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SCENARIOS FOR USING ARPANET COMPUTERS

This scenario booklet is provided to facilitate the use of ARPANET host computer systems via the ARPANET. The objective of these scenarios is to aid a user in sampling host computers on the ARPANET, thereby stimulating his interest in using ARPANET.

The scenarios describe the login procedure, the use of some simple or interesting facilities, and obtaining on-line help facilities such as on-line documentation and interactive dialog with experienced users via "link" or "message" type mechanisms. The use of user TELNETS for "piggy-back login" is included to help system programmers in debugging and testing their protocol implementations. An exercise of editing and running a very simple program is also included, where appropriate.

The scenarios assume the environment of the MIT-DMCG PDP-10 computer system, but are readily adaptable to use from other systems. The annotated script is provided to assist you in the use of a particular host computer. Comments are enclosed in parenthesis, and user input is underlined. In the scripts, a carriage return is indicated by '<CR>', and a space by blank (i.e.,no type). Escape to local user TELNET is indicated by backslash, the default escape character in the MIT-DMCG system. Additional blank lines have been introduced in many instances to improve readability of the script.

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Note: Your comments and suggestions will be greatly appreciated. Please direct all comments to Abhay Bhushan, Room 208, 545 Technology Square, Cambridge, Mass 02139. (Tel. 617-864-6900 x1428).

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UCLA-NMC SIGMA-7 SEX Network address 1.

SEX treats network interaction as being half-duplex and line-at-a-time, and assumes local echo. Sex does not accept commands in lower case alphabetics (hit <BRK> on the MIT-DMCG IMLAC if you are not in upper case mode).

```
\SEX<CR>-ucla connection is: completed.\   (you typed "SEX<CR>" )
LOG ON*                    (SEX is requesting login)
ARPA<CR>                   (you login as ARPA)
***message waiting***              (if there is a message for you)
!                          (the SEX prompt character in MASTER)
S .MSG:C<CR>               (to read message, and to send messages)
002  MSG  STARTED          (Message if any will be typed out)
>                          (prompt character in MSG)
S HB<CR>                   (to send message to user HB)

MY MESSAGE<EOT><CR>        (message terminated with <EOT>
                            or <Control-D>)
>
L ARPA<CR>                 (to list messages for user ARPA)
  .....                    (messages are listed)

>
D ARPA<CR>                 (to delete messages for user ARPA)
>
X<CR>                      (attention getting character,back to MASTER)
!                          (MASTER prompts)
S .WHO:C<CR>               (to see who is using the system)
002        WHO             STARTED
USER PORT
  ......                   (list follows)

X<CR>                      (to get back to MASTER)
!                          (MASTER prompts)
S* .TIMMY:C<CR>            (starts question-answering program)
002        TIMMY           STARTED
MY NAME IS TIMMY THE TERMINAL, WHAT'S YOURS?
  ......                   (you converse now)

GOODBYE<CR>                (to exit from TIMMY)
!                          (normal exit, MASTER will prompt)
S .TELNET:C<CR>            (to start user TELNET)

002        TELNET          STARTED
VERSION=25 OCTOBER 71
ESCAPE CHARACTER MUST PREFIX COMMANDS
? DISPLAYS COMMANDS
ENTER ESCAPE CHARACTER
>                          (TELNET prompt character)
;<CR>                      (you enter escape character, ';' in this case)
```

```
;ODMCG<CR>                (to connect to our DMCG PDP-10)
>
CONNECTED TO 070
   ......                 (you can now log into foreign host)

;CL<CR>                   (to close connections)
>
;X<CR>                    (to exit TELNET and back to MASTER)
BYE
!
S* .ABACUS<CR>            (starts self-explanatory calculator program)
  ......                  (instructions on use follow)

X<CR>                     (to get back to MASTER)
!
S .EDIT:C<CR>             (to start the editor)
002       EDIT            STARTED
WORK NAME?
<CR>                      (EDIT will use default)
>                         (prompt in EDIT)
1<CR>                     (to insert a file)
      CALL IASSGN('OC ',1)<CR>          (6 spaces, not a <HT>)
      WRITE(1,101)<CR>
 101  FORMAT('HELLO')<CR>
      END<CR>
<EOT><CR>                 (you type <EOT> or <Control-D> to get EDIT)
>
W<CR>                     (to write file)
TEST<CR>                  (you name it TEST)
>
X<CR>                     (to get back to MASTER)
!
S .FORT(TEST)<CR>         (to compile program)
002 FORTRAN  STARTED
!
002 FORTRAN  DONE
!
S .FDLD(TEST)<CR>         (will create the file TEST/E which you can run)
002  FDLD  STARTED
!
S TEST/E:C<CR>            (to run program)
002 TEST/E  STARTED
HELLO                     (the program works)
STOP
NORMAL EXIT
!
V<CR>                     (to view your root directory)
  .......                 (list follows)
!
X<CR>                     (to logout of SEX)
\DISCONNECT<CR>\          (escape to NETWRK and disconnect)
```

UCLA-CCN IBM 360/91 Network address 65.

CCN also offers a Remote Job Service. Their TELNET service is currently by arrangement only. We have not used it yet.

\ccn<CR>-ucla connection is: completed.\ (success)

UCLA CCN 360/91 TELNET
TELNET SERVICE AVAILABLE BY ARRANGEMENT ONLY
FOR INFORMATION CALL R.T. BRADEN, STEVE WOLFE, OR STU FEIGIN AT
(213) 825-7518 OR 825-7424

\disconnect<CR>\ (you escape to NETWRK and disconnect)

SRI (NIC) PDP-10 TENEX Network address 2.

NIC is best used in character-at-a-time mode with remote echo. After connection is completed you should change your mode to full-duplex at NIC (their default is half-duplex). NIC can also be used in half-duplex (with local echo), line-at-a-time mode, but use is not as convenient. Although NIC commands are similar to BBN TENEX, the NLS subsystem is different.

\nic<CR>connection is: completed.\ (to connect to NIC)

NETWORK USERS SHOULD LOGIN AS ONE OF THE FOLLOWING USERS:
MIT-MULTICS MIT-DMCG MITRE UCLA-CCN UTAH ILLINOIS RAND
BBN-TENEX BBN-IMP AMES-ILLIAC UCLA-7

ARC TENEX 1.26.01.04 DATE ARC EXEC 1.32 (NIC herald)
@FULL<CR> (you request full-duplex mode, "FULL" will not print)

@LOGIN MIT-DMCG<CR> (@ is NIC prompt;you login)
(password) ARPA<CR> (password is not printed)
(account #) 3<CR>
JOB nnn AT CONSOLE mmm

@SYSTAT<CR> (to see who is using system)
..... (list follows)

@? (will display commands)
..... (list follows)

link<ESC> (to) <ESC> (user) MELVIN (links your console to MELVIN's)

;hello are you there?<CR> (prefix comments with ";", whatever is typed at either console appears on both consoles)

@break (links)<CR> (this disconnects any "links" to other NIC users)

@DIR<CR> (list files in user's directory)
<MIT-DMCG>
..... (list follows)

@NLS<CR> (to use NIC text editing system TNLS)
ID: <your initials><EOT> (terminate with <EOT> or <Control-D>)
DEVICE: TI-TERMINAL (type "T" if you are in FULLDUPLEX or type "N" if you are in HALFDUPLEX)

(NLS will load or create your initial file)

("*" is NLS prompt, <EOT> or <Control-D> is default command accept character, <CAN> or <Control-X> kills the current line, and <SOH> or <Control-A> serves the rubout or character delete function)

```
*execute journal                    (to access journal system)
submit message                      (to send a message using the NIC Journal)
This is a test message.<EOT>
number <EOT> yyyy                   (typing <EOT>, the default command accept
                                     accept causes system to assign a unique
                                     catalogue number yyyy to the message)

 title: Test Message<EOT>           (you enter a title)

 distribution id1 id2 <EOT>         (id1 and id2 are identifications of
                                     persons known to system)

 status <EOT>                       (system reiterates information entered
                                     by user)
 go: <EOT>                          (begins journal process, assumes you
                                     as author)

 JOURNAL SYSTEM IN PROGRESS
<ETX>                               (<ETX> or <Control-C> is the attention
                                     getting character to get EXEC)
@CONTINUE<CR>                       (to resume NLS)
<CAN>                               (<CAN> or <Control-X> to get NLS prompt)

*print branch 0,1<EOT>                        (to print some files)
 ......                             (list follows)

*execute quit<EOT>                  (to quit NLS and return to EXEC)
@LOGOUT<CR>          (to logout from NIC)
Job  nnn logged out at ....

\disconnect<CR>\     (escape to NETWRK and disconnect)
```

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SRI (AI) PDP-10 TENEX Network address 66.

(The SRI (AI) computer uses the TENEX operating system, and is similar to the system at BBN. We have not been able to log into SRI (AI) system as they are currently not functioning as a server. Hence no scenario is provided. This section will be updated as soon as SRI (AI) is able to accept login over the ARPANET.)

UCSB IBM 360/75 OLS Network address 3.

UCSB OLS normally treats network interaction as half duplex, and assumes local echo. Both character-at-a-time and line-at-a-time modes can be used. The user can obtain remote echo by going full-duplex. Normally upper case alphabetics are mapped into alphabetics and lower case alphabetics into Greek characters.(Hit <BRK> on MIT-DMCG IMLAC if you are not in upper case mode). The following scenario assumes ,line-at-a-time mode with local echo.

```
\UCSB<CR>connection is: completed.\      (connects to UCSB)
UCSB ON-LINE SYSTEM
ENTER USER NUMBER 196<CR>          (you enter "196<CR>")
196                                (this is echoed)
ID NUMBER= 57372<CR>               (you type "57372<CR>")
USER NAME= ARPA<CR>                (you type "ARPA<CR>")
ARPA
JOB NAME= SITE-NAME<CR>            (enter appropriate job name )
SITE-NAME                          (this is echoed)
AUTOSAVE CODE = 4
LOAD MOLSF<CR>                     (loads  MOLSF, the mathematical
                                    subsystem)

MOLSF
FILE LOADED;1 ;REAL ;LOAD 5;STOR X;DISP X <CR>
                                   (the default prefix is ";". Every key
                                    must be preceded by the prefix and
                                    followed by a space.  LOG, STOR, etc.,
                                    are all keys on the UCSB system)
5.          +00;LOG X;STOR Y;DISP Y <CR>  (more calculations)
1.60944     +00        (the MOLSF subsystem is actually very powerful,
                        refer to UCSB OLS Manual for details)
;SYST <CR>                         (to go back to SYS from MOLSF)
WORK AREAS UPDATED
;LOAD NET<CR>                      (to use UCSB Network subsystem)
NET                                (this is echoed)
FILE LOADED ;2 ;LOG 70<CR>         (to use UCSB User TELNET)
FOREIGN SITE NO. = 70;<CR>         (70 is DMCG)
FOREIGN SOCKET NO. = 1;<CR>        (logger socket)
1
  .......                          (you are now connected)
;2 ;ID <CR>                        (to display host status)

KNOWN HOSTS ARE --
  .......                          (list follows)

;RES<CR>                           (to reset connections)

RESET COMPLETED
;1 ;DEL <CR>                       (to purge sockets)
```

```
SOCKETS PURGED

 HELP <CR> (lists all non-standard keys)
  .........                    (list follows)

;STATE <CR>                    (will list NETOLS states)

PREFIX IS ;
HALFDUPLEX
SHIFT IS OFF

;PREFIX !<CR>                  (will change prefix to "!")
!SHIFT !STATE <CR>             (to get both upper and lower case
                                alphabetics. This may be required
                                for example, to piggy back to
                                Multics. ";lfd" will send <LF>.)

PREFIX IS !
HALF DUPLEX
SHIFT IS ON

!PREFIX ;<CR>                  (prefix is again ";")
;UNSHIFT <CR>                  (to turn SHIFT "OFF")
;SHIFT ON<CR>                  (to get both upper and lower case.
                                This may be required, for example
                                to "piggy back" to Multics.  ";LFD"
                                will send <LF>.)
;SYST <CR>                     (to get back to SYS level again)
WORK AREAS UPDATED
;DOWN                          (DOWN will logout but not disconnect)
WORK AREAS PURGED              (you are logged out but connected)
;SYS <CR>                      (to login to UCSB again)

ENTER USER NUMBER
;LOGOUT                        (will logout and disconnect)
\DISCONNECT<CR>\               (escape to NETWRK and disconnect,
                                if not already disconnected by UCSB)
```

UTAH PDP-10 TENEX Network address 4.

(The Utah computer uses the TENEX Operating System, and is similar to the system at BBN. The password for Network users will be:

THISISANINTENTIONALLYLONGPASSWORD

As yet, their logger is unavailable, and we have been unable to login on their system; hence, no scenario script is provided.)

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BBN PDP-10 (A) TENEX Network address 69

TENEX is best used in character-at-a-time mode with remote echo. However, as TENEX treats network users as half-duplex by default, you should either change your mode to FULLDUPLEX, or escape into NETWRK and request local echo. At command level TENEX does not distinguish between upper and lower case alphabetics. The programs "DOCTOR" and "LIFE" may not be available to you in the BBN PDP-10(A) system, but can still be used from the BBN PDP-10(B) system.

```
\TENEX<CR>settings loaded. and connection is: completed.\
                                  (to connect to BBNA TENEX)
BBN-TENEX 1.26.0  6-AUG-71  EXEC 1.32.2
@FULL<CR>                         (you request full-duplex mode)

@LOGIN TENAR<CR>                  (you login)
 (PASSWORD)
ARPA<CR>                          (this will not be printed)
 (ACCOUNT) MIT-AKB<CR>            (appropriate account)

  JOB 3 ON TTY61 10-OCT-71 3:30
 YOU HAVE A MESSAGE               (if a message is waiting)

@?                                (@ is TENEX prompt character;
                                   "?" will list TENEX commands)
COMMANDS ARE:
  ........                        (list follows)

@TYPE MESSAGE.TXT<CR>             (to read your message)
; <TENAR> MESSAGE.TXT;1
  ..........                      (message follows)

@SYSTAT<CR>                       (to see who is using system)
  ........                        (list follows)

LINK<ESC> (to) <ESC> (user) TOMLINSON   (will link your console
                                         to TOMLINSON's)
;HELLO THERE?<CR>                 (prefix comments with ";", whatever
                                   is typed at either console appears on
                                  both consoles)

@BREAK (links)<CR>                (this disconnects any "links" to
                                   TENEX users)

@LIFE<CR>                         (to play game of life)
DO YOU WISH TO SEE AN EXPLANATION? YES<CR>
  .........                       (explanation follows)

<ETX>                             (<ETX> or <Control-C> is the attention
                                   getting character to get EXEC)
```

@DOCTOR <CR>	(psychiatrist service--self explanatory)
.....	(you now converse with DOCTOR)
*GOODBYE.	(normal exit, * is prompt from DOCTOR)
.....	(the Doctor's charges, etc.)
@DIR <name><CR>	(to list the directory called <name>; try "DIR SYSTEM".)
.....	(listing follows)
@TYPE <name><CR>	(to print the file called <name>)
.....	(list follows)
@TTYTST<CR>	(to test teletype communications)
.....	(test data follows)
<DEL>	(<DEL> or <rubout> will end tests prematurely)
<ETX>	(<ETX> Or <Control-C> will get you back to EXEC)
@TELNET<CR>	(to use BBN User TELNET)
TELNET 30-AUG-71 RST	
VERBOSE? Y<CR>	(this will instruct you to proceed)
.....	(instructions on use follow)
HOST: 106<CR>	(to connect to DMCG, i.e., octal 106)
.....	(you are connected to DMCG)
<ETX>	(to get back to EXEC)
@LOGOUT<CR>	(to logout of TENEX)
\DISCONNECT<CR> \	(escape to NETWRK and disconnect)

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BBN PDP-10 (B) TENEX Network address 133.

The BBN PDP-10(B) is an experimental TENEX system similar to the BBN PDP-10(A) TENEX system (network address 69.). Because of the similarities of the two TENEX systems, no scenario is given here. Please refer to the BBN PDP-10(A) system (page 12) for the scenario. The account number to be used for the system is "1" instead of the "site name" used in the BBN PDP-10(A) system.

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MIT H645 MULTICS Network address 6.

Multics interacts line-at-a-time and assumes local echo. Multics require both upper and lower case alphabetics. Commands are in lower case alphabetics.

```
\mult<CR>ics connection is: completed.\  (you type "mult<CR>")
Multics 15.20; MIT, Cambridge, Mass.
Load = 39.0 out of 41.0  units; users = 38
enter Name CNet<CR>              (log in by your last name in this form)
Anonymous user Name CNet logged in: 09/23/71  1340.8 edt Thu
                    from terminal "NET"
(Multics will now type the message of the day)
r 1405  .304  10+59              (This is the ready message printed at
                                  the end of processing of every
                                  command line of the form:
                                  time of day,cpu time for last command,
                                  pre-paged segments+page faults)
hef#lp pl1<CR>                   ("help pl1" prints help file for pl1;
                                  "#" deletes the previous character,
                                  "@" deletes current line.)
(12 lines follow)
  .....                          (help file is printed out)

          (Other useful help files are:
           news--recent system news
           crashes--info on recent crashes
           command name--gives info on particular command)

r 1406  1.653  6+59               (the Multics ready message)

who<CR>                          (gives list of users currently
                                  on system)
Multics 15.20, load 42.0/54.0; 41 users
Absentee users = 0/1
  ......                         (list of users follows)

r 1407  .305  5+7

'Please help me on-line<CR>      (statements prefixed with an
                                  apostrophe will be sent to network
                                  consultant or to user logged in the
                                  CompNet project. This will happen only
                                  if you are logged in CNet project.)

list<CR>                         (lists segments in current working dir)
Segments = 2, Records = 1
  ......                         (list of files follows)

r 1408  .206  4+8
```

```
ls -p >udd>message *.info<CR>  (lists all help files)

Segments= 177, Records= 223.

  .......                      (long list of info files follows)
 synch                         (to interrupt this type-out you
                                "QUIT"by sending the NCP interrupt)
QUIT
r 1409  3.200  4+78

mail * Vezza CompNet<CR>       (send mail to Vezza CompNet, mail is
Input                           terminated by line of just a period)
This is the sample mail that we are sending<CR>
this is the last line.<CR>
.<CR>                          (this will send the mail)
r 1410  1.905  12+114

mail<CR>                       (see if anyone has sent us mail.
No mail now.                    Reads mail sent to anonymous CNet.)
r 1411  .450  13+51

edm test.pl1<CR>               (call an editor to create pl1 program)
Segment not found.             (as segment does not exist, edm puts
Input.                          you in input mode.)
test:procedure;<CR>
put edit ("hello") (a(5));<CR>
put skip;<CR>
end test;<CR>
.<CR>                          (this will get you into edit mode)
Edit.                          (you can edit if you made mistakes)
w<CR>                          (to write the file)
q<CR>                          (to quit from edm)
r 1414  3.653  74+114

print test.pl1<CR>             (print the source file we just made)
pl1 test<CR>                   (compile that pl1 program)
PL/I
r 1417  5.918  27+485

test<CR>                       (run the program we just compiled)
hello                          (the program works)
r 1419  2.315  6+123

logout<CR>                     (We are done so we log out.)

Name CNet logged out 09/23/71  1420.1 edt Thu
CPU usage 45 sec
hangup
\?CONNECTIONS ABORTED?\        (Multics disconnects you)
```

MIT PDP-10 (DMCG) ITS Network address 70.

ITS treats network interaction as being full-duplex and assumes local echo. Interaction is character-at-a-time, however user processes such as MONIT require a <CR> to be typed. No distinction is made at command level between upper and lower case alphabetics.

```
\its<CR>connection is: completed.\        (to connect to DMCG-ITS)
MIT Project MAC DMCG PDP-10
Telnet Server in operation.
Please login with host no. and initials (e.g.,"login 70rmm")
MONIT.49                (Message of the day will follow)
;                       (MONIT prompts with ";")
login 70akb<CR>         (you login with the form asked)
;?<CR>                  (will list MONIT commands)
  .......               (list follows)

;listf tty<CR>          (to display status of users and jobs)
  ........              (list follows)

;listf dsk:.info.;<CR>          (to list files on disk for
                                 user name ".info.". Note that
                                 device name is followed by ":",
                                 and user name by ";".)
  ......                        (list follows)

;print dsk:.info.;info info<CR>          (will print file "info info")
  ......                                 (list follows)
;peek<CR>               (to display status of time-sharing monitor)
  .......              (display follows)

?<CR>                  (lists PEEK's commands)
Q                      (exit from PEEK, upper case Q)
<SUB>                  (<SUB> or <Control-Z> is the attention
                        getting character. It causes control
                        to move one level up a job tree.)
;TTYTST<CR>            (to test communications, will spit out test data)
  .......              (test data follows)

<SUB>                  (<SUB> or <Control-Z> to get attention)
;DIRECT<CR>            (to use a directory program for MIT-DMCG personnel)
DRCTY .52
TYPE ? FOR HELP
> IS THE PROMPT CHARACTER.
>?                     (to obtain help, self explanatory)
  .......              (explanation follows)
>*                     (normal exit from program)
:KILL
;NETWRK<CR>            (to use network,i.e.,ARPANET via user TELNET)
  .......              (NETWRK herald, and help message)
```

```
\?<CR>                  ("\" is NETWRK escape and prompt, ?<CR> gets help)
  .......               (help info for you)
\hosts<CR>              (will print list of acceptable host names)
\<host name><CR>        (to connect to a host, e.g.,SEX, MIC, UCSB, etc.)
\quit<CR>               (this will get you back to MONIT)
  ..........            (NETWRK flushed, etc.)
MONIT.49
;t<CR>                  (to get TECO, the text editor)
 TECO .175
1 TITLE SIMPLE TEST<CR>         (we will create a MIDAS program)
;A SIMPLE TEST PROGRAM<CR>      (A comment follows ";" in MIDAS)
RELOCATABLE<CR>
.GLOBAL TYO,TYOB,LINACR,OPEN,CLOSE,IOT,A,B,C,P,D,ARGP<CR>
A==1<CR>
B==2<CR>
C==3<CR>
D==4<CR>
P==17<CR>
ARGP==16<CR>
PDLNTH==20<CR>
PDL:BLOCK PDLNTH<CR>
FIRST:<HT>MOVE P,[-PDLNTH,,PDL]<CR>
<HT>        MOVEI A,[ASCIZ/This is a test/]<CR>
<HT>        PUSHJ P,LINACR<CR>
<HT>        .VALUE [ASCIZ/:KILL/]<CR>
<HT>        END FIRST<CR>
<ESC><ESC>              (<ESC> or <ALT> will end input)
EIEE DSK:NETWRK; SIMPLE TEST<ESC><ESC>  (to write program on disk)
<BS><ESC><ESC>                  (<BS> or <Control-H> to exit)
;SM<CR>                 (to assemle program using small MIDAS)
MIDAS .39
DSK:NETWRK;SIMPLE TEST<CR>
 .......                (program assembles and creates a file
                         with name SIMPLE BIN)
;D<CR>                  (to use DDT,the debugging tool)
ITS .747. DDT .1334
STINK<VT>!              (to get loader, <VT> is <Control-K>)
STINK .T60
J SIMPLE<ESC><ESC>              (we call the job SIMPLE)
MDSK:NETWRK;SIMPLE BIN<ESC>L<ESC><ESC>
MCOM:LINOUT BIN<ESC>L<ESC><ESC>
MCOM:TSTTY BIN<ESC>L<ESC><ESC>
MCOM:CHAN BIN<ESC><ESC>L<ESC><ESC>
TD<ESC><ESC>            (we go back to DDT)
$G                      (to run the program)
This is a test          (program works!!!)
:KILL
<SUB>                   (<SUB> or <Control-Z> to get MONIT)
;LOGOUT<CR>             (logs you out, but leaves you connected)
ITS 795 Console 23 Free
\disconnect<CR>\        (escape to NETWRK and disconnect)
```

MIT PDP-10(AI) ITS Network address 134.

(The MIT PDP-10(AI) system uses the ITS operating system and is similar to the MIT PDP-10(DMCG) system. At present the host is not connected to the ARPANET.)

RAND 360/65 MVT OPERATING SYSTEM Network address 7.

(We have not been able to log into RAND, as they are currently intending to be users only. Hence, no scenario script is provided. This section will be updated as soon as RAND can accept our login over the ARPANET, and provide service on a regular basis.)

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RAND PDP-10 TENEX Network address 71.

(Rand PDP-10 is currently not functioning over the ARPANET. Hence no scenario is provided. This section will be updated as soon as the host is providing service.)

SDC IBM 360/75 Network address 8.

(We have not been able to log into SDC, as their logger is not available. Hence no scenario script is provided. This section will be updated as soon as SDC can accept login over the ARPANET)

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HARVARD PDP-10 DEC 10/50 MONITOR Network address 9.

Harvard system treats network interaction as half-duplex, character-at-a-time, and assumes local echo. The prompt character is ".", and the escape character is <Control-C>. No lower case text is accepted (hit the <BRK> key on the IMLAC if you are not in upper case mode).

\HARVARD<CR>' connection is: completed.\ (you type "HARVARD<CR>")
JOB N Harvard 4S72BU.40
TTYMM

#62,50 (you type "62,50")
RLS (you type " RLS" which is not printed)

(the message of the day is now printed out)

.SY<CR> (to see who is using the system)
..... (list follows

.IMP (to use Harvard's user TELNET)
*ICP 106 (to connect to MIT-DMCG, i.e., octal 106)
(* is the prompt character in TELNET)

IMPn CONNECTED TO MIT(1)
..... (you can now loginto MIT-DMCG system)

<US> (you type <US> or <control-_>, octal 037 to escape to the Harvard system)

BACK TO HARVARD JOB nn
.IMP (to use Harvard TELNET again)
*CLOSE IMPn (this will close connections)

*<ETX> (you type <Control-C> or <ETX>, octal 003 to get back to top level)

.R TECO <CR> (you are now calling the editor TECO)

I <TAB> TYPE 100 <CR> (is the editor prompt character)

100 <TAB> FORMAT(' HELLO THERE.') <CR>

<TAB> END <CR>

$$$$ <CR> (you type <ESC> or <ALT> which is echoed as "$")

*EWDSK:TEST.FOR$$$$ <CR>

*PWEF$$$$ <CR>	(file it on disk with the name TEST.FOR)
*<ETX>	(<ETX> or <Control-C> to exit to top level)
.EXECUTE TEST.FOR <CR>	(this compiles, runs and loads your program
HELLO THERE.	(the program works)
.KJ <CR>	(to kill job and logout)
CONFIRM: K	(this will log you out)
(appropriate logout message)	
\DISCONNECT<CR>\	(you escape to NETWRK and disconnect)

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LINCOLN LABS IBM 360/67 CP-CMS Network address 12

Lincoln CP-67 interacts line-at-a-time and assumes local echo. No distinction is made between upper and lower case alphabetics at command and service level.

```
\11<CR>-67 connection is: completed.\     (you type "11<CR>")
LINCOLN LABORATORY CP/67 ONLINE
login net<CR>
ENTER PASSWORD:
arpa<CR>                                  (this will not print)
SYSTEM FULL, YOU ARE  8 IN LINE
READY AT 16:18:02 ON 10/01/71
how<CR>                                   (find out how long before you can run)
  30 MINUTES AT MOST
q users<CR>                               (find number of users)
  48 USERS  37 RUNNING   2 PERMITTED   1 REQUESTS   8 WAITING   0 INLOG
q names<CR>                               (find names of others logged in but
                                           not running)
 NCP      MONIT     LLMPS     RER       XLES      POPE      VELZ
NET

q user names<CR>                          (to find names of every one logged in)

  ......                                  (list follows)

req<CR>                                   (you can type this command if you
                                           want an immediate, 5 minute only,
                                           shot at the computer, use sparingly)
YOU MAY NOW RUN                           (the time has come)
i cms<CR>                                 (get into cms)
CMS..VERSION 37
WELCOME TO THE NET ACCOUNT
IF YOU PANIC, TYPE THE FOLLOWIN
CP M ARPA HELP
OR
CP M WINETT HELP

CMS
listf<CR>                                 (list the file in our disk area)
Q         EXEC      P1                    1         11/05/70 10:10
. . .
T=0.08/0.28 16:35:54                      (the ready message)

listf * * s<CR>                           (lists all the system files)

  .......                                 (list follows)

edit test fortran<CR>                     (this calls the editor to write a
                                           fortran program, this is a line
                                           oriented, edm type editor.)
```

```
NEW FILE.
INPUT:
<TAB>      WRITE (6,100)<CR>
100<TAB>  FORMAT (' HELLO!')<CR>
<TAB>      END
<CR>                                (null line gets you to EDIT)
EDIT:
FILE<CR>                            (you file the program)
T=0.07/0.37  16:40:56

fortran test<CR>                    (compile the program "test fortran")

T=0.19/0.52 16:41:32

$ test<CR>                          (load and begin execution of the program)
EXECUTION BEGINS...
 HELLO!                             (the program runs)
T=0.42/1.20 16:43:13

telnet 46<CR>                       (to connect to host with hexadecimal
                                     address of 46, i.e., DMCG)
ENTER SYSTEM ESCAPE CHARACTER..
/<CR>                               (you enter "/" as the escape)
/?<CR>                              (this will give you more information)

logout<CR>                          (to log out of CMS)
T=0.48/1.85 16:44:36

CP ENTERED

logout<CR>                          (logs the user out and disconnects him)
CONNECT= 00:02:52  VIRTCPU=  000:00.48  TOTCPU=  000:01.86
LOGOUT AT 16:45:19 ON 10/01/71
\?connections aborted?\
```

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LINCOLN LABS TX-2 Network address 74.

(The status of Lincoln TX-2 is uncertain. No scenario is provided as TX-2 is currently not functioning as server. This section will be updated as soon as TX-2 is able to accept login over the ARPANET.)

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STANFORD (AI) PDP-10 Network address 11.

(The Stanford PDP-10 is currently not functioning over the ARPANET. Hence no scenario is provided. This section will be updated as soon as the host is providing service.)

ILLINOIS PDP-11 Network address 12.

(We have not been able to connect to Illinois as they are currently intended to be user only system. Hence no scenario is provided. This section will be updated as soon as Illinois is able to accept login over the ARPANET.)

CASE PDP-10 DEC 10/50 MONITOR Network address 13.

(The Case system uses the DEC 10/50 time-sharing monitor, and is identical to the Harvard system. No scenario script is provided as Case is not providing service over the ARPANET at the present time. This section will be updated as soon as Case will accept login over the ARPANET.)

CARNEGIE PDP-10 DEC 10/50 MONITOR Network address 14.

(The Carnegie system uses the DEC 10/50 time-sharing monitor, and is identical to the Harvard system. No scenario script is provided as Carnegie is not providing service over the ARPANET at the present time. This section will be updated as soon as Carnegie will accept login over the ARPANET.)

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PAOLI B6500 ILLIAC Network address 15.

(The status of the Paoli system is uncertain. We have not been able to communicate via the ARPANET. Hence no scenario script is provided. This section will be updated as soon as Paoli is able to accept login over the ARPANET.)