

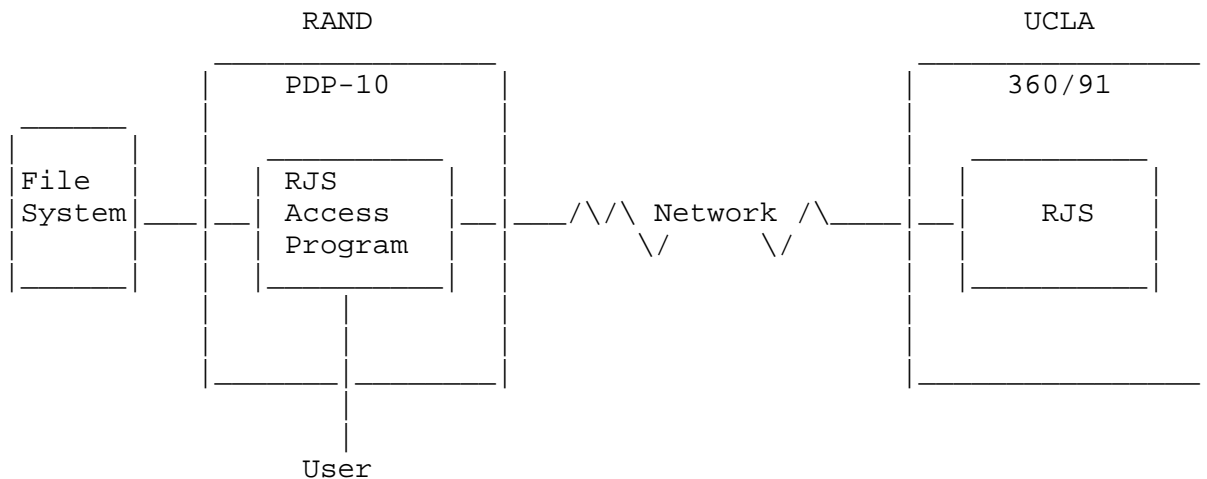
Network Working Group  
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References: 113, 189

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Rand  
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## USING NETWORK REMOTE JOB ENTRY

### OVERVIEW

As has been mentioned in previous RFCs and at previous Network meetings various groups at Rand have been doing RJE to remote Network sites (UCBS and UCLA) for over a year. Until recently all this work has been done from our IBM 360/65 which is only a Network using host (not a server). Recently our PDP-10 has come onto the Network as both a user and server host. We now have, as well, a program on the PDP-10 allowing access to the Remote Job Service (RJS) at UCLA. Our normal mode of operation is diagramed below.



To use RJS the user creates a job source "deck" in the Rand File system. He then instructs the RJS Access Program (RJSAP) to send that file (job) to RJS. (Sample session below.) He can then monitor the status of his job via RJSAP (and hence RJS) and ask that RJSAP retrieve his print output to a local file, (or directly to his console, the line printer or whatever).

Recently, several people at other Network sites have expressed an interest in using RJS. However, they are located at a minimal Host or at a host not providing RJS access. Since the Rand PDP-10 is a Network server, these people can solve their access problem by logging onto the Rand PDP-10, using Telnet, and running the RJSAP themselves. The remainder of this RFC describe the steps necessary

to run that program.

#### The Rand PDP-10

The Rand PDP-10 operates under the Tenex operating system. Thus, some understanding of the Tenex Executive is required. The necessary documents can be obtained from the developers of Tenex:

Bolt, Beranek and Newman, Inc.  
50 Moulton Street  
Cambridge, Massachusetts 02138  
(617) 491-1850

Secondly, it is necessary to establish an account on the Rand PDP-10. This can be done through:

Rod Fredrickson  
The Rand Corporation  
1700 Main Street  
Santa Monica, California 90406  
(213) 393-0411

#### UCLA Remote Job Service

To use the UCLA IBM 360/91 via RJS it is necessary to:

- 1) have an account at UCLA
- 2) have an assigned RJS terminal ID.

These can both be obtained from

Bob Braden  
UCLA  
Math Sciences Building  
3531 Boelter Hall  
Los Angeles, Calif. 90024  
(213) 825-7518

#### The RJS Access Program (RJSAP)

A sample session using RJSAP is attached below. The RJSAP is started by typing "RJS<return>" to the Tenex executive. The program will then initialize and check (via your login information) to see if you are a user recorded in its tables. This is done to assure you have a valid RJS terminal ID. If your ID is not found, the program will terminate with appropriate message.

If your ID is found, RJSAP will attempt to connect to RJS. If UCLA is down, a message to that effect will appear and the program will terminate. If UCLA is up, RJSAP will connect you to RJS and sign-on your terminal ID (see RFC 189). RJSAP will respond "YOU ARE CONNECTED TO RJS."

At this point RJS will acknowledge your signon and print out messages regarding system status.

The programs (RJSAP and RJS) are now ready to perform RJE functions. All commands are initially interpreted by RJSAP. They are listed and explained below.

#### 1. Help

If the user types "?" RJSAP will echo the "?" and list the valid set of commands (see below).

#### 2. Message to RJS

If the first character of a command is a "/" all subsequent characters up to a "return" are transmitted to RJS on the operator input connection. See RFC 189 for the syntax and semantics of these commands.

An operator input message can be cancelled with the RUB OUT key or backspaced using BACKSPACE.

#### 3. Send a Job

When the user types "S" RJSAP echoes "SEND SOURCE DECK FROM FILE". The user then enters the file name containing his job followed by a "return." Obviously the file must already exist. If the file is ok and is transmitted successfully, both RJSAP and RJS will print an acknowledgement on the user's terminal (see example below).

#### 4. Retrieve Job Output-Printer

The user can retrieve printed output by entering "PR". RJSAP will echo "PRINT OUTPUT TO FILE". The user then enters the files name where he wants the output. This can be a new file or even a device such as the printer or teletype. When the print output is completely received, the RJSAP will print an acknowledgment (see example).

## 5. Retrieve Job Output-Punch

This function is currently not implemented, pending a decision on the use of this channel between a PDP-10 and a 360.

## 6. Transmission Status

For long transmissions of job input or output it may be desirable to check on the progress of the transmission. Typing "R" will cause RJSAP to echo "REPORT ON TRANSMISSIONS--", followed by a record count for the job input and printer output channels.

## 7. Termination

If the user types a "Q" at the start of a command, RJSAP will echo "QUIT IN PROGRESS" and terminate. This is the preferred way of terminating the program. (Rather than just ^C).

NOTE: Since RJSAP has not been extensively used, we expect it to be improved and modified in the future. Thus, the last section of this RFC -- the explanation of the use of RJSAP -- will be kept in file <HARSLEM>RJSACCESSPROGRAM.EXPLANATION on the Rand PDP-10 and be updated appropriately.

## Sample Session

The follows is a sample session using RJS from RJSAP on the Rand PDP-10. All user inputs have been underlined (shown as text ).

TENEX 1.28,RAND EXEC 1.33.1		
@_LOGIN_	\	Rand Exec Prompt
(USER) _HARSLEM_	\	
(PASSWORD)_____	/	User Logs In
(ACCOUNT #)_1__	/	
JOB 12 ON TTY10 25-FEB-72 11:12		System Acknowledges
@_RJS_		User Starts RJS
		Access Program
RJS REMOTE ACCESS PROGRAM		
HELLO ERIC		
YOU ARE CONNECTED TO RJS	\	
NRJ876I NETWORK REMOTE JOB SERVICE READY	\	
RJS750I TERMINAL NETRAND HAS SIGNED ONTO RJS	/	RJS Recognizes
RJS652I INFORMATION ALERT -	/	Terminal ID and
RJS250I OS COLDSTARTED 4:30 PM 24 FEB ALL JOBS	/	Prints System
**IN SYS LOST AND MUST BE RESUBMITTED	/	News Messages
RJS650I OS COLDSTARTED 11:07 FEB 25, ALL JOBS LOST MUST RESUBMIT_		
_?_		
VALID COMMANDS ARE:		User asks for
SEND A SOURCE FILE		Valid Commands
PRINT OUTPUT RETRIEVAL		
PUNCH OUTPUT RETRIEVAL		
REPORT ON STATUS OF TRANSMISSIONS		
PRECEDE RJS OPERATOR COMMANDS WITH A SLASH		
QUIT TO TERMINATE THE PROGRAM		
_/STATUS JOBS_		
RJS804I TERMINAL NETRAND HAS NO JOBS ACTIVE		User Sends Message to
_/STATUS LINES_		RJS asking Job Status
RJS800I TERMINAL GSM ACTIVE ON LINE 1		User asks RJS to
RJS809I PUNCH REROUTE = ENGR		show Active Users
RJS800I TERMINAL ENGR ACTIVE ON LINE2		
RJS800I TERMINAL CSCSRC ACTIVE ON LINE7		
RJS800I TERMINAL NETRAND ACTIVE ON LINE8		
_S_END SOURCE DECK FROM FILE _TESTA.;1_		
TESTA.; TRANSMITTED TO RJS		User Sends Job to RJS
26 CARDS SENT		Both Access
RJS534I JOB MES727DS ACCEPTED BY RJS - 0000027		Program and RJS Ack
**CARDS READ		Job Submission

```

_/STATUS JOBS_
RJS810I TERMINAL NETRAND HAS THE FOLLOWING JOBS IN RJS
RJS812I MES272DS SPL(A) 001
      \
      /
      \
      /
      (SOMETIME LATER)
      /
      \
_/STATUS JOBS_
RJS810I TERMINAL NETRAND HAS THE FOLLOWING JOBS
**IN RJS
RJS812I MES727DS XEQ    000
      /
      \
      (SOMETIME LATER)
      /
      \
      /
      \
_/STATUS JOBS_
RJS810I TERMINAL NETRAND HAS THE FOLLOWING JOBS
**IN RJS
RJS812I MES727DS PPT 060
_PR_INT OUTPUT TO FILE _LPT_: [CONFIRM]

_R_EPORT ON TRANSMISSIONS--
  NO SEND IN PROGRESS
PRINT TO FILE LPT: RECORD COUNT=88
LPT:RECEIVED 197 PRINT LINES
_Q_UIT IN PROGRESS
BYE, BYE BANANA

@_LOGOUT_
KILLED JOB 3, USER HARSLEM, ACC 1, TTY 10, AT 2/25/72 1300
  USED 0:0:21 IN 1:12:52

```

User Asks Job Status  
And Sees his job  
being Spooled.

User Checks and  
Finds his job ready

User sees job  
has been run

Print output ready  
User asks for output  
directly to printer

User checks to see  
the print retrieval  
running  
User Terminates  
Access Program

User Logs Out

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