MEJ 5-JUN-73 08:32 17034

Request for Catalog Proof Program Runs on Files

TO: BAH INFO TO: JBN MDK 1

FROM: MEJ 2

Proof copies run on the Catalog Proof Programs have been, and are being, requested for files in <NIC-WORK> as follows: 3

MEJ-CITNICOLDMAR Requested 8 May and 18 May; not received as of 5 June 4

MEJ-CITNONNICMAR Requested 8 May and 18 May; not received as of 5 June 5

MEJ-CITNEWNICMAY Requested 18 May; not received as of 5 June 6

MEJ-CIT2NEWNICMAY 7

MEJ-CITNICNOTESMAY 8

MEJ-CITNONICMAY 9

MEJ-CITNICOLDMAY 10

17034 Distribution 1

Beauregard A. Hardeman, Jeanne B. North, Michael D. Kudlick, 1a

JCN 5-JUN-73 07:39 17035

test message

If you get this, we're in. If not, we're out. Jim 1

17035 Distribution 1

Robert N. Lieberman, 1a

JBL 5-JUN-73 08:08 17036

Re: TIPCOPY

I have looked at the TIPCOPY draft in (help,news,1) and I guess it looks OK. I believe there is some slightly more complete documentation in <SOURCES>TIPCOPY.DOC at BBN (it may be on <SYSTEM>) that you may wish to look at. Plans exist to make TIPCOPY handle lowercase input and fix it up a bit. I am presently maintaining the program (LEVIN@BBN).

Joel

1

17036 Distribution
Jean Iseli,

1
1a

JBN 5-JUN-73 08:13 17037

Request for Info on Availability of ATS

Dave Lillie of DOCB, Boulder, (303) 499-1000 ext 3118, asks if ATS service is available through the Net. Any Site making this available please contact Dave. Please also tell Jake Feinler for the Resource Notebook. -- Jeanne North.

1

17037 Distribution 1

A. Wayne Hathaway, Joel M. Winett, Arie Shoshani, Robert T. Braden, Ronald M. Stoughton, Elizabeth J. (Jake) Feinler, David Lillie, Michael D. Kudlick, Jeanne B. North, 1a

JBN 5-JUN-73 08:19 17038

Anyone Implemented a Dial-Out from a TIP?

Alex -- Dave Lillie (DL2), of DOCB, Boulder (303) 499-1000 ext 3118, would like to know if anyone has implemented a dial-out from a TIP? Would you give us and him an answer? -- Jeanne 1

17038 Distribution 1

Alex A. McKenzie, Michael D. Kudlick, Jeanne B. North, David Lillie, 1a

DVN 5-JUN-73 08:30 17040

Which Reduced Flip Charts are Obsolete;Small TNLS Class for UCLA

The Obsolete charts are: 1

LOG INTO NLS (no longer says good morning, no longer takes account #) 1a

NLS TENEX (no more cute greetings) 1b

SUBSTITUE (order of entering entities has canged) 1c

STATUS COMMANDS (execute status viewspces is now specified: viewspecs status) 1d

LOCATOR (More Documents have been added) 1e

Considering the course schedule, I doubt any of us could be be down in June. A two day course with one of us doing the second day sounds like a god idea. 2

We ship the COM files via the net to ISI which is quite close to DDSI, the printer. It's working pretty well. 3

17040 Distribution 1

Michael D. Kudlick, David H. Crocker, 1a

Citation Formats

Paul ... You forgot to mention the problem of "jump to link" in TNLS when the link is placed at the end of the second line of the citation. I think it should be coommented upon (and resolved) explicitly. Otherwise, I really like your suggested citation formats. ... Mike 1

17041 Distribution 1

Paul Rech, 1a

Reply to Kirk's [17012,] on Query

I am pleased to see Kirk's interest in the query system, (17012,). There are several problems with the specific syntax suggested, though the general appraoch seems to be identical to that toward which we seem to be moving. In particular, several "commands" present in the current system (Bring, Show duplication, etc.) seem to be unnecessary. Also, the lengthy message typed at entry is truly unnecessary. We are presently considering several additional commands, however. One would permit the creation of a file of all occurances of a particular entry type. 1

It is interesting to note that Kirk has independently come upon the major problem of programmers in our system: that of uniquely parsing commands into possibilities which may begin similarly. While noting the problem of differentiating between a DAE and an instance number (and coming up with a solution which is really not acceptable to me), he fails to note the conflicts which exist between a DAE and "$(words separated by a literal)" and "part of word followed by alt mode". 2

I shall be pleased to discuss the problems with Kirk in his efforts to learn more about programming. Before coming up with a proposed syntax, it pays, however, to know all the options one wishes to make available. Only then can we make the compromises which no doubt will be necessary (note the compromises in the NLS commands which are not, contrary to popular belief, totally arbitrary). 3

17042 Distribution 1

Kirk E. Kelley, Michael D. Kudlick, Elizabeth J. (Jake) Feinler, Nps
Np, Richard W. Watson, Charles H. Irby, 1a

KFB 5-JUN-73 11:24 17043

TIME CARD SIGNATURES

Your time cards are being posted for your signatures and vacation/sick leave only. Please don't fill in any project or overhead charges; I will do that for you. It is necessary, however, that everyone sign his own time card from now on and leave it on my desk. 1

17043 Distribution 1

Donald C. (Smokey) Wallace, Richard W. Watson, Don I. Andrews, 1a
Mark Alexander Beach, Judy D. Cooke, Marcia Lynn Keeney, Carol B. Guilbault, Susan R. Lee, Elizabeth K. Michael, Charles F. Dornbush, Elizabeth J. (Jake) Feinler, Augmentation Research Handbook, Kirk E. Kelley, N. Dean Meyer, Kay F. Byrd, James E. (Jim) White, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Ferg R. Ferguson, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Edwin K. Van De Riet, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor 1b

HGL 5-JUN-73 10:32 17044

Termicettes and DEX: Repair Request

A problem for operations.

Termicettes and DEX: Repair Request

DEX-1.5 (input only) has been operational for several weeks and DEX-2 is ready for limited use by guinea pigs who wish to give feedback on the commands. (Hope to have documentation ready this week.) However, I have learned from Kirk that the Termicettes have not worked in several months Kay says that the repairman has been uncooperative in the past. Could something be done about this? 1

17044 Distribution 1

Martin E. Hardy, Dirk H. Van Nouhuys, James C. Norton, Richard W. Watson, Douglas C. Engelbart, Kirk E. Kelley, 1a

CHI 5-JUN-73 10:47 17045

Journal Secondary Distribution

Dave, there seems to be some problem with secondary distribution.
See (Journal, 16961,). I tried to do secondary distribution of this
to you but it did not work. -- Charles. 1

17045 Distribution 1
J. D. Hopper, 1a

MLK 5-JUN-73 12:06 17047

Joshua Lederberg

Steve, Professor Edward Feigenbaum of Stanford University Heuristic Programming (Liaison and Principal Investigator) would like Joshua Lederberg (of biology fame) of the Genetics Dept. of Stanford School of Medicine to be added to list B (Network Associates) and to thus be on general distribution. Is this OK. You can let me know via sndmsg (keeney@sri-arc). Do acknowledge this message please. Marcia. 1

17047 Distribution 1

Steve D. Crocker, 1a

NWG/RFC# 523 AKB 5-JUN-73 13:00 17048
SURVEY is in Operation Again

The purpose of this message is to inform the network community that the survey program at MIT-DMCG computer system is in operation now. We are surveying hosts every 20 minutes instead of the earlier 15 minutes. It appears that some sites had problems with incomplete ICP's when survey first came up. The problem has definitely been fixed now. Please let me know (tel 617-253-1428 or 253-1449) if any site is being inconvenienced by the survey program. Upon written request I will be willing to not survey a particular server site. Upon oral or written request, I will add sites who wish to be surveyed but are not surveyed.

The sites currently being surveyed are (host number in decimal):
1,2,3,4,6,7,8,9,10,11,13,14,15,16,23,31,32,35,65,66,69,70,74,78,86,133,134,138, and 198. We issue an RFC to socket1 and now go through the complete ICP, ie establish telnet connections and then close them. The time for response is now the time to establish the telnet connections, so if your response time shows a larger number dont be alarmed (I think the new numbers are more meaningful and reflect the situation more accurately).

We are also providing a NETSTATUS service on socket 15. (decimal). So if you ICP to host 70. socket 15., you will get the following output:

```
mm,dd,yyyy,hh,mm
nnn,c,ttt
nnn,c,ttt
.......
-1
```

Where first item is month,day,year,hour,minute and then is a list of host numbers, code,response time in tenths of second. The list ends with a minus 1, and we close the connections right after sending data. (The service is designed so that both human users and programs can use the data). You can ofcourse log into dmcg and use our NETWRK subsystem which has commands for displaying the survey data in many formats (Ref. RFC 308, NIC 9259). We are also recording this data on the DATACOMPUTER (CCA). Your comments and suggestions will be appreciated.

Thank You

Abhay Bhushan
AKB@DMCG (NIC ident AKB)

17048 Distribution 1

Ronald M. Stoughton, A. D. [Buz) Owen, Robert L. Fink, Jaacov Meir, Jeanne B. North, Steve D. Crocker, Thomas F. Lawrence, John W. McConnell, James E. (Jim) White, A. Wayne Hathaway, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Joel M. Winett, Abhay K. Bhushan, Thomas N. Pyke, B. Michael Wilber, Edward A. Feigenbaum, Robert T. Braden, James M. Pepin, Barry D. Wessler, John T. Melvin, 1a

Lou C. Nelson, Jeffrey P. Golden, Richard B. Neely, Dan Odom, Ralph E. Gorin, Robert G. Merryman, P. Tveitane, Adrian V. Stokes, David L. Retz, Reg E. Martin, Gene Leichner, Gil Falk, Jean Iseli, Jed E. Donnelley, William Kantrowitz, Michael S. Wolfberg, Yeshiah S. Feinroth, James Hurt, Anthony C. Hearn, Arie Shoshani, Eric F. Harslem, Robert M. (Bob) Metcalfe, Bradley A. Reussow, E. R. (Dick) Reins, Daniel L. Kadunce, Samuel P. McCutchen, George N. Petregal, Michael B. Young, Michael A. Padlipsky, Schuyler Stevenson, L. Peter Deutsch, John Davidson, Thomas O'Sullivan, Sol F. Seroussi, Scott Bradner, Robert H. Thomas, John C. Thomas, Michael J. Romanelli 1b

MLK 5-JUN-73 12:51 17049

Packet Radio Notes

I had a request from Judy Otto at Network Analysis Corporation to have a list of active Packet Radio Notes issued as a PR note to the group. She said that several people at her place had asked for this. Just thought I'd let you know about this request. Marcia. 1

17049 Distribution 1
Robert E. Kahn, 1a

Where to find Infomation About the Utility

The utility proposal is [journal,14946,). For more information on te utility, see the title wrd index (nic,locator,2e2e,:xem) and look under the word utility.

1

17050 Distribution 1
David H. Crocker, 1a

JAKE 5-JUN-73 14:54 17051

USING Notes

Hi I have been hacking away at the meeting notes and should have a DRAFT online by Monday. Thought I would make it last Monday but due to various crises I didn't make it. I would like to give everyone a few days to make comments, etc. and then we can issue the final effort. That was a very good meeting thanks to you and Nancy; and it turns out we had quite a bit to say. Have set up the group ident USING if you want to use it. Will let everyone know when a version of the notes are online. Regards. JAKE 1

17051 Distribution 1
David H. Crocker, 1a

CHI 5-JUN-73 17:54 17052

Command Language Recommendations, updates 16717

This should serve as the basis of our next meeting. Pleas print with viewspecs mGIy.

Command Language Recommendations, updates 16717

NOTE: 1

This document represents the decisions reached by a combined Command Language / Novice-expert review groups meeting held the mornings of 29-May and 30-May. 1a

With the NLS Utility will cone a substantial increase in our NLS user community. These, in general, are users which we would like to please. Consequently, I herein propose modifications to the command language which I (chi) feel nake it simpler, more consistent and somewhat more complete (although, I think it has a way to go before we can call it complete). I have discussed most of these issues with the "novice user" and "command language" groups. I think these changes should be in the running system BEFORE we begin training these new users (say by nid JUNE) It is quite difficult to learn a command language which is changing while you are learning it 2

The following changes should be nade in the command language: 3

The command language should be made to consist of an editor and special purpose subsystems. The command language for each should consist of frequently used commands, which are recognized by their first letter (unless preceded by a space) and infrequently used, new, or experimental commands, which are preceded by a SPACE and which are recognized when the user types enough characters. There should be a consistent VERB-NOWN form to commands and verbs should be used in a consistent manner. 3a

This allows commands to be reasonably named and added without worrying about first letter conflicts while "protecting" frequently used commands -- significant problems currently. 3a1

This should apply to operand types also, of course, but may not be widely used at first. 3a2

In "novice" mode, a system supplied SPACE will preceed each command the user gives. 3a3

Subsystem names should be recognized when the user has typed enough characters for uniqueness. All subsystems should terminate with the "Quit" command, as should NLS. All subsystems should have Execute, Goto, and help commands. 3a4

The concept of Address Expression should be generalized for DNLS, TNLS, and DEX such that wherever a statement name or number is currently used, an appropriate ADDRESS EXPRESSION should be allowed (see Appendix C). 3b

For DNLS, a selection should be defined as 3b1

SEL = (BUG / OPTION DAE CA); 3b1a

Note that the use of markers in DNLS by holding the rightmost mouse button down and typing the marker name should be eliminated, since one will be able to type OPTION and an arbitrary DAE followed by a CA. 3b1a1

In TNLS a selection should be defined as 3b2

SEL = DAE CA; 3b2a

Note the syntactic conflict inherant in SEL / LIT alternatives in commands. This can be avoided by converting any such choice points in TNLS to LIT / OPTION SEL. 3b2a1

In DEX a selection is defined as 3b3

SEL = STAE CA; 3b3a

Where DAE (Dynamic Address Expression) is defined in Appendix C, and STAE (STatic file Address Expression) is defined in the DEX-II design document. 3b4

A Dynamic Address Expression should be consistent with existing links, the same DAE should work in TNLS and in DNLS, and the elements of the expression should be reasonably mnemonic. A DAE should be available in NLS wherever a statement number, SID, or statement name is now used (as in links, jumps, etc.). 3b5

The replacement of the statement name/number field by a DAE provides a powerful extention to the link syntax and will be compatible with extant links. 3b5a

Editing command changes 3c

Terminating any editing command with INSERT or REPEAT (what used to be called CDOT, for historical reasons) is shorthand for Command Accept (CA) followed by the INSERT or REPEAT commands, respectively. 3c1

The INSERT command allows one to quickly insert a new statement after the CM. 3c1a

The REPEAT command allows one to repeat the last used editing command, perhaps defaulting one of the operands to the Control Marker (CM) instead of asking the user to select it. 3c1b

The notion of operand-type defaulting in DNLS should be eliminated. 3c2

Substitute changes 3c3

For the new form of the substitute command, see Appendix B. 3c3a

An elipses capability should be made available in the substitute command. That is, text...text should be allowed for the specification of text to be replaced. This should result in instances of <text1 arbitrary-text text2> being replaced in the substitute. 3c3b

This is subject to the constraint that the <text1...text2> be in one statement, and that an occurance of text1 can only be paired with the first occurance of text2 following text1. 3c3b1

If text1 is null then assume String Front (SF); if text2 is null then assume String End (SE). 3c3b1a

If one wishes to actually substitute for a string of three periods (...), one must preceed each of the three periods by Literal Escape (LE). 3c3b2

Jump command changes 3d

SP command in TNLS will be replaced by Jump to. 3d1

The Jump commands should be made to be like the rest -- no state of its own. 3d2

Jump to Successor, Jump to Predecessor should require one to type 'J 'S 'J 'P just as Insert Character, Insert Word requires one to type 'I 'C 'I 'W. 3d2a

The sub commands of Jump to End should be deleted. 3d3

The Jump File Link command should be removed since Jump to Link is equivalent. 3d4

The order of operand selection in Move, Copy, Append, Assimilate, and Substitute should be changed. Please see the command syntax in Appendix B. Basically, the move/copy/assimilate should be of the form "Move/Copy/Assimilate This to There", rather than its current form "Move/Copy/Assimilate to There, This". Append should be "Append this to that", instead of "Append to that, this". 3e

Note that this could be considered as being inconsistent with the insert command, although this inconsistency might prove minor and unimportant. 3e1

A more important problem is that the first operand selection in a command (given our current approach for switching commands) must allow us to differentiate between a keyword and a LIT. Consequently, we would not be able to allow move/copy/append to have LIT as a possible first operand. 3e2

A new control character "OPTION" should be available for specifying optional arguments to commands. 3f

In addition, I propose that there be a FILTER command for content filters, a RESEQUENCE SID's command, and a COMPACT FILE command (doing away with Output File). Please refer to Appendix B for details. 3g

Appendix A: Proposed Command Language (summary) 4

Commands which must be preceded by SP are preceded by SP in this list: 4a

append 4a1

allow Private modifications to file (old browse mode) 4a2

assemble program 4a3

assimilate 4a4

arm NLSDDT !H 4a5

break 4a6

copy 4a7

<copy> file 4a8

clear window 4a9

compact file 4a10

compile program 4a11

connect (display / tty) 4a12

create file 4a13

OPTION = 'U / user-settable characters; 5a5

%use optional parameter or use optional form of a command% 5a5a

Confirmation = CA / INSERT / REPEAT; 5a6

%used to confirm editing commands% 5a6a

LEVADJ = $('u / 'd) (SP / CA); 5a7

TextSpec1 = 5a8

'c <... Character> / 'w <... Word> / 'v <... Visible> / 'i <... Invisible> / 'l <... Link> / 'n <... Number>; 5a8a

TextSpec2 = 5a9

't <... Text>; 5a9a

StructureSpec1 = 5a10

's <... Statement> / 'b <... Branch> / 'p <... Plex>; 5a10a

StructureSpec2 = 5a11

'g <... Group>; 5a11a

Where <... WORD> denotes that WORD is appended to the command feedback. 5a12

FILENAME = LIT / SEL; 5a13

%where lit is of the form <dir>file.ext% 5a13a

LIT = 5a14

literal text typed by the user, excluding control characters such as CA, CD, INSERT, OPTION, etc. unless preceded by the literal escape (LE) character (default LE is control-V). 5a14a

Command Language (Note: All commands and operand-types may be precedded by a SP and some MUST be. If a command or operand-type is not preceded by a SP, the system default command or operand-type for the first letter typed will be assumed and used. If it is preceded by a SP then recognition will take place when a sufficient number of characters have been typed to determine uniqueness.) 5b

append 5b1

Syntax: 'a <Append> 5b1a

((TextSpec1 / StructureSpec1) <at> SEL / 5b1a1

(TextSpec2 StructureSpec2) <from> SEL <(to)> SEL) 5b1a2

<to> SEL LIT 5b1a3

Confirmation; 5b1a4

allow Private modifications to file (old browse mode) 5b2

assemble program 5b3

Syntax: " asse" <Assemble Program at> SEL <Using>
ASSEMBLER-NAME <to file> FILENAME CA; 5b3a

assimilate 5b4

Syntax: " assi" <Assimilate> 5b4a

(StructureSpec1 SEL / StructureSpec2 SEL SEL) 5b4a1

<after Statement> SEL LEVADJ VIEWSPECS 5b4a2

Confirmation; 5b4a3

arm NLSDDT 'H 5b5

break 5b6

Syntax: 'b <Break> 5b6a

((TextSpec1 / TextSpec2) <at> SEL / 5b6a1

(StructureSpec1 / StructureSpec2) <at> SEL LEVADJ LIT) 5b6a2

Confirmation; 5b6a3

IT would be extremely nice if break Plex ad break
group allowed us to convert a structure like 5b6a3a

5b6a3a1

statement a 5b6a3a1a

statement b 5b6a3a1b

statement c 5b6a3a1c

statement d 5b6a3a1d

into a structure like 5b6a3b

5b6a3b1

statement a 5b6a3b1a

statement b 5b6a3b1b

new statement 5b6a3b2

statement c 5b6a3b2a

statement d 5b6a3b2b

by breaking at statement b. 5b6a3c

We could define break word, text etc. as just a quick insert of a SP. Break statement and branch would be equivalent (unless we wish to distinguish??). 5b6a3d

copy 5b7

Syntax: 'c <Copy> 5b7a

((TextSpec1 <at> SEL / TextSpec2 <from> SEL <(to)> SEL) <to follow> SEL / 5b7a1

(StructureSpec1 <at> SEL / StructureSpec2 <from> SEL <(to)> SEL) <to follow> SEL LEVADJ) 5b7a2

Confirmation; 5b7a3

<copy> file 5b8

allows users to copy files from NLS. 5b8a

clear window 5b9

compact file 5b10

compile program 5b11

Syntax: " com" <Compile Program at> SEL <Using> COMPILER-NAME <to file> FILENAME Confirmation; 5b11a

connect (display / tty) 5b12

Syntax: 'c <Connect> 5b12a

('d <Display> / 't <TTY>) <to terminal> NUMBER ['i <Input and output> / 'o <Output only>] CA; 5b12a1

"Input and output" type connection requires that the recipient issue a Receive connection command. 5b12a1a

create file 5b13

Syntax: " cr" <Create File> FILENAME Confirmation; 5b13a

Creates a new (empty) file. 5b13a1

delete 5b14

Syntax: 'd <Delete> 5b14a

((TextSpec1 / StructureSpec1) <at> SEL / 5b14a1

(TextSpec2 / StructureSpec2) <from> SEL <(to)> SEL) 5b14a2

Confirmation; 5b14a3

<delete> markers 5b15

<delete> ('a <all markers> / 'm <marker named> LIT) CA; 5b15a

<delete> file 5b16

allows users to delete files from NLS (will take care of Partial Copies). 5b16a

disarm NLSDDT ↑H 5b17

disconnect terminals 5b18

execute SUBSYSTEM-NAME command 5b19

edit 5b20

expert 5b21

The Novice/Expert design group should specify this command. 5b21a

expunge directory 5b22

goto SUBSYSTEM-NAME 5b23

calculator subsystem 5b23a

identification subsystem 5b23b

journal subsystem 5b23c

includes submission, number assignment, secondary distribution, etc. 5b23c1

measurement subsystem 5b23d

programs subsystem 5b23e

query subsystem 5b23f

user options subsystem 5b23g

The Novice/Expert design group should specify this subsystem. 5b23g1

includes execute viewchange and show ... 5b23g2

print parameters, feedback parameters, control characters 5b23g2a

<Show> 5b23g2b

('s <... Selections> / 'c <... Control Mark> / 'u <... Upper Case> / 'i <... Input Prompts> / 'l <... LEVADJ numbers>) 5b23g2b1

Confirmation; 5b23g2b2

help 5b24

prints out instructions for new or confused users including definitions of terms used in syntax rules for commands. 5b24a

insert 5b25

Syntax: 'i <Insert> 5b25a

((TextSpec1 / TextSpec2) <after> SEL / 5b25a1

(StructureSpec2 / StructureSpec1) <after> SEL LEVADJ) 5b25a2

LIT 5b25a3

Confirmation; 5b25a4

```
<insert> (sequential / assembler) file                          5b26
<insert> Journal submission form                                5b27
jump (DNLS and TNLS)                                            5b28
  Syntax for DNLS: 'j <Jump to>                                 5b28a
    ( SEL DAE CA VIEWSPECS) /                                   5b28a1
    (                                                           5b28a2
      (                                                         5b28a2a
        'i <... Item> /                                         5b28a2a1
        's <... Successor> /                                    5b28a2a2
        'p <... Predecessor> /                                  5b28a2a3
        'u <... Up> /                                           5b28a2a4
        'd <... Down> /                                         5b28a2a5
        'h <... Head> /                                         5b28a2a6
        't <... Tail> /                                         5b28a2a7
        'e <... End of Branch> /                                5b28a2a8
        'b <... Back> /                                         5b28a2a9
        'o <... Origin> /                                       5b28a2a10
        SP "ne" <... Next> /                                    5b28a2a11
        )                                                       5b28a2a12
      SEL VEIWSPECS                                             5b28a2b
      ) /                                                       5b28a2c
    (                                                           5b28a3
      'l <... Link> ['l <... Locked>] ( SP LIT / SEL
      VEIWSPECS) /                                              5b28a3a
        %locked is a priviledged facility and is not
        available to the average user%                          5b28a3a1
```

```
'r <... Return> CA                                          5b28a3b
   %text from 'return' statement%                           5b28a3b1
   $(NOT-CA %text from 'return' statement%) /               5b28a3b2
'a <... Ahead> CA                                           5b28a3c
   %text from 'ahead' statement%                            5b28a3c1
   $(NOT-CA %text 'ahead' from statement%) /                5b28a3c2
'f <... File>                                               5b28a3d
   ((SP FILENAME / SEL) VIEWSPECS %load file%/              5b28a3d1
   (('a <... Ahead> /                                       5b28a3d2
      'r <... Return>)                                      5b28a3d2a
      %file name% $[NOT-CA %next file name%) /              5b28a3d2b
'n <... Name>                                               5b28a3e
   ['f <... First> /                                        5b28a3e1
   'n <... Next>]                                           5b28a3e2
   (SP LIT CA / SEL) VIEWSPECS /                            5b28a3e3
'c <... Content First>                                      5b28a3f
   ['f <... First> /                                        5b28a3f1
   'n <... Next>]                                           5b28a3f2
   (SP LIT CA / SEL SEL / OPTION %Accept old content%)
   VIEWSPECS /                                              5b28a3f3
'w <... Word First>                                         5b28a3g
   ['f <... First> /                                        5b28a3g1
   'n <... Next>]                                           5b28a3g2
   (SP LIT CA / SEL / OPTION %Accept old word%)
   VIEWSPECS                                                5b28a3g3
)                                                           5b28a3h
```

CA; 5b28a4

Syntax for TNLS: 'j <Jump to> SEL; 5b28b

k (unused) 5b29

load file FILENAME CA; 5b30

move 5b31

Syntax: 'm <Move> 5b31a

((TextSpec1 <at> SEL / TextSpec2 <from> SEL <(to)> SEL) <to follow> SEL / 5b31a1

(StructureSpec1 <at> SEL / StructureSpec2 <from> SEL <(to)> SEL) <to follow> SEL LEVADJ) 5b31a2

Confirmation; 5b31a3

<move> boundary 5b32

<move> file 5b33

allows users to move files from one directory to another from NLS. 5b33a

mark 5b34

Syntax: "ma" <Mark> SEL <with marker name> LIT CA; 5b34a

merge 5b35

Syntax: " mer" <Merge> 5b35a

(((('b <... Branch> / 'p <... Plex>) <at> SEL <into> SEL) / 5b35a1

('g <... Group> <from> SEL <(to)> SEL <into> SEL <(to)> SEL)) 5b35a2

Confirmation; 5b35a3

novice 5b36

The Novice/Expert design group should specify the semantics of this command. 5b36a

output 5b37

syntax: 'o <Output> 5b37a

(5b37a1

('q <Quickprint> / 5b37a1a

'j <Journal Mail Quickprint> / 5b37a1b

'p <Printer> [COM, etc.)) 5b37a1c

FILENAME <Copies = 1?> [NUMBER]) / 5b37a1d

(5b37a2

's <Sequential File> / 5b37a2a

'a <Assembler File>) 5b37a2b

FILENAME) 5b37a2c

CA; 5b37a3

p (unused in DNLS) print (TNLS) 5b38

Syntax for TNLS print: 5b38a

'p <Print> 5b38a1

(StructureSpec1 <at> SEL / StructureSpec2 <from> SEL
<(to)> SEL) VIEWSPECS [OPTION <using filter:> PATTERN]
CA / CA; 5b38a1a

if no structure is specified, printing will
continue until terminated by control o or until the
end of the file is reached. 5b38a1a1

playback session 5b39

quit [SUBSYSTEM-NAME / NLS] 5b40

Allows one to terminate NLS from within a subsystem. Also
allows one to terminate several levels of subsystem with one
command. 5b40a

replace 5b41

Syntax: 'r <Replace> 5b41a

((TextSpec1 / StructureSpec1) <at> SEL <by> (LIT / rsel)
/ 5b41a1

(TextSpec2 / StructureSpec2) <from> SEL <(to)> SEL <by>
(LIT / r2sel)) 5b41a2

Confirmation; 5b41a3

where 5b41a4

For DNLS: 5b41a4a

rsel = SEL; 5b41a4a1

r2sel = SEL <(to)> SEL; 5b41a4a2

For TNLS: 5b41a4b

rsel = OPTION SEL; 5b41a4b1

r2sel = OPTION SEL <(to)> SEL; 5b41a4b2

receive connection from terminal 5b42

record session 5b43

relock file 5b44

resequence SID's in file 5b45

reset (tty-simulation window /
viewspecs) 5b46

in TNLS, default (and reset) viewspecs will have statement
numbers on (m). Should SID's (I) be on also??? 5b46a

substitute 5b47

syntax: 's <Substitute> 5b47a

(TextSpec1 5b47a1

<in> (StructureSpec1 SEL/ StructureSpec2 SEL SEL) 5b47a1a

<New> Collect1 <For Old> Collect1 / 5b47a1b

TextSpec2 5b47a2

<in> (StructureSpec1 SEL/ StructureSpec2 SEL SEL) 5b47a2a

```
        <New> Collect2 <For Old> Collect2)                          5b47a2b

      <Finished?> [NO %repeat at <New>% / YES / OPTION <Using
      filter:> PATTERN)                                             5b47a3

      Confirmation;                                                 5b47a4

      Where:                                                        5b47a5

         For TNLS:                                                  5b47a5a

            Collect1 = Collect2 = LIT;                              5b47a5a1

         For DNLS:                                                  5b47a5b

            Collect1 = (LIT / SEL);                                 5b47a5b1

            Collect2 = (LIT / SEL SEL);                             5b47a5b2

               %propagates the current awkwardness in
               specifying a NULL LIT%                               5b47a5b2a

set (case /
     character size for window /
     filter /
     link default for file /
     name delimeters /
     tty-simulation window /
     viewspecs)                                                     5b48

  Syntax for case:                                                  5b48a

      " ca" <Case>                                                  5b48a1

         ((TextSpec1 / StructureSpec1) <at> SEL /                   5b48a1a

         (TextSpec2 / StructureSpec2) <from> SEL <(to)> SEL) /      5b48a1b

         'm <Mode>)                                                 5b48a1c

         [mtype]                                                    5b48a1d

         Confirmation;                                              5b48a1e

            mtype = ['i <initial upper> / 'u <upper> / 'l
            <lower>);                                               5b48a1e1

      Note: allows temporary mode setting for a single instance
      of the command                                                5b48a2
```

```
    Syntax for Filter: 'f <filter> ('t <to> PATTERN / "on" <On>
    / "of" <Off>)                                                    5b48b

    Syntax for name delimiters: 'n <Name Delimeters>                 5b48c

      (                                                              5b48c1

        StructureSpec1 <at> SEL /                                    5b48c1a

        StructureSpec2 <from> SEL <(to)> SEL)                        5b48c1b

        <Left Delimiter> LIT <Right Delimiter> LIT                   5b48c1c

        )                                                            5b48c1d

      Confirmation;                                                  5b48c2

  show (file status /
        marker list /
        name delimiters /
        viewspecs [verbose] status)                                  5b49

     name delimiters for statement at > SEL Confirmation;            5b49a

     file [lock / size / ownership / return ring] status             5b49b

  simulate terminal type (display / TI-terminal / etc. )             5b50

  sort                                                               5b51

    Syntax: "so" <Sort>                                              5b51a

      (('b <... Branch> / 'p <... Plex>) <at> SEL /                  5b51a1

      'g <... Group> <from> SEL <(to)> SEL)                          5b51a2

      Confirmation;                                                  5b51a3

  split window (vertically / horizontally) (DNLS)                    5b52

    splits window into two equal halves.                             5b52a

 transpose                                                           5b53

    Syntax: 't <Transpose>                                           5b53a

      ((TextSpec1  / StructureSpec1) <at> SEL <and> SEL /            5b53a1
```

(TextSpec2 / StructureSpec2) <from> SEL <(to)> SEL <and from> SEL <(to)> SEL) 5b53a2

Confirmation; 5b53a3

terminate (recording / private modifications to file) 5b54

update file 5b55

Syntax: 'u <Update File> %default file name% (OPTION <Old version> / [FILENAME]) CA; 5b55a

unlock file 5b56

verify file 5b57

w (not used) 5b58

x (unused) 5b59

y (unused) 5b60

z (unused) 5b61

'. (TNLS) show CM 5b62

'/ (TNLS) type context of CM 5b63

'; Comment 5b64

' (TNLS) print statement 5b65

'! (TNLS) print back statement 5b66

linefeed (TNLS) print next statement 5b67

INSERT %Insert Statement after Control Marker% 5b68

Syntax: INSERT 5b68a

LEVADJ LIT Confirmation; 5b68a1

Insertion and LEVADJ is relative to CM. 5b68a1a

REPEAT last editing command 5b69

TAB %to next occurrence of content or word% 5b70

'? 5b71

prints the names of all the commands available at the first level, with a comment about typing the first letter of any command followed by a '? to find out about that (set of) command(s). This should also include an explanation of A:, T:, etc. Also the user is advised to use the command Help to find out about definitions. 5b71a

Appendix'C: Definition of Dynamic Address Expression 6

Dynamic Address Expression elements 6a

location number 6a1

A statement number is D $(L / D / '@). 6a1a

(no preceding period) 6a1a1

name 6a2

A statement name is as defined by the name delimiter routine -- currently defined to be L $(L/ D/ ''/ '-). 6a2a

(no preceding period) 6a2a1

System-supplied Statement IDentifiers (SID's) 6a3

'0 1$ D. 6a3a

(no preceding period) 6a3a1

A sequence of digits and letters PRECEEDED IMMEDIATELY BY A PERIOD can contain the following letters, with associated "Jump" meaning. NOTE: default value for <number> is 1. 6a4

[number]'s jump to successor <number> times 6a4a

[number]'p jump to predecessor <number> times 6a4b

[number]'u jump to up <number> times 6a4c

[number]'d jump to down <number> times 6a4d

[number]'a jump to ahead <number> times 6a4e

[number]'r jump to return <number> times 6a4f

[number]"fa" jump to file ahead <number> times 6a4g

[number]"fr" jump to file return <number> times 6a4h

[number]'o jump to origin 6a4i

[number]'e jump to end 6a4j

[number]'n jump to next <number> times 6a4k

[number]'b jump to back <number> times 6a4l

[number]'h jump to head 6a4m

[number]'t jump to tail 6a4n

[number]'l jump to the <number>th link 6a4o

[number]'w jump to next occurance of word <number> times 6a4p

[number]'c jump to next occurance of content <number> times 6a4q

a sequence of digits and letters PRECEEDED IMMEDIATELY BY A PLUS (SKIP FORWARD) OR MINUS (SKIP BACKWARD) can contain the following letters, with associated meaning. NOTE, default value of <number> is 1. 6a5

[number]'c skip <number> characters 6a5a

[number]'w skip <number> word 6a5b

[number]'v skip <number> visible 6a5c

[number]'i skip <number> invisible 6a5d

[number]'n skip <number> number(s) 6a5e

[number]'l skip <number> link(s) 6a5f

'* name jumps to the next statement by that name 6a6

'(text ') link 6a7

text = directory, filename, DAE : Viewspecs 6a7a

'[text '] content search 6a8

text excludes '] unless preceeded by the literal escape character 6a8a

allows elipses (...) notation 6a8a1

'< text '> word search 6a9

text excludes '> unless preceeded by the literal escape character 6a9a

allows elipses (...) notation 6a9a1

'; text '; intra-statement content search 6a10

text excludes '; unless preceeded by the literal escape character 6a10a

allows elipses (...) notation 6a10a1

'' character character search 6a11

← beginning of statement 6a12

> end of statement 6a13

'# text marker name, text = L $(L/D) 6a14

'/ print context 6a15

' print statement 6a16

note that '/ and ' are part of a DAE. In DNLS this is accomplished via the two line tty-simulation area above the Command Feedback Area. 6b

17052 Distribution 1

Richard W. Watson, Michael D. Kudlick, Charles F. Dornbush, J. D. Hopper, Dirk H. Van Nouhuys, Marilyn F. Auerbach, Diane S. Kaye, Elizabeth K. Michael, Douglas C. Engelbart, James C. Norton, 1a

International Communication Assoc. Questionnaire

Journalized for future reference.

INDIVIDUAL RESEARCH SUMMARY QUESTIONNAIRE
INFORMATION SYSTEMS DIVISION

A purpose of ICA is to promote the exchange of information based on the research efforts of its members. This may be facilitated by establishing a data base which contains up-to-date (yearly, as a minimum) descriptions of that work. This brief questionnaire is designed to provide a nucleus of researcher generated descriptions to be available to members of the Information Systems Division, eventually, with the aid of a computer based data retrieval system.

INSTRUCTIONS: Please fill out this form for an audience of interested colleagues, i.e. persons who are familiar with your area. The results will be compiled by subject similarity; availability will be announced in the Division newsletter. Thank you for your contribution to this information exchange endeavor.

NAME & POSITION:
BUSINESS ADDRESS:

BUSINESS PHONE:
GENERAL AREA OR DISCIPLINE: (eg. communication theory; or systems analysis)

KEYWORDS (SPECIFIC AREAS): (eg. content analysis; libraries; broadcasting)

TITLE(S) OF CURRENT EFFORT(S):

BRIEF DESCRIPTION OF YOUR EFFORT(S): (continue on reverse side; include funding agencies if appropriate)

International Communication Assoc. Questionnaire

(J17053) 6-JUN-73 07:11; Title: Author(s): James H. Bair/JHB;
Sub-Collections: RADC; Clerk: JHB;
Origin: <BAIR>ICAQ.NLS;2, 15-MAY-73 08:24 JHB ;

NIC TNLS Class, ILL-ANTS, Status Report

To: MDK DVN SL MLK MFA 1

From: Mil Jernigan 2

Subject: NIC TNLS Class, ILL-ANTS, Status Report 3

At MDK's request I phoned Jacoov Meir, Liaison, ILL-ANTS this morning (6/6) for information on the impending ILL-ANTS TNLS Class. Following are points and information discussed. 4

Mr. Meir did not know how many people were going to take the course. The secretary is handling it; she was away from her desk and he could not give even a close guess. 4a

Mr. Meir finally promised to get the students' full names, middle initials, and their proper mailing addresses and phone numbers when I told him that this was necessary for the IDENT file. 4b

The terminals that will be used are Hazeltine 2000, and "a couple of TI's". He was wondering if he would have enough terminals (although he would not give any guess at all as to how many students -- 5 or 50), so I told him that the ARC instructors were accustomed to teaching with sometimes two people to a terminal. 4c

He promised to ask the secretary to see that on the 3 days of the class, there would be scratch paper, pencils, colored ball point or felt tip pens, available for the students. 4d

I asked if there was a place to put up the wall charts, and after getting him to understand what they were, he said he thought there would be a problem because the walls are brick. So I asked him if he would ask the secretary to have on hand 6 or 7 rolls of masking tape. He said that he would. 4e

I told him that there would be material shipped in to give to the students and that it was very important that we know early enough how many people are attending so that we can ship the proper amount of stuff and get it there in time. (Explanation for this seeming emphasis on knowing something of the class in advance: He apparently thought it was not necessary for us to know anything of this in advance and it had not occurred to him that the computer would have to be able to recognize the people for them to log in.) 4f

He asked for the "schedule" (apparently meaning what was going to be taught when) so that people could choose what they wanted to come in for. I broke the news that it was 3 very full days and if the students did not want to devote the entire time, from 9:00 AM through 5:00 PM each of the 3 days, then they should not take the class. They would be wasting their and everyone else's time and

disrupting the class situation to float in and out. I emphasized that they needed the full course, if they were going to be able to consider that they could use the system. 4g

Mr. Meir promised to discuss the situation and needs with the secretary and get the needed information and to call me back "first part of next week". 5

17054 Distribution

Michael D. Kudlick, Dirk H. Van Nouhuys, Susan R. Lee, Marcia Lynn Keeney, Marilyn F. Auerbach,

MEJ 6-JUN-73 12:55 17055

NIC TNLS Class 18-22 June 73, at BBN, Status Report

To: MDK DVN SRL MFA MLK 1

From: Mil Jernigan 2

Subject: NIC TNLS Class 18-22 June 73, at BBN, Status Report 3

Dirk asked me to call BBN et al to find out the necessary information concerning who is going to attend the NIC TNLS Class there 18-22 June. Nancy Neigus, before she took off for New York, sent Dirk a message giving some names, but not adequate for the ident file. I called Steve Chipman and he gave me the following from the BBN office phone book: 4

Address for following:

Bolt Beranek and Newman Inc.
BBN-NET
50 Moulton Street
Cambridge, etc as usual
usual phone...extensions given individually. 5

Pete M. W. Bliss (already in IDENT file)

Nancy W. Mimno, ext 411

Phyllis (nmi) Hauser, ext 404

Richard L. McDonald, ext 571

Allan M. Collins, (BBN-Div. 3), ext 377 5a

Bolt Beranek and Newman Inc.
BBN-TENEX
50 Moulton Street, etc. 6

Paul R. Johnson (already in IDENT)

William E. Merriam (already in IDENT)

Joseph J. Passafiume (already in IDENT)

Sonya R. Shapiro (in IDENT)

Jerry J. Wolf (in IDENT as J.J. Wolf)

William A. Woods (in IDENT)

Not in ident:

Eleanor H. Warnock, ext 369

Linda C. Amsden, ext 364

Gail M. Hedtler, ext 567

Bonnie (nmi) Nash-Webber, ext 227 6a

From MIT-DMCG: 7

J.C.R. Licklider (already in IDENT) 7a

From Hanscom Field, Bedford, Mass.: 8

Lt. K. Diane Shaw
Hq. ESD/MCI
Stop 36
L.G. Hanscom Field
Bedford, Mass. 01730
Phone (617) 861-5386 8a

It would be very much appreciated if Marcia would mail Lt. Shaw a copy of the TNLS Users Guide as soon as possible, because she does not have one available to look at before the class. 9

17055 Distribution

Michael D. Kudlick, Dirk H. Van Nouhuys, Susan R. Lee, Marilyn F. Auerbach, Marcia Lynn Keeney,

TFL 6-JUN-73 08:00 17056

SENDPRINT-25 MAY 73

Journaling to free up file space for new directories

TFL 6-JUN-73 08:00 17056

SENDPRINT-25 MAY 73

This document will attenpt to explain to the reader how to use the sendprint command and output files to a RADC Data Products line printer. 1

First a sequential file must be created of the file to be printed. The proceedures are as follows: 1a

Log into NLS and load the file you wish to output to the printer. 1a1

Type in the three command characters O D P which means Output Device Printer [the case of the characters is not important) then type a ↑W which means control key & W simutaneously depressed -now type in an arbitrary name -this name will be the name of the sequential file you will output to the printer -now type a command accept. The system will respond with "copies 1" after which type a command accept. The system will respond with Processing Output and will return with an * when processing is completed. 1a2

```
[*] ODP ↑W FILENAME CA
[copies 1] CA
[Processing Output]
[*]
```
1a2a

Now that the Sequential file is created it can be output to the printer by use of the sendprint command at TENEX level. The proceedures are as follows: 1b

Type a ↑C to get to the TENEX command level. 1b1

Type send then depress the escape key and end the command with a CR (carriage return). The system will respone with PRINT.SAV;# Dougs-Hack version 1.0 Printfile: - The user should now type in the name of the of the sequential file he created using the ODP command then depress the escape key the system will respone with [Old version] after which the user should type a CR. The system will respond with "output to" after which type a "t" and then a CR.The system will request a "Tip #:" after which type a "146" and a CR. The system will request a "Port #:" after which type a "4" and a CR. The system will respond with "Send Form Feeds?" after which type a "y" and a CR. The system will respond with "Stop at Page end?" after which type "n" and a CR. The system will respond with "Go?" after which type a "y" and a CR. Now type in the following:"@" space "4" space "g" space "b" linefeed

The file is now being transmitted over the Network to the line printer. When transmission is complete the system will respond with "More files?". If the user wishes to print another file he types a "y" and a CR. If he wishes to terminate the process type an "n" and a CR. The process may be terminated at any time by using the ↑C command. 1b2

A second file will not be processed until the first file has been printed. The only way at present to know if a file has been printed is to check the line printer it self. Later a feedback mechanism may be provided the terminal user to notify him that the printer is ready for the next file. 1b3

[@]send ESC [PRINT.SAV;#] CR
[Dougs-Hack version 1.0]
[Printfile:] FILENAME ESC [Old version] CR
[output to] t[ip Confirm] CR
[Tip #:] 146 CR
[Port #:] 4 CR
[Send Form Feeds?] y[es Confirm] CR
[Stop at Page end?] n[o Confirm] CR
[Go?] y[es Confirm] CR
@ SP 4 SP g SP b LF

[More files?] y or n and CR 1b3a

The CDC 8090 computer is the local printer processor which must be running the printer program before output can proceed. This program can be started at location 1300. Additional copies of the last printer output can be made by running the program at location 1330. 1c

The sequential file can also be printed out at the terminal at which you are located. To accomplish this feat follow the following proceedures. The Stop at Page end option allows the user to print out a page insert a new sheet of paper into the terminal and continue to the next page. A double CR is required to start output. Also a CR is required to continue to the next page. 1d

```
[@]send ESC [PRINT.SAV;#] CR
[Dougs-Hack version 1.0]
[Printfile:] FILENAME ESC [Old version] CR
[output to] s[elf] CR
[Send Form Feeds?] n[o Confirm] CR
[Simulate?] y[es Confirm] CR
[Stop at Page end?] y[es Confirm] CR
                    n[o Confirm] CR
[Go?] y[es Confirm] CR CR
```

If the Stop at Page end option is selected the printer will stop after printing a page and a CR must be typed to cause the next page to be printed.

[More files?] y or n and CR 1d1

If the Communicating Mag Card Terminal is used the following proceedures need to be executed. 1e

TFL 6-JUN-73 08:00 17056

SENDPRINT-25 MAY 73

Plug in the phone line to the modem. Plug in the power line to the terminal. Change the printer ball on the terminal to the ASCII print ball. This ball is stored in the left hand upper drawer of the adjacent desk. Turn on the terminal and make sure the CPU and PLAY buttons on the terminal are depressed. Depress the talk button on the modem and dial one of the TIP numbers. When you hear the carrier tone depress the data button on the modem and hang up the phone. Now type the letter "j" untit the TIP responds with a "HELLO" Now type in @ e l. This TIP command turns on local echoing and removes remote echoing.. Now log into SRI with the @ l 2 command. The control key is the " on the terminal. That is to type a control C first type a " then a C. To stop printer out put first hit the attention key then type in "O. The ASCII keys equivalent for the terminal is found in the TIP User's Guide page 6-2. The escape key equivalent is a cent sign.

1e1

17056 Distribution 1

James H. Bair, Duane L. Stone, 1a

TFL 6-JUN-73 08:07 17057

Requirement for Graphics Printer

Journalizing to free file space for new directories

Requirement for Graphics Printer

I have been considering for some time the possibilities of acquiring a device which will produce hardcopies of files that contain graphics, alpha/numerics and symbology. 1

Unfortunately, I have not been successuful in finding an existing device which will meet all of the requirements i would suppose that such a contraption should have if used in our current environment. 2

First let me explain what I consider to be the requirement even if you have heard it before. NLS will mature into a comprehensive system from which the user can access a variety of facilities. The current interest in data management systems and the development of the calculator and forms printer package is a testimony to to this trend. Eventually graphics will be available as an NLS feature. I suspect the local user will find this feature rather useful. It will permit the administrator/manager to composed, edit, view, store and retreive files which contain flow charts of his program. It should permit the engineer to create technical graphs and diagrams and permit the programer to create flow charts. 3

As valuable as on-line operation may be the paper mills are are ready to close down for want of demand for their product. We still need to reduce on-line files to hard copy form. There are printers which can produce excellent hard copies of on-line files provided the file contains text only. As soon as a file contains both text and graphics the copies produced are less than excellent. 4

Let's examine several existing equipments that purport to produce hard copies of text/graphics files and by so doing reveal the problem. 5

IMLAC copier: Imlac sells a hard copy device which will reproduce the image appearing on the Imlac screen. Dave Luther has such a copier in Bldg. 240. This copier has several draw backs. 5a

The image is reduced in size from the screen image. 5a1

The paper is a special photo sensative type making it thick and colored. The quality is poor to fair and I doubt that a good Xerox copy could be made from the print. I do not think that a copy worthy of general distribution could be produced by this copier. 5a2

Tectronix copier: Tectronix makes a copier for it's model 4002. We have at least 2 in the computer facility associated with Dick Metzger's project. 5b

This copier produces a poor quality output. The image appears smugged and the backround color is a dark gray. 5b1

Xerox copier: Xerox has an electronic copier which can produce quality output, however, it is very expensive. The copier alone rents for $700 to $1,000 per month , which does not include the computer and software necessary to drive the copier. This system is not yet fully developed in that is it may be limited in the number of vectors which can be created per page. 5c

Hazeltine copier: Hazeltine makes a copier for their 4000G display system. 5d

This system would cost around $20,000. 5d1

The quality of the hard copies is good but could be better. The copies reproduce very well on the Xerox. 5d2

The size of the reproduced image is 6 1/2"X7 1/4". the copier produces a page at a time and could not produce continuous output. 5d3

Non of the systems described is acceptable with the possible exception of the Hazeltine system. 6

These are the features I would like to see in a graghics printer. 7

8 1/2" X 10" hard copy image size. 7a

Able to produce at least 2000 characters and 50 vectors the maximum size of each being equal to the page diagonal. 7b

Able to produce 95 ASCII printables with a super large character size option for view graph production. 7c

At least 500x500 addressability. 7d

Output must be able to produce good Xerox copies. 7e

Interface Characteristics: 7f

Bit serial with up to 8 data bits bounded by a start bit and at least 1 stop bit. 7f1

Odd, even or no parity operator selectable. 7f2

EIA RS 232C levels and connector. 7f3

The printer should have a key board to be able to communicate with the sending computer. 7g

My purpose in writing and distributing this message is to encourage

the alocation of funds for the development and procurement of the above described graphics beasty. 8

17057 Distribution 1

James H. Bair, Duane L. Stone, 1a

NDNLS CONNECTION

Journalizing to free file space for new directories

NDNLS CONNECTION

1 This is the proceedure for establishing a NDNLS connection. 1

2 Load cassette tape IMNLS.ROME 14 Feb 73 into the IMLAC. 2

3 If the TIP has crashed at some time before you're using the IMLAC it will be necessary to type in one of the following lines into the TIP from another terminal: 3

3a @ (port #) d r 633 <LF> 2400 send and receive
@ (port #) d r 761 <LF> 2400 send and 9600 receive 3a

3a1 (port #) refers to the number of the TIP port to which the IMLAC is connected. 633 is valid for IMLAC Ser No. 162 and 163; 761 is valid for unit Ser No. 164. The IMLAC in room #57 has a device rate of 761 and is on port #1. The IMLAC in room #53 has a device rate of 633 and is on port #3. The IMLAC in the Display Facility has a device rate of 633 and is on port #2. 3a1

3b After you have typed one of the above commands be sure to follow it by the following TIP command: 3b

3b1 @ (port #) g b <lf> 3b1

4 Now return to the IMLAC and make a Network connection to SRI. Refer to DNLS PRELININARY GUIDE, Section 1, page 8 for Mouse and Keyset codes. 4

4a @ l 2 <lf> 4a

5 Log into TENEX. 5

6 Put TIP in the Echo None mode then give it an Intercept None command. 6

6a @ e n <lf> 6a

6b @ i n <lf> 6b

6b1 To escape from these two modes type in the following from another terminal:
@ (port #) e a <lf>
@ (port #) i e <lf>
@ (port #) g b <lf> 6b1

6b1a (port #) refers to the number of the TIP port to which the IMLAC is connected. 6b1a

7 Cause TENEX to echo typed in characters. 7

7a @full<cr> normally TENEX is in the echo mode and this command is not required. 7a

TFL 6-JUN-73 08:14 17058

NDNLS CONNECTION

8 Indicate to TENEX that you wish to use NDNLS using an IMLAC with long vector hardware. 8

8a @term<alt>i<alt>w<alt><cr> or
terminal imlac with<cr> 8a

9 Login to NLS. 9

9a @nls<cr> 9a

9b When a appears type in a control 6 that is depress the control and 6 keys simutaneously. 9b

10 For instructions in the use of NDNLS refer to DNLS PRELIMINARY GUIDE 10

17058 Distribution 1

James H. Bair, Duane L. Stone, 1a

TFL 6-JUN-73 08:26 17059

ARPA NET NOTES

Journaling to free file space for new directories

ARPA NET NOTES

1 Distant Host Inter 22 May 73 telecon from McDonald/NCC-BBN

1a The distant host interface will be installed on the 13 June 73 by Honeywell as part of the pm cycle.

2 Line Printer BBN 18 may 73 telecon from Al Mc Kinsey/BBN

2a Al said that BBN was getting a DP Model 2410 printer with the following options:
96 character drum
self test
paper receptacle
static option

Line feed and form feed were the only format codes they were getting. The interface will be a 32 character buffer. The printer will give a ready for next character signal to the interface. The line to the TIP will be operating at 19.2 Kbs. The Interface can control the data flow from the TIP by starting and stopping the clock signal it sends to the TIP, i.e. the TIP will be in the synchronous mode. As soon as the buffer is full the clock pulse will be stopped.

3 Line Printer BBN 16 may 73 telecon from Al Mc Kinsey/BBN

3a Al said that BBN had seen the article in the Commerace Daily Bulletin about our getting a line printer. They weren't interested in bidding on it but he wanted me to know that BBN was working on such a printer interface with in house funds. they are getting a Data Products printer to be delivered in early August. The interface should be ready by then. BBN has no plans to market this interface and such decisions will not be made until after August after the interface has been tested. I asked Al to get me some info on the Printer and interface specs.

4 MODEM 1200/150 Apr 73 telecon to Don Malpass/BBN

4a I asked Don if he knew whether 1200/150 modems were compatible with the TIP. He said that the only modem that had been tried and worked was the Penril modem (5520 Randel Road Rockville, Maryland 20852 -301-881-8151). He thought that Dr. Robert Linbarger (Palo Alto, Calif. -415-965-6148 Sec. X5014) was looking at the Prentice modem. He thought that Intertel was a bad source at least because of delivery problems also their transmission protocol is questionable. Sanders and Vadic did not seem to have anything to offer. MI Squared Data Systems (1356 Norton Ave Columbus, Ohio 43212 - 614-294-2694) has a promising acousticly coupled modem. Anderson Jacobson and RFL Industries may have something though RFL may be on the expensive side.

5 TIP Port Mar 73 telecon to Nancy/BBN-NCC

5a In order to find out which port has captured a particular port go to the TTY at the TIP and type in "47100 space port number /". The TIP should respond with a number. The capturing port number is in the thousands and ten thousands position of the given number i.e. ignore the right three digits. The port number is in octal.

6 TYCOM Term 29 Mar 73 telecon to Dr. Gene Starr/TYCOM (201)-227-4141

6a We discussed the TYCOM 38 KSR Terminal as follows:

6a1 The terminal operates at 10 or 15 CPS. If it is run at 15 CPS delete codes must be added when doing a carrage return or when doing a shift operation. If operating at 10 CPS no delete codes are required in the input data stream.

6a2 A 10 foot cable is required if a cassette tape unit is to be used. This comes at no extra cost but it must be specified otherwise a standard 6 inch cable is provided. A Termicette 3000-3 recorded should be supplied to TYCOM for interface check out before delivery.

6a3 Delivery of a Selectric to TYCOM from IBM takes from 9 to 10 weeks. Adding the TYCOM equipment takes 2 to 3 weeks, at least not over 30 days.

6a4 Parity is operator selectable: odd, even, none, or all ones

6a5 OPTIONS:

6a5a tab set - tab clear ; ASCII codes under computer control

6a5b right hand margin set; code sent to computer when a certain character position is reached.

6a5c non print non escape; terminal will not print at keyboard option not recommended- if this mode is selected when in print cycle terminal may break.

6a5d keyboard lock; computer control

6a5e upper case output; all character codes sent from terminal are upper case

6a5f tab bussy; sends code to computer indicating printer is bussy

6a6 The terminal has a 32 character buffer.

6a7 There is no GSA contract on this terminal.

6a8 If parity error is detected the reset light will come on and a dash will be printed in place of the character.

6a9 Three special control codes can be placed on the control unit.These codes are sent out full duplex and do not interrupt the printer. The complete set of ASCII control codes is available at the keyboard but these codes are sent half dulplex, are printed at the terminal and may cause loss of data at the printer if the printer is in a print cycle. Three keys are standard at the control unit: break, delete and reset.

6a10 Acoustic coupler/modem is standard.

6a11 ADDRESS: 26 Just Rd.
Fairfield, N.J. 07006

6a12 The Seelctric II has two options 10/12 pitch ($630) or 10 pitch ($590). A pin feed platen can also be purchased for the terminal. The platen is about 11 inches wide and costs $100 factory installed and $120 in the field.

6a13 The following characters can not be lrinted on the TYCOM:
left leaning slash - printed as an asterisk

right and left curved brackets - printed as an asterisk

vertical line - printed as an asterisk

ampersand which is printed as a caret - this character is different in that the terminal does produce an ampersand code in the cent sign position of the Selectric keyboard.

In addition a 1 key was added to the keyboard and the printer uses a modified print ball.

6a14 AS a correction to Ms. Creaser's statement; the 35/37 KSR does not operate at 30 CPS.

7 TYCOM Term 27 Mar 73 telecon to Ms. Creaser/TYCOM
(201)-227-4141

7a Ms. Creaser said that the company recomends us getting the model 38 KSR over the older 35/37 KSR. The new model has a larger buffer and operates at 15 CPS as opposed to the old rate of 30 CPS. These changes should eliminate the character loss problem the units had at the ICCC. Costomer should specify which cassette unit he wants interfaced to the TYCOM.

7b TYPE: 35/37 KSR

7b1 COST: $2660+$630 for Selectric II

7c TYPE: 38 KSR

7c1 COST: $2350+$630 for Selectric II

7d DELIVERY: 10 - 12 weeks to get Selectric from IBM.
30 - 45 days if costomer provides his own Selectric.

8 TI Term 23 Mar 73 telecon to Jeff Randell/TI
(703)-525-1444

8a We discussed several terminals as follows:

8a1 TYPE: 725 Portable Data Terminal

8a1a OPTIONS: EIA RS232C Interface Kit, Full ASCII Upper/Lower Alphabet Keyboard, Odd or Even Parity (factory option)

8a1b COST: $125/mo. or $2780+$110+$120 for interface and ASCII keyboard resp. 5% discount on GSA Contracted items.

8a1c COMMENTS: Standard operator selectable features are as follows:
10, 15, 30 CPS
full or half duplex
GSA CONTRACT No.: GS-00S-08577

This unit comes in a portable carrying case and includes an acoustic coupler.

8a2 TYPE: 733 KSR

8a2a OPTIONS: Full ASCII Keyboard

8a2b COST: $75/mo. $1500+$100 for ASCII keyboard.

8a2c COMMENTS: Standard operator selectable features are as follows:
10, 15, 30 CPS
odd or even parity
single or double space
full or half duplex

This unit is not in a carrying case and does not have an acoustic coupler though a coupler may be added to this model by the end of the year.

8a3 TYPE: 733 ASR

8a3a OPTIONS: Full ASCII Keyboard

8a3b COST: $120/mo. $2750+$100 for ASCII keyboard.

8a3c COMMENTS: Standard operator selectable features are as follows:
10, 15, 30 CPS
odd or even parity
single or double space
full or half duplex

This unit has two cassette units for off-line and on-line operation. Tapes can also be edited.

This unit is not in a carrying case and does not have an acoustic coupler though a coupler may be added to this model by the end of the year.

8a4 COMMENTS: TI Bulletin 323F Jan 73
Tech. Manual No. 960130-9701 -$15
GSA Contract No.: GS-00S-08577 5% discount on all GSA contracted items.

There are also two other models the 720 and the 732.

8a5 DELIVERY: from receit of order 90 days

8a6 MAINTENANCE: Warranty 1st 90 days labor- 1st year parts $13/mo. after 90 days and $20/mo. after one year.

8a7 LOCATION: Suite 1100
1500 Wilson Blvd.
Arlington, Virginia 22209

8a8 CONTACTS:
regional office
25 US Highway 22 East
Springfield, N.J. 07081
(203)-281-0074
regional sales
Dick Malley
Hamden, Conn.
(201)-467-2670

9 IMLAC Raster 6 Mar 73 telecon to J.Fletcher/IMLAC

9a Jim said that IMLAC has a non standard option which will produce a TV raster of the IMLAC image. The cost would be approx. $6 to $7K. He will get more details for me later.

10 IMLAC Monitor 2 Mar 73 Jim Fletcher/IMLAC

ARPA NET NOTES

10a A large monitor will be available and can be delivered to RADC by the 9th or 12th of Mar. If we are unsatisfied with the P12 phosphor in the worst case we can order a P39 phosphor tube for $700 with 80% credit if we return the other crt. That would be $140 with trade in.

11 IMLAC Cable mid Feb 73 telecon to F. Selvitelli/IMLAC

11a We can get a Y cable for the IMLAC. The size is 10 to 100 feet. Cost is $79 for the 10 foot cable and $3 for every additional foot.

12 IMLAC Monitor mid Feb 73 telecon to F. Selvitelli/IMLAC

12a Fran said that the large monitor woule cost $2,450 . If we were to replace the existing small monitor we would get $500 credit.
I asked him about our asyn ports on the IMLAC. We have only one asyn port which is switchable from the EIA voltalge to the TTY 20 mil current for 110bps transmission.
An additional interface would cost $850 factory installed or an additional $150 for field installation. We could get a 5% discount for 3 units

13 DHI 8 Sep 72 telecon to H. Rising/BBN

13a I asked Hawley when the DHI would be delivered. He said in Dec. some time as it looks now. He forsees now problem at present.

14 DAA's 5 Sept 72 telecon to Bill Hutchinson/Pulse Comm.

14a Bill will send 4 new DAA's and I will send back the defective units. If I do not send back the units in 30 days we will be billed.

15 NBS 24 Aug 72 telecon/w Tom Pyke/NBS

15a Tom said that he would be expecting me at 10:00 on the 31st of Aug. To get to NBS take rt. 70S until you reach a sign for NBS. Take second right and park by Administration bldg. an the right should be the Technology bldg. go to rm. B-214.

16 printer 23 Aug 72 telecon to Carleton/I/O Devices

16a I set up a meeting for the afternoon of 30 Aug. Rt 202 crosses 46. Get on 46 go 2 miles west and the company is on the left. You have to go down the road a ways to make a left turn it can not be made at the light.

17 printer 22 Aug 72 telecon to Gene Starr/Term Equip Corp

ARPA NET NOTES

17a Gene said that they had two printers a Mod 30-8 10 cps with 88 ASCII printables 6 are not printable ↑ ← < > [ ] and are replaced by *. There also was a problem with the Control C key concerning full duplex operation. Gene was aware of the ARPA Net problem with PDP-10 communication. There is also the Mod 35-37 with paper or magtape recorder. This unit can perform at 10, 15 or batch 30 cps. These units have moden or accoustic coupler. From Carlstdat take Rt's. 3, 23 and 202 (Hamburg Turnpike) When on 202 the road will take a right at a Grand Union store go straight and one block ahead there will be city service on right and a Sunoco station on the left. Turn left on Mill St. go 1/2 block and turn left into parking lot. go to building 750 Tycom.I set up a meeting for the morning or early afternoon of the 30th Aug.

18 printer 22 Aug 72 telecon to George Riczek?/Litton ABS

18a George said that the 30 cps printer used BCD code only and had no modem coupler. They do have a Mod 1200 matrix printer with ASCII and modemcouler. I set up a meeting for the morning of 30 Aug with Jim Lundragan.

19 Net Info 22 Aug 72 conv/w Bob Johnson/bldg 106, x2925

19a I gave Bob info on Net (Protocol Spec and TIP Manual) which he is to return. The problem that they have can be handled by the net since the info is not real time but prediction data that con be valid for several hours and feed back need not be instantaneous.

20 DIS. Interf. 8 Aug 72 telecon to H. Rising/BBN

20a Hawley did get the letter we sent and he said that the interface should arrive in 3 or 4 months. He will also talk to Randy about our modems.

21 IMLAC 7 Aug 72 telecon/w H. French/IMLAC

21a Hiram said that IMLAC would send two new keyboards and they should be here by wednesday and that we should send the defective ones back. The board #326 to control IO speed costs $150 and an option to have a switchable three speed capability costs $325 plus installation fee.

22 TIP USE 1 Aug 72 Col. Louis Dixon or Frank Owens/War College/ AV 242-3707or 4304

22a The War College wants to use our TIP at the suggestion of ARPA. I told them to send a letter outlining there requirements.

23 HOST INTERFACE 31 Jul 72 telecon/w B. Dolan/ARPA

23a Bruce said that he would order the host interface from BBN if we send a letter to him with an info copy to Hawley Rising/BBN. RADC will reimburse ARPA later via MIPR.The order should take about 4 months. ARPA will have BBN include 4K more of core in the TIPs about the Net. Also BBN will have to consider maintenance on week ends. The security effort is being handled by Peggy Karp who will probably be going to Stanford.
Also SRI is considering leasing 1 or 2 PDP-10s for the NLS system ARPA is cool about its involvment.

24 PRINTER 31 Jul 72 telcon /w R. Rettberg/BBN

24a Randy said that the printer would have to accept continual ouput from the TIP there is no way for the printer to stop data from the TIP. Normally the printer can send a busy signal to a sending computer when it cant handle any more data. Also some printers receive data in parallel which would require buffering if it were to accept the serial data from the TIP. The ODEC printer runs at 1800 bit /sec and requires a 256 character buffer. The ODEC is a chain printer. A moving bar printer at 1200 bits/sec required a 500 character buffer. The Video jet printer does not require a buffer because its serial and can handle the data input rate. The Modems were sent out today and should arrive wednesday. Randy expects to come to RADC on Friday. 7 DAA's are missing and Vadic will send them later.

25 PRINTER 28 Jul 72 telecon /w J. White/SRI

25a I asked Jim as to what characteristics our printer should have. He said that BBN must support the Net Telnet and that it was up to BBN to have there TIP software compatible with the local printer. Transmitting data over the Net in the transparent mode would have many disadvantages because it would be compatible with only one system.

26 TIP DWN 27 Jul 72 Telecon /w Berny Cosell/BBN

26a I told Berny that the Net would lock us out of SRI. He looked at the problem and found that the NET was getting segmented East to West due to phone line problems. This situation would cause us to be dropped from the TIP however the IMP part of the TIP and SRI thought we were still logged in. Therefore if we tried to log in again SRI would not allow another login over a connection that was already in use. By typing @ r e s e t lf we were taken out of this hung up state.

27 IMLAC 26 Jul 72 telecon to H. French/Imlac

27a Hiram said that we had the following interrupts on our Imlacs:
bit 9 mouse
bit 10 TTY send
bit 11 Keyboard
bit 12 TTY recieive
bit 14 40 cyc. syn.
The tty refers to the EIA port.

28 TIP 26 Jul 72 telecon/w NCC/BBN

28a The NCC said that modification to the TIP will take place 1 Aug 72 at 7:00 am and would take about 10 minutes. This mod will take care of many of the problems currently present in the software.

29 MODEMS 26 Jul 72 telecon from R. Rettberg/BBN

29a Randy said that the modems will be sent from Vadic on the 27 Jul 72 by air and should be here about Monday 31 Jul 72. Vadic and BBN will check out the units when our people install the lines on the DAA's.The individual from Vadic will be Dave Peters.

30 IMLAC 25 Jul 72 telecon/w F. Selvitelli/IMLAC

30a the Imlac can not be loaded at locations 40-77 since the ROM occupies this area. This area can be loaded if the diode ROM card #113 is removed. The ROM is programed for cassette loading.

31 Error Cont. Info prob. Apr 72 con/w ?

31a A recommended reference is vol. A #1 1969 "Coding for Error Control" pages 45-50 in IBM Sys. Journal.

32 202 c modem 24 Jul 72 telecon to Russell & Rettberg

32a Steve said that the software was not ready for the 202c moden. Randy who kis handeling the programing hopes that the software would be ready in a month or two. Vadic has not called back on kthe modem delivery status.

33 BBN Modems 20 Jul 72 telecon to R. Rettberg/BBN

33a I asked Randy when the modems were expected and he said Vadikc was to send them out on the 21 Jul but he will check to see if they did so.

34 NET Local 12 Jul 72 con/w Tom Maggio/RADC B 106/x4026

34a Tom said that the Floyd site has data to process that is radar data. They have a PDP-1 but will have to get a larger machine if they wish to process locally. They were directed by ARPA to use a Sigma 7 or 5 located at Patrick AFB via the ARPA Net. ARPA will pay for Net use. I told Tom that our TIP computer ports were already alocated and that perhaps a 316 IMP would be needed at both ends.

35 NET PROBLEMS 28 Jun 72 Telecon/wE. Westheim/BBN

35a Elen called to find out problems, plans and experiences we have been having with the Network. I reitterated the lettter I had sent to ARPA and added that the Net was down 30% of the time. Also I gave her an uneducated guess that each of 5 people would use the Net from 1-2 hours a day when the Net was up.

36 IBM-2741 28 Jun 72 Conv/w Tom Horan/IBM/Utica

36a Tom checked out our 2741 and talked with BBN and they both agreed that we require a recieve interrupt and a transmitt interrupt option in order to communicate with the TIP. We dont't have the transmitt interrupt option and can't communicate with the TIP. He is going to check to see if these options exist on the Mag Card Reader.

37 MIT-MULTICS-NET 23 Jun 72 telecon/w Al Veza/MIT Dyn. Mod.

37a Al said that the "Anonymous" user will get 10 minutes of processor time free via the Net. The "Frequent to Reguler" user has to be associated with an ARPA project. Jere Saltzer is the person to contact about Imlac assembler on Multics.Also Jere Powell of MITRE Wash. has had experience using the Mit Imlac assembler. Mike Pablipsky is the one to contact about MULTICS use the printing in the Resource Notebook referring to him is incorrect.

38 BBN MODEMS 17 Jun 72 ltr from R. Rettberg/BBN

38a This effort includes all items necessary to connect local terminals to the TIP.

1-modems:

30	Vadic VA305DM(103e org/ans)	@ 187.50		5625
2	Intertel 2010(201b)	@1058	2116	
32	cables	@ 25	800	
2	Intertel 100 SA enclosures	@ 225		450
2	Vadic VA1616 Chassis (redundant power sup.)	@ 800	1600	
1	Vadic VA1748 Cabinet (DAA-modem cables inc)	@ 750	750	
1	Vadic VA232 Test Panel	@ 250	250	
	Installation by Vadic		250	
30	Pules Com 1692-6 Data Coupler (CBT Equiv)	@ 132	3960	
		15801		
G/A	@ 18.8%	2970		
	subtotal	18771		
	Fee @ 8.56%	1607		
	total	20378		

39 BBN/MODEMS 14 Jun 72 Telecon/w R. Rettberg/BBN

39a We agreed to get the data access arrangements and to cancel the order for the 201a3 modem since the TIP will not presently support this half duplex modem. Randy will send a letter outlining our complete order of Vadic modems and accessories.

40 BBN/MODEMS 12 JUN 72 TELECON /W R. RETTBERG/BBN

40a Randy said that we would need data access arrangements to go with our Vadic modems these would cost about 178 .

41 modems & TIP USE 24 May 72 telecon to S. Russell/BBN

41a The 201 moeems can be delivered by mid une but Intertel will not deliver the 103's until the end of July or 9 weeks. The TIP software needs to be nodified to handle the dial up 201a3 and no schedule is set for that effort. BBNwill deliver temperary 103 modems by mid june. These may be producted by Vadic.
I also talked with Will Crowther about our planned TIP use summary is as follows:
The numbers published on TIP band with are worse case figures and should be used as average band widths. These numbers have a 20% error. The figures given should be reduced by 15% to account for TIP processing. The TIP can handle 100KB of two way terminal trafffic and 100KB of two way Host and trunck line traffic. The TIP must process each character which requires about 100 micro sec. per character. This accounts for the factor of 11 overhead for terminal traffic as opposed to host traffic. The hosts operate at an average rate lower than 50KB. Will thought that the TIP buffers needed to be 100 words total for the two full duplex ports operating at 19.2KB. The TIP can take 4K more of core and Will thinks that BBN will install the additional core as a matter of rote but diddn't know the schedule. Parity bits are striped by the TIP and disgarded. The TIP now has an 8 bit transparent mode. In this mode the 8 bits are not interpreted by the TIP but are sent as is to the receiving host.
I told Will about the problems we have been having with the NET. That is at least every other day the TIP goes down for one reason or other. He suggested that I speak to Frank Hart about the matter.

42 TIP USE 16 May 72 telecon/f Lt. Col. E. A. Evoniuk/Air Staff-Ass. Chief of Intell.

42a Col Evoniuk wanted to know how he could get into the ARPA net with some of his terminals. I referred him to ARPA and sent him a copy of the TIP users guide
Rm 304 Lynn Bldg.
1111 N. 19th St.
Rosslyn, Arlington Va. 22209
He said they had a Data Products Portacom which is a tty terminal and a Total Com by Computer Products which is a CRT terminal.

43 TIP USE 16 May 72 telecon from Dick Ward/Syr.U.

ARPA NET NOTES

43a Dick said that Syr. U. would like to use RADC's TIP for about 4 months to see what was avalable on the net. He ask fro the proceedures for requesting use.

44 Hosts/TIP 26 Apr 72 Telecon to H. Rising/BBN

44a I asked Hawley for the costs of including another host on the TIP.
expansion Cabinet 900
distant host interface 3400
expansion drawer 900
distant hist driver 2100
maintenance 0027/mo.
this times 105 plus 10856 for fee and G&A
delivery 3 mo. from order.

45 Hosts/TIP 26 Apr 72 Telecon/w B. Dolan/ARPA

45a The MIPR for additional modems got to ARPA but our procurement or somboby screwed up the quantities that is it states 30 103 type modems instead of 20. I told Bruce that there was an error and that RADC want the quantities specified in a previous letter.
ARPA/NSA are completeing a report on Net security and Bruce said he would get me a copy.
I asked about expanding kthe TIP to handle two hlosts. This expandion kiis possible at added cost. Bruce said he would send me a copy of some TIP specs on channel and card space availability.
The added casts are approx. as follows:
expansion cabinet-$1200
expansion drawer-$1200
local interface-$4400
distant interface-$7000
Only two printers have been iinterfaced with the TIP ODEC 1300 and the AB dic Vioeo Jet.

46 modems 7 Apr 72 telecon to T. Pyke/NBS

46a Tom said that there were three inconviences associated with the card modems.
1-there are delays in delivery
2-there is no way of knowing that a modem is in use
3-ther is now way of turning a modem off to the out side that is produce a busy signal

47 TIP Use 7 Apr 72 telecon/w B. Dolan/ ARPA

47a Bruce called to request use of RADC TIP for the U. of Michigan. The line will bee 300 baud voice grade dedicated service. ARPA will brovide modem. U. of Michigan will be doing some work on speech & understanding. I requested that ARPA put this info in letter form designating what time period they wish to use the TIP. ARPA is trying to find a commercial site to provide NLS service. This net site would use a PDP-10 TENEX and provide the same basic services as SRI dose now. Nothing can be done until FY-73. If the effort does culminate the service will be available in larte summer, Aug-Sep. Also thought is being given to having NLS on a completely differint system.

NBS is having difficulty with the BBN card modems and suggest I talk with Tom Pyke about it.

48 modems 6 Apr 72 telecon to S. Russell/BBN

48a Steve said that the modems will be delivered in mid May.The modems have been on order since Oct 71. The delay is due to Intertels development of a new call and answer 103 modem. All modems and acessories should be delivered at one time. BBN will be responsible for maintaining the modems but they are not sure wether they will do it directly or indirectly as through Honeywell. All the modems will be mounted in the modem cabinet instead of inside the TIP itself. Though future modem racks can be mounted inthe TIP if desired. Retrofit will be made to the TIP before mid May. The mods will cover several small problem areas in TIP function.

49 printer 30 Mar 72 conv/w F. Troilo & Honeywell

49a The facility has Honeywell 202 type printers that are able to print 94 ASCII standard characters. However special op codes must be generated by the sending device to switch printer into the edit mode and also to switch it into upper and lowercase modes. In addition the printer must recieve data in character parallel fashion. The TIP sends data in a character serial fashion. Did not check on speed or degree of utilization since I though the above problems were to severe to consider the 202 printer use for AHI/NET.

50 net modems 8 Mar 72 telecon w/S. Russell/BBN

50a I told BBN that RADC had agreed with ARPA that we would purchace additional modems and that BBN should send a proposal to ARPA with the following equipments listed.
20-103a2 equiv modems
1-201a3 equiv modem
21 connecting cables
1-16 card modem rack
1-3 rack cabinet

51 plasma term 9 Mar 72 telecon w/Dave Liddle Owens
Ill./(419)-242-6543

51a The plasma terminal with 2K 16 bit wd core is available for $10K + $1K for eack additional 2K of core. The delivery schedule is 90 days ARO (after receipt of order). The cassette costs about $1K. The unit will be able to be intrtfaced to the TIP at least up to 500 ft. as the IMLAC will be. The terminal can have interfaces to the key set and mouse with costomer providing the key set and mouse or Owens will buy and interface everyone of these input devices. In about a year Owens will have a hardcopy unit for the terminal. This unit will be retrofited to the display module with the size of the complete unit being less than that of the IMLAC display cabine(2/3 size of IMLAC)t. The copier will be an optical xerox type device. the copy will be smaller than the display so that the display image can fit on a 8&1/2 by 11 sheet of paper. Owens advises getting less than 8K of core since this terminal needs less core than the IMLAC. A prototype will be available at Owens in May. A bread board model exists at Raytheon but is not worth seeing. The processor can drive multiple displays. Additional questions to ask are is the terminal available immediately and what is the expected cost of the hardcopy retrofit.

52 Comm Lines 8 Dec 71 telecon t K. Stanley/AT&T

52a According to Stanley a circuit delay problem exists in the line from Rome to Lincoln Labs. Problems in the lines from Rome to Case were resolved 2 weeks ago. If AT&T placed Rome in the network at this time the circuit would function but only marginally & problems would arise in the future. Therefore the lines will not be opened until fully tested and until they meet the necessary specs. Stanley will call RADC late afternoon on 8 Dec 71 to give a possible time estimate.

53 Comm Lines 8 Dec 71 telecon to B. Dolan/ARPA

53a ARPA feels that ATT has been working on the comm lines as much as they possibly can under the circumstancs and are in no way neglecting the effort.

54 com lines -ARPA 7 Feb 72 Col. B. Dolan to T. Lawrence

54a Several new sites will be added to the ARPA net as follows:
Aberdine Proving Ground near Baltimore up in July
Boulder connection will not be at INCAR but at Office of Telecommunications or NBS
ARPA will have a TIP in June
Fort Belvoir will come up in may with a CDC 6600
Burroughs Paoli will be closed down
UC at San Diego will be temporarily connected by a 10K line to UCLA and will be up in 2 mos. with a B-6500 for use with the I4.
The order to BBN for the modems should be out next week.
14 people are working on tha RADC com line problem in NY state. The burst error problem is solved however a time delay problem has arrived on the scene. The letter and RADC line problem has gone up 6 levels of management in AT&T. Bruce will apply himself to our problem and try to push AT&t. Bruce will call back this week with new status rept. Some high speed line people have returned to the Utica office hopefully this will benefit us.

55 modems BBN 10 Nov 71 telecon from S. Russell/BBN

55a Yes to Tektronix 4002 and IMLAC PDS-1 using a 201b type modem operating at 2400 baud full duplex.
COSTS:

1 card rack	1,560	
103a2 equiv.	400	Intertel mod. no. 1035
201b equiv.	1,430	Intertel mod. no. 2010
1 cable	35	
1 std. alone encl.	195	
1 IMLAC clock mod.	350	

The Tektronix has an asyn. interface enabling it to accept clock pulses from the modem. The IMLAC requires a modification to be able to accept the external clock. This non standard option was obtained by BBN for their IMLAC and cost@ about $350. The hardware involved is a switch and a circuit card. The TIP software is able to accept the external clock. The IMLAC contacts at their central office in Waltham, Mass. are as follows:
Hiram French
Fran Selvitelli (617) 891-1600
The terminals should be ordered with start and stop bits and specified to operate at 2400 baud. Both terminals operate with start and stop bits.
SCHEDULE:
30 days from order for rack, stand alone enclosure, 201b. 60 days for 103a2's. Allow 30 days for paper work. The 201b's could arrive in early Jan 72 and the 103a2's will probable be ready in late Jan or early Feb 72.

Spares of each type should be ordered for quick recovery. An additional cabinet can be ordered from BBN to house card modems above 16 units.

56 modems, printers BBN 3 Nov 71 telecon to S. Russell/BBN

ARPA NET NOTES

56a There has been a delay in the delivery of the 103a2 modems to BBN from their supplier. These modems are not expected until Jan 72. Steve will look into the IMLAC and Tektronix compatability with the 201b 2400 baud non dial modems and call back on 5 Nov 71. Line printers over about 1200 baud require buffering. The Odek printer used by BBN operates at 200 lines per min. requires a 256 character buffer and a EIA terminal connecter to be compatable with the TIP. BBN will also try using the printer via 202 modem. The ABDIC Video Jet 9600 has also been run with the TIP. Jerry Powell has looked at this printer. The Inktronic at 1200 baud would probably not require a buffer.
Joel Levin: The device Code command has been debugged. The Hazeltine 2000, Termanet 200,33, 35, & 37, 2741's are compatible with the TIP.

57 modems AT&T 4 Nov 71 telecon to Mr. Stathum/ AT&T (315) 471-0050

57a Stathum said that the 4-103a2 modems are scheduled for 30 NOv 71 but does not know how realistic a date this is. I told him to call F. Troilo x4824 about option details.

58 local lines and modems 3 Nov 71 telecon to R. Hickok/4426

58a The new date for the 200 local line pairs is 8 Nov 71. That date is tentative. A Mr. Stathum of AT&T will call requesting options for the 103a2 rented modems.

59 50K baud lines 4 Nov 71 telecon to K. Stanley/AT&T

59a AT&T is working on the lines. There is trouble on the long lines between Utica and Cleveland with 96KC interference and additional problems between Utica and Rome in one direction on the T carrrier. Trouble shooting will reveal the actual extent of the problem. Stanley gave an estimate of 6 to 8 days until the lines will be completed.

60 TIP BBN 30 Sept 71 telecon to S. Russell/BBN

60a The TIP will be delayed until comm lines are in because BBN wants to make only one trip to Rome. BBN will uncrate, set up, connect terminals and check out the system before leaving. RADC's TIP is in operation at BBN as part of the ARPA Net. The TIP requires 1-30 amp 110 volt single phase circuit. The TIP power cord has a male Hubble twist lock connector 3331g and requires a female 3330 plug. This cord is 15 feet long. The two 50K baud modem racks require 1-15 amp circuit which connects to a standard power plug. Each power cord is 6 feet long.

BBN has connected Imlacs directly to the TIP successfully but has yet to try the 201b type modem connections required by RADC. 1800, 1200,and 9600 baud connections have been tried with sucess. The technical problem will be investigated within a week or so and if any problems arise RADC will be notified. The full duplex connection requires 4 line pairs per modem pair. I told Steve that we didn't expect the Imlacs here until after the first of 72. The 201b's will cost around $1500 or 3 times the 202 cost. The Imlac uses ASCI code.

61 comm lines 29 Sept 71 telecon from Col. Dolan/ARPA

61a The 4 Oct. 71 date for the 50K baud lines will not be met by AT&T due to the NY Tel strike. No new date can be set at this time. RADC will be given 2 to 4 weeks notice on line installation date. Dolan will pursue modem procurement with BBN (Ralph Taylor).

62 comm lines 28 Sept 71 telecon w/ R. Hickok

62a Ron felt after conversations with local AT&T people that the 50K baud lines would not be installed by 4 Oct 71. NY Tel is working with a skeleton crew (supervisors) which may not be able to do the work. However the 8 required base line pairs are available. The local lines for terminal connection (200 new line pairs) should be available in the first part of Oct.

63 MIPR COM LINES 28 Sept 71 telecon w/Stg. Simmons x2417

63a The MIPR for 50K $ is being sent out today. One copy goes to the Army Mateial Command and one to ARPA. This proceedure was established a few months ago to speed up processing.

64 50K baud lines 28 Sept 71 telcon to Ken Stanley/AT&T

64a Due to the NY Tel. strike the 50K baud lines will not be installed by 4 Oct.71. This change is not yet official. The lines will probably be installed some time in Oct. No exact date can be estimated at this time. AT&T's contact at BBN is Marty Phrope.

65 modems BBN 21 Sept 71 telecon to H. Rising /BBN

65a Hawley said he had received my letter about RADC modem and terminal requirements; he also recieved the letters sent to ARPA with RADC's promice to pay for modems procured. I explained that Western Telamatic was not producing the MTST interface and that we required 4 201b modems at the terminal end. Hawley said that BBN could provide all the 18 modems requested excluding any unforseen technical problems. Hawley understood what was desired now. He said that a proposal would have to be submitted to ARPA and he thought that would take about a week. With the 90 day delivery time the modems could not be expected until after the first of the year.

66 Modem Metzger 9 Sept 71 conv. w/ D. Metzger

66a Dick expects the Tektronix 40002 in about 12 Dec 71.

67 use of BBN TIP 8 SEPT 71 telecon w/W. Crowther/BBN

67a RADC can dial into BBN's TIP using (617) 491-5290 or 1. Users guide will be sent and will explain proceedures. Mod 33 or 2741 can be used. The Execuport 300 programing will be up by Friday. Carrage return gave problems. MITRE's TIP was dropped on delivery and frame was bent. This accident should cause no delay on RADC's TIP 5 Oct. 71.

68 modems & ARPA 3 SEPT 71 telcon w/col. Dolan/ARPA

68a Arpa does not have a contract with BBN on modem procurement yet but is arranging one. We can accquire 201b modems via ARPA as soon as agreement is reach between RADC and BBN.

69 modems local spares 30 AUG 71 conv. w/F. Troilo

69a Frank has 2 103a2 modems he can guarantee for 2 months and a possibility of 2 additional modems.

70 modem rental 27 AUG71 telecon to R. Hickok/x4426

70a 103a2 modems rent for $29.19 per month plus $27.03 installation fee. In order to rent modems generate 77 and send copy of 77 to TSTS. TSTS will then persue.

71 modems & TIP 27 AUG 71 telecon to H. Rising/BBN

71a Told Hawley that the 2741 was a type 935 and used correspondance code. Hawley said that BBN could not provide any modems in the interim.

72 MIT 645/MULTICS 26 AUG 71 telecon D. Stone w/A. Bhushan/MIT

72a MIT Called:
1-It takes 2 mnys for the Net. Protocol effort under MULTICS.
2-It takes 3K "wired down" core, the rest is paged in and out as required approx. 20K words total.
3-The only changes that would be required to run on our system are a change in Host name & number.
4-They can do this anytime we asked i.e. the changes could be made and shipped with the next system update tape if we say go.

73 MTST interface 26 AUG 71 telecon w/Western Telematic/(213) 442-1862

73a The MTST interface is not in production the company will send info. if there is any further question call.

74 modems, terminals & BBN 26 AUG 71 telecon w/ H. Rising & Steve Russell/BBN

74a I said that RADC is purchasing modems via ARPA and that the authorization letter will be leaving RADC shortly. RADC needs 10 103a2 type modems ,10 connecting cables and 1 card rack for 3 Execuports, 2 2741's and 5 mod 33's. We also desire 3 IMLAC channels and 1 Tektronix 4002 channel. The 90 day delivery schedule still holds for the 103a2 modems. BBN is considering acquiring 201 2400 baud modems. The earliest schedule there is the first of '72. BBN will probable get som earlier in which case these can be delivered to RADC if the need arises. The 201 modems cost about $1400. 16 modem cards can fit into the rack. The differences in 2741's is in the code. there are 11 such codes. BBN has presently implemented 2 for the TIP. I will find out what codes are required by RADC so they can be implemented by BBN.

75 MIT & 645/MULTICS 26 AUG 71 telecon w/ M. Pablipsky/MIT

75a 3 pages of 1024 wds each are required to be wired down in the MIT net software interface. Mike did not know how much total core was required.If RADC's system is compatible only one line of code needs to be changed in the progamming. Sys. 15 and above should be compatable. Two days notice would be required by MIT in making the transfer. All that is needed is the loading of 2 reels of tape. Loading the tape is a matter of minutes and the job is done. If RADC mails MIT 2 blank reels of tape they will return the taped Net software. MIT would be prepared to make such a transfer in a month. In 2 or 3 months MIT expects to have an improved version which RADC may wish to transfer.

76 modems, BBN & TIP 24 AUG 71 telecon w/ H. Rising/BBN

76a Hawley indicated that BBN has changed its specs for the 103a2 type modems. These card modems will be originate and receive types rather than one or the other. This change will increase the price by $25 to $30. The figures quoted by ARPA were cost to BBN not total price to RADC. The tentative delivery of modems is approx. 90 days from order though Hawley will check to make sure. BBN may install original varity of modem and make modifications later. The TIP scheduled for delivery 28 Sept has been delayed to 5 Oct. because comm. lines will not be ready untill 4 Oct. There are 2 varities of 2741 must check to clarify which variety will be compatible with TIP.

NOTE: Modems will probably not arrive with TIP causing a maximum gap of 2 months. Perhaps some spare RADC modems can be found in the interim.

Total cost of modems and accessories to be immediately purchased from BBN is $5835.

77 Net & RADC 645 19 AUG 71 conv. w/Fred Norman/x7546,x7011,x29904

77a Fred will be giving a report to RADC management on the 27 AUG 71 on the problems and considerations of implimenting the ARPA net, OLPARS, and associative processor via the 645/MULTICS. Fred requested information on what effort and resources are required to connect to the ARPA net. The info. I gave him is summarized as follows:

Special interface hardware available in 6 to 8 months at a cost of 5K to 15K depending on features desired.

Network interface software as presently specified by NWG 8 to 18 months at a cost of at least 100K and 1 to 2 manyears. Software effort must be preceeded by a detailed comprehensive study of RADC net needs and Net specifications.

78 MIT & 645 20 AUG 71 telecon w/Abhay Bhushan/MIT/(617) 864-6900 x1428

78a I called to find out about transferring MIT's Net software to RADC's 645/MULTICS system. The following are the questions and answers:
1- What is the status of Multics network software in regards to present protocals?
All official protocals have been implemented and are working except the server loger enabling outside users to use the net software. This software should be available in 2 to 4 weeks.
2- How much effort would be required to produce the present protocals if one started from the beginning i.e. without any previous effort?
From 1 to 2 manyears. 2 people working for a minimum of 6 months.
3- After completion of the protocals what type of system availability will one have as compared to a local user?
Although MIT's net users will be limited to about 3 because of multics loading there is no inherent software limitation. The network user will have the same access to MULTICS as the local user.
4- What ammount of software overhead is required for the Net interface software; how much is resident?
Will respond later.
5- What would be the degree of transferability to RADC 645/MULTICS, how long would the transfer take, what kind of personnel are required, when could this transfer be accomplished in an absolute schedule?
The degree of transfer would be very good. More complete responce will be given later.

79 modems & ARPA 19AUG 71 telecon w/ Col. Dolan/ARPA

79a It was agreed that ARPA would purchase modems for RADC from BBN if RADC would pronise to reimburse ARPA for the specified items. I said that I would send a letter to that effect and would MIPR the money when ARPA informs RADC of the exact price. The following is ARPA's tentative version of the costs involved.
103a2 card modem $280
card rack (20 cards ?) $1200
cable per modem $25
plus about 25% G&A

80 modems AT&T 19 AUG 71 telecon Chuck Rogers /AT&T Syr. 471-0050

80a AT&T has rental costs only purchase prices can be obtained from Western Electric. Rental prices are as follows:
201A 2000 baud dial $86.48 per mo. 108.10 install. plus 12.8% on each
201B 2400 baud non dial $80.00 per mo. 100.00 install plus 12.8% on each conditioned lines required @ $20 per mo.
301 or 203 9600 baud leased line service
approx. $300 per mo. $300 install

81 modems 19 AUG 71 conv. with F. Troilo

81a Frank is aware of line installation schedule and feels that the lines will be available. In the worst case only one trunk line would be installed on schedule. Placement of the IMP appears to be no problem. It will probably positioned next to the modem area in proximity to the 645 I/O ports. The 201B purchase price is between $800 - $1200. I outlined the list of modems and terminals we are immediately considering purchasing through BBN. 10- 103A2 card answer only modems. These modems will interface 2-2741's, 2-execuports, 5-33's, and one spare modem.

82 Cambridge line 12 AUG 71 telecon from Mike Pablipsky/MIT x6007

82a Mike said that we could not get into the net via MIT/MULTICS because the programming was not ready but should be ready in 2 weeks . I will check back in 2 weeks for status rept. The execuport can be used. SRI was experiencing problems with both their net software and hardware. All names presently under the Rome project will be able to access the net. There may be administration promlems in using MIT to access the net in which case I will be notified. Mike will send command instructions for calling MULTICS/net.

83 modems & BBN 10 AUG 71 telecon to H. Rising

83a BBN will offer 2 types of card modems as follows:
103A2 @ $365
202C @ $570
plus modem card rack @ $1560 and cable per modem @ $32.50
An extra card type should be purchased as a spare. BBN has not considered maintainance of modems but would most likely fall under the present Honeywell maintainance contract.

84 Cambridge line 10 AUG 71 conv. with B. Walker

84a Bob said that there were 4 legal names for MULTICS MIT login Walker Rzepka Kobziar and Norman. Each also has a password. Use of the Execuport limited to 150 baud

85 Cambridge line 6 AUG 71 conv. with Roc Iuorno

85a Roc said the line was not used much and that we were welcome to use it. The procedure for loging on to MULTICS is individuals name and Rome If we need any assistance don't hesitate to ask

86 modems 6 AUG 71 conv. with F. Troilo

86a Frank indicated that 2400 baud IMLAC and Tektronix 4002 would require a 201B 3 or 4 modem. the Execuport, 33, and 2741 would need a 103A2. The 3 or 4 type modem indicates internal or external sync. The 9600 baud 301 modems are non dial hardwire types renting at about $50 per month including maintainance. Purchase price about 1 to 2 years rental.

ARPA NET NOTES

87 net & MIT 5 AUG 71 telecon to Ed Meyers/MIT/864-6900, x6006, x5905, x6001

87a Ed indicated that their MULTICS NCP to accept outside users to the net was still experimental but would be checked out in 1 to 2 weeks. However, we could still try to come in over our Cambridge line but he would need our proj. ID in order to include it in the net system. Administration problems could be worked with Mike Pablipsky x6007. Honeywell Cambridge contacts are Dick Snyder or John Gintell 461-6300.

88 TIP & modems,BBN 3 Aug 71 telecon to Hawley Rising/BBN

88a Making channels compatable with modems or directly connected is a minor wire change therefore no additional cost will be incurred when additional terminals are connected. Work on the Tectronix 4002 is progressing. Steve Russell should be notified when RADC knows the type and number fo terminals it wishes to connect. BBN will submit a cost proposal to ARPA for modems since NBS has requested modems from ARPA. Rising was not sure about maintainance but thought Honeywell would maintain modems. I will call Rising the week of AUG 8th to check on modem costs.

89 DP printer 3 AUG 71 telecon to Dick Watson/SRI

89a Watson said that the Data Products printer SRI has is not a mini printer and would discourage us from getting one. Roger Bates is presently looking into various printers for SRI. Contact should be made with him for further info.

90 net lines & modems 4 AUG 71 to R. Hickok telecon

90a AT&T is on strike, should be back to work 15 AUG. 50K lines should be in on schedule that is 1 OCT 71. 200 local line pairs should be available between 1 SEPT and 30 SEPT. If lines come in on time it makes no difference whether we want 1 or 50 line pairs. Hickok said check again ol 10 SEPT. Rented cost of modems per month including maintance are as follows:

103A2	$29.19
201A	$97.55
201B	same as 201A

Allow 45 days from order to delivery.

91 RADC DM & net 27 JULY 71 telecon Phillip Messing/MITRE/703-893-3500

91a Messing wanted to know what RADC was going to offer over the net in the way of data management systems. I told him no decision has yet been made.

92 RADC host telecon H. Rising/BBN to T. Lawrence 2 AUG 71

ARPA NET NOTES

92a BBN was updating their net documentation and wanted to know which host was to be connected. I told him no decision had yet been made. Ray Thomlinson or Danny Boberow should be notified about posssible RADC use of the network via BBN's PDP 10 TENEX. Financial arrangements would have to be worked out.

93 plasma displays 30 JUL 71 T. Lawrence to Cordell GreenARPA/8-224-5921

93a 10 to 20 terminals may be purchased. ARPA had contacted 20 of their contractors to determine interest and possible specifications. no decision to persue has yet been made. Steve Crocker will be taking over from Greene in Sept. If RADC has any interest contact him. terminals would be furnished GFE.

94 net info 28 JUL 71 Don Gondek/RADC/IRDA/2146

94a Don borrowed info. on ARPA net for purposes of using net or designing his own.

95 RADC net terminals early JUNE 71 Dr. Ralph Alder/BBN telecon to T. Lawrence

95a Alder wanted to know what terminals RADC was to connect to the TIP. Responce was 2 execuports, possibly 3 IMLACs, and possibly 1 Tectronix 4002.

96 CTC & the net spring 71 Dick Ballinger/ESD/ACC/8-478-2701 or 2702

96a I gave Dick approximate costs for getting on the net. He said CTC may wish to connect.

17059 Distribution 1

Duane L. Stone, James H. Bair, 1a

AHI LINE PRINTER PR-B-4-3219

Journalizing to free file space for new directories

ROME AIR DEVELOPMENT CENTER
GRIFFISS AIR FORCE BASE
NEW YORK

TITLE: AHI LINE PRINTER PR-B-4-3219

OBJECTIVE:

The objective of this effort is the procurement, delivery and installation of a medium speed line printer to be used in conjunction with RADC's overall Augmented Human Intellect (AHI) program. The contractor will be required to interface the line printer with an existing hardware unit, the Terminal Interface Processor, and also to provide on call and/or scheduled maintenance service as necessary.

BACKGROUND:

The line printer will be used to output text, that is, documents and reports at speeds greater than 100 lines per minute (LPM). The text will contain alpha/numerics (upper and lower case characters) and at least the usual set of symbols such as commas, parenthacies, quotation marks etc. The reports produced by the printer will be used directly from the printer and/or copied on a Xerox copier prior to use. The paper to be used will be perforated in 8" x 10 1/2" or 8 1/2" x 11" sheets for convient removal of the document sheets from the continuous printer output.

The printer will be driven by an existing hardware unit called

the Terminal Interface Processor (TIP) produced by Bolt Beranek and Newman (BBN) of Cambridge, Mass. The TIP is part of the ARPA Network which interconnects over 20 varying computing facilities located about the nation. The TIP can be considered to consist of two components a Honeywell 316, which is the data processor, and a BBN Multi Line Controller (MLC) which interfaces up to 63 terminals to the 316 processor. Both components are housed in a single "High-Boy" type cabinet. The printer will be connected to one of the existing 63 terminal ports in the TIP, therefore, the printer must conform to certain electrical, hardware and logical port specifications. The complete specification is contained in BBN Report No. 2184 entiled "Terminal Interface Message Processor the BBN TIP Hardware Manual" and in BBN Report No. 2277 entitled "Terminal Interface Message Processor Specifications for the Interconnction of Terminals and the Terminal IMP".The essentials of a port connection are as follows:

1. Full duplex operation (each port has an input channel and an output channel)
2. Bit serial transfer on each channel
3. Either 5, 6, 7, or 8 bit characters are allowed. Each character must be preceeded by a start bit and followed by at least one stop bit.

4. Each port will operate in a synchronous or asynchronous fashion.

a. Synchronous: a clock pulse is supplied to the TIP by the Terminal (external clock) however start and stop bits are required.

(1) Data rates: input & output- any rate up to 19.2 Kbps.

b. Asynchronous: The TIP supplies its own internal clock after selection of the data rate.

(1) Data rates(bps):

input & output- 75, 110, 134, 150, 300, 600, 1200, 1800, 2400

output only- 4800, 9600, 19200

5. Interface voltage levels conform to EIA Specification RS232 and the interface connector is the EIA Standard data phone connector. [connector should be Cannon DB-25P equivalent)

6. The ports are modem compatible, however, since the printer will be in proximity to the TIP the printer will be directly connected and no modem will be required. The TIP requires the following connections when operating in the asynchronous mode:

Pin 1 (protective ground)

Pin 2 (transmitted data)

Pin 3 (received data)

Pin 7 (Signal ground)

Pin 20 (data terminal ready)

In synchronous mode the following additional connections are needed:

Pin 15 (transmitted signal element timing)

Pin 24 (See Pin 15)

Pin 17 (received signal element timing)

Pin 25 (See Pin 17)

CONTRACT REQUIREMENTS:

The contractor will accomplish as a minimum the following tasks:

1. Deliver a medium speed printer with at least the following capabilities:

a. Printer interface must be bit serial and must receive ASCII code. In addition the interface must accept data with even parity, odd parity and no parity.

b. Print format- at least 132 columns per printed line

c. Print speed- greater than 100 lines per minute and less than 800 lines per minute.

d. Printer must produce 95 printable ASCII symbols and codes as given in Figure A. The space is considered a printable. In addition the printer must operate in accordance with the following ASCII control codes as defined.

(1) Null (NUL) A no operation.

(2) Line Feed (LF) Moves the printer to next line (keeping the same horizontal position).

(3) Form Feed (FF) Moves the printer to the top of the next page.

(4) Carriage Return (CR) Moves the printer to the left margin of the current line.

(5) Vertical Tab (VT) Moves the printer to the next vertical tab stop.

(6) Horizontal Tab (HT) Moves the printer to the next horizontal tab stop.

Vertical Tab and Horizontal Tab capability are desirable but not essential.

e. The quality of the print shall be such that the printer output can be used directly from the printer as documents for official government use and distribution. In addition the quality of print shall be such that usable copies of the printer output can be made on a Xerox copier. A hard copy sample of the printer output containing all printables must be provided with the proposal.

2. The contractor shall deliver and install the line printer making all physical and electrical connections to the TIP. After installation the contractor will demonstrate functional acceptability of the printer by the printer's acceptance of data transmissions from the TIP inaccordance with data rates specified in the Statement of Work.

Delivery will be made to :
RADC/Computer Facility
Building 3
Griffiss AFB
New York 13441

3. The Contracter shall interface the line printer with the TIP in accordance with the appropriate sections of BBN Report No. 2184 entitled "Terminal Interface Message Processor the BBN TIP Hardware Manual" and BBN Report No. 2277 entitled "Terminal Interface Message Processor Specifications for the Interconnection of Terminals and the Terminal IMP". This interface shall include all hardware necessary to assure electrical and logical operational compatability with the TIP. The contractor should keep in mind that the TIP interface is bit serial and that there are no control lines to the TIP to stop data input to the printer. However, an exception exists in the synchronous mode (clock pulse provided to the TIP). In the synchronous mode the TIP will not send data unless it recceives a clock pulse, therefore, by starting and stopping the clock pulse the data flow from

the TIP can be controlled by the external device.The printer must be able to accept and print data from the TIP at a asynchronous or synchronous rate given in the BBN specification. The printer must have sufficient buffer space to permit reception and execution of at least 3 consecutive Form Feeds and at least 70 consecutive Line Feeds without loss of incomming data. The line printer and its interface shall be constructed in accordance with best commercial practices.

4. The minimum acctable MTBF (mean time between failures) of the line printer and interface shall be 5000 hours.

5. The contractor shall also maintain the procurred line printer in accordance with a scheduled and/or on call maintenance service as necessary.

6. The contractor shall also provide a year's supply of paper for the line printer. The paper will be perforated in 8" x 10 1/2" or 8 1/2" x11" sheets for convient removal of the individual sheets from the continuous printer output. The contractor shall also specify other vendors for this perforated paper compatible with the delivered printer.

TESTING:

Acceptance of the line printer and interface will not be made until it has been demonstrated that the printer and interface meet all the requirements of this Statement of Work to the

satisfaction of authorized Airforce personnel. The demonstration to determine acceptance must have the line printer interfaced to the BBN Terminal Interface Message Processor with the functional conditions identical to those that will exist in the actual operational environment. If the printer and interface fail to meet all the requirements of this Statement of Work the contractor shall modify the printer and interface to conform to these specifications. After each modification the equipments will be retested to determine acceptance.

The contractor shall show that the delivered equipment has met the reliability requirement of this Statement of Work through a reliability prediction and analysis of the at equipment. In addition the contractor shall perform an analysis of failures occuring during acceptance testing of the equipments being procured. The contractor shall then use that analysis to modify the equipmints to remove the cause of failure.

DATA:

The contractor shall supply at least one set of manuals containing operational and hardware descriptions of the procured line printer. Any modifications to the printer to interface to the TIP will also be completely described in the delivered set of manuals.

The contractor shall deliver to RADC the reliability prediction and analysis report 30 days prior to acceptance testing.

17060 Distribution 1

Duane L. Stone, James H. Bair, 1a