Network Working Group
Request for Comments: 254
NIC: 7695

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MIT Project MAC
October 1971

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 this 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 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.

ACKNOWLEDGMENTS: The author wishes to acknowledge the help of Bob Bressler, Rich Guida, Bob Metcalfe, Jim Michener, and Neal Ryan in preparing this Scenarios booklet.

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. 817-864-6900 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
  .....                         (message 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 1971
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                  STARTED
WORK NAME?
_<CR>_                               (EDIT will use default)
>                                    (prompt in EDIT)
_I<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)
_\DISCONNECTED<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

\disconnected<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
                                 is typed at either console appears on
                                 both console)
@_break_(links)_<CR>_           (this disconnects any "links" to
                                 other NIC users)
@_DIR<CR>_                        (list files in eser'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: _T_I-TERMINAL           (type "T" if you are in FULL DUPLEX
                                 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)

*_e_xecute _j_ournal            (to access journal system)
submit _m_essage                (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)

*_p_rint _b_ranch 0.1<EOT>      (to print some files)
  .....                         (list follows)

*_e_xecute _q_uit<EOT>          (to quit NLS and return to EXEC)
@_LOGOUT<CR>_                   (to logout from NIC)
```

```
Job nnn logged out at ....

_\disconnected<CR>\_          (escape to NETWRK and disconnect)

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.)

[Most of page 9 was illegible: RFC Editor]

```
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)

SOCKET 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.)

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   EXE 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 TTYG1 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_                           (to see who is using the 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)
```

```
@_TTYIST<CR>_                       (to test teletype communications)
 .....                              (test data follows)

_<DEL>_                             (<DEL>  or <rubout> will end tests
                                     prematurely)
_<ETX>_                             (<EXT> 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)
```

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 (page12) 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.

MIT H 645 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   .034   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#1p p11<CR>_                ("help p11" prints help file for p11;
                                  "#" deleted the previous character,
                                  "@" deleted 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   .035   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>_                      (list segments in current working dir)
Segments = 2, Records = 1
 .....                          (list of files follows)

r 1408   .206   4+8

_ls  -p >udd>message *.info<CR>_ (list 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
                                  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                           Reads mail sent to anonymous CNet.)
r 1411   .450

_edm test.p11<CR>_               (call an editor to create p11 program)
Segments 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)
_g<CR>_                          (to quit from edm)
r 1414   3.653   74+114

_print test.p11<CR>_             (print the source file we just made)
_p11 test<CR>_                   (compile that p11 program)
PL/1
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>_                               (list 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, NIC, UCSB, etc)
\_quit<CR>_                           (this will get you back to MONIT)
 .....                                 (NETWRK flushed, etc.)
;_t<CR>_                               (to get TECO, the text editor)
 TECO.175
_| 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, LINARCR<CR>_
_<HT>     .VALUE [ASCIZ/:KILL/]<CR>_
_<HT>     END FIRST<CR>_
_<ESC><ESC>                            (<ESC> or <ALT> will end input)
_FILE 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>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 out login over the ARPANET, and provide service on a regular basis.)

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 address8.

(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)

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

#_62,5_                                    (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)

*_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 login to
                                            MIT-DMCG system)

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

BACK TO HARVARD JOB nn
*_CLOSE IMPn_                              (this will close connections)

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

                                            editor TECO)

*_| <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)
```

```
                                          your program)
HELLO THERE.                             (the program works)

CONFIRM:  _K_                             (this will log you out)

                                          (appropriate logout message)

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

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
_g users<CR>_                            (find number of users)
  48 USERS 37 RUNNING  2 PERMITTED  1 REQUESTS  8 WAITING 0 INLOG
_g names<CR>_                            (find names of others logged
                                          in but not running)
NCP     MONIT     LLMPS     RER     XLES     POPE     VELZ
NET

_g 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 THENET ACCOUNT
```

```
IF YOU PANIC, TYPE THE FOLLOWING
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>_                        (list 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?\
```

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.)

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.)

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.)

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