SRI Proposal ISU 74-165 - Publication Support for the Jovial J73 Programming Language Specification Document

(J23801) 15-AUG-74 11:25;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DLS([ACTION] hardcopy sent separately) JCN([INFO-ONLY]) EKM([INFO-ONLY]) NDM([INFO-ONLY]) RWW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DVN; Origin: < VANNOUHUYS, COMPROPFORJOURNAL,NLS;1, >, 15-AUG-74 11:15 DVN ;;;; ####;

SRI Proposal ISU 74-165 - Publication Support for the Jovial J73 Programming Language Specification Document

I INTRODUCTION: 1

Part of the Online System (NLS) developed at the Augmentation Research Center of SRI is the Output Processor. The Output Processor allows NLS users to control the format of printed versions of their online files by inserting directives into the text. One form of printing possible through the Output Processor employs a phototypsetter with an attendant range of type size, typeface, and page layout. This latter printing procedure, refered to as COM (Computer Output to Microfilm) although the end product is often printed pages, allows flexibility of choice resembling that of a professional printer. Hence the advice of NLS workers experienced in using COM is often necessary to enable users to take full advantage of the possibilities, although they can easily invoke simple or pre-established layouts. 1a

COM publication as compared to publication from typewriters or line printers is of particular advantage with long documents. Typefaces in which the narrower characters take less space and typefaces that permit columnation by virtue of more flexible justification, typically produce documents with 30 to 40% fewer pages and concomitant savings in printing costs. 1b

COM publication also offers special advantages to computer language manuals and similar publications: changes in typefaces can distinguish between English and programming or command languages; within programming, typefaces can distinguish different levels of reference. 1c

For these reasons a series of discussions (see References) between ARC and RADC staff led to experiments toward printing a lengthy JOVIAL manual via COM. Trial runs indicate that COM printing will be advantageous in cost and format. This proposal covers completion of the job. 1d

II STATEMENT OF WORK 2

The contractor shall provide engineering services and high-quality Computer Output to Microfilm (COM) capability to support the production of the JOVIAL J73 Programming Language Specification document. The textual content of the document has been input to NLS and resides in files on the Office-1 computer. The NLS Output Processor subsystem and the Data Dissemination Systems' COM device will be used to obtain the output. The document contains approximately 1200 typewritten pages. Pilot runs indicate a 35% reduction in the number of pages, due to proportionally spaced type obtained from the COM device. The document requires frequent type font and size changes and contains many tables and equations. Due to the complexity of the task, it is expected that at least two proof runs will be necessary before the final run to produce camera ready copy is made. 2a

III REFERENCES: 3

(22140) Dirk H. van Nouhuys, Publishing a JOVIAL Manual through COM, Comments and Questions, Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025, 28 February 1974 4p. 3a

(22413) Dirk H. van Nouhuys, JOVIAL PROGRESS, Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025, 18 March 1974 1p. 3b

(30457) Dirk H. van Nouhuys, Plans for JOVIAL Manual, Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025, 11 April 1974 2p. 3c

(22806) Dirk H. Van Nouhuys, Draft of JOVIAL Manual Arrives at ARC, Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025, 23 April 1974 1p. 3d

(23590) Ken Manire & Dirk H. van Nouhuys, Revised Letter from DDSI Listing Prices Including Fiche, Augmentation Research Center, Stanford Research Institute, Menlo Park, California 94025, 11 July 1974 3p. 3e

IV ESTIMATED TIME AND CHARGES: 4

It is proposed that the effort in the areas outlined in Part one of this Proposal be performed during a period of two months, between 23 August and 23 October 1974. 4a

Pursuant to the provisions of ASPR 16-206.2, a Cost Estimate and Support Schedules are attached in lieu of the DD Form 633-4. 4b

V CONTRACT FORM: 5

Because of the nature of the work proposed, we request that any contract resulting from this proposal be awarded on a cost-plus-fixed-fee basis. 5a

VI ACCEPTANCE PERIOD: 6

This proposal will remain in effect until 15 August 1974. If consideration of the proposal requires a longer period, SRI will be glad to consider a request for an extension. 6a

COST ESTIMATE:

Personnel Costs

Prof	80 prsn-hrs @ 6,40	512		
Clerical	10 prsn-hrs @ $3,70	37		
Total Direct Labor			549	
Payroll Burden @ 28% *			154	
Total salaries and wages			703	
Overhead @ 107% of salaries and wages *			752	
Total Personnel Costs				$ 1,455

Direct Costs

Travel		$ 456	
1 trip Wash DC to Rome NY @ 56 =	56		
4 Days Subsistence @ 30=	120		
1 Trip Menlo Park to Los Angeles @ 40 =	40		
4 Days Subsistence @ 30=	120		
Auto Rental 8 days @ 15	120		
Communications		200	
Printing		8,150	
500 pages of partial proof runs @ $2,70/page = 1350			
Two complete test runs of 800 pages @ $2,70/page = 4320			
Final run of 800 pages @ $3,10/page = 2480			
Total Direct Cost			$ 8,806

Total Estimated Cost	10,261
Fixed Fee	821
TOTAL ESTIMATED COST PLUS FIXED FEE	$ 11,082

* See following Schedules

VIII COST SCHEDULES::

SCHEDULE A
DIRECT LABOR

Direct labor charges are based on the actual salaries for the staff members contemplated for the project work plus a judgmental factor applied to base salary for merit increases during the contract period of performance. Frequency of salary reviews and level of merit increases are in accordance with the Institute's Salary and Wage Payment Policy as published in Topic No. 505 of the SRI Administration Manual and as approved by the Defense Contract Administration Services Region.

SCHEDULE B
OVERHEAD AND PAYROLL BURDEN

These rates have been found acceptable by the Department of Defense for billing and bidding purposes for the calendar year of 1974. We request that these rates not be specifically included in the contract, but rather that the contract provide for reimbursement at billing rates acceptable to the Contracting Officer, subject to retroactive adjustment to fixed rates negotiated on the basis of historical cost data. Included in payroll burden are such costs as vacation, holiday and sick leave pay, social security taxes, and contributions to employee benefit plans.

SCHEDULE C
TRAVEL COSTS

Air fares and car rental rates are based on prices established in the current Official Airline Guide. Domestic subsistence rates and travel by private auto are established standards based on cost data submitted to and approved by DCAA.

SRI Proposal ISU 74-165 - Publication Support for the Jovial J73 Programming Language Specification Document

15 AUG 74
SRI-ARC 21883

Proposal For Research
SRI No. ISU 74-165

PUBLICATION SUPPORT FOR THE JOVIAL J73 PROGRAMMING LANGUAGE SPECIFICATION DOCUMENT

Part Two: Contractual Provisions

Prepared for:

Rome Air Development Center (ISIM)
Griffiss Air Force Base
Rome, New York 13440

Attn: Duane Stone

JEW 15-AUG-74 12:12 23802

NSW Support Protocol Strategy

(J23802) 15-AUG-74 12:12;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /JEW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JEW; Origin: (WHITE, SUPROT,NLS;6,), 17-JUL-74 09:16 JEW ;####;

JEW 15-AUG-74 12:12 23802

NSW Support Protocol Strategy

Sent via SNDMSG by POSTEL and WHITE on 17-JUL-74 to (CARLSON CROCKER CARLSTROM BALZER CRAIN BAGGIANO LLOYD MAYHAN)@ISI (WARSHALL WATSON MILLSTEIN)@ARC (WINGFIELD STONE)@OFFICE-1,

JEW 15-AUG-74 12:12 23802

NSW Support Protocol Strategy

PREFACE 1

What follows is a proposed general strategy for providing NSW modules with the support functions that they require of processes in other hosts. Feedback is solicited. The term "support protocol" denotes that set of protocols for which a first pass has already been implemented for general Network use, independent of NSW (including at least Host-Host Protocol, TELNET, FTP, and RJE). 1a

SUPPORT PROTOCOL STRATEGY 2

1) Enumerate in detail the support functions required. 2a

We MIGHT decide, for example, that: 2a1

a) In the file manipulation area: 2a1a

> We need to be able to copy sequential text files, Tenex holey files, arbitrary binary files, and tree-structured text files from one host to another. 2a1a1

> We need to be able to read and write single elements of a tree-structured file, as well as the whole file. 2a1a2

> We need to be able to delete and rename remote files. 2a1a3

b) In the interactive area: 2a1b

> We need to support a subroutine call and return mode. 2a1b1

> We need to support positional information transmission as well as character data transmission. 2a1b2

c) At the inter-process communication level: 2a1c

> We need to do away with the notion of connections. 2a1c1

> We need to eliminate the notion of ICP. 2a1c2

The points listed above are only meant to be suggestive of the kinds of needs that NSW implementers must identify. 2a2

2) Evaluate existing Network protocols (e.g. Host-Host, TELNET, FTP, RJE) as candidates for NSW use. 2b

Which of the functions enumerated above are already provided? 2b1

Which are currently unsupported? 2b2

Which are supported but inefficient in their current implementations? 2b3

Where does the inefficiency lie? 2b3a

What's the cost (in time, effort, and administrative/political problems) of remedying the situation? 2b3b

3) Design, and document the interface to, a low-level, support protocol module (SPM) for use by higher-level NSW modules, which provides the desired functions, compromising if necessary between what we want and what we can hope to produce in a year. 2c

The SPM might provide primitives in areas like general inter-process communication (at the Host-Host protocol level), file manipulation, batch processing, and so forth. 2c1

4) Quickly implement as much of the SPM as possible using existing protocols (e.g., current Host-Host, TELNET, FTP, RJE) 2d

5) Make the SPM available to implementers of higher-level NSW modules. 2e

6) Begin designing modifications to and/or replacements for the Network protocols relied upon by the SPM. 2f

7) Gradually modify the SPM to use the newly acquired facilities (with the interface to higher-level NSW software remaining unchanged). 2g

ATTRIBUTES OF THE STRATEGY 3

1) Development of higher-level NSW protocols is permitted to proceed in parallel, rather than in series with, support protocol development. 3a

2) The time required to make an initial, support protocol implementation available for use by other NSW modules is minimized, because it can be constructed independent of the design and implementation of replacement protocols. 3b

3) Since the implementation of other NSW modules becomes largely independent of the implementations of the support protocols on which they must rely, support protocol service can be upgraded (by modification to or replacement of existng protocols) without requiring the modification of other NSW modules. 3c

4) Since the system becomes capable of obtaining the same

services from different servers, using where necessary, different protocols for each, services at hosts which have not yet or will (effectively) never implement replacement protocols can still be accessed by NSW users, at the cost of reduced efficiency. 3d

REQUEST FOR FEEDBACK 4

1) Is the strategy outlined above a reasonable one? Does everyone (anyone) buy it? 4a

2) What support functions are required by you front-end and framework implementers? 4b

Since they're simply statements of the procedure by which one Network module obtains services from another, protocols (including NSW support protocols) cannot just be dreamed up. They must be motivated by the specific needs of Network modules with real work to do. The implementers of such modules must identify the primitives they require; it is then the business of the support protocol crew to make those primitives available. 4b1

Postel and White cannot, therefore, go off into a corner and return a month later with detailed specs for "n" protocols, hoping they'll be of use to NSW implementers. Framework and front-end implementers must identify (and probably have already uncovered many of the) primitives they must obtain from remote processes (step 1 in the strategy list above). The business of the support protocol crew is to see that those primitives are made available (steps 2-7). 4b2

KIRK 15-AUG-74 13:11 23803

Secondary distribution of 23797

(J23803) 15-AUG-74 13:11;;;; Title: Author(s): Kirk E. Kelley/KIRK; Distribution: /DVN([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: KIRK;

KIRK 15-AUG-74 13:11 23803

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Location: (GJOURNAL, 23797, 1:w)
*****Note: Author Copy*****

RLL 15-AUG-74 14:54 23804

Test of mail.

(J23804) 15-AUG-74 14:54;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /RLL([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 15-AUG-74 14:54 23804

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MEH 24-JAN-75 09:38 23809

WORKSTATION EQUIPMENT REFERENCE MANUAL

This is the journalized version of the Workstation Equipment Reference Manual. Offline copies are available at SRI-ARC.

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WORKSTATION EQUIPMENT REFERENCE MANUAL

INTRODUCTION

Since 1962 the Augmentation Research Center (ARC) at Stanford Research Institute has been developing an interactive computer-based system to augment human intellect. This center has invested heavily and consistently in the design of hardware and software tools that enhance real-time interaction with computers.

The software tools have been consolidated into an interactive utility program called NLS, and the hardware tools into three workstations called: Lineprocessor, Teleprinter, and DEX.

This reference manual defines the three Workstations, the specification for the equipment involved, compatible equipment, and reference documents.

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WORKSTATION EQUIPMENT REFERENCE MANUAL

WORKSTATIONS

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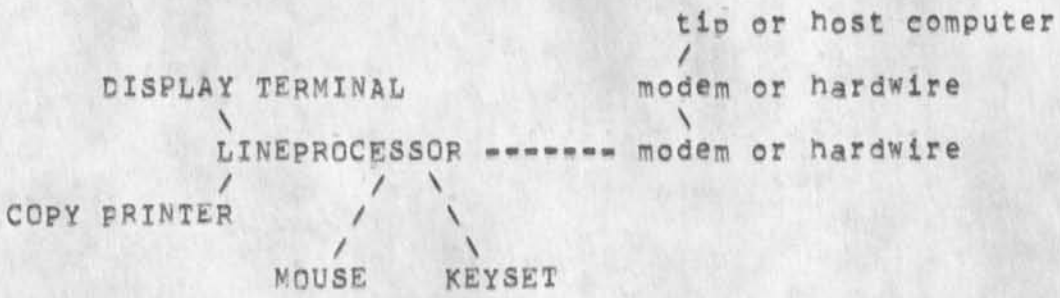
WORKSTATION EQUIPMENT REFERENCE MANUAL

1) LINEPROCESSOR 1

DESCRIPTION 2

A Lineprocessor Workstation is basically composed of five devices: Lineprocessor, Display terminal, Mouse, Keyset, and Copy printer.

CONFIGURATION 3



DEVICES 4

LINEPROCESSOR 5

DESCRIPTION 6

The Lineprocessor connects mouse, keyset, display and copy printer together as a Workstation. It was specifically designed for this purpose and represents a virtual display terminal to the host computer.

It is microprogrammed to perform seven basic tasks:

(1) Pass keyboard, keyset and mouse characters to main computer.

(2) Control display cursor position.

(3) Control display text manipulating modes.

(4) Pass host computer display text to the display.

(5) Pass host computer print text to the copy printer.

(6) Initialize display and user program.

(7) Detect protocol errors.

ARCHITECTURE 7

The Lineprocessor is a buss-oriented microcomputer composed of six basic sub-blocks; microprocessor, program store, serial communication, A/D converter, and data input multiplexer.

DEVICES HAVING THESE REQUIREMENTS 8

See (EQUIPMENT LIST: LINEPROCESSOR).

The display terminal must be an ASCII terminal with on-line text editing capabilities and a bit serial RS-232 communication I/O port. These capabilities are necessary to operate with the Lineprocessor and Display NLS. Typically, the display terminal is a low-cost video type, costing between $2,000 and $6,000.

Addressable text manipulation functions are required. The Lineprocessor must be able to manipulate the display for proper Display NLS operation. That is, the display is required to have text manipulation functions and aids that can be controlled (addressed) via a remote (on-line) bit-serial ASCII communication I/O port.

Addressable cursor is required for mouse tracking. The Lineprocessor addresses the display cursor to position it relative to the mouse position.

For good tracking response, the display should complete the positioning (character and line) within one millisecond.

For best appearance and minimum annoyance, a nonblinking cursor that is not displayed until after each X and Y move is complete is preferred.

Our experience is that after a few hours of use a blinking cursor is very annoying. A simple modification--like cutting a wire--is usually all that is necessary to stop the blinking . If the display you like best has a blinking cursor, request that it be delivered without blinking; the suppliers will usually oblige.

Various methods for displaying the cursor position are acceptable, such as: underlining, haloing, and flashing, if they do not use valid display character positions.

REMOTE VIDEO CONNECTION 14

This is not required, but is useful for conferencing or demonstrations.

Displays using standard 525 television line scan techniques, compatible with RS-170, provide adequate clarity for conferencing. These monitors are available for about $200. Other scan lines require special monitors which cost about $2,000.

DELETE LINE 15

This is required. The display should delete a full line within 5 to 10 milliseconds, maximum 95 milliseconds; any longer is too slow for effective NLS operation.

INSERT LINE 16

This is required, and should respond within 5 to 10 milliseconds, maximum 95. The Lineprocessor uses this function to rewrite the screen after a simple edit or jump.

CLEAR SCREEN 17

This is required, and should be completed within 5 to 10 milliseconds, 95 milliseconds maximum. The Lineprocessor uses this function to clear the screen when initializing and when it is easier to rewrite all text rather than several pieces.

EXTERNAL (ON-LINE) I/O COMMUNICATION PORT 18

BAUD RATE 19

A minimum of 2400 baud is required; 9600 baud is recommended.

At least 2400 baud is essential to allow the Lineprocessor to effectively control the display and track the mouse.

If the display can operate at 9600 baud, the Lineprocessor to TIP, or host computer, rate can be any rate up to 9600 baud. (At this rate the display protocols are fast enough to smoothly track the Mouse and perform editing functions.)

If the display baud rate is less than 9600 baud, special Lineprocessor programming will be required and in this case the baud rate to the host computer

will have to be slower due to the time involved to execute the display editing functions.

9600 baud: recommended

At this rate the Lineprocessor can address the cursor fast enough for very smooth tracking.

4800 baud: satisfactory

OK, but cursor tracking will be a bit jerky; communication between Lineprocessor and display terminal are too slow to allow a high enough addressing rate for smooth tracking.

2400 baud: the display terminal should not be operated below this rate.

COMPATIBILITY 20

Bit serial, ASCII (upper/lowercase), RS-232, nonparity, 10 unit code: 1 start, 8 data, 1 stop.

MEMORY SIZE 21

Large enough to display a full screen of text.

CARRIAGE-RETURN LINE-FEED FUNCTION 22

It is desirable, but not a requirement, that the display respond to carriage return and line-feed function in a manner similar to a standard teletype-like terminal (carriage-return moves the cursor to the left margin and line feed moves it to the next line without changing character position).

Some displays have a next-line function, which is often very useful, but sometimes less processing time is required by the Lineprocessor, or host computer, if it can simply send a carriage-return and/or line-feed signal.

REVERSE VIDEO 23

This is required if the display does not have one of the following set of capabilities necessary to mark characters ("Marking") selected with the mouse:

Marking is necessary and happens when a user selects a character on the screen by pointing to it with the mouse and pushing a button -- very important to NLS operation.

Marking is done by altering the appearance of the character. If the user selects the wrong character he will abort (or "back out of") that selection and select another. The NLS program responds by removing the first mark and putting up another. Less processing is required if NLS has only to remember the marked position. Hence, it is desirable to mark and unmark characters on the screen without rewriting the character.

Capability A

1) 4800 baud, or faster, communication port.

2) Blanking cursor (not displaying cursor until X,Y move is complete).

With these capabilities, the Lineprocessor can be microprogrammed to mark text by flashing the cursor below the selected character position.

Capability B

1) Single character blink; without requiring the rewriting of a character or use of additional character positions.

With this capability the Lineprocessor can be microprogrammed to flash the character marked.

Capability C

1) Underlining

With this capability, the Lineprocessor can be microprogrammed to underline the character marked.

Capability D

1) Special display symbol that can be addressed on-line.

Most terminals have a special transmit symbol that is addressable and can be displayed. This symbol is generally a matrix of dots covering one whole character area which stands out very nicely and is easily seen by the user.

With such a special symbol the Lineprocessor can replace the character marked with it. This is a very effective way of marking; even though the character marked is obliterated and more processing time is required (NLS must not only remember the position but the character as well).

BLINKING 24

This is required if the display does not have Reverse Video, Underlining, High Intensity, or some sort of capability for standing-out text.

This feature is used to get the user's attention while he is reading the text; in most cases it will be done by writing text in a form that is altered so that it stands out.

TEXT AREA 25

We consider 24 lines by 64 characters to be the usable minimum for most NLS user needs; however, 27 lines by 80 characters is more useful and full text page of 66 lines by 80 characters is the most desirable.

DISPLAYABLE CHARACTERS 26

The display terminal must display the full ASCII character set (upper/lower case).

KEYBOARD 27

The keyboard must transmit full ASCII (upper/lower case).

DEVICES THAT ARE KNOWN TO HAVE THESE REQUIREMENTS 28

See (EQUIPMENT LIST: DISPLAY TERMINAL).

MOUSE and KEYSET 29

DESCRIPTION 30

The mouse and keyset plug into the Lineprocessor. They are used by the operator to position the display cursor, and enter characters and function requests.

The Mouse rests on a table top to the right of the display and is operated by the right hand. The Lineprocessor tracks the mouse movements, and positions the display cursor correspondingly. Three switches on the top of mouse are used in combination with the keyset.

The keyset resembles a small five-key piano keyboard. It rests on a table top to the left of the display and is operated by the left hand.

The keyset and the mouse switches supplement the keyboard and provide a method for rapid character entry and function request as the user is operating the mouse.

DEVICES THAT ARE KNOWN TO HAVE THESE REQUIREMENTS 31

See (EQUIPMENT LIST: LINEPROCESSOR).

COPY PRINTER 32

DESCRIPTION 33

The host computer multiplexes print data with display data to allow the display user to continue his display work as the printer is printing.

REQUIREMENTS 34

RO/KSR 35

The printer may be a receive only (RO) printer or keyboard send/receive (KSR) terminal.

If the printer is a KSR terminal the keyboard will be inoperative in on-line mode when connected to the Lineprocessor.

KEYBOARD 36

A keyboard is not required when connected to the Lineprocessor copy printer port (there is no input capability for that port).

CHARACTER SET 37

Full ASCII (upper/lower case).

INTERFACE 38

BAUD RATE

Can be any baud rate up to 9600, but, because print data is multiplexed, throughput rate (effective print rate) will be limited to a maximum of 1200 baud (120 characters per second).

COMMUNICATION

Bit serial ASCII RS-232, 10 unit nonparity (1 start, 8 data, 1 stop).

SPROCKET FEED 39

This is required if the copy printer has form control. We recommend this option if wider than 80 column paper is to be used (it will keep the paper properly aligned during printing).

Most printer companies have perforated paper available that tears off to a standard page.

If not, paper can be purchased with special cuts and perforations from Moore Business Forms.

The standard paper we at ARC use is: 18 pound, perforated vertically 0.5 inches from the left edge, 8.5 from the left perforation, and horizontally every 11 inches. In addition, there are three binder holes punched in each page.

FORM CONTROL 40

This is recommended. With form control, the host computer can do nice things--such as paginate.

VERTICAL TAB 41

Required

HORIZONTAL TAB 42

Required

PAGINATION (TOF) 43

Required

DEVICES HAVING THESE REQUIREMENTS 44

See (EQUIPMENT LIST: COPY PRINTER).

LP-COMMUNICATION LINK 45

DESCRIPTION 46

This is the local communication link connecting the Lineprocessor to the host computer. Typically, this Link is a full-duplex (4-wire) leased voice-grade telephone circuit with modems or hardwire, connecting the Lineprocessor to a local ARPANet TIP.

For effective display NLS operation, the link should have a throughput rate of at least 1200 baud. As a compromise between cost and effective operation, we recommend 4800 baud. For example: modems cost approximately $1.00 per baud ($1,200 for a 1200 baud model, $4,800 for a 4800 baud); at 1200 baud it takes approximately 70 seconds to write a full screen; at 2400 bad, 35 seconds; at 4800 baud 15 seconds; at 9600 baud, 13 seconds.

As an alternate, or temporary connection, to leased- voice grade circuits, dial-up circuits can be used.

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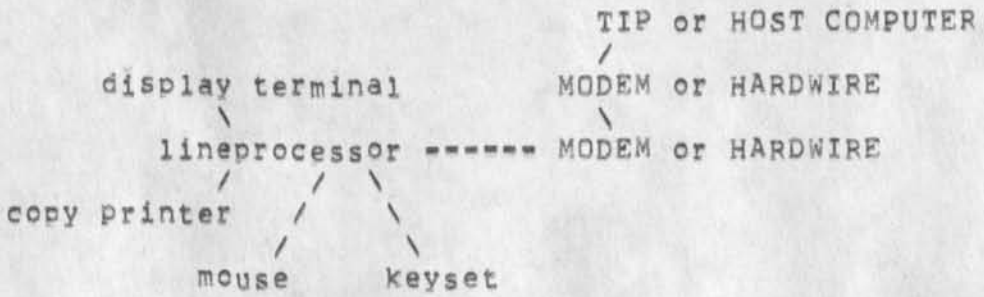
WORKSTATION EQUIPMENT REFERENCE MANUAL

See (LINEPROCESSOR: LP-COMMUNICATIONS LINK: REQUIREMENTS: DIAL-UP).

CONFIGURATION 47



REQUIREMENTS 48

The Lineprocessor requires a full-duplex (4-wire) connection, allowing simultaneous transmit and receive, between 300 and 9600 baud, meaning, standard dial-up or leased voice-grade circuits can be used.

DIAL-UP 49

MODEM 50

Most modems up to 9600 baud can operate over the dial-up network--though more errors will be encountered than when operated over leased lines.

Modems require a DAA (data access arrangement) to connect to the dial-up network and leased lines. DAAs are available from the telephone company.

To operate the Lineprocessor, as previously stated, requires a full-duplex connection, hence the modem must be capable of operating full duplex over the dial-up network otherwise two modems will be required at each end (a total of 4).

The AT&T 208A modem can operate full duplex over the dial-up network, but requires two dial-up circuits; one for send and one for receive (a 4 -wire equivalent circuit; each dial-up circuit is 2-wire equivalent).

DEVICES HAVING THESE REQUIREMENTS 51

See (EQUIPMENT LIST: MODEM).

Vadic 3400

ACOUSTIC COUPLER 52

Standard acoustic couplers (10 to 300 baud) are too slow for use with the Lineprocessor and display NLS, however, 1200 baud acoustic couplers are available (ADAC 1200) and are fast enough for effective NLS operation. These acoustic couplers are half duplex and are required to operate the Lineprocessor because the Lineprocessor requires a full duplex connection: one for send and one for receive. This means to operate the lineprocessor you would have to dial two connections to the host computer or TIP. At the host computer or TIP end, the two connections would merge into one port to form a full duplex connection.

DEVICES HAVING THESE REQUIREMENTS 53

See (EQUIPMENT LIST: ACOUSTIC COUPLER).

LEASED LINE 54

MODEM 55

BAUD RATE 56

4800 baud is recommended.

This rate provides the optimal cost effective response for display NLS. Also, at higher baud rates the possibility of data errors is more likely, which could require expensive line conditioning.

DUPLEX 57

Full-duplex (4-wire) connection is required.

SYNCHRONIZATION 58

Line discipline can be synchronous or asynchronous. However,data must be asynchronous.

This means that the modem can be a synchronous or asynchronous type, but each data character transmitted must contain start and stop bits (asynchronous method of transmission), specifically: 1 start bit, 8 data bits, 1 stop bit.

When the modem used is a synchronous type, this type of transmission is called isochronous.

When the modem used is an asynchronous type,

this type of transmission is called asynchronous.

DEVICES HAVING THESE REQUIREMENTS 59

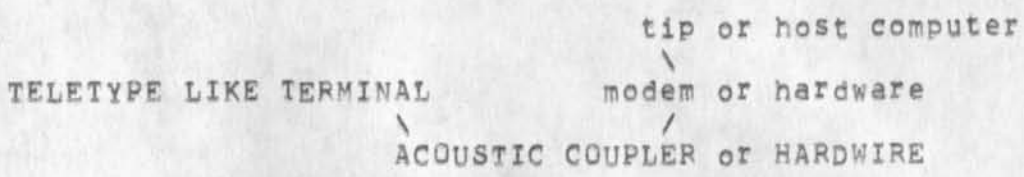
See (EQUIPMENT LIST: MODEM).

2) TELEPRINTER 60

DESCRIPTION 61

This type of Workstation is generally a portable hard-copy terminal with a built-in or detached acoustic coupler. The terminal is not required to be a hard-copy type, it can be any ASCII display that is similar to a standard telewriter with upper/lower case.

CONFIGURATION 62



DEVICE 63

TERMINAL 64

REQUIREMENTS 65

BAUD RATE 66

May be any rate that is compatible with the host computer communication link (TP-COMMUNICATION LINK), typically, this link is 300 baud (acoustic coupler and dial-up telephone network).

CHARACTER SET 67

Full ASCII (upper/lowercase)

INTERFACE 68

Bit serial, RS-232, 10 unit code (1 start bit, 8 data bits, 1 stop bit).

DUPLEX 69

Full-duplex (4-wire) connections as required.

PARITY 70

Nonparity.

DEVICES HAVING THESE REQUIREMENTS 71

There are several to choose from. We at ARC prefer the Texas Instrument terminals.

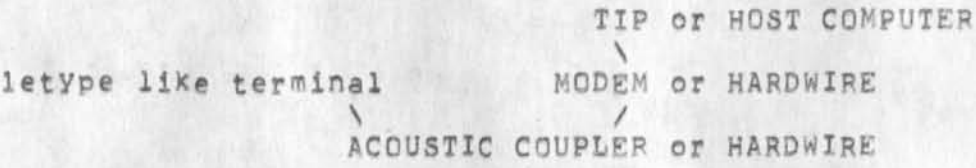
See (EQUIPMENT LIST: TELEPRINTER).

TP-COMMUNICATION LINK 72

DESCRIPTION 73

Must be compatible with teleprinter speed, which is typically 300 baud. The link may be an acoustic coupler, modem, or hardwire connecting the terminal to the TIP or host computer.

CONFIGURATION 74



REQUIREMENTS 75

Must be compatible with the terminal baud rate and port interface.

DEVICES HAVING THESE REQUIREMENTS 76

ACOUSTIC COUPLER 77

See (EQUIPMENT LIST: ACOUSTIC COUPLER).

Novation,
Anderson Jacobson,
etc.

MODEM 78

See (EQUIPMENT LIST: MODEM).

AT&T, ICC, Anderson Jacobson, Vadic, etc.

3) DEX WORKSTATION 79

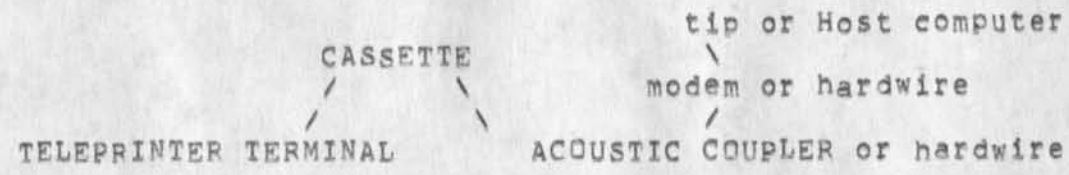
DESCRIPTION 80

The DEX workstation is what we call our "deferred execution workstation". This workstation allows typing text onto a cassette recorder in off-line mode (not connected to the computer), then later, when time permits, spooling the cassette tape into the computer.

This station operates much like a batch station. That is, characters are recorded on the cassette tape in blocks. The differences are that the data when transmitted is not checked for data errors and standard line protocols are not used.

Typically, the workstation is a 300-baud portable telewriter terminal that has a built-in acoustic coupler that can be disconnected from the telewriter to allow connecting the cassette recorder between the coupler and the terminal, (TI 725 with EIA option).

CONFIGURATION 81



DEVICE 82

TERMINAL 83

REQUIREMENTS 84

The terminal must be an ASCII device with upper/lowercase.

If it is portable with built-in coupler, it must have the capability to allow connecting the cassette between the coupler and keyboard-printer.

All communication interfaces must be bit serial RS-232.

Baud rate must be compatible with the cassette and communication device (modem or acoustic coupler), typically 300-baud (acoustic coupler and a 300 baud cassette recorder).

DEVICES HAVING THESE REQUIREMENTS 85

There are several to choose from. We at ARC prefer the Texas Instrument terminals.

See (EQUIPMENT LIST: TELEPRINTER).

CASSETTE RECORDER 86

The cassette recorder is a digital recorder that is connected between the teleprinter terminal and acoustic coupler, or modem. Its function is to store data typed from the teleprinter keyboard on to a cassette tape in a form that can later be transmitted to the host computer for processing.

In off-line mode, communication is between the terminal and recorder only (used to record a cassette tape); in the on-line mode, communication is between the terminal and host computer, and the host computer and cassette.

REQUIREMENTS 87

INTERFACE 88

Bit serial, RS-232.

DATA BLOCK LENGTH 89

It is necessary to limit the number of characters (data-block length) sent during each read request. This is necessary to avoid overrunning the TIP or host computer input buffers. Specifically, the cassette must not spool more than 80 characters at a time.

Typically, the operator records a carriage return on the tape at each line break, delimiting that block, and records a carriage-return and control Z after the last block delimiting the file. During the read (spooling to the host computer), the cassette recorder senses the carriage-return, stops and waits for the next read command from the host computer. The host computer also detects the carriage-return and then sends the cassette recorder another read command. When the host computer receives a control Z, it terminates the job and creates a DEX file containing the blocks of text.

BAUD RATE 90

This can be any rate which is typically 300 baud. The only restriction is that it must be compatible with other DEX workstation devices.

DUPLEX 91

Full-duplex, (4-wire) connection is required.

OPTIONS: 92

The cassette recorder must have the following addressable controls:

1) rewind = control W
2) record = control R
3) stop record = control T
4) read = control Q
5) stop read = carriage return

Notes:

Option 5 (stop read): the cassette recorder must stop read when it senses a carriage return recorded on the tape and not when it senses a carriage return from the host computer or terminal; stop-read control from remote devices is not required , though desirable, and if included should be a control S.

CASSETTE TAPES 93

Our experience has been that TDK audio tapes work fine with the ICP cassette recorders but that K-Tronics 102-51 certified digital tapes work best with the Tectrans.

The tape head must be cleaned every few days to minimize data errors.

Audio tapes cost approximately $1.50 each, digital $6.00.

DEVICES HAVING THESE REQUIREMENTS 94

We are using two different manufacturers ICP and Tech Tran. Our preference is ICP, but we are unable to lease them on the west Coast. Therefore, we are using Tech Tran.

A Tenex utility program exists that supports both ICP and Tech Tran. It can be modified easily to include other models as the need arises.

See (EQUIPMENT LIST: CASSETTE RECORDER).

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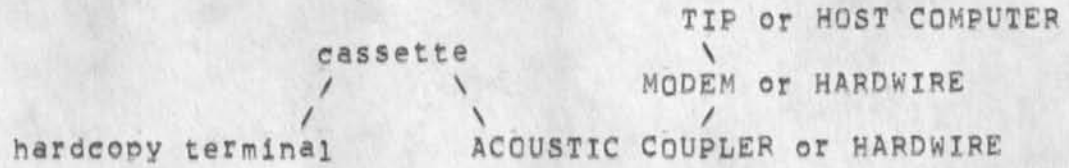
WORKSTATION EQUIPMENT REFERENCE MANUAL

DE-COMMUNICATION LINK 95

CONFIGURATION



REQUIREMENTS 96

The communication link devices must be compatible with the other workstation devices. This link could be hardwire connecting the workstation directly to a TIP or host computer, or an acoustic coupler used with the dial-up telephone network, or a modem using a leased line.

Typically, it is a 300-baud acoustic coupler and dial-up telephone network.

A DEX workstation requires a full duplex communications link to converse with the TIP and host computer; this link is necessary to connect the terminals to the host computer and interact with the cassette spooling program.

INTERFACE 97

Must be compatible with the cassette recorder, typically bit serial, RS-232.

DEVICES HAVING THESE REQUIREMENTS 98

ACOUSTIC COUPLER 99

There are several devices to choose from. We have been using Novation's standard 300-baud coupler.

Novation DC-102,
Anderson Jacobson.

See (EQUIPMENT LIST: ACOUSTIC COUPLER).

MODEM 100

As with couplers there are several modems to choose from: Vadic Corporation has one that can operate at 1200 baud full duplex over the dial-up network, thus not requiring leased lines. We use these modems and they work well.

AT&T
ICC

VADIC

See (EQUIPMENT LIST: MODEM).

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EQUIPMENT LISTS

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LINEPROCESSOR 101

AVAILABILITY 102

Presently, SRI has an arrangement with Cybernex Corporation to assemble Lineprocessors. These models are available from SRI for $2,500 with mouse and keyset. The mouse and keyset have been commercially marketed by Cybernex for several years, in the future it is anticipated that Cybernex will also market the Lineprocessor.

SRI contacts: Jim Norton, Martin Hardy

Phone (415) 326-6200

Cybernex: Bob Simmons

Phone (415) 328-8470

COST 103

Approximately $2,000 (without mouse or Keyset).

WORKSTATION EQUIPMENT REFERENCE MANUAL

DISPLAY 104

Hazeltine 2000 105

Lineprocessor microprogram 106

Developed

Lines - Characters 107

27 x 74

Model number and special options 108

Model 2000 with upper/lowercase, remote composite RS-170 compatible video (if desired, and SRI special options as follows:
1) nonblinking cursor.
2) cursor blanking during addressed moves.
3) bell response to control G only.

Cost 109

Approximately $3,000 to purchase, $107/mo to rent, plus $225 for upper/lowercase, $150 for remote monitor, and $60 for the special SRI options.

What we think of it 110

+ It is the least expensive display we have found thus far that is usable with NLS and the Lineprocessor.

+ Delete line is very fast, the fastest we have seen thus far.

+ It uses standard 525 telvision line scan.

It does not have reverse video or underline. "Marking" is done by obliterating the character, which requires more NLS processing.

- The keyboard is cheap. Most users do not like it because of its poor action -- but it is usable.

- The display characters are green on a dark background and do not focus well in the corners.

Hazeltine 3000 111

This is a fancier model than the 2000. It is basically the same display except it has a microprocessor for handling I/O. It can be used with the Lineprocessor, but costs more than the 2000 and has no practical advantage in this application. We have not developed a Lineprocessor microprogram specifically for it.

-- it may be that the 2000 microprogram will work, but it has not been tested.

Delta Data 5200 112

Lineprocessor microprogram 113

Developed

Lines - Characters 114

27 x 80

Model number and special options 115

Model GJA1T020: 4800/9600 baud, U/L case, bonded tube, 2,048 memory, 10 bit code, and remote monitor.

Specify to include SRI modifications: nonblinking cursor, nondecrementing Y cursor when X addressed, ETX blank, and remote video conditioning.

Cost 116

Approximately $5,500 to purchase, $225/mo rent, and $200 one time charge for remote video.

What we think of it 117

+ The displayed text is the best we have seen so far; characters are 7 by 9 matrix green on a dark background with excellent clarity.

- Delete line is not the fastest, but adequate.

- The display is not standard 525 television scan. It is 720, which requires a special remote monitor, such as Conrac's RQ series which cost about $2,000 each.

- Repeat character is accomplished by holding down individual keys -- most users do not like this.

- It is relatively expensive.

Lear Seigler ADM-2 118

Lineprocessor microprogram 119

Not developed.

Lines - Characters 120

24 x 80

Model number and special options 121

ADM-2 includes upper/lowercase.

Cost 122

Approximately $2,500 to purchase, $??/mo rent, and $??? one time charge for remote video.

What we think of it 123

We have not tested this terminal, we are going by spec sheet information.

+ Uses 7 by 9 character matrix.

? Delete line is 14 milliseconds.

? We do not know at what line rate it operates .

Data Media Elite 2500 124

Lineprocessor microprogram 125

Not developed.

Lines - Characters 126

Up to 24 x 80

Model number and special options 127

Elite-2500 includes upper/lowercase.

Cost 128

Approximately $2,500 to purchase, $??/mo rent, and $??? one time charge for remote video.

What we think of it 129

We have not tested this display, we are going by spec sheet information.

? We do not know how fast delete line takes.

? We do not know at what line rate it operates .

INFoTON 130

Lineprocessor microprogram 131

Not developed.

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WORKSTATION EQUIPMENT REFERENCE MANUAL

Lines * Characters 132

Up to 24 x 80

Model number and special options 133

Model Vistar-Plus with upper/lowercase option, This is the only model that will work.

Cost 134

Approximately $???? to purchase, $??/mo rent, and $??? one time charge for remote video.

What we think of it 135

We have not tested this display, We are going by spec sheet information.

? We do not know how fast delete line takes.

? We do not know at what line rate it operates.

MOUSE and KEYSET 136

AVAILABILITY 137

Cybernex Corporation
Box B, Stanford, Calif, 94025

Ordering notes: 138

When ordering, specify the SRI model for use with SRI Lineprocessor.

COST 139

Mouse: approximately $350

Keyset: approximately $150

COPY PRINTER 140

MEMOREX 1240 141

Formatting program 142

Not available yet, will be programmed as need arises.

RO/KSR 143

Available either RO (no keyboard) or KSR (keyboard and printer).

PRINTHEAD 144

Impact, cartridge

PRINT RATE 145

10/15/30/60 optional: 120 cps uppercase only!

PRINT CHARACTER SET 146

128 ASCII (upper/lowercase) for 10 to 60 cps baud rates

FORM CAPABILITY 147

6 part, 120 column, pin feed.

INTERFACE 148

RS-232, modem.

COST 149

Approximately $5,000 purchase, $160/mo.

What we think of it 150

+ The best print we have seen (rating = 1).

+ Xerox copies are quite good.

+ Provides nationwide service.

G.E TERMINET 300/1200 151

FORMATTING PROGRAM 152

In the process of being written.

RO/KSR 153

Available either RO (no keyboard) or KSR (keyboard and printer).

TYPE OF PRINTING 154

Impact, character belt.

PRINT RATE 155

10/15/30 optional: 60/120 cps.

PRINT CHARACTER SET 156

128 ASCII (upper/lowercase).

FORM CAPABILITY 157

7 part, 70/80/118 column, pin-feed.

INTERFACE 158

RS-232, modem, acoustic coupler, 20 mil, parallel

COST 159

Approximately $5,000 purchase, $160/mo rent.

WHAT WE THINK OF IT 160

+ Good print (rating = 2).

+ Xerox copies are good.

+ Nationwide service available.

- Print is not always consistent in density.

- When density is poor, Xerox copies are poor also.

ANDERSON JACOBSON AJ630 161

FORMATTING PROGRAM 162

Not available yet, will be programmed as need arises.

RO/KSR 163

Available either RO (no keyboard) or KSR (keyboard and printer) ???

TYPE OF PRINTING 164

nonimpact, thermal, 5 X 8 matrix.

PRINT RATE 165

10/15/30/60 cps

PRINT CHARACTER SET 166

128 ASCII (upper/lowercase)

FORM CAPABILITY 167

1 part, 140 column.

INTERFACE 168

RS-232, modem, acoustic coupler.

COST 169

Approximately s?,??? purchase, s???/mo,

WHAT WE THINK OF IT 170

? Have not evaluated yet

- As a general rule of thumb, dot matrix is not acceptable for medium quality.

- Also, most thermal printers use a role paper which does not have page perforations and is hard to store and copy.

NOVAR 5-60 171

FORMATTING PROGRAM 172

Not available yet, will be programmed as need arises.

RO/KSR 173

Available either RO (no keyboard) or KSR (keyboard and printer) ???

TYPE OF PRINTING 174

Impact (selectric), cartridge.

PRINT RATE 175

15 cps only

PRINT CHARACTER SET 176

128 ASCII (upper/lowercase)

FORM CAPABILITY 177

6 part, 130 column, pin-feed.

INTERFACE 178

RS-232, modem, CCITT, modem, acoustic coupler.

COST 179

Approximately $?,??? purchase, $???/mo,

WHAT WE THINK OF IT 180

+Print is very high quality print (rating = 1). It is an IBM selectric,

+ Xerox copies are very good.

+ Nationwide service is available.

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ACOUSTIC COUPLER 181

Novation DC-102, 182

It is an inexpensive coupler that rests under the telephone and measures approximately 7" X 10" X 3".

Cost 183

Approximately $150 and lease for $15/mo.

Anderson Jacobson ADAC 1200, or ADAC 242, 184

Cost 185

Approximately $985, $150 and lease for $50/mo, $15/mo.

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MODEM 186

AT&T 208A 187

DATA RATE 188

4800

LINE CONDITIONING 189

None required.

LINE 190

Full-duplex 4-wire connection required.

AT&T EQUIVALENT 191

208A

WHAT WE THINK OF IT 192

+ It is being used in several Lineprocessor installations with no reported problems.

+ It is service supported nationwide.

+ Can be leased month to month.

COST 193

Leases for $116/mo., month to month.

OPTIONS (REQUIRED) 194

1) internal timing
2) continuous carrier
3) continuous Request-to-Send
4) one second carrier holdover
5) strap AB to AA (grounds)
6) CC on when AL button depressed
7) DO NOT USE New Sync Option

ICC 4600/48 195

DATA RATE 196

4800

LINE CONDITIONING 197

None required.

LINE 198

4 wire

AT&T EQUIVALENT 199

208A

WHAT WE THINK OF IT 200

? The specifications look good, but we have no experience with it. ICC is one of the largest and most respected suppliers of modem equipment in the world. The reason we did not choose them was because it was easier to rent the modem and the line together from AT&T.

+ It is service supported nationwide.

- Cannot be leased month to month.

COST 201

Approximately $5,000 each leases for $100/mo year to year.

OPTIONS (REQUIRED) 202

We have not checked, but assuming options are the same as the AT&T 208A.

1) internal timing
2) continuous carrier
3) continuous Request-to-Send
4) one second carrier holdover
5) strap AB to AA (grounds)
6) CC on when AL button depressed
7) DO NOT USE New Sync Option

VADIC VA 1601/3405C (1200/300 baud full duplex) 203

Options required: 204

1) Strapped for 1200 baud service
2) Programmed for full duplex ASCII 10 bit
3) 103 TPE interface

This modem transmits or receives data at 300 or 1200 baud.

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TELEWRITER 205

TI 733 206

Standard for this terminal is uppercase; lowercase is an option (full ASCII keyboard).

COST 207

Approximately $1,550 with upper/lowercase, leases for $80/mo.

TI 725 208

This is a portable terminal with built-in coupler. It is being replaced by the 735 which is 10 pounds lighter.

Total weight: 35 pounds.

OPTIONS REQUIRED 209

If you intend to use this unit with a cassette recorder (see WORKSTATION: DEX) it must have the EIA option (EIA RS-232-C Serial Auxiliary Connector Kit) to allow connecting the cassette recorder between keyboard-printer and acoustic coupler.

Standard for this terminal is uppercase; lowercase is an option (Full ASCII Keyboard).

Cost 210

Approximately $2,780 with upper/lowercase, rents for approximately $125/mo.

TI 735 211

This is TI's new portable terminal with built-in coupler. It is 10 pounds lighter than the 725 and will eventually replace it.

It comes standard with upper/lower case keyboard and EIA option to disconnect keyboard-printer from built-in acoustic coupler.

Total weight is 25 pounds.

Cost 212

approximately $2,780 with upper/lowercase, rents for approximately $145/mo.

OPTIONS REQUIRED 213

It comes standard with upper/lower case keyboard and EIA

option to disconnect keyboard-printer from built-in acoustic coupler.

DISPLAY TABLE

This drawing is a detail construction description of the table we use to set the Lineprocessor, display, and modem on.

TIP CONNECTION

Buffer size:

There are two buffers associated with each port: input and output. The sizes required are a function of several things. Input size depends primarily on the typing rate of the user, or in case of DEX; a full line of text. Output size depends on the Network to Lineprocessor data rate and the number of "hops" (how many TIP or IMP away you are from the NLS host).

Our experience to date shows that generally 100 base 8 TIP words are adequate for input buffer size, and 300 base 8 TIP words are required for output buffer size for East Coast connections and 200 base 8 TIP words for West Coast connections.

TIP card:

To operate remotely via a 208A modem requires a TIP modem card and the port configured as follows:.

1) external clock in and out (device rate 17 base 8)

2) character size 3

NCC will set these parameters permanently for you upon request. However, they can be set temporarily by initiating a TIP command specifying port # and Device rate 1023.

CABLE LENGTHS

The following is a discussion of maximum allowable cable length for Lineprocessor connections using EIA drivers like the 9616, DM 7830 or MC 1488.

The EIA spec for cable length is 50 feet which makes no sense at all. DEC has a spec somewhere in their literature stating 1000 feet maximum. If one starts with the assumption of a reasonable garden variety twisted pair cable and a reasonably tight clock tolerance (1%) then it is reasonable to drive cables approximately 5000 feet long at 4800 Baud if there are no unusual noise sources along the way (2v to 3v of noise). See figure 1. Cross talk is not a problem if twisted pair is used.

In a noisy environment (greater than 3 or 4 volts) or where very long cables (5,000 ft) are required, differential drivers and receivers should be used.

The waveform of the voltage put out by the EIA driver looks like a current source and the cable looks like a capacitor at the frequencies involved here.

Ideally it would appear that the limiting case for cable length would correspond to the dotted line in Figure 1 where the cable was so long that its capacity could just be charged up over the threshold in the period of time corresponding to the bit period. This is not the case however, because of the clocking and strobing technique used in these systems. The strobe time is synchronized when the signal passes through the on threshold at the beginning of the start bit. The strobe pulses are generated a half bit period following this transition through the on threshold. This requires that the signal be above the off threshold at one-half bit period beyond the time that it passed through the on threshold as shown in Figure 2.

There are four factors that can cause the strobe pulse to appear too late (ie after the signal has fallen below the off threshold) and thus cause an error:

1. Noise can cause the strobe train to be generated later than is correct and can cause the signal to pass below the off threshold earlier than it would normally.

2. The strobe is generated by counting 8 clock pulses which are asynchronous to the signal. This can cause the strobe to be 6.25% of the bit period late when the clock phase is at the end of its range relative to the signal.

3. Clock frequency tolerance can cause the strobe to be progressively later on each bit of the character.

4. Cable capacitance causes slow rise and fall of the signal. This slow rise and fall in combination with the positive on and off thresholds tends to make the strobe pulse timing late but does

not make the fall of the pulse late enough to compensate adequately.

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These four factors work together to limit cable length.

The equation for minimum allowable slew rate is given below:

Two N plus T1 plus T2 divided by B times the quantity seven sixteenth (7/16) minus ,1E) equals S

N equals peak noise in volts

T1 and T2 equal the on and off thresholds in volts

B equals bit period in microseconds

E equals maximum clock error in %

S equals slew rate in volts/microsecond

To get the maximum allowable cable capacitance from the minimum allowable slew rate, the following expression is used:

C equals I times 1/S times K

C = capacitance in uf

I = effective driver current in Ma

S = slew rate in Volts/microsecond

K = ,001 = constant to make units convenient

With the maximum allowable capacitance determined one needs only divide by the capacitance per foot of the cable to determine the maximum allowable cable length.

Under certain conditions of tight clock tolerances (somewhat below 1%) the calculations indicate that no errors will result even though the capacitance of the cable is not fully charged in one bit period.

Without regard to the truth or falsity of this implication it was felt that operation in this mode is not adequately conservative and so the curves were limited to lengths which would allow complete charging of the capacitance of the cable (full signal amplitude) even though the calculations implied a greater maximum length. This limit on the length is the reason why some curves flatten to zero slope at the zero clock tolerance side of the graph.

The graphs are conservative in that the effective dynamic drive current put out by these EIA drivers is more than 10Ma. We have driven 6750 feet of 20 pf. cable at 4800 Band with a 2% tolerance on the clock.

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Lineprocessor: 222

1) Lineprocessor User Manual,
(SRI-ARC Catalog 22131)

2) C. H. Irby,
Display Techniques for Interactive Text Manipulation,
Prepared for Proceedings National Computer Conference, May 1974.
(software oriented, SRI-ARC catalog 20183)

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Line Processor: A Device for Amplification of Display Terminal Capabilities for Text Manipulation,
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4) M. E. Hardy,
Microprocessor Technology to Extend the Utility of Computer Peripherals,
Prepared for ICCC Compcon 74,
Revised and Updated,
(hardware oriented, SRI-ARC Catolog Item 20185)

Teleprinter: 223

1) NLS-8 Command Summary,
(SRI-ARC Catalog 23912)

2) TNLS-8 Cue Card,
(SRI-ARC Catalog 23753)

3) TNLS Primer,
(SRI-ARC Catalog 23911)

4) NLS-8 User Glossary,
(SRI-ARC Catalog 22132)

Dex: 224

1) DEX User Manual,
(SRI-ARC Catalog 9934)

Network

FEINLER@SRI-ARC

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Workstation Equipment Reference Manual

Augmentation Research Center

27 JAN 75

Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

WORKSTATION EQUIPMENT REFERENCE MANUAL

(J23809) 24-JAN-75 09:38;;;; Title: Author(s): Martin E. Hardy/MEH;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: POOH; Origin: < HARDY, WS-RM,NLS;25, >, 10-DEC-74 08:18
POOH ;;;; MEH ; Title:

####;

NDM RLL 16-AUG-74 15:04 23815

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive panel DoD Internetting Study Group

(J23815) 16-AUG-74 15:04;;;; Title: Author(s): N. Dean Meyer, Robert N. Lieberman/NDM RLL; Distribution: /JCN([INFO-ONLY]) DCE([INFO-ONLY]) JHB([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

(demo-dca) 1

On 8 and 9 August 1974 at SRI-WASH, Dean Meyer gave a demonstration of NLS as part of a ARPANET review for the Executive Panel DOD Internetting Study Group. This was done at the request of Col. Russell of ARPA. Bert Sutherland gave the non-NLS part. Robert Lieberman participated from Menlo Park via the ARPANET using shared screens (ADVISE) with Dean's screen in Arlington, VA (SRI-WASH). 1a

Dean and Robert were using a Deltadata/Line Processor configuration. 1b

The executive committee had to be split beween the two days in order to keep the number of people in the audience to a workable level. The second day was sightly marred by a power failure at the MITRE-TIP in Virginia (The terminal at SRI-WASh is leased-line-connected to this TIP.) This cut short the NLS part. 1c

The demonstration went well and the shared screen part was enthusiasically received. Voice communication was maintained with conference speaker phones at both ends. 1d

Charles Irby pushed the completion of this shared screen capability especially for this demo. It is the first time such a remote collaboration has taken place. The distance (about 3000 miles) added to the impressiveness. It was deemed by all very useful. 1e

An outgrowth of this demonstration is the use of NLS to write the committee's report in September. 1f

The following was copied from (GJOURNAL, 31004, 1:w). 1g

The attendees at the August 8th demo were: 1g1

NAME	TITLE	ORG.	PHONE #	
				1g1a
Cecil V. Armintrout	Dep. Ch. Com. Div.	DIA	OX7-8900	1g1b
Albert G. Facey, Jr.	STF. SPEC. SWNETWKS D.	TACCS	695-3806	1g1c
Robert R. Jefferson	Chief Transmission Eng.Div.	DCEC	437-2466	1g1d
Robert E. Lyon	Div. Ch.	DCA	437-2321	1g1e
Philip Selvaggi	Div. Ch.	DCEC/DCA	437-2356	1g1f

NDM RLL 16-AUG-74 15:04 23815

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

David C. Russell	DEP. Dir IPT	ARPA	OX4-4002	1g1g
Burt Sutherland		BBN/TENEX		1g1h
Wren McMains		MIT/MULTICS		1g1i
Carrol Kerns		SRI		1g1j
Dean Meyer		SRI		1g1k
Dave Myers		SRI		1g1l
Susan Lee		SRI		1g1m
Toni Letaw		SRI		1g1n
Rita Jordan		SRI		1g1o

The attendees for the August 9th demo were: 1g2

NAME	TITLE	ORG.	PHONE #	
David C. Russell	Dep. Dir. IPT	ARPA	OX4-4002	1g2b
W.C. Unkenholz	Chief NSA		688-6035	1g2c
E.V. Hoversten	Prin. Dep. to Assoc. Dir.	DCA	692-0093	1g2d
J.C.R. Licklider	Dir. IPTO	ARPA	OX4-4001	1g2e
C.M. Anderson	Sr. Res. Assoc. William & Mary & NASA Langley		804-827-3997	1g2f
Burt Sutherland		BBN-TENEX		1g2g
Wren McMains		MIT/MULTICS		1g2h
Toni Letaw		SRI		1g2i
Carrol Kerns		SRI		1g2j
Dean Meyer		SRI		1g2k
Arlie Capps		SRI		1g2l
Ed Rodrigues		SRI		1g2m

NDM RLL 16-AUG-74 15:04 23815

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

The branches below are the specially files used in demostrating NLS. The scenario represents the preparation of a position paper using our technology. The (demo) file describes the scenairo and has the links to the proper files (in this case branches). [BEWARE - The links have not been changed for this journal item - BEWARE] 1h

(demo) < MEYER, DEMO,NLS;12, >, 7-AUG-74 18:51 NDM ;;;; 1i

1) I receive request for position paper on establishing a submarine detection system in the Great Salt Lake, 1i1

(initial) file at this point: (ndm1,) 1i1a

2) I form basic outline of paper 1i2

(work) file at this point 1i2a

Background 1i2a1

Alternatives 1i2a2

Recommendation 1i2a3

3) I send out requests for subordinates to do Alternatives, 1i3

(send) this as journal message 1i3a

Distribution: MDK PR BAH
Title: Request for Alternative Submarine Detection Systems Analysis
Message: I would like you to assemble a list of feasible alternatives for a submarine detection system in the Great Salt Lake, 1i3a1

4) I bring in Background from Bert's assembled paper, received via SNDMSG, 1i4

(work) file at this point 1i4a

Background 1i4a1

I, This is the first part of a simple report used to demonstrate use of a distributed file system. The report consists of three parts which are distributed among various computers connected to the ARPANET. 1i4a1a

II, The demonstration will involve collection of the three parts of the report (of which this

is the second part) and merger of them together to form
the final report. The various parts will be gathered together in a site independent manner. 1i4a1b

III. The completed report will then be transmitted to its
destination using the network mail service. To complete the demonstration the report will be received and read at the destination. 1i4a1c

Alternatives 1i4a2

Recommendation 1i4a3

5) I bring answers from subordinates. 1i5

(initial) file at this point: (ndm2,) 1i5a

(file) he'll produce: (43435,1) 1i5b

(work) file at this point 1i5c

Background 1i5c1

I. This is the first part of a simple report used to demonstrate use of a distributed file system. The report consists of three parts which are distributed among various computers connected to the ARPANET. 1i5c1a

II. The demonstration will involve collection of the three parts of the report (of which this is the second part) and merger of them together to form
the final report. The various parts will be gathered together in a site independent manner. 1i5c1b

III. The completed report will then be transmitted to its
destination using the network mail service. To complete the demonstration the report will be received and read at the destination. 1i5c1c

Alternatives 1i5c2

System A 1i5c2a

Description 1i5c2a1

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

This system is based on strategic placement of under-water radar scanning devices... 1i5c2a1a

Costs 1i5c2a2

Planning	$48,750,000	1i5c2a2a
Surveying	3,500,000	1i5c2a2b
Radar scanners	23,500,000	1i5c2a2c
Central facility	149,000,000	1i5c2a2d
Computers	850,000,000	1i5c2a2e

Scheduling 1i5c2a3

Planning	12 months	1i5c2a3a
Construction	48	1i5c2a3b
Debugging	9	1i5c2a3c

SCHEDULE

```
Planning    !---------
Construction!
-------------------------------------------
Debugging   !
-----------------
-------------------------------------------
Fiscal year  '76        '77        '78
'79        '80
-------------------------------------------
```

1i5c2a4

System B 1i5c2b

Description 1i5c2b1

This system is based on a new submarine detecting device which should minimize the chance of errors and so make analysis much easier... 1i5c2b1a

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

Costs		1i5c2b2
Planning	$78,000,000	1i5c2b2a
Surveying	3,500,000	1i5c2b2b
New Detectors	223,500,000	1i5c2b2c
Central facility	149,000,000	1i5c2b2d
Computers	475,000,000	1i5c2b2e
Scheduling		1i5c2b3
Planning	20 months	1i5c2b3a
Construction	40	1i5c2b3b
Debugging	7	1i5c2b3c

SCHEDULE

```
Planning    |====================
Construction|
            ------------------------------------
Debugging   |
            -------
            ==========================================
            Fiscal year  '76        '77        '78
            '79        '80
            ==========================================
```

1i5c2b4

Recommendation 1i5c3

6) I free lance Recommendation, 1i6

(work) file at this point 1i6a

Background 1i6a1

I, This is the first part of a simple report used to demonstrate use of a distributed file system, The

report consists of three parts which are distributed among various computers connected to the ARPANET. 1i6a1a

II. The demonstration will involve collection of the three parts of the report (of which this is the second part) and merger of them together to form the final report. The various parts will be gathered together in a site independent manner. 1i6a1b

III. The completed report will then be transmitted to its destination using the network mail service. To complete the demonstration the report will be received and read at the destination. 1i6a1c

Alternatives 1i6a2

System A 1i6a2a

Description 1i6a2a1

This system is based on strategic placement of under-water radar scanning devices... 1i6a2a1a

Costs 1i6a2a2

Planning	$48,750,000	1i6a2a2a
Surveying	3,500,000	1i6a2a2b
Radar scanners	23,500,000	1i6a2a2c
Central facility	149,000,000	1i6a2a2d
Computers	850,000,000	1i6a2a2e

scheduling 1i6a2a3

Planning	12 months	1i6a2a3a
Construction	48	1i6a2a3b
Debugging	9	1i6a2a3c

==========
==========
SCHEDULE

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

```
=================================================
==================
Planning    :---------
Construction:
=================================================
Debugging   :
================
=================================================
==================
Fiscal year  '76        '77        '78
'79         '80
=================================================
==================                                  1i6a2a4
```

System B 1i6a2b

Description 1i6a2b1

This system is based on a new submarine detecting device which should minimize the chance of errors and so make analysis much easier... 1i6a2b1a

Costs 1i6a2b2

Planning	$78,000,000	1i6a2b2a
Surveying	3,500,000	1i6a2b2b
New Detectors	223,500,000	1i6a2b2c
Central facility	149,000,000	1i6a2b2d
Computers	475,000,000	1i6a2b2e

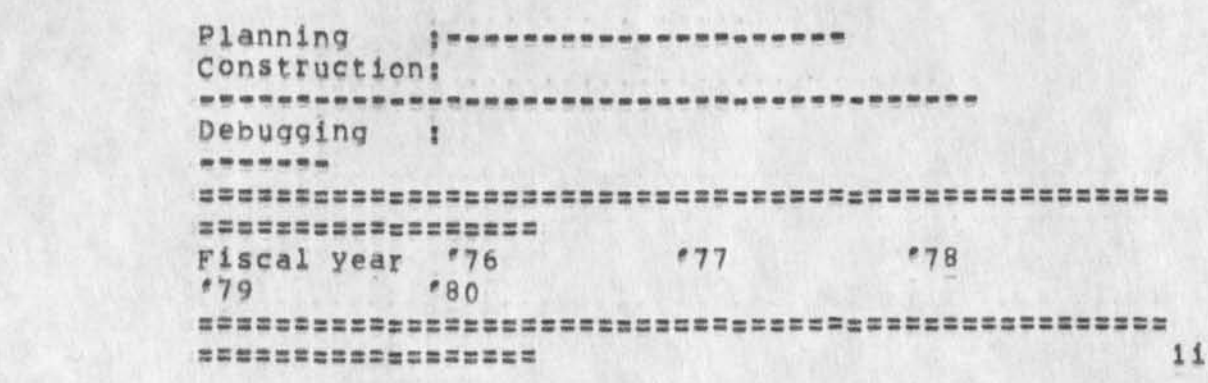
Scheduling 1i6a2b3

Planning	20 months	1i6a2b3a
Construction	40	1i6a2b3b
Debugging	7	1i6a2b3c

```
=================================================
==================
 SCHEDULE
=================================================
==================
```

NDM RLL 16-AUG-74 15:04 23815

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group



116a2b4

Recommendation 116a3

Given the importance of this project in maintain or defensive security, we feel that ... 116a3a

7) View paper at various conceptual levels, 117

8) Send out to colleagues for review, 118

Title: DRAFT: Submarine Detection System in Great Salt Lake
Distribution: RLL 118a

Output to 43450 118b

9) Get back answers, suggestions, etc, 119

(initial) file at this point: (ndm3,) 119a

(file) he'll produce: (43463,1) 119b

10) Shared screen dialog with one colleague, modify the paper, 1110

11) Submit via Journal to my superior, 1111

12) Print it out, 1112

(ndm1) < MEYER, NDM1,NLS;1, > 1j

(Journal) Journal documents (most recent first) 1j1

DCE 7-AUG-74 08:48 43418
Feasibility of Submarine Detection Network
Message: In order to secure our waterways, consideration is being given to a submarine detection network, I am

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

requesting your position on establishing such a network in your sector, the Great Salt Lake,
*****Note: Action*****

1j1a

(ndm2) < MEYER, NDM2,NLS;1, >, 8-AUG-74 05:30 NDM ;;;; 1k

(Journal) Journal documents (most recent first)

1k1

MDK 9-AUG-74 23:48 43435
Alternative Submarine Detection Systems
Location: (43435, 1:w)

1k1a

DCE 7-AUG-74 08:48 43418
Feasibility of Submarine Detection Network
Message: In order to secure our waterways, consideration is being given to a submarine detection network, I am requesting your position on establishing such a network in your sector, the Great Salt Lake,
*****Note: Action*****

1k1b

(Author) Journal documents authored

1k2

NDM 8-AUG-74 13:32 43421
Request for Alternative Submarine Detection Systems Analysis
Message: I would like you to assemble a list of feasible alternatives for a submarine detection system in the Great Salt Lake,
*****Note: Author Copy*****

1k2a

(ndm3) < MEYER, NDM3,NLS;1, >, 8-AUG-74 05:31 NDM 11

< MEYER, NDM3,NLS;1, >, 8-AUG-74 05:31 NDM ;;;;

111

(Journal) Journal documents (most recent first)

111a

XYZ 12-AUG-74 11:48 43463
Submarine Detection in Salt Lake
Location: (43463, 1:wy)

111a1

NDM RLL 16-AUG-74 15:04 23815

Script and attendees at DCA/ARPA demo on 8/9 August 1974 at SRI-WASH for the Executive Panel DoD Internetting Study Group

MDK 9-AUG-74 23:48 43435
Alternative Submarine Detection Systems
Location: (43435, 1:w)

111a2

DCE 7-AUG-74 08:48 43418
Feasibility of Submarine Detection Network
Message: In order to secure our waterways, consideration is being given to a submarine detection network, I am requesting your position on establishing such a network in your sector, the Great Salt Lake,
*****Note: Action*****

111a3

(Author) Journal documents authored

111b

NDM 10-AUG-74 17:26 43450
DRAFT: Submarine Detection System in Great Salt Lake
Location: (43450, 1:w)
*****Note: Author Copy*****

111b1

NDM 8-AUG-74 13:32 43421
Request for Alternative Submarine Detection Systems Analysis
Message: I would like you to assemble a list of feasible alternatives for a submarine detection system in the Great Salt Lake,
*****Note: Author Copy*****

111b2

(j43435) 1m

< MEYER, 43435,NLS;1, >, 7-AUG-74 14:33 NDM ;;;; Title: Author(s): Michael D. Kudlick/MDK; Distribution: N. Dean Meyer/NDM ; Sub-Collections: SRI-ARC; Clerk: MDK; Origin: <KUDLICK>SYSTEMS.NLS;1, 9-AUG-74 23:37 MDK ####;

1m1

Alternative Submarine Detection Systems

System A 1m1a

Description 1m1a1

This system is based on strategic placement of under-water radar scanning devices... 1m1a1a

Costs 1m1a2

Planning	$48,750,000	1m1a2a
Surveying	3,500,000	1m1a2b
Radar scanners	23,500,000	1m1a2c
Central facility	149,000,000	1m1a2d
Computers	850,000,000	1m1a2e

Scheduling 1m1a3

Planning	12 months	1m1a3a
Construction	48	1m1a3b
Debugging	9	1m1a3c

SCHEDULE

```
Planning    :---------
Construction:
-------------------------------------------
Debugging   :
----------------
Fiscal year  '76        '77        '78        '79
'80
```

1m1a4

System B 1m1b

Description 1m1b1

This system is based on a new submarine detecting

Alternative Submarine Detection Systems

device which should minimize the chance of errors and so make analysis much easier... 1m1b1a

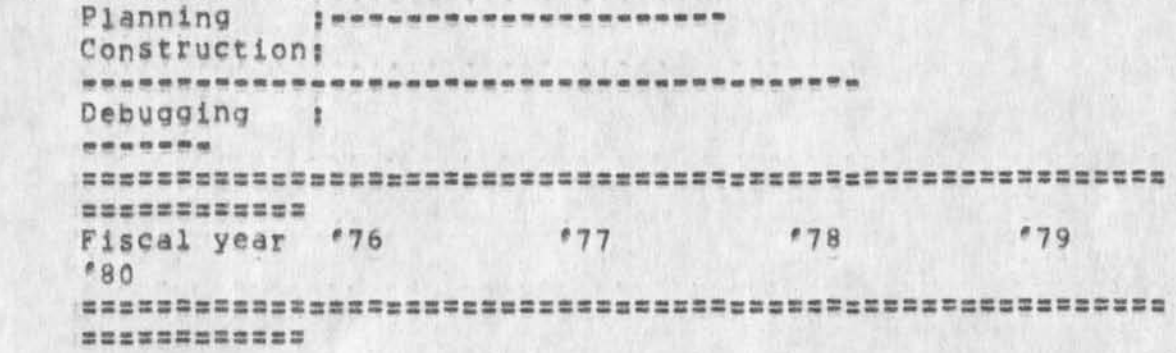
Costs 1m1b2

Planning	$78,000,000	1m1b2a
Surveying	3,500,000	1m1b2b
New Detectors	223,500,000	1m1b2c
Central facility	149,000,000	1m1b2d
Computers	475,000,000	1m1b2e

Scheduling 1m1b3

Planning	20 months	1m1b3a
Construction	40	1m1b3b
Debugging	7	1m1b3c

SCHEDULE



1m1b4

(j43450) 1n

< MEYER, 43450,NLS;1, >, 8-AUG-74 08:34 NDM ;;;; 1n1

Background 1n1a

I. This is the first part of a simple report used to demonstrate use of a distributed file system. The

report consists of three parts which are distributed among various computers connected to the ARPANET. 1n1a1

II. The demonstration will involve collection of the three parts of the report (of which this is the second part) and merger of them together to form the final report. The various parts will be gathered together in a site independent manner. 1n1a2

III. The completed report will then be transmitted to its destination using the network mail service. To complete the demonstration the report will be received and read at the destination. 1n1a3

Alternatives 1n1b

System A 1n1b1

Description 1n1b1a

This system is based on strategic placement of under-water radar scanning devices... 1n1b1a1

Costs 1n1b1b

Planning	$48,750,000	1n1b1b1
Surveying	3,500,000	1n1b1b2
Radar scanners	23,500,000	1n1b1b3
Central facility	149,000,000	1n1b1b4
Computers	850,000,000	1n1b1b5

Scheduling 1n1b1c

Planning	12 months	1n1b1c1
Construction	48	1n1b1c2
Debugging	9	1n1b1c3

==========
SCHEDULE
==========

```
Planning    :---------
Construction:
-------------------------------------------------
Debugging   :
-----------------
=================================================
===============
Fiscal year  '76          '77          '78          '79
'80
=================================================
===============                                    1n1b1d
```

System B 1n1b2

Description 1n1b2a

This system is based on a new submarine detecting device which should minimize the chance of errors and so make analysis much easier... 1n1b2a1

Costs 1n1b2b

Planning	$78,000,000	1n1b2b1
Surveying	3,500,000	1n1b2b2
New Detectors	223,500,000	1n1b2b3
Central facility	149,000,000	1n1b2b4
Computers	475,000,000	1n1b2b5

Scheduling 1n1b2c

Planning	20 months	1n1b2c1
Construction	40	1n1b2c2
Debugging	7	1n1b2c3

```
=================================================
===============
 SCHEDULE
=================================================
===============
Planning    :--------------------
Construction:
-------------------------------------
Debugging   :
```

Alternative Submarine Detection Systems

Fiscal year	'76	'77	'78	'79	'80

1n1b2d

Recommendation 1n1c

Given the extreme importance of this project in maintaining our defensive security, we feel that ... 1n1c1

(j43463) 1o

< MEYER, 43463,NLS;1, >, 7-AUG-74 11:05 NDM ;;;; Title: Author(s): Xavier yates Zambezo/XYZ; Distribution: N, Dean Meyer/NDM ; Sub-Collections: SRI-ARC; Clerk: XYZ; Origin: <ZAMBEZO>RESPONSE.NLS;1, 12-AUG-74 11:32 XYZ ####; 1o1

Submarine Detection in Salt Lake

I liked your paper quite well, I do, however, have a few minor suggestions: 1o1a

In statement 1a, I think you ought to mention the current state of this technology being developed at SRI, 1o1b

In 3a, I think it should read "demonstrate the powers of", 1o1c

In 4, don't you want to mention the cost of interest? 1o1d

Below is a brief outline of the actions that take place during the shared screen part (item 10 in the demo file), 1p

ROB: connect display via advise 1p1

ROB: viewspec F 1p2

ROB: split screen horizontally 1p3

ROB: load file (notes,) on bottom 1p4

ROB: move first statement to recommendation section on top screen 1p5

DEAN: transpose recommendations 1p6

DEAN: jump to cost section 1p7

ROB: goto calculator 1p8

DEAN: format change to dollars, commas 1p9

ROB: add numbers (use repeat) 1p10

ROB: put total in notes file under last statement 1p11

DEAN: replace statement to use new numbers 1p12

DEAN: insert total via execute editor insert, (use 14 blanks) 1p13

DEAN: control s 1p14

ROB: control s, 1p15

Below is the file assumed to be Lieberman's notes on the paper sent to him by Meyer, 1q

< MEYER, NOTES,NLS;2, >, 9-AUG-74 13:27 NDM ;;;; 1q1

Submarine Detection in Salt Lake

The costs for system A appear to be a bit off according to Ken Jones in my division. 1q1a

Radar scanners	43,500,000	1q1a1
Computers	495,000,000	1q1a2

KIRK 17-AUG-74 17:22 23816

exceed capacity bug

(J23816) 17-AUG-74 17:22;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /BUGS([ACTION]) ; Sub-Collections: SRI-ARC BUGS;
Clerk: KIRK;

KIRK 17-AUG-74 17:22 23816

exceed capacity bug

Why is it that when ever I try to edit the statement with all the dashes, I get 'exceed capacity'. But when I refresh the screen, everything is cool, it did the edit.

exceed capacity bug

----------1---------- 1

KIRK 18-AUG-74 00:16 23817

BUG in the substitute command

(J23817) 18-AUG-74 00:16;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /BUGS([ACTION]) ; Sub-Collections: SRI-ARC BUGS;
Clerk: KIRK;

KIRK 18-AUG-74 00:16 23817

BUG in the substitute command

The substitute command no longer obeys level clipping viewspecs as it did in the old system. If this is not a bug, I need to know so I can update the documentation trying to explain another step backward to those who get their files messed up like I just did. 1

JHB 19-AUG-74 08:51 23818

Visit Log, 13 Aug 74, Gary Engel and Roger Merrill, IBM ASDD

(J23818) 19-AUG-74 08:51;;;; Title: Author(s): James H. Bair/JHB;
Distribution: /DCE([ACTION]) PROF([INFO-ONLY]) ;
Sub-Collections: SRI-ARC PROF; Clerk: JHB;

JHB 19-AUG-74 08:51 23818

Visit Log, 13 Aug 74, Gary Engel and Roger Merrill, IBM ASDD

Visit Log, 13 Aug 74, Gary Engel and Roger Merrill, IBM ASDD 1

Current address: 1a

Gary H. Engel, and Roger J. Merrill (formerly Marketing Manager, DPD, NJ Finance and Insurance), 1a1

Office Automation Group 1a2

Advanced Systems Development Division
2651 Strang Blvd,
Yorktown Heights, New York 10598 1a3

Phone: (914) 245-6000 1a4

Reason for visit: 1b

These middle management types are members of a team of 9 persons within ASDD that has been given the charter to explore all the possibilites for office automation equipment (they have an almost unlimited travel budget). They indicated that they ARE transcending intraorganizational boundaries and working with the other divisions, particularly Office Products and Data Processing, and that they are going to make a serious effort to overcome the scattered, uncoordinated approach that has been the case to date -- and our experience of IBM. 1b1

They are very interested in the design rationale, and implementation -- technology transfer considerations. They are concerned about reliability, learnability, and the integration of a wide range of services. Concern was expressed for system utility to all levels of knowledge workers, from the executive to the secretary. 1b2

Events: 1c

JHB was asked to be host (see -- engelbart,log,). They came late in the day (3PM) which may say something about their anticipated interest. Discussions were held at the terminal with intermittent demo activities. They seemed very impressed with NLS (of course) and I sensed an excellent rapport. They were under a covert pressure to find exploitable technology and make recommendations based on their explorations that would optimize IBMs market position -- looking toward 5 years. After about 2 1/4 hrs, their potential participation appeared to warrent meeting DCE (see DCE IBM DPD visitlog --(GJOURNAL, 23785, 1:w) where the associated problems are discussed). However, THEY DECLINED pending returning home to digest what I had presented, particularly the way in which we would have them

use our services and acquire the consultation they desire. Whether or not they can participate depends on $$, and the availability of an individual for the architect role. Note that they had come to see what we have, and at the most hire as consultants ("buy 3-4 mos of an individual to go back to NY and help them ...") It was not certain enough to enable them to assign a probability. I sent them off to a good French restaurant. 1c1

Discussion: 1d

When the subject of the the multitudinous, uncoordinated inquiries from IBM was subtly presented, they acknowledged it from an apriori awareness. When queeried about the "Office of the Future" being developed/explored by John Gardner of IBM, their reaction was that the effort is unsophisticated and primarily an in-house plaything for the use of Gardner and staff. It is on a TSS, uses off-the-shelf CRTs, and has a light pen. Apparently it is not recognized as an IBM advanced development effort. (I would still like to see it.) 1d1

They knew Bob Haller, the Office Products Division rep. (see -- HJOURNAL, 30049, 1:w), who expressed a serious desire to hire our consulting services but not to the tune of 40 K...; I am keeping in touch with him after a brief drop-in visit word some months ago. Haller's concern was verified to be more about the effect of mass word processing on clerical personnel rather than office automation, which goes beyond the perview of OPD. 1d2

Probably the most intersting question explored was, "what can IBM do with our software given its governmental funding history?" They noted 3 possibilities off the top...: 1d3

1) Review our work, and glean as much as possible from it in the open literature (and perhaps continued visits by their staff), and develop their own prototype; 1d3a

2) Use us for for consultants, either directly or in the novel way we suggest, the architect/slot approach, and somehow work out the legal hassle while developing a matched prototype that's marketable on a large scale; 1d3b

3) Buy us out, and hire us back to work for them, particularly the experience -- consultation. 1d3c

As one might ascertain, 2 is worth a second look. We will be in touch with them. 1d4

RLL 19-AUG-74 10:15 23819

Group membership for RLL

(J23819) 19-AUG-74 10:15;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /JCN([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 19-AUG-74 10:15 23819

Group membership for RLL

I'll tell Marcia if you OK it.

RLL 19-AUG-74 10:15 23819

Group membership for RLL

Jim Bair requested I request being placed on the PROF ident group, It sounds appropriate,,,, Are there others? Rob 1

KEV 19-AUG-74 11:07 23820

glass jars

(J23820) 19-AUG-74 11:07;;;; Title: Author(s): Kenneth E. (Ken) Victor/KEV; Distribution: /SRI-ARC([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: KEV;

KEV 19-AUG-74 11:07 23820

glass jars

if anyone has any one gallon clear glass jars that they do not want,
i will gladly take them, thanx 1

RLL 19-AUG-74 11:08 23821

bug in bugging: first line of screen

(J23821) 19-AUG-74 11:08;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /FDBK([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 19-AUG-74 11:08 23821

bug in bugging: first line of screen

AHHHHHH, bugging the first line on my screen in effect bugs the line prior to it (not visible). No split screen at the time,doing moving, copying, transposing branches at the time, 19 Aug 1

RLL 19-AUG-74 13:58 23822

menu for chinese dinner (northern style)

(J23822) 19-AUG-74 13:58;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /JMB([ACTION]) DVN([ACTION]) KIRK([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 19-AUG-74 13:58 23822

menu for chinese dinner (northern style)

My suggestions for the menu. Suggestion please- send to Jmb.

RLL 19-AUG-74 13:58 23822

menu for chinese dinner (northern style)

Mushi pork/ Peking Duck/ Five spices fish/ sheschuan Beef/ chicken and garlic/sweet and sour pork with lichee nuts(from Kirk)/hot and sour soup= chinese dinner Robert 1

JMB 19-AUG-74 18:36 23823

Chef Chu's Peking Duck, etc.

(J23823) 19-AUG-74 18:36;;;; Title: Author(s): Jeanne M. Beck/JMB;
Distribution: /RLL([INFO-ONLY]) JHB([INFO-ONLY]) JML([
INFO-ONLY]) KIRK([INFO-ONLY]) DVN([INFO-ONLY]) JMB([
INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JMB;

JMB 19-AUG-74 18:36 23823

Chef Chu's Peking Duck, etc.

The long-awaited Chinese Banquet is tentatively scheduled for this Friday evening (payday) at 8 pm at Chef Chu's at San Antonio Road & El Camino in Mountain View. Is that time all right with you? 1

Tentative menu [reactions & suggestions desired; so far we are only committed to the Duck]: Cost for 12: 2

Hot and Sour Soup	$5.25	2a
2 Peking Ducks	28.00	2b
Whole Dry Braised Fish	7.25	2c
Shrimp with sizzling rice (& vegetables)	7.00	2d
Schechuan Beef (spicy)	7.50	2e
Lichee Nut Blossom (only dessert available)	6.00	2f
TOTAL:	61.00	2g
Leave out dessert for another main dish?		2h
A pork dish? Any suggestions?	?	2i

Participants: Robert L, Barbara, Dirk, Whitney, Jeanne L, Ron, Jeanne B, Jim Garson, Jim Bair, Maria, Kirk, & Carolyn (I hope I got everyone's name spelled right!) 3

DVN 20-AUG-74 08:26 23824

Record of Transmition of COM Tape to DDSI;Trial Run for JOVIAL Document

(J23824) 20-AUG-74 08:26;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DLS([INFO-ONLY] for the record) NDM([INFO-ONLY]) JHB([INFO-ONLY]) EKM([INFO-ONLY]) &COM([INFO-ONLY]) &DPCS([INFO-ONLY]) ; Sub-Collections: DPCS COM SRI-ARC; Clerk: DVN;

DVN 20-AUG-74 08:26 23824

Record of Transmition of COM Tape to DDSI;Trial Run for JOVIAL Document

On Saturday afternoon the 17th running at Office-1 I processed Duane Stone's file COMtest through Output Device COM into a file called AUG17JOVTRY, transmitted it to ISI where it had the same name, and spun it off onto tape, Monday morning I called DDSI and told John Fertig it was there, th tape number, 114, and asked him to send proofs to me at SRI,

1

DCE 20-AUG-74 08:51 23825

(^V) Before (CR) Doesn't Seem to Work in Comment Field

(J23825) 20-AUG-74 08:51;;;; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: /FDBK([ACTION]) DCE([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DCE; Origin: < LEAVITT, XFILE.NLS;2, >, 20-AUG-74 08:37 JML ;;;;<LEAVITT>XFILE.NLS;1, 19-AUG-74 23:00 JML ;####;

DCE 20-AUG-74 08:51 23825

(^V) Before (CR) Doesn't Seem to Work in Comment Field

In this if one wishes to format a comment with a carriage return it will of course terminate the comment command. One expects that if he wishes a literal carriage return he can preceed the carriage return keystroke with a (^V). I tried this and it doesn't seem to work properly. The carriage return indeed does get added as a literal to the comment but the impact on nls seems to be also as though the carriage return terminates the command and readies you for a new command in the particular mode. 1

RLL 20-AUG-74 10:46 23826

Friday's Chinese feast.

(J23826) 20-AUG-74 10:46;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /JMB([ACTION]) DVN([ACTION]) JML([ACTION]) JHB([ACTION]) KIRK([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 20-AUG-74 10:46 23826

Friday's Chinese feast,

P.S. the time is OK with me.

RLL 20-AUG-74 10:46 23826

Friday's Chinese feast,

I strongly recommend another main dish, Only four are listed and we are 12 (with two orders of duck that makes enough for 10 I think), I would think another hot dish would be appropriate since two now are mild (northern style is usually hot!!!), Just ask Chu for a hot one, Also think this should be settled before going, SOunds great, 1

JEW 20-AUG-74 11:43 23827

Journal Bug: One Statement Public Item Stored as File

(J23827) 20-AUG-74 11:43;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /FDBK([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: JEW;

JEW 20-AUG-74 11:43 23827

Journal Bug: One Statement Public Item Stored as File

E.g. (gjournal,23820,)

JMB 20-AUG-74 12:29 23828

Discussion of Friday's Chinese Banquet

(J23828) 20-AUG-74 12:29;;;; Title: Author(s): Jeanne M. Beck/JMB;
Distribution: /RLL([ACTION]) JML([ACTION]) JMB([ACTION])
DVN([ACTION]) JHB([ACTION]) KIRK([ACTION]) ;
Sub-Collections: SRI-ARC; Clerk: JMB;

JMB 20-AUG-74 12:29 23828

Discussion of Friday's Chinese Banquet

This is where you can read the feedback on the menu, time, time, etc--beck,talk,banquet;9> Add yours via sendmessage or journal to JMB, by Thursday (that's when the rest of the order goes in). 1

JMB 20-AUG-74 14:22 23829

You can see the current status of the New TNLS cuecard

(J23829) 20-AUG-74 14:22;;;; Title: Author(s): Jeanne M. Beck/JMB;
Distribution: /DCE([ACTION]) JCN([ACTION]) JHB([ACTION])
KIRK([ACTION]) NPG([INFO-ONLY]) DVN([INFO-ONLY]) ;
Sub-Collections: SRI-ARC NPG; Clerk: JMB;

JMB 20-AUG-74 14:22 23829

You can see the current status of the New TNLS cuecard

Look at the pasted-up draft on the table in my office (J2080).
Please make comments on a separate sheet of paper. It goes for
printing Wednesday afternoon (tomorrow). 1

JHB 20-AUG-74 15:32 23830

Visit Log, 6 Aug 74, Dr. Keats Pullen, BRL Research Scientist

(J23830) 20-AUG-74 15:32;;;; Title: Author(s): James H. Bair/JHB;
Distribution: /PROF([INFO-ONLY]) SMT([INFO-ONLY]) ;
Sub-Collections: SRI-ARC PROF; Clerk: JHB;

Visit Log, 6 Aug 74, Dr. Keats Pullen, BRL Research Scientist

Visit Log, 6 Aug 74, Dr. Keats Pullen, BRL Research Scientist 1

Address: 1a

Ballistic Research Laboratories 1a1

Attn: ANX BR-XA
Aberdeen Proving Ground
Maryland 21005 1a2

Phone:(301) 278-4149; 1a3

Reason for visit: 1b

JCN and JHB had met Dr Pullen on our recent trip to Aberdean, MD, (July 15) while giving demos/talks on NLS to the people that Stan Taylor (architect --SMT) had set up for our day long visit. He was one of the most interested persons there, and was primarily concerned with the use of NLS (or any computer system) as an info. retrieval device. 1b1

Ostensibly his trip here was to meet DCE and see DNLS in action. However, it was also to interest us in the value if not the use of his indexing procedure called "Key phrase Indexing". He has a number of publications which, for the past few years have been directed toward the problem of IS & R where advances in bibliographic/document retrieval technology has been at a stalemate due to semantic, technical, and other problems. 1b2

Events during visit: 1c

The full day began with a meeting with DCE and JHB, which broke into a demo/discussion session with JHB. Lunch afforded the opportunity to meet CHI, MEH, and Mike Bedford, who happened stop in on his way back to Montreal. The afternoon was spent demonstrating NLS with particular attention to NLS retrieval by JHB. BRL is a client but it doesn't seem that Keats himself will be a heavy user. 1c1

Discussion: 1d

He left a BRL report, "Pilot Edition, Technical Information Index," which illustrated the use of his indexing technique and includes instructions to authors on the assignment of keywords/phrases. He suggested that these be used in a revival of Journal keyword indexing. A list of his many publications in the area can be provided on request. 1d1

Documentation: 1e

JHB 20-AUG-74 15:32 23830

Visit Log, 6 Aug 74, Dr. Keats Pullen, BRL Research Scientist

He had received the AKW paper, etc., during our visit. 1e1

NLS Version Numbers

(J23831) 21-AUG-74 07:52;;;; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: CHI;

DCE 21-AUG-74 07:52 23831

NLS Version Numbers

Major releases on NLS will henceforth be assigned version numbers. The NLS soon to be released to Office-1 will be NLS-8. The old version of NLS now running at Office-1 is NLS-7. These version numbers roughly correspond to the number of major releases of NLS since 1962. In the future all NLS documentation and formal presentations should include this version number (this includes the documentation being prepared for NLS-8). 1

DVN 21-AUG-74 08:49 23832

BUG: Set Viewspecs Does Not Work

(J23832) 21-AUG-74 08:49;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DSM([ACTION]) NEWNLS([ACTION]) ; Sub-Collections: SRI-ARC NEWNLS; Clerk: DVN;

DVN 21-AUG-74 08:49 23832

BUG: Set Viewspecs Does Not Work

The Set Viewspec command will accept only two characters after it has recognized "Viewspecs" (all other characters get a ? or bell). They are CD and CA. Neither changes your viewspecs in any way. I am assming for the purposes of the primer that it will be fixed to take viewspecs and then a CA in that field. 1

JEW 21-AUG-74 09:55 23833

Opening <SYSTEM>GROUP.INDEX thawed or not at all

(J23833) 21-AUG-74 09:55;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /FDBK([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: JEW;

JEW 21-AUG-74 09:55 23833

Opening <SYSTEM>GROUP.INDEX thawed or not at all

It's sometimes impossible to get into NLS because it can't get at the group file. Does that file still need to be accessed by NLS (since the login ident has already been verified); if so, why not open it thawed? 1

DVN 21-AUG-74 10:14 23834

Daghter of DEIS Catalog Production Problems

(J23834) 21-AUG-74 10:14;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /JCN([ACTION]) MEJ([INFO-ONLY]) NDM([INFO-ONLY]) DSM([INFO-ONLY]) HGL([INFO-ONLY]) ;
Sub-Collections: DEIS DPCS SRI-ARC; Clerk: DVN;

DVN 21-AUG-74 10:14 23834

Daghter of DEIS Catalog Production Problems

As you may recall we did a DEIS Catalog. Items were added to the DEIS subcollection both via Journal and hardcopy iteic viaMil after that catalog was made. The other day Dave Brown ased for a complte catalog run. It turns out that a complete catalog run cannot be done without a lot of hand work because some of the citations created by the jounral are garbage, e.g. (cat,cit=deismar74,7) where you will find the title ["Catalog Production:Progress,Problems,and a Proposal"] scattered through the citation. 1

Dave may be satisfied with a catalog complete only for the hardcopy items; I believe that is what he is mosty interested in. I think we should offer him that. But I wanted to bring the situation to your attention before going further. 2

JCN 21-AUG-74 10:54 23835

DEIS Catalog Residue

(J23835) 21-AUG-74 10:54;;;; Title: Author(s): James C. Norton/JCN; Distribution: /DVN([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: JCN;

JCN 21-AUG-74 10:54 23835

DEIS Catalog Residue

Dirk: We are no longer providing service to the DEIS project.
Whatever was left over from the cataloging process IF A CLEAN
PRESENTABLE JOB can be just given to Dave, If not good stuff, since
WE PAID...he's out of luck, Jim 1

Should Someone Talk with Monroe H, Postman of San Jose and NSF?

(J23836) 21-AUG-74 11:56;;;; Title: Author(s): Dirk H, Van Nouhuys/DVN; Distribution: /DCE([ACTION]) JCN([INFO-ONLY]) PGK([INFO-ONLY]) JHB([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DVN;

DVN 21-AUG-74 11:56 23836

Should Someone Talk with Monroe H. Postman of San Jose and NSF?

Doug,
Pam Kruzic has, I understand, sent you a contact report on Monroe H. Postman who is in the San Jose City government and is part of an NSF project scattered around the country to funnel technology into city government. She also brought him to my attention. I said since you had been talking recently to NSF I would ask your opinion on whether I or anyone here should take the tme to talk to him. 1

Duaghter-in-law of Set Viewspecs (23832)

(J23837) 21-AUG-74 12:30;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DSM([ACTION]) NEWNLS([ACTION]) JHB([INFO-ONLY]) ; Sub-Collections: SRI-ARC NEWNLS; Clerk: DVN;

Duaghter-in-law of Set Viewspecs (23832)

The problem (bug?feature?) is that Reset All in the useroptions
System does not touch the Viewspecs On/Off status. 1

elephant meting

(J23838) 21-AUG-74 12:52;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DVN([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: DVN; Origin: < VANNOUHUYS, MEMO.NLS;2, >, 21-AUG-74 12:49 DVN ;;;;####;

elephant meting

Contradictions have been alledged in our description of the elephant. 1

The meeting will be at 3:00 in the project room 2

A recursive rediginition plan should emerge 3

DCE 4-SEP-74 11:27 23851

Note to Lick re get-together possibility

(J23851) 4-SEP-74 11:27;;;; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: /JML([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DCE;

DCE 4-SEP-74 11:27 23851

Note to Lick re get-together possibility

Lick: I return to find your welcome letter of 16 Aug (XDOC -- 23850,). I would like very much to talk with you. I have no travel plans that are firm; some small probability that I'd want to be in Washington on 19 Sep, but let's use that only if other considerations support our meeting in Washington near that time. A visit with you easily takes priority. I assume that SNDMSG is still operative between us, but if I don't hear soon that way, I'll call (or even try writing a letter); I need to resolve the 19 Sept Washington possibility in a few days. And thanks for the hospitality offer -- you really are the complete gentleman -- but Ballard is hoping that the visiting will be on this end so that she can help even up the hospitality ledger.

Very best regards, Doug

1

Message subsys needs buffer of 8

(J23859) 21-AUG-74 16:25;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /NDM([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 21-AUG-74 16:25 23859

Message subsys needs buffer of 8

Do you realize that your message subsystem needs a buffer space of 8 (eight). Apparently they (or you) changed things. Rob. 1

RLL 22-AUG-74 10:08 23860

Go on Friday

(J23860) 22-AUG-74 10:08;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /JMB([ACTION]) DVN([INFO-ONLY]) JML([INFO-ONLY]) KIRK([INFO-ONLY]) JHB([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 22-AUG-74 10:08 23860

Go on Friday

Ok by me. Time, food, company are all go. Let's work out the optimal transportation. 1