Network Working Group
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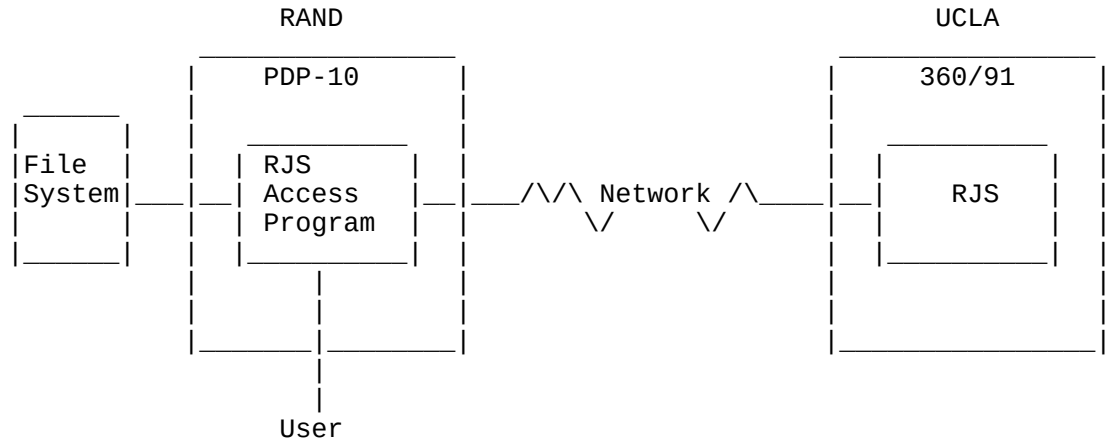
# USING NETWORK REMOTE JOB ENTRY

## 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                          Rand Exec Prompt
@_LOGIN_                                          \
(USER) _HARSLEM_                                   \   User Logs In
(PASSWORD)_______                                  /
(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                          User Asks Job Status
             \                                       And Sees his job
             /                                       being Spooled.
             \
             /
       (SOMETIME LATER)
             /
             \
_/STATUS JOBS_
RJS810I TERMINAL NETRAND HAS THE FOLLOWING JOBS      User Checks and
**IN RJS
RJS812I MES727DS XEQ   000                           Finds his job ready
             /
             \
        (SOMETIME LATER)
             /
             \
             /
             \
_/STATUS JOBS_                                       User sees job
RJS810I TERMINAL NETRAND HAS THE FOLLOWING JOBS      has been run
**IN RJS
RJS812I MES727DS PPT 060                             Print output ready
_PR_INT OUTPUT TO FILE _LPT_:[CONFIRM]               User asks for output
                                                     directly to printer

_R_EPORT ON TRANSMISSIONS--
 NO SEND IN PROGRESS                                 User checks to see
PRINT TO FILE LPT: RECORD COUNT=88                   the print retrieval
LPT:RECEIVED 197 PRINT LINES                         running
_Q_UIT IN PROGRESS                                   User Terminates
BYE, BYE BANANA                                      Access Program

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

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