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## HARVARD'S NETWORK RJE

### Section I

RJE was designed to provide network users with the facility of submitting jobs to remote servers via the ARPA net and retrieving results using Harvard's PDP-10.

In order to be an expert in the use of the RJE program from a remote host, the user must be familiar with the FTP commands and usage. At present RJE is only implemented for UCLA. Accordingly, all examples will deal with the UCLA installation. Arrangements for a password and a job ID must be made at UCLA before usage is to begin. If you are interested, we will see to it that an account is made up for you. People at other sites should deal directly with UCLA to get an account.

### Section II

#### HOW TO USE RJE AT HARVARD

Start the program by typing R RJE<CR> at monitor level. RJE will respond with a "!".

Then type "RJE UCLA<CR>" to make the TELNET connection. The TELNET connection is used for transfer of commands to UCLA and error messages from UCLA to the user of RJE. It is important to realize that, in using RJE, one is talking to two systems; the local system (HARV-10) and the remote host where the job will actually be run. Therefore, there are two command processors, one local and one foreign.

#### COMMANDS TO THE LOCAL (HARVARD) PROCESS

All commands to the local process begin with a \*.

\*READ LDEV:FILENAME.EXTENSION<CR>

Reads the specified file, which contains all job cards, JCL, program and data, formats it for RJS at UCLA and ships it over a data connection. When using the data connection, ASCII files are translated into EBCDIC, the UCLA end of the connection. After transfer is completed the file is immediately spooled for processing.

\*PRINT LDEV:FILENAME.EXTENSION<CR>

Gets the next print file from UCLA's 91 and reformats the print file for a PDP-10 line printer. Write the file to the user's specified logical device with the specified FILENAME.EXTENSION. FILENAME is up to 6 characters in length and EXTENSION is up to 3 characters in length.

\*QUIT<CR>

Tear down all connections used by RJE and return to monitor level.

COMMANDS TO THE REMOTE PROCESS  
(UCLA RJS COMMANDS)

Commands to the remote process have no special character preceding a command. For an explanation of the command arguments, ask Terry Sack for the document named, RJS OPERATOR COMMANDS FOR REMOTE TERMINALS.

Terminal Control and Information Command

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SIGNON	First command of a session identifies VRBT (virtual remote batch terminal) by giving its terminal ID. For UCLA, Harvard's terminal ID is NETHARV.
SIGNOFF	Last command of a session; RJS waits for any data transfer in progress to complete and then closes all connections.
STATUS	Outputs on the local user's terminal a complete list, or a summary, of all jobs in the system for this VRBT, with an indication of their progressing status in the Model 91.
ALERT	Outputs on the user's terminal any special "Alert" message from the CCN computer operator. The Alert message is also automatically sent when the user does a SIGNON, or whenever the message changes.
MSG	Sends a message to CCN computer operator or to any other RJS terminal (real or virtual). A message from the computer operator or another RJS terminal will automatically appear on the user's terminal.

## Job Control and Routing Commands

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Under CCN's job management system, the default destination for output is the input source. Thus, a job submitted under a given VRET will be returned to that VRBT (i.e., the same terminal ID), unless the user's JCL overrides the default destination.

RJS places print and punch output destined for a particular remote terminal into either an Active Queue or a Deferred Queue. When the user opens his print or punch output channel (via the \*PRINT command of RJE), RJS immediately starts sending job output from the Active Queue, and continues until this queue is empty. Job output in the Deferred Queue, on the other hand, must be called for by job name (via a RESET command from the remote operator) before RJS will send it. The Active/Deferred choice for output from a job is determined by the deferral status of the VRBT when the job is entered; the deferral status, which is set to the Active option when the user signs on, may be changed by the SET command.

- SET                      Allows the remote user to change certain properties of his VRBT for the duration of the current session
- (a) May change the default output destination to be another (real or virtual) RJS terminal or the central facility.
- (b) May change the deferral status of the VRBT.
- DEFER                    Moves the print and punch output for a specified job or set of jobs from the Active Queue to the Deferred Queue. If the job's output is in process of being transmitted over a channel, RJS aborts the channel and saves the current output location before moving the job to the Deferred Queue. A subsequent RESET command will return it to the Active Queue with an implied Backspace (BSP).
- RESET                    Moves specified job(s) from Deferred to Active Queue so they may be sent to user. A specific list of job names or all jobs can be moved with one RESET command.

ROUTE                    Re-routes output of specified jobs (or all jobs) waiting in the Active and Deferred Queues for this VRBT. The new destination may be any other RJS terminal or the central facility.

ABORT                    Cancels a job which was successfully submitted and awaiting execution or is currently executing in the Model 91. If the cancelled job was in execution, all output it produced will be returned.

#### Output Stream Control Commands

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BSP (BACKSPACE)        Backspaces output stream within current SYSOUT data set. Actual amount backspaced depends upon SYSOUT blocking but is typically equivalent to a page on the line printer.

CAN (CANCEL)            (a) On an output channel, CAN causes the rest of the output in the SYSOUT data set currently being transmitted to be omitted. Alternatively, may omit the rest of the SYSOUT data sets for the job currently being transmitted; however, the remaining system and accounting messages will be sent.

(b) On an input channel, CAN causes RJS to ignore the job currently being read. However, the channel is not aborted as a result, and RJS will continue reading in jobs on the channel.

(c) CAN can delete all SYSOUT data sets for specified job(s) waiting in Active or Deferred Queue.

RST (RESTART)           (a) Restarts a specified output stream at the beginning of the current SYSOUT data set or, optionally, at the beginning of the job.

(b) Marks as restarted specified job(s) whose transmission was earlier interrupted by system failure or user action (e.g., DEFER command or aborting the channel). When RJS transmits these jobs again, it will start at the beginning of the partially transmitted SYSOUT data set or, optionally, at the beginning of the job. This function may be applied to jobs in either the

Active or the Deferred Queue; however, if the job was in the Deferred Queue then RST also moves it to the Active Queue. If the job was never transmitted, RST has no effect other than this queue movement.

REPEAT               Sends additional copies of the output of specified jobs.

EAM                   Echoes the card reader stream back in the printer or punch stream, or both.

### Section III

#### USE OF RJE FROM A REMOTE HOST

To use RJE from a remote Host, make a TELNET connection to Harvard's 10 via your TELNET program. Login under one of Harvard's guest accounts: type LOGIN <CR>. LOGIN will prompt you with a #. When it does, type 62,# <CR>. Answer all questions that are asked.

#### USING FTP TO TRANSFER FILES

Prompts:

"\*"           Prompt from FTP when no network connections are established.

!"            Prompt when network connections are open.

Type R FTP<CR>, then type 'Host host # or abbreviation' <CR> to set up a TELNET connection. The local FTP process will then type the foreign host's greeting message.

If transferring files to or from other than a PDP-10, type the commands 'TYPE A' and 'BYTE 8', each followed by a carriage return.

!USER 'Your project, programmer number'<CR>  
Tell the server who you are. The USR command should be the first command to FTP.

!RETRIEVE FILENAME.EXTENSION <CR>  
Retrieve a file from the foreign host. After the message "transfer completed" has been typed, use the QUIT command.

!QUIT<CR>  
Break connections return to monitor level. After you have transferred your files consult Section II for the usage of RJE.

Warning!!!

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The RJE program formats printer output for a PDP-10 line printer. If you plan to use another type of printer, special arrangements will have to be made.

Also, never leave a file on Harvard's disk area when detached. A detached job is a job to which no terminal is assigned. You may find that your file is gone when you come back. We have limited disk resources and, if a crisis arises, files belonging to detached jobs are subject to deletion.

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