, which is copied to RJSPLQ*. This file must be executed if another emulator is built and installed after the PRIME/SNA RJE emulator is installed. It deletes the RJOP.SAVE and RJQ.SAVE files from CMDNC0 and replaces them with RJOP.RUN and RJQ.RUN which contain support for PRIME/SNA RJE.

Add the following file to PRIMOS.COMI in CMDNC0 as follows:

```
CO SYSTEM>SNA_RJE.SHARE.COMI 7
```

If the system is coldstarted before trying to run PRIME/SNA RJE, run the share command file by typing the following command at the system console: COMI SYSTEM>SNA_RJE.SHARE.COMI

After the PRIME/SNA RJE software is installed, the proper access rights need to be assigned for PRIME/SNA operators and users. This process involves setting up appropriate ACLs and adding operators and users to ACLs and ACATs defined for the PRIME/SNA Server. This information is described in the PRIME/SNA Administrator's Guide.

CONFIGURING YOUR PRIME/SNA RJE SITE

The PRIME/SNA Server configuration (used by the PRIME/SNA Server) is created and maintained by your PRIME/SNA Administrator. It contains information required by the PRIME/SNA Server to establish and maintain connections with one or more remote systems.

Several PRIME/SNA Server configuration can exist, but only one can be running at any one time with the PRIME/SNA Server. Information you define in your PRIME/SNA RJE Site Definition File (SDF) must correspond to information in the PRIME/SNA Server configuration that is being used by the PRIME/SNA Server. One important parameter that your site

definition file must contain is the name of the PRIME/SNA Server configuration you expect to be running with the PRIME/SNA Server. Another important parameter is the name of the remote system with which RJE sessions will be established.

You create and maintain a site definition file using a text editor such as EDITOR or EMACS. The site definition file contains RJE Phase II site definition commands. Additional commands have been provided so that parameters corresponding to those in the SNA configuration can be defined in the site definition file for your PRIME/SNA RJE site. These commands are described in Chapter 4.

Information about PRIME/SNA Server configurations is summarized in the next section. If you want to know more about PRIME/SNA Server configurations and the PRIME/SNA Server configuration process, refer to the PRIME/SNA Administrator's Guide.

PRIME/SNA Server Configuration Files

The PRIME/SNA Server configuration is a file created and maintained by your PRIME/SNA Administrator for use by the PRIME/SNA Server. It has a main section containing line, remote system, and LU (Logical Unit) port information used by the PRIME/SNA Server. LU ports are defined for use by the RJE and PRIME/SNA Interactive Subsystems.

You include the LU port names configured in the PRIME/SNA Server configuration file in your PRIME/SNA RJE site definition file.

PRIME/SNA defines the following entities related to PRIME/SNA RJE in the PRIME/SNA Server configuration file:

- Line
- Remote system
- LU port

Figure 5-3 shows a sample PRIME/SNA Server configuration. In this sample configuration, PRIME/SNA is configured to allow PRIME/SNA users to access an interactive application and to do batch file transfers on two remote systems using two communications lines.

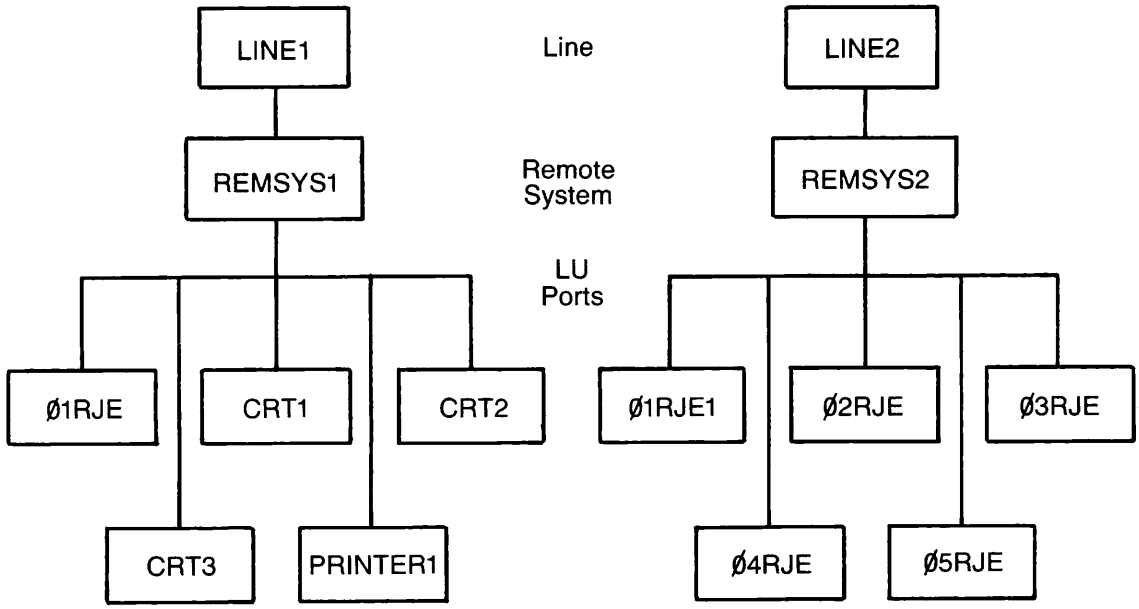
Users access an interactive data entry program and an RJE batch file transfer program on REMSYS1. The data entry program requires periodic printing of standard forms by several users sharing a single printer.

For REMSYS1 users, the PRIME/SNA Administrator has defined five LU ports in the PRIME/SNA Server portion of the PRIME/SNA Server configuration — one port for RJE, three ports as CRTs for the data entry program, and one port as a printer for the data entry program.

The logical characteristics for the LU ports used by the Interactive Subsystem for the data entry program are defined in a separate Interactive configuration entry. Attributes such as default and alternate CRT display screen sizes would be defined for the CRTs. Buffer sizes might be defined for printers.

The logical characteristics of the LU ports to be used by the RJE Subsystem are defined in a PRIME/SNA site definition file.

The application on REMSYS2 is a batch file transfer program that transmits several large reports from the host requiring the services of five LU ports on a separate line.



Sample PRIME/SNA Server Configuration
Figure 5-3

Line: A PRIME/SNA line is the hardware and software support required for PRIME/SNA to communicate with a remote system (or IBM host — refer to the following definition of remote system) over a physical communications medium. The hardware consists of a line adapter card (LAC) that supports synchronous communications via an RS 232-C/V.24 or V.35 interface, and cabling to support either modems or direct connections. The software is resident in the ICS2 and consists of the set of functions necessary to support the SDLC line protocol.

The characteristics of each line are defined in the SNA configuration file.

Lines can be assigned to groups to make it easier to start and stop several lines at once. Line group assignments are defined by your PRIME/SNA Administrator in the PRIME/SNA Server configuration.

The sample in Figure 5-3 shows a configuration of two lines with one remote system defined for each line.

Remote System: A remote system is the PRIME/SNA and host system support for a connection between PRIME/SNA and an IBM host system. You use PRIME/SNA Server commands to start and stop local PRIME/SNA support for one or more connections with one or more remote systems. When you start a remote system you are not actually starting the connection between your Prime system and an IBM host. You are asking the PRIME/SNA Server to make the resources on your system available to the IBM host. The PRIME/SNA Server must wait for the IBM host system to request a connection with your system. The connection is established through a dialog between the PRIME/SNA Server and the IBM host system.

A remote system is the fundamental resource of the PRIME/SNA Server. Although requests can be specified for lines, a line is simply a collection of one or more remote systems.

Remote systems can be assigned to groups to make it easier to start and stop several remote systems at once. Remote system group assignments are defined in the PRIME/SNA Server configuration.

The sample configuration shown in Figure 5-3 has two remote systems, REMSYS1 and REMSYS2.

LU Port: An LU (Logical Unit) port is the logical access through which host applications communicate with PRIME/SNA RJE users. End users of an SNA network are defined as the sources and destinations of information passing through the network. End users of PRIME/SNA RJE are the PRIME/SNA RJE operators and the disk files and physical devices that provide and receive user data.

Your PRIME/SNA Administrator determines the number of LU ports that are required by PRIME/SNA users for each remote system and defines LU ports in the PRIME/SNA Server configuration file. Remember that LU ports are defined for use by both the Interactive and PRIME/SNA RJE Subsystems. If you are running Interactive and RJE Subsystems concurrently, it is useful to monitor the status of these shared resources using PRIME/SNA Server, PRIME/SNA Interactive Subsystem, and PRIME/SNA RJE STATUS commands.

Refer to the PRIME/SNA Operator's Guide for operation and command formats of the PRIME/SNA Interactive Subsystem STATUS commands. The PRIME/SNA RJE and PRIME/SNA Server STATUS commands are described later in this chapter.

LU ports are assigned numbers and optional names. For the PRIME/SNA Interactive Subsystem, your PRIME/SNA Administrator also must define

the type and characteristics of the logical device assigned to each LU port. LU ports for PRIME/SNA RJE are defined by PRIME/SNA RJE using the LU site definition command.

When a remote system connection is activated by the host system, the host system also activates the LU ports configured for that remote system. When LU ports are activated by the host, PRIME/SNA RJE can use them for file transfers to and from the host.

You must perform the following steps in order to communicate with a host through a configured LU port:

1. Issue a TOSITE command that references a valid site definition file.

2. Issue an ENABLE command to request that the PRIME/SNA Server request an LU-LU session with the host for all LUs configured for the PRIME/SNA RJE site (associated with the site definition file specified in the current TOSITE command).

3. Issue logon requests via SONDEF and SIGNON commands unless the host is configured not to require this.

4. When transmitting files, you also must issue a START TX command to let PRIME/SNA RJE know that you will be transmitting files to the host.

In the sample configuration shown below, five LU ports are configured for REMSYS1 (remote system 1) as follows:

Port Number	Port Name
1	01RJE
2	CRT1
3	CRT2
4	CRT3
5	PRINTER1

Note

PRIME/SNA RJE requires that the first two characters of an LU port name be unique. The PRIME/SNA Interactive Subsystem does not require that the first two characters of an LU port name be unique.

Defining Your Site Using RJOP Site Definition Commands

You configure a PRIME/SNA RJE site using RJE Phase II commands in the same manner as other RJE Phase II emulators. Additional commands are

provided to enable you to define parameters required by the PRIME/SNA Server that must correspond to a PRIME/SNA Server configuration file.

As mentioned previously, RJE Phase II software imposes no limit on the number of PRIME/SNA site definition files you can create. However, only 32 RJE Phase II sites can be active at once, and a maximum of eight may be active to a single RJOP. In addition, PRIME/SNA RJE will only support eight active sites at once.

The site definition file exists in the directory RJSPLQ*>SDF along with site definition files for other RJE Phase II emulators.

The following RJE Phase II required site definition commands are supported without modification (refer to Chapter 4 for definitions of these commands):

- AUTOSIGN
- DEFSITE
- ENDSITE
- PROTOCOL

Note that the argument for the PROTOCOL command for PRIME/SNA RJE is SNA.

The following site definition commands are supported specifically for PRIME/SNA RJE:

- LU
- MULTSIG
- REMOTE
- RUS/CHAIN
- SCONFIG

Note

Other Phase II emulators require that a CONNECT command follow the ENDSITE command in a site definition file. The CONNECT command associates the site defined in the DEFSITE command with an HSSSMLC/MDLC line number. PRIME/SNA RJE does not support the CONNECT command because line configuration is handled by the PRIME/SNA Server. When the ENDSITE command is executed in a PRIME/SNA site definition file, PRIME/SNA RJE attempts to establish communication with the PRIME/SNA RJE worker.

PRIME/SNA AS AN IBM 3770 SERIES TERMINAL EMULATOR

PRIME/SNA RJE provides support necessary to emulate an IBM SNA RJE workstation. While the target device is the 3776-3 RJE workstation, emulation is compatible with the 3776-4 and 3777-3 model RJE workstations.

The following functions and features of an IBM 3776-3 RJE workstation are supported:

- Sending and receiving operator-initiated SSCP logon and logoff messages
- Sending SSCP logon messages automatically
- Data formats for sending operator console application messages, Basic Card, and Basic Exchange medium data files to a host system and console data displayed on the RJOP console
- Data formats for receiving Basic Card, Basic Exchange, and Print medium data files from a host system and console data displayed on the RJOP console
- Logging error and console messages from a host system
- Transparency for card medium data
- Concatenation of files for JCL insertion
- Session status information display
- Data and space compression and decompression to and from a host system
- Data and space compaction from a host system (not supported for data transmitted to a host)

The following additional functions not available on an IBM 3776-3 RJE workstation are supported:

- Queuing of jobs transmitted to an IBM host using the RJE Phase II queue
- Support for 10 RJE sessions per workstation
- Support of ASCII (for Prime workstation) and EBCDIC (for transmission over communications link to an IBM host) character sets
- Device independence — files from an IBM host can be spooled to any printer supported by the PRIMOS Spooler; files sent to the host can be generated by any input device supported by PRIMOS (but must be stored in an intermediate form on disk)

- Ability to create disk files and enter data using a Prime text editor
- Compatibility with RJE Phase II commands and procedures

SSCP Logon/Logoff

In the IBM RJE environment, a signon card is usually required by the host when a communications line is enabled to establish an RJE session. A signoff card may be required to terminate the session. The PRIME/SNA RJE commands SIGNON, SIGNOFF, SONDEF, SOFDEF, and AUTOSIGN are used to satisfy this requirement.

However, for PRIME/SNA RJE the signon and signoff cards are logon and logoff messages sent to the SSCP at the host. This procedure can be done manually by the operator using the SIGNON and SIGNOFF commands, or automatically (for SIGNON) by an AUTOSIGN command in the site definition file.

In a 3770 environment, the signon card is an 80-column card image (80 bytes maximum) that identifies the user, includes required security information (such as passwords), specifies an application the user wants to access, and specifies various logon parameters required by that application.

For example, the following signon message logs into the host application, JES2:

```
LOGON APPLID(JES2) LOGMODE(BATCH) DATA(RMT20)
```

The signon card for PRIME/SNA RJE is a message up to 80 characters defined in the site definition file using the SONDEF command. It provides the required identification for the host SSCP to establish a connection between a PRIME/SNA RJE LU port and a remote configuration of a host application program (such as JES2 or POWER).

Data Formatting

Before user data is sent between PRIME/SNA RJE and an IBM host, information is passed between them that identifies the medium type and subaddress of the transmitted data. The medium type is the format of the associated data, such as 80-column card images or printer data. The subaddress is the destination address within the remote node of the logical device that is to receive the data. Medium/subaddresses are also correspondingly defined at the host system.

Medium/subaddresses are represented and referenced by PRIME SNA/RJE in the form of a two- or three-character string. The first character of

the string represents the medium. Valid mediums for inbound transmission to the host are:

C = Card medium

E = Basic Exchange medium

K = Console medium

Valid mediums for outbound transmission from the host are:

C = Card medium

E = Basic Exchange medium

P = Print medium

The second and possibly the third characters in the string are the subaddress in the form of an integer ranging from 0 to 15. Thus, a valid medium/subaddress used for outbound transmissions might be P5. This could be used in the ATOUT command, for example:

```
ATOUT <DALLAS>HATS -MS P5 -PRINT '-FORM FEZ'
```

In addition to forming part of the medium/subaddress, mediums define the type of data associated with the address. Specifically, the medium defines the subset of the SNA Control String (SCS) characters that are allowed in the associated data. SCS characters define attributes of the data, such as how it should be formatted when displayed; whether it is to be interpreted as transparent; where records start and stop, etc. The following descriptions provide brief definitions of the mediums supported by PRIME/SNA RJE.

PRIME/SNA RJE supports the following medium types for data transmitted to an IBM host.

- Console: Console medium data is composed of SCS control characters that can be displayed on a computer operator console. Console data usually comprises remote system application commands that may or may not be displayed on the operator console at the host site. These commands are not part of SNA and vary for each host application. This is an alternate to transmitting data with the OPMESS and OPMODE commands.

- Card: Card medium data is composed of SCS control characters that are consistent with a card image (these card images are in the same format as those received from the host). PRIME/SNA supports card medium record lengths ranging between 0 and 80 characters.

Note

PRIME/SNA RJE does not support extended card format. Extended card format allows record lengths of up to 255 characters. The IBM 3776-3 RJE workstation supports extended card format.

- Basic Exchange: Basic Exchange medium data is composed of SCS control characters that are consistent with IBM Basic Exchange Diskette record format. Basic Exchange is the record format for optional diskette storage devices supported by IBM 3776-3 RJE workstations. PRIME/SNA RJE supports Basic Exchange medium formats with a record length ranging between 0 and 128 characters (as does the IBM 3776-3 RJE workstation).

PRIME/SNA RJE supports the following medium types for data received from an IBM host.

- Console: Console medium data received from the host is in the same format as Console medium data transmitted to the host. Console medium data received from the host is displayed on the PRIME/SNA RJE operator's terminal. Console medium data comprises application-dependent RJE operator messages.

  Console medium data output may typically be in the format of a table showing the state of a host application file queue with files bound for the PRIME/SNA RJE site. Since console medium data received from the host is always destined for the RJOP console, it cannot be referenced by the ATOUT command.

- Card: Card medium data received from the host is in the same format as Card medium data transmitted to the host.

- Basic Exchange: Basic Exchange medium data received from the host is in the same format as Basic Exchange medium data transmitted to the host.

- Print: Print medium data is made up of SCS control characters suitable for controlling printers. For example, information to define vertical forms definitions may be included in a print medium data stream. Print medium data is usually spooled to a designated PRIMOS spool queue defined in the site definition file.

Obtaining Status Information on PRIME/SNA Resources

Because the PRIME/SNA Server acts as protocol handler for PRIME/SNA RJE, and PRIME/SNA RJE shares LU port resources with PRIME/SNA Interactive, you need to know about two different types of status facilities: PRIME/SNA Server status and PRIME/SNA RJE status. The PRIME/SNA Server uses the SNA_SERVER command with the -STATUS option.

The PRIME/SNA RJE STATUS Command: The PRIME/SNA RJE STATUS command displays the following information for PRIME/SNA RJE:

- Sitename
- Whether multiple signal interrupt is configured (refer to the MULTSIG command described in Chapter 4)
- Whether there is a configured limit to the number of RUs per chain sent to the host system (refer to the RUS/CHAIN command described in Chapter 4)
- How files are attached to local medium/subaddresses by the host system (refer to the ATOUT command described in Chapter 4)
- List of LU-LU sessions in the process of transmitting or receiving files with medium/subaddress, session state, and a destination or origin UFD or file pathname
- Information for each configured LU port

The information displayed for each configured LU port is as follows:

- SSCP-LU session state
- LU-LU session state
- BIND variables defined for the LU-LU session (for example, whether the LU is capable of receiving compacted data)
- Medium/subaddress of the file being transmitted or received

The output of a typical PRIME/SNA RJE STATUS command is shown below.

```
Site Name: RJE1
Multiple Signal Interrupt: Y
Maximum RU's Per Chain:   25
Attached Outbound Medium/Subaddresses:
MS   ACTIVE   UFD/FILE   PATHNAME
C01    Y         F       <DISK2>MANAGERS>TIME_CARD
P01    N         U       <DISK1>PAYROLLDEPT>PAYROLL
```

```
LU Port Name:              01RJE
SSCP-LU State:             ACTIVE
LU-LU State:               RECEIVE
BIND Capabilities:         512 Max RU size
                           XMIT End Bracket
                           RCV/Compaction

Receiving      P01   :     <DISK1>PAYROLL>DEPT>PAYROLL>EXEMPT
-------------------------------------------------------------
LU Port Name:              02RJE
SSCP-LU State:             ACTIVE
LU-LU State:               RECEIVE
BIND Capabilities:         256 Max RU size
                           XMIT End Bracket
                           RCV/Compaction

Receiving      C01   :     <DISK2>MANAGERS>TIME_CARD
-------------------------------------------------------------
LU Port Name:              03RJE
SSCP-LU State:             ACTIVE
LU-LU State:               SEND
BIND Capabilities:         256 Max RU size
                           XMIT End Bracket
                           RCV/Compaction

Sending        C00   :     <DISK2>MANAGERS>SHIPPING_ORDERS

-------------------------------------------------------------
LU Port Name:              04RJE
SSCP-LU State:             ACTIVE
LU-LU State:               BETWEEN BRACKETS
BIND Capabilities:         256 MAX RU SIZE
                           XMIT ENOB BRACKET
                           [NO] RECV COMPACTION
                    :

-------------------------------------------------------------
LU Port Name:              05RJE
SSCP-LU State:             ACTIVE
LU-LU State:               UNBOUND
BIND Capabilities:

                    :
-------------------------------------------------------------
```

In the first status display, the site definition filename is RJE1. The Multiple Signal Interrupt and Maximum RU's Chain are set to appropriate values.

The medium/subaddresses (MS field) are listed using a three-character code, as explained earlier in this chapter.

Next to the ACTIVE field, the UFD/FILE field indicates whether a UFD or filename has been specified for attachment of files coming from the host, and the pathname of destination file. The use of UFDs and files are described in Chapter 4 in the description of the ATOUT command.

In the sample status display, each LU port configured for the PRIME/SNA RJE site is listed with site information. The SSCP-LU State field has two possible states: ACTIVE and INACTIVE. ACTIVE indicates that the host system has sent a message to the PRIME/SNA Server requesting the establishment of an LU-LU session. INACTIVE indicates that the host system has not attempted to establish an LU-LU session. If you are expecting an individual LU port to be activated, the INACTIVE status may indicate a problem with the PRIME/SNA Server and/or host system in establishing the LU-LU session for that port. It may be necessary to consult your PRIME/SNA Administrator for assistance.

The LU-LU field has four states: UNBOUND, BETWEEN_BRACKETS, SEND, and RECEIVE. A session can be in any one of these states and still be idle, not sending or receiving data. UNBOUND means that the host has not sent an SNA BIND command or an SNA BIND has been sent and rejected. If you are waiting for an RJE session to be established for a specific LU port, and this field continues to remain UNBOUND for subsequent STATUS displays, there may be a problem with the host application you are attempting to access. It may be necessary to consult your PRIME/SNA Administrator.

BETWEEN_BRACKETS means that a direction of flow of data has not been established and neither PRIME/SNA RJE nor the IBM host wish to transmit on the session.

SEND indicates that a direction of flow of data has been established from PRIME/SNA RJE to the IBM host. It is likely that data is being read from an RJE Phase II queue file and is being transmitted over the LU-LU session.

RECEIVE indicates that a direction of flow has been established from the IBM host to PRIME/SNA RJE. It is likely that data received from the LU-LU session is being stored in a PRIMOS file previously defined by an ATOUT command.

An example of when an LU-LU session may be in RECEIVE mode but not receiving data occurs when data is received from an unattached medium/subaddress and the RJOP operator has not yet responded to the warning message to issue an ATOUT command.

The BIND capabilities show some BIND options that have been selected. You may be able to improve line time efficiency if you can get the host to send a BIND with more optimum options. The possible descriptions are:

- 512 Max RU size (Max RU size determines the maximum amount of user data that can be packaged for transmission to or from the host system. Max RU size affects the data flow across the

communications link. Factors such as line speed and number of LU-LU sessions that will run concurrently determine this size).

- 256 Max RU size.
- XMIT End Bracket (indicates that when PRIME/SNA RJE has nothing more to send on a session, it is allowed to end the bracket).
- No XMIT End Bracket (if PRIME/SNA is not allowed to end the bracket, it must execute a protocol sequence to allow the host to make the decision).
- RCV/Compaction (indicates compacted data is allowed).
- No RCV/Compaction.

The last line in each LU port status display indicates which file, if any, was sent or received and the medium/subaddress to which it was addressed.

You can use the STATUS command to determine if problems exist with the host system. For example, the LU-LU state for LU port 05RJE is UNBOUND. LU port 05RJE is active (an SSCP-LU session is active), but the host system has not sent a BIND or the BIND that it has sent has been rejected by PRIME/SNA. This could mean that no PRIME/SNA RJE users have issued a signoff for LU port 05RJE. However, if a user has attempted to start an RJE session, the UNBOUND status may indicate a possible problem.

When you determine that a potential problem exists, use the PRIME/SNA Server STATUS command to check the status of the relationship between the PRIME/SNA Server and the host.

The PRIME/SNA Server STATUS Command

The PRIME/SNA Server status facility is described in the PRIME/SNA Operator's Guide. It is summarized here for your convenience.

You invoke PRIME/SNA Server status by entering the SNA_SERVER command with the -STATUS option from the PRIMOS level as follows:

```
OK, SNA_SERVER -STATUS
[SNA_SERVER Rev. 1.1-19.4 Copyright (c) Prime Computer, Inc. 1985]
```

The -STATUS main option enables you to display information about the current status of active PRIME/SNA lines and remote systems on your terminal screen. The format of the SNA_SERVER -STATUS command is as follows:

```
                                  -LINE lname
                                  -LINE_GROUP lgname
-STATUS [ { -REMOTE_SYSTEM rsname } ] -NO_WAIT
                                  -REMOTE_SYSTEM_GROUP rsgname
```

You can request the status of a resource option. Resource options are lines, remote systems, or groups defined in the SNA configuration file. By default, you are given the status of all started remote systems.

Unless you include the -NO_WAIT option, the prompt —More— appears after 23 lines of text are displayed. Respond with N, NO, Q, QU, QUI, or QUIT to terminate the display immediately. Press RETURN to display the next 23 lines of text.

You can invoke SNA_SERVER -STATUS from any terminal that is logged into the Prime system on which the PRIME/SNA software resides. If you invoke SNA_SERVER -STATUS when the PRIME/SNA Server is not active, a message is displayed at your terminal, informing you that the PRIME/SNA Server is not started.

If you enter the SNA_SERVER -STATUS command without a resource option, the name of the current PRIME/SNA Server configuration and statistics files and the status of all started remote systems is displayed as depicted in the following example:

```
OK, SNA_SERVER -STATUS
[SNA_SERVER Rev. 1.1-19.4 Copyright (c) Prime Computer, Inc. 1985]

                        SNA SERVER STATUS
                        ================

PRIME/SNA Server configuration file: <SNASRV>PRIME/SNA*>SNA.CONFIG

PRIME/SNA Server Statistics file: PRIME/SNA*>SNA_SERVER_STATS>STATS.27-
FEB-86

Remote System Name  PRIME/SNA Server Status  Associated Line Name

BOS-NY/CICS                 Connected               BOS-NY
BOS-PHILLY/TSO              Started                 BOS-PHILLY
REMSYS2                     Started                 BOS-CHICAGO
```

In the above example, the status message indicates that the PRIME/SNA Server has successfully established a connection with remote system

BOS-NY/CICS over line BOS-NY. It also indicates that the PRIME/SNA Server has activated remote systems BOS-PHILLY/TSO and REMSYS2, and is waiting for connection requests from the respective host systems.

If you cannot establish PRIME/SNA RJE sessions for any of the LU ports configured in your RJE site definition file, the PRIME/SNA Server status facility can help you determine the reason.

In the above example, the status display provides information about the state of the communications connection between the host system configured in your RJE site definition file and the PRIME/SNA Server. If the status for the remote system connection is Being Quiesced or Being Stopped, you know that the problem most likely has to do with communication between the PRIME/SNA Server and the host system.

The next example shows the line status information that is displayed when you invoke SNA_SERVER -STATUS with a -LINE resource option.

```
OK, SNA_SERVER -STATUS -LINE BOS-CHICAGO
[SNA_SERVER Rev. 1.1-19.4 Copyright (c) Prime Computer, Inc. 1985]

                              SNA SERVER STATUS
                              =================

PRIME/SNA Server configuration file: <SNASRV>PRIME/SNA*>SNA.CONFIG

PRIME/SNA Server Statistics file: PRIME/SNA*>SNA_SERVER_STATS>STATS.27-
FEB-86

================================================================================
Line BOS-CHICAGO

          Line group                 : not in a group
          ICS2 controller number     : 10
          ICS2 LAC line number       : 004
          Signal encoding            : non-NRZI
          Line interface             : RS-232
          Clocking                   : External clocking
          Data set control           : full-duplex
          Line connection            : point-to-point
          Connection type            : leased

Line BOS-CHICAGO -- Remote System Information

Remote System Name                PRIME/SNA Server Status
--------------------------------------------------------------------------------
REMSYS2                           Connected
```

In the above example, information on the line is displayed, followed by a list of each remote system that is using the line (the PRIME/SNA Server supports multiple remote systems on a single line). This status

display provides line configuration parameters defined in the SNA configuration file. For those familiar with the 3776-3 IBM RJE workstations, several of these parameters (such as signal encoding and connection type) correspond to parameters that would be defined with the IBM 3770 Terminal Operator Command (TIP) for a 3776-3 RJE workstation.

Invoking SNA_SERVER -STATUS with a -REMOTE_SYSTEM resource option displays the information shown in the following example.

```
OK, SNA_SERVER -STATUS -RS REMSYS2
[SNA_SERVER Rev. 1.1-19.4 Copyright (c) Prime Computer, Inc. 1985]

                        SNA SERVER STATUS
                        =================

Server configuration file: <SNASRV>PRIME/SNA*>SNA.CONFIG

Server Statistics file: PRIME/SNA*>SNA_SERVER_STATS>STATS.27-FEB-86

================================================================
Remote System REMSYS2

          SNA PRIME/SNA Server state: Connected
          Associated with line      : BOS-CHICAGO
          Remote system group       : not in a group
          Current SSCP ID           : 00006
          Connection time limit     : no time limit
          Automatic recovery        : no
          System ID                 : not defined
          SDLC station address      : 01
          Data mode                 : half-duplex
          Logging level             : detailed

Remote system REMSYS2 -- LU Port Information

Num  Name                                State                  Usage
---  ----                                -----                  -----
  1  01RJE                               Active/Not Opened
  2  02RJE                               Active/Not Opened
  3  03RJE                               Active/Not Opened
  4  04RJE                               Active/Not Opened
  5  05RJE                               Active/Not Opened
```

In the above example, information on the remote system is displayed followed by a list of the LU ports that are configured for the remote system. The following fields are defined for LU ports:

Field	Description
Num	The LU port number as defined in the SNA configuration file
Name	The LU port name as defined in the SNA configuration file
State	The LU port state
Usage	When the LU port is being used by the PRIME/SNA Interactive Subsystem, this field contains SNA_3270; when used by PRIME/SNA RJE this field contains SNA_RJE

The status of a remote system can be one of following:

State	Meaning
Started	The PRIME/SNA Server has activated local PRIME/SNA support and is waiting for a connection request from the host system.
Connected	The host system has requested a connection, the necessary protocol has been exchanged, and the connection with the host system is active.
Being Quiesced	The SNA_SERVER -STOP command has been issued with a stop-action of IDLE or FINISH, to stop the local PRIME/SNA support, and the PRIME/SNA Server is waiting for local activity to terminate.
Being Stopped	Either the SNA_SERVER -STOP command has been issued and the host system has initiated the termination of the connection, or some external event (such as a line failure) has occurred and the PRIME/SNA Server is in the process of stopping local PRIME/SNA support.

The status of an LU port can be one of the following:

State	Meaning
Configured	The LU port is defined in the PRIME/SNA Server configuration file, but the port is not being used by the PRIME/SNA Interactive Subsystem or the PRIME/SNA RJE Subsystem, nor is there an SNA session with the SNA host.
Active/Not Opened	A session exists with the SNA host, but the LU port is not being used by the PRIME/SNA Interactive Subsystem or the PRIME/SNA RJE Subsystem.
Active/Being Opened	A session exists with the SNA host, but the LU port is being opened by the PRIME/SNA Interactive Subsystem or the PRIME/SNA RJE Subsystem.
Active/Open	A session exists with the SNA host, but the LU port has been opened by the PRIME/SNA Interactive Subsystem or the PRIME/SNA RJE Subsystem.
Active/Being Quiesced	A session exists with the SNA host and is being used by the PRIME/SNA Interactive Subsystem or the PRIME/SNA RJE Subsystem, but the LU port will be closed when activity on the session stops.
Active/Being Closed	A session exists with the SNA host, but the LU port is being closed and is not being used by the Interactive Subsystem or the PRIME/SNA RJE Subsystem.
Active/Cannot Open	A session exists with the SNA host, but the LU port cannot be used by the PRIME/SNA Interactive Subsystem or the PRIME/SNA RJE Subsystem until the session is terminated and then restarted by the SNA host.

State	Meaning
Inactive/Being Opened	A session does not exist with the SNA host, but the PRIME/SNA Interactive Subsystem or PRIME/SNA RJE Subsystem has requested the use of the LU port when the session becomes available.
Inactive/Being Closed	A session no longer exists with the SNA host and the LU port is being closed.

Logging Error and Console Messages

PRIME/SNA RJE logs error and console messages when the RJE Phase II LOG command is enabled (the YES option is specified) by the RJE operator. PRIME/SNA RJE logs messages in the same file as other workers: RJSPLQ*>LOG.

Data Compaction and Space Compression

PRIME/SNA RJE supports data compaction and space compression to shorten network transmissions. This is implemented in PRIME/SNA RJE data streams by means of String Control Bytes (SCBs). These are bytes that define how data are compressed or compacted.

Compaction compacts two bytes of data into one byte. Up to 16 characters can be specified for compaction. PRIME/SNA RJE expands the data when it receives the compacted data.

Compression is supported to and from the host. Compaction is only supported for jobs transferred from the host.

The support for compaction and compression is defined in the BIND parameters defined for your LU-LU sessions. These BIND parameters are supplied by your PRIME/SNA Administrator to the host system personnel. Refer to the PRIME/SNA Administrator's Guide for more detailed information concerning BIND parameters supported by PRIME/SNA RJE.

Queuing Jobs Transmitted to an IBM Host Using the RJE Phase II RJQ

You queue jobs using the RJQ and RJOP commands as described in Chapters 2 and 4. The modifications to the RJQ and RJOP commands for PRIME/SNA RJE are described later in this chapter.

Device Independence

PRIME/SNA RJE supports any device that transfers data between the device and a PRIMOS file.

EQUIVALENT IBM 3776-3 OPERATOR COMMANDS SUPPORTED BY PRIME RJE AND PRIMOS

Table 5-1 shows how IBM 3776-3 operator commands are supported by PRIME/SNA RJE running in a PRIMOS environment. Users familiar with the IBM 3776-3 and 3777 model RJE workstations can create PRIMOS abbreviations using command names familiar to them to execute PRIME/SNA RJE operations.

Table 5-1
Equivalent IBM 3776-3 Operator Commands Supported by PRIME/SNA RJE

3776-3 Command	Equivalent PRIME/SNA RJE and PRIMOS Support
CANCEL	PRIME/SNA RJE ABORT and DETOUT commands
CARRIAGE	PRIME/SNA RJE EDIT_EFU command
CDATASET	Various PRIMOS commands that invoke a PRIMOS editor (such as the ED command)
CDISK	PRIMOS MAKE command
CDLABEL	Various PRIMOS commands that invoke a PRIMOS editor (such as the ED command)
COPY	PRIMOS COPY command
DELETE	PRIMOS DELETE command
DISPLAY	PRIME/SNA RJE STATUS and LSITE commands PRIMOS LD and SLIST commands
ENABLE	PRIME/SNA RJE ENABLE command
EXECUTE	PRIME/SNA RJE COMINPUT command PRIMOS COMINPUT and CPL commands
FIND	PRIMOS ED command operating on a PRIME/SNA RJE log file

Table 5-1 (continued)
Equivalent IBM 3776-3 Operator Commands Supported by PRIME/SNA RJE

3776-3 Command	Equivalent PRIME/SNA RJE and PRIMOS Support
HOSTIN	PRIME/SNA RJE COMINPUT, RJQ, and CONCAT commands PRIME/SNA CONCAT subcommands
HOSTOUT	PRIME/SNA RJE COMINPUT and ATOUT commands
INPUT	PRIME/SNA RJE, RJQ, and CONCAT commands PRIME/SNA CONCAT subcommands
KEY	Function not supported
LISTDISK	PRIMOS LD command
LISTLOG	PRIMOS SPOOL command operating on a PRIME/SNA RJE COMOUTPUT file or the log file
LISTSPOL	PRIMOS ED command operating on a PRIME/SNA RJE log file so that the log file can be scrolled up or down or scanned for a time stamp or event
OUTPUT	PRIME/SNA RJE ATOUT command
POWEROFF	RJOP DISABLE command
PRINT	PRIMOS level PRINT_SCS command
PUNCHECK	Function not supported
RSHUTD	PRIME/SNA RJE RSHUTDOWN command
SAVEREST	PRIMOS MAGSAVE or MAGRST command
SET	PRIMOS SETTIM command
SSCP	PRIME/SNA RJE COMINPUT, SONDEF, SOFDEF, SIGNON, and SIGNOFF commands
STATUS	PRIME/SNA RJE STATUS command
TAPE	PRIMOS MAGSAV command
TESTS	Set printer into hardware test mode

Table 5-1 (continued)
Equivalent IBM 3776-3 Operator Commands Supported by PRIME/SNA RJE

3776-3 Command	Equivalent PRIME/SNA RJE and PRIMOS Support
TIP	PRIME/SNA RJE site definition commands and site definition file; PRIME/SNA Server configuration
TLABLE	PRIMOS MAGSAV command
USERREST	PRIMOS MAGRST command
USERSAVE	PRIMOS MAGSAV command
UTILITY	PRIMOS CPL, COMINPUT, and COPY commands

QUEUING FILES TO A HOST SYSTEM USING THE RJQ COMMAND

Refer to Chapter 2 for an explanation of RJQ commands and options.

CONTROLLING YOUR PRIME RJE SITE USING THE RJOP COMMAND

Refer to Chapters 3 and 4 for an explanation of RJOP commands and options.

Refer to Table 5-2 for a summary of the RJOP Site Specific command set supported by PRIME/SNA RJE.

Table 5-2
RJOP Site Specific Commands Supported by PRIME/SNA RJE

Command	Supported Without Modification	Supported With Modification	PRIME/SNA Specific
ABORT	-	X	-
ATOUT	-	-	X
DELSITE	X	-	-
DETOUT	-	-	X
DISABLE	X	-	-
ENABLE	X	-	-
LOG	X	-	-
LSITE	X	-	-
OPMESS	-	X	-
OPMODE	-	X	-
QUEUE	X	-	-
RECOVER	X	-	-
RSHUTDOWN	-	-	X
SIGNOFF	X	-	-
SIGNON	X	-	-
SOFDEF	X	-	-
SONDEF	X	-	-
START	-	X	-
STATS	X	-	-
STOP	-	X	-

PRINTING FILES USING THE PRINT_SCS COMMAND

There are three methods by which you can print PRIME/SNA RJE files transmitted from the host:

- Include an ATOUT command with the -PRINT option enabled in the PRIME/SNA RJE site definition file for each medium/subaddress that requires files to be printed.
- Issue an ATOUT command with the -PRINT option enabled interactively from your terminal for a medium/subaddress that requires files to be printed.
- Issue the PRINT_SCS command to print files.

The ATOUT -PRINT command sends output files for a specific medium/subaddress to the PRIMOS Spooler. ATOUT is described in Chapter 4.

PRINT_SCS allows you to print PRIME/SNA RJE files received from a host that have already been stored on disk. PRINT_SCS uses the same SPOOL options as ATOUT with the -PRINT option. You specify the filename of the PRIMOS file using the following format:

```
PRINT_SCS filename <options>
```

You can specify the following subset of SPOOL options when you issue the PRINT_SCS command:

Option	Description
-AS alias	Replaces the pathname on the file header and in SPOOL -LIST displays with alias.
-AT destination	Denotes the printer (or printers) that can print the file.
-COPIES n	Specifies the number of times the file is to be printed.
-DEFER time	Defers printing of the file to the time specified. time is entered in the format: HH:MM[AM/PM].
-DELETE	Deletes the file after spooling.
-DISK { disk-name / dev-number }	Specifies the spool queue on another dev-number disk. dev-number is the logical device number of the disk.
-FORMAT { none / page• }	Enables (page) or disables (none) pagination and header generation. page is the default mode.
-FORM type	Specifies a form file created by EDIT_EFU, or if a form file does not exist, a default form is assmumed.
-NOHEAD	Suppresses printing of both banner and trailer pages.
-NO_PAGE_HEADER	Removes one-line page headers.

The -FORM spool option directs PRINT_SCS to look for a form file in RJSPLQ* created using a PRIME/SNA editing utility called EDIT_EFU. If none is found, a default form is assumed. In addition, the PRIMOS Spooler (PROP created) form of the same name will be referenced for routing purposes only.

Refer to the PRIME/SNA Operator's Guide for information on how to use EDIT_EFU.

6
Installing an Emulator

INTRODUCTION

This chapter explains the RJE Phase II general emulator structure and installation procedures for the 2780, 3780, HASP, XBM, 200UT, GRTS, and 7020 emulators. Installation of the PRIME/SNA RJE emulator requires different procedures from the other emulators and is explained in Chapter 5.

Standard command files are provided for the installation procedure; however, there are some prerequisites that must be provided in order to install the system efficiently. End of File Detection and Destination Detection capabilities, and the Debugging and Emulator Logging features are also described.

GENERAL EMULATOR STRUCTURE

There are two command processes common to all emulators. These are:

- RJQ - to queue the files for transmission
- RJOP - to control and monitor the running of emulators

The RJOP will phantom another emulator process, known as the worker, which in turn will phantom the protocol handler process.

Each protocol handler can be one of two processes:

- Symbiont - A Ring 3 process
- RJPROC - A process that is initiated from Ring 3, but runs in Ring 0

The HASP, XBM, GRTS, and 2780/3780 emulators use the RJPROC, whereas the 200UT, 7020, and 1004 emulators each require their own symbiont.

Therefore, to install an emulator you must use the appropriate command files to generate:

1. RJQ command (common to all emulators)
2. RJOP command (common to all emulators)
3. Worker process (a specific one for each emulator)
4. For 200UT, 7020, and 1004, a symbiont process (a specific one for each emulator)

See the section entitled Installation Procedures in this chapter for information about the command files used to do this.

Run-time UFD Structure

The top-level UFD used for running all of the emulators is called:

RJSPLQ*

The Installer must create the RJSPLQ* top-level UFD (if it does not already exist) but the subdirectories will be created as necessary by the installation command files.

The main files to be found in the RJSPLQ* UFD at run time are as follows:

- Copies of user files queued for transmission (RJnnnn files)
- The File Transmission Queue control file RJQCNTRL
- An ALIAS file associated with the RJE queue
- RJOP/worker communication files (such as WTOR and RTOW)
- Command files to start up the RJPROC, and the Distributor phantom
- The RJOP log file

These sub-UFDs also reside in the RJSPLQ* directory:

- SDF For site definition files
- CMDHELP For the command HELP files
- ERRHELP For the error HELP files
- SAVE For received data being saved
- PUNCH For received punch files
- BINARY For received binary files
- Qxxxx For command files and run files associated with the specific emulator; xxxx = 2780/3780, HASP, XBM, 200UT, 7020, GRTS, or 1004
- TO_ROUTE For files waiting to be redirected to the user's destination UFD

Master Disk Layout

A top-level EMxxxx UFD is provided for each one of the emulators to accommodate all the source and command files specific to that emulator. Another top-level RJE UFD contains all the source and command files common to the RJE Subsystem.

Interprocess Communication

All of the communication between the emulator processes in Ring 3 is accomplished via the file system. Therefore, while RJE is running, certain communication files will be created and deleted as necessary. The files, contained in RJSPLQ*, are listed below for general information. The Installer should not create any of these files.

Treename (Under RJSPLQ*)	From	To	Contents
>RTOW.L.xxxx	RJOP	worker	All commands and related infomation
>WTOR.L.xxxx	worker	RJOP	Responses to commands, messages from protocol handler and so forth
>Qxxxx>Z	worker	symbiont	Commands to the symbiont

Treename (Under RJSPLQ*)	From	To	Contents
>Qxxxx>ZOP	worker	symbiont	Operator messages to be transmitted
>Qxxxx>TLnnnn	worker	symbiont	Files to be transmitted
>Qxxxx>DIAG1	symbiont	worker	Diagnostic error messages
>Qxxxx>DIAG2	symbiont	worker	Diagnostic error messages
>Qxxxx>OLnnnn	symbiont	worker	Received operator messages
>Qxxxx>RLnnnn	symbiont	worker	Received data files

Notes

xxxx Represents the emulator name; that is, 200UT, GRTS, 1004, 2780/3780, XBM, HASP, or 7020

L Represents the Communications Controller line number to which the message, command, or data relates

nnnn Is a sequence number from 0001 to 9999

INSTALLATION PROCEDURES

The Master Disk is built using the example (GOF_DST)DGT routines. If they are sufficent for you, build steps 1 to 5 in the example below can (and should be) omitted. Specifically, EOFKEY = 0 and DSTKEY = 0 implies no build is needed.

1. Attach to the appropriate emulator source module; for example, for a 1004 emulator:

```
OK, A EM1004SRC>SOURCE
```

2. Within each of the emulator source directories EMXXXXSRC, there exists a subsource directory SOURCE that contains:

```
EOFDET.EXAMPLE.FTN
DSTDET.EXAMPLE.FTN
```

It is necessary to rename them to:

```
EOFDET.FTN
DSTDET.FTN with the FUTIL command:


OK, FUTIL
> C EOFDET.EXAMPLE.FTN EOFDET.FTN
> C DSTDET.EXAMPLE.FTN DSTDET.FTN
> Q
```

3. Having completed the renaming operation, attach to the source UFD:

```
OK, A EM1004SRC
```

4. Execute the build module to compile all the emulator common code:

```
OK, R EM1004.BUILD
```

5. The next user interaction will be in response to the system prompt:

```
OK,
```

The prerequisites for continuing this command file are that the following two files must be present in the UFD:

```
EM1004SRC>SOURCE:

EOFDET.FTN
DSTDET.FTN
```

The user then receives the prompt:

```
Do you want to continue (CR=YES)?
```

Press RETURN.

6. After the emulator common code has been built, the next user interaction will be to install the emulator common code:

```
OK, R RJSPLQ*>RJECOM.INSTALL
```

7. Now attach to the UFD of the emulator to be installed:

```
OK, A EM1004
```

8. Execute the installed emulator:

```
OK, R EM1004.INSTALL
```

9. If PRIME/SNA RJE has previously been installed, reinstall the EPF version of RJOP and RJQ which contain support for SNA:

```
OK, A RJSPLQ*
OK, CO RJE_EPF.INSTALL.COMI
```

Perform steps 1 to 9 or 6 to 9 for each emulator type you want to run on the system.

The R EMxxxx.BUILD uses CPL instructions in file EMxxxx.BUILDCPL to call the other macros necessary to compile and load the routines appropriate to the emulator specified with xxxx.

The R EMxxxx.INSTALL uses CPL instructions in file EMxxxx.INSTALLCPL to copy all the object programs and runtime macros into the RJSPLQ* UFD structure, also creating any sub-UFDs that do not already exist.

The macros called by these build and install macros are listed below:

Macro	Purpose
RJESRC>RJSUBS.COMP.CPL	Compiles subroutines common to all emulators
RJESRC>RJOP.COMP.CPL	Compiles the RJOP routines
RJESRC>RJQ.COMP.CPL	Compiles the RJQ routines
RJESRC>EMUSCOM.BUILD.CPL	Compiles code common to more than one emulator

Macro	Purpose
RJESRC>EMUPCOM.BUILD.CPL	Compiles code common to more than one emulator
EMxxxxSRC>WSCOMP.CPL	Compiles code specific to the particular emulator
RJESRC>COPY_INS.CPL	Ensures that a full set of inserts exists in RJSPLQ*>SYSCOM
RJESRC>INS_EXISTS.CPL	Checks that the inserts necessary to build the emulators and common code are all present before the build proceeds
RJESRC>RJOP.LOAD.CPL	Loads RJOP object code into RJSPLQ*>CMDNC0
RJESRC>RJQ.LOAD.CPL	Loads RJQ object code into RJSPLQ*>CMDNC0
EMxxxxSRC>WSLOAD.CPL	Loads emulator object code into EMxxxx>Qxxxx
EMxxxxSRC>WSLOAD_DBG.CPL	Loads a debug version of the worker into RJSPLQ*>Qxxxx>WORKER.SEG for XBM, 2780/3780, HASP, or RJSPLQ*>Qxxxx>WSxxxx.SEG for 1004, 200UT, 7020, and GRTS
RJSPLQ*>RJOP.INSTALL.CPL	Copies RJOP from RJESRC>CMDNC0 to CMDNC0
RJSPLQ*>RJQ.INSTALL.CPL	Copies RJQ from RJE>CMDNC0 to CMDNC0
EMxxxx>EMxxxx.INSTALL.CPL	Copies emulator-specific run files and associated files from EMxxxx>Qxxxx to RJSPLQ*>Qxxxx

END OF FILE DETECTION

Each emulator has an End of File Detection subroutine, called EOFDET, which analyzes data strings at the end of a logical file. When the expected data string is found, the current spool file is closed, and, if necessary, another spool file is opened.

The EOFDET code supplied in the file EOFDET.EXAMPLE was used for detecting end of file on Prime engineering test sites, and will probably have to be modified on a per site basis, as end of file conditions tend to be specific to the host site. The installing Prime

analyst at each site should create the file EOFDET containing code suitable for that site.

Note

More than one end of file detection mechanism may be created by the analyst or customer for a particular site. The desired EOFDET routine can be modified to perform different end of file detection depending on the value specified in the EOFKEY site definition command. For more information on writing EOFDET routines, see Appendix C. For 2780/3780, GRTS, HASP, and XBM sites, end of file detection is not normally needed.

DESTINATION DETECTION

The Destination Detection subroutine DSTDET is similar to the End of File Detection subroutine in that it cannot be provided as standard. The file DSTDET.EXAMPLE issued with the emulator software has DSTKEY=1 for RJE software testing purposes and will need to be modified for the customer's requirements.

If the customer does not require special destination detection, then the mechanism should be switched off by setting the DSTKEY to 0 in the site definition file. This will mean that print files are automatically spooled, and punch files are dealt with according to the action specified in the PUNCH command, or spooled if no PUNCH command is given.

For users wishing to route their received files according to the specific content of those files, then a nonzero destination detection key should be used. The user will need to introduce some identifying feature into each file from the remote site to indicate the required destination, and the destination detection code will have to be modified to locate that identifying feature.

The destination information must be introduced into a standard buffer in this form:

```
$$'Command' 'destination'
```

Please see the Destination Detection subroutine supplied with the emulator as an example of what is required.

The options provided in the example destination detection routine supplied with RJE are:

$$FILE	filename (fully qualified pathname)
or	
$DIR	directory name (pathname of directory)

When $$FILE is used, the destination is the full pathname as specified after the $$FILE. If the file already exists, then it will be overwritten and truncated by the received (output) file. If the distributor is unable to copy the file to the place specified by the $$FILE, it will be left in the TO_ROUTE UFD.

When $$DIR is used, the received file will be placed in the specified directory, with a unique name of the form RECVnnnn. If the distributor is unable to write the file to the required directory, the file will be left in the TO_ROUTE ufd. For more information on writing DSTDET routines, see Appendix C.

DEBUGGING

When trying to determine the cause of a problem within the emulator system, it will be necessary to try and isolate the particular circumstances in which the fault occurs, and to collect all the information relevant to that fault. The log file is the first source of information, and should be saved in order to keep a record of the events preceding a fault. The COMOUTPUT files from the emulator processes should also be scanned for clues and saved.

When errors are reported to the RJOP, they will contain an identifier that can be used to access online HELP text, which will describe the error, for example, WE16. By typing HELP WE16 from within the RJOP, the user will get HELP on error WE16. This type of HELP text is available for RJOP and worker type errors.

For RJPROC errors, such as protocol and line errors, the source of information is the RJPROC.COMO file in RJSPLQ*. The site definition file command DEBUG can be used to get extra trace information written to the RJPROC.COMO file for the 2780/3780, HASP, GRTS, and XBM emulators. For HELP on interpreting RJPROC.COMO messages, see Appendix D.

If it becomes necessary to debug the symbiont, the command file PH_REM may be run from any terminal. The symbiont will be running from the terminal, so it may be dumped and examined using PSD, or for those with internal TAP facilities, it may be examined online, using the following commands:

Display start address end address

or

Access address

The A command may be used to change locations in memory if required.

Symbiont errors output via the diagnostic files DIAG1/2 are displayed on the operator's console. Additionally COMOUTPUT files are provided for the worker (LOG_xxxxx) and the symbiont (COMO_xxxxx). These may be examined for a trace of the current run.

EMULATOR LOGGING

All of the emulators use the same log file: RJSPLQ*>LOG.

If several RJOPs are run, with the file lock NR1W the second RJOP detects "File in use" and stops writing to the log.

The statistical information accumulated by the worker will be written to a stats file in the worker's own Q sub-UFD. For example, the 7020 emulator will keep the stats for the current run in:

RJSPLQ*>Q7020>STATS

and for the previous run in:

RJSPLQ*>Q7020>LAST_STATS

Only the stats for the current and previous runs are retained.

7
Debugging Utilities

INTRODUCTION

The sub-UFD RJESRC>UTILS contains many useful tools for debugging emulator problems. The tools available are:

Tools	Description
MONIT	Dynamically displays the worker to the protocol handler queues
DISP	Displays traced data and events for a particular line
FILEPR	Looks at untranslated files, such as transmit debug files
CDUMP	Also looks for nondebug untranslated files
VERSION	Examines the version numbers of the modules constituting an emulator .SAVE file

Within the RJESRC>UTILS UFD, both source and build files are available for each utility. The build files are called XXXXXX.BUILD.CPL, where XXXXXX is the name of the tool, for example, MONIT.BUILD.CPL. Each build file compiles and builds the tool and creates a resumable .SAVE file; for example, MONIT.SAVE. The remainder of this chapter describes how to use each of the tools.

MONIT

MONIT monitors the activity on an RJE line. It shows dynamically the lengths of the queues associated with a given RJE line. MONIT does not run on the 3776 worker.

Running MONIT

Before MONIT can be used, segments 67 to 74 inclusive must be shared at the system console.

First, attach to RJESRC>UTILS and then type:

```
R MONIT.SAVE <terminal type>
```

where <terminal type> can be BEE, WREN, TRY, or null (nothing). BEE stands for PT45™ or beehive, WREN stands for PST 100™, TRY stands for Teleray, and the default, or null, setting is for a Perkin Elmer OWL/FOX or BANTAM terminal.

MONIT then prompts you for a line number. This is the synchronous line number that you wish to monitor and is the same as the line number given in the CONNECT command within the site definition file.

If the line is not in use, MONIT displays the line-not-in-use screen. Should the line come into use, MONIT then shows the line's activity.

If the line is currently in use, then MONIT displays its line-in-use screen.

Interpreting MONIT's Display

A typical MONIT line-in-use display is:

```
[MONIT Rev 19.4] Line : n]
xmit q        | <
recv q        | <
xmit fp       | ****
recv fp       | ***
Recv data     | **************
Rx control    | <
Rx data ctl   | <
Xmit Marker   | ************************
device 1      | ****
device 2      | **
   .            .
   .            .
device n      | *******
```

where device is the name of the device; for example, LP1, LP2, and so forth.

The Transmit Queue (xmit q): This queue contains those blocks that have been filled with data and are awaiting transmission by the line controller. The blocks are taken from the transmit free pool and are filled with data from blocks on the device transmit queues before being entered onto this queue. This queue occupies part of the wired memory used by RJE.

The Receive Queue (recv q): This queue contains those blocks that have been filled with data received online by the line controller. The blocks are taken from the receive free pool and posted onto this queue.

When they have been filled with data, the data is emptied into blocks on the received data queue and put back into the receive free pool. This queue occupies part of the wired memory used by RJE.

The Transmit Free Pool (xmit fp): This is a free pool of buffers, which are filled from the device transmit queues and passed to the transmit queue where they can be transmitted by the line controller. The number of buffers in the free pool is assigned dynamically and is a function of the blocksize of the line.

The Receive Free Pool (recv fp): This free pool of buffers is similar to the transmit free pool. Blocks from here are passed onto the receive queue where they are filled with data by the line controller. That data is then copied into blocks on the received data queue.

The Received Data Queue (Recv data): This is the queue between the protocol handler and the worker. Data is removed from buffers in this queue and passed up to the worker via the RJI. This queue alternately fills up and empties as the line receives blocks of data, which are then dequeued by the worker process.

The Receive Control Queue (Rx control): This queue is used to pass control information and error messages from the protocol handler to the worker; for example, "Dataset Ready".

The Receive Data Control Queue (Rx data ctl): This queue is used by the protocol handler to pass on control blocks received online to the worker. For example, in 3780, an EOT for a particular device is passed onto the worker via this queue, indicating that the end of the file has been transmitted.

The Transmit Marker Queue (Xmit Marker): For every block queued on any of the device transmit queues, an entry is added to the transmit marker queue. This queue is used to avoid polling inactive device queues so that blocks are transmitted in the order in which they are queued by the worker. During transmit processing, this queue fluctuates in size as the worker queues blocks onto it and the blocks are sent.

The Per Device Transmit Queues (device 1...n): One queue per device is configured for a site. Data is copied onto buffers on this queue via the RJI with the worker. Even though a device can only receive data, it still has a device transmit queue. This occurs so that, where necessary, appropriate responses can be returned by that device, for example, "Permission Granted" in HASP.

DISP

DISP is a menu-driven program that displays the debug trace data or events occurring on a particular line by using any of the protocols written for use with the RJPROC. This consists of XBM, 2780/3780, GRTS, and HASP. This data is written to the terminal.

Turning On the Debug Trace

The debug itself is switched on by setting the DEBUG parameter in the site definition file to either 8 or 16; 8 switches on the tracing of data, while 16 turns on the tracing of events. To turn on both forms of trace at the same time, set this parameter to 24.

What follows is part of a site definition file with the debug flag set to 24 (for example, the tracing both of data and events is switched on):

```
/*
connect 0 MAST
/*
punch crl translate
punch cr2 translate
punch cr3 translate
banner off
restart disable
debug 24        /* TURN ON THE TRACING OF DATA & EVENTS !!
save yes
log on
co tty
```

Turning Off the Debug Trace

The buffers are filled up in a cyclic manner. To trap a problem in the buffers, transmission has to be stopped and the lines disabled. This prevents buffers containing important information from being overwritten.

Build Information on the Display Program

The display program consists of two modules: DISP.PLP and CONV.FTN. These files are held in the UFD RJESRC>UTILS. There is a build macro, which resides in the same UFD, called DISP.BUILD.CPL. Before the display program can be run, segments 75 and 76 must be shared at the system console, as these segments contain the traced data.

Invocation of Display Program

To invoke the display program, type:

```
R DISP.SAVE
```

This can be done while the trace is running.

Format of Display

The trace buffers that contain the data can be either long or short. The time field indicates when this buffer was traced.

```
> a


Please give a line no : (in the range 0 - 7)
2
Please give start buffer: (in the range 1 - 512)
115


Debug Trace Data for line 2
Time was ... 15:13:09
Protocol traced was ... HASP
Your buffer no. is ... 115
Flag set indicates .... Receive
Character code on line was ... EBCDIC
Data Traced .... STX NUL h h G 1 *80 A C f A E s R *CC O R  S E C T I O
 NUL NUL
 > >


Debug Trace Data for line 2
Time was ... 15:13:09
Protocol traced was ... HASP
Your buffer no. is ... 116
Flag set indicates .... Transmit - Short Message
Character code on line was ... EBCDIC
Data Traced .... ACK0
> >


Debug Trace Data for line 2
Time was ... 15:13:09
Protocol traced was ... HASP
Your buffer no. is ... 117
Flag set indicates .... Receive
Character code on line was ... EBCDIC
Data Traced ... STX NUL i h G 1 *80 a C 1 3 5 b *FF F O R M A T ( 1 H
 NUL NUL
> b


Please give a line no : (in the range 0 - 7)
2
Please give start buffer: (in the range 1 - 2044)
1
```

```
Debug Event Trace for line 2
Time was ... 14:52:17
Your buffer no. is ...  1
Event Traced .... First char. of recv mess. got - TIMESTAMP
> >


Debug Event Trace for line 2
Time was ... 14:52:17
Your buffer no. is ...  2
Event Traced .... End of Block - TEXT
> >


Debug Event Trace for line 2
Time was ... 14:52:17
Your buffer no. is ...  3
Event Traced .... Last char. of xmit block sent - TIMESTAMP
> c


Most recent buffer no. in data trace area is - 12
> d


Last used buffer no. in event trace area is - 1876
```

Running the Program

The options given by the program allow the user to display either data or events traced. Any parameter not recognized simply gives helpful information about the available options. A list of the available options and a key are given below.

Options

```
>

> - next one
< - last one
, - first one
. - same one
a - display data traced
b - display event traced
c - give last used data buffer number
d - give last used event buffer number
q - quit program
```

Key

> - the next buffer is printed
< - The previous buffer is printed
, - the first buffer is displayed (buffer number 1)
. - the same buffer is displayed again
a - option allows line/buffer numbers to be set for data trace information
b - option allows line/buffer numbers to get set for event trace information
c - option displays the number of the last used data trace buffer
d - option displays the number of the last used event trace buffer
q - typing quit ends this session

Displaying Data Traced

If this option is selected, then the user is prompted for a line number in the range 0 to 7 as well as for the number of the buffer to be displayed for this line. The line number must correspond to the number given in the CONNECT command in the SDF.

The buffer number must be in the range 1 to 512, as each line has a maximum of 512 buffers, determined by the amount of data that is held in a trace buffer. The first 13 words of data are held in a trace buffer.

Displaying Events Traced

If this option is chosen, then the user is again prompted for a line number and a buffer number. The line number must be the same range as the tracing data. In this case, the buffer number is in the range 1 to 2044. Event buffers are smaller than data buffers, so more buffers can be used per line.

Using the Positional Options

The positional arguments are >, <, and period (.). Once the required line and buffer number are specified, it is possible to use the positional options provided in the display program. This allows the buffers to be displayed in sequential order without having to retype the buffer and line numbers repeatedly.

FILEPR

FILEPR displays a file in word and character format in a variety of forms. For example:

```
FILEPR TFILE


FILEPR Rev 20.0     Date : FRI, NOV 22 1985  11:52:03

      0  -15934  140702  C1C2  301  302  AB  ... ...   193  194 #E #E
      1  -15420  141704  C3C4  303  304  CD  ... ...   195  196 #O #E
      2  -14906  142706  C5C6  305  306  EF  ... ...   197  198 #O #O
      3  -14392  143710  C7C8  307  310  GH  ... ...   199  200 #E #E
      4  -30208  105000  8A00  212  000  ..  NL  NUL   138    0 #E #E
      5  -20046  130662  B1B2  261  262  12  ... ...   177  178 #O #O
      6  -19532  131664  B3B4  263  264  34  ... ...   179  180 #E #O
      7  -19062  132612  B58A  265  212  5.  ... NL    181  138 #E #E

End of file :       8 words
```

The following is a description of each column of output from left to right. A line of print is output for each word in the file.

1. The word number starting at word 0.
2. The word expressed as an integer.
3. The word expressed in octal.
4. The word expressed in hexadecimal.
5. The left byte of the word in octal.
6. The right byte of the word in octal.
7. The character representation of the left and right bytes. If a byte is not a printable character, it is replaced by a period (.).
8. A description of the left byte. If it is a control byte, then it is a three-character description; for example, SOH or NUL. If it is a lowercase character, then it is an uppercase representation; for example, A.
9. A description of the right byte. If it is a control byte, then it is a three-character description; for example, SOH or NUL. If it is a lowercase character, then it is an uppercase representation; for example, A.
10. The left byte expressed as an integer.

11. The right byte expressed as an integer.

12. A two-character description of the left byte. If the first character is a period, then the parity bit of the byte is not set. If the first character is an #, then the parity bit of the byte is set. If the second character is 0, then the seven rh bits of the byte have odd parity. If the second character is E, then the seven rh bits of the byte have even parity.

Command Line Options

The following lists the command line options:

Command Line Options	Description
FILEPR <FILENAME> -SIZE	This form prints the size of the file in words only.
FILEPR <FILENAME> -COMO <FILENAME>	This form outputs a list to the specific COMOUTPUT file.
FILEPR <FILENAME> -OPTIONS	This form puts you into a question session. For example:

```
FILEPR Q -OPTIONS

Enter code - ASCII,EBCDIC,BCD,XS3 : ASCII
Enter start word : 0
Enter end   word : EOF    /  this may be a word number or the key EOF

FILEPR Rev 20.0     Date : FRI, NOV 22 1985  14:32:32
Filename :Q


      0  -20046  130662  B1B2  261  262  12  ... ...   177  178 #O #O
      1  -19532  131664  B3B4  263  264  34  ... ...   179  180 #E #O
      2  -19062  132612  B58A  265  212  5.  ... NL    181  138 #E #E
      3  -15917  140723  C1D3  301  323  AS  ... ...   193  211 #E #E
      4  -15162  142306  C4C6  304  306  DF  ... ...   196  198 #E #O
      5  -14454  143612  C78A  307  212  G.  ... NL    199  138 #E #E


End of file :        6 words
```

The code option translates columns 7, 8, and 9 from the specified code to ASCII and presents these columns as such.

The option -BRIEF restricts the output line to items 1, 2, 7, 8, and 9 above only. For example:

```
X.FILEPR Z -BR


FILEPR Rev 20.0     Date : MON, OCT 14 1985  18:37:03
Filename :Z


      0  -17205  <K  ... ...
      1  -11290  Sf  ... F
      2  - 4870  lz  L Z
      3  - 3098  sf  S F
      4  - 7706  af  A F
      5  - 7689  aw  A W
      6  - 6682  ef  E F
      7  -30208  ..  NL  NUL
      8  - 2422  v.  V NL
      9  -11292  Sd  ... D
     10  -30208  ..  NL  NUL


End of file :       11 words
```

CDUMP

CDUMP, like FILEPR, can be used to look at untranslated files. The following is a sample run:

```
R CDUMP
    [CDUMP Rev 20.0]   Date : SAT, JUL 27 1985  14:49:46

    Input: test
    Enter code - ASCII,EBCDIC,BCD,XS3 : A
    Enter start word : 0
    Enter end   word : EOF
    File name :TEST

    a   b   c   d   e   LF

    End of file :       3 words
```

The parameters are defined as follows:

Parameter	Description
Input	The filename whose contents the user wants to display
Code	The line translation code of the untranslated file, for example, EBCDIC
Start Word	The word number from which the user wants to start displaying the file contents
End Word	The word number in the file at which CDUMP should finish; the value EOF gives the entire file

Command Line Options

CDUMP has the following command line options that enable the output to be written to a file rather than to the terminal screen.

```
-COMO <filename> -OPTIONS
```

<filename> is the filename to which the output is written. The -OPTIONS option allows the user to enter the dialog with CDUMP to specify start and end words and to code, as in the example above. If the user omits -OPTIONS, then CDUMP will default to printing the entire file in ASCII. For example, the following command line will analyze the file test and write the results to a COMO file named result:

```
r cdump test -como result -options
[CDUMP Rev 20.0]   Date : SAT, JUL 27 1985  15:25:55

Enter code - ASCII,EBCDIC,BCD,XS3 : A
Enter start word : 0
Enter end  word : 2
```

VERSION

VERSION can be used to examine the version numbers of all the source modules used to build an RJE .SAVE file; for example, RJOP.SAVE. Each emulator source module contains a version number that is updated when a change is applied to the module.

VERSION dumps to the terminal screen the version numbers for all modules contained within a particular .SAVE file. To run VERSION, first resume the file that you wish to examine; for example, R RJQ.SAVE for RJQ. You hit break and return to the PRIMOS command level. If you now resume VERSION, the version numbers for the particular .SAVE file will be written to the terminal screen.

The following is a sample run of VERSION for the RJQ.SAVE program:

```
 r rjq
[RJQ 20.0]
Concat. >
QUIT.
r version
1 - Q$   1
2 - Q$FI 1
3 - $OPN 1
4 - LP   1
5 - Q$DE 1
6 - Q$LO 1
7 - Q$UN 1
8 - Q$AD 1
9 - $VAL 1
10 - CONC 1
11 - Q$MD 1
12 - RJ   1
13 - DLIN 1
14 - RRPR 1
15 - SRC$ 1
16 - Q$OP 1
17 - INT  1
18 - ------
19 - Q_MA 1
20 - Q_PE 1
21 - Q_IN 1
22 - ======
```

The output from VERSION is one line per filename, which contains a four-letter abbreviation of the source file followed by its current version number.

APPENDIXES

A

End of File Detection and Destination Detection Routines

INTRODUCTION

This appendix is intended to guide analysts and customers who need to write site-specific End of File Detection (EOFDET) and Destination Detection (DSTDET) routines.

USING END OF FILE DETECTION

To make use of the End of File (EOF) Detection facility the site definition file must contain the EOFKEY command. In order for end of file detection to be switched on, the EOFKEY must have a value greater than zero, for example, EOFKEY 1.

An end of file detection routine can be suited to the specific requirements of the site. An example is provided on the master disk. The EOFDET routine resides in EMxxxxSRC>SOURCE, where xxxx is the emulator name, for example, X80. The example file is called EOFDET.EXAMPLE.PLP. The example file can be used as a template for constructing your own EOFDET routine, although the modifications you will need are not major.

For 2780/3780, 3776, GRTS, HASP, and XBM, the EOFDET routine must be written in PLP. For use in the 1004, 200UT, and 7020 emulators, the EOFDET routine can be written in FTN. Customers who already have EOFDET routines written in FTN for use with the 1004, 200UT, or 7020 Phase I emulators can continue to use the same EOFDET routines with the Phase II emulators in this group.

The next section walks you through the EOFDET routine to help you in writing one for yourself.

Walking Through the EOFDET Routine

First, refer to the sample end of file detection routine below. The routine is called with two arguments: line and device. Line is the logical_sync_line_# of the currently receiving site, and device is the device number. From the line number, the routine gets a pointer to the line control block, and using the device number, calculates a pointer to the relevant device control block. The device control block sits within the line control block.

This particular example takes the occurrence of four lines of vertical bars (|) to be the string indicating the end of file condition.

The first time the EOFDET routine is called, it initializes an array that has as its bounds the number of lines and the number of devices assigned for a particular line. This array contains the counts that are used to keep track of the number of times the EOF string occurs. This routine adds one to a count each time the EOF string is found. Once the terminating string sequence has been found, the EOF flag is set to true, and the count for that line and device combination is reset to zero.

The EOFDET command in the site definition file can be used to select different terminating sequences for different sites. In this routine, the value of lc.config.eof_key is checked to determine what the EOFDET configuration setting is. If the key has the value of 1, the routine checks for the occurrence of 131 vertical bars on four lines.

The routine returns the value contained in the EOF flag, that is, true or false. Once the routine returns with the EOF flag set to true, the worker closes the current receive file.

Sample EOFDET Routine

This sample end of file detection routine searches for the fourth occurrence of a line containing 131 vertical bars (|):

```
/* START-CODE : */

EOFDET:
 procedure(line, device) returns(bit(1));

/* parameters */

$INSERT RJESRC>INSERT>PARAM.INS.PLP
```

```
$INSERT RJESRC>INSERT>WORKER_PARAM.INS.PLP

/* based RJSPLQ structure */

$INSERT RJESRC>INSERT>RJSPLQ.INS.PLP

/* based RJOP config structure */

$INSERT RJESRC>INSERT>RJOP_CONFIG.STRUCT.INS.PLP

/* based RJOP update config structure */

$INSERT RJESRC>INSERT>RJOP_UPDATE.STRUCT.INS.PLP

/* based structure for the line configuration */

$INSERT RJESRC>INSERT>LC.INS.PLP

/* arguments */

dcl line bin,                          /* logical SMLC line number */
    device bin;                        /* device number */



dcl eof bit(1);

dcl first_time bit(1) static init(true);

dcl (lc_ptr, dc_ptr) ptr;

dcl (i, j) bin;

dcl count(minsmlc:maxsmlc, ndevs) static bin;

dcl eofstring char(131) var static init((131) '|');

dcl string131 char(131) based;

dcl lcptr entry(bin) returns(ptr);


/* start */

   if first_time
   then
     do;
```

```
/* initialize COUNT */

      do i = minsmlc to maxsmlc;
        do j = 1 to ndevs;
          count(i, j) = 0;
        end;
      end;

      first_time = false;
    end;

  eof = false;
  lc_ptr = lcptr(line);
  dc_ptr = addr(lc_ptr -> lc.dev(device));

/* Check the value of the End of File Key */

  select(lc_ptr -> lc.config.eof_key);
  when(1)

/* Check to see if the line is the correct length (i.e., 131) */

    if dc_ptr -> dc.line_size = 131
    then

/* Compare the line in this buffer with the desired
End of File string */

      if addr(dc_ptr -> dc.line_buff) -> string131 = eofstring
      then
        do;

/* If they match ... add 1 to a count !! */

          count(line, device) = count(line, device) + 1;

/*
  If this count now equals four, then we have found End of File - so
  set the EOF flag to true !!
  Also, reset the count to zero.
*/

          if count(line, device) = noccur
          then
            do;
              eof = true;
              count(line, device) = 0;
            end;
        end;
  end;                                        /* select */
  RETURN(eof);
end;                                          /* EOFDET */
```

Implementation Overview

The whole Destination Detection (DSTDET) mechanism works as follows. When starting to receive a file, the worker opens the file in the sub-UFD RJSPLQ*>TO_ROUTE. At the same time, the worker reserves a blank line at the top of the file. The reason for this becomes apparent later. The worker then calls the supplied DSTDET routine on receipt of each record. The DSTDET routine searches each record passed to it for the $$ string. When the $$ string is found, the DSTDET routine copies it into a well-known place in the device control block for the current receiving device. The device control block is, in fact, part of the line control block for the current line, so destination detection is implemented on a per-device, per-line basis. For example, with multistreamed HASP, several receive files, all intended for different destinations, could be open.

Having copied the $$ string into the DCB, a DCB flag is also set, informing the worker that the destination string has been found for this device. This ensures that the overhead of calling the DSTDET routine disappears until a subsequent file starts being received. Thus, although the $$ string can appear on any line of the received file, it is better for it to be as near to the top of the file as possible.

When end of file has been reached, the worker closes the receive file in the UFD RJSPLQ*>to_route. As the file is being closed, the worker copies the $$ string, which had been saved in the DCB by the DSTDET routine, into the blank line previously reserved when the worker opened the file.

Now the distributor program enters the scene. Having closed the file in RJSPLQ*>to_route, the worker checks to see if the distributor is running. If the distributor is not running, then the worker automatically phantoms it. The distributor program scans the to_route UFD for files to copy. If the program finds a file, it looks at the first line and copies the file to the UFD as specified in the $$ command.

Note

> The top line $$ command will not appear in the file that gets copied to the user UFD. The file in the to_route directory is deleted. If a $$ command was not present in the first line of the to_route file, or the specified destination cannot be found, then the receive file remains in the to_route UFD forever.

The distributor program keeps running until there are no more files to copy. It has an inactivity timeout period of 10 minutes. After a 10-minute period during which no files have been distributed, the distributor program logs out.

USING DESTINATION DETECTION

To make use of the destination detection facility the site definition file must contain the DSTKEY command. In order for destination detection to be switched on, DSTKEY must have a value greater than zero, that is, DSTKEY 1.

The major piece of work is to provide a destination detection routine suited to the specific requirements of the site. An example is provided on the master disk. The DESTDET routine resides in EMxxxxSRC>SOURCE, where xxxx is the emulator name, for example, X80. The example file is called DSTDET.EXAMPLE.PLP. The example file can be used as a template for constructing your DSTDET routine, although the modifications you will need are not major. For the 3776, X80, HASP, XBM, and GRTS emulators, the routine must be written in PLP. For 200UT, 1004, and 7020, the example routine must be written in FTN. The next section guides you through an example routine.

Walking Through the DSTDET Routine

First, refer to the sample destination detection routine below. The routine is called with two arguments: line and device. Line is the SMLC line number of the current receiving device and device is the device number. From the line number, the routine gets a pointer to the line control block and, using the device number, calculates a pointer to the relevant device control block. The device control block sits within the line control block.

After initialization of some local variables, the routine checks to see whether the destination has already been found for this current receiving device. It does this by checking a flag in the device control block, dcptr -> dc.dst_found. If the flag is true, then the routine returns.

The routine then positions a pointer to the start of the received buffer contained within the DCB at dcptr -> dc.line_buff. Next the routine checks to see whether the current receiving file is punch or print data. If the file is a print file, the routine looks for a string containing spaces and three asterisks at the start of the line. If found, then an index is set up to indicate that the search position for the $$ string starts after the *** characters. This is an arbitrary piece of logic, peculiar to the example routine. For punch files, the scan starts from the first character of the line.

The routine then scans the received line, from the specified start position, until the first nonspace character is found. If the end of line is reached before finding a nonspace character, then the routine returns. If the nonspace character is a $, then the routine looks to see whether the subsequent character is a $. If so, then the destination has been found. The routine copies the rest of the line, including the $$ characters, into a buffer in the DCB, dcptr ->

dc.dst_line. The flag dcptr -> dc.dst_found is also set to indicate to the worker that the destination has been found for the current receive file.

The routine now returns and is not called again until a new receive file appears for that particular device.

Sample DSTDET Routine

The following is a sample of a destination detection routine:

```
/* DSTDET.EXAMPLE.PLP,      EMX80SRC>SOURCE,      PRL(UK),      05/21/85
   Find destination of file and plug it into device database
   Copyright (C) 1981 Prime Computer, Inc., Natick, MA 01760 */

dstdet:
 procedure(line, dev);

$INSERT RJSPLQ*>SYSCOM>RJKEYS.INS.PLP

$INSERT RJESRC>INSERT>PARAM.INS.PLP

$INSERT RJESRC>INSERT>WORKER_PARAM.INS.PLP

$INSERT RJESRC>INSERT>RJOP_CONFIG.STRUCT.INS.PLP

$INSERT RJESRC>INSERT>RJOP_UPDATE.STRUCT.INS.PLP

$INSERT RJESRC>INSERT>RJSPLQ.INS.PLP

$INSERT RJESRC>INSERT>LC.INS.PLP

/*TITLE: DSTDET - Find destination of file and plug it into device data
base */

/*START-DESCRIPTION */

/* The file is routed to its final destination by the program
   RJDIST.SAVE which is normally invoked as a phantom by the
   worker process. The distributor examines the first line of
   every file in the directory RJSPLQ*>TO_ROUTE. Any file which
   has a recognizable destination (Syntax follows) will be copied
   to that destination.
      Currently recognized destinations are:-
       $$FILE   <treename>   .... Copy to this file
       $$DIR    <treename>   .... Copy to this dir. as RECVnnnn
```

When data reception starts, a temporary file is opened in the TO_ROUTE directory. This file has a blank line 128 characters long at the start. The flag dcbptr->dc.dst_found is cleared. At the end of the

file, the text string dcbptr->dc.dst_line is written to the front of the temporary file, if and only if the flag has been set. It is the responsibility of this routine to determine whether a destination is present in the file, and what it is. There is no compulsion to examine the current text line (dcbptr->dc.line_buff), but it is available for use. Its length is stored in (dcbptr->dc.line_size).

In this sample the punch destination string can appear anywhere in a card image; for print data the string is introduced by
' ***'.

For example:

```
  '       *** $$DIR RJSPLQ*>QX80'

*/

/* END-DESCRIPTION */

/* ARGUMENTS */

dcl line bin,                          /* Logical SMLC line */
    dev bin;                           /* Device no. */

/* LOCAL VARIABLES */


/* FILE VERSION NUMBER - PLEASE DO NOT DELETE/CHANGE/MOVE/MODIFY */

dcl V_TDET    char(6) static external init ('TDET 1');

dcl lcbptr ptr,                    /* Points at line data */
    dcbptr ptr;                    /* Points at device data */

/* ENTRIES */

dcl lcptr entry(bin) returns(ptr);   /* Get address of per-line data */

/* START-HISTORY
   05/21/85...PRL(UK) ...Template constructed
   END-HISTORY */


dcl (eol, non_space) bit(1);

/* characters */

/* variables */

dcl (pos, i, j) bin;

/* pointers */
```

```
dcl (lbptr,                          /* pointer to current line buffer */
     dbptr,                          /* pointer to destination line */
     dc_ptr,
     lc_ptr) ptr;

/* based */

dcl intro_string char(13) based;

dcl buff(max_line_size) char based;

/* START-CODE */

   lc_ptr = lcptr(line);
   dc_ptr = addr(lc_ptr -> lc.dev(dev));
   pos = 0;
   eol = false;
   non_space = false;


   if dc_ptr -> dc.line_size < 7
   then
     RETURN;

   lbptr = addr(dc_ptr -> dc.line_buff);

   if dc_ptr -> dc.type = dev$printer
   then
     if lbptr -> intro_string = '          ***'
     then
       pos = 13;
     else
       RETURN;

/* search for $$ */

   do until(non_space ! eol);
     pos = pos + 1;
     if pos > dc_ptr -> dc.line_size
     then
       eol = true;
     else
       if lbptr -> buff(pos) ^= ' '
       then
         non_space = true;
   end;

   if eol
   then
     RETURN;

   dc_ptr -> dc.dst_found = (lbptr -> buff(pos) = '$')
         & (lbptr -> buff(pos + 1) = '$');
```

```
/* copy the string to DST_LINE */

   if dc_ptr -> dc.dst_found
   then
     do;
       dbptr = addr(dc_ptr -> dc.dst_line);
       j = 0;
       do i = pos to dc_ptr -> dc.line_size;
         j = j + 1;
         dbptr -> buff(j) = lbptr -> buff(i);
       end;
     end;


 end;                                          /* DSTDET */

/* END-CODE */
```

B

RJPROC COMO File Messages

INTRODUCTION

This appendix describes error reporting as it stands in the protocol handler, RJPROC.

There are three levels of error reporting:

- Those written in the protocol handler COMO file.
- Those written in the worker log file.
- Those written both in the protocol handler COMO and RJE operator log files.

ERRORS WRITTEN IN THE PROTOCOL HANDLER COMO FILE

Most of the errors detected are caused by invalid return codes from individual routines within the protocol handler. Once an error has been found, a key is set, which corresponds to the particular error that has been detected. The routine that writes the individual error messages to the COMOUTPUT file has to determine which of the several sets of error tables containing available error messages has the right error text for this key.

DESCRIPTION OF RJPROC ERRORS/EVENTS

In the sections that follow, each error message that can occur in the RJPROC.COMO file will be given, as well as an appropriate description of the problem, where necessary.

Unless otherwise stated, these messages will be printed regardless of the setting of the debug flag, which may be used to print out more information as required. The messages are subdivided into three main groups.

STATUS: These messages provide information only.

WARNING: These messages indicate that a nonfatal error has occurred, and for some of these, the protocol handler will take corrective action. If a particular problem persists, then the various forms of action suggested below may need to be carried out.

ERROR: These messages indicate that a serious error has occurred. This may be classed below as a software error. Should any of these errors occur, the following are suggestions of actions that may rectify the problem(s).

- Check the site definition file to ensure that the various parameters within it are set to values within range or to valid options.
- Check that all components of the RJE emulator are installed correctly and are of the correct revision level.

Should the problem persist, then please send as much of the following information as possible to help Engineering reproduce the problem:

1. Explain the circumstances in which the problem occurred.
2. Give details of the system configuration, that is:
    - What PRIMOS revision is running?
    - What is the issue number of the RJE system? (This can be found by typing "HELP ISSUE" within the RJOP.)
    - What else is running on the Prime machine?
    - Are there any other communications products on the Prime machine, for example, DPTX, PRIMENET?
3. Reproduce the problem with the debug option ENABLED.
4. Print the COMOUTPUT file for the protocol handler RJPROC.COMO.
5. Print the worker COMOUTPUT file (WS"XXX".COMO).
6. Print the log file(s) (log)

7. Print the site definition file(s) for the sites in use.

8. Submit a Problem Report giving details on the problem experienced, and attach the printed results from the steps listed above.

Should Engineering be unable to reproduce the problem, more information may be requested from the customer site.

For the message classed as hardware error(s), the following are suggestions of action to take:

- Check the line, cable, and modem to ensure that they are correctly set up.

- If necessary, run the hardware diagnostics.

ERROR MESSAGES

These messages may only appear in the protocol handler COMOUTPUT file RJPROC.COMO. In these error messages, SMLC, MDLC, and ICS1 are synonymous with communications controller.

- ERR_1 Unexpected DIM status - WARNING

One status from the synchronous Device Interface Module (DIM) was received when another was expected.

- ERR_2 DIM block error - WARNING

An invalid marker has been taken from the DIM to the protocol handler marker queue. This message would typically occur after a timeout.

- ERR_3 Timer type unknown - WARNING

The timer type specified is not one known to the protocol handler.

- ERR_4 Bad SMLC line # - ERROR

The SMLC line number given is invalid. Valid line numbers are currently within the range of 0 to 7.

- ERR_5 SMLC line in use (slcusr) - ERROR

The line that the protocol handler is attempting to assign is in use by another user.

- ERR_6 SMLC line is not yours - ERROR

The line that the protocol handler is trying to unassign was not in fact assigned to the worker.

- ERR_7 No request from worker - WARNING

No requests are queued from the worker.

- ERR_8 Error assigning line - ERROR

There has been a problem in assigning the line.

- ERR_9 Error getting DMC channels - ERROR

The DMC channels allow the communications controller to place data in memory. This is a PRIMOS software error.

- ERR_10 Error configuring line - ERROR

An attempt to configure a line has failed. This is a possible hardware problem. Check the communications controller for the proper protocol option.

- ERR_11 Hardware error - ERROR

There has been a problem configuring the communications controller. This is definitely a hardware problem. Check the controller for the proper protocol option and also check that it is installed properly. Hardware diagnostics may have to be run to verify the hardware.

- ERR_12 Error in SOMAN - ERROR

There are no more segment 0 buffers available to either read data into or to write data from. This error can also occur when there has been an error in the routine that carries out allocation or deallocation of segment 0 buffers. This is a PRIMOS error.

- ERR_13 Error loading buffers - ERROR

An error has been found in putting blocks into the transmit/receive queue. This is a protocol handler error. Forced logging out of the protocol handler, or disabling and then reenabling the line, should correct the problem.

- ERR_14 Buffer size error - ERROR

An error has been detected in the blocksize specified, and this has resulted in an error in allocating the protocol handler's internal buffers. Either the blocksize is 0, which is invalid, or the blocksize specified is larger than 1024, so one block will not fit into the space available.

In both cases, check the site definition file and correct the blocksize to be within the range valid for the protocol. This is a software error.

- ERR_15 Error raising DTR - ERROR

An error has occurred when the communications controller tried to raise DTR. Check that the modem is powered on and properly cabled to the controller. Hardware diagnostics may also need to be run. This is a serious hardware error.

- ERR_16 Error getting dataset status - ERROR

An invalid status has been returned from the communications controller. Check that the modem is powered on and properly cabled to the controller. Hardware diagnostics may also need to be run. This is serious hardware error.

- ERR_17 Error configuring DIM - ERROR

There has been an error detected in trying to configure the Device Interface Monitor (DIM). Check for a possible revision level difference between the RJE code and the operating system. This is a serious software error.

- ERR_18 Unknown request from worker - ERROR

An error has occurred in one of two cases:

- Attempting to restart, abort, suspend, or release an invalid device
- Receiving an unknown request from the worker

Check for a possible revision level difference between the RJE code and the operating system. This is a software error.

- ERR_19 Short message out of bounds - ERROR

There has been an attempt to transmit a short, undefined message. This is a software error.

- ERR_20 Specified buffer not configured - ERROR

The buffer number specified is invalid. This is a software error.

- ERR_21 Error in DMC channels - ERROR

The DMC channels referenced are invalid, as they do not point inside the protocol handler's segment 0 window. Try disabling and reenabling the line. This is a software error.

- ERR_22 No buffers left on queue - ERROR

There are no buffers left on the receive queue. This is a software error.

- ERR_23 Unexpected event (check) - ERROR

This message signifies that an event has been detected that was not expected. This is a software error.

- ERR_24 Bad key in call - ERROR

The receive routines have been called with an invalid key. This is a software error.

- ERR_25 Bad state in protocol handler - ERROR

This error message is specific to the ICL XBM emulator. The protocol is in an undefined state. This is a software error.

- ERR_26 Bad block from RJI - ERROR

This error message is specific to the IBM 2780/3780 and IBM HASP emulators only. It signifies that an invalid block has been passed to the protocol handler by the RJI. This is a software error.

- ERR_27 Unknown protocol - ERROR

An attempt has been made to run a protocol not known to the protocol handler. Check for a possible revision level difference between the RJE code and the operating system. This is a software error.

- ERR_28 SMLC line does not exist - ERROR

An attempt has been made to assign a nonexistent line. Currently the SMLC line numbers range from 0 to 7. Check the PRIMOS configuration. This is a possible hardware error.

- ERR_29 Error in setting up DMC - ERROR

An error has occurred in trying to set up the DMC channels. This is a software error.

- ERR_30 No free pool of recv buffers - WARNING

There are no buffers available in the receive free pool. This is a software error.

- ERR_31 No logical connection (LNXCTL) - ERROR

Indicates that the ICS1 logical connection, which should have been set up in LNXCFG, was not established, possibly because LNXCFG has not yet been called.

- ERR_32 Not physical line 0 - (LNXCFG) - ERROR

The ICS1 controller uses only physical line 0 for synchronous communications.

- ERR_33 Not a LYNX controller - (LNXCTL\LNXCFG) - ERROR

A search of the controller type (contyp) table indicates that the line is not attached to an ICS1 controller.

- ERR_34 ENQ$A failure (sending message)-(LNXCTL\LNXCFG) - ERROR

An attempt to enqueue either an ICS1 communication controller error-reporting control or a configuration message to the ICS1 low priority queue has failed.

- ERR_35 Controller address not defined - (LNXCFG) - ERROR

The controller does not have a valid device address.

- ERR_36 No LYNX DIM to LYNX connection - (LNXCFG) - ERROR

The logical connection from the ICS1 DIM to the ICS1 could not be established during controller initialization.

- ERR_37 Event queue not created - (LNXCFG) - ERROR

A call to the IPQNM routine CRQ$E, which creates the event queue, has failed.

- ERR_38 LCINT call failed - (LNXCFG) - ERROR

A call to the IPQNM routine LCINT, which initializes the logical connection, was not successful.

- ERR_39 Logical connection rejected by controller - (LNXCFG) - ERROR

The logical connection was not accepted by the ICS1 controller and an LCDEL call has been issued to delete the connection.

- ERR_40 ENQ$A failure (sending free pool id) - (LNXCFG) - ERROR

An attempt to send the free pool ID (the area where the ICS1 bisynchronous process draws receive buffers) to the ICS1 has failed.

- ERR_41 No free blocks in free pool - (LNXCTL\LNXCFG) - ERROR

No free data blocks are left in the ICS1 free pool in which to copy a control or configuration message. A warm/coldstart of the system should circumvent the problem. If this problem persists, carry out a tape dump of the operating system and submit it along with the PRIMOS Maps in PRIRUN with a Problem Report. This is a software error.

- ERR_42 No logical connection with ICS2 for given line - ERROR

The logical connection between the protocol handler and the RJE process in the ICS2 for the given line is not available.

- ERR_43 Line does not belong to ICS2 - ERROR

A non-ICS2 line number is provided as input to the ICS2 specific routines. This is a software error.

- ERR_44 ENQ$A failure (sending message) with ICS2 - ERROR

An attempt to enqueue a message block to the ICS2 controller over the logical connection failed.

- ERR_45 Invalid ICS2 controller address - ERROR

The address of the ICS2 controller provided in the LCCARRY while establishing a logical connection is invalid.

- ERR_46 Event queue creation failed (ICS2) - ERROR

A call to the IPQNM routine CRQ$E to create an event queue failed.

- ERR_47 LCINT called failed - (with ICS2) - ERROR

A call to the IPQNM routine LCINT to establish and initialize the logical connection with the ICS2 failed.

- ERR_48 Logical connection rejected by the ICS2 - ERROR

The request for the logical connection with the ICS2 has been rejected by the ICS2. This may be due to the noninitialization of the ICS2 code to the RJE purpose. CONFIG file in CMDNCO may be examined.

- ERR_49 ENQ$A failure (sending CFG block) - ERROR

An attempt to enqueue the configuration block to the ICS2 controller over the logical connection failed. This is mainly due to software errors.

- ERR_50 ENQ$A failure (sending a CMD word) - ERROR

An attempt to enqueue the command word to the ICS2 controller over the logical connection failed. This can be mainly due to software failure.

- ERR_51 No free blocks in the free pool - ERROR

No free blocks are left in the free pool of the active logical line. Disabling the concerned logical line from the RJE session and enabling it again will, normally, circumvent this problem. If this problem still persists carry out a tape dump of the operating system and submit it along with a Problem Report. This is a software error.

- ERR_52 Bad event from the ICS2 - ERROR

An undefined event is received from the ICS2. Code in the ICS2 may be wrong. A warm/coldstart may solve this problem.

- ERR_53 Wrong encoded response from the ICS2 - ERROR

A wrong encoded response has been received from the ICS2. The code in the ICS2 may be wrong. A warm/coldstart may solve this problem.

- ERR_54 Block unexpected from the ICS2 - ERROR

ICS2 should send the pointer buffer first and then the data block to PRIMOS. This error is caused when the ICS2 sends a block without the flags set or sends a block when it is not expected from the protocol handler. This is a software error in the ICS2 and a coldstart will correct the problem.

- ERR_55 More entries in the pointer buffer from the ICS2 - ERROR

This error is caused that the pointer buffer from the ICS2 has more entries than specified in the pointer buffer itself. This is a system error.

- ERR_56 No pointer buffer block - ERROR

This error is caused when a data block is received from the ICS2 with the data block flag set without a preceding pointer buffer block. This is a system error.

- ERR_57 Logical connection deletion failed - ERROR

An attempt to delete the logical connection with the ICS2 by the IPQNM routine LCDEL failed.

- ERR_58 No entries in the ICS2 event queue - ERROR

This is caused when the protocol handler is notified that the event queue does not have any event registered.

- ERR_59 Dequeuing failure from the ICS2 queue - ERROR

This is caused when an attempt to dequeue an event from the event queue of the logical connection with the ICS2 failed.

- ERR_60 ICS2 line in use - ERROR

This error is sent to PRIMOS by the ICS2 when a request to establish a logical connection for a line to which the logical connection already exists. This is a software error.

- ERR_61 ICS2 received a bad config block - ERROR

This error is sent to PRIMOS by the ICS2 when it receives a configuration block with incorrect/insufficent parameter values from PRIMOS. This is a software error.

- ERR_62 ICS2 has faulty IBC - ERROR

This error is sent to PRIMOS by the ICS2 when it recognizes faulty IBC microcode. This is a system error.

- ERR_63 ICS2 has incorrect LAC type - ERROR

If the ICS2 recognizes that the LAC (Line Adapter Card) used for the given line is incorrect it sends this error to PRIMOS. This results from not setting up the ICS2 hardware correctly.

- ERR_64 ICS2 has incorrect cable type - ERROR

If the ICS2 recognizes that the type of cable used for the given line is incorrect it sends this error to PRIMOS. This results from setting the ICS2 hardware incorrectly.

- ERR_65 ICS2 has no cable attached - ERROR

If there is no cable attached, the ICS2 sends this message to PRIMOS. This results from an incorrect hardware setting.

- ERR_66 ICS2 has no LAC - ERROR

If there is no LAC in the slot corresponding to the given line, this error will be sent from the ICS2 to PRIMOS. This results from an incorrect setting of the hardware.

- ERR_67 ICS2 has incorrect IBC microcode - ERROR

This message is sent from the ICS2 to PRIMOS when it recognizes incorrect IBC microcode. This is a system error.

- ERR_68 ICS2 has not enough memory - ERROR

This message will be sent by the ICS2 to PRIMOS when it recognizes that it does not have enough memory for the data buffers. This is a system error.

- ERR_69 ICS2 detected an internal protocol error - ERROR

This error will be sent from the ICS2 to PRIMOS when it recognizes an unrecoverable error. This is a system error.

General Events

These messages could appear in both the worker COMOUTPUT file named RJSPLQ*>Qxxx>WSxxx.COMO or in RJPROC.COMO.

- EVENT_1 SQ down - STATUS

Pin No. - 21 , CCITT Circuit No. - 110. The Signal Quality (SQ) pin is off. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_2 SQ up - STATUS

Pin No. - 21 , CCITT Circuit No. - 110. The Signal Quality (SQ) pin is on. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_3 CD down - STATUS

Pin No. - 8 , CCITT Circuit No. - 109. The Carrier Detect (CD) pin is off. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_4 CD up - STATUS

Pin No. - 8 , CCITT Circuit No. - 109. The Carrier Detect (CD) pin is on. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_5 CTS down - STATUS

Pin No. - 5 , CCITT Circuit No. - 106. The Clear To Send (CTS) pin is off. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_6 CTS up - STATUS

Pin No. - 5 , CCITT Circuit No. - 106. The Clear To Send (CTS) pin is on. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_7 DSR down - STATUS

Pin No. - 6 , CCITT Circuit No. - 107. The Data Set Ready (DSR) pin is off. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_8 DSR up - STATUS

Pin No. - 6 , CCITT Circuit No. - 107. The Data Set Ready (DSR) pin is on. This message will be printed only if debug is switched on for the protocol handler.

- EVENT_9 Bad block - ERROR

A bad block has been received. This is a software error.

- EVENT_10 Delay timer ring - WARNING

The delay timer has rung. Delay timers are used at various places in the protocol handler to allow time for certain protocol-specific activities to take place.

- EVENT_11 Transmit failure timer - WARNING

There has been an error in transmission. This is a line problem. This may occur if there are no clocks on the modem, or if the data set lead has been improperly wired to the communications controller. This message could also appear if too large a blocksize has been configured for the line speed. If this happens often, check the modem.

- EVENT_12 Receive timeout - WARNING

Either there has not been a reply from the other end within the timeout period, or the remote end has gone away for some reason. This is a line problem.

- EVENT_13 Receiver failure timer - WARNING

Either there has been an error in reception, or the remote end has gone away for some reason. This is a line problem.

- EVENT_14 Retries exceeded - WARNING

The retry limit on a protocol event, for example, transmitting/receiving a block of data, has been exceeded. This is a line problem.

- EVENT_15 No progress in protocol - WARNING

The message indicates that no progress is being made in the protocol. This is a software error.

- EVENT_16 DIM status loss - WARNING

Statuses sent from the DIM are being lost. This may indicate that, for some reason, the protocol handler is not keeping up with the statuses sent from the DIM. Ensure that the protocol handler is running at the highest user priority level and adjust the timeslice value to give the protocol handler time to get certain jobs completed.

HASP Events

These messages may appear only in the protocol handler's COMOUTPUT file RJPROC.COMO. The messages are displayed just to provide status information and are printed only if debug for the protocol handler is switched on.

- EVENT_17 ACK0 - STATUS

ACK0 (positive acknowledgment) indicates that the last block was received correctly (no parity failure) or that the bid for the line is accepted.

- EVENT_18 NAK - STATUS

NAK (no acknowledgment) indicates that the previous transmitted block has been rejected. The protocol handler repeats the previous block. If the error persists, check the quality of the line and modem.

- EVENT_19 Text block - STATUS

The current block contains data.

- EVENT_20 Unknown block - STATUS

The message received is not one of the known binary synchronous control (BSC) characters.

- EVENT_21 SOH-ENQ - STATUS

Start Of Header (SOH) designates the start of a message header. ENQuiry (ENQ) designates the character used to bid for the line.

- EVENT_22 DLE-EOT (disconnect) - STATUS

The transmitting station is going to disconnect the line. (Practical experience shows that this probably will not occur on a switched line.)

X80 Events

These messages may appear in the protocol handler COMOUTPUT file RJPROC.COMO if debug for the protocol handler is switched on.

- EVENT_23 ACK0 - STATUS

ACK0 (positive acknowledgment) indicates that the last block was received correctly (no parity failure) or that the bid for the line is accepted. Acknowledgment of data blocks flips between ACK0 and ACK1 as a simple binary sequence counter.

- EVENT_24 ACK1 - STATUS

ACK1 (positive acknowledgment) indicates that the last block was received correctly (no parity failure) or that the bid for the line is accepted. Acknowledgment of data blocks flips between ACK0 and ACK1 as a simple binary sequence counter.

- EVENT_25 RVI - STATUS

RVI (Reverse Interrupt) acknowledges a received block and requests permission to transmit a high priority message. The transmitting end may ignore the RVI and continue to transmit the file or relinquish the line. There may be only one outstanding RVI at any one time. This is not used by a Prime emulator although it will act on one.

- EVENT_26 WACK - STATUS

WACK (Wait before transmit positive ACKnowledgment) is sent by a receiving station in response to a bid or data block as positive acknowledgment, but indicates it is unable to receive data temporarily. A transmitting station continues to send ENQ until a receiving station sends ACK0/1, that data may be sent. This is not used by a Prime emulator, but it will respond to a received WACK.

- EVENT_27 NAK - STATUS

NAK (Negative ACKnowledgment) indicates that the last block had parity errors or it may be sent to refuse a bid.

- EVENT_28 ENQ - STATUS

ENQ (ENQuiry) character is used to bid for the line. It can also be sent to request retransmission of the response to the last block sent.

- EVENT_29 TTD - STATUS

TTD (Temporary Text Delay) is sent by a transmitting station to indicate that it is temporarily unable to transmit, but does not wish to relinquish the line. A receiving station replies NAK. Prime responds correctly to a received TTD. The Prime emulator only uses TTD under serious error conditions.

- EVENT_30 EOT - STATUS

EOT (End Of Transmission) indicates end of this transmission (either because the whole file has been sent or as an abort procedure). On reception of EOT, the receiving station may bid for the line.

- EVENT_31 ETB block - STATUS

ETB (End of Transmit Block) designates the end of an intermediate block of a file. Cyclic Redundancy Check (CRC) bytes follow an ETB. Additionally, an ETB forces a line turnaround, such that the receiving end must positively or negatively acknowledge the block just received.

- EVENT_32 ETX block - STATUS

ETX (End of Transmit Text) is a function similar to ETB and is normally used to indicate that this is the last block of this file.

- EVENT_33 Unknown block - STATUS

The message received is not one of the known BSC control characters.

- EVENT_34 DLE-EOT (disconnect) - STATUS

The Delayed Line Event End of Time (DLE EOT) message indicates to the receiver that the transmitting station is going to disconnect the line. (Practical experience shows this probably will not occur on a switched line.)

XBM Events

These messages may appear in the protocol handler's COMOUTPUT file RJPROC.COMO if debug for the protocol handler is turned on.

- EVENT_35 Group address incorrect - ERROR

This message indicates that the group address in the site definition file does not match the one with which the ICL host is polling this RJE station. The group address at both ends should match.

- EVENT_36 Traffic status poll - STATUS

A POLL -EOT|group-address|...|ENQ

The above example is a normal status POLL, as the host is polling the remote end to see if there is any data.

- EVENT_37 Category data poll - STATUS

This is a POLL from the host requesting the remote end to send data for a particular category.

- EVENT_38 Group specific poll - STATUS

This is a POLL requesting data for a particular device, for example, for card reader data only.

- EVENT_39 Command that LLHR - WARNING

The remote end is waiting for a RESET, but it has received some other command, for example, a POLL or a SELECT.

- EVENT_40 Out of sequence poll - STATUS

This message indicates either:

- The emulator is not responding in time to a POLL from the ICL host. One way to solve this problem is to call up the protocol handler.
- The host is disobeying the protocol.

- EVENT_41 Valid select - STATUS

A SELECT Block - SOH|group-address|.....|ETX|BCC

The above example message appears frequently and indicates that data has been received for the relevant devices, for example, the operator console or the line printer.

- EVENT_42 Select with parity error - STATUS

A block has been received that contains parity errors.

- EVENT_43 Out of sequence select - STATUS

The toggle bit in the receive select is not set to the expected value.

- EVENT_44 Group reset 1 - STATUS

This command resets the toggle bit at the Prime end to a known state.

- EVENT_45 Group reset 2 - STATUS

This command resets the toggle bit at the Prime end to a known state. Also, devices configured at the Prime end are put into the default category. This message usually occurs on enabling the line.

- EVENT_46 Group reset 3 - STATUS

This command resets the toggle bit at the Prime end to a known state. Also, devices configured at the Prime end are put into the default category. This command further cleans up the data queued on the category queues for all the devices. However, data is merely removed from the protocol handler's low level queues, so no data is lost.

GRTS Events

These messages may appear in the protocol handler COMOUTPUT file RJPROC.COMO if debug for the protocol handler is turned on.

- EVENT_47 Bad sequence code - WARNING

The sequence code in the message header is corrupt.

- EVENT_48 Bad address code - WARNING

The address code in the message header is corrupt.

- EVENT_49 Bad operation code - WARNING

The operations code in the message header is corrupt.

- EVENT_50 Bad format code - WARNING

The format code in the message header is corrupt.

- EVENT_51 Cntl msg, no request - STATUS

This is a message containing data. This may be sent by either the primary unit or secondary unit. It can contain only one record: the record may be a special control record; for example, any record starting with a $. An example of a special control record is $*$OUT, which requests output from the primary unit.

- EVENT_52 Cntl msg, send data - STATUS

This message is illegal; for example, it is an illegal combination of message attributes according to the definition in the Honeywell GRTS protocol. It is recognized by this implementation of the protocol, but reception of this message will cause the error "Unexpected event in the protocol handler" to be written to the RJPROC.COMO file.

If this message persists, contact the System Administrator for the host site sending this message and inform him/her of this violation of the protocol.

- EVENT_53 Cntl msg, wait - STATUS

This message is illegal; for example, it is an illegal combination of message attributes according to the definition in the Honeywell GRTS protocol. It is recognized by this implementation of the protocol, but reception of this message will cause the error "Unexpected event in the protocol handler" to be written to the RJPROC.COMO file.

If this message persists, contact the System Administrator for the host site sending this message and inform him/her of this violation of the protocol.

- EVENT_54 Cntl msg, NAK, no req. - STATUS

The last message sent was in error.

- EVENT_55 Cntl msg, NAK, send data - STATUS

This message is illegal; for example, it is an illegal combination of message attributes according to the definition in the Honeywell GRTS protocol. It is recognized by this implementation of the protocol, but reception of this message will cause the error "Unexpected event in the protocol handler" to be written to the RJPROC.COMO file.

If this message persists, contact the System Administrator for the host site sending this message and inform him/her of this violation of the protocol.

- EVENT_56 Cntl msg, NAK, wait - STATUS

This message is illegal; for example, it is an illegal combination of message attributes according to the definition in the Honeywell GRTS protocol. It is recognized by this implementation of the protocol, but reception of this message will cause the error "Unexpected event in the protocol handler" to be written to the RJPROC.COMO file.

If this message persists, contact the System Administrator for the host site sending this message and inform him/her of this violation of the protocol.

- EVENT_57 Info msg, no request - STATUS

This message is used by both the primary and secondary systems to send data, and can contain one or more data records. It is also used by the secondary system to acknowledge receipt of the last block of data. In this case, the message will contain no data.

- EVENT_58 Info msg, send data - STATUS

This message is sent by the primary system to tell the secondary system to send more data.

- EVENT_59 Info msg, wait - STATUS

This message is sent by the secondary system, and indicates that it no more room on its receive queue. On receipt of this message, the primary system waits seven seconds and then resends its previous message.

- EVENT_60 Info msg, NAK, no req. - STATUS

The message received was in error.

- EVENT_61 Info msg, NAK, send data - STATUS

The message received was in error.

- EVENT_62 Info msg, NAK, wait - STATUS

The message received was in error.

- EVENT_63 Serv msg, no instr - STATUS

This record is sent by the secondary system to tell the primary system that it received the last service message sent.

- EVENT_64 Serv msg, select - STATUS

This indicates that there is a file available for sending by either the secondary system or the primary system. The primary system will expect to receive a "Service msg, no instruction" from the secondary system. The secondary system will expect to receive an "Information msg, send data" from the primary system.

- EVENT_65 Serv msg, terminate - STATUS

This record is sent when either end wishes to return to the idle state. On receiving this message, the primary system will reply with a "Terminate", while the secondary system will reply with a "Service msg, no instruction".

- EVENT_66 Serv msg, RFD - STATUS

This record is sent to indicate that either end is ready to disconnect the line. Once this has been received, both ends will reply with Ready for Disconnect (RFD) and will return to idle states.

- EVENT_67 Serv msg, NRFD - STATUS

This message is illegal; for example, it is an illegal combination of message attributes according to the definition in the Honeywell GRTS protocol. It is recognized by this implementation of the protocol, but reception of this message will cause the error "Unexpected event in the protocol handler" to be written to the RJPROC.COMO file.

If this message persists, contact the System Administrator for the host site sending this message and inform him/her of this violation of the protocol.

- EVENT_68 Serv msg, disconnect - STATUS

The line has been disconnected.

- EVENT_69 Serv msg, NAK, no instr - STATUS

The message received was in error.

- EVENT_70 Serv msg, NAK, select - STATUS

The message received was in error.

- EVENT_71 Serv msg, NAK, terminate - STATUS

The message received was in error.

- EVENT_72 Serv msg, NAK, RFD - STATUS

The message received was in error.

- EVENT_73 Serv msg, NAK, NRFD - STATUS

The message received was in error.

- EVENT_74 Serv msg, NAK, disconn. - STATUS

The message received was in error.

Worker Messages

These messages could appear in both the worker COMOUTPUT file named RJSPLQ*>Qxxx>WSxxx.COMO or in RJPROC.COMO.

- WRKR_1 Configure - STATUS

The worker has issued a configure request.

- WRKR_2 Deconfigure - STATUS

The worker has issued a deconfigure request.

- WRKR_3 Reset abort - STATUS

The worker has issued a request for the protocol handler to reset the abort flag(s).

- WRKR_4 Set abort - STATUS

The worker has issued a request for the protocol handler to set the abort flag(s).

- WRKR_5 Suspend - STATUS

The worker has issued a request for the protocol handler to set the suspend flag(s).

- WRKR_6 Release - STATUS

The worker has issued a request for the protocol handler to set the release flag(s).

- WRKR_7 Release perm. - STATUS

This message applies only to HASP. The worker has issued a request for the protocol handler to set the release-permission flag(s).

Messages to the Worker

In this section, messages that are specific to particular emulators are indicated. These messages could appear in both the worker COMOUTPUT file named RJSPLQ*>Qxxx>WSxxx.COMO or in RJPROC.COMO.

- TWK_1 No progress - WARNING

This is a message specific to the Honeywell GRTS emulator. The protocol handler informs the worker that no progress is being made.

- TWK_2 Marked block has been sent - STATUS

This message indicates that the last block of a file has been successfully sent to the other end of the line. It will be seen at the end of each file.

- TWK_3 Abort done - STATUS

This indicates that a worker command to abort the activities of a particular device has been performed.

- TWK_4 Group reset 3 - STATUS

This indicates that a worker command will attempt to make three tries before resetting itself.

- TWK_5 Retries exceeded - STATUS

A certain protocol-specific action has not been completed in a specified period of time.

- TWK_6 Data lost - WARNING

The message is specific to the ICL XBM emulator and shows that data is being lost. It is only relevant in interactive XBM. This is a software error.

- TWK_7 Secondary system has reset - WARNING

This message is ICL XBM emulator specific. It indicates that the slave has reset its queues.

- TWK_8 DSR has dropped - ERROR

The Data Set Ready (DSR) lead has dropped. It is possible that a cable has become disconnected. This is a serious hardware error.

- TWK_9 Group reset 2 - STATUS

This message only applies to the ICL XBM emulator. This is a special command sent by the host to allow the worker to attempt to make two tries to establish a connection before resetting itself.

- TWK_10 Activate - STATUS

This message only applies to the ICL XBM emulator. This is a special command sent by the host to allow card reader data to be sent.

- TWK_11 Deactivate - STATUS

This message only applies to the ICL XBM emulator. This is a special command sent by the host. Card reader data cannot be sent thatthe remote end is in this state.

- TWK_12 Group reset 1 - STATUS

This message only applies to the ICL XBM emulator.

- TWK_13 Subsid. reset - STATUS

This message only applies to the ICL XBM emulator.

- TWK_14 Subsid. restart - STATUS

This message only applies to the ICL XBM emulator.

- TWK_15 Bad state in P.H. - ERROR

This error message is specific to the IBM 2780/3780, IBM HASP, and Honeywell GRTS emulators. It indicates that the protocol is not in a defined state. In HASP, this is a fatal error, but it is nonfatal in X80. Should this problem occur, take a tape dump of the system and submit it. This is a software error.

- TWK_16 Unexpected event in P.H. - WARNING

This error message is specific to the IBM 2780/3780 and IBM HASP emulators. An event has occurred in the protocol handler other than that which is expected. This is a software error.

- TWK_17 RVI received - STATUS

This message applies only to the IBM 2780/3780 emulator. A Reverse Interrupt (RVI) has been received.

- TWK_18 File aborted by remote end - STATUS

This message is specific to the IBM 2780/3780 and Honeywell GRTS emulators. If during the transmission of a file, the remote end sends an EOT, this will cause the file being sent to be aborted.

- TWK_19 Line enabled - STATUS

This message shows that the line has been successfully enabled.

- TWK_20 Dataset ready - STATUS

This message shows that the line has been successfully enabled, and the Prime system has raised DTR and has seen Data Send Ready (DSR); thus a physical connection has been established.

- TWK_21 Both ends are slave - ERROR

The protocol handler has received an SOH ENQ sequence, which means the remote end believes the Prime emulator is the host system. This is not the case, as the protocol handler also believes that worker it is running is a secondary system.

The Prime emulator cannot act as a secondary system at both ends. Check with the remote end and ensure that one end is configured as the host system. This message applies to the IBM HASP emulator and is a fatal error.

- TWK_22 Duplicate BCB received - WARNING

This message is only relevant to the IBM HASP emulator. On receipt of a duplicate Block Control Byte (BCB), the last block received will be thrown away.

- TWK_23 Bad BCB received - ERROR

The received block does not have the expected sequence number or the expected sequence number minus one; for example, the previous block has been repeated. The block is rejected. This message only applies to the IBM HASP emulator and is a fatal error.

- TWK_24 Protocol failure - ERROR

This is a fatal error.

- TWK_25 DLE\EOT received - STATUS

The other end has sent a DISCONNECT sequence. This message only applies to the IBM 2780/3780 and IBM HASP emulators.

- TWK_26 Disconnect message - STATUS

A message has been received telling you to disconnect the line. This only applies to the Honeywell GRTS emulator.

- TWK_27 Ready for disconnect - STATUS

A message has been received telling you to prepare to disconnect the line. This only applies to the Honeywell GRTS emulator.

- TWK_28 Not ready for disconnect - STATUS

You have been told that the other site is not prepared to disconnect the line. This only applies to the Honeywell GRTS emulator.

- TWK_29 Terminate message - STATUS

You have been told to stop transmitting a particular file. This only applies to the Honeywell GRTS emulator.

- TWK_30 Wait message - STATUS

A message has been received telling you to wait seven seconds before continuing your transmission because the other site is not ready to go on. This only applies to the Honeywell GRTS emulator.

- TWK_31 $*$DIS request - STATUS

This command is only recognized by the host system site. The remote site has sent to the host a special control record containing the string $*$DIS, which is a request for the host to disconnect immediately. This only applies to the Honeywell GRTS emulator.

- TWK_32 $*$OUT request - STATUS

This command is only recognized by the host system site. The remote site has sent to the host a special control record containing the string $*$OUT, which is a request for the host to output any files that are destined for the RJE Subsystem sending the request. The host site will terminate the current file being received and go into an idle state. This only applies to the Honeywell GRTS emulator.

- TWK_33 $*$STS request - STATUS

This command is only recognized by the host system site. The remote site has sent to the host a special control record containing the string $*$STS, which is a request for statistical information from the host on what jobs are queued by the particular RJE site sending the request. It is treated in the same manner as the $*$OUT message. This only applies to the Honeywell GRTS emulator.

Messages from the DIM

These messages may appear in the protocol handler's COMOUTPUT file RJPROC.COMO if debug for the protocol handler is switched on. The relative numbering is defined within the DIM software.

- DIM_-7 Hardware error - STATUS

There has been an error in the SMLC controller. This is a hardware error.

- DIM_-6 Status lost - STATUS

The status buffers in PRIMOS have overflowed due to the number of interrupts occurring and/or general system load. This may be caused by a loose cable, disconnecting a cable, or a bad modem.

- DIM_-5 Transmit underrun - STATUS

The transmitter data was insufficient. This may arise when there are more DMC channels set up than data to fill them.

- DIM_-4 Transmit data not available - STATUS

The transmit data is not available. This may arise when there are more DMC channels set up than data to fill them.

- DIM_-3 Formatter error - STATUS

There has been a receiver formatter error. A block has been received, but it is unrecognizable by the hardware.

- DIM_-2 Receiver overrun - STATUS

There has been too much receive data for the block. This may be caused by a noisy line corrupting the data so that the End of Text character is never seen. There may also be a situation where both ends of the line do not have the same blocksize set up, so data is being sent for which there is no available space. Thus, a block has been received, but it is unrecognizable by the hardware.

- DIM_-1 Bad checksum parity error - STATUS

There has been termination of a block with parity or Block Check Character (BCC) error.

- DIM_1 Last char. of xmit block sent - STATUS

This message occurs when a transmission is about to finish, and it indicates that the last character of the data being transmitted has left the communications controller.

- DIM_2 First char. of recv mess - STATUS

The receiver has started to get a message from the other end of the line.

- DIM_3 Received time fill - STATUS

A timefill (synchronoyou) has been received by the hardware in the receive stream.

- DIM_4 Good message - STATUS

This status is the termination of a "good" block.

- DIM_5 Dataset change - STATUS

A data set lead has changed.

Messages for RJI Return Codes

These messages will only appear in the worker COMOUTPUT file named Log. The RJI is the interface between the worker and the protocol handler, so these error messages are also documented in the worker's error text files.

- RJI_1 Incompatible version number - ERROR

The version number beween the Ring 0/Ring 3 interface is not the same. Check that all RJE files have been correctly installed into the SYSCOM UFD, and then recompile, reload, and reinstall the emulator(s). This is a software error.

- RJI_2 SMLC line out of range - ERROR

The SMLC line specified is not in the range of 0 to 7.

- RJI_3 SMLC line in use - ERROR

The SMLC line specified is in use.

- RJI_4 RJI line is in use - ERROR

The control block for the line is in use. This is a software error.

- RJI_5 CRQ for data marker queue failed - ERROR

There has been a failure to create the worker to protocol handler data marker queue. This is a software error.

- RJI_6 CRQ for device queue failed - ERROR

There has been a failure to create the worker to protocol handler device queue. This is a software error.

- RJI_7 CRFP for data blocks failed - ERROR

There has been a failure to create the free pool for data blocks. This is a software error.

- RJI_8 CRQ failed create ph to worker cntl q - ERROR

There has been a failure to create the protocol handler to worker control queue, or the data stream control queue. This is a software error.

- RJI_9 CRQ failed create ph to worker data q - ERROR

There has been a failure to create the protocol handler to worker data queue. This is a software error.

- RJI_10 Failed to send config to protocol handler - ERROR

An attempt to send a configuration directive to the protocol handler has failed. This is a software error.

- RJI_11 Device number out of range - ERROR

The device number specified is out of range. This is a software error.

- RJI_12 No permission to xmit on this device - ERROR

Permission has not been granted to transmit data on this stream. This is a software error.

- RJI_13 Max nchannels for block exceeded - ERROR

The maximum number of channels per block is 16, but in this block that limit been exceeded.

- RJI_14 Records are not consecutive - ERROR

The channels defined are not consecutive. This is a software error.

- RJI_15 Max number of characters exceeded - ERROR

The maximum blocksize has been exceeded.

- RJI_16 Line not assigned to worker - ERROR

The line control block is not in a known state (either being assigned, or unassigned). Thus, this line has not been assigned to the worker.

- RJI_17 Line assigned to another worker - ERROR

This line has been assigned to another worker process.

- RJI_18 Line has been forcibly detached - ERROR

This error can be caused by either of these:

  - The protocol handler has detached you on this line.
  - You have been detached on this device.

- RJI_19 Device is not assigned to worker - ERROR

Neither the device control block nor the interactive control block have been assigned.

- RJI_20 Device assigned to another worker - ERROR

The interactive control block is not yours; it may be somebody else's or unassigned.

- RJI_21 Failed to assign CWCB - ERROR

There has been a failure to assign a Control Worker Control Block (CWCB).

- RJI_22 Failed to assign DCB for RJE device - ERROR

There has been a failure to assign a Device Control Block (DCB).

- RJI_23 Failed to assign DCB for inter device - ERROR

There has been a failure to assign a Device Control Block (DCB) for an interactive device.

- RJI_24 Failed to assign free store for line - ERROR

There has been a failure to assign free store for the line.

- RJI_25 CRQ failed for data marker q for CWCB - ERROR

Creation of a queue failed for the data marker queue for the Control Worker Control Block (CWCB). This is a software error.

- RJI_26 CRQ failed for control marker q for CWCB - ERROR

Creation of a queue failed for the control marker queue for the Control Worker Control Block (CWCB). This is a software error.

- RJI_27 No more free DCBs available to ph - ERROR

There are no more Device Control Blocks (DCB) left that the protocol handler can access. This is a software error.

- RJI_28 No more free interactive DCBs available - ERROR

There are no available interactive Device Control Blocks (DCB) that the protocol handler can access. This is a software error.

- RJI_29 CWCB is in use for line - ERROR

The Control Worker Control Block (CWCB) for this line is in use. This is a software error.

- RJI_30 CRQ failed creating xmit\recv fpq - ERROR

The creation of a queue for transmit/receive free pool failed. This is a software error.

- RJI_31 No more IWCBs available to ph - ERROR

There are no more Interactive Worker Control Blocks (IWCB) available to the protocol handler. This is a software error.

- RJI_32 SMLC line does not exist - ERROR

Either the SMLC line specified does not exist, or it is not configured. Check the system configuration file. This is a possible hardware error.

- RJI_33 Number of interactive devices out of range - ERROR

The number of interactive devices is out of range.

- RJI_34 Total number of devices too large - ERROR

The total number of devices (for example, interactive and noninteractive) is outside the valid range.

- RJI_35 Protocol handler number out of range - ERROR

An attempt has been made to run a protocol handler not known to this system. This is a software error.

- RJI_36 Worker id out of range - ERROR

An attempt has been made to run an unknown worker. This is a software error.

- RJI_37 Code number out of range - ERROR

The line character code is unknown.

- RJI_38 DSS specified is out of range - ERROR

The Data Set Status (DSS) specified is unknown.

- RJI_39 Loopback specified is out of range - ERROR

The loopback option given is invalid. This is a software error.

- RJI_40 MULTIDROP specified is out of range - ERROR

The MULTIDROP option given is invalid. This is a software error.

- RJI_41 Internal clock specified is out of range - ERROR

The internal clock option given is invalid. This is a software error.

- RJI_42 Number of transmit channels is out of range - ERROR

The number of transmitting channels is out of the range of the transmitting system. This is a software error.

- RJI_43 Number of receive channels is out of range - ERROR

The number of receiving channels is out of the range of the transmitting system. This is a software error.

- RJI_44 No SMLC directive in config - ERROR

There is no SMLC ON directive in the coldstart configuration file. Add the appropriate directives to the coldstart configuration file and coldstart the system before retrying the RJE operations. This is a software error.

- RJI_45 Baud rate of line is out of range - ERROR

The baud rate of line is out of range. Check the site definition file for a missing or incorrect baud rate parameter.

- RJI_46 DSS_PROC specified is out of range - ERROR

The setting for the type of duplex (for example, either full or half) running on this line is invalid. Check the coldstart configuration file for proper SMLC directives. This is a configuration error.

- RJI_47 DSS_STRAP specified is out of range - ERROR

The .dss_strap specified is out of range. Check the coldstart configuration file for proper SMLC directives.

- RJI_48 DSS_RECV specified is out of range - ERROR

The .dss_recv specified is out of range. Check the coldstart configuration file for proper SMLC directives.

- RJI_49 Non positive receive channel size - ERROR

The receive channels have a negative (for example, invalid) length.

- RJI_50 Non consecutive receive channel - ERROR

- RJI_51 Receive channels larger than receive buff - ERROR

All the receive channels will not fit into the buffer you have specified. This is a software error.

- RJI_52 Receive blocksize is out of range - ERROR

The receive blocksize is out of range of the receiving system.

- RJI_53 Transmit blocksize is out of range - ERROR

The transmit blocksize is out of range of the transmitting system.

- RJI_54 Unknown protocol - ERROR

An attempt has been made to run a protocol handler not known to this system. This is also a possible revision level problem. This is a software error.

- RJI_55 SMLC line does not exist - ERROR

The controller type is unknown. This is a serious hardware error.

- RJI_56 Invalid code for protocol - ERROR

The specified character code is inappropriate for the protocol specifed. Check the site definition file. This is a configuration error.

- RJI_57 Controller does not support protocol - ERROR

The communications controller for logical_sync_line_# does not support the specified RJE protocol. Check the SMLC mapping directives in the coldstart configuration file to insure that the proper controller is being used. This is a software error.

The Protocol Handler Specific (SPCPH) Messages

Any of the messages described below could cause the message "Error ## in P.S. Code" to be written to the protocol handler COMO file. However, a new table of error keys with messages to correspond to these error conditions has been added to the log file. These errors or warnings will now have messages printed to the log(s) if they occur.

Each message will write either to the protocol handler COMOUTPUT file only or to the worker log.

- SPCPH_1 Flush of receive buffer failed (has preset) - ERROR

An attempt made by the protocol handler to queue a block of data for the worker failed. This is software error in the protocol handler.

- SPCPH_2 (RJAPFS) error from RJUPFS - ERROR

An attempt to decrease the number of users of the protocol handler's free store failed. This is a software error in the protocol handler.

- SPCPH_3 (RJAPLC) routine RJUPLC failed - ERROR

An attempt to unassign the control block for a particular line, as well as all the blocks assigned to this line, failed. This is a software error in the protocol handler.

- SPCPH_4 (RJGBLQ) failed to get dev no off marker q - ERROR

There is a marker on the queue, but there is no block corresponding to it.

- SPCPH_5 (RJRBDQ) failed to return block to device q - ERROR

There is no room on the device queue on which to return a block.

- SPCPH_6 (RJRBDQ) failed to return block marker - ERROR

There is no room on the marker queue on which to return a block.

- SPCPH_7 (RJDSLN) no CWCB for block - ERROR

An attempt has been made to forcibly detach a line, but it is not owned by the worker. This is a software error in the protocol handler.

- SPCPH_8 (RJ$SET) RJQWC failed code - ERROR

An attempt to queue a word on a PRIMOS Queue Control Block (QCB) failed. This is a software error in the protocol handler.

- SPCPH_9 RJQW failed sending deconfig to ph - ERROR

An attempt to queue a word on a PRIMOS Queue Control Block (QCB), without taking into account the length of the queue, failed. This is a software error.

- SPCPH_10 (PH logout) logout failed - WARNING

If there has been a request for a line to be detached, but it could not be, then there is a wait and the task is retried.

- SPCPH_11 (RJAWLC) error from RJUWLC - ERROR

There has been an error in trying to assign control blocks for this line. This is a software error.

- SPCPH_12 (RJPROC) error from RJPHS1 - ERROR

There has been an error in setting the protocol handler state to coming up. This is a software error.

- SPCPH_13 RJPROC already running - WARNING

An attempt has been made to run the protocol handler when it already been started up. Wait until the protocol handler has logged out or force logout the phantom from the system console.

- SPCPH_14 (RJ$INP) failed to dequeue block - WARNING

An attempt to dequeue a block failed because you have not supplied enough space to copy it into.

- SPCPH_15 (RJ$ATT) RJUWLC failed - ERROR

An attempt to unassign blocks failed. This is a software error.

- SPCPH_16 RJUWCW failed - WARNING

An attempt to unassign the Worker Control Blocks (WCB) failed. This may be due to the fact that another worker is using the Control Blocks (CB).

- SPCPH_17 (RJINI) call to getseg failed - ERROR

This message will only appear on the system console at coldstart. This is a serious PRIMOS error.

- SPCPH_18 (RJLOPH) error from RJPHS0 - ERROR

There has been an error in decrementing the number of users of the free store. This is a software error.

- SPCPH_19 (RJRBDQ) failed to return block marker - ERROR

An error has occurred in assigning the free store for the worker. This is a software error.

- SPCPH_20 (RJPHS) error from RJUWFS - ERROR

An error has occurred when attempting to unassign a worker's free store. This is a software error.

C

Worker Log File Messages

INTRODUCTION

This appendix lists the help provided on the various groups of RJI, RJOP, RJQ, and worker messages. These messages appear in the worker log file only.

RJI MESSAGES

- JE1 Incompatible version number

The version number stored in the Ring 0 code does not match that of Ring 3. Check that RJE files in UFD SYSCOM have been installed correctly, recompile, reload, and install the Ring 3 code. If this fault persists, please contact your System Administrator. This is a fault in the worker/RJI interface.

- JE2 SMLC line out of range

The logical_sync_line_# specified is out of range. It should be 0 to 7. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE3 SMLC line in use

The logical_sync_line_# is in use by someone else. Use the STAT US command to find out who has it assigned.

- JE4 RJI line is in use

The RJI line cannot be assigned since it is either assigned to another user or is being unassigned. If the RJI line cannot be assigned, after a short wait, try logging out any workers. If this fails, a coldstart of the machine will be required. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE5 Q for data marker queue failed

The RJI failed to create the worker to protocol handler data marker queue. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE6 CRQ for device queue failed

The RJI failed to create the worker to protocol handler device data queue. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE7 CRFP for data blocks failed

The RJI failed to create the free pool of data blocks. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE8 CRQ failed create ph to worker cntl q

The RJI failed to create the protocol handler to worker control queue. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE9 CRQ failed create ph to worker data q

The RJI failed to create the protocol handler to worker data queue. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE10 Failed to send configuration to protocol handler

The RJI failed to send the configuration from the worker to the protocol handler. This is an RJI internal fault. If this fault persists, please contact your System Administrator.

- JE11 Device number out of range

The number of RJE devices specified is out of range. It should be 0 to 32. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE12 No permission to xmit on this device

The worker does not have permission to queue blocks for transmission on this device/stream. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE13 Max nchannels for block exceeded

The number of channels defined in a transmit block has exceeded the configured maximum. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE14 Records are not consecutive

The records defined in a transmit block were not consecutive. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE15 Max number of characters exceeded

The number of characters in the transmit block has exceeded the maximum configured transmit blocksize. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE16 Line not assigned to worker

The line has not been assigned to this worker. It is either assigned to another user, unassigned, or being unassigned. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE17 Line assigned to another worker

The RJI line is assigned to another worker. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE18 Line has been forcibly detached

The RJI has disabled the line from the worker. This is done for two reasons:

- The protocol handler has logged out.
- The protocol handler has found a fatal error on the line.

- JE19 Device is not assigned to worker

The worker has asked for a device that was not configured at enable time. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE20 Device assigned to another worker

The device specified in a call belongs to another worker. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE21 Failed to assign CWCB

The RJI failed to assign a Control Worker Control Block (CWCB). This error should only occur on an enable. Try logging out all workers. A coldstart will be required if the problem persists. This is an RJI internal fault. If the fault persists, please contact your System Administrator.

- JE22 Failed to assign DCB for RJE device

The RJI failed to assign a Device Control Block (DCB). This error can only occur on an enable. Try logging out all the workers and reenabling the line. A coldstart will be required if the problem persists. This is an RJI internal fault. If this fault still persists, please contact your System Administrator.

- JE23 Failed to assign DCB for inter device

The RJI failed to assign a Device Control Block (DCB) for an interactive device. This error will not occur.

- JE24 Failed to assign free store for line

The RJI failed to assign a free store area for this line. This error can only occur on an enable. Try logging out all the workers and repeating the command. A coldstart will be required if the problem persists. This is an RJI internal fault. If this fault still persists, please contact your System Administrator.

- JE25 CRQ failed for data marker q for CWCB

The worker failed to create a data marker queue for the Control Worker Control Blocks (CWCB). This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE26 CRQ failed for control marker q for CWCB

The worker failed to create the control marker queue to indicate the presence of messages sent from the protocol handler to the worker. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE27 No more free DCBs available to ph

The protocol handler failed to allocate a Device Control Block (DCB). Try disabling all lines and then reenabling them. A coldstart will be required if the problem persists. This is a fault in the worker/RJI interface. If this fault still persists, please contact your System Administrator.

- JE28 No more free interactive DCBs available

The protocol handler failed to allocate an interactive Device Control Block (DCB). Try disabling all enabled lines and reenabling them. A coldstart will be required if the fault occurs again. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE29 CWCB is in use for line

The protocol handler has found that the Control Worker Control Block (CWCB) for the line is in use. Try disabling all lines and reenabling them. A coldstart will be required if the fault occurs again. This is a fault in the worker/RJI interface. If this fault still persists, please contact your System Administrator.

- JE30 CRQ failed creating xmit/recv fp/q

The protocol handler failed to create either the xmit or receive free pool or queue. Try disabling all the lines and then reenabling them. A coldstart will be required if the fault occurs again. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE31 No more IWCBs available to ph

The protocol handler failed to allocate an Interactive Worker Control Block (IWCB). This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE33 Number of interactive devices out of range

The number of interactive devices configured is too large. It should be 0 to 32. Note that these are not supported at present. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE34 Total number of devices too large

The total number of RJE devices configured is too large. It should be 0 to 32. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE35 Protocol handler number out of range

The protocol code specified is out of range. It should be 1 to 8. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE36 Worker ID out of range

The worker ID supplied is out of range. This ID is used to validate a worker to the RJI. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE37 Code number out of range

The hardware configuration character code is out of range. It should be 1 to 8. This is a fault in the worker/RJI interface. If this fault persists, please contact your System Administrator.

- JE38 DSS specified is out of range

The hardware configuration flag <dss> is out of range. It should be 0 or 1. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE39 Loopback specified is out of range

The hardware configuration flag <loopback> is out of range. It should be 0 to 3. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE40 Multidrop specified is out of range

The hardware configuration flag <multidrop> is out of range. It should be 0 or 1. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE41 Internal clock specified is out of range

The hardware configuration flag <int_clock> is out of range. It should be 0 or 1. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE42 Number of transmit channels is out of range

The maximum number of transmit channels for transmit data specified is out of range. It should be 1 to 7. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE43 Number of receive channels is out of range

The number of receive channels specified for a receive block is out of range. It should be 1 to 14. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE45 Baud rate of line is out of range

The baud range specified is out of range. It should be 1200 to 56000. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE46 DSS_PROC specified is out of range

The hardware configuration flag <dss_proc> specified is out of range. It should be 1 to 3. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE47 DSS_STRAP specified is out of range

The hardware configuration flag <dss_strap> specified is out of range. It should be 0 to 15. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE48 DSS_RECV specified is out of range

The hardware configuration flag <dss_recv> is out of range. It should be 0 or 1. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE49 Non positive receive channel size

The number of channels specified to receive data blocks is less than zero. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE50 Non consecutive receive channel

The channels for a receive block specified are not consecutive. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE51 Receive channels larger than receive buff

The definitions of the channels for a receive block is larger than the maximum receive blocksize specified. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE52 Receive blocksize is out of range

The maximum receive blocksize specified is out of range. It should be 100 to 1024. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

- JE53 Transmit blocksize is out of range

The maximum transmit blocksize specified is out of range. It should be 100 to 1024. This is a worker/RJI interface fault. If this fault persists, please contact your System Administrator.

RJOP MESSAGES

- RE1 Command not recognized

The command that caused the RE1 error is not a command in the RJOP's list of valid commands. The error is normally caused by a typing mistake. If not, then typing HELP next will give a list of all the available commands.

- RE2 Command abbreviation not unique

More letters must be supplied for the command that you require to distinguish it from other commands. Reinput the command with enough characters to identify it uniquely.

- RE4 Command invalid in this mode:

This fault is most often caused by typing in a site definition command. This type of command can only be accepted as part of the site definition file and cannot be modified dynamically.

Alternatively, an incorrect command could have been included within the site definition, that is, between the DEFSITE and ENDSITE commands. For example, the ENABLE command can only be accepted once the site definition is complete.

This is another possible cause of this error is attempting to use a CONCAT command when not in CONCAT mode, for example, TEXT, JCL, or BINARY.

- RE5 Incorrect number of parameters

Either too few or too many parameters have been supplied with a command. Establish the correct number of parameters, then reinput the command. (Typing the HELP command will give guidance on the correct number and meaning of the parameters for the specified command.)

- RE6 Mode stack overflow

If this error occurs, there is a serious problem with the RJOP. (It will stop before giving the chance to type HELP RE6.) Please save all the relevant information about the run and contact your System Administrator.

- RE7 Mode stack empty

If this error occurs, there is a serious problem with the RJOP. (It will stop before giving the chance to type HELP RE7.) Please save all the relevant information about the run and contact your System Administrator.

- RE8 No free site slots

This is an attempt has been made to connect to more sites than the RJOP can handle. The normal maximum number of sites that the RJOP can control at one time is eight. If some sites connected to the RJOP are no longer required for this run, delete those sites by using the DELSITE command. Then reinput the TOSITE command that produced the error.

- RE9 Unknown parameter

A parameter or keyword supplied to the command is not a valid one. Check the correct parameters for the command and reinput.

- RE10 No site has been defined

No TOSITE command has been given to define a site. Define the site you wish to refer to and reinput the command.

- RE11 Site definition incorrect for protocol

A command or some commands in the site definition file are not compatible with the protocol specified in that site definition. The commands that are in error are listed after the error message. Check the applicability of the commands to the protocol in use and modify the site definition file accordingly. Then reinput the TOSITE command.

- RE12 No protocol defined

The site definition does not include a PROTOCOL command. Edit the site definition file to specify the required protocol and reinput the TOSITE command.

- RE13 Multiple devices not allowed

A device (or stream) number has been specified where it is not expected. Only HASP and XBM support multiple devices of the same type, and these must be specified with a CONFIG command.

Reinput the command without the device number parameter, or for HASP or XBM, redefine the site with the correct CONFIG command. Then reinput the command that caused the error.

- RE14 Print/Punch device overlap

HASP is the only emulator on which this error occurs. The print and punch device numbers must be specified such that any print device number plus any punch device number does not equal nine. For example:

Punch Printer	1 2 7 1 3 5	These are acceptable. The addition of punch and print numbers does not total 9.
Punch Printer	2 4 6 1 3 5	These are unacceptable. The addition of the following print and punch numbers totals 9: Punch 4 plus printer 5 equals 9, and punch 6 plus printer 3 equals 9.

Correct and then reissue your CONFIG command.

- RE15 No ENDSITE command

The command processer has reached the end-of-the-site definition file without reading an ENDSITE command. Add an ENDSITE command to the site definition file and reissue the TOSITE command.

- RE16 No "CONNECT" command

You have defined a site in the site definition file, but have not included the CONNECT command. Edit the site definition file and reissue the TOSITE command.

- RE17 Line in use

There is already a site connected on this line, that is, a tosite has been given for this line. Either delete the site already on this line (using the DELSITE command), or to use a different line, change the site you were attempting to connect to.

- RE18 Line number out of range

The supplied line number to the CONNECT command is out of the number range of SMLC lines that the RJOP can support. Note that the RJOP is built to handle the maximum number of lines supported by PRIMOS (currently eight). Therefore, you will have to correct the CONNECT command to use a legal PRIMOS SMLC line number (0 to 7).

- RE19 Bad device:

The specified device is not permitted with the command that gave the error. Check the devices allowed and reissue the corrected command.

- RE20 Timed out waiting for reply

The RJOP is expecting a reply from the worker, but has exceeded its normal wait interval. The worker must still be running or the RJOP would have detected its absence. When this occurs, please record the situation and inform your System Administrator.

- RE21 Signoff card has not been given

The user has requested that a SIGNOFF command be executed, but has not specified the signoff card. Specify the signoff card with a SOFDEF command and then reissue the SIGNOFF command.

- RE22 Signon card has not been given

Either the SIGNON command has been issued when no signon card has been specified, or for sites using AUTOSIGN or for a 1004 site, the ENABLE command has been attempted before the signon card is defined. Define the signon card using the SONDEF command and reissue the SIGNON or ENABLE command as appropriate.

- RE23 There are no free queue name slots

This error will be given on a QUEUE ADD command if there are already eight queuenames for this site. (The sitename is included in that count.) Remove any unwanted queuenames using the QUEUE DELETE option. Then reissue the QUEUE ADD command for the required queuename.

- RE24 The queue name is not added to this site

This is an attempt has been made to delete a queue whose name has not been added to the current tosite. Check your typing and check the existing queues with an LSITE command. Then issue the corrected QUEUE DELETE command.

- RE25 The queue name is already added

This is an attempt has been made to use the QUEUE ADD command to add a queuename that already exists. Check the existing list with an LSITE command.

- RE26 Queue name missing

The queuename has been omitted from a QUEUE command: the ADD, DELETE, BLOCK, or UNBLOCK options. Reissue the command with the queuename required.

- RE27 The site does not exist

An attempt has been made to reference a site that does not exist. Check your typing. If necessary, issue the appropriate TOSITE command. Then reissue the command that caused the error.

- RE28 Command not allowed for SLAVE:

The command specified is not permitted in slave mode. Either change the mode or change the command.

- RE29 Command not allowed for MASTER:

The command specified is not permitted in master mode. Either change the mode or change the command.

- RE30 MASTER mode not allowed

Master mode is not permitted with the protocol defined in the site definition file. Master mode can only be used for the HASP and X80 emulators. Check that the protocol is specified correctly. Also check which mode you require for the protocol.

- RE31 PRIME mode not allowed

Prime mode is only permitted by the X80 emulator. Check that you have specified the correct protocol. Also check that Prime is the mode you require.

- RE32 Illegal VFC page size

The page size specified in the Virtual Forms Control (VFC) file exceeds the maximum permitted number of lines; that is, 144, or is less than the minimum number; that is, 1. Correct the VFC file and reissue the VFCDEF command.

- RE33 Illegal VFC line number:

A line number specified in a Virtual Forms Control (VFC) operation exceeds the defined number of lines on a page. Correct the number of lines per page, or the specification that exceeded it (in the VFC file), and reissue the VFCDEF.

- RE34 TOSITE and CONNECT names must match

The name of the site definition file (that is, the name given in the TOSITE command) must be the same as the name specified in the CONNECT command within the site definition file. The name in the DEFSITE must also be the same.

Correct the site definition file so that the filename, DEFSITE name, and CONNECT name are all the same. Then reissue the TOSITE command.

- RE35 TOSITE and DEFSITE names must match

The name of the site definition file (that is, the name given in the TOSITE command) must be the same at the name specified in the DEFSITE command within the site definition file. The name in the CONNECT command must also be the same. Correct the site definition file so that the filename, DEFSITE name, and CONNECT name are all the same. Then reissue the TOSITE command.

- RE36 Another RJOP is using this worker line

The emulator worker program that you are trying to connect to is already connected to another RJOP on the line that you wish to use. Either use a different line or track down the other RJOP.

- RE37 Invalid site address

This message will only occur for 200UT, 7020, or XBM emulators. The address specified in the ADDRESS command of the site definition is incorrect. Check the range of addresses accepted by the emulator in use. Then correct the command in the site definition file and reissue the TOSITE command.

- RE38 The device is already configured

This error occurs if your site definition file contains two CONFIG commands for the same device (HASP and XBM only). Remove the unnecessary command and reinput the TOSITE command.

- RE39 The device is not configured

You have attempted to define attributes (for example, form type and width) for a device that is not configured. In HASP and XBM, you are allowed multiple devices if you use the CONFIG command in your site definition file. For all others, you will have to correct your command to use the predefined device.

- RE40 The device table is full

You have attempted to define more than eight devices. You will have to remove some CONFIG commands and reissue the TOSITE command.

- RE41 Device cannot have this attribute

You have attempted to give an attribute to a device, but that attribute is not allowable in this mode or by using this protocol. For example, attempting to give a form type to CR1 in a slave emulator is meaningless. CR1 is a transmit device, so you cannot specify spool print forms.

- RE42 VFC file is of incorrect length

This error indicates that the file referenced by the VFCFILE or VFCLIST commands is not the correct length for a Vertical Forms Control (VFC) file. Check that the name of the file is correct and, if necessary, recreate the file using the VFCDEF command.

- RE43 Bad DATASET option for this protocol

You have attempted to define a data set type that is not supported by the protocol in use. Use the HELP file on data set to determine the allowable data set types and correct the site definition file.

- RE44

This is an ATOUT command that referenced a file object other than a SAM file or UFD.

- RE45

A bad medium/subaddress was entered. A medium/subaddress is specified in the form of Mnn, where:

M specifies the medium type.

Valid medium types for inbound (to the host) are:

C = Card medium
E = Exchange (Basic) medium
K = Console medium

Valid medium types for outbound (from the host) are:

C = Card medium
E = Exchange medium
P = Print medium

nn specifies the subaddress and is a number in the range of 00 to 15.

- RE46 A bad LU port name was specified

The LU port name should be an alphanumeric string of between 2 and 32 characters. When referencing a configured LU port only the first two characters are required.

- RE47

RJOP was unable to establish a connection with the PRIME/SNA RJE worker.

- RE48

RJOP was unable to establish a connection with the PRIME/SNA RJE worker.

- RE49

RJOP was unable to establish a connection with the PRIME/SNA RJE worker because the shared segment used to communicate with the PRIME/SNA RJE worker was unavailable. Ensure that the PRIME/SNA RJE share command was added to the PRIMOS.COMI file.

RJQ MESSAGES

- SE1 Bad version no.

This error message is generated either by a worker or by the RJQ program when the version number of the RJQCTRL file is incompatible with the version number of the program. The first possible solution is to shut down the emulator and delete the RJQCTRL file. All outstanding jobs will have to be requeued. If the message persists, then the RJQ program and worker(s) are incompatible and should be reinstalled.

- SE2 Queue blocked

The operator has blocked this particular queue to stop any further jobs from being added to it. Please see the operator.

- SE3 Unrecognized keyword

This error message will appear when a keyword is entered that is not recognized by the RJQ program. Note that although most keywords may appear anywhere on the command line, the only keywords that are allowed immediately after the RJQ are -LIST, -CANCEL, and -RESET. This error message will appear if another keyword is entered, even if it is normally valid elsewhere on the line.

- SE4 Concat. file closed - retry send

The concatenation utility closes the temporary file being built when the SEND command is entered. If the SEND command fails, control is returned to the utility. No commands that add data to the file will be accepted from then on.

- SE5 Send options expected

The RJQ command expects at least a queuename to follow a treename when used to queue a job. The minimal syntax is:

```
RJQ <treename> <queuename>
```

- SE6 Bad abort string (1-8 chars. expected)

The string used to escape from the JCL entry mode of the concatenation utility may be from one to eight characters in length. Uppercase and lowercase characters are treated as separate entities. For further information, please see HELP for the ABTJCL command or Chapter 4.

- SE7 Unrecognized protocol

Currently eight protocols are recognized by the RJQ command. They are:

1004, 200UT, 2780, 3780, 7020, GRTS, HASP, and XBM

- SE8 Bad time - valid form is hh:mm

The -DEFER keyword to RJQ takes a time argument. This time must be entered in a 24-hour format, with the hours and minutes separated by a colon.

- SE9 Missing argument after keyword

The keyword specified in the error message was followed either by the end of the line or by another keyword, instead of by the expected argument value. Most of the options to the RJQ command take some kind of argument. Exceptions are the -DELETE, -NO_COPY, and -NO_TRANSLATE options. In addition, the -DEFER option can be entered without the following time argument when listing the queue, but cannot be entered when adding to it.

- SE10 Keyword expected

Each RJQ option is selected by a keyword that may be followed by one or more arguments. After each option and associated arguments, another keyword or the end of line is expected. This error message will appear if this is not the case.

- SE11 Duplicate keyword

Each RJQ option can be specified once at most. This error message will appear if an option is selected twice or more. The exception to this rule is if one of the options -LIST or -RESET is entered twice.

- SE12 Incompatible selection

Some RJQ options are incompatible with others. For example, the -NO_TRANSLATE option cannot be used for a concatenated job. The -DELETE option is obviously incompatible with the -NO_COPY option.

- SE13 Full treename expected

The -NO_COPY option to the RJQ program means that no temporary copy of the users data will be made. The despooler will probably be attached to a different directory to the user when the request is processed. Therefore, for a predictable operation, it is necessary to restrict the use of this feature to treenames with at least one top-level directory component.

- SE14 Bad device specified

The valid device types are:

LP	Line printer (default for masters)
CR	Card reader (default for slaves)
CP	Card punch

The device type is used to select the style of translation and addressing information; for example, component selection.

- SE15 Bad device no.

The -DEVICE option to RJQ takes a device argument. Valid device numbers are from 1 to 7 at present. For valid device types, please enter HELP SE14.

- SE16 Bad entry list no.

The entry list argument to the -LIST, -CANCEL, and -RESET options can contain the following items:

ALL	Includes all entries in the search. This must be the only argument.
OWN	Includes only entries queued with the same user ID. Used as above.
RJxxxx	Includes entry number xxxx. There may be up to 10 of these. The number must contain four digits.
xxxx	Includes entry number xxxx in the search. There may be up to 10 entries specified, entered in either this format or the format above. The number in this format may contain from one to four digits.

- SE17 Too many entries specified

The entry list argument to the -LIST, -CANCEL, and -RESET options can contain 10 entries at the most.

- SE18 Queuename invalid

The queuename entered has never been used by the RJE operator. This error is usually due to a typing error. It can also occur if that queue has not been used by the operator after the list of valid queues has been reinitialized.

- SE19 Bad key in call

This error message is returned from the RJQ$ routine when an invalid key is supplied. It should never appear from the RJQ program.

- SE20 Bad VFC specified

The -VFC option enables users supplying data to remote printers to specify the transmit translation of carriage control information. The default is none. For 2780/3780 and HASP, FORTRAN IV carriage control can be interpreted by entering the option -VFC FTN. No other options are supported at present.

- SE21 Valid but unimplemented keyword

There are one or two options to the RJQ program that have not been implemented. They appear in no Prime documentation, so they should not be used. If you see this error message, treat it as an unrecognized keyword.

- SE22 Queuename compulsory for send

A valid queuename must be supplied when using the RJQ program to queue a file or transmission. This queuename can be supplied by the RJOP if RJQ is run from the RJOP when a TOSITE has been specified.

- SE23 Entry list required

This is an entry list must be supplied with the -RESET or -CANCEL options. Otherwise, the program does not know which entries to restart or delete.

- SE24 Extraneous info. in entry list

The entry list to the -LIST, -CANCEL, and -RESET options for RJQ consists of either ALL, OWN, or a list of entry numbers. If this message appears, you have typed something that follows one of these alternatives, but comes before any keyword options.

- SE25 A bad LU port is specified

The LU port name should be an alphanumeric string of between 2 and 32 characters. When referencing a configured LU port only the first two characters are required.

- SE26 A bad medium/subaddress was entered

A medium/subaddress is specified in the form of Mnn, where:

M specifies the medium type.

Valid medium types for inbound (to the host) are:

C = Card medium
E = Exchange (Basic) medium
K = Console medium

Valid medium types for outbound (from the host) are:

C = Card medium
E = Exchange medium
P = Print medium

nn specifies the subaddress and is a number in the range 0 to 15.

WORKER MESSAGES

- WE1 No free site slots in worker

The 1004, 200UT, and 7020 workers can only support a maximum of four lines. This error message indicates that all four lines are currently in use. Therefore, there is no room in the worker for another line definition. You will have to disable and DELSITE one of the already running lines before you can run this one.

- WE2 Line in use by different site

You have tried to define a site on a line that already has a site configured. Reconnect to the existing site (as indicated by the error message), close it down, and reissue the original TOSITE command.

- WE3 Bad configuration supplied

You have created a site that, although valid as far as the RJOP is concerned, has been rejected by the worker. Typical reasons for this include configuring two operator consoles and overlapping print and punch devices for HASP. This message should rarely appear. Please consult your System Administrator if the reason for the appearance of this message is not obvious.

- WE4 Site already running on a different line

You have tried to define a site and connect it to a logical_sync_line_#, but the site is already connected to a different logical_sync_line_#. If necessary, edit the site definition file.

- WE5 Command invalid - reprocessing

You have attempted to start receive processing while the worker is reprocessing save files. The worker can only reprocess save files or process receive files, but cannot do both at once. Wait until the reprocessing has finished (the message "receive processing stopped" will be displayed) before starting receive.

- WE6 Command invalid - line disabled

The line must be enabled by the ENABLE command before this command can be issued. Enable the line and reenter the command.

- WE7 Command invalid - line enabled

An attempt has been made to enable a site that is already enabled, or the REPROCESSING command has been issued while the site is enabled. Disable the site before issuing the REPROCESSING command or use the RECOVER command if you wish to reenable the site.

- WE8 Command invalid - receiving

This command cannot be issued while receive is switched on.

If you really want to issue this command, then issue the STOP RECEIVE command to switch off receive when the current job has been translated. You can also issue the STOP RECEIVE NOW command to switch off receive immediately.

- WE9 No stream to stop/start/abort

The stream given with the command has not been configured. Check the stream configuration in the site definition file.

- WE10 Command meaningless to this emulator

This command does not apply to the current emulator. Check the command by typing HELP <command>.

- WE11 Site not defined

This is serious error that you should not get. If you do, then save your files and consult your System Administrator.

- WE12 Line not in use

This is a serious error that you should not get. If you do, then save your files and consult your System Administrator.

- WE13 Symbiont command ignored

The command (as indicated in the error message) sent to the symbiont has not been implemented by the symbiont. Check that the symbiont is still running. Note that the error may also occur if the system is heavily loaded, as the phantomed symbiont might not have been set running before the worker's timeout expired. In this case, reissuing the command might succeed where the first attempt failed.

- WE14 Illegal character in operator message

The text portion of an operator message must not contain control characters. Reenter a corrected message.

- WE15 Illegal character in input file

The character in question has no equivalent in the translation code specified. Either change the input file or specify a different translation code. Then resubmit the file for translation.

- WE16 Line too long in transmit file

The transmit file contains a line that is too long:

Print files — lines cannot be longer than 132 characters
Punch/Card files — lines cannot be longer than 80 characters

The line will be truncated, but the file will still be transmitted.

- WE17 Bad transmit file

The worker's transmit processor has detected an error in translating the source file. Please save your source files (and T-files if using 1004, 200UT, or 7020) and consult your System Administrator.

- WE18 Bad receive file

This error can occur on the 1004, 200UT, and 7020 emulators. The error is caused by a damaged R file from the symbiont. This could be due to the symbiont being forced logged out or the communication line suddenly being disconnected.

The receive processing is stopped. Issue an RFILE command to step past the offending file before reissuing the START RECEIVE command.

- WE19 Too many sites

This is a serious error that you should not get. If you do, then save your files and consult your System Administrator.

- WE20 Null receive file

This is a warning rather than an error. Receive processing continues from the next receive file.

- WE21 Null transmit file

The file submitted to the queue is empty. This is a warning rather than an error. No T-file will be created.

- WE22 Premature EOF on input file

End of file was unexpectedly encountered in the current receive file. Examine the spool file produced from that receive file to see whether the job needs to be rerun. An RFILE command will be required to step past the offending receive file. A START RECEIVE command will also be required in order to restart the receive processing.

- WE23 Wrong type of saved file

The saved file specified is of the wrong protocol for the current site. By using the LISTSAVE and LSITE commands, check the protocol of the saved file and the current site. Resubmit the saved file at the appropriate site.

- WE24 Programming error

This is a serious error that you should not get. If you do, then save your files and consult your System Administrator.

- WE25 Illegal character in receive file

A character in the receive file has no equivalent in the specified translation code.

- WE26 Command invalid - Enable pending

An attempt has been made to enable a line for which an enable is already pending or to start reprocessing. Disable the line before issuing the REPROCESSING command. The message "Line Enabled" will appear when the enable is complete. To reenable the line, type RECOVER.

- WE27 Line detached by Protocol Handler

The protocol handler has disabled your line. This will normally occur because the protocol handler or RJI has detected an error from which it cannot recover, or the protocol handler has been forced to log out.

Most protocol faults in HASP will cause this to happen. In XBM and X80 this should rarely occur. To continue, reissue the ENABLE command. If this error persists, please save your log and COMOUTPUT files, and consult your System Administrator.

- WE28 Bad operator message size

You have typed an operator message in excess of the current limit, 512 characters. Reenter the message as two shorter messages.

- WE29 Operator message buffer busy

Only one operator message can be in transmission at once. Please wait for the previous message to be sent. If this message persists, it is probable that either the line has failed, or there is a fault in the emulator. Please consult your System Administrator.

- WE30 Unexpected message from Protocol Handler

The worker has received a message from the protocol handler that, although valid, was not expected at that time. If the emulator is still running normally, please ignore this message. Otherwise, save your files and consult your System Administrator.

- WE35 Protocol violation in receive processing

This error is only signaled by the HASP worker. The reason for its occurrence should be printed immediately beforehand. This error can be recovered from only by dropping the line. To continue, reenable the line.

- WE36 Line too long in Receive file

The receive processing has detected a line that is longer than the line width specified (for example, 80 characters for a punch file, 132 characters for a print file). The line will be truncated and receive processing will continue.

- WE37 No reply from RJPROC

This message is printed if the worker has successfully attached to the RJI but has not received an "Enabled" message from the protocol handler within a certain time. Please repeat the enable. If the problem persists, there is something wrong with the protocol handler. In this case, please contact your System Administrator.

- WE101 Illogical code sequence

This indicates an internal programming error in the 1004 transmit translation code. Try to keep the file that it was processing and the T file produced, if possible, and consult your System Administrator.

- WE102 CHAROK in error

This is an unexpected problem has been found while reading the input file to be translated and has been sent to the 1004 host. If the problem persists, contact your System Administrator.

- WE103 Error at beginning of Punch image

This error (in 1004 receive processing) indicates that an internal programming error was made while processing the R file. Keep the R file in question and consult your System Administrator if the problem recurs.

- WE201 Undefined channel - skipping one line

A vertical forms command has been received for which there has been no definition made in the Vertical Forms Control (VFC) file. To stop the message from appearing, edit the VFC file used for this line.

- WE202 Invalid receive CS - ignored

A components selection sequence has been received for a device that has not been configured. To stop the message from appearing, configure the missing device. The most likely cause of this error is when a printer-only station has been set up and a punch file has been received.

- WE301 Undefined channel

The current print record contains a slew command for a channel that has not been defined in the current Virtual Forms Control (VFC) file. Use the VFCDEF command to declare an appropriate Virtual Forms Control file for this print file.

- WE302 Illegal media code

The receive processor in the GRTS worker has found an illegal GRTS medium code character in the current record. This is a fatal error. If this error happens often, use the SAVE command to record the received data, and contact your System Administrator.

- WE303 Illegal slew control character

The receive processor in the GRTS worker has found an illegal GRTS slew control character in the current record. This is a fatal error. If this error happens often, use the SAVE command to record the received data, and contact your System Administrator.

- WE304 Illegal FORTRAN forms control character

The transmit processor in the GRTS worker has found an illegal FORTRAN forms control character in the current record. This is a fatal error. Only the characters <space>, 0, 1, +, and - are supported.

- WE305 Illegal compression count

The receive processor in the GRTS worker has found an illegal GRTS compression count sequence in the current record. This is a fatal error. If this error happens often, use the SAVE command to record the received data, and contact your System Administrator.

- WE306 Received record too long

The receive processor of the GRTS worker has detected a data record that exceeds the length of its internal buffer (200 characters). This is a fatal error. If it occurs frequently, use the SAVE command to record the received data, and contact your System Administrator.

- WE351 Undefined channel - skipping one line

Receive data currently being processed has requested a channel number that has not been defined in the current Vertical Forms Control (VFC) file. The receive processor will skip one line. To avoid this message, recreate the VFC file so that this channel is defined. (See the VFCDEF command.)

- WE352 WARNING - Device has not got permission

The HASP remote site is transmitting data for a device that has not been given permission to transmit by the current site. The device identifier is valid (configured) so that the data will be processed as normal. If the warning continues, consult your System Administrator.

- WE353 WARNING - Device not configured

The HASP remote site has requested permission to transmit on a device that has not been configured. The permission has not been granted, so the remote site should not send any data for this device. The unconfigured device should be indicated in the error message. To avoid this message, check your site definition file to see that the device configuration agrees with the one set up by your remote site.

- WE354 Augmented records not supported

This is a HASP protocol violation. The remote end is sending records that are fragmented across block boundaries. This type of record is not supported as yet. The line will be disabled. Save all your files and consult your System Administrator.

- WE355 Data for unconfigured device

Data is being received for a device that has not been configured. The fact that the device is not configured should have been detected when the remote site asked for permission to transmit on this device (error WE353).

The remote end either did not ask for permission to transmit, or it asked for permission, then ignored the fact that we did not grant permission. In either case, it is a very serious protocol violation. To avoid this error, check your device configuration in the site definition file to see that it agrees with the device configuration of the remote site.

- WE356

The record type detected is not one supported by the emulator.

Currently, records from card reader, card punch, and line printer devices as well as general control information (that is, sign on and sign off records) are the only ones supported by the emulator.

Check devices defined for the remote site at the host end of the link, and ensure that all the devices defined are within the list above.

- WE357

The control information detected is not a type known by the emulator.

Currently, the following types of control information are recognized by the emulator:

- General control information (that is, sign on and sign off records)
- Permission records (that is, permission to transmit or request to transmit)

Any other types of control information will be ignored.

- WE358

The general control information detected is not a type known by the emulator.

Currently, the following types of control information are recognized by the emulator:

- General control information (that is, sign on and sign off records)
- Permission records (that is, permission to transmit or request to transmit)

Any other types of control information will be ignored.

D
SNA/RJE
Subsystem Messages

INTRODUCTION

This appendix lists the error messages logged by the PRIME/SNA RJE software. These messages provide information that enables the PRIME/SNA Administrator or operator to do the following:

- Perform corrective action using online assistance described after the actual error message.
- Notify the local site RJE support personnel that the error is too complex for the local operator to make the correction.
- If the problem cannot be solved by the first two methods, notify PRIME Customer Service that the problem resides in Prime hardware or software.

The first four letters in the error message [ssss] indicate the four-letter sitename where the error occurred. The next two letters [ll] represent the LU port name where the error occurred. The error number is indicated in the field preceded by the letters NE.

If the message does not relate to a site, the ssss field is filled with minus (-) signs. Similarly if the message does not relate to an LU port, the ll field is filled with minus (-) signs.

ERROR MESSAGES

- :ssss:ll: NE1: Return code = <return code>

A nonzero return code was returned from a PRIMOS subroutine call. This message is associated with a previous error message. Consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE2: Binary message text file error - <filename>

An error occurred while opening or reading a binary message text file.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine. The cause of the error may be one of the following:

  - The file does not exist under the current UFD.
  - The file has no message.
  - The file version is not compatible with the current PRIME/SNA RJE.
  - You have no access rights.

- :ssss:ll: NE3: Message table error.

An error occurred while retrieving a message from the message table.

This is possibly a binary message text file error. Check to ensure the binary message text file is valid.

- :ssss:ll: NE4: Log file error - <filename>

An error occurred while opening or positioning a log file.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE5: Open error - disk I/O error - <filename>

An error occurred while attempting to open a file.

This is a possible hardware error. The operator should consult the System Operator's Guide for further information.

- :ssss:ll: NE6: Open error - file in use - <filename>

An attempt was made to open a file that had not been closed.

The operator may choose to close the file (using the PRIMOS command CLOSE) or to specify a different filename.

- :ssss:ll: NE7: Open error - unit already in use - <filename>

An attempt was made to open the file unit number that is still in use.

The operator may need to have the file unit number closed by the PRIMOS process using it.

- :ssss:ll: NE8: Open error - file not found - <filename>

An attempt was made to open a nonexistent file.

The operator may need to correct or change the filename.

- :ssss:ll: NE9: Open error - is an ACL - <filename>

An attempt was made to open a file which is an ACL.

The operator may need to correct or change the filename.

- :ssss:ll: NE10: Open error - is a directory - <filename>

An attempt was made to open the file, but the name given is a directory name.

The operator may need to correct or change the filename.

- :ssss:ll: NE11: Open error - insufficient access rights - <filename>

An attempt was made to open a file but the ACL for the file prohibits access. The operator may need to:

- Specify only the pathname to which he/she has access.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.
- Correct the pathname.

- :ssss:ll: NE12: Open error - improper access - <filename>

An attempt was made to open the filename but access to the file is prohibited. The operator may need to:

- Specify only a pathname to which he/she has access.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.

- :ssss:ll: NE13: Open error - not a UFD - <filename>

An attempt was made to open a UFD but the pathname is not a UFD.

The operator may need to correct or change the UFD name.

- :ssss:ll: NE14: Open error - wrong file type - <filename>

An attempt was made to open a file but the file is of the wrong type.

The operator may need to correct or change the filename.

- :ssss:ll: NE15: Open error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to open a file.

Consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE16: Read error - disk I/O error - <filename>

An error occurred while attempting to read from the disk.

This error should be displayed in conjunction with PRIMOS operator console messages. Consult the System Operator's Guide for further information.

- :ssss:ll: NE17: Read error - file too big - <filename>

A file is too big for the read.

This is a possible software error.

- :ssss:ll: NE18: Read error - remote line down - <filename>

The PRIMENET network supporting a PRIME/SNA RJE remote file is presently unavailable.

Consult the PRIMENET Guide for further information.

- :ssss:ll: NE19: Read error - device not started - <filename>

An error occurred while attempting to read because the device is not powered on or connected.

The operator should power on the device.

- :ssss:ll: NE20: Read error - device not available - <filename>

An error occurred while attempting to read because the device is not powered on or connected.

The operator should power on the device.

- :ssss:ll: NE21: Read error - network error encountered - <filename>

A network error occurred while attempting to read from a disk on a different system.

The operator should consult the PRIMENET Guide for further information.

- :ssss:ll: NE22: Read error - disk has been shut down - <filename>

An error occurred while attempting to read from a disk because the disk drive is not powered on or connected.

The operator must power on the disk drive and/or add the logical disk.

- :ssss:ll: NE23: Read error - I/O error or device interrupt - <filename>

An error occurred while attempting to read from a disk.

This is a possible hardware error. The operator should consult the System Operator's Guide for further information.

- :ssss:ll: NE24: Read error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to read a file.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE25: Write error - disk full - <filename>

An error occurred while attempting to write to a disk because the disk is full.

The file may have to be recreated on a different disk partition having adequate space.

- :ssss:ll: NE26: Write error - a disk I/O error - <filename>

An error occurred while attempting to write to a disk.

This error should be displayed in conjunction with PRIMOS operator console messages. The operator should consult the System Operator's Guide for further information.

- :ssss:ll: NE27: Write error - file too big - <filename>

The file may have gone beyond the quota for the UFD or it is too big for the disk partition.

The file may have to be recreated on a different disk partition having adequate space.

- :ssss:ll: NE28: Write error - no room - <filename>

An error occurred while attempting to write to a disk because the disk is full.

The file may have to be recreated on a different disk partition having adequate space.

- :ssss:ll: NE29: Write error - remote line down - <filename>

A network error occurred while attempting to write to a disk on a different system.

The operator should consult the PRIMENET Guide for further information.

- :ssss:ll: NE30: Write error - device not started - <filename>

An error occurred while attempting to write because the device is not powered on or connected.

The operator should power on the device.

- :ssss:ll: NE31: Write error - device not available - <filename>

An error occurred while attempting to write because the device is not powered on or connected.

The operator should power on the device.

- :ssss:ll: NE32: Write error - network error encountered - <filename>

A network error occurred while attempting to write to a disk on a different system.

This is a possible hardware error.

- :ssss:ll: NE33: Write error - a disk has been shut down - <filename>

An error occurred while attempting to write to a disk because the disk drive is not powered on or connected.

The operator should power on the disk drive and add the logical disk.

- :ssss:ll: NE34: Write error - I/O error or device interrupt - <filename>

This is a possible hardware error. The operator should consult the System Operator's Guide for further information.

- :ssss:ll: NE35: Write error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to write to a file.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE36: Close error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to close a file.

Consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE37: Attach error - No UFD attached - <UFD name>

An error occurred while attempting to attach to a different UFD. The attach point for PRIME/SNA RJE may not be valid.

The operator should check to ensure that the COMI file for the PRIME/SNA RJE attaches to the proper UFD and that the required sub-UFD is created.

- :ssss:ll: NE38: Attach error - <UFD name>
  :ssss:ll: NE1: Return code = <return code>

An error occurred while attempting to attach to a UFD.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE39: Satr$ error - write protected - <filename>

An attempt was made to modify the file's attributes because the ACL for the file prohibits modifications to it. The operator may need to:

- Specify only the pathname to which he/she has access.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.
- Correct the pathname.

- :ssss:ll: NE40: Satr$ error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to modify the file attributes.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE41: Delete error - disk I/O error - <filename>

An error occurred while attempting to delete a file from a disk.

This is a possible hardware error. The operator should consult the System Operator's Guide for further information.

- :ssss:ll: NE42: Delete error - disk has been shut down - <filename>

An error occurred while attempting to delete a file from a disk because the disk drive is not powered on or connected.

The operator should power on the disk drive and add the logical disk.

- :ssss:ll: NE43: Delete error - file in use - <filename>

An attempt was made to delete a file that is still open.

The operator may choose to close the file (using the PRIMOS command CLOSE) or to specify a different filename.

- :ssss:ll: NE44: Delete error - unit already in use - <filename>

An attempt was made to delete a file from a disk while the file unit number is still in use.

The operator may need to have the unit closed by the PRIMOS process using it.

- :ssss:ll: NE45: Delete error - insufficient access rights - <filename>

An attempt was made to delete a file because the ACL for the file prohibits access. The operator may need to:

- Specify only the pathname to which he/she has access.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.
- Correct the pathname.

- :ssss:ll: NE46: Delete error - improper access - <filename>

An attempt was made to delete a file but access to the file is prohibited. The operator may need to:

- Correct the pathname.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.
- Correct the pathname.

- :ssss:ll: NE47: Delete error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error occurred while attempting to delete a file.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE48: Rename error - file already exists - <filename>

An attempt was made to change to a filename that already exists.

The operator may need to correct the filename or delete the old filename.

- :ssss:ll: NE49: Rename error - disk I/O error - <filename>

An error occurred while attempting to change the filename.

This is a possible hardware error. The operator should consult the System Operator's Guide for further information.

- :ssss:ll: NE50: Rename error - disk has been shut down - <filename>

An error occurred while attempting to change a filename because the disk drive is not powered on or connected.

The operator should power on the disk drive and add the logical disk.

- :ssss:ll: NE51: Rename error - file in use - <filename>

An attempt was made to change a filename while the file is open.

The operator may choose to close the file (using the PRIMOS command CLOSE) or to specify a different filename.

- :ssss:ll: NE52: Rename error - unit already in use - <filename>

An attempt was made to change a filename while the file is still in use.

The operator may need to have the unit closed by the PRIMOS process using it.

- :ssss:ll: NE53: Rename error - insufficient access rights - <filename>

An attempt was made to change a filename because the ACL for the file prohibits access. The operator may need to:

- Specify only the pathname to which he/she has access.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.
- Correct the pathname.

- :ssss:ll: NE54: Rename error - improper access - <filename>

An attempt was made to change a filename but access to the file is prohibited. The operator may need to:

- Specify only the pathname to which he/she has access.
- Log in to the user ID that has access to the file.
- Have an authorized person modify the ACL for the file.

- :ssss:ll: NE55: Rename error - <filename>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to change a filename.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE56: Get filename error - <file unit number>
  :ssss:ll: NE1: Return code = <return code>

An error was detected while attempting to acquire a filename from a file unit number.

The operator should consult the Subroutine Reference Guide for the meaning of the return code returned from a PRIMOS subroutine.

- :ssss:ll: NE57: Unexpected IPQNM return code from RJOP interface

The PRIME/SNA RJE worker has received an unexpected error from the RJOP to the Inter Process Communication (IPC) mechanism. The PRIME/SNA RJE worker will behave in the same way as it does when an RJOP operator normally disconnects from a worker (for example, via an EXIT command).

The operator should try to reconnect to the PRIME/SNA RJE worker by issuing another TOSITE command for the sites being handled by the worker.

- :ssss:ll: NE58: Unexpected IPQNM event from RJOP interface

The PRIME/SNA RJE worker has received an unexpected event from the RJOP to Inter Process Communication (IPC) mechanism, or an unexpected combination of event and internal worker state has occurred. The PRIME/SNA RJE worker will behave in the same way as it does when an RJOP operator normally disconnects from a worker (for example, via an EXIT command).

The operator should try to reconnect to the PRIME/SNA RJE worker by issuing another TOSITE command for the sites being handled by the worker.

- :ssss:ll: NE59: State error detected in Session Resource FSM

An internal state/input combination was found to be in error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE60: State error detected in Node FSM

An internal state/input combination was found to be in error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE61: State error detected in Node Resource FSM

An internal state/input combination was found to be in error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE62: Invalid session state

An internal state/input combination was found to be in error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE63: BIND positive response send error

This is an internal PRIME/SNA RJE error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE64: BIND negative response send error

This is an internal PRIME/SNA RJE error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE65: Wait any error

Connection to the PRIME/SNA Server may be lost, or another PRIME/SNA Server error has occurred.

The operator can check the PRIME/SNA Server status. The PRIME/SNA Server and PRIME/SNA RJE may need to be restarted.

- :ssss:ll: NE66: Invalid return code

This is an internal PRIME/SNA RJE software error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE67: Scheduler/Dispatcher error

This is an internal PRIME/SNA RJE software error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE68: Server copy buffer operation error

The session encountered a PRIME/SNA Server operation error.

The operator should check the PRIME/SNA Server and PRIME/SNA RJE logs to see if any indications of the problem exist. If the log does not show how the problem can be cleared, the operator should contact Prime Customer Service.

- :ssss:ll: NE69: Invalid control block

An invalid type of control block was found on the dispatch list.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE70: Internal error

An internal error occurred.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE71: No session found for the BIND

An internal PRIME/SNA RJE error occurred.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE72: Storage is in use

An attempt was made to initialize buffers for PRIME/SNA RJE because the storage is already in use.

If possible, the operator should disable the resources using the storage, then restart PRIME/SNA RJE. If this problem recurs, a coldstart is necessary.

- :ssss:ll: NE73: Error in mapping segment

An error occurred while attempting to map segments for PRIME/SNA RJE buffers during initialization.

The operator should check to see that PRIME/SNA RJE has been properly installed, then coldstart the system and restart PRIME/SNA RJE.

- :ssss:ll: NE74: Error in creating segment

An attempt was made to create segments for PRIME/SNA RJE buffers during initialization.

The operator should check to see that PRIME/SNA RJE has been properly installed, then coldstart the system and restart PRIME/SNA RJE.

- :ssss:ll: NE75: Error in initializing buffer

An error occurred while attempting to initialize buffers for PRIME/SNA RJE.

The operator should coldstart the system and restart PRIME/SNA RJE.

- :ssss:ll: NE76: Server connection initialization failed

PRIME/SNA RJE was unable to establish connection with the PRIME/SNA Server.

Consult the PRIME/SNA Server log file and/or the PRIME/SNA Administrator's Guide for further information.

- :ssss:ll: NE77: Error in unmapping segment

An error occurred while attempting to unmap segments during initialization or termination.

The operator should check to see that PRIME/SNA RJE has been properly installed, then coldstart the system and restart PRIME/SNA RJE.

- :ssss:ll: NE78: Buffer unavailable for BIND

This is a PRIME/SNA RJE internal error.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE79: No SCB available

An attempt was made to acquire a Software Control Board (SCB) but none was available.

The number of segments for the PRIME/SNA RJE process should be increased. See the explanation of EDIT_PROFILE in the System Administrator's Guide.

- :ssss:ll: NE80: RJE argument buffer unavailable

An attempt was made to acquire an RJE argument buffer because none was available.

The number of segments for the PRIME/SNA RJE process should be increased. See the explanation of EDIT_PROFILE in the System Administrator's Guide.

- :ssss:ll: NE81: Server buffer unavailable

The session encountered an error in obtaining some PRIME/SNA Server resources.

The operator should check the PRIME/SNA Server log file to determine why the buffer is unavailable. The operator might also want to log off some of the sessions to limit the number of tasks requesting a buffer.

- :ssss:ll: NE82: Error in requesting SECB

An attempt to get a PRIME/SNA Server Event Control Block failed. This indicates a shortage of PRIMOS buffers.

The operator should try logging off one of the sessions to free up some buffer space. This may have to be repeated if the problem persists.

- :ssss:ll: NE83: Error in options buffer request

An error occurred while attempting to obtain an options buffer.

The number of segments for the PRIME/SNA RJE process should be increased. See the explanation of EDIT_PROFILE in the System Administrator's Guide.

- :ssss:ll: NE84: Error in requesting NCB

An error occurred while attempting to acquire a Network Control Board (NCB).

The number of segments for the PRIME/SNA RJE process should be increased. See the explanation of EDIT_PROFILE in the System Administrator's Guide.

- :ssss:ll: NE85: Message buffer unavailable

The session could not obtain a message buffer from the PRIME/SNA RJE buffer manager.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE86: Error in requesting QCB during initialization

An error occurred while attempting to acquire the Quota Control Board (QCB) during initialization.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE87: Error in returning SECB

An error occurred while attempting to return the Software Error Control Board (SECB).

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE88: Error in returning NCB

An error occurred while attempting to return the Network Control Board (NCB).

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE89: Error in returning storage to PRIMOS

An error occurred while attempting to return storage to PRIMOS during worker initialization or termination.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE90: Error in returning Server buffer

An error occurred when returning a message buffer to the PRIME/SNA Server buffer manager.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE91: Error in returning message buffer

An error occurred when returning a message buffer to the PRIME/SNA RJE buffer manager.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE92: Error in returning SCB

An error occurred while attempting to return the Software Control Board (SCB).

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE93: Error in returning RJE argument buffer

The session received an error while attempting to return a buffer to the PRIME/SNA RJE buffer manager.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE94: Connection with the Server lost

The IPQNM connection between the PRIME/SNA Server and PRIME/SNA RJE has been lost.

The operator should restart the PRIME/SNA Server and reissue the TOSITE command for the PRIME/SNA RJE sites.

- :ssss:ll: NE95: Error in communicating with the Server

The PRIME/SNA Server is passing arguments that the PRIME/SNA RJE session is not recognizing.

This indicates an internal PRIME/SNA RJE or PRIME/SNA Server error. The PRIME/SNA RJE worker or PRIME/SNA Server may need to be restarted as a result of this error.

- :ssss:ll: NE96: Server is unavailable

An attempt was made to connect with the PRIME/SNA Server because the Server does not exist.

The operator should start the PRIME/SNA Server, followed by a TOSITE command for the PRIME/SNA RJE site.

- :ssss:ll: NE97: Error in initializing Server connection

An error occurred while attempting to connect with the PRIME/SNA Server during initialization.

The operator should start the PRIME/SNA Server followed by a restart of the PRIME/SNA RJE.

- :ssss:ll: NE98: Node or session not found

An event was received from the PRIME/SNA Server because the site or the session does not exist.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE99: Logical unit session is not available

The session is not available at this time.

The operator should check the PRIME/SNA RJE and PRIME/SNA Server configurations and the physical line to determine if everything is set correctly. There may be too many LU ports being opened by the PRIME/SNA Server or an unnamed port was specified because all the configured unnamed ports have been allocated. See also the PRIME/SNA Administrator's Guide.

- :ssss:ll: NE100: Node is unavailable

The PRIME/SNA Server has indicated an error to PRIME/SNA RJE. The remote system specified in the node's open LU had not been started when this solicited event was requested or the remote system connection has been abnormally terminated.

The operator should check that log to see if the node was started properly or if the node has been terminated. If the problem is the remote system to node connection, then resolve this problem and retry the operation in progress at the time of the error.

- :ssss:ll: NE101: Unrecognized resource id error on solicited request to the Server

An unexpected request was issued by PRIME/SNA RJE to the PRIME/SNA Server.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE102: Resource id unavailable on solicited request to the Server

PRIME/SNA RJE has issued a request for the PRIME/SNA Server on behalf of an SNA session which is unavailable.

The operator should check the PRIME/SNA Server log and see the PRIME/SNA Operator's Guide for further actions.

- :ssss:ll: NE103: RJOP connection unavailable

An attempt was made to send a message buffer to RJOP because the RJOP is not available.

The PRIME/SNA RJE worker will continue to function. The site and the session level messages are logged to file if the logging option is in effect.

- :ssss:ll: NE104: RJOP connection failed

The worker to RJOP connection error occurred while attempting to send a message buffer to RJOP.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE105: Invalid event received

An incorrect event has been received from the PRIME/SNA Server.

This indicates an internal PRIME/SNA RJE or PRIME/SNA Server error. The PRIME/SNA RJE worker or PRIME/SNA Server may need to be restarted as a result of this error.

- :ssss:ll: NE106: Invalid event requested

An invalid event has been requested by PRIME/SNA RJE.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE107: Site does not exist

A command from RJOP was received because the site for which the command was intended does not exist or is not configured.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE108: Site disabled

A command from RJOP was received because the site was disabled.

No action, or issue an ENABLE command for the site.

- :ssss:ll: NE109: Site being disabled

A command from RJOP was received because the site was being disabled.

No action, or issue an ENABLE command for the site.

- :ssss:ll: NE110: Session does not exist

A command from RJOP was received because the session does not exist.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE111: Session is unavailable

The session is unavailable to perform the requested operation or normal operator intervention action.

The operator should attempt to perform a signon to log in to the host if the session status shows the session is unbound. The operator should use the RJOP command to display the session status. The operator might also have to call the host operator to activate that session if the host sysgen is not configured to automatically activate LUs.

- :ssss:ll: NE112: Invalid ABORT options

The ABORT command was received from RJOP because one of its options was invalid.

The operator should correct the ABORT command options and reissue the command.

- :ssss:ll: NE113: Error in ATTACHing medium/subaddress

An error occurred while attempting to attach the specified medium/subaddress to a file.

The operator should check the previous message associated with the error to determine why the attach output failed.

- :ssss:ll: NEll4: Error in DETACHing medium/subaddress

An error occurred while attempting to detach the specified medium/subaddress.

The operator should check the previous message associated with the error to determine why the detach output failed.

- :ssss:ll: NEll5: Medium/subaddress <medium/subaddress> is already attached

The operator issued the ATOUT command because the medium/subaddress is already attached.

The operator should correct the medium/subaddress or specify a different one.

- :ssss:ll: NEll6: Medium/subaddress <medium/subaddress> is in use

The operator issued the DETOUT command because the medium/subaddress is still in use.

The operator should correct the medium/subaddress or wait until the file completes.

- :ssss:ll: NEll7: Medium/subaddress <medium/subaddress> is not attached

The operator issued the DETOUT command because the medium/subaddress is not attached.

The operator should correct the medium/subaddress or do nothing if it is correct.

- :ssss:ll: NEll8: Medium/subaddress <medium/subaddress> already not in use

An attempt was made to return a medium/subaddress because the medium/subaddress was already not in use.

The operator should check whether there is an output file and whether it contains valid data.

- :ssss:ll: NE119: Medium/subaddress <medium/subaddress> already unattached

An attempt was made to return a medium/subaddress because the medium/subaddress was already unattached.

The operator should check whether there is an output file and whether it contains valid data.

- :ssss:ll: NE120: Site already configured by other RJOP

Configuration was received for the site because the site was already configured by another RJOP.

The operator should do one of the following:

  - Correct the sitename if it was specified.
  - Use the other RJOP owning the site to communicate with the site.
  - Disable the site through the other RJOP owning the site.

- :ssss:ll: NE121: Maximum sites already configured

Configuration was received from the RJOP but the maximum number of sites is already configured.

The operator should correct the sitename if it is specified.

- :ssss:ll: NE122: Site not configured

A command was received from RJOP because the site has not been configured.

The operator should correct the sitename if specified or reconfigure the PRIME/SNA RJE to correct the sitename.

- :ssss:ll: NE123: Card medium type not supported by BIND cannot send file

The BIND sent by the host does not allow card medium data to be sent to the host.

The operator should contact the host site to allow the PRIME/SNA RJE site to send card medium data.

- :ssss:ll: NE124: Exchange medium type not supported by BIND cannot send file

The BIND sent by the host does not allow exchange medium data to be sent to the host.

The operator should contact the host site to allow the PRIME/SNA RJE site to send exchange medium data.

- :ssss:ll: NE125: FMH not created. File <filename> not sent

The named file was not sent.

The operator should check the PRIME/SNA RJE log for previous messages and take the action indicated by those messages.

- :ssss:ll: NE126: Exchange medium data subaddress resources unavailable, outbound job cancelled

The exchange medium/subaddress indicated has not been allocated by the operator and thus the incoming file from the host for this address has been rejected.

The operator should issue an ATOUT command to allocate the exchange medium/subaddress.

- :ssss:ll: NE127: Card data medium/subaddress resources unavailable, outbound job canceled

The card medium/subaddress indicated has not been allocated by the operator and thus the incoming file from the host for this address has been rejected.

The operator should issue an ATOUT command to allocate the card medium/subaddress.

- :ssss:ll: NE128: Print data medium/subaddress resources unavailable, outbound job cancelled

The print medium/subaddress indicated has not been allocated by the operator and thus the incoming file from the host for this address has been rejected.

The operator should issue an ATOUT command to allocate the print medium/subaddress.

- :ssss:ll: NE129: Data format error

The FM data received from the remote host was in error.

The operator should contact the appropriate personnel at the host site.

- :ssss:ll: NE130: Invalid FMH or FMH received out of sequence

The FM data received from the remote site is correct in format, but incorrect in function. For example, the FM may be a type not supported by PRIME/SNA RJE.

The operator should contact the appropriate personnel at the host site.

- :ssss:ll: NE131: Application message not sent

A data formatting error or a disk error occurred while sending the application message to the host.

The operator should scan the log for messages that may further explain what went wrong.

- :ssss:ll: NE132: Line direction in receive. Waiting to send prev. message to logger

An attempt was made to send an application message to the remote site while a previous application message is being sent.

The operator should wait until the previous application message is sent, then try again using the OPMESS or OPMODE command.

- :ssss:ll: NE133: Session is temporarily unavailable

An attempt to send a message to the remote site failed because the session is temporarily unavailable.

The operator should wait for the session available message to be logged. If this does not happen, the operator should contact the host site.

- :ssss:ll: NE134: No file to cancel

The operator has asked to cancel a file that does not exist.

The operator may need to correct the filename.

- :ssss:ll: NE135: Negative response sent. Sense data = <sense data>

PRIME/SNA RJE has sent a negative response to the remote site. The sense codes explain why.

The operator should note the sense codes and contact the host site.

- :ssss:ll: NE136: Receive check received. Sense data = <sense data>

PRIME/SNA RJE has received a receive check from the PRIME/SNA Server. The sense data explains why.

The operator should note the sense codes and contact the host site.

- :ssss:ll: NE137: Error encountered returning LU session resources

The SNA session cannot currently be used.

The operator should log off and log back on again.

- :ssss:ll: NE138: Please log off SSCP session

The SNA session cannot currently be used.

The operator should log off and log back on again.

- :ssss:ll: NE139: Unrecognized LU name in LU open

PRIME/SNA RJE has issued a request to the PRIME/SNA Server for a session which was not recognized.

This is an internal error to PRIME/SNA RJE. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE140: Bad open LU completion

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server. This may be caused by ACTLU not being received.

Check if the host is polling and has sent ACTLU, or check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE141: Invalid session parameters detected in BIND

The PRIME/SNA Server rejected the BIND received from the remote system because of invalid data within the BIND.

Check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE142: Insufficient BIND resources

The PRIME/SNA Server rejected the BIND because of insufficient resources.

Check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE143: Invalid BIND response

The PRIME/SNA Server rejected a response to a BIND sent by the BIND processor.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE144: Data length too small on read request to the Server

The PRIME/SNA worker received a bad completion to a request to the PRIME/SNA Server.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE145: Data length too large on read request to the Server

The PRIME/SNA worker received a bad completion to a request to the PRIME/SNA Server.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE146: Write data outstanding error

The PRIME/SNA RJE issued an invalid request to the PRIME/SNA Server.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE147: Read data outstanding error

The PRIME/SNA RJE issued an invalid request to the PRIME/SNA Server.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE148: Insufficient resources available to do requested operation

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

Check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE149: Operation incomplete due to LU being closed

The PRIME/SNA Server has indicated to the PRIME/SNA RJE that it is unable to complete a request because the SNA session was not available. The session is probably shutting down due to an operator request or an abnormal error situation.

No operator action is required. After the session is logged off by the host, the operator can log on again and restart the session.

- :ssss:ll: NE150: Operation incomplete due to session being returned

The PRIME/SNA Server has indicated to the PRIME/SNA RJE that it is unable to complete a request because the SNA session was not available. The session is probably shutting down due to operator request or an abnormal error situation.

No operator action is required. After the session is logged off by the host, the operator can log on again and restart the session.

- :ssss:ll: NE151: Negative response sent. Sense data = <sense data>

The session has sent a negative response to the host in response to data it has received. The session cannot accept the data at this time because of lack of resources or because the data is in an invalid format.

The operator should check the previous messages to determine if lack of resources caused the negative response to be sent and, if so, allocate the resources. If this is not the case, contact the host site and inform them of the sense code.

- :ssss:ll: NE152: Invalid buffer security error on write request to the Server

The PRIME/SNA Server rejected a request by PRIME/SNA RJE.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE153: Negative data length error on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE154: Data length too large to send on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE155: Invalid length per max ru on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE156: No buffer passed for write request to Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE157: Buffer with no data to send

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE158: Invalid buffer with DFC to send

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE159: Buffer passed with a response to send

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE160: Invalid literal flag on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE161: Invalid data category on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE162: Invalid DFC command to send

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE163: Invalid response class on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE164: Invalid enclosure level on write request to the Server

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE165: SNA send check occurred

The session issued a write data that resulted in an SNA send_check.

No operator action is required at this time. Any required action will be indicated in future messages.

- :ssss:ll: NE166: No SNA request to which to respond

The PRIME/SNA RJE worker received a bad completion to a request to the PRIME/SNA Server.

The operator should check the PRIME/SNA Server logs and consult the PRIME/SNA Administrator's Guide for further action.

- :ssss:ll: NE167: Data transmission rejected by Server

Data for transmission was returned by PRIME/SNA Server because it could not be transmitted.

The operator should check the PRIME/SNA Server log file for other messages and consult the PRIME/SNA Administrator's Guide for further information.

- :ssss:ll: NE168: Operation incomplete due to race condition

A race condition occurred whereby data was being received and requested for transmission at the same time.

No operator action is required. The session has taken actions to resolve the situation.

- :ssss:ll: NE169: Negative response received. Sense data = <sense data>

The session has received a negative response from the host in response to data the session has sent.

The operator should check the sense code and contact the host site.

- :ssss:ll: NE170: Error while returning outbound medium pool card <medium/subaddress> resources

An error occurred when the session tried to return the outbound medium pool card resources.

The operator should check the previous messages to determine why the error occurred.

- :ssss:ll: NE171: Error while returning outbound medium pool exchange <medium/subaddress> resources

An error occurred when the session tried to return the outbound medium pool exchange resources.

The operator should check the previous messages to determine why the error occurred.

- :ssss:ll: NE172: Error while returning outbound medium pool print <medium/subaddress> resources

An error occurred when the session tried to return the outbound medium pool card resources.

The operator should check the previous messages to determine why the error occurred.

- :ssss:ll: NE173: File <filename> aborted by host

The inbound or outbound file was aborted by the host as part of host recovery.

No action is required.

- :ssss:ll: NE174: Cannot resume active destination

An internal error occurred.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE175: No active destination selection to suspend

An internal error occurred.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE176: No active destination selection to end

An internal error occurred.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE177: No active destination selection to abort

An internal error occurred.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE178: Invalid medium data type, cannot send file

The medium data type requested by RJQ is invalid.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE179: Receive check received

The session has received a receive check from the PRIME/SNA Server because the remote system has violated protocol.

No action is required. The host should perform recovery.

- :ssss:ll: NE180: Incompatible RJE Phase II version number

The RJE Phase II RJQ software does not match the revision level of the PRIME/SNA RJE RJQ interface software.

The operator should install a compatible version of RJE Phase II base software and reinstall PRIME/SNA RJE.

- :ssss:ll: NE181: Invalid compaction table received

The host has sent a compaction table that the session believes is invalid.

The operator should check that the compaction table being sent by the host operator is valid for a 3776 workstation.

- :ssss:ll: NE182: Bad get session complete

PRIME/SNA RJE was unable to request an LU port from the PRIME/SNA worker.

The operator should check the PRIME/SNA Server and PRIME/SNA RJE configurations along with the physical connections.

- :ssss:ll: NE183: RJE Receive Data Management error

The sessions receive data manager encountered an error in translating the data received from the host. A negative response has been sent to the host to allow host recovery.

No operator action is required.

- :ssss:ll: NE184: Operator intervention required for exchange <medium/subaddress>

No resources have been allocated for accepting exchange medium/subaddress data.

The operator should allocate outbound medium resources from the pool to handle that medium/subaddress data.

- :ssss:ll: NE185: Operator intervention required for card <medium/subaddress>

No resources have been allocated for accepting card medium/subaddress data.

The operator should allocate outbound medium resources from the pool to handle that medium/subaddress data.

- :ssss:ll: NE186: Operator intervention required for print <medium/subaddress>

No resources have been allocated for accepting print medium/subaddress data.

The operator should allocate outbound medium resources from the pool to handle that medium/subaddress data.

- :ssss:ll: NE187: SSCP message not sent

The SSCP message requested to send was not sent.

The operator should check the PRIME/SNA RJE log for previous messages and take the action indicated.

- :ssss:ll: NE188: Send FM Data Processor error

The send data processor could not process a request to format data for transmission.

This is an internal error to PRIME/SNA RJE. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE189: Application message not sent

The application message requested to send was not sent.

The operator should check the PRIME/SNA RJE log for previous messages and take the action indicated by them.

- :ssss:ll: NE190: File transmission of <filename> abruptly terminated

The file transmission was terminated.

The operator should check the PRIME/SNA RJE log for previous messages and take the action indicated by them.

- :ssss:ll: NE191: RJE Send Data Management error

The send data processor could not process a request to format data for transmission.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE192: Unable to delete RJQ entry

The session could not delete the RJQ entry from the queue after transmitting the file.

The operator should try to delete the entry using the RJOP/RJQ operator functions.

- :ssss:ll: NE193: No M/SA resources allocated for <medium/subaddress> output

The session has received data from the host because has no medium/subaddress resources are allocated to receive the output.

The operator should get another message following this indicating operator intervention is required. If the operator is not in attendance, a message indicating the file is canceled when the timeout expires.

- :ssss:ll: NE194: Resource close error. Medium/subaddress active

The session encountered an error when the outbound medium pool processor could not close the file.

The operator should check the PRIME/SNA RJE log for previous messages and take the action indicated by them.

- :ssss:ll: NE195: Resource close error. Medium/subaddress not in use

The session could not close the resources attached to a medium/subaddress because the medium/subaddress was never used.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE196: Resource close error. Medium/subaddress not attached

The session encountered a close error with the outbound medium pool processor indicating the resources were not attached to that session.

The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE197: Invalid DFC command received

An invalid DFC command was received from the host.

The operator should contact the host site.

- :ssss:ll: NE198: NPP print queue full. Unable to print file

The print for the Network Print Profile (NPP) is full and the file could not be printed.

The operator should check for an usually high volume of print traffic.

- :ssss:ll: NE199: NPP process could not be started

An attempt by the worker process to start the Network Print Profile (NPP) process failed.

The operator should check the system console to see if the NPP is already running. If so, force it to log out. If the problem still exists, make sure the NPP CPL file exists.

- :ssss:ll: NE200: Invalid data length parameter

The PRIME/SNA worker has attempted to send a response to the host with a length that is incorrect for the type of response.

This is an internal PRIME/SNA RJE error. The PRIME/SNA RJE worker may have to be restarted as a result of this error.

- :ssss:ll: NE201: Site is being reset - session unable to send or receive

The session is unable to send or receive due to the site being reset. All session activity is terminated.

The operator should check whether any of the files were interrupted and restart the activity that is incomplete.

- :ssss:ll: NE202: ACTPU received while session active

An ACTLU was received while the session was active. The session is reset to the state of being started. All previous activity is terminated incomplete.

The operator should check whether any of the files were interrupted and restart the activity that is incomplete. The operator may need to reissue a SIGNON command.

- :ssss:ll: NE203: ACTLU received while session active

An ACTLU was received while the session was active. The session is reset to the state of being started. All previous activity is terminated incomplete.

The operator should check whether any of the files were interrupted and restart the activity that is incomplete. The operator may need to reissue a SIGNON command.

- :ssss:ll: NE204: Session in Error Recovery Procedure state

The session entered into the Error Recovery Procedure state. The host will take the initiative to correct the error condition.

The operator may need to restart the activity that is incomplete.

- :ssss:ll: NE205: Site is being closed - session unable to send or receive

Session is unable to send or receive due to the site being closed. All session activity is terminated.

The operator may choose to reenable the site after it is fully closed and the host system is ready to activate the site.

- :ssss:ll: NE206: Site is being quiesced

The site is entering the quiesced state possibly due to a SHUTDOWN command received from the host. No more file transmissions can be started. All current transmissions are terminated in an orderly fashion.

The operator may choose to log on when the host system is ready to activate the site.

INFORMATION MESSAGES

Information messages are informational only and require no action.

- :ssss:ll: Session is available

This indicates that an SNA session which was temporarily unavailable is now available.

The operator does not need to take any action.

- :ssss:ll: Medium/subaddress <medium/subaddress data> now attached
  :ssss:ll: to pathname <pathname>

The medium/subaddress data is attached to a file as a result of the ATOUT command from the RJOP.

No action is required.

- :ssss:ll: Medium/subaddress <medium/subaddress data> now detached

The specified medium/subaddress data has been detached as a result of DETOUT command from the RJOP.

No additional action is required.

- :ssss:ll: Logging out

The worker is in the process of terminating.

No action is required.

- :sssss:ll: Node reset by SNRM

An SDLC/SNRM was received from the remote system while at least one session was active.

No action is required.

- :ssss:ll: Site ended

The specified site has terminated.

No action is required.

- :ssss:ll: Worker started

The worker has passed the initialization phase and is now awaiting events from the RJOP or the PRIME/SNA Server.

No action is required.

- :ssss:ll: Configuration returned

Configuration was received from the RJOP for a site that was already configured.

No additional action is required.

- :ssss:ll: Configuration received

Configuration was received from the RJOP for a site that was not previously configured.

No action is required.

- :ssss:ll: RJOP connected

Connection between the worker and the RJOP has been established.

No action is required.

- :ssss:ll: RJOP disconnected

An attempt was made to send a specific shutdown message to the RJOP because the worker to RJOP connection was already down.

No action is required.

- :ssss:ll: Please log off SSCP session

The session is in the process of shutting down.

The operator should issue a SIGNOFF command to log off the session. After the session has been deactivated by the host, the operator may issue a SIGNON command to bring the session back up again.

- :ssss:ll: Session ended

The session's communication has ended. This may be due to normal or abnormal shutdown.

No action is required.

- :ssss:ll: Operator cancellation of Console transmission

A file transmission has been canceled because an operator requested that the file being sent to the host console be canceled.

No action is required.

- :ssss:ll: Operator cancellation of Card transmission

A file transmission has been canceled because the operator requested that the card file being sent to the host be canceled.

No action is required.

- :ssss:ll: Operator cancellation of Exchange transmission

A file transmission has been canceled because the operator requested that the card file being sent to the host be canceled.

No action is required.

- :ssss:ll: Receiving file <filename>

The session is receiving this file.

No action is required.

- :ssss:ll: Received file <filename> complete

The session has successfully completed receiving the file.

No action is required.

- :ssss:ll: File <filename> transmission complete

The named file was sent successfully.

No action is required.

- :ssss:ll: File <filename> transmission started

The named file has started transmission.

No action is required.

E

Prime RJE Phase II ACL

INTRODUCTION

The suggested minimum PRIMOS Revision 20.0 ACL (Access Control List) protection that should be assigned to each RJE Phase II emulator file by the System Administrator is discussed in this appendix. In addition to the System Administrator, RJE file access would ordinarily be requested by three categories of personnel:

- RJE System Installers
- RJE Operators
- RJE Users submitting file transfer jobs

The following list gives the RJE files to which each category of personnel might need access. Corresponding to each file are the access rights. The System Administrator should grant these rights (via the file's ACL) to that category's personnel so that they can access that file to perform the expected RJE Phase II tasks. (For more detailed information on the function of ACLs and their implementation, refer to the Prime User's Guide and the System Administrator's Guide.)

RJE UFDs

1. The RJE Common Code UFD: RJESRC

2. The Emulator Source UFDs for each emulator type:

   A. EM1004SRC
      EM200UTSRC
      EM7020SRC
      EMGRTSSRC

   B. EMXBMSRC
      EMX80SRC
      EMHASPSRC

   For historical reasons those files in Group A have a different UFD structure from those in Group B.

3. The top-level UFD for running all emulators: RJSPLQ*

FILE ACCESS PERSONNEL CATEGORIES

1. The System Installer

Pathnames	Suggested Minimum ACL Protection/Rights
RJESRC	DALURWX
RJESRC>CARDSPOOL	LUR
RJESRC>WSCOM	LUR
RJESRC>INSERT	LUR
RJESRC>OBJ	DALURW
RJESRC>RJDIST	LUR
RJESRC>RJOP	LUR
RJESRC>RJPROC	LUR
RJESRC>RJQ	LUR
RJESRC>RJSUBS	LUR
RJESRC>UTILS	LUR
RJESRC>INFO	LUR
EMSNA_RJE	ALL
EMxxxx (where xxxx is 1004, 200UT, 7020, or GRTS)	DALURWX
EMxxxx>Qxxxx	DALUR
EMxxxx>INFO	LUR
EMxxxxSRC	DALURWX
EMxxxxSRC>SOURCE	LUR
EMxxxxSRC>INSERT	LUR
EMxxxxSRC>OBJ	DALURW

EMxxxxSRC>U_SYMBNT	LUR
EMxxxx (where xxxx is XBM, X80, HASP)	DALURWX
EMxxxx>INFO	LUR
EMxxxx>Qxxxx	DALUR
EMxxxxSRC	DALURWX
EMxxxxSRC>SOURCE	DALURW
EMxxxxSRC>INSERT	LUR
EMxxxxSRC>OBJ	DALURW
RJSPLQ*	DALURWX
RJSPLQ* (for PRIME/SNA RJE)	ALL
RJSPLQ*>BINARY	NONE
RJSPLQ*>CMDHELP	NONE
RJSPLQ*>CMDNC0	DALURW
RJSPLQ*>ERRHELP	NONE
RJSPLQ*>PUNCH	NONE
RJSPLQ*>Qxxxx	DALUR
RJSPLQ*>SAVE	NONE
RJSPLQ*>SDF	NONE
RJSPLQ*>SYSCOM	ALL
RJSPLQ*>TO ROUTE	NONE

2. The RJE Operator

RJSPLQ*	ALL
RJSPLQ*>BINARY	DALURW
RJSPLQ*>CMDHELP	LUR
RJSPLQ*>CMDNC0	NONE
RJSPLQ*>ERRHELP	LUR
RJSPLQ*>PUNCH	DALURW
RJSPLQ*>Qxxxx	DALURW
RJSPLQ*>SAVE	DALURW
RJSPLQ*>SDF	DALURW
RJSPLQ*>SYSCOM	NONE
RJSPLQ*>TO_ROUTE	DALURW
RJSPLQ*>MESSAGES	LUR

RJE operators (users of RJOP) who intend to invoke a PRIME/SNA RJE site should also insure that they belong to the ACL group .SNA$. PRIME/SNA RJE operators using the ATOUT command should refer to the ATOUT command description in Chapter 4 for the ACLs which are required for the jobs and directories referenced by the ATOUT command.

3. The User Submitting Jobs

RJSPLQ*	DALURW
RJSPLQ*>BINARY	DLUR
RJSPLQ*>CMDHELP	LUR

3. The User Submitting Jobs (continued)

RJSPLQ*>CMDNC0	NONE
RJSPLQ*>ERRHELP	LUR
RJSPLQ*>PUNCH	DLUR
RJSPLQ*>SAVE	NONE
RJSPLQ*>SDF	NONE
RJSPLQ*>SYSCOM	NONE
RJSPLQ*>TO_ROUTE	DLUR
RJSPLQ*>Qxxxx	NONE
RJSPLQ*>MESSAGES	LUR

F

RJE Revision 20.0 Translation Code

INTRODUCTION

If the user does not wish to use the new features, the only visible effect will be the appearance of four new files in the RJSPLQ* directory. If the Revision 20.0 RJOP is installed without these files present, any attempt to connect to a worker will fail with a "Default translation table EBCDIC_TO_PRIME.RJE is not present" error message.

If the Revision 20.0 RJOP is used (with the new tables) with a Revision 19.x worker left installed, two "Command not understood by worker" error messages are printed by the RJOP when the user enters a valid TOSITE command. The emulator is still using the Revision 19.x translation.

If the user wishes to use the new functionality, a Revision 20.0 RJOP must be installed, along with the Revision 20.0 worker. The default translation tables must be present in RJSPLQ*. Follow the recommended installation procedure.

For PRIME/SNA RJE, the installation process of PRIME/SNA RJE takes care of all installations required to use default modifiable translate tables with the PRIME/SNA RJE emulator.

RJOP CHANGES

To modify the default tables, the user issues an RJOP command, in the site definition file after the CONNECT command (after the ENDSITE command in the case of PRIME/SNA RJE) or online, in this format:

```
TTABLE      Receive          Pathname
            RECV             Filename
            RX               Default
            Transmit
            XMIT
            TX
```

where pathname is a Prime pathname with at least one > and filename is a Prime filename.

The command may only be given when the line is in the configured state (that is, not when the line is running or reprocessing is in progress). More than one TTABLE command may be issued for a given table.

The first parameter determines whether the receive or transmit translation table for the line is to be modified. The second parameter tells RJE how to modify the translation table. By default, the tables are set to the contents of RJSPLQ*>PRIME_code.RJE and RJSPLQ*>code_TO_PRIME.RJE where code is either ASCII or EBCDIC.

If the second parameter is a filename, the translation table is read from RJSPLQ*>filename[.RJE]. If the second parameter is the pathname of a SAM, DAM, or CAM file then the modification is read from that file.

If the DEFAULT OPTION is given, the appropriate table is set back to the default.

To list the translation tables in use by a particular site, the user may issue the following RJOP command:

```
LTABLE  [ RECEIVE ]
TTABLE                Receive          Pathname
                      RECV             Filename
                      RX               Default
                      Transmit
                      XMIT
                      TX
```

When LTABLE is issued with no argument, all of the translation tables for a particular file are displayed.

Configurable Translation Tables for RJE

LTABLE issued with either the RECEIVE or TRANSMIT argument causes the transmit or receive translation table for the site to be listed.

RJE Log File

Whenever a TTABLE command is successfully sent to the worker (including the default commands on initial configuration), the worker copies the new table back to the RJOP which then prints it in the log file. This uses about 2000 bytes in the log file each time a TTABLE command is issued.

TRANSLATION TABLE FILE FORMAT

These can be edited with EMACS or EDITOR. As in CPL files, anything after /* will be ignored. Each translation consists of two one-byte specifications separated by a comma. Translations are separated by semicolons. Each byte specification consists of an unsigned integer, a negative integer, or one of the following special formats:

X'hh'	- hexadecimal constant (one or two hexadecimal digits)
A'a'	- ASCII constant (one ASCII character, parity defaults to native for emulating processor)
P'a'	- Prime ASCII constant (parity forced on)
O'ooo'	- octal constant (one to three octal digits)
B'bbbbbbbb'	- binary constant (one to eight binary digits)
D'ddd'	- decimal constant (one to three binary digits)

The user may specify the Prime line feed (212 octal) or the Prime compression character (221 octal) in any translation. If the translations for these characters are specified, a warning is printed.

Notes

Some characters are framing characters and are trapped as illegal on transmit translation in nontransparent protocols. The illegal character is mapped to a space and a warning is logged to the RJOP and put in the RJQ entry. The operator is given a warning if he/she defines a translation to those characters.

Some characters cause special actions such as component selection or printer carriage movement. If these are redefined, then some part of the emulator functionality may be disabled. A warning is sent to the RJOP if one of these characters is redefined.

G

Site Definition Files

A SAMPLE PRIME/SNA RJE SITE DEFINITION FILE

A sample PRIME/SNA RJE site definition file is provided as follows:

```
/*
/*   SAMPLE SDF FOR THE SNARJE EMULATOR
/*
DEF SNA1                  /* defines the 4-character sitename
PRO SNA                   /* sets the protocol to SNARJE
AUTO YES                  /* set for automatic SSCP logon
REMOTE REMSYS2   /* set to PRIME/SNA Server's remote system
                    configuration name */
SCONFIG <SYS011>SNACNFG>TEXAS    /* set to PRIME/SNA Server's
                                    SNA configuration file */
LU 01RJE         /* set LU port names - must correspond to LU names
LU 02RJE         /* defined in the PRIME/SNA Server configuration
                    file */
LU 03RJE
LU 04RJE
LU 05RJE
MULTISIG YES      /* multiple SIGNAL commands must be sent by
                  /* PRIME/SNA
RU 0              /* Unlimited
END
ATOUT <DISK>PAYROLL>DEPT>PAYROLL -MS P01 -A   /* ATOUT PAYROLL
```

```
                                        /*  file to medium/subaddress
    ATOUT <DISK1>PAYROLL>DEPT>BUDGET.SNA -MS P04
    ATOUT <DISK2>MANAGERS>TIME_CARD -MS C01
    ATOUT <DISK02>MANAGERS>BIG_TIME_CARDS -MS E01
    SON             /* SSCP signon for host application JES2
    LOGON APPLID(JES2) LOGMODE(BATCH) DATA(RMT20)
    SOF             /* SSCP signoff string used for logging off
    LOGOFF
    CO TTY


/* EXAMPLE SITE DEFINITION FILE FOR THE 1004 EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE BOC           /* DEFINE SITE BOC
PROTOCOL 1004         /* PROTOCOL IS 1004
DSTKEY 0              /* SWITCH OFF DESTINATION DETECTION
BAUD 2400             /* LINE SPEED IS 2400 BAUD
CODE XS3              /* CONVERT ALL DATA FROM/TO XS3
EOFKEY 1              /* SET THE END OF FILE DETECTION TO TYPE 1
DATASET SWITCHED      /* REQUEST TO SEND IS TO BE RAISED
MODE SLAVE            /* WE ARE THE SLAVE SITE
ENDSITE               /* END OF SITE DEFINITION
/*
CONNECT 0 BOC         /* SITE IS RUNNING ON SMLC LINE 0
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A 1004 EMULATOR
/*
PUNCH CP1 BINARY      /* PUNCH FILES ARE NOT CONVERTED, AND NOT SPOOLED
SAVE NO               /* DO NOT SAVE THE RECEIVE FILES
SONDEF                /* DEFINE THE SIGNON CARD
$*$ID PRIME ENGINEERING
STATS ON              /* REPORT STATISTICS
CO TTY                /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE 200UT EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE BOC           /* DEFINE SITE BOC
PROTOCOL 200UT        /* PROTOCOL IS 200UT
DSTKEY 0              /* SWITCH OFF DESTINATION DETECTION
ADDRESS 160           /* SITE IDENTIFIER
AUTOREAD YES          /* AUTOMATICALLY SEND 'READ' BEFORE EVERY FILE
BAUD 2400             /* LINE SPEED IS 2400 BAUD
CODE BCD              /* CONVERT ALL DATA FROM/TO BCD
DATASET SWITCHED      /* REQUEST TO SEND IS TO BE RAISED
EOFKEY 1              /* SET THE END OF FILE DETECTION TO TYPE 1
```

```
PADCHAR SYN             /* PAD OPERATOR/DATA BLOCKS WITH SYN CHARACTERS
MODE SLAVE              /* WE ARE THE SLAVE SITE
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 0 BOC           /* SITE IS RUNNING ON SMLC LINE 0
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A 200UT EMULATOR
/*
SAVE NO                 /* DO NOT SAVE THE RECEIVE FILES
STATS ON                /* REPORT STATISTICS
CO TTY                  /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE 2780 EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE B278            /* SITENAME IS B278
BAUD 2400               /* LINE SPEED IS 2400 BAUD
DSTKEY 0                /* SWITCH OFF DESTINATION DETECTION
PRIMARY YES             /* WE ARE THE PRIMARY
CODE EBCDIC             /* EBCDIC TRANSLATION
PROTOCOL 2780           /* THE LINE PROTOCOL IS 2780
PAD YES                 /* RECORDS ARE TO BE PADDED ON XMIT
BLOCK 400               /* THE BLOCK SIZE IS 400 BYTES
EOFKEY 0                /* NO END OF FILE DETECTION (NORMAL FOR 2780)
AUTOSIGN YES            /* SIGNON SENT ON ENABLE
MODE SLAVE              /* WE ARE A SLAVE STATION
RECORDS MULTIPLE        /* MULTIPLE RECORDS IN THE BLOCK
DATASET SWITCHED        /* REQUEST TO SEND IS TO BE RAISED
TRANSPARENT NO          /* SEND BLOCKS NON-TRANSPARENT
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 2 B278          /* USE SMLC02
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A 2780 EMULATOR
/*
FORM LP1 JOKE           /* SPOOL QUEUE FORM TYPE IS 'JOKE'
PUNCH CP1 TRANSLATE     /* TRANSLATE INCOMING PUNCH FILES
SAVE YES                /* SAVE THE UNTRANSLATED DATA
SONDEF                  /* DEFINE THE SIGNON CARD
/*SIGNON                REMOTE999       XXXXXX
SOFDEF                  /* DEFINE THE SIGNOFF CARD
/*SIGNOFF
STATS ON                /* KEEP TRANSLATION STATISTICS
CO TTY                  /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE 3780 EMULATOR
/*
/*
```

```
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE B378            /* SITENAME IS B378
BAUD 2400               /* LINE SPEED IS 2400 BAUD
DSTKEY 0                /* SWITCH OFF DESTINATION DETECTION
PRIMARY YES             /* WE ARE THE PRIMARY
CODE EBCDIC             /* EBCDIC TRANSLATION
PROTOCOL 3780           /* THE LINE PROTOCOL IS 3780
BLOCK 400               /* THE BLOCK SIZE IS 400 BYTES
EOFKEY 0                /* NO END OF FILE DETECTION (NORMAL FOR 3780)
AUTOSIGN YES            /* SIGNON SENT ON ENABLE
MODE SLAVE              /* WE ARE A SLAVE STATION
RECORDS MULTIPLE        /* MULTIPLE RECORDS IN THE BLOCK
DATASET SWITCHED        /* REQUEST TO SEND IS TO BE RAISED
TRANSPARENT NO          /* SEND BLOCKS NON-TRANSPARENT
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 2 B378          /* USE SMLC02
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A 3780 EMULATOR
/*
FORM LP1 JOKE           /* SPOOL QUEUE FORM TYPE IS 'JOKE'
PUNCH CP1 TRANSLATE     /* TRANSLATE INCOMING PUNCH FILES
SAVE YES                /* SAVE THE UNTRANSLATED DATA
SONDEF                  /* DEFINE THE SIGNON CARD
/*SIGNON                REMOTE999       XXXXXX
SOFDEF                  /* DEFINE THE SIGNOFF CARD
/*SIGNOFF
STATS ON                /* KEEP TRANSLATION STATISTICS
CO TTY                  /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE 7020 EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE BOC             /* DEFINE SITE BOC
PROTOCOL 7020           /* PROTOCOL IS 7020
DSTKEY 0                /* SWITCH OFF DESTINATION DETECTION
CODE ASCII              /* CONVERT ALL DATA FROM/TO ASCII
ADDRESS 3               /* SITE IDENTIFIER
MODE SLAVE              /* WE ARE THE SLAVE SITE
DATASET SWITCHED        /* REQUEST TO SEND IS TO BE RAISED
EOFKEY 1                /* SET THE END OF FILE DETECTION TO TYPE 1
BAUD 2400               /* LINE SPEED IN 2400 BAUD
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 0 BOC           /* SITE IS RUNNING ON SMLC LINE 0
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A 7020 EMULATOR
/*
STATS ON                /* REPORT STATISTICS
```

```
PUNCH CP1 TRANSLATE    /* PUNCH FILES ARE TO BE CONVERTED
CO TTY                 /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE GRTS EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE BOC            /* DEFINE SITE BOC
AUTOSIGN YES           /* SEND SIGNON ON OPERATOR MESSAGES
BAUD 4800              /* LINE SPEED IS 4800 BAUD
PROTOCOL GRTS          /* PROTOCOL IS GRTS
DSTKEY 0               /* SWITCH OFF DESTINATION DETECTION
CODE ASCII             /* CONVERT ALL DATA FROM/TO ASCII
COMPRESS NO            /* RECORDS ARE COMPRESSED
DATASET SWITCHED       /* REQUEST TO SEND IS TO BE RAISED
EOFKEY 1               /* SET THE END OF FILE DETECTION TO TYPE 1
MODE SLAVE             /* WE ARE THE SLAVE SITE
SPLIT NO               /* RECORDS ARE NOT SPLIT
ENDSITE                /* END OF SITE DEFINITION
/*
CONNECT 0 BOC          /* SITE IS RUNNING ON SMLC LINE 0
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A GRTS EMULATOR
/*
SAVE NO                /* DO NOT SAVE THE RECEIVE FILES
SONDEF                 /* DEFINE THE SIGNON CARD
$*$ID PRIME$ENGINEERING
STATS ON               /* REPORT STATISTICS
CO TTY                 /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE HASP EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE BOC            /* DEFINE SITE BOC
PROTOCOL HASP          /* THIS IS THE HASP PROTOCOL
AUTOSIGN YES           /* AUTOSIGNON IS REQUIRED
BAUD 2400              /* LINE SPEED IS 2400 BAUD
BLOCK 512              /* BLOCK SIZE IS 512 BYTES
CODE EBCDIC            /* CONVERT ALL DATA FROM/TO EBCDIC
EOFKEY 1               /* SET THE END OF FILE DETECTION TO TYPE 1
DSTKEY 0               /* NO DESTINATION DETECTION
DATASET SWITCHED       /* REQUEST TO SEND IS TO BE RAISED
MODE SLAVE             /* WE ARE THE SLAVE SITE
CONFIG OP1             /* CONFIGURE OPERATOR CONSOLE 1
CONFIG CR1             /* CONFIGURE CARD READER 1
CONFIG CP1             /* CONFIGURE CARD PUNCH 1
CONFIG LP1             /* CONFIGURE LINE PRINTER 1
```

```
CONFIG LP2              /* CONFIGURE LINE PRINTER 2
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 0 BOC           /* SITE IS RUNNING ON SMLC LINE 0
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR A HASP EMULATOR
/*
SOFDEF                  /* DEFINE THE SIGNOFF CARD
/*SIGNOFF
SONDEF                  /* DEFINE THE SIGNON CARD
/*SIGNON
PUNCH CP1 BINARY        /* PUNCH FILES ARE NOT CONVERTED, AND NOT SPOOLED
VFCF LP2 MVFC           /* USE FILE 'MVFC' FOR THE VERTICAL FORMS CONTROL
/*                         OF LP2
SAVE ON                 /* GENERATE SAVE FILES FROM THE RECEIVE DATA
STATS ON                /* REPORT STATISTICS
CO TTY                  /* END OF SITE DEFINITION FILE


/* EXAMPLE SITE DEFINITION FILE FOR THE XBM EMULATOR
/*
/*
/* THE FOLLOWING COMMANDS ARE MANDATORY
/*
DEFSITE ICL             /* DEFINE SITE ICL
PROTOCOL XBM            /* THIS IS THE XBM PROTOCOL
ADDRESS 8               /* GROUP ADDRESS AS DEFINED BY HOST SITE
CODE ASCII              /* CONVERT ALL DATA FROM/TO ASCII
BAUD 2400               /* LINE SPEED IS 2400 BAUD
EOFKEY 1                /* SET THE END OF FILE DETECTION TO TYPE 1
DSTKEY 0                /* DO NOT USE DETINATION DETECTION
DATASET SWITCHED        /* REQUEST TO SEND IS TO BE RAISED
MODE SLAVE              /* WE ARE THE SLAVE SITE
MULTIDROP NO            /* LINE IS NOT SHARED WITH OTHERS
CONFIG OP1 5D           /* CONFIGURE OPERATOR CONSOLE 1
CONFIG CR1 4E           /* CONFIGURE CARD READER 1
CONFIG LP1 7A           /* CONFIGURE LINE PRINTER 1
ENDSITE                 /* END OF SITE DEFINITION
/*
CONNECT 0 ICL           /* SITE IS RUNNING ON SMLC LINE 0
/*
/* THE FOLLOWING ARE SOME OF THE OPTIONAL COMMANDS FOR AN XBM EMULATOR
/*
SAVE ON                 /* GENERATE SAVE FILES FROM THE RECEIVE DATA
FORMS LP1 EMU           /* LP1 OUTPUT GOES ON EMU FORMS
BANNER 'XBM-output'     /* WITH THIS BANNER
STATS ON                /* REPORT STATISTICS
CO TTY                  /* END OF SITE DEFINITION FILE
```

H

SNA Fundamentals

INTRODUCTION

This appendix provides some basic information that will help you understand the operation of an SNA network. The following topics are covered:

- Domains
- Network Resources
- BINDs

Domains

SNA networks can be composed of one or more host systems. Each host system manages a set of network resources. The portion of an SNA network controlled by one host system is called a domain. A domain includes all the devices and communications lines under the control of the host system. A complex SNA network can contain many domains, but the discussion here is confined to a single-domain network.

A domain contains three major types of components that are referred to in SNA terminology as nodes:

- Host node
- Communications controller node
- Peripheral node

Host Node: A host node is usually an IBM System/370 class of mainframe that provides data processing facilities for local and remote users (such as a PRIME/SNA).

Host nodes have special software that other types of nodes do not have called a System Services Control Point (SSCP). The SSCP manages the network in the domain of its host node.

An SSCP performs the following functions:

- Monitors and manages all the resources in the host node's domain
- Starts up (activates) and shuts down (deactivates) parts of the network
- Establishes connections between users
- Contains an interface to allow network operators to control a host's domain

Every SNA network contains at least one SSCP. Networks with a single SSCP are called single-domain networks. Networks with more than one SSCP are called multiple-domain networks. A single host system can support more than one SSCP, but usually only one SSCP is present.

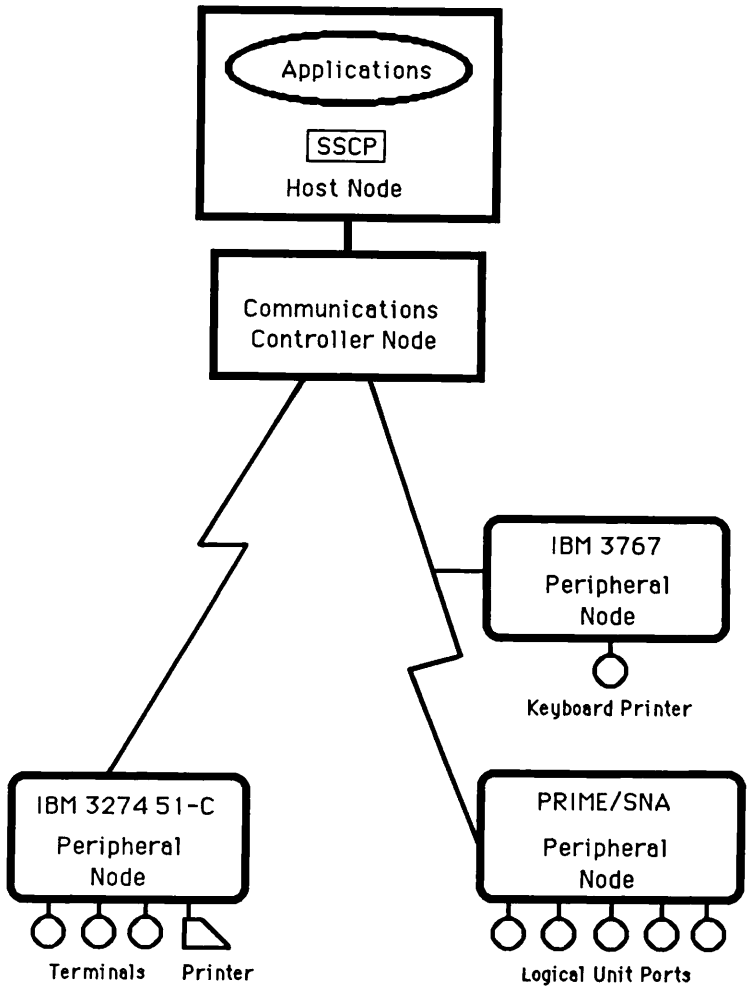
Communications Controller Node: A communications controller node works under the supervision of an SSCP and assists the host node in managing the network. Software in the communications controller, Network Control Program (NCP), allows the controller to:

- Start up and shut down data links
- Manage links by receiving (polling) data from and sending (selecting) data to other nodes
- Buffer data sent from one node to another
- Route data to other nodes in the network

Peripheral Node: A peripheral node is a device that requires the support of a host node or communications controller to route data within the network. Peripheral nodes can be a single terminal (such as a 3776 RJE workstation), a cluster controller for a group of terminals and printers, or a remote processer.

Although PRIME/SNA uses a single CPU to provide its services, it can appear to an SNA network as up to eight peripheral nodes. Each peripheral node is defined by your PRIME/SNA Administrator in the SNA configuration file as a remote system. A remote system is the local PRIME/SNA support required to establish communications with a specific host system.

Figure H-1 shows a simple, single-domain network with the three node types.



A Single-domain Network With Three Node Types
Figure H-1

Network Resources

Before users in an SNA network can communicate (such as PRIME/SNA RJE users and a host application), the SSCP must activate the resources under its control. The SSCP begins by activating SDLC lines and establishing connections with the peripheral node. The SSCP activates network resources according to the following hierarchy:

- Lines
- Physical Units (PUs)
- Logical Units (LUs)

Physical Units: Every node in an SNA network is defined as a type of physical unit or PU. A PU is a component (either in hardware or software) that manages the physical resources of a node. A PU manages a node by monitoring communications links, handling error recovery, gathering statistics, and activating and deactivating resources under its control.

After the SSCP activates the line, it establishes a session with a peripheral node's PU, referred to as an SSCP-PU session.

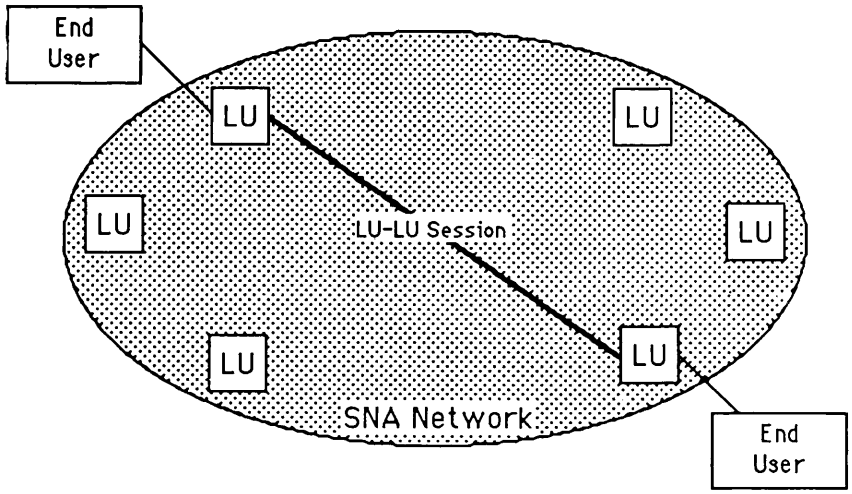
The network in Figure H-1 is composed of five PUs (one associated with each node).

Logical Units: After the SSCP-PU session has been established, two additional types of sessions must be established involving a logical unit or LU:

- SSCP-LU session
- LU-LU session

Logical units are ports into the SNA network that allow end users to communicate with each other. Every end user (for example, a host application or a terminal user) needs an LU to pass data to other end users. When end users want to communicate with each other, their logical units create a temporary, logical connection called an LU-LU session. An LU-LU session continues for as long as the pair of LUs (session partners) agree. Figure H-2 shows two end users communicating through their logical units in an LU-LU sesion.

Before an LU-LU session can be established, the SSCP must establish an SSCP-LU session. After an SSCP-LU session is established, the host system sends a BIND command. The BIND command contains a set of rules (defined in BIND parameters) that the two LUs must abide by in their LU-LU session. BIND parameters indicate things like whether data will be compressed, how much data can be sent at once, or whether an alternate code (such as ASCII) can be used.



An LU-LU Session
Figure H-2

In summary, the following steps must occur before end users in an SNA network can communicate:

- SSCP activates a communications line and establishes connections with the peripheral node's modem
- SSCP establishes an SSCP-PU session
- SSCP establishes an SSCP-LU session
- Host system sends a BIND command
- Participating LUs establish an LU-LU session

More About the BIND Command

An SNA network can include a wide variety of devices (such as those devices supported by the 3270 Information Display System). Systems like the 3270 Information Display System have particular requirements that an application subsystem must meet before systems enter into sessions with host applications. The host system sends the BIND command with information that details what each LU can expect from its session partner. If the two LUs cannot agree on the parameters of a BIND, no LU-LU session can occur. This assures that both sides can process the proper protocol sequences, and prevents LUs from entering into sessions in which they do not possess all the required capabilities.

PRIME/SNA logical units, represented by terminals, logical printers, and RJE ports have requirements that the primary logical unit must recognize before sessions can begin. Your PRIME/SNA Administrator coordinates with personnel at the host sites that your LUs come into contact with by supplying operational requirements for PRIME/SNA. The requirements help host personnel define your logical units according to these requirements and to prevent PRIME/SNA from rejecting BINDs unnecessarily. Refer to the PRIME/SNA Administrator's Guide for a description of the BIND parameters supported by PRIME/SNA RJE.

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S

SURVEY

READER RESPONSE FORM

DOC6053-3LA Remote Job Entry Phase II Guide Third Edition

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