AAM 26-JUL-73 12:42 18023

Response to NIC#18019

Jim,
I got your note about cooperation on the graphics protocol meeting minutes and protocol document. I don't especially believe that I know enough to want to WORK ON the documents, but I would like to read (receive) them. Also, I would like to believe that "journal" submissions sent to NGG wil get to all the right people. I assume that both of the above requests would have been satisfied even if I hadn't written this, but one is never sure of anything when the NIC is concerned.
Regards, Alex McKenzie

1

18023 Distribution
James C. Michener,

AAM 26-JUL-73 12:42 18023

Response to NIC#18019

(J18023) 26-JUL-73 12:42; Title: Author(s): Alex A. McKenzie/AAM;
Distribution: /JCM; Sub-Collections: NIC; Clerk: AAM;

Marcia,
I tried to remove the "Network delivery" mode from my "Master Ident-File" entry, and it seems to have worked! Therefore, don't be surprised that it's gone.
Regards,
Alex McKenzie

1

18024 Distribution
Marcia Lynn Keeney,

(J18024) 26-JUL-73 12:46; Title: Author(s): Alex A. McKenzie/AAM;
Distribution: /MLK; Sub-Collections: NIC; Clerk: AAM;

JEW 26-JUL-73 13:47 18025

TNLS Bug, Content Analyzer, Addr form, string at end of file gives 'Read to End of File' Error Msg

The following (paraphrased) was received by JEW from JED via SNDMSG on 25-JULY-73: 1

I am successfully using the content analyzer now. 1a

At first, though, I was using the "address" form of 'Goto Program Control', and the string I wanted to use was at the end of my initial file. 1b

Even though I had a semicolon at the end of the statement, I was getting a "read to end of file" error. 1b1

When I Move Statement'd the string to the middle of my initial file, it worked fine. 1b2

This is a just a minor bug I thought I would bring to someone's attention. Thanks. 1c

18025 Distribution
Diane S. Kaye, Harvey G. Lehtman, Charles H. Irby, James E. (JED) Donnelley,

JEW 26-JUL-73 13:47 18025

TNLS Bug, Content Analyzer, Addr form, string at end of file gives
'Read to End of File' Error Msg

(J18025) 26-JUL-73 13:47; Title: Author(s): James E. (Jim)
White/JEW; Distribution: /BUGS JED; Sub-Collections: SRI-ARC BUGS;
Clerk: JEW;
Origin: <WHITE>BUGSMSG.NLS;2, 26-JUL-73 13:43 JEW ;

JBP 26-JUL-73 13:52 18026

test response

i received your test message dated 16 july 73 16:04 nic#17835
--jon.

1

18026 Distribution
Keith N. Sandum,

JBP 26-JUL-73 13:52 18026

test response

(J18026) 26-JUL-73 13:52; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /KNS; Sub-Collections: NIC; Clerk: JBP;

JEW 26-JUL-73 13:56 18027

Reporting NLS Bugs

Jim-- Got your memo about the 'read to end of file' NLS error, and your problem with setting the protection bits. I'm checking on the latter. 1

The former I passed along for processing by the NLS crew. This is something you could (and should in the future) do yourself, in the interests of getting a speedy response. 2

Simply send a description of the bug (like the one you sent me) through the Journal to ident=BUGS, with a title which very concisely states the nature of the bug. 2a

Outright bugs should be journalized as described. Questions about how things work, etc., are still very appropriately addressed to me (or anyone else you can get hold of when you need to). I'll get back to you about protection. --Jim 3

18027 Distribution
James E. (JED) Donnelley,

Reporting NLS Bugs

(J18027) 26-JUL-73 13:56; Title: Author(s): James E. (Jim) White/JEW; Distribution: /JED; Sub-Collections: SRI-ARC; Clerk: JEW; Origin: <WHITE>JEDMSG2.NLS;2, 26-JUL-73 13:56 JEW ;

Connect Time Statistics for June 1973

INTRODUCTION 1

Based on the data collected from the fact files using the histogram feature of the Accounts program, the following compilations have been made. 1a

NUMBER OF PEOPLE USING A SPECIFIED AMOUNT OF CONNECT TIME 2

The following table gives the number of people who logged in and used a particular amount of connect time. The columns represent four weeks in June of 1973. The rows represent the number of people who were connected and used the indicated range of time. For example, during the week of June 3rd, 136 people were logged in for a period ranging from 16 to 25 minutes. Bar graphs are available from Susan Lee, XDOC #16580, which help in comparing this data. 2a

	6/3	6/10	6/17	6/24	TOTAL	
:00-:05	284	300	292	259	1135	2a2
:06-:10	96	111	122	104	433	2a3
:11-:15	88	80	112	66	346	2a4
:16-:25	136	119	194	156	951	2a5
:26-:35	94	96	107	82	379	2a6
:36-:45	113	97	124	76	410	2a7
:46-1:05	82	71	96	73	322	2a8
1:06-1:25	55	52	57	35	199	2a9
1:26-1:45	70	52	50	59	231	2a10
1:46-2:25	36	29	39	35	139	2a11
2:26-3:05	27	27	32	31	117	2a12
3:06-3:45	11	7	20	11	49	2a13
3:46-5:05	9	14	3	12	38	2a14
5:06-6:25	8	9	7	9	33	2a15
6:26-7:45	6	3	2	0	11	2a16

Connect Time Statistics for June 1973

7:46-10:25	1	7	2	1	11	2a17

AVERAGE CONNECT TIME 3

Based on this data, the average length of connect time discounting system logins etc. (omitting all connect times greater than 3:45) is 34.2 minutes. If we consider the system logins, the average connect time for the four weeks was 40.8 minutes. 3a

AVERAGE NUMBER OF LOGINS 4

Over this four week period, there was an average of 1115 logins per week. 4a

18028 Distribution

Donald C. (Smokey) Wallace, Richard W. Watson, Don I. Andrews, Rodney A. Bondurant, Jeanne M. Beck, 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, 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

Connect Time Statistics for June 1973

(J18028) 26-JUL-73 14:25; Title: Author(s): Susan R. Lee/SRL;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>LOGINS.NLS;3, 26-JUL-73 14:10 SRL ;

Revised Time Report for Content Analyzer -- Execute Assimilate

In connection with the publication of a scenario for production of reference lists using Content Analyzer and Execute Assimilate, RWW suggested study of the time consumed in some common uses. Some results are given here. 1

File of this date, 26-July corrects the time previously reported for OR process. 2

Experiments Using the NIC Document Author Index 3

Procedure 1 3a

Pattern: /"Postel"/ 3a1

Size of Source File: 2201 statements of 125-130 printed characters 3a2

Size of Output File: 57 statements of 125-130 printed characters 3a3

Times: 3a4

Compiling Pattern: 1.9 secs. 3a4a

Content Analyzer and Execute Assimilate: 23.4 secs. 3a4b

Sort: 2.6 secs. 3a4c

Procedure 2 3b

Pattern: /"Protocol"/ AND /"Postel"/ 3b1

Size of Source File: 2201 statements of 125-130 printed characters 3b2

Size of Output File: 13 statements 3b3

Times: 3b4

Compiling Pattern: 1.9 secs. 3b4a

Content Analyzer and Execute Assimilate: 24.1 secs. 3b4b

Sort: 4.0 secs. 3b4c

Procedure 3 3c

Pattern: /"Protocol"/ OR /"Postel"/ 3c1

Revised Time Report for Content Analyzer -- Execute Assimilate

Size of Source File: 2201 statements of 125-130 printed characters 3c2

Size of Output File: 210 statements 3c3

Times: 3c4

Compiling Pattern: 2.0 secs. 3c4a

Content Analyzer and Execute Assimilate: 40.2 secs. 3c4b

Sort: 4.0 secs. 3c4c

Procedure 4 (Not useful for this purpose) 3d

Pattern: *["Protocol"] / ["Postel"]* 3d1

Size of Source File: 2201 statements of 125-130 printed characters 3d2

Size of Output File: 210 statements 3d3

Times: 3d4

Compiling Pattern: 2.0 secs. 3d4a

Content Analyzer and Execute Assimilate: 39.0 secs. 3d4b

Sort: 4.1 secs. 3d4c

18029 Distribution

Donald C. (Smokey) Wallace, Richard W. Watson, Don I. Andrews, Rodney A. Bondurant, Jeanne M. Beck, 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, 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

Revised Time Report for Content Analyzer -- Execute Assimilate

(J18029) 26-JUL-73 14:27; Title: Author(s): Jeanne B. North/JBN;
Distribution: /SRI-ARC; Sub-Collections: SRIARC NIC SRI-ARC; Clerk:
JBN;
Origin: <NIC-WORK>REVTIME17880.NLS;1, 26-JUL-73 13:51 JBN ;
Hl="Revised Time Report for Content Analyzer--Execute Assimilate
JBN 27 JUL 73";

AAM 27-JUL-73 06:15 18031

Nancy,
I assume that you will be the "BBN-NET" representative, and therefore there's no need for me to sign up with "USERS" (see below). Am I right?
Alex

1

JAKE 26-JUL-73 11:41 18020
Network Users Group (USERS)
Message: Please notify people at your site who might be interested that there is now a network group known as the Network Users Group (USERS). This group is an offshoot of the Network Users Working Group (USING) that was formed in June of this year with Dave Crocker and Nancy Neigus as coordinators. Members of USERS should be willing to make comments and contributions as a Network user, and will be on distribution for Network dialog concerning user needs. To become a member of USERS send name and Network mailing address to: Jake Feinler (JAKE or FEINLER@NIC)

2

(J18031) 27-JUL-73 06:15; Title: Author(s): Alex A. McKenzie/AAM;
Distribution: /NJN; Sub-Collections: NIC; Clerk: AAM;

AKB 27-JUL-73 08:04 18032

Thanks for your message. Please feel free to add new members to FTPIG but inform me of it. Where is Christopher NEwport from? Does he have a NIC ident? 1

(J18032) 27-JUL-73 08:04; Title: Author(s): Abhay K. Bhushan/AKB;
Distribution: /JBN; Sub-Collections: NIC; Clerk: AKB;

I got the following error while submitting message in journal system:
File Locking Conflict-Please reload file
Fatal error Crash at procedure: FRZBLK+14
The above info may be of some use to you. Next time around things worked OK. The error occured when I typed CA to message after typing it.

1

(J18033) 27-JUL-73 08:07; Title: Author(s): Abhay K. Bhushan/AKB;
Distribution: /JEW MDK; Sub-Collections: NIC; Clerk: AKB;

On Changing Journal File Naming Convention

This is to record my complete concurrence with Jim White's suggestion and supporting arguments (LJOURNAL, 18011,1:wy) that Journal file names be revised to have the form:

<prefix> '- <integer>

I see essentially no inherent value in the present Journal file naming convention, and, like Jim, I see much benefit to users and to the cataloging processes if the scheme he has proposed were to be implemented.

1

On Changing Journal File Naming Convention

(J18036) 27-JUL-73 08:56; Title: Author(s): Michael D. Kudlick/MDK;
Distribution: /SRI-ARC NP; Sub-Collections: SRI-ARC NP; Clerk: MDK;

Two subsystems that I know of (Journal, Calculator) have had trouble with the L10: INPUT CA; I see no reason why this shouldn't SIGNAL like GOTO STATE. It apparently calls goroot, resulting in some sad but humorous states. Should this be changed? 1

(J18037) 27-JUL-73 09:03; Title: Author(s): Diane S. Kaye/DSK;
Distribution: /DIA HGL EKM CHI CFD JDH; Sub-Collections: SRI-ARC; Clerk:
DSK;

We are happy to have network people using Macsyma. In your case you failed to mention the name of the person who wants to use us. As we have been personally contacted by Mark Cirlin, I don't know if he person you have in mind. Can you give us more info? Also, Prof. Ed Ng at UCLA has used us and may be of help to you. 1

(J18038) 27-JUL-73 09:03; Title: Author(s): Jeffrey P. Golden/JPG;
Distribution: /CSK; Sub-Collections: NIC; Clerk: JPG;

Hello John In RFC #519 you mention solving a recursive prob. in pattern recognition and a triple integration using MACSYMA. No mention of these is made in the later RFC on "ML meets OLS" (Frankenstein meets the Wolfman?) Are there any interesting tidbits on this, possibly a forthcoming paper (possibly course termpaper) that you could give us? 1

(J18039) 27-JUL-73 09:16; Title: Author(s): Jeffrey P. Golden/JPG;
Distribution: /JRP; Sub-Collections: NIC; Clerk: JPG;

Visitor Log: Prof. J.D. Nicoud

Visitor Log: Prof. J.D. Nicoud

Computer-Aided Display Control	4b
1962 report	4c
Design Consideration on Knowledge Workshop Terminal	4d
14724	4e
Augmenting Human Intellect: Exp., Con., and Poss.	4f
16577	4g
3954	4h

NDM 27-JUL-73 10:31 18040

Visitor Log: Prof. J.D. Nicoud

(J18040) 27-JUL-73 10:31; Title: Author(s): N. Dean Meyer/NDM;
Distribution: /DCE SRI-ARC; Sub-Collections: SRI-ARC; Clerk: NDM;
Origin: <MEYER>VISLOG-NICOUD.NLS;1, 27-JUL-73 10:29 NDM ;

TNLS Bug, Journal, File Locking Conflict

The following was sent to me by AKB via the Journal (18033,) on 27-JULY-73: 1

I got the following error while submitting message in journal system:
File Locking Conflict-Please reload file
Fatal error Crash at procedure: FRZBLK+14
The above info may be of some use to you. Next time around things worked OK. The error occured when I typed CA to message after typing it.

1a

TNLS Bug, Journal, File Locking Conflict

(J18041) 27-JUL-73 10:42; Title: Author(s): James E. (Jim) White/JEW; Distribution: /BUGS AKB; Sub-Collections: SRI-ARC BUGS; Clerk: JEW;
Origin: <WHITE>BUGSMSG.NLS;2, 27-JUL-73 10:40 JEW ;

JEW 27-JUL-73 11:02 18042

File Locking Conflict

Abhai-- I got your msg (18033,) re 'File locking conflict'. The appropriate thing to do in the future with things like that which are clear-cut bugs is send them through the Journal, not to me, but to ident=bugs. That's what I did this time with your report. Questions about how things work, etc., are still very appropriatly addressed o me (or anyone else you can lay your hands on when you need help).
--Jim

1

JEW 27-JUL-73 11:02 18042

File Locking Conflict

(J18042) 27-JUL-73 11:02; Title: Author(s): James E. (Jim) White/JEW; Distribution: /AKB; Sub-Collections: SRI-ARC; Clerk: JEW;

DSK 27-JUL-73 11:44 18043

Your Recent Imlac Difficulties

I have responsibility for handling NLS recreate display problems. (I have nothing at all to do with "imlac programs".) I have seen your note (17632,) and do not know (having talked to Elizabeth Michael) if that represents your current state. Let me know if you have reproducible legitimate NLS-type problems. I can handle any which are recreatable here...Diane Kaye 1

DSK 27-JUL-73 11:44 18043

Your Recent Imlac Difficulties

(J18043) 27-JUL-73 11:44; Title: Author(s): Diane S. Kaye/DSK;
Distribution: /JHB; Sub-Collections: SRI-ARC; Clerk: DSK;

MEJ 27-JUL-73 14:32 18044

Book Needed - Please Search your Shelves

Does anyone at ARC have the following book checked out, if so, would appreciate it very much if you would return it as soon as possible: Randloff and Helmreich; Groups Under Stress: Psychological Research in SEALAB II, XDOC No. 3658. Thank you very much. Mil. 1

Book Needed - Please Search your Shelves

(J18044) 27-JUL-73 14:32; Title: Author(s): Mil E. Jernigan/MEJ;
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MEJ;

Computer Usage from Oct '72 - Jun '73

DEFINITIONS 1

Idle Time - Percent of real time the CPU is idle. This would be any interval of time when the CPU isn't servicing user or system jobs. This includes even brief periods when users are connected but not active. 1a

DATA BASED ON 24 HOUR USAGE, 5 DAYS A WEEK EXCLUDING HOLIDAYS 2

Hours	Available	Program Development	Idle Time	Preventive Maintenance	Remedial Maintenance	
Oct '72	480	295	130	40	15	2b
Nov	480	239	106	120*	15	2c
Dec	432	280	97	40	15	2d
Jan '73	456	275	126	40	15	2e
Feb	456	299	102	40	15	2f
Mar	480	321	104	40	15	2g
Apr	480	293	132	40	15	2h
May	456	248	153	40	15	2i
Jun	480	301	124	40	15	2j

2a

* Special Drum Maintenance 2k

DATA BASED ON 9 HOUR USAGE, 5 DAYS A WEEK EXCLUDING HOLIDAYS 3

Hours	Available	Program Development	Idle Time	Preventive Maintenance	Remedial Maintenance	
Oct '72	180	152	18	--	10	3b
Nov	180	114	11	45*	10	3c
Dec	162	135	17	--	10	3d
Jan '73	171	144	17	--	10	3e
Feb	171	148	13	--	10	3f
Mar	180	152	18	--	10	3g

3a

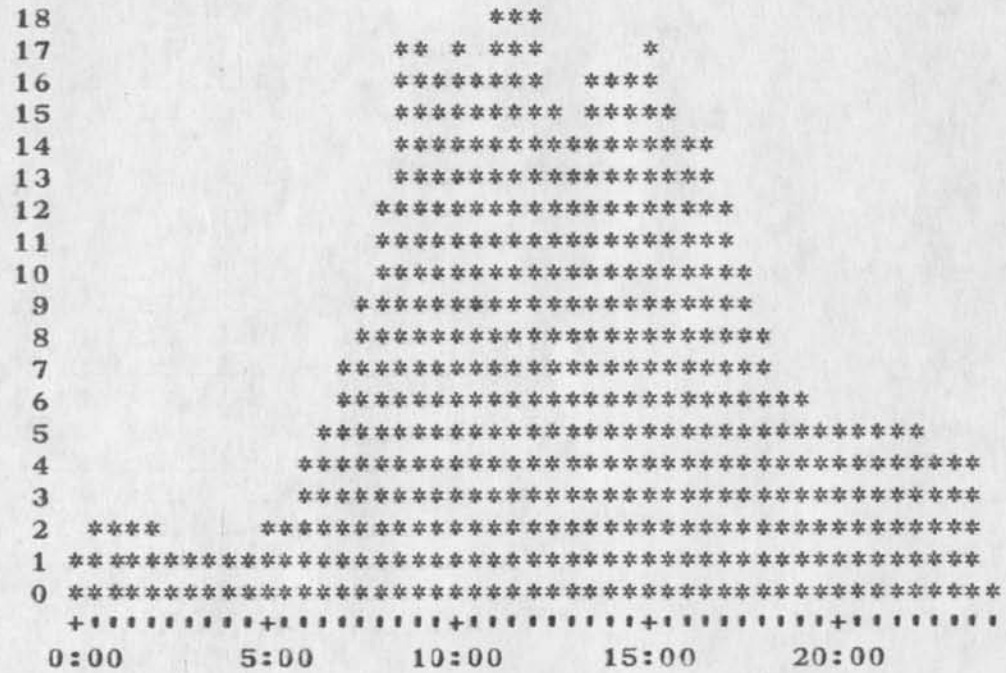
Computer Usage from Oct '72 - Jun '73

Apr	180	151	19	--	10	3h
May	171	139	22	--	10	3i
Jun	180	146	24	--	10	3j

* Special Drum Maintenance 3k

GRAPH OF AVERAGE NUMBER OF USERS FOR JUNE 1973 4

TIME PLOT OF AVERAGE NUMBER OF USERS FOR JUNE 1973
x axis labeled in units of hr:min, xunit = 30 minutes 4a



4a1

Computer Usage from Oct '72 - Jun '73

(J18045) 26-JUL-73 15:13; Title: Author(s): Susan R. Lee/SRL;
Distribution: /RWW JCN PR; Sub-Collections: SRI-ARC; Clerk: SRL;
Origin: <LEE>COMPUTERUSE.NLS;2, 26-JUL-73 14:03 SRL -;

LOGIN PROCEDURES

This file will contain login proceedures. 1

Prior to logging in, one should check the switches under the cover of the Terminet-300. They should be st to "full" and to "30". The coupler should be set to "full". 2

Turn the power on. The switch on the Terminet-300 is located in the back on the right side. Turn on the power to the coupler. The switch postion varies from coupler to coupler. 3

Take the phone off the hook and press it into the rubber mounts on the coupler. Make sure that the phone cord is in the position indicated on the coupler. 4

Dial any of the following numbers: 5

4172 5a

4173 5b

4174 5c

4175 5d

4176 5e

4177 5f

4293 5g

2073 5h

4777 5i

2884 5j

The phone has answered when the green READY light on the front of the coupler comes on. If it does not come on after a reasonable wait (30 seconds) then try anothr number. 6

AT THIS POINT YOU ARE CONNECTED TO THE TIP (TERMINAL INTERFACE PROCESSOR) IN THE COMPUTER FACILITY VIA THE BASE TELEPHONE SYSTEM. You are now ready to try for a connection to SRI via the ARPANET. 7

Logging into ARPANET: 8

Hit the "e" key on the Terminet-300 to "wake up" the TIP. You may have to hit it several times. 8a

The TIP should respond with HELLO 315 8a1

You should now tell the TIP to insert extra padding after transmitting a carriage return to your terminal. This is done to avoid losing characters which might be transmitted during the return of the print head. You do this by typing @ d c 37 and hiting the "line feed" key. This key is marked "lf" and is in the lower right hand part of the main keyboard on the Terminet-300. Make sure when typing to separate each character with a space by hitting the "space bar" (except 37). 8b

Now type @ i l"lf" This tells the TIP to Insert Linefeed after each carriage return that you type in. It will prevent the terminal from typing over top of a previous line of text. 8c

The third thing you have to tell the TIP is where (to what computer facility in the ARPANET) you wish to be connected. Each site has an unique number. SRI's number is 2. You type @ l 2 "lf". You are asking the TIP please log me into site 2's computer. Again be sure to separate each character with a space. 8d

The TIP should respond with LOGGER. This means that the TIP's trying to make a onnection to SRI for you. Very shortly after the TIP should respond further with T OPEN R OPEN. This means that the TIP has been successful in opening both a Transmit and a Receive channel between RADC and SRI. 8d1

The SRI system should then send a message which indicates that it is ready to receive commands. The message should look something like 8d2

```
ARC-TENEX 1.29.00  14-JUN-72 ARC EXEC 1.38.00
@
```
8d2a

The "@" character is your signal that you can start giving commands to SRI's system. 8d2b

YOU ARE NOW READY TO LOG INTO SRI'S EXECUTIVE SYSTEM 9

You should type in "half" "cr". 10

You must identify youself to SRI's system so that they can make sure you are a legitimate user of the system. You do this by typing: 11

thayer "cr" where "cr" stands for cairrage return. 11a

the system should then say (PASSWORD) and print a bunch of garbage to conceal your password. 11b

LOGIN PROCEDURES

Type your initals (rht) for the password and hit "cr". 11c

The system will then type (ACCOUNT #) You should reply with a "cr" 11d

The system should then respond with 11e

JOB 7 ON TTY45 17-OCT-72 8:29 11e1

The job number, tty number, date, and time will of course change from one login to the next. You may receive other messages at this time. Wait until you get an @. 11e2

******if the system is echoing, ie if your name is printed as TTHHAAYYEERR , type @ e n"lf".****** 11e2a

If one of the messages said YOU HAVE A MESSAGE, just type mess "cr" and any messages you have received will be printed out. If you wish to send a message to someone, type snd"cr"....and you will be prompted on how to send a message. 11e3

Another command used often is dir"cr" which will print your directory of files. To get a complete listing of all TENEX commands available over the network, just type a ? and they will be listed for you. Try several of these out. If you need further instruction, just type sys "cr" and see who at RADC is on the system. Then type link "space" and the person's last name and "cr". Your terminals will then be linked together, and you can ask questions by typing a ;...the text of your question..."cr". 11e4

******NOTE*****you may receive a message like AUTOLOGOUT-----, This is sent when the potential user fails to login during the first 2 minutes after making contact with SRI. If this happens, just type c while holding down the control key. This will get the attention of the executive system at SRI and you can start again with the @thayer etc proceedure. 11f

YOU ARE NOW READY TO LOG INTO NLS 12

NLS stands for "On Line System" and is the system that we are trying to reach. To call up this system simply type nls"cr" 12a

The system should respond with a few lines and finally give you a * It may say You Have Journal Mail 12b

CONGRATULATIONS YOU HAVE MADE IT TO NLS 13

You can now exercise any of the commands available in NLS. 13a

LOGIN PROCEDURES

One of the first things you should do each morning is to check your initials file to see if anyone has sent you a Journal message or file during the previous day. To do this type pj"cr". You are telling NLS to print Journal mail. 13b

One command you may want to use is the one that allows complete feedback from the computer whenever you type in a command. This is gained by typing: 13c

e v f c 30 "cr" "cr" "cr" 13c1

What you are actually telling the computer is: 13c2

Execute Viewchange 13c2a

Feedback 13c2b

Characters 13c2c

The computer will respond with 0 at this point which means you are currently receiving zero feedback. By typing in 30 (or some other large number) you are changing the feedback characters from 0 to 30. You must then hit several "cr"s to get out of the Execute Viewchange mode. (look for the * which always means that NLS is waiting for you to give it another command). 13c3

Type ? if you want to see all the NLS commands avaiable. 13c4

When you are finished with NLS and ready to logout type the command: 13d

e l "cr" which means execute logout. 13d1

The computer will print something like: 13d2

KILLED JOB 12, USER BETHKE, ACCT 30, TTY47, AT 11/13/72 1423 USED 0:0:40 IN 0:19:20 13d3

This means that your job (number 12, account 30, TTY 47) was terminated at 2:23 (pacific standard time) on the 13th of november, and that you used 40 sec of CPU time in the 19 minutes and 20 seconds that you were connected to SRI. 13d3a

You now should log off the ARPANET by typing: 13e

@ c"lf" which means close the connection to SRI. 13e1

The TIP should respond with T CLOSED R CLOSED which means that the transmit and receive channels to SRI have been closed. You may now hang up the phone and turn off the terminal. 13e2

REVIEW 13f

The printout on the terminal should look something like this (the computer generated print is in CAPS and the characters you have to put in are in lower case). 14

e 15

HELLO 315 16

@ d c 37"lf" 17

@ i l"lf" 18

@ l 2"lf" 19

LOGGER 20

T OPEN R OPEN 21

ARC-TENEX 1.29.00 14-JUN-72 ARC EXEC 1.38.00 22

@thayer"cr" 23

(PASSWORD) 24

############ rht"cr" 25

(ACCOUNT #)"cr" 26

JOB 7 ON TTY46 17-OCT-72 8:35 27

@mess"cr".....link.....snd.....sys....dir....?...etc 28

@nls"cr" 29

* 30

*pj"cr" 31

ev 32

f 33

c = 0 30"cr""cr""cr" 34

*pPrint bBranch .2"cr"mw"cr" 35

::::::::::other work in NLS:::::::::: 36

```
*eExecute lLogout "cr"                                                    37

KILLED JOB 12, USER THAYER, ACCT 30, TTY47, AT 11/13/72 1423 USED 0:0:40
IN 0:19:20                                                                38

@ c"l f"                                                                  39

T CLOSED R CLOSED                                                         40
```

LOGIN PROCEDURES

(J18046) 27-JUL-73 14:01; Title: Author(s): Duane L. Stone/DLS;
Distribution: /RHT WPB EJK JLM FJT; Sub-Collections: RADC; Clerk: DLS;
Origin: <STONE>LOGIN.NLS;2, 27-JUL-73 13:52 DLS ;

JCN 27-JUL-73 15:41 18047

First quick message to Ric T.

Ric: If you get this, I guess you are a little farther online. Sure enjoyed heving you here this week. When you're ready, send me a message..via Journal or via sndmsg. or call first and we'll set it up. 1

JCN 27-JUL-73 15:41 18047

First quick message to Ric T.

(J18047) 27-JUL-73 15:41; Title: Author(s): James C. Norton/JCN;
Distribution: /RLT; Sub-Collections: SRI-ARC; Clerk: JCN;

JBP 27-JUL-73 16:02 18048

rje group addition

This is to confirm that Christopher Newport has been added to the RJE group.

1

rje group addition

(J18048) 27-JUL-73 16:02; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /JBN CBN; Sub-Collections: NIC; Clerk: JBP;

JBP 27-JUL-73 16:08 18049

question on network journal delivery conversion algorithms

it is not too clear to me that the conversions from/to nls files to/from sequential files for ftp in the network journal submission and delivery scheme [rfc 543] do the "right" thing. i would expect that if the document were to be printed as for hard copy each line would be a record, this seems like a desirable conversion for delivery. for submission the scheme you propose is as resonable as any.

1

JBP 27-JUL-73 16:08 18049

question on network journal delivery conversion algorithms

(J18049) 27-JUL-73 16:08; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /NDM; Sub-Collections: NIC; Clerk: JBP;

i would like to suggest that the term "ICP" in rfc 553 in phrases such as "ICP Subpicture" should be replaced everywhere by a different term such as : base, basic, root, top, bottom, initial, starting, 0th, First, etc.

1

(J18050) 27-JUL-73 16:16; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /KEV CHI; Sub-Collections: NIC; Clerk: JBP;

re:rfc 553
i suggest that names be 16 bits not 14 bits,
that the seven bit significance and concatinate bytes is a crock we
can do without,
that you give codes in decimal, 1

(J18051) 27-JUL-73 16:20; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /CHI KEV; Sub-Collections: NIC; Clerk: JBP;

MINUTES OF NETWORK GRAPHICS GROUP MEETING 1

15-17 July 1973 at Center for Advanced Computation, U of Ill; Steve Bunch, host 1a

Attendees: See appendix 1b

Sunday evening, 15 July 2

The meeting came to order around 1930, Jim Michener presiding. After introductions, an agenda was constructed for the rest of the meeting. 2a

Elaine Thomas distributed copies of an Alternative Network Graphics Protocol for attendees to read overnight prior to discussion. 2b

Because some individuals were absent who had definitely indicated that they were coming Monday morning, the meeting was adjourned at 2030 after deciding to meet at 0930 the next morning. 2c

Monday Morning/Afternoon, 16 July 3

The meeting was called to order at 0930 3a

Jim Michener distributed an outline of a paper describing desirable facilities for the use of two dimensional input devices with a hierarchically structured display program. 3b

Ken Victor distributed copies of RFC 533: A Proposed Network Text/Graphics Protocol. 3c

Ken Pogran described the history of the NGG and how the "levels" approach of RFC 493 came about. In particular, the "level 0" protocol was an attempt to define something to experiment with, but with the thought that it should be possible to imbed "level 0" meaningfully in any later protocol. 3d

Reports of Network Graphics Experiences 3e

Jon Jervert described the installation at CAD/CAM (Fort Monmouth). They have a spectrum of display terminals and have tried several via a Telnet connection to MIT-DMCG. They experienced unacceptable slowness with a 3000 Baud bandwidth. 3e1

Austin Henderson described an Air Traffic Control experiment in which the simulator recieves codes describing changes in state and generates descriptions of the air space (region) being controlled and aircraft position and velocity. These

descriptions are highly encoded--they are not pictures in any general sense. The rate at which the simulation proceeded was adequate. 3e2

Jim Michener described the results of an experiment in which the E&S LDS-1 at MIT-DMCG was used to generate stylus inking input for a character recognition program at SDC. The experiment was plagued with difficulties including bugs in SDC's NCP and scheduling of experimental/debugging sessions. When the experiment was finally terminated (due to planned extensive hardware modifications at DMCG) a clear understanding had not yet emerged, but apparently network transmission delays had been experienced of up to 20 seconds. 3e3

Dan Cohen described an Aircraft Flight Simulator which interacts with a user at the Harvard PDP-1. The simulation takes place on a PDP-10. Network traffic is approximately 200 bits from the PDP-1 to the PDP-10 and several thousand bits in the opposite direction. It has been found that at least 5 updates are required per second to give the "pilot" an adequate feeling of control. The Harvard PDP-10 and one at BBN have been used, the latter at 6 AM to avoid loading problems. 3e4

John Pickens described UCSB's status regarding output in level 0 Network Graphics Protocol (NGP-0). 3e5

Steve Bunch reported that he has an Imlac monitor which accepts NGP-0 directly. Programs have been developed at CCN (using subroutine packages modelled after plotter packages) which build files containing pictures in NGP-0. Other programs output the pictures either to a Gould plotter or a storage display (in device specific code) or to an Imlac (in NGP-0 form). 3e6

Steve Holmgren briefly described a Fancy Arpa Network Graphics System (FANGS) under development at UCSD. 3e7

Discussion of Modifications in the Graphics Protocol 3f

David Egli reported that he and Jim Foley (of Univ. of North Carolina) thought that the graphics protocol should have the ability to replace items, and that 3 dimensional data should be allowable. Jim Foley also thinks that a subpicture call should be able to specify a rate of rotation, scaling, and translation, in addition to initial values for these. 3f1

An extended coffee break followed to allow perusal of the documents distributed. 3f2

Elaine Thomas summarized her protocol proposal for a hierarchically structured, editable display file. 3f3

Discussion related to the levels approach of RFC 493 concluded that levels were inappropriate; we would henceforth think in terms of negotiable options. 3f4

Ken Victor stressed that NLS was particularly desirous of being able to make use of the graphics protocol; that was the reason for his developing RFC 533. 3f5

Ken Pogran observed that a structured display system as is being proposed is more a distributed graphics system than a protocol, and that he thought this a good idea. General consensus agreed with him. 3f6

Jim Michener described proposals for input. He emphasized the necessity of transmitting position information in figure coordinates as opposed to screen coordinates or top level figure coordinates. 3f7

Bob Sproull described two different ways in which a graphics application in a serving host can communicate to a using host controlling a display device. 3f8

If the using host has complex enough software or hardware, a structured definition of the display may be sent. 3f8a

A structured display definition consists of figures (also called pictures or groups) which consist of units. A unit is either a call to another figure or a collection of one or more text or graphic commands. (Other special purpose units may exist, also.) Figures and units have names and may be created, replaced and deleted (and other things). 3f8a1

A simpler scheme for the using host is that transformed segmented display information be sent across the network. 3f8b

Segments have names and can be individually created, replaced and deleted. 3f8b1

Either the application works directly in terms of segments, or it works in terms of a structured display definition and software at the serving host has the responsibility of evaluating the transformations and the sub-figure calls. 3f8b2

It seems likely that such transformation software

might have to exist at the serving host anyway if that host has any graphics terminals of small to moderate capability. 3f8b2a

It was agreed to restrict our attention to the simpler "transformed-segmented" scheme, and delay consideration of the "hierarchically structured" scheme until another meeting. 3f8c

It seemed to the meeting that a significant number of applications would need nothing more powerful than a segmented scheme. 3f8c1

One desirable mechanism is an "end batch of updates" command. It can help optimize the use of a storage terminal and it can let a user program cause fixes to occur on a refresh tube all at once. 3f9

After lunch, Ira Cotton pointed out that it would be easy enough to allow NGP-0 to be upward compatible with a segmented, transformed scheme. Bob Sproull agreed and said that that was a good argument for sending only device independent data on the net. (This idea was modified in discussion on Tuesday.) 3g

Ken Victor discussed TTY units, a mechanism for displaying characters which are "unescorted" i.e., are not part of a graphics "text" command. In particular they are for spontaneous messages from the operating system (like "out of funds" or "going down in 5 min"). General discussion was undecided on whether TTY units should really be part of a graphics protocol. (This was later decided affirmatively.) 3h

It was noted that unescorted characters coming from the serving host could probably be handled, but that those coming from the using host might not be. 3h1

Discussion of Network Connection for Graphics 3i

A graphics connection may start out with a Telnet connection. We will request a DO GRAPHICS telnet option. 3i1

Multiplexing on the Telnet connection vs using a separate connection pair 3i2

Dan Cohen stated that his Flight Simulator uses a second pair 3i2a

Alex McKenzie pointed out that some hosts have only "read and block" input commands, not "read and continue". This

means we cannot demand to have separate connection pairs with graphics on one and telnet-type information on the other. 3i2b

Jim Hansen called for a show of hands of preferences: NLS was the only site against using multiple connection. Several sites were against multiplexing graphics information on the Telnet connection. Issues included: 3i2c

It is easier to merge two streams at the user than to split one into two. The latter requires "smart" programming. 3i2c1

TIP users may lose if multiple connections are required 3i2c2

It should be possible to do it on one connection 3i2c3

In summary: two connections are better than one, the number shall be negotiated over the Telnet connection. 3i2c4

Ira Cotton asked for a discussion of connection initiation other than via a Telnet connection. It was agreed that we did not know enough at this time to specify this and that it was a matter for experimentation. 3i3

Someone commented that what we have is a Network Virtual Graphics Terminal which has a Network Virtual Keyboard and a Network Virtual Printer (in the Telnet sense) and a Network Virtual Display Unit. The printer and the display unit may be the same. 3j

Ira Cotton announced that Jim Foley (of Univ. of North Carolina) is planning to have a workshop on machine independent graphics under the auspices of SIGGRAPH in Washington D.C. around mid-April (cherry blossom time). 3k

Discussion of Graphics Input 3l

Dan Cohen summarized the use of input in his flight simulator: since it comprises only approximately 200 bits in toto, all switches, knobs, and stylus position are transmitted. This takes place about five times per second. 3l1

Austin Henderson described the input facilities on the LL TX-2. 3l2

Attentions are enabled. What information will be desired when a particular attention occurs is described at the time the attention is enabled. 3l2a

When an attention occurs, the system records the desired information in a queue for the application program. 3l2b

When the application program is next scheduled it examines the queue and responds as it sees fit. 3l2c

It was generally agreed to adopt the TX-2 strategy. Input devices will not be enabled unless the server does so. 3l3

No restriction is placed on any "lies" the using host wishes to make regarding disguising one device as another. 3l3a

Network connections for input follow the same rule as for output. 3l4

What input attentions are implemented at the using host may be determined by the serving host in response to an inquiry. 3l5

Inking will be provided by the using host (but only one inking input can be specified at a time; no buffering ahead shall be done by the using host). 3l6

Tracking means the feedback of the current two dimensional input device position to the user. 3l7

This is automatically turned on by Inking, Positioning, and Targeting (hitting) attentions. 3l7a

What data are reported at the time of an attention is specified by the application at the server when the attention is enabled. 3l8

Types of attentions were listed and also what additional optional information could be specified with each. 3l9

Deactivating Inputs was discussed. 3l10

It is possible for the application to explicitly deactivate an attention. 3l10a

When an attention is enabled it shall be possible to specify when it should be deactivated. Three modes were mentioned: Never turned off (until the application explicilty does so), turned off when it occurs (self-destruct), turned off when any attention occurs. 3l10b

The need for a synchronization message was agreed upon. 3l10c

It was agreed that the serving host - using host relationship would be one of master - slave. Among other things, the using

host would never volunteer input information which the serving host (application) had not asked for. 3l11

It was decided to meet the next morning at 0830 3m

The meeting adjourned about 1830 3n

Monday Evening, 16 July 4

About 2030 seven of us met in Ken Victor's room 4a

Bob Sproull led the meeting and kept track of the various aspects of the protocol. 4b

Protocol topics which had been discussed during the day's meeting were covered again. Most aspects were firmed up based on the day's discussions. Several topics were identified for discussion in the morning. 4c

Operations on and attributes of segments were defined. 4d

The server should be able to enquire for various information from the using host. 4e

Whether the using host has all the features implemented (which the application needs). 4e1

What input devices the human has at his disposal. 4e2

What sort of terminal is being used, not so as to send device specific code to it, but so that the application does not try to use some graphics programming technique on a terminal which can not handle it (e.g., some sort of dynamics on a storage tube). 4e3

The server may request that the using host report what segments have been defined, their status, and what is contained in them. This is good for debugging, and also provides a limited facility of building a picture then dumping it to some storage medium other than a graphics device. 4f

It was pointed out that the effect of multiple changes in the display (replacing, inserting and deleting segments) should occur "all at once" when an "end batch of updates" command is received by the using host. 4g

For a refreshed display, this means keeping old and new copies of segments until the "batch" command is received. 4g1

This rule may be waived if storage limitations dictate. 4g2

There was considerable discussion on input. It was felt to be the least firm of any aspects of the protocol. 4h

The meeting broke up around 0030. 4i

Tuesday Morning/Afternoon, 17 July 5

Bob Sproull presented the results of the previous evening's discussion to the whole meeting. 5a

The features required of a graphics user program under the proposed protocol were divided into three classes: 5b

Required features included segment manipulation, primitive graphics output operations, and response to queries from the server regarding what is implemented at the using host, what input devices the human has available, etc. 5b1

Optional features included TTY units, reporting the contents of a segment back to the server at his request. 5b2

Experimental features included Input. 5b3

It was assumed that after some experience, experimental featuress would become either required or optional. 5b3a

A full list of required, optional, and experimental features will be issued as a supplement to the description of the protocol. 5b4

A graphics server program need only implement those features which applications at that site make use of. 5c

There was some discussion regarding how and when the graphics protocol should be published. 5d

The protocol is still regarded as experimental, and we wouldn't want any site to assume otherwise, to their later dismay. 5d1

Some worry was expressed about finally presenting this protocol to the Network Community in a form that would not frighten too many people. 5d2

Ira Cotton advised us to include a glossary 5d3

Bob Sproull will put an initial version (skeleton) of a description of the graphics protocol for transformed-segmented

scheme into NLS and will invite everybody in the group to edit it (in the normal NLS fashion). 5d4

When one does editing normally, one's ident, the date and the time are associated with each statement one touches. This information can be seen via the viewspec (capital) K. 5d4a

There was some discussion of whether Level 0 NGP could be imbedded in the Transformed-segmented graphics protocol. 5e

One unfortunate part of NGP-0 was that an End-Picture the is not explicitly required in order to see something. If it were required, then it could act like an end-batch-of-updates command. 5e1

UCSB assumes that NGP-0 works like a storage tube. They append a new function plot to an existing picture never having sent an End-Picture operation. 5e1a

This ability to append in a storage tube fashion struck the posessors of refresh tubes as quite a drawback, because of implementation difficulties. 5e1a1

It was decided to allow a using site to have NGP-0 compatibility, but not to require it. 5e1a2

At least the NGP-0 opcodes would not be reused. 5e1a2a

Except for the End-Picture problem, and possibly also a coordinate system problem (coordsys), NGP-0 can be imbedded in the transformed-segmented protocol with the entire NGP-0 picture corresponding to a single segment. 5e2

The following sites hope to achieve implementations of the experimental segmented protocol: 5f

UCSB hopes to have a server running for OLS and Signal Analysis (speech processing) 5f1

SRI-ARC hopes to have NLS operate in this protocol 5f2

MIT-DMCG may have some simple serving programs. 5f3

Several people plan to implement user programs, at least as far as the required features go. 5f4

(coordsys) A discussion arose concerning what coordinate system should be used in sending graphics output primitives from the server to the user. 5g

The following problems were addressed: 5g1

What happens if the display segment terminal screen area to be used by the application is not rectangular? 5g1a

What happens if the basic unit delta X is not the same as the unit delta y? The application might want a 45 degree line to really be at 45 degrees. 5g1b

Various answers to the first question: 5g2

Use the largest square within the rectangle (centered?, adjusted to the left, top, right, or bottom?) 5g2a

Use the smallest square surrounding the rectangle. (How is the rectangle positioned in the square?) 5g2b

NGP-0 standard coordinates (-1/2 to +1/2) used and mapped into the whole rectangle 5g2c

The user reports left, bottom, right, and top physical coordinates and the server sends coordinates within the range given. 5g2d

This is compatible with the attitude that the transformed( ) segmented graphics data are sent. 5g2d1

It also saves the using host (which might be an Imlac) from doing a multiply. 5g2d2

John Pickens observed that if a graphics server for a finicky application transmits characters as strokes, then the application is assured of having the characters positioned in exactly the right place (e.g., for a numeric label on a tic mark on the axis of a graph. If characters are sent as text (not strokes) positioning is not necessarily guarenteed. 5h

Ken Victor and Jim Michener will look into ways of keeping the NGG apprised of progress (in terms of what sites have experimental/operational graphics protocol servers or user programs) using a pointer file in the NIC. 5i

The next NGG meeting is tentatively scheduled for the first Sunday in February 73, at 8 PM. It will either be at the NIC or partly there and partly at Xerox PARC. 5j

The meeting was adjourned at 1500 5k

Appendix: Meeting Participants/ Affiliation/ Online mailing address/ Attendance (S=Sunday, M=Monday day, E=Monday Evening, T=Tuesday) 6

Steve Bunch 6a

ILL-ANTS 6a1

BUNCH@ISI 6a2

SMT 6a3

Dan Cohen 6b

Harvard 6b1

DCOHEN@ISI or COHEN@HARVARD 6b2

SMET 6b3

Ira Cotton 6c

National Bureau of Standards 6c1

6c2

SMET 6c3

John Day 6d

ILL-ANTS 6d1

6d2

S 6d3

David Egli 6e

CAD/CAM (Fort Monmouth) 6e1

ECOM@BBN 6e2

SMT 6e3

Jim Hansen 6f

ILL-ANTS 6f1

HANSEN@ISI 6f2

SMT 6f3

Jim Hart 6g

NASA/Ames 6g1

6g2

MT 6g3

Austin Henderson 6h

Lincoln Labs 6h1

DAH@TX2 or DAH@BBN 6h2

SMET 6h3

Steve Holmgren 6i

ILL-ANTS 6i1

HOLMGREN@ISI 6i2

MT 6i3

John Jervert 6j

CAD/CAM (Fort Monmouth) 6j1

ECOM@BBN 6j2

SMT 6j3

Alex McKenzie 6k

BBN 6k1

AAM in the journal or MCKENZIE@SRI-ARC 6k2

SMT 6k3

James Michener 6l

MIT-DMCG 6l1

JCM in the journal or JCM@DMCG 6l2

SMET 6l3

John Pickens 6m

UCSB 6m1

JRP in the journal or UCSB@ISI (attn: John Pickens) 6m2

MT 6m3

Ken Progran 6n

MIT-Multics 6n1

Pogran.CompNet at MIT-MULTICS 6n2

SMT 6n3

Bob Sproull 6o

XEROX 6o1

SPROULL@MAXC 6o2

MET 6o3

Elaine Thomas 6p

BBN 6p1

THOMAS@BBN 6p2

SMET 6p3

Ken Victor 6q

SRI-ARC 6q1

VICTOR@NIC 6q2

SMET 6q3

(J18052) 27-JUL-73 16:22; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /JBP CSM; Sub-Collections: NIC; Clerk: JBP;
Origin: <MIT-DMCG>NGGMIN.NLS;26, 26-JUL-73 08:05 JCM ;

JBP 27-JUL-73 16:28 18053

re: ngg note

i looked over the minutes of the meeting, and a very productive meeting it appears to have been, sorry to have missed it. i am interested in tracking the progress on graphics protocol, and there is a fellow here who is also interested in see the work of the graphics group, he is craig maxwell [nic ident = csm] i would appreciate it if he were added to the ngg if he is not already in it. as far as the tenex group thing goes i guess that there would be no objection from our group [ucla-nmc] of nic users.
--jon.

1

JBP 27-JUL-73 16:28 18053

re: ngg note

(J18053) 27-JUL-73 16:28; Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /JCM; Sub-Collections: NIC; Clerk: JBP;

LPD 27-JUL-73 23:53 18054

You asked about IMOL

I never documented IMOL; you might ask Harvey Lehtman (HGL) who at one time was going to. IMOL resembles L10 (SRI-ARC's PDP-10 implementation language) and a number of other MOLs developed for various machines over the years such as PL360 (for the 360) and QSPL (for the XDS 940). You can certainly get the flavor of it by reading IMNLS, the IMLAC program that supports DNLS. 1

LPD 27-JUL-73 23:53 18054

You asked about IMOL

(J18054) 27-JUL-73 23:53; Title: Author(s): L. Peter Deutsch/LPD;
Distribution: /JDG; Keywords: IMLAC; Sub-Collections: NIC; Clerk: LPD;

From: Padlipsky.CompNet at MIT-Multics 07/28/73 1526.5 edt Sat

Bloody FTP/Jnl kludge still keeps telling it doesn't like USING id.

Seeing that I'm on vacation, I suppose it's not worth sending the

NETED updates out by normal FTP and Jnlize only the file name.
Besides,

I WANNA USE THUH NEW TOY!

Help.

cheers, map

18055 Distribution
James E. (Jim) White, Marcia Lynn Keeney,

(J18055) 28-JUL-73 12:27; Title: Author(s): Michael A. Padlipsky/MAP ; Distribution: /JEW MLK ; Sub-Collections: NIC; Clerk: MAP; .SNF=HIRM;

OUTLINE OF THE EVOLUTIONARY INFORMATION CENTER CONCEPT (DRAFT)

1

In our recent analysis of the NIC we have developed the concept of an "evolutionary information center" as a means to handle the basic growth problems confronting the Network Information Center. We believe that this concept is quite general. It can be applied to the development of other information centers as well and, in particular, to the contemplated development of an ARPA energy information system.

1a

The following is a first outline - we are working on a much more substantiated document along these lines - of the basic concept of an augmented evolutionary information center. It is a working document written for your information. We would really welcome criticisms and comments.

1b

INTRODUCTION

2

Due to the very nature of its constituency, there is a major difference between the NIC and other information centers. It comes from the fact that the NIC is operating in an evolving R & D environment which is rapidly growing and still mostly in search of its own identity.

2a

In such an environment specific information needs, although very real and urgent, are largely unpredictable and only rarely recurring. This instability makes the task of building up an effective NIC rather difficult because actual user needs are not clearly known and the real values of the services to be provided are hard to assess.

2b

Thus, the development of the NIC cannot follow a linear design approach without running into high risks of developing sophisticated system features which are only marginally useful to the user community. We believe that a much more evolutionary approach must be taken which will be constantly geared towards the actual satisfaction of the real user needs, even if this implies heavy use of ad hoc solutions. The following is an outline of such an evolutionary approach.

2c

THE PROBLEM OF BUILDING UP AN INFORMATION CENTER

3

The raison d'etre of an information center is to meet at reasonable costs a certain class of information needs of a special clientele. This point is of paramount importance, and in developing an information center all technical and organizational considerations must be judged within that context and new

developments must only be justified on the basis of their relevance to: 3a

(1) the user's information needs, and
(2) to the economics of the situation. 3a1

Anything else is of secondary importance. For instance, questions relating to the conservation of documents or the development of new tools, techniques or procedures must either contribute to the satisfaction of valuable needs or result in cost reduction. Otherwise, they are of marginal importance to the information center and should be treated accordingly. 3a2

Ultimately, only a broad and satisfied user population, using extensively all available services, will validate the existence of an information center. 3b

Consequently, it is very crucial that an information center pays, from the very beginning of its existence, the most careful attention to its potential users. 3b1

It must provide from that very beginning a satisfactory set of services which are tailored to the real user information requirements. 3b2

It must build up good will and cooperation. It must attempt to provide specific answers to specific questions. It must promote its services and, within bounds, it must encourage new types of requests. 3b3

It must learn as much as possible about the whole range of real user needs and about the potential values which could be attached to the satisfaction of these needs. 3b4

To drive down unit costs it must build up usage. The user population must become broad and the usage of the system must become extensive. 3b5

To summarize, an information center must always face simultaneously two conflicting sets of requirements, namely, 3c

(1) the need to keep the average costs down, and
(2) the need to provide as wide a range of information services as economically possible. 3c1

This implies a trade-off between user satisfaction and costs, and the problem is to maintain a proper balance between these two requirements. 3c2

This requires a satisfactory level of services, efficient operations, and a willingness to understate constantly the extent of the services which can be provided in order to avoid triggering expectations that cannot be fulfilled. 3c3

WHAT IS MEANT BY "EVOLUTIONARY" 4

Because of the rapidly changing nature of the ARPA Network environment, most of the information needs of the community change rapidly. It is not feasible to try to respond to these needs with fixed levels and types of services and it would not necessarily be economical. 4a

To serve these needs, a flexible approach is necessary. Ad hoc solution procedures developed in an augmented information center can meet these needs as they arise. Then, through continual observation and analysis more adequate and cost effective response mechanisms and procedures can be developed in a progressive fashion. 4b

As the usage builds up, the on-line utilization of these new systems is introduced gradually by the information center's personnel to the major users first and, as the usage develops further, to other users on a need to know basis. 4c

The whole process is therefore user-oriented, tutorial in nature, and constantly adaptable to the users' degree of sophistication in their utilization of the services of the information center. At no time more than the information center's phone number, or its on-line address, should be required from prospective users. We have termed such an approach "evolutionary". 4d

The evolutionary approach entails a highly knowlegeable small central staff that meets the requests as they arise and observes and analyzes these needs. Over a period of time, a parallel R&D staff will gradually build computerized data bases, query mechanisms, and appropriate on-line information handling procedures to deal efficiently with these needs as they become more stable. 4e

Users will learn when and how to use these data bases through their interactions with the staff. The staff's ability to perform these functions will be significantly enhanced through use of state-of-the-art computer technology such as NLS and the ARPA Network. 4f

NATURE OF USER NEEDS 5

Outline of the Evolutionary Information Center Concept

The proposed evolutionary strategy that will allow the NIC to meet its goals is based on two related facts. 5a

1) At any point in time, information is of two types: historical (published), and recent. 5b

Historical information can be indexed, cataloged, and distributed, but its fixed nature means that it does not require updating. Consequently, the means of managing and disseminating historical information can be reduced to a fairly straight-forward set of procedures. 5b1

Recent information is usually unorganized and distributed around the community, residing in such information sources as people's heads, intra-organizational memoranda, or fragmented computer data bases, rather than in published papers and books, or data management systems. 5b2

Recent information sources cannot be dealt with in the same fashion as historical sources. They can usually only be used when one has the right personal contacts. Flexibility and adaptability are required on the part of the user in utilizing these sources. 5b3

2) Traditional information centers fail to adequately serve the needs of their communities, because they do not adequately distinguish the different approaches needed to provide both recent and historical information to their clientele: 5c

Recent information cannot feasibly be kept sufficiently up to date and properly organized in computerized data bases or other files. Patterns of usage of recent information have to be observed before the information can be organized effectively for retrieval purposes. To discern and respond to these usage patterns requires question/answer dialogues, and a flexibility that formal data bases do not provide. 5c1

OUTLINE OF A PROPOSED SOLUTION 6

An ideal NIC would know and provide for most of the information service needs of the user community, and be able to adaptively meet new needs as they arose. It would be flexible enough to properly utilize both the recent and historical sources of information in its community. The concept we have developed to approximate the ideal solution is this: 6a

Instead of relying heavily on the distribution of hardcopy documents that were designed to answer anticipated user needs, the NIC services will be provided primarily in three ways: 6b

Outline of the Evolutionary Information Center Concept

1) Through a compact directory of basic ARPANET resources. This will be small enough to be economically produced and distributed to every ARPANET user known to the NIC; 6b1

2) Through well-advertised, easy-to-use on-line query capabilities. This will provide access to the NIC's Resource Directories on-line, enabling users to obtain information supplementary to that given in the brief hardcopy directory; 6b2

3) Through a staff that is trained to answer user requests that come to it by mail, phone, "sndmsg", or NIC Journal. This staff, and its supporting analysis and development staffs, constitute the hub of the evolutionary NIC. 6b3

a) It can be connected to most of the local information sources in its community, by means of the ARPA Network; 6b3a

b) It comprises a skilled interface between its community's members and its information sources; 6b3b

c) It is able to evolve because it is uniquely situated to gain knowledge of the types of questions (and types of users) it is serving. Through continuing analysis of these needs, the NIC will be able to build computer data bases and query facilities that will respond to these needs at reasonable cost. 6b3c

d) It is able to evolve more quickly than a conventional information center, because it (the NIC's staff) will be augmented by the NLS system and by the ARPANET information exchange facilities. 6b3d

18056 Distribution

Douglas C. Engelbart, Richard W. Watson, James C. Norton, Jeanne B. North, Susan R. Lee, Elizabeth J. (Jake) Feinler, Charles H. Irby, Dirk H. Van Nouhuys, James E. (Jim) White,

Outline of the Evolutionary Information Center Concept

(J18056) 28-JUL-73 17:28; Title: Author(s): Paul Rech, Michael D. Kudlick/PR MDK; Distribution: /DCE RWW JCN JBN SRL JAKE CHI DVN JEW;
Sub-Collections: SRI-ARC; Clerk: PR;
Origin: <RECH>ENIC.NLS;9, 28-JUL-73 17:24 PR ;

Consider a centralized directory to Analysis-activity data and reports

A suggestion, initially for an on-line file kept up to date, with links to the relevant files.

Consider a centralized directory to Analysis-activity data and reports

Paul and Susan: Would it be feasible for a file to be maintained that listed the files, including perhaps passages of specified files, (probably mostly Journal items) that comprised the data, analytic reports, and planning items related to the Analysis activity? 1

Eventually such an on-line file would become part of the monolithic ARC "Locator" file system; but initially I'd be happy to see a trial shot where it was kept in somebody's directory -- wherever I could have a stable link to it from my personal "reference-link" collection. 1a

A hard-copy printout in a special binder on our general reference shelf would seem a useful next step beyond this. 1b

Motive for me is that occassionally I get the itch to browse, either on line or through the hard-copy Journal records; and more and more I'd like us to start having some independent "directory" activity building up within our areas of special interest. 2

Today I happened to be interested in the question of old analysis reports such as "Week in Review", etc., or specials such as Susan's recent connect-time analysis, or the content-analyzer dialogue, etc.. Wished I could look at one place that has an organized collection of citations (even of standard Journal-delivery announcement form), perhaps organized under different headings, with the usual reference link available on each citation. 2a

Does it seem worthwile to either of you? 3

18057 Distribution
Richard W. Watson, James C. Norton, Paul Rech, Susan R. Lee,

DCE 29-JUL-73 10:21 18057

Consider a centralized directory to Analysis-activity data and reports

(J18057) 29-JUL-73 10:21; Title: Author(s): Douglas C. Engelbart/DCE ; Distribution: /rww jcn pr srl ; Sub-Collections: SRI-ARC; Clerk: DCE ;

DCE 29-JUL-73 11:38 18058

Addemdum to (18040,), on visit by Nicoud

About collaboration interest, potential Net and Utility participation

Addemdum to (18040,), on visit by Nicoud

Professor J.D. Nicoud's visit was mostly hosted by Dean Meyer (18040,); I spent a bit of time with him during which several added points came up that warrant recording: 1

First -- about the ARPANET, and special-community collaboration via our Utility support: I recounted how England was being linked into the ARPANET, and the associated interest among various parties there in collaboration with Americans, in establishing an English-Community Information Center (Kirstein), etc. 2

He expressed considerable personal interest in the idea; didn't see where any immediate rise in National interest and support for Net connection etc. within Switzerland would come from. But I assessed him to be an interested contact point if that issue might later want to be pursued. 2a

Second -- about ARC hosting Swiss trainees: For his own range of interests and activity, he did ask after the possiblities for an exchange, some sort of residency arrangement for students or staff from Switzerland to work within our environment. 3

I told him of our current pressure towards building enough trained staff to meet our expected needs, a pressure that made it unsound to consider bringing in short-term people (even for a year) if the energy to train that short-term person could otherwise go to training a more permananet staff member. 3a

But, I did tell him that we liked the idea in principle; that as soon as our situation stabilized a bit, we would look forward to considering such arrangements. 3b

18058 Distribution
James C. Norton, Richard W. Watson, N. Dean Meyer, Paul Rech,

DCE 29-JUL-73 11:38 18058

Addemdum to (18040,), on visit by Nicoud

(J18058) 29-JUL-73 11:38; Title: Author(s): Douglas C. Engelbart/DCE ; Distribution: /jcn rww ndm pr ; Sub-Collections: SRI-ARC; Clerk: DCE ;

JCN 29-JUL-73 16:55 18059

Mr. Gene Gleissner's (NSRDC) visit to ARC 8/9/73: We're ready

This is to confirm that Dick Watson and I will both be here August 9th and are looking forward to Mr. Gleissner's visit. He is welcome to stay as long as he wishes..all day? We are ready to go into NLS, Workshops, Communities, the ARPANET, the Utility etc. as he may desire. Can you pass this along to him? If he wants more direct contact before coming or any assistance in the reservations at a motel or such, let us know or ask him to call...whatever is convenient. Thanks for your help in arranging his visit. Jim

ps I guess I mentioned that Doug Engelbart will be away that week...but we are fully able to carry on in his absence as you might guess.

1

18059 Distribution
Robert N. Lieberman, Richard W. Watson, Douglas C. Engelbart, James C. Norton,

JCN 29-JUL-73 16:55 18059

Mr. Gene Gleissner's (NSRDC) visit to ARC 8/9/73: We're ready

(J18059) 29-JUL-73 16:55; Title: Author(s): James C. Norton/JCN;
Distribution: /RLL RWW DCE JCN; Sub-Collections: SRI-ARC; Clerk: JCN;

file reading

with respect to your comment about noone reading you notes in the staffmeet file, be advised that big ed and bobie and i(la forge)religiously read the file even with all the spelling errors. 1

18060 Distribution
John L. McNamara,

file reading

(J18060) 30-JUL-73 06:44; Title: Author(s): Thomas F. Lawrence/TFL; Distribution: /JLM; Sub-Collections: RADC; Clerk: TFL;

From: Pogran.CompNet at MIT-Multics 07/30/73 1001.9 edt Mon

Jim,

What is the status of my request for Network delivery of documents in addition to U. S. mail delivery?

Would you please send me something brief (if it's been properly set) so that I can check it out?

Thanks.

Ken

(J18061) 30-JUL-73 07:02; Title: Author(s): Kenneth T. Pogran/KP ;
Distribution: /JEW ; Sub-Collections: NIC; Clerk: KP; .SNF=HIRM;

From: Pogran.CompNet at MIT-Multics 07/30/73 1003.2 edt Mon

This is a sample message to test Network Journal Submission and delivery from and to mit-multics.

(J18062) 30-JUL-73 07:04; Title: Author(s): Kenneth T. Pogran/KP ;
Distribution: /KP ; Sub-Collections: NIC; Clerk: KP; .SNF=HIRM;

MEJ 30-JUL-73 08:29 18063

Reply to JEW (18011,) Re: Use of RFC Numbers in Cataloging

This is in reply to Jim White's suggestion in (18011,) concerning use of identification such as RFC-524 instead of 17140 in the SRI-ARC and NIC Journal system. It is recognized that JEW's suggestion is very sound and quite reasonable from the point of view on "an online person" who does not maintain, but only creates. But behind that "online person", there is a staff which must deal with some essential practicalities never seen in front of a CRT. This response is given from the point of view of the person who records these documents, catalogs them, files them, and retrieves them when someone wants to see them ... which is fairly often. 1

(1) DCE, when the documentation/catalog system was first set up several years ago, decreed that the numbering system should be consecutive and inclusive, and that subcollections be just that. 2

(2) The suggestion is written from the assumption that RFC's and other group notes are issued online, approached online, filed online, and used by an online community. This viewpoint is true of several people at SRI-ARC (but not all) but is the rare exception rather than the rule outside of ARC. By far the major proportion of RFC's and almost all of the other group notes are issued in hard copy, a master mailed to Marcia Keeney, who then reproduces from this master and mails as appropriate. This material never goes online, and in fact, much of it cannot be put online because we do not at this time have the system capability to do it ... mixed text and graphics, halftones, charts, etc. A fairly large percentage of the material would run to so many disk pages if we transcribed it online that we would have to resort to the ILLIAC IV and a staff of typists to handle it. From that score, we also obviously do not have the capability. 3

(3) The online handling of issuance of RFC numbers is a special case, as JEW mentioned, while the issuance of the other group notes is handled offline by the Station Agent at NIC. At the time the concept of RFCs originated, the Net was in its infancy (foetal, in fact) and when the numbering system was put online, only RFCs had to be dealt with. The other groups were not in existence. With the mushrooming of groups and their notes, it would keep a programmer pretty busy rewriting the number system to take care of the changes. Practicality requires the issuance of these numbers as needed by the Station Agent. 4

(4) If the group notes and their numbering had to be done online, it would penalize the offline members of the ARPANET community...in fact, exclusive handling of any feature of this communication system on an online basis would make life more difficult for our offline community members. One of the purposes of the NIC is to make these people feel a definite part of the ARPANET community, even though they do not as yet have computer access..this is part of the

incentive being built to encourage them to come online. The issuance and handling of group notes to these people would still have to be done .. if they are to participate .. by the NIC Station Agent, thereby automatically cancelling out any exclusive one system of handling these affairs. 5

(5) True, the online searching for readability of new entries would be more informative if the cataloging were done exclusively by "RFC number"-type entry. However, with the present mushrooming of groups, endless acronyms for those groups, and different writing styles and poor memories of some of the writers, (and readers), considered from a practical point of view life would get pretty complicated. For instance, if one remembered a certain item and wanted to find it again, but did not remember which installation issued it, who authored it, or what its group-note number was, he could spend a considerable amount of frustrating online time trying to find it. The mnemonics of some of the acronyms are very similar, and quite confusing, and certainly far from enlightening as to what material is contained in the series. Material identical in nature and on the same project(s) may or may not be issued on the author's whim under 3 or 4 different series of group notes...sometimes the same entry is given more than one group note identification. That is not really a reliable method for approaching information retrieval. 6

(6) Currently online, and currently maintained (by the writer) are online indexes of group notes. Every group note (including RFCs) is entered in these indexes. They are available both online and offline. Hardcopy printouts are reproduced as part of the NIC Catalog. A hardcopy printout is maintained on a fairly current basis on the bookshelf beside the big dictionary in the console area, and in case of any confusion, Marcia and I are always available to answer any questions. The indexes reside in <NIC> and can be identified readily because the file names are the acronym of the group followed by the characters "INDEX", i.e., RFCINDEX.NLS;, ASSINDEX.NLS; etc. These indexes are formatted to give author, a truncated title, XDOC ("NIC") number, and are entered consecutively BY THE GROUP NOTE NUMBER, for easy finding. 7

(7) After the author "creates", must come the maintenance of that created. Each group note/RFC must be cataloged, entered as an entry in the online catalog (and become part of any subsequent issues of the NIC catalog), hard copy master files must be maintained, and hardcopy reference copy must be maintained in the vault. The proliferation of group notes and the "casual" method currently used of assigning a particular document to a particular group or subcollection (casual to the issuer, but not the NIC cataloging staff), the necessity to maintain integrity of the cataloging system (which perforce MUST extend to the filing system that is NOT online) would become unmercifully complicated by separation of this material

into bits and pieces, a file here, and a file there. That would make far too many places to have to try to find things in (and in which to LOSE things). We need things to UNcomplicate our lives, not the reverse. 8

(8) The present catalog processing programs are very complex and very "touchy" systems, as any involved and nested process must be. The basic "bedrock" upon which identifying any entry is based is that unique "XDOC" number assigned to the entry...as in JEW's suggestion, "17140" and NOT RFC-524. These group notes are an integral part of the NIC catalog, and take their place in numerical order in many of the entries along with other documents. They are processed in a logical order and a change of the system would require massive rewriting of the programs. 9

(9) The group notes/RFCs portion of the cataloged material is only a small amount of the total cataloged material, however, large enough to make life impossibly complicated, if this material had to be handled separately, as a special case. The catalog system is based on the standard approach of assigning a unique "accessions" number, which at ARC we call an "XDOC" number (of which a subset is used by various subcollections, such as the Journal, NIC, NAS, PODAC, etc.). In overall systems design, an integrated approach is advisable. Trouble can be had here, too, by letting the tail wag the dog. 10

I hope this clarifies some of the thinking, past and present, on the catalog numbering system (from the point of view of cataloging and information handling, not from the programmer's point of view). 11

MEJ 30-JUL-73 08:29 18063

Reply to JEW (18011,) Re: Use of RFC Numbers in Cataloging

(J18063) 30-JUL-73 08:29; Title: Author(s): Mil E. Jernigan/MEJ;
Distribution: /SRI-ARC; Keywords: XDOC numbering systems NIC catalog
catalog processes RFCs; NWG; RFCs; XDOC Numbers; catalog processes;
accessions numbers;; Sub-Collections: SRI-ARC NIC; Clerk: MEJ;
Origin: <JERNIGAN>REPLY.NLS;1, 27-JUL-73 12:30 MEJ ;

Host Names

Jake would you please respond to this mesage from Hal Murray: 1

30-JUL-73 06:42:14,423 1a

Net mail from site CCA-TENEX rcvd at 30-JUL-73 06:42:12 1b

------- 1c

Date: 30-JUL-73 0945-EDT 1d

From: HGM at CCA 1e

Re: HOST NAMES 1f

- - - - 1g

1h

HI: I'M HAL MURRAY AT CCA. I WAS TYPING IN A FEW NEW HOST NAMES 1i

INTO THE SYSTEMS HOST NAME TABLE (FROM THE NEW TIP USERS GUIDE) 1j

WHEN I REMEMBERED THE OLD "OFFICIAL" HOST NAME LIST. NEIGUS@BBN 1k

SUGGESTED I GET IN TOUCH WITH YOU. ANYTHING EVER HAPPEN ABOUT 1l

SUCH A LIST? 1m

------- 1n

Host Names

(J18064) 30-JUL-73 07:51; Title: Author(s): Michael D. Kudlick/MDK;
Distribution: /JAKE; Sub-Collections: SRI-ARC; Clerk: MDK;
Origin: <KUDLICK>MSG.NLS;1, 30-JUL-73 07:47 MDK ;

DVN 30-JUL-73 08:41 18065

Overall NLS Chart (reply to 17959)

I was home sick last week and so did not get your message until this morning. Sorry. The chart you speak of is among those that we distributed as 8- x 11-inch sheets. They should be in your station agent's collection. If not, we can easilly send you one. 1

DVN 30-JUL-73 08:41 18065

Overall NLS Chart (reply to 17959)

(J18065) 30-JUL-73 08:41; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /EJK RWW(remeber this chart?); Sub-Collections: RADC; Clerk: DVN;

JRP 30-JUL-73 09:27 18066

Response to MACSYMA Questions

I got your message. I will send you the report done by William Parrish (no longer with us). In this he lists his solutions. I hope you will find in this report a satisfactory representation of MACSYMA. Hope to hear from you later.

John Pickens
Computer Systems Lab
UCSB

1

JRP 30-JUL-73 09:27 18066

Response to MACSYMA Questions

(J18066) 30-JUL-73 09:27; Title: Author(s): John R. Pickens/JRP;
Distribution: /JPG; Sub-Collections: NIC; Clerk: JRP;

NJN 30-JUL-73 09:32 18067

Distribution of the ARPANET NEWS

Jeanne-- 1

I have had several inquiries recently about the status of the ARPANET NEWS, and, in fact, I am curious myself as to what is happening to it. I have not received any issues since April. I did notice that the June issue was available online, but I did not feel that was sufficient. 2

Many of our readers do not know how to use NLS and the only way they can access the newsletter, is if I xerox my hardcopy for them. 2a

I do not have the time to either read it online or go through the whole megillah of having it processed, shipped to BBN and printed. 2b

Online referencing is okay, but reading a newspaper does not match the qualities of my terminal. 2b1

It was not clear to me that I could even access the newsletter to have it printed in its entirety. I thought it was only available through NIC Query and not as a journal item. If this is not true maybe it should have been made more explicit. 2c

Finally it is not clear to me whether you sent the announcement of the newsletter's online existence to all nic users or simply to liaisons and station agents. In the former case you are still missing alot of people as I mentioned in my first point above. In the latter case you probably didn't reach more than 5% of the network user population. A liaison or station agent is more likely to distribute the newsletter itself than a two line announcement. 2d

Besides being responsible to the other people in my group I am naturally concerned about the publication and distribution of the ARPANET NEWS because of my association with USING. We were planning on using the newsletter as a major means of communication with people on the network. This is because I believed it to have a very high on-site distribution, as well as reaching people and organizations that do not receive other, more specialized, documents. Many of the "real users" of the network are hiding in these groups and we need to be able to get news to them, both on generalized network happenings, and the specialized work that we (USING) are doing. 3

I am taking a rather strong position with you, I admit. Because I am very concerned about reaching the network user population. And because I understand that you (the NIC) have been made responsible for the distribution of the document. I realize that you people are very busy, but considering that Jean Iseli and the other Mitre people are doing all the work in putting together the paper, it should not

be much effort to have it printed and distributed as often as they make it available. 4

> I don't think that you should be reluctant to publish the newsletter even if it happens to be a very small issue. In fact, people may be more likely to read it if it is short. Just as long as there is one major item included. 4a

I hope that you will now distribute in hardcopy the June issue, as well as the others coming in the future. 5

Thanks for your help. --Nancy 6

NJN 30-JUL-73 09:32 18067

Distribution of the ARPANET NEWS

(J18067) 30-JUL-73 09:32; Title: Author(s): Nancy J. Neigus/NJN; Distribution: /JBN JI(copy of a note to jeanne North) DHC(copy of a note to Jeanne North); Sub-Collections: NIC; Clerk: NJN;