1.0 CASSETTE HANDLING AND OPERATING PRACTICES 6

Much can be done during the day-to-day handling of cassettes and cassette transports to enhance and preserve system performance. The following are a few simple rules. 6a

Do not leave a cassette unprotected. It should either be properly mounted in the TermiCette or safely enclosed in an approved storage or carrying case. 6a1

Put aside cigarettes or cigars when handling the cassette. 6a2

Do not carry cassettes around in shirt or coat pockets even if they are enclosed in a carrying case. 6a3

Use only computer grade certified cassettes. 6a4

Break in a new cassette by running at Fast Forward speed for several full passes of the length of the tape. This should be done with tape guides and heads in contact with the tape. This break-in knocks off loose oxide particles and polishes the tape. 6a5

When a cassette is mounted on a new or different transport it should be fully wound and rewound before use to re-stack the tape. 6a6

Clean the tape heads and guides frequently (at least every eight operating hours) to remove oxide accumulations. Use an approved head cleaner. Robbins Head Cleaner TX-20 is suitable. 6a7

Avoid recording on the first and last foot of tape because these sections are most subject to wear, wrinkling, and contamination. 6a8

1.1 TERMICETTE CONTROL CODES

PUSHBUTTON		CONTROL CODE		FUNCTION
[Rewind]	=	(↑W)	=	Rewind tape
[Record]	=	(↑R)	=	Start record mode
	=	(↑V)	=	Record gap in Record mode
	=	(↑T)	=	Terminate record mode
[Backskip]	=	(↑H)	=	Skip back to next stop code
[Play]	=	(↑Q)	=	Start play mode
	=	(↑S)	=	Terminate search modes

1.2 TYPICAL TAPE FORMAT

[(↑V)] = Record Gap

[LF,data,CR] = First Record = first line

[LF,data,CR] = Next Record = next line

[LF,data,CR] = Next Record = next line

. . Next Record = .

. . Next Record = . 1 FILE

. . Next Record = .

[LF,data,CR] = Next Record = next line

[LF,(↑Z)CR] = Last Record = last line

[(↑V)] = Record Gap

1 Record

Is any string of data up to and including (carriage return). 7m1

(Carriage return) is used as end of record (EOR) code. 7m2

(line feed) is needed in each record only to facilitate viewing when recording or playing back. Its placement within a record is not ordered. 7m3

Record Gap = (↑V) 7m4

Record gap must be recorded at beginning of tape and at end of each file. Beginning gap is used to get off leader. End gap required for high speed searching. 7m4a

Last data record 7m5

Must contain at least one (↑Z) followed by carriage return. Other characters could be recorded between (↑Z) and (CR), but cassette program will ignore. 7m5a

2.0 ON-LINE OPERATING INSTRUCTIONS 8

2.1 Utilizing just the keyboard terminal on-line 8a

2.1.1 See section [4.0] for proper hook-up. 8a1

2.1.2 Select Terminal to on-line 8a2

2.1.3 Select termicette's [LOC-LINE-LNP] switch to (LINE). This connects the keyboard and TermiCette to the computer. All data from the keyboard will go directly to the computer. All echos from the computer will go to both the terminal and TermiCette. What this means is, if you are working on-line and the computer echos any code that is a TermiCette function, the TermiCette will perform that function. 8a3

2.1.4 Push open the cassette holder unit as if you where going to remove the cassette, or remove cassette then close holder unit. 8a4

This will inhibit TermiCette from responding to functions code echoed from the computer. 8b

2.1.5 The terminal keyboard is now the only active connection with the computer. 8b1

2.2 Description of the Cassett program. [CASSETTE.SAV] 8c

It resides in <SUBSYS> library 8c1

2.2.1 FEATURES 8c1a

2.2.1.1 Input/Output control functions 8c1a1

Special-N 8c1a1a

Program assigns input/output control functions that are defined for ICP Termicettes. 8c1a1a1

Special-Y 8c1a1b

You must specify to program (Rewind), (Play), (End of Record) = (EOR), (End of file) = (EOT). Also whether or not you want the character you define as (EOR) placed in the sequencial file. 8c1a1b1

2.2.1.2 You may command the program to read cassette data from any TTY channel. This allows you to input data from another channel at speeds different than the control terminal. 8c1a2

2.3 PUTTING THE TAPE ON-LINE 8c1b

2.3.1 At exec level call CASSETTE.SAV 8c1b1

2.3.1.1 Program echos: "Cassette to sequential file utility" "special?" 8c1b1a

2.3.2 If ICP Termicette--
type: N (CR)
If not ICP termicette--
see special instruction [1.2] 8c1b2

2.3.3 Program echos: "Copy to file:"
type: (name you want to give this file)(CR) 8c1b3

2.3.4 Program echos: "[new version]" or "[old version]"
If file name ok type: (CR) 8c1b4

2.3.5 Program echos: "Input from file:" 8c1b5

2.3.5.1 If cassette input is to be from the same channel as the controlling TTY.
type: (TTY:) (CR) 8c1b5a

2.3.5.2 If cassette input is not to be from same

TTY channel.
type: (TTY number:) (CR) 8c1b5b

NOTE (Number) is the TTY channel number you want the program to input cassette data from. 8c1b5b1

2.3.6 Program echos: "[confirm]"
If correct type: (CR) 8c1b6

2.3.7 Program echos: "[type space when ready]" 8c1b7

2.3.7.1 Check [Stop control switch] on termicette to make sure its selected to (WORD). 8c1b7a

2.2.2.7.2 This is a must, for if it is not the program and termicette will run out of sync causing garbled or loss of data.
Type: (Space) 8c1b7b

2.2.2.8 Program echos: "Rewind? (y or N)"
Type: (Y) or (N) 8c1b8

2.2.2.9 Program will now start communicating with termicette independently until it senses a (↑Z) from tape input or you terminate program by sending (↑C). 8c1b9

2.2.2.10 When Cassette program senses (↑Z), Program echos: "More files (y or N)" 8c1b10

2.2.2.10.1 If you have more files on tape for entry
type: (Y)
Program will ask for next file name then start again at [2.2.2.9]. 8c1b10a

2.2.2.10.2 If no more files
Type: (N)
Program will return you to exec. 8c1b11

3.0 OFF-LINE OPERATING INSTRUCTIONS 9

3.1 SETTING UP TO RECORD OR PLAY. 9a

3.1.1 Insure back panel switches are properly selected. (See section [4.0]). 9a1

3.1.2 Switch terminal to (ON-LINE). Actual online functions will be controlled by the TermiCettes [LOC-LINE-LNP] switch. 9a2

3.1.3 Select Termicette's (LOC-LINE-LNP] switch to (LOC) position. 9a3

LOC = connect keyboard, TermiCette 9a3a

LINE = Connect keyboard, TermiCette, computer 9a3b

LNP = Connect keyboard, TermiCette, computer and suppress computer echo to keyboard terminal. 9a3c

3.2 PUTTING INFORMATION ON TAPE (Recording a file) 10

3.2.1 First File 10a

3.3.1.1 Press [REWIND], or send a (↑W) from the keyboard. This will insure that the tape is at beginnning. TermiCette should revert to [STANDBY] when finished and red leader lamp should come on. 10a1

3.2.1.2 Press [RECORD] or send (↑R). Record button should light up varifying record mode. 10a2

NOTE: Leader lamp on and buzzer sound indicates you must move off leader before recording valid data. 10a3

3.2.1.3 Send (↑V) to record a record gap and move off leader. Buzzer sound will stop. 10a4

3.2.1.4 Now you may record data 10a5

NOTE: Don't forget to end each line with (CR). The automatic (CR) given by some terminals does not get sent to the termicette. You therefore must send all (CR) from the keyboard manually. 10a5a

3.2.2 Next File 10b

3.2.3 If not already at end of last file follow introduction step [3.3] to locate. 10c

3.2.4 Press [Record] or send (↑R). Record button should light up varifying recode mode. 10d

3.2.5 Send (↑V) to record a record gap. This is necessary to separate files. 10e

3.2.6 You may now record data. 10f

NOTE: Don't forget to end each line with a (carriage return).

The automatic (CR) given by some terminals does not get sent to the termicette. You therefore must send all (CR) from the keyboard manually. 10g

3.3 LOCATING END OF LAST FILE (↑Z). 11

3.3.1 Press [FAST-FORWARD] until data light on TermiCette stops flashing. This indicates you are past last file. 11a

3.3.2 Select [STOP CONTROL SWITCH] to (.). This will cause TermiCette to stop on (↑Z) wheh in play mode. 11b

3.3.3 Press [BACKSPACE] or send (↑H). TermiCette will do a high speed reverse search until it locates a (↑Z), the last recorded data record. 11c

3.3.4 Select [STOP CONTROL SWITCH] to (LINE). This will cause TermiCette to stop on each carriage return when in play mode. 11d

3.3.5 You are now located at the end of the last recorded file, hopefully To verify this you could send a (↑H) or press [BACKSPACE] which would step you back one record, then press [PLAY] or send (↑Q) which would output last record for varifying. Perhaps step back two records since last record should have been (↑Z), (CR) which are not printing characters. 11e

3.4 TERMINATING INFORMATION ON TAPE (ending a file) 12

3.4.1 Last line should contain (↑Z) to signify to DEX and cassette program the end of file. 12a

3.4.2 After the (↑Z) a record gap should be recorded. This will allow you to high speed search for (↑Z) successfully if need be. 12b

3.4.3 Press [STANDBY] or send (↑T) to terminate record mode without rewinding. Press [REWIND] or send a (↑w) to terminate record mode and rewind. 12c

3.5 VARIFYING RECORDED DATA 13

3.5.1 Select Termicette's [LOC-LINE-LNP] switch to LOC. 13a

3.5.2 Set TermiCette [STOP CONTROL SWITCH] for type of varification required. 13b

CHAR = stop after each character 13b1

WORD = stop after each space 13b2

LINE = stop after each carriage return 13b3

ETX = stop after each (↑C) 13b4

DC-3 = stop after each (↑S) 13b5

DOT = stop after each (↑Z) 13b6

3.5.3 If in record mode. Press [STANDBY] or send (↑T) to terminate record mode. 13c

3.5.4 If data is passed recording head. 13d

3.5.4.1 Press [BACKSPACE] or send a (↑H) from the keyboard. TermiCette will search backwards and stop on selected (stop control switch) code, positioning tape. 13d1

3.5.5 If data is in front of recording head. 13e

3.5.5.1 Press [Play] or send a (↑Q). TermiCette will output data until the character you selected with the [STOP CONTROL SWITCH] is detected. 13e1

3.6 EDITING 14

Since magnetic tape is a reusable data storage medium it is possible to make simple alterations in previously recorded material. However the amount of change possible is somewhat limited and must be performed carefully to prevent destruction of adjacent data. Obviously additional characters cannot be inserted unless "spare" tape locations were provided when the file was first recorded. DELETE or other nonactive characters may be used as "place holders" if future character insertion is expected. 14a

Because of small tape speed variations between TermiCettes and to a lesser extent on the same TermiCette, it is generally not possible to "over write" an entire line or page without leaving some remnant from the first recording or destroying the first characters in an adjacent recording. Alterations should be limited to less than 20 consecutive characters if alteraction is made using the same TermiCette as was used to make the original recording; and to less than 10 consecutive characters if performed with a different TermiCette. Characters which do not need to be altered can be used to re-establish "initial recording position". 14b

If the capability to "over write" a previously recorded line or page is necessary, the record, when first recorded, should

be followed by a string of nonactive characters or "place holders" to protect the adjacent record. If the replacement record is shorter than the earlier recording, it may be necessary to suppress the remnant with non-active characters. 14c

Corrections may be made at the time the recording is made by using the BACK SKIP button to back up the tape a character at a time to the "mistake" while in RECORD. When the "correct" character is entered on the terminal keyboard it will "over write" the previously recorded character. 14d

If the error to be corrected is too far back from the present point of recording to be located easily with the BACK SKIP button or if the error is discovered after the recording is completed, use the FAST REVERSE, FAST FORWARD and FORWARD SKIP controls to relocate the error. When in STANDBY, the FORWARD SKIP button will cause the TermiCette to read and output one character each time the button is pushed. When the error to be corrected is located, back skip the tape several characters beyond the beginning of the error then Forward Skip the several characters to verify tape position. Place the TermiCette in RECORD and "over write" the error with appropriate "correction" characters. Use the terminal DELETE or RUBOUT key to suppress unnedded characters . 14e

IT IS RECOMMENDED that an error be corrected in a previously recorded file ALWAYS be finally located with the FORWARD SKIP button. This eliminates the tape position "drift" caused by forward-reverse speed differences in the cassette drive and verifies the tape position. 14f

4.1 TERMICETTE FRONT PANEL CONTROLS 15

[LOC/LINE/LNP] - Switch
Controls line connection between the TermiCette and the data set. In the (LOC) mode the TermiCette is connected to the terminal for off-line data preparation. The Data Terminal Ready line (EIA Interface line CD) to the data set is turned off to prevent auto answer by the data set. When (on-line) the terminal and TermiCette are connected to the data set. In the (LNP) mode, line data is prevented from actuating the terminal printer and facilitates transmission/reception at speeds beyond the capability of the printer. 15a

[RECORD] - Pushbutton = (↑R)
A momentary push button which conditions the TermiCette to write data on tape character by character as received. The Record mode may be terminated by: 15b

Pushing the Standby button = Reader off = (↑T) 15b1

Pushing the Fast Reverse button 15b2

Pushing the Rewind button = (↑W) 15b3

[Play] - Pushbutton = (↑Q)
A momentary push button which conditions the TermiCette to read the tape and output data character by character incrementally at the selected baud rate. The Play mode may be terminted by: 15c

Pushing the Standby Button = Recorder off = (↑T) 15c1

Pushing the Fast Forward button 15c2

Pushing the Fast Reverse button 15c3

Pushing the Rewind button = (↑W) 15c4

[Standby] - Pushbutton
A momentary push button which conditions an "idle". Fast Forward/Reverse, Character Skip/Backskip, and Rewind can be performed in this mode.
The "idle" condition may also be initiated by: 15d

Pushing the [REWIND] button = (↑W) 15d1

Pushing the [FAST FORWARD] button (play mode only) 15d2

Pushing the [FAST REVERSE] button 15d3

[Rewind] - Pushbutton = (↑W)
A momentary push button which sets the TermiCette to Standby, and initiates a tape rewind which terminates on clear leader. If the rewind is initated from clear leader at the end of tape, maintained pressure on the button will be required until the Leader indicator turns off. 15e

[R-FAST-F] - Pushbutton
Forward -
Causes high speed tape motion (400 characters/sec.) as long as the button is depressed. This button may be used to erase the tape and insert interrecord or interfile gaps during Record. It is also used to move the tape forward when on clear leader.

Reverse -
Causes medium speed tape motion (100 characters/sec.) as long as the button is depressed. 15f

[Skip] - Pushbutton
A momentary pushbutton used to index the tape forward one character. If the TermiCette is in Standby the character will be read and transmitted to the terminal and/or data set. In the Record mode the tape will index forward one character wthout erasing the character. The function has no meaning in the Play mode and will be ignored. 15g

If the Forward Skip button is pushed when on an unrecorded or erased section of tap, the tape will move at slow speed until a valid character is encountered or until the Standby button is pressed. 15g1

[Back Skip] - pushbutton = (↑H)
a momentary push button used to index the tape backward one character. Operation is similar to the forward skip except that the character is not transmitted in Standby. 15h

[Stop control switch] - 6 position switch
Selects the character the tape is to stop on when in [PLAY], [SKIP] or [BACKSKIP] mode.
Each position is defined in the sticker table of the front panel and also in section (3.5.2) 15i

4.2 TERMICETTE BACK PANEL VIEW 16

(1) A.C. power cord : is the left most object. 16a

(2) Fuse 16b

(3) Power on/off switch 16c

(4) Terminal socket 16d

(5) Modem socket 16e

(6) Speed switch 16f

(7) Record switch 16g

(8) Code switch 16h

(9) Duplex switch 16i

(10) Carriage returns delay switch : is the right most object. 16j

4.2.1 DEFINITIONS 17

(1, 2, 3) Control A.C. power to termiCette 17a

(4) terminal socket 17b

terminates the data cable from any serial EIA device that is to be used as the off-line communicator 17b1

(5) Modem socket 17c

terminates the data cable from any serial EIA device that is to be used as the on-line communicator. 17c1

(6) speed switch. 17d

Determines the character rate of TermiCette. 17d1

All devices connected to TermiCette must be set at identical rates. 17d2

(7) Record switch 17e

Positions	Responds to:	
REM	= (↑R) Recorder on from keyboard or line	17e2
REM	= (↑T) Recorder off. From keyboard only.	17e3
MAN	= Manual buttons only	17e4
OFF	= inhibits recording.	17e5

(8) CODE SWITCH 17f

Position 1 17f1

Responds to: All control codes from keyboard or computer. 17f1a

All [Stop Control Switch] code selections 17f1b

Position 2	Responds to:	
	= (↑Z) (End of Transmission) from tape only.	17f2a
terminal	= (↑H) (Backspace) to next stop code from or computer	17f2b
	= (↑W) (Rewind) from terminal or computer	17f2c

= (↑V) (Record a gap) If in record mode. 17f2d

Position 3 17f3

Responds to: Manual controls only 17f3a

(9) Duplex Switch 17g

Full = 17g1

If online--
Play and record from cmputer only. 17g1a

If off-line--
Play and record from terminal only, echo terminal data. 17g1b

Half = 17g2

If online--
Play and record from terminal and computer, suppress computer echo. 17g2a

If offline--
Play and record from terminal, suppress terminal echo. 17g2b

(10) Carriage return delay switch 17h

On = TermiCette will insert fixed 100 ms delay time after each detected carriage return read from tape. 17h1

off = no carriage returns delay time. 17h2

4.3 NORMAL BACKPANEL SWITCH SETTING AND CABLE HOOKUP. 18

power sw. (3) = on 18a

terminal socket (4) = Receives terminal EIA data cable 18b

modem socket (5) = Receives Modem data cable (or) inhouse data cable. (The cable that plugs into wall socket). : EIA 18c

speed switch (6) = Set to same speed as terminal and or computer 18d

Record sw. (7) = REM 18e

Code sw. (8) = POS 1 18f

Duplex sw.	(9)	=	FULL	18g
CR delay sw.	(10)	=	OFF	18h

MEH 20-APR-72 10:46 10158

Termicette Digital Recorder Instructions for DEX Users

(J10158) 20-APR-72 10:46; Title: Author(s): Martin E. Hardy/MEH; Distribution: Marilyn F. Auerbach, Dirk H. van Nouhuys, Douglas C. Engelbart, Duane L. Stone, Barbara E. Row, Priscilla Lister, Mil E. Jernigan, James C. Norton/MFA DVN DCE DLS BER PL MEJ JCN; Sub-Collections: SRI-ARC; Clerk: BER; Origin: <LANE>DEX.NLS;43, 19-APR-72 14:10 BER ; ;

Cindy, don't send the Journal copy of this to CIRAD. Thanks.
Barbara.

The "Understanding Regarding Participation by SRI and William Duvall in RICASM" X(10181,) and the "Tentative Schedule" X(10182,) contained in your letter of 25 May 1972 X(10180,) are as we also understand the arrangements. 1

We understand Larkin is making good progress in learning DNLS and L-10 and are happy that we can help you in this small way. 2

We will look into the problems associated with video tape equipment shortly. 3

You are undertaking a difficult pioneering task in an area of deep interest to us, and we wish you much success. 4

Sincerely,

D. C. Engebart, Ph.D., Director
Augmentation Research Center
ber

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MEJ 20-APR-72 9:37 10188

A Fir POD Report of Activities, 11 April 1972

These notes will be somewhat of a recap of both the Fir POD meeting of Tuesday, April 11, 1972, and of the several previous meetings for which no notes have been recorded. For the record, during the interval since the last recorded meeting, Fir POD has met each week. 1

During the last couple of months, Fir POD members, by unspoken agreement, stopped discussing the frustrating, ambiguous, and nebulous subjects over which they have no group-control anyway, such as, where ARC in general and PODs in particular are going, goals, ways and means of making Doug do what each individual wants him to do, etc. 2

Instead, again by unspoken agreement, we spent our weekly 2 hours getting acquainted with each other. After spinning our wheels in those first few frustrating sessions, we have discussed "raising kids", philosophies of life, likes and dislikes, funny incidents in our lives, the dope rackets, "hippies" as they are vs. as the general public thinks they are...you name it. The one verboten subject was the whole PODs/ARC hassle. During the last couple of sessions, we have apparently felt on firm enough footing with each other to make tentative tries at some of the problems we were originally assigned. 3

The following points and opinions were brought out in the April 11 meeting that have some significance and relevance to ARC, and its interactive (human-human, human-machine, and human-technology) environment: 4

RWW stated, and asked that the message be officially presented to DCE at PODCOM meeting, that he feels that PODs were a good thing, he has got out of PODs in their present form as much as he can, and that he doesn't want to continue "podding" without some further planning for the next step in "podding", whatever that might be. He asked, "What is next?" He stated that he felt that, as exemplified in Fir POD, PODs were a good thing, but if let go on any longer as they are now, DCE is in danger of losing what he has gained. RWW feels that we have reached a plateau in attainment through the current POD activity, and, based on the present foundation of achievement, he is ready to go on. 4a

The other members of the group expressed agreement with his statements. 4a1

DCW stated that he had enjoyed POD activities and found them worthwhile simply because he "enjoyed a good bull session". It has been a good opportunity to get acquainted with people that would not have been likely without "podding". 4b

Some of the things mentioned as being wrong with PODs are: 4c

(1) When a group of people are given the task of discussing an organization with undefined or ill-defined goals for the discussion, they will search for something to discuss. In the absence of a positive, definitive subject for discussion, most people's normal inertia will turn to such negative aspects as what is wrong and who is to blame. In the continued absence of any direction or guidance, things will be found wrong with the organization that would never have been given any time or consideration before the undirected spotlight of attention was allowed to fall in that area. Their frustration at being required to think in undirected and unstructured fields will add fuel to their criticism and feed back to them, inflaming their dissatisfaction. 4c1

(2) When a suggestion is put forth, one of 3 things can happen to it: 4c2

(a) One can say he likes it. 4c2a

(b) One can say he doesn't like it. 4c2b

(c) One can say nothing. 4c2c

What has happened with POD suggestions is that most have ended in the garbage can -- they fall on the floor. To have an idea accepted or even rejected, with articulate reasons, is a rewarding process. To have suggestions completely ignored, simply leads to feelings of frustration and impotence. POD members were placed in the position of being required to consider "personal and organizational development", and in good faith spent time and effort considering what they thought was the assigned subject, and then gave feedback to DCE through PODCOM, as they thought they were being asked to do. The refusal to even listen to their feedback has added to their frustration. 4c2d

At the present time, PODs have no power at all and are not supposed to even make suggestions concerning "line activities". However, with the ill-defined direction for POD discussion of "personal and organizational development", it is inevitable that POD members will find things wrong with ARC and suggest that they be changed. Many of the suggestions are valid, constructive, and warrant consideration. There should be a way to get these suggestions (statements,

recommendations, requests -- call them what you like, pick the term that makes you personally happy) from the PODs into the line activity. By definition, DCE is "the" line activity. What orderly procedure is there, or can there be, for getting these constructive ideas into the "line activity" field of attention? 4c2e

Note: Attention is called to DCE's suggestion -- request -- in PODCOM that "there be a place on a shelf, with a notebook in which suggestions and ideas are filed", that these suggestions may arise because of POD activities, but should actually be put forth by the individuals whose ideas they were and not as an official POD activity; that the person doing the suggesting should journalize or otherwise document his suggestion, should see that a copy is placed in this notebook, should periodically check on the idea he placed in this "place", and if no one has paid any attention to it or he has heard no feedback, then he should again bring this idea to the "Suggestions and Ideas" notebook file (and to some other, at presently unspecified, person, group, or level of activity) until some action is taken, or a decision is made that action will not be taken. 4c2e1

JTM pointed out that you never know how unhappy you are until you are asked how unhappy you are, and then you start to think about it -- before being asked, you didn't think you were particularly unhappy, but after thinking about it, you find things to be unhappy about you would never have dreamed of, if unhappiness had not been "suggested" to you. This has happened in ARC. People are spending their time griping about things who never did this before. It was brought about by the POD activity in which we were told to discuss "personal and organizational development, feelings and attitudes", but with no further guidance. People naturally tried to develop feelings and attitudes when such things were not considered important before. In the absence of a positive definition of "feelings and attitudes", people tend to fall into a negative attitude simply from lack of any personal definitive positive position. 4c2f

The question was raised among the group, and individuals were asked, "What is personal development to you and in what areas does it lie? Do you feel that your personal development is too involved with your professional and technical development to be able to make any separation of one from the other?" 4d

Those of the group who (time was running out) had the opportunity to speak agreed that to each of them personal development was interlocked with professional and technical development to such a close extent that they could not be separated. It was felt that in order to be able to work in a dedicated group effectively, there had to be such a degree of personal commitment that there could be no effective separation of the two and maintain any integrity of dedication professionally. 4d1

It was unanimously stated that job payoff did not depend on the usual "All-American dream of more money, bigger house, bigger car, etc." What one person called "psychic payoff" is what is looked for in job satisfaction and what is required for personal development within the organizational framework: 4d1a

(1) A feeling of inner excitement from a continuously rising "learning curve". 4d1a1

(2) An organization whose "growth curve" (excellence, not size) is also constantly expanding, making a continued demand on the individual for personal growth in order to competently interact with and function in the growing organization. 4d1a2

(3) Constantly expanding challenge which requires growth of knowledge and capability. 4d1a3

(4) The knowledge that the work one is doing is innovative, creative, useful, and is blazing new trails in the area of endeavor, which with this group is human-human, human-machine, and human-technology interaction. 4d1a4

(5) The feeling of inner satisfaction that comes from close cooperative commitment with a dedicated team who are creatively communicating and interacting at deeper levels than the ordinary, casual, objective interchange. 4d1a5

(6) A feeling of commitment to a cause, unity of action and purpose, with a group of creative people one can respect. 4d1a6

(7) A working environment which demands and brings out the best efforts one is capable of putting forth. Note that, again in this area, the group defined the "environment" as more of a psychological one than a

physical one. Technology and equipment is necessary, however the technical excellence of equipment enhances, but cannot supplant the proper "psychic" or psychological environment. 4d1a7

(8) Part of the proper psychological environment was defined as an expression of appreciation for work well done and for extra, dedicated effort expended. 4d1a8

MEJ 20-APR-72 9:37 10188

A Fir POD Report of Activities, 11 April 1972

(J10188) 20-APR-72 9:37; Title: Author(s): Mil E. Jernigan/MEJ; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MEJ;
Origin: <JERNIGAN>PDMT.NLS;2, 20-APR-72 9:29 MEJ ;

Preliminary charter for Operations User Interface

A preliminary charter for the User Interface section of Operations at ARC - as per discussion JCN and MFA, 10 April

1

PURPOSE: 1a

- Provide information needed by ARC and Network users as to ARC system facilities and user features 1a1

- Provide interactive communication with users regarding user information needs and problems 1a2

- provide feedback culled from user group as to user needs to ARC - other ARC functions 1a3

RESPONSIBILITIES: 1b

- originate, provide, maintain, and dissiminate ARC user system documentation and hold training sessions as necessary 1b1

  first responsibility is to provide user community with a common set of documentation to enable reasonable system usage 1b1a

  encourage users to utilize the above to attain some degree of sophistication with increasing effectiveness 1b1b

- Analyze user needs for the purpose of recommending system modifications, new features, etc. 1b2

- Maintain active communications channels with users 1b3

- Orient new ARC personnel in conjunction with Operations Administration and appropriate groups at ARC 1b4

- Monitor as user representative ongoing system development with eye on user needs 1b5

- Provide some sort of newsletter providing users with information on current system status at regular intervals 1b6

SCOPE 1c

- At present, limited to user interface for ARC and Network and coordinated with other functions which interact with users - e.g. NIC, Station Agent, Liaison, and the Operations CSO operator. 1c1

IMMEDIATE TASKS 1d

- Hardcopy and journal documentation of recent user features from the file <NLS>Status for ARC users 1d1

- Hardcopy and Journal documentation of newly updated <DOCUMENTATION>FOLKLORE file for Network users 1d2

- Documentation and training session for PSO personnel covering simple content analysis, sorts and merges, and the basics of running user programs 1d3

- Quick and dirty DNLS documentation based on old TODAS Manual and whatever can be culled from the Folklore branch of <NLS>STATUS, the Handbook, heresay, etc. 1d4

- Update the Dialog Support System User Guide and republish 1d5

- Prepare draft for DEX-2 User Guide 1d6

ONGOING TASKS 1e

- user interaction 1e1

- Handbook maintenance 1e2

- successive publishing and journalizing of new system features via the file <NLS>STATUS 1e3

LONGER RANGE TASKS 1f

- produce TNLS/DNLS Super Reference Document 1f1

- produce TNLS/DNLS summary (20 pages) 1f2

- produce NLS Primer (80 pages or so) 1f3

NOTES: 1g

- The current TNLS documentation will not be updated as such but will be republished as part of the super TNLS/DNLS Reference Manual which will be pursuant to the new NLS language changes which should be implemented by the summer or '72. 1g1

- New features, changes in NLS will be communicated to users via the file <NLS>STATUS. 1g2

- Some effort this year will be directed toward the development of user profiles as a means for guiding this phase of Operations at ARC 1g3

- The following procedural and task related documents are forthcoming: 1g4

  * guide for the orientation of new ARC personnel 1g4a

  * summary of documentation tasks required by NIC 1g4b

  * maintenance procedures for <NLS>STATUS, <DOCUMENTATION>FOLKLORE, and all published user documentation 1g4c

MFA 20-APR-72 9:40 10189

Preliminary charter for Operations User Interface

(J10189) 20-APR-72 9:40; Title: Author(s): Marilyn F. Auerbach/MFA; Distribution: James C. Norton, Richard W. Watson, Dirk H. van Nouhuys/JCN RWW DVN; Sub-Collections: SRI-ARC; Clerk: MFA; Origin: <AUERBACH>USERFACE.NLS;8, 19-APR-72 13:45 MFA ;

Hardware Uptime/Downtime Logs

Some thoughts on keeping track of hardware malfunctions:

1

Two commonly used statistics in the world of hardware maintenance are Mean-Time-To-Failure, and Mean-Time-To-Repair. 1a

These are easily computed provided that a very simple log is kept for each major component of hardware (e.g. CPU, Disk Drive, Memory Box, etc.) 1b

The log can take the following form, for each major component; 1c

1c1

Situation	Date/Time Occurrence	Elapsed Up Time	Down Time
Elapsed			
UP			
DOWN			
UP			
etc			

1c2 1c3 1c4 1c5 1c6 1c7

1d

I propose that we hang a log book on each major component, and fill it in as per the above chart (perhaps adding a column for comments as to what the problem was, and what the fix was). 1e

The person on-call could be responsible for seeing that the log entries are made. He might delegate the authority to make the entries to someone else (for example the night operator or day oprator, as appropriate) but he should have the responsibility to see that it was done. 1f

Once a week, or once a month, someone from PSO or CSO could take the log books, compute the averages, and plot them on a simple chart in which the x-axis would be real time, by days or weeks, and the y-axis would be the computed average times, in days and hours probably. 1g

I would appreciate your reaction to this idea. The purpose for suggesting it is the following. Since these two measures (mean

time to failure, and mean time to repair) are fairly standard in the industry, it would give us a quantitative method of comparing our system hardware with that of other installations. 2

MDK 20-APR-72 10:08 10190

Hardware Uptime/Downtime Logs

(J10190) 20-APR-72 10:08; Title: Author(s): Michael D. Kudlick/MDK;
Distribution: Donald C. Wallace, Ed K. Van De Riet, William R. Ferguson,
Kenneth E. Victor, Charles H. Irby, Richard W. Watson, James C.
Norton/DCW EKV WRF KEV CHI RWW JCN; Sub-Collections: SRI-ARC; Clerk:
MDK;
Origin: <KUDLICK>MAINTENANCE.NLS;2, 20-APR-72 8:27 MDK ;

Apology for lost files

Due to circumstances beyond our control, most of the files of our Simple Minded File System (SMFS) were lost early Friday April 14. The following files were saved ('b' indicates a blank):

LBASICbbbb

LMISCbbbbb

MITCNbSTATP

MITCNbSTATS

MITCNbSTATV

OPSQBSYSbb

REPROCAEbb

REPROCARbb

REPROCASbb

RSTRRULESb

STPALbbbbb

The following files were restored from a backup made sometime between February 18 and March 14:

BOTSUMbbbb

BOTSUMAEbb

Apology for lost files

CHKPGMAEbb 24

CHKPGMARbb 25

CHKPGMASbb 26

DEANOFFbbb 27

FXFERAEbbb 28

FXFERASbbb 29

ICPARbbbbb 30

ICPASbbbbb 31

MYTAPESbbb 32

NETLIBbbbb 33

SUMMARYbbb 34

T65bbbbbbb 35

UCSBDIRbbb 36

and the following DRS source forms: 37

<TESTER> TESTA 38

<TESTER> TEST1 39

<UCSB> FORM1 40

41

42

All others were lost. 43

--Sorry about that, folks 44

MCK 20-APR-72 10:15 10191

Apology for lost files

(J10191) 20-APR-72 10:15; Title: Author(s): Mark C. Krilanovich/MCK; Distribution: Jeanne B. North, Schuyler Stevenson, Charles Holland, Karl C. Kelley, Steve D. Crocker, Thomas F. Lawrence, John W. McConnell, John F. Heafner, Robert E. Long, Ari A. J. Ollikainen, James E. White, A. Wayne Hathaway, Dan L. Murphy, Patrick W. Foulk, Richard A. Winter, Harold R. Van Zoeren, Alex A. McKenzie, Robert L. Sundberg, Joel M. Winett, Abhay K. Bhushan, Peggy M. Karp, Thomas N. Pyke, Abe S. Landsberg, B. Michael Wilber, James A. Moorer, Edward A. Feigenbaum, Robert T. Braden, James M. Pepin, Barry D. Wessler, John T. Melvin, John C. LeGates, Art J. Bernstein, C. D. Shepard, Robert F. Hargraves/NWG; Sub-Collections: NIC NWG; Clerk: MCK;
Origin: <UCSB>SMFS2.NLS;1, 20-APR-72 10:10 MCK ;

DVN 20-APR-72 10:31 10192

May TNLS Course; 2 hours a day for local people

1

ARC will hold a TNLS course the first week in may (May 1-5) for two hours each day, 3 to 5 pm, in the conference room. 2

The sutudents will be, from ARC: Ralph Prather, Don Lumuti,Don Wallace,from: Xerox: Diana Merry; from SRI-AI: Don Walker. 3

DVN 20-APR-72 10:31 10192

May TNLS Course; 2 hours a day for local people

(J10192) 20-APR-72 10:31; Title: Author(s): Dirk H. van Nouhuys/DVN; Distribution: Don Limuti, Donald C. Wallace, Richard W. Watson, Ed K. Van De Riet, James C. Norton, William R. Ferguson, L. Peter Deutsch, Don E. Walker, Dirk H. van Nouhuys/DL DCW RWW EKV JCN WRF LPD DEW DVN; Sub-Collections: SRI-ARC; Clerk: DVN; Origin: <VANNOUHUYS>JD.NLS;1, 20-APR-72 10:23 DVN ;

JCN 20-APR-72 11:08 10199
A Request for Delivery's Recommendation on ARC's Drums, Diskpacks, and Disk Configuration

INTRODUCTION 1

One of ARC's key objectives is to provide reliable service to its augmentation system users at as reasonable a cost level as we can within the context of our part-developmental, part-service environment. In the interest of becoming more reliable and more cost effective, the following request is made: 1a

Operations is requesting a study and recommendations from Delivery that address the following questions: 1b

How can we best provide backup for continuing system use during periods when the Bryant drum may be out of service - for a few hours up to a few months - in case of catastrophic failure of the drum? 1b1

What should we do with the Bryant disk and the relatively low cost quick access storage it offers, bearing in mind our distrust of its reliability? 1b2

How do the short-range (6-12 months) alternative resolutions of these questions relate to the longer-range plans under development for providing the basic computer system support, including alternatives such as another machine at ARC, use of other Net TENEX machines, or a facility at Tymeshare? 1b3

We need to decide about and take action on cancelling the UNIVAC lease right away (in the next week if we can), mainly from a cost-saving standpoint. 1c

Upon receipt of the Delivery recommendations, Operations and Delivery will meet with the EMC and DCE to decide what to do and when. 1d

Getting rid of UNIVAC drums 2

The UNIVAC drum system lease costs us about $ 6,700 per month and is now used only as backup for the Bryant drum. 2a

Although this system had been used for backup for short periods -hours- recently, the real purpose in keeping the UNIVACs has been to prevent us from going down for months if the Bryant failed catastrophically. 2a1

This is far too expensive for this purpose and a solution to

the backup need must be found so that we can terminate the UNIVAC lease as soon as possible. 2b

In addition to the expense problem, the UNIVAC system has not performed reliably in the past weeks. There seems to be a need for more effective diagnostics supplied by ARC if we are to isolate UNIVAC troubles. 2c

There is a one month lead time for cancellation. 2d

Backup for the Bryant drum 3

Swapping off the Diskpacks 3a

Initial trial 3a1

On 19 April we ran for a few hours on a disk-only system, swapping off only one pack. 3a1a

It appeared that we supported about five users (including two over the Net) reasonably well. 3a1b

When two or three added users got on the system, response slowed to an unusable point. The added users were displays, however. 3a1c

DIA was looking at SUPERWATCH statistics during the trial period and felt that his earlier calculations were not far off as far as the load-carrying ability of swapping in this manner. 3a1d

Effect expected from added 32k memory 3a2

When the added 32k memory arrives in two weeks, we expect a decrease in the amount of swapping necessary. How much is not apparent (?). If significantly less swapping is needed, we can support more users off the diskpacks. 3a2a

Effect of swapping off four packs 3a3

We can also support more users with use of software (to be developed) that swaps off four, rather than just one pack. How soon can this be done? 3a3a

Effect of getting another disk controller 3a4

We should consider adding another disk controllerand

perhaps more packs, as that would also increase our load-carrying capacity when swapping off the disks. 3a4a

The added equipment (if it is so decided) would probably have a delivery of 90 days and should be leased for a period ending at the same time as the RP-02s (about April 1973). 3a4b

Alternative of getting another Bryant drum 3b

We have funds in the budget for adding another leased Bryant drum. This is about $ 3,000 per month ($ 54k for 18 months) 3b1

Alternative of getting outside drum on standby for backup 3c

We should find out if Bryant would have an extra drum ready for emergency use at ARC (for a retainer?). 3c1

Perhaps Tymeshare would be interested in some backup drum arrangement. 3c2

Keeping the Bryant disk (misc. thoughts) 4

We own the Bryant disk, recently replaced by the DEC diskpacks. The Bryant is no longer in use. Future use or removal should be decided. 4a

Present costs of keping the disk are: * $ 10,000 per year for maintenance. A low price for that much quick-access storage. 4a1

The possibility of using the Bryant as storage for read-only files such as older Journal or other archived files should be considered. 4a2

New Journal files could be added at night in less critical service periods. Crashes resulting from the Bryant would have less effect on the user population. 4a2a

The reliability of the Bryant has grown increasingly worse during the past year, although this picture is confused by the last six weeks of its use when it was reliable. We are still very distrustful of its future reliability based on the great amount of grief it has brought use in the past. 4a3

A Request for Delivery's Recommendation on ARC's Drums, Diskpacks, and Disk Configuration

(J10199) 20-APR-72 11:08; Title: Author(s): James C. Norton/JCN; Distribution: Douglas C. Engelbart, Michael D. Kudlick, Donald C. Wallace, Kenneth E. Victor, Richard W. Watson, Charles H. Irby, Don I. Andrews/DCE MDK DCW KEV RWW CHI DIA; Sub-Collections: SRI-ARC; Clerk: JCN;
Origin: <NORTON>DRUMS.NLS;1, 20-APR-72 11:03 JCN ; ID=XXX;
HJOURNAL=" JCN 16 MAY 72 12:50AM 10198";

JEW 20-APR-72 11:17 10201

17 MAY 72 WHITE
EDUCOM NETWORK CONFERENCE

On Thursday, 13 April, at the request of Steve Crocker, I attended an EDUCOM-sponsored conference titled 'Networks for Higher Education' in Wash., D.C. 1

The conference consisted of a series of introductory addresses -- about 25 minutes a piece -- in the morning, followed in the afternoon by two sequential sets of about seven parallel panel sessions. 2

The morning session included talks by: 3

Larry Roberts, who talked a bit about the present status of the ARPANET. 3a

He commented on the relatively low usage of the NET so far (about 4 per cent of the available bandwidth, I think, computed over a twenty-four hour day). He indicated that the initial set of nodes (i.e., the current hosts less all the TIPs that are connected) constitutes a research community, each of whose members has sophisticated computational facilities of its own, and that this group was never expected to make heavy us of the NET, and that once a substantial number of users begin to function, we will see a significant rise in usage. 3a1

Roberts also made some short comments on a variety of topics such as: 3a2

the effect of topological changes on the behavior of the NET, 3a2a

the effect of increases in the number of nodes, 3a2b

the effect of the introduction of lower- or higher-speed lines and satellite links, etc. 3a2c

Ruth Davis, Director, Center for Computing Sciences and Technology at NBS. Her comments were very uninteresting, I thought. In effect, she assumed the role in her remarks of the disgruntled user who is always getting screwed by the computer industry, which never listens to the user's complaints nor provides decent documentation, etc. 3b

D. Aufenkamp from NSF. He described a National Science Network which NSF will build (Aufenkamp's presentation had the flavor of an announcement of that net) and experiment with, and solicited proposals for such experiments. In particular, he made no mention of the communications technology to be employed; he did not say, for example, that the NSF net would be physically part of the ARPANET or even employ the same type of subnet (IMPs) in a physicaly distinct network. He made no comment what-so-ever about the actual construction of the net. 3c

Philip Enslow of OTP, who discussed the role of that agency as spokesman for the Executive in matters of network development. 3d

and Eric Manning from the Univ. of Waterloo, who talked about several networks under development or planned in Canada. Eric had dinner with several of us at Steve Crocker's the night before. 3e

The prime justification for my attendance at the conference was to participate in a panel discussion in the afternoon titled 'ARPANET Technical Considerations'. 4

The session was chaired by Crocker and the panel consisted of several Network Facilitators -- myself, Peggy Karp of MITRE, Bob Metcalfe of MIT -- and a couple of guys from BBN, including Frank Heart. 4a

The session was free-form, with no canned presentation by any of the panel members up front. Questions were simply taken from the floor and dealt with. 4b

A couple of questions were addressed to the NIC -- what functions does it perform, is it being used, etc. Several people in the audience from obscure, Network-related installations who, for example, have been using the NIC via TIPs, made positive comments about the NIC. They had good things to say about the Journal (its utility -- not its speed -- I presume) and about the Link feature in TENEX. 4b1

Some OS 360 questions were asked which were right up my alley -- how long does it take to make the OS modifications to support the Network, was it actually possibly to send a file between a PDP-10 and a 360/, etc. 4b2

17 MAY 72 WHITE
EDUCOM NETWORK CONFERENCE

The one hostile comment was from Harold Wooster of the National Library of Medicine. He made some fairly strong criticisms (i.e., strongly stated, not necessarily well founded) of the ARPANET. He characterized it as a Network for young, elitist researchers (a closed society) and asked when it was going to be made available 'to the masses'. He complained about the use by the priviledged few of 50 Kbit communications facilities while he had to make do with a 15 char/sec TTY. 4b3

From the second set of parallel sessions in the afternoon, I selected one titled 'Networks for Medical and Health Science', which, by sheer coincidence (I signed up for the session before I left for D.C.) was chaired by the same Harold Wooster. 5

17 MAY 72 WHITE
EDUCOM NETWORK CONFERENCE

(J10201) 20-APR-72 11:17; Title: Author(s): James E. White/JEW; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JEW;
Origin: <WHITE>EDUCOM.NLS;3, 20-APR-72 10:52 JEW ;

augmentation of ARC system programmers

The primary need in the near future for the augmentation of ARC's operating systems programmers is the ability for them to both use and enjoy using NLS in their work. 1

This means that we would like to be able to maintain all monitor files in NLS form, and not have to translate files back and forth from MACRO to NLS to MACRO. 1a

It then becomes neccassary to be able to run certain sub-systems, e.g. RUNFIL, MACRO, FAIL, and a version of SRCCOM, as NLS sub-systems 1a1

There are three possible ways to achieve this goal: 1a1a

Get TENEX subroutine files to work 1a1a1

This is the most desirable solution, however, it may also take the longest to implement 1a1a1a

If subroutine files were implemented, it would open up whole new worlds of things that could be done using NLS 1a1a1b

Isolate the input and output routines of the concerned systems, and define their interface with the rest of the concerned system. 1a1a2

We would then replace the appropriate in/out routines with routines that could deal with NLS structured files as opposed to TECO structured files 1a1a2a

This is probably the easiest solution to implement. 1a1a2b

However, it requires dealing with each system individually. This is very much a fire fighting mode without being a general solution. 1a1a2b1

(It is conceivable that we could contract out to DEC to make the neccassary changes to MACRO and possibly some other routines) 1a1a2c

Write L10 or TREE META programs that perform the equivalent functions of the systems that we are attempting to run under NLS. 1a1a3

This is the least desirable of the solutions. 1a1a3a

In addition to the above, NLS is not used by operating systems programmers for the following reasons: 1b

it is impossible to do an INSERT SEQUENTIAL followed immmediately by OUTPUT SEQUENTIAL and then do a source compare between the pre- and post- NLS versions of the file without comming up with a difference on every line 1b1

our methods of operations when we get new releases from BBN make this situation extremely undersirable 1b1a

It takes longer to go into NLS, edit, and do an OUTPUT SEQUENTIAL than it does to go into TECO, edit, and then output the file 1b2

Outputting of strings (that contain carriage returns or line feeds) within literals does not work properly 1b3

Control characters (such as form feed) cannot be displayed 1b4

Tabs do not seem to work properly 1b5

KEV 20-APR-72 12:53 10202

augmentation of ARC system programmers

(J10202) 20-APR-72 12:53; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Richard W. Watson, William H. Paxton, Harvey G. Lehtman/RWW WHP HGL; Sub-Collections: SRI-ARC; Clerk: KEV; Origin: <VICTOR>SEAS.NLS;1, 19-APR-72 13:44 KEV ;

JEW 20-APR-72 13:35 10203

Mark, I got the IMP Interface documentation. Thanks. Jim. 1

(J10203) 20-APR-72 13:35; Author(s): James E. White/JEW;
Distribution: Mark C. Krilanovich, James E. White/MCK JEW;
Sub-Collections: SRI-ARC; Clerk: JEW;

Administrative Activity Plan;

Objectives of the Administrative Activity	1
To keep functions within its scope running smoothly;	1a
To keep problems off minds of others in ARC;	1b
To foresee and resolve problems as quickly and effectively as possible within resources and priority.	1c
Areas of Responsibility	2
Space	2a
Acquire, Assign, Arrange.	2a1
Controller Functions:	2b
ARC Budget preparation, analysis.	2b1
Project cost analysis, summary preparation.	2b2
ARC backlog report.	2b3
Time sheet submitting, approvals, analysis (percent of time sold).	2b4
Prepare Cost sections of Proposals.	2b5
Telephones	2c
Acquire, Assign, Arrange.	2c1
Capital equipment	2d
Help select, Order.	2d1
Visitor coordination	2e
Direct visitors to proper people; schedule; protect people from useless visitors; watch over vistor log.	2e1
Contract Coordination	2f
Request contract officer approvals, help negotiate.	2f1
Report coordination:	2g
-- annual, final, quarterly management reports;schedule and assign writing, editing, printing.	2g1

Administrative Activity Plan;

Administrative Activity Plan;

Space		4a1
Telephones		4a2
Report coordination		4a3
Proposal, coordination,		4a4
PSO coordinator support		4a5
Travel		4a6
JCN --		4b
Controller Functions		4b1
Capital equipment		4b2
Common --		4c
Plans for improvement		4c1
Contract Coordination (mostly JCN)		4c2
Visitor coordination		4c3
Personnel matters,		4c4
SRI Department Interface (mostly DvN)		4c5
		4d
Estimated DVN Time: Split next few months:		5
	%	
		5a
Administration	30	5b
RADC	20	5c
DPCS	10	5d
User Interface (training +)	20	5e
Overhead	20	5f

DVN JCN 20-APR-72 13:50 10204

Administrative Activity Plan;

(J10204) 20-APR-72 13:50; Title: Author(s): Dirk H. van Nouhuys, James C. Norton/DVN JCN; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DVN; Origin: <VANNOUHUYS>ADMIN.NLS;1, 20-APR-72 13:39 DVN ;

delnf jsys and -4 option to gtjfn

The following is a desciption of, and the code neccessary to implement, the DELNF jsys. The code should be assembled as part of the file system. We have assigned the jsys number of 430 to this jsys on our system. 1

DELNF - JSYS 430 1a

Delete all but n versions of this file less than or equal to this version 1a1

ACCEPTS IN: 1b

1) JFN 1b1

2) number of versions to keep 1b2

RETURNS: 1c

+1: unsuccessful, error code in 1 (usual file errors) 1c1

+2: successful, (2)= original n minus total number of versions found less or equal to this version, i.e., if (2) negative, (2)=-k, then k versions were deleted 1c2

1d

```
↑.DELNF: JSYS MENTR                                          1e
   PUSHJ P,SNLLK1                                            1e1
   PUSHJ P,GETFDB                                            1e2
   ERUNLK DESX3                                              1e3
   UMOVE B,2          ;NO. VERSIONS                          1e4
DELNF2:     HLLZ C,FDBCTL(A)          ;GET FLAG WD.          1f
   TLNE C,FDBTMP              ;QUIT IF TEMP FLAG             1f1
   JRST DELNF1                                               1f2
   TLNE C,FDBNXF FDBDEL                                      1f3
   JRST DELNF1                                               1f4
   SOJGE B,DELNF1                                            1f5
   MOVSI C,FDBDEL                                            1f6
```

```
      IORM C,FDBCTL(A)                                          1f7
DELNF1:     HRRZ A,FDBVER(A)                                    1g
      JUMPE A,DELNFE                                            1g1
      ADDI A,DIRORG                                             1g2
      JRST DELNF2                                               1g3
DELNFE:     UMOVEM B,2                                          1h
      UNLOCK DIRLCK                                             1h1
      PUSHJ P,UNLCKF                                            1h2
      JRST SKMRTN                                               1h3
```

2

The following are the changes to DIRECT.FAI needed to implement the -4 option to GTJFN. The -4 options provides for the following: 3

Give me a JFN for the most recent version of the file, or if no versions exist then give me a JFN for the newly created file 3a

3b

Insert 4 or 5 statements after VERLKA 3c

```
      LINE 26, PAGE 37                                          3c1
      1)          CAME A,[-4]          ;DONT GO FOR -4          3c2
      1)          JUMPL A,VERLK2       ; New version
      wanted                                                    3c3
      LINE 26, PAGE 37                                          3c4
      2)          JUMPL A,VERLK2       ; New version
      wanted                                                    3c5
```

Insert 11 or 12 statements after VERLK1 3d

```
      LINE 18, PAGE 39                                          3d1
      1)          CAMN A,[-4]                                   3d2
```

delnf jsys and -4 option to gtjfn

```
1)                JRST VERLKG                                    3d3

1)                HRRZ C,@DIRSCN                                 3d4

LINE 18, PAGE 39                                                 3d5

2)                HRRZ C,@DIRSCN                                 3d6

Insert in front of VERLKD                                        3e

LINE 26, PAGE 39                                                 3e1

1)        VERLKG:MOVE B,DIRLOC     ;RESTORE ENTRY STAE AND
MAKE NEW FILE                                                    3e2

1)                HRRZ D,@B                                      3e3

1)                HLRZ C,DIRORG+FDBVER(D)                        3e4

1)                SETO A,                                        3e5

1)                JRST VERLK0                                    3e6

1)        VERLKD: TEST(Z,NEWF,NEWVF)                             3e7

LINE 24, PAGE 39                                                 3e8

2)        VERLKD: TEST(Z,NEWF,NEWVF)                             3e9
```

KEV 20-APR-72 14:13 10205

delnf jsys and -4 option to gtjfn

(J10205) 20-APR-72 14:13; Title: Author(s): Kenneth E. Victor/KEV;
Distribution: Dan L. Murphy, Ray S. Tomlinson/DLM RST; Sub-Collections:
SRI-ARC; Clerk: KEV;
Origin: <VICTOR>MURPH.NLS;3, 20-APR-72 14:11 KEV ;

KEV 21-APR-72 14:06 10208

comments on up/down log (10190)

i think this is a good idea. my comment regards whose responsibility it should be to maintain this log. i feel that the operators can better maintain this log as they are normally the people who notify others when the system is down and who bring it up after it has been down. 1

KEV 21-APR-72 14:06 10208

comments on up/down log (10190)

(J10208) 21-APR-72 14:06; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Michael D. Kudlick/MDK; Sub-Collections: SRI-ARC; Clerk: KEV;

Duane, in reading your notes in (stone,visit,2c) - open for my browsing as we agreed? - I would like to state that ARC DOES INTEND to provide reliable service to its users during the next two years. 1

The service has been GROSS to say the least for many weeks ARC people have also been severely handicapped by the service. 1a

We really are working on the various problems that have caused it. 1b

One source of trouble has been the external core (xcore) configuration that we have run the Network interface, the displays, and the line printer, and other devices through. 1b1

The BBN Network interface has been installed and does not connect through the xcore. From now on, xcore trouble will not bring down our net connection. (at least not as it has been doing) 1b2

The DEC PDP-10 has had several failures in the last few weeks. DEC is right on top of it and we feel the situation will get better. Any timesharing system is susceptible to such failures. The fact that we have only one machine puts us in a tighter place than outfits like Tymshare, where there are many machines and when one goes down, another is switched in, frequently without the users seeing much effect. 1c

We are discussing with Tymshare the possibility of their providing all or part of another machine for the NIC service in an effort to: 1c1

1. Become more reliable and 1c1a

2. To provide more horsepower to NIC (and ARC?) users. 1c1b

We would have to secure more funding for such an arrangement, but there are ways to do so, we think. 1c2

The Bryant drum has failed several times recently, even with frequent maintenance by Bryant. The UNIVAC drums have been used as backup, but also have been unreliable. 1d

The UNIVAC drums are far too expensive to keep as backup and don't speed the system significantly when used with the Bryant drums simultaneously, I'm told. 1d1

We are about to end the lease of the UNIVACs for cost reasons, anyway. 1d1a

We have, therefore, tried swapping of a single DEC diskpack to see if we can backup the Bryant equipment satisfactorily that way. 1d2

The number of users supportable goes way down, but we're not off the air. 1d2a

With the added 32k DEC memory, there will be less swapping going on (I'm also told), so that swapping off the diskpacks will be more productive. 1d2b

In addition, we plan to develop software that will swap off several of the packs, not just one. We also are contemplating adding another controller. 1d3

This would also increase the number of users we can support if the Bryant drum goes down. 1d3a

If the swapping off the diskpacks doesn't appear to be the way to go, we have funds in the budget for another Bryant drum ($ 3,000 per month). If not, the funds will go to help with another controller or such. 1d4

From the above, you can see that we are really trying to get more of our equipment from reliable sources, DEC being one, we feel. The xcore and network interfaces were built at SRI, and are not the solid DEC-type stuff we now need. For a little more on the drums, disckpacks and the old Bryant disk situation, see (10199,) 1e

Note that the Bryant disk is not being used now, since it was the source of bad problems (taking the system almost every time) last year. We are looking for ways to use its capacity that do not put it in the mainline of the system operation. 1e1

As far as RADC service is concerned, the above efforts should produce some good results, as they will for us. My role in ARC Operations brings me into this problem area for the first time. I plan to devote much thought and effort to getting the service reliable - and expanded - BUT RELIABLE FIRST. 1f

The twelve RADC users as we have discussed in the past should be able to get reasonable service during the project we are just about (at long last) to start if: 1g

They don't all try to use the system at once 1g1

DEX is used for appropriate tasks, and 1g2

We (together) do a good job of training them, not just to "run the system", but also to USE the system to cost-effective advantage as best they can. 1g3

As far as the expansion of the RADC NLS user group to 40 some-odd, we really do need to discuss that further, as we don't have plans for such, not to mention service capacity. 1h

That is not to say that we cannot work out some arrangement for such service. Our Tymshare discussions have a bearing on this possibility, but are still in the very early stages of development. 1h1

Oh, a news item: UCLA has just run DNLS over the Net with an IMLAC. So has Bill Duvall. Hmmm.... here comes the service load a little higher. 1i

To conclude, we're working at it, and are ready to talk more about the service and the future RADC needs. See you Tuesday. 1j

Also, thanks for putting your fears out for me to find. 1k

ARC Service Problems

(J10210) 23-APR-72 6:28; Title: Author(s): James C. Norton/JCN; Distribution: Douglas C. Engelbart, Duane L. Stone, Paul Rech, Dirk H. van Nouhuys/DCE DLS PR DVN; Sub-Collections: SRI-ARC; Clerk: JCN; Origin: <NORTON>SERVICE.NLS;3, 23-APR-72 6:26 JCN ;
HJOURNAL="JCN 17 MAY 72 1:47AM";

MSC 23-APR-72 12:49 10211

The Identification System

Written by MSC before her departure

The Identification System

Two types of routines comprise the identification system -- those that interact with the user during command specification and those that modify the ident file itself. The routines that interact with teletypes are in <NLS> IDTCTL; those that execute the specified command, in <NLS> IDLIBE. (One other file, <NLS> IDDCTL, is intended to contain routines that interact with a display user. Right now, these routines are outdated and require a reasonable amount of work before they could be used.) 1

Interactive Routines 2

Highest Level Command Specification--

Three routines handle the highest level command specification while adding new idents and while in the Modify Submode. They use common, lower-level routines to prompt the user for specific information, such as a mailing address, or the ident of a coordinator. Each of the higher level routines has a large loop that, when one command has been completed wait for another command. In addition, they all use the same convention in echoing -- ECHOFF is called before a character is read. 2a

(TJIDCONTROL)<NLS, idtctl, tjidcontrol> receives control when the Execute Identification Submode Command is given in TNLS. This routine prompts the user for a high level identification command and reacts accordingly. In particular, if Enter has been specified, control passes immediately to <NLS, idtctl, newident>. If Modify has been specified, TJIDCONTROL confirms the ident selected, then passes control to <NLS, idtctl, tidmodify>. 2a1

(NEWIDENT) <NLS, idtctl, newident> is called from TJIDCONTROL, and from various other places in the journal and the identsystem when the user indicates he wishes to add a new ident. It expects three arguments -- a string in which to return the ident added, the address of a string containing the last name of the individual to be added, or 0 if this hasn't been specified, and the file number of the ident file, if it has already been opened, or 0 if it hasn't been. This routine prompts the user for the appropriate information, then uses various lower level routines, described below, to collect and verify the user's response. NEWIDENT returns TRUE, with the new ident in the first argument passed it, if a new ident has been added; otherwise, it returns FALSE. 2a2

(TIDMODIFY) <NLS, idtctl, tidmodify> handles the modify sub-mode. It expects three arguments -- a string containing the ident being modified, a string containing the current ident file entry for that ident, and the file number of the

ident file, or 0 if it is not open. This routine prompts the user for a command and verifies that the command is legal. (For example, adding a co-ordinator to an individual ident is not permitted. TIDMODIFY then calls one of several lower level routines to prompt the user for the information required to complete the command. When control returns to TIDMODIFY, the string containing the identification file entry has been modified to reflect the new information, but the ident file itself has not been modified. 2a3

TIMODIFY Utility Routines--
There are several series of operations that TIDMODIFY performs many times, with slight variations. These functions are controlled with three routines. 2b

(IDTYPERR) <NLS, idtctl, idtyperr> is used to construct, and type error messages. Passed a string that contains a field type, and a number indicating which type of ident record is being changed (individual or group), this routine prints "The" field type "Field is illegal for "type record" type Idents". Upon completion, IDTYPERR does a SIGNAL with statesig. 2b1

(TIGSLT) <NLS, idtctl, tigslt> performs the common operation of reading a field in the ident record, printing it out, getting a literal from the user, and substituting the new text for the field. TIGSLT expects as arguments the address of a routine to read the field from the ident record, the address of a routine that modifies the field in question, the address of a string that contains the ident record, and a string in which to collect the literal for substitution. Upon return this string will contain the text substituted. TIGSLT uses TILIT, described below, to collect the literal. 2b2

(TIGTST) <NLS, idtctl, tigtst> works like TIGSLT except for reading the literal to bé substituted. Frequently, the literal collected needs to be scanned to make sure it has a particular form. TIGTST expects the same arguments arguments as TIGSLT, with the insertion of one in the second place, which is the address of a routine that collects and verifies the literal. In addition, it expects as a sixth argument the number of the ident file, or 0 if this file hasn't been opened. 2b3

Ident Field Prompts, Collections and Verification--
Eleven routines handle the prompts, and collect and verify the literal, for different fields in the ident record. 2c

(TJGTPID) <NLS, idtctl, tjgtpid> is used by NEWIDENT to determine what type of ident the user is adding. It returns a number indicating the type. 2c1

(TJGTINAM) prompts the user for the name of an individual when adding or modifying the name field. <NLS, idtctl, tjgtinam> expects three arguments -- a string which, if not empty, contains the last name of the user to be added, the address of a string in which to put the ident derived from the new name, and the file number of the identfile, or 0 if it hasn't been opened. If a last name hasn't been supplied, TJGTINAM collects one and checks to see if such a name is already in the ident file using NAMSEARCH. It prints out all occurences of the name in the ident file, then asks if the name is in this list. If the user answers in the affirmative, TJGTINAM returns 2. Otherwise, or if a last name was supplied in the call, TJGTINAM prompts for a first name and middle initial. It returns 1 when a complete name has been supplied, with the name in the first string passed (in the form first name SP [initial SP] last name), and with the initials (potential ident) in the second string. 2c2

(TJGTAFID) <NLS, idtctl, tjgtafid> prompts the user for the ident (or idents) of an affiliate (or affiliates). It permits the user to add a new affiliate ident using the '/ convention. In this case, TJGTAFID prompts for, verifies, and adds the new affiliate to the ident file itself. In any event, TJGTAFID expects two arguments -- a string in which to put the ident and a file number. 2c3

(TJGTCOID) <NLS, idtctl, tjgtcoid> expects the address of a string and a file number. It collects a ident, checks to see that it is an individual ident. If not, it prints a message and collects another ident. Upon return, the string passed contains the ident. 2c4

(TJGTVERF)<NLS, idtctl, tjgtverf> expects the address of a string. It prompts for a yes or no response to whether the entry should be set verified. It returns with the literal "Verified" or "Unverified", followed by an EOL, in the string passed. 2c5

(TJGTMLST) <NLS, idtctl, tjgtmlst> prompts for a list of idents. It expects a string address and file number as arguments. It checks that idents preceded by the expand or unexpand parameters are group or affiliate idents. It puts the idents in the string, separated by spaces. 2c6

(TJMDMEM) <NLS, idtctl, tjmdmem> expects a string

containing a membership list and a file number. It interacts with the user to determine whether the list is to be initialized, or idents added or deleted. It uses TILISTMOD, described below, to collect idents and to modify the list. Upon return the modified list is in the string passed. 2c7

(TILISTMOD) <NLS, idtctl, tilistmod> expects a string containing a membership list and the number of the file to be used to validate the idents. It loops, collecing an ident, then adding or deleting the ident. When the user terminates the ident with a CA, TILISTMOD modified the membership list and returns. 2c8

(TJGTADD) <NLS, idtctl, tjgtadd> expects as arguments the address of a string in which to put the address, and a file number. It collects an ident or a string to use as an address. 2c9

(TJGTEXP) <NLS, idtctl, tjgtexp> expects the address of a string. It puts the literal "Expand" or NULL into the string passed, depending on whether the user replies affirmatively or negatively to the prompt "Expand?". 2c10

(TJGTDEL) <NLS, idtctl, tjgtdel> expects the address of a string and a file number. It recognizes the character '0 as "online" and 'h as "Hardcopy" and puts the option(s) specified in the string. 2c11

Reading literals and Idents--
Several utility routines read literals, or read and verify idents. 2d

Collecting idents. 2d1

(TIID) <NLS, idtctl, tiid> reads an ident, using RDLIT with the appropriate delimiters. TIID just puts the literal into the string passed it as an argument, without checking its validity. 2d1a

(TIRDID) <NLS, idtctl, tirdid> reads an ident and checks its validity using TIPTID. It expects, as arguments, the address of a string in which to put the ident, another string in which to put the entry for this ident, and the file number of the ident file. 2d1b

(RDIDENT) <NLS, idtctl, rdident> works like TIRDID except it does not expect a second string in which to put the entry for the ident. It also expects an stid

instead of a file number. (The file number contained in the stid is used. If the stid is 0, then the ident file is opened and closed.) Unlike TIRDID, it puts the current user's ident into the string if he supplies a null ident (CA). 2d1c

(IDENTLIST) <NLS, idtctl, identlist> expects as an argument a string address. It loops, using RDIDENT to collect an ident, and putting them in the string. IDENTLIST opens and closes the ident file. It also handles comments, unlike TIRDID and RDIDENT. 2d1d

(TIPTID) When the ident system asks for an ident, the user may respond with an ident, or with one of several control characters that initiates a scan through the ident file for appropriate names or idents. One routine, <NLS, idtctl, tiptid> parses the string typed in by the user as an ident. It expects as arguments the address of a string that contains the literal typed by the user, the address of a string to contain the entry for that ident, and a file number. If the literal indicates that a scan of the ident file should be done, TIPTID determines the type of scan and calls IDFLSEARCH, described below, to search the file. If the string conforms to the syntax of an ident, then TIPTID uses CKIDENT, described below, to validate the ident. If TIPTID turns up a valid ident, it returns TRUE, with the ident in the first string passed it and the entry for that ident in the second string. Otherwise, it returns FALSE. 2d1e

Two routines, <NLS, idtctl, tiname> and <NLS, idtctl, tilit> take string addresses as arguments and return having collected a name or a literal and put it in the string. 2d2

Routines that manipulate the ident file 3

Parsing and verifying ident lists-- 3a

Several routines parse and verify lists of idents.

(CKIDENT) <NLS, idlibe, ckident> validates an ident (i.e., checks that it is in the ident file). It expects as arguments a string containing the ident to be checked, a string address in which to put the entry for that ident, or 0 if the ident entry ident entry is not needed, and the file number of the ident file, or 0 if this file is not opened. CKIDENT uses <NLS, jump, namelook> to check that the ident is a name in the identfile. If it is, then

CKIDENT returns TRUE, with te entry string filled in, if requested. If the ident is not valid, it returns FALSE. 3a1

(CKNLSID) works like CKIDENT. <NLS, idlibe, cknlsid> expects the same arguments as that routine and returns in the sae way. CKNLSID is used during NLS initialization to check that the ident belongs to an individual, not to a group or affiliate. It proceeds by checking the ident with CKIDENT, then uses AFGPTST, described below, to insure that the ident belongs to an individual. 3a2

(GETGPIDS) scans a list of idents and puts all group idents in a string. <NLS, idlike, getgpids> expects as arguments a t-pointer to the list of idents to be scanned, a string address, to hold the group idents found, and a file number, or 0 if the ident file hasn't been opened. 3a3

(GETIDS) returns information about the idents in a list in successive calls. If it encounters a gropu ident, [ ] it will return information about each of the individual, individual [or an expanded group,] that comprise the original ident. <NLS, idlibe, getids> expects four arguments -- a t-pointer to the ident list to be examined, a string in which to return the information, an indication of the type of information to be returned - if 0, then the entire ident entry is returned, if 1 then only the last name is appended to the string, and the ident file number, or 0 if the file hasn't been opened. This routine is used primarily to generate a list of the last names of the members of a group. It returns FALSE when there are no more idents in the list. GETIDS proceeds by pushing group idents on a stack as it finds them, then calling itself recursively to pop them off the stack and process them. The routine <NLS, idlibe, intids> must be called with 0 before calling GETIDS. The first call to GETIDS should include the address of a t-pointer that points to the beginning of the ident list to be scanned. (The list must terminte with a ';.) GETIDS will change the value of the t-pointer as it scans the list, so the caller should not modify it between successive calls to GETIDS. INTIDS initializes the stack of idents (this stack is JIDSTK, declared in DATA). GETIDS uses <NLS, idlibe, pushids> and <NLS, idlibe, popids> to push and pop the t-pointers onto the stack. 3a4

Retrieving and modifying fields, "get"s and "set"s--
Several routines retrieve and modify the various fields in the ident file. Each time a new field is defined in the ident system a pair of these "get" and "set" routines should be supplied to read and write it. An attempt has been made, in

all the code that references fields in an ident entry, to refer to them only with the get and set routines. Then if a field changes, only the get and set procedures need to be modified. 3b

The "get" routines expect four arguments -- a string containing the ident entry, a string in which to put the value of the field, and two t-pointers to the beginning and end of the value portion of the field in the ident entry. If the second string address, or first t-pointer address, is 0 then the string isn't filled in, or the t-pointer set. 3b1

(STPTSET) Once the get outines for individual fields have found the boundaries of the field value in the ident entry, they call <NLS, idlibe, stptset> to set up the result string and t-pointers, if required. 3b1a

If a field is optional, then the get routines return TRUE or FALSE to indicate whether the field is present in the entry. If the field is not present, the result string is set to NULL, and the result t-pointers are set to the end of the last field before the comments field. (You'll see why in a minute). 3b1b

The "set" routines change the value of fields in an ident entry. They expect the same four arguments as the "get" routines, except the second string should contain the new value of the field and the two t-pointers should be as returned by the corresponding "get" routine. (If the first t-pointer address is 0, then the SET routine assumes they have not been SET with a get routine.) If the field is optional, the set routine will check to make sure the requisite header is in the entry by scanning for the string that composes the header like "Phone:" or "User:". If the field (and Header) are not already in the entry the set routine will supply the header. (This means that the string containing the new value for the field should not contain a header.) 3b2

A list of the get and set routines, the field, each manipulates, and whether the field is optional (i.e., whether the get routine will return TRUE or FALSE) follows. 3b3

Routines	Field	Optional	3b3a
<NLS,idlibe,getiid> o <NLS,idlibe,setiid>	id	n	3b3b

```
<NLS,idlibe,getiadd>          address          no
<NLS,idlibe,setiadd>                                          3b3c

<NLS,idlibe,getinam>          name                        n
o
<NLS,idlibe,setinam>                                          3b3d

<NLS,idlibe,getilname>        last name                   n
o
No corresponding set routine                                  3b3e

<NLS,idlibe,getiaff>          affiliate                   n
o
<NLS,idlibe,setiaff>                                          3b3f

<NLS,idlibe,getiexp>          expand                      n
o
<NLS,idlibe,setiexp>                                          3b3g

<NLS,idlibe,getimem>          membership                  n
o
<NLS,idlibe,setimem>                                          3b3h

<NLS,idlibe,geticord>         coordinator                 n
o
<NLS,idlibe,seticord>                                         3b3i

<NLS,ildibe,getiverify>       verify                      n
o
<NLS,idlibe,setiverify>                                       3b3j

<NLS,idlibe,getiuser>  TENEX user directory               y
es
<NLS,idlibe,setiuser>                                         3b3k

<NLS,idlibe,getiphone>        phone                       y
es
<NLS<idlibe,setiphone>                                        3b3l

<NLS,idlibe,getiimp>          imp number                  y
es
<NLS,idlibe,setiimp>                                          3b3m

<NLS,idlibe,getihost>         host name                   y
es
<NLS,idlibe,setihost>                                         3b3n

<NLS,idlibe,getifunction>     individual's title          y
```

es			
<NLS,idlibe,setifunction>			3b3o
<NLS,idlibe,getisaff>	secondary affiliates	y	
es			
<NLS,idlibe,setisaff>			3b3p
<NLS,idlibe,geticapability>	user's capabilities	y	
es			
<NLS,idlibe,seticapability>			3b3q
<NLS,idlibe,getisubcol>	subcollections	y	
es			
<NLS,idlibe,setisubcol>			3b3r
<NLS,idlibe,getidelivery>	delivery	y	
es			
<NLS,idlibe,setidelivery>			3b3s
<NLS,idlibe,getimemnts>	miscellaneous	y	
es			
<NLS,idlibe,setimcmnts>			3b3t

Logical "get"s and "set"s--
In several cases, the get routines may not return the values desired for a particular application. For example, the mailing address field may contain an ident, but you may need a real address for printing out mailing labels. Several "logical get" routines return the "logical" values of fields, as described below. 3c

(LDELIVERY) expects an stid that points to the ident file entry. It returns a one-word record that indicates whether on-line or hard-copy delivery (or both) are needed. returnvalue. DELHC and returnvalue. DELOL will be TRUE or FALSE, depending on whether hard-copy or on-line delivery has been specified. Currently, if there is no delivery field in the entry then the following criteria are used; if the user has an affiliation "SRI-ARC" then he gets on-line only; otherwise he gets hard-copy, and, if he has NLS capabilities he gets on-line as well. 3c1

(LUSER) <NLS, idlibe, luser> expects the same arguments as regular get routines. If no user field is present in the entry the individual's last name is returned. LUSER returns TRUE or FALSE to indicate whether the user field was present. 3c2

(LGETSUBCOLL) <NLS, idlibe, lgetsubcoll> expects the same

arguments as regular get routines. If the entry contains no subcollection field the following criteria are used: if the entry is a group or affiliate then its ident is used; otherwise, if the individual's affiliation is "SRI-ARC" then this is used as the subcollection, otherwise his subcollection is "NIC". LGETSUBCOLL returns TRUE or FALSE to indicate whether the subcollection field was present. 3c3

(LADDRESS) <NLS,idlibe,laddress> expects the same arguments as regular get routines. If the value of the mailing address field is an ident, it evaluates that ident's address field (and so forth) to come up with a non-ident mailing address. 3c4

(LMEMLIST) expands the membership list of a group to include a list of other groups to which he belongs. In addition, two lists of the types of groups encountered in processing, and a list of invalid idents are returned. <NLS, idlibe, lmemlist> expects six arguments -- the address of the entry string, a string to contain the expanded list, three strings for the subsidiary group lists and error list, and the identfile number or 0. Anyone intending to use this routine should consult the documentation in <NLS,idlibe,lmemlist> for a description of the contents and format of each string. 3c5

Status information--
Several miscellaneous routines return information about the status of an ident entry. 3d

(AFGPTST) returns TRUE if the entry entry is an affiliate or group, otherwise FALSE. <NLS, idlibe, afgptst> expects two arguments -- the address of a string containing the entry and the address of a t-pointer or 0. If the entry is a group or affiliate, and a t-pointer address supplied, then the t-pointer is set to the beginning of the membership lst. 3d1

(AFFTST) <NLS,idlibe,afftst> expects the same arguments, and returns the same kind of information, as AFGPTST, except it returns TRUE only if the entry is an affiliate. 3d2

(JGRPTST)<NLS,idlibe,jgrptst> is like AFFTST except it returns TRUE only if the entry is a group. 3d3

(EXPDTST) <NLS,idlibe,expdtst> is like AFFTST except it returns TRUE only if the entry is to be expanded. 3d4

(JPRSNAM) tries to divvy up a string of the form last

name', first name/initial [SP middle name/initial] [SP', title] into a potential ident (i.e., initials) and a last name. It expects as arguments a string containing the name to be interpreted, a string to contain the last name, and a string for the ident. If it can't make sense of the string passed as a name, JPRSNAM returns FALSE, otherwise TRUE. It will reorder the name string passed to be of the form first name ... last name [',title]. 3d5

(IDSTATUS)<NLS,idlibe,idstatus> arranges all the information in an ident entry in to a form appropriate for displaying to the user. IDSTATUS expects as arguments a string containing the ident, a string containing the entry for that ident, and a string in which the status should be written. IDSTATUS puts the appropriate heading (like, "Membership:", "Mailing Address:" etc) in front of the corresponding information in the ident entry. IDSTATUS also inserts an EOL between each piece of information in the ident entry. Whenever a new field is added to the ident entry, an appropriate addition should be made to IDSTATUS so that field will be included in the status informaion. 3d6

Ident file modification--
Ihe ident file is modified in only three routines. Each of these routines locks the ident file, edits it, then updates it. 3e

(UPIDFIL) is called whenever a new ident is added. <NLS,idlibe,upidfil> expects as arguments a string containing the ident, a string containing the entry for the ident, and the file number of the ident file. UPIDFIL first checks to see that the ident is not in the file. If it is, UPIDFIL returns FALSE; otherwise, the routine uses <NLS,counl,Cis> to insert the statement in the file. If the ident belongs to an individual, then his ident is added to the membership list of his primary affiliate. Finally, the new ident is added to the membership list of NEWIDS and the file is updated, using <NLS, ioexec, updtfl>. Then UPIDFIL returns TRUE. 3e1

(MODIDFIL) is called whenever an ident entry is modified. <NLS,idlibe, modifil> expects as arguments a string containing the ident to be modified, a string containing the new entry, and the file number of the ident file. It returns FALSE if the ident is not in the file, Otherwise it uses <NLS,corenl,crs> to replace the old entry, <NLS,ioexec,updtfl> to update the file, and returns TRUE. 3e2

(MODREFS) is used whenever an ident is changed (using the

Modify ID command). <NLS,idlibe,modrefs> expects four arguments -- a string containing the previous ident, one containing the new ident, a string containing the new entry, and a file number. MODREFS looks at every entry in the ident file to see of the old ident is used in the membership list, address, coordinator, or affiliate fields. If it is, then the entry is changed to reference the new id. Finally, the ident file is updated to include the new entry. 3e3

Miscellaneous routines--
The ident system contains several miscellaneous routines. 3f

(STNAMCAP) capitalizes the first letter in each word of a name. <NLS, idlibe, stnamcap> expects a string as an argument. It returns with the string updated appropriately. 3f1

(MAKGID) tries to make up an ident from a string <NLS, idlibe, idlibe, makgid> expects as arguments a string containing a name and a string for the ident. It puts the first letter in each word in the name in the ident. 3f2

(IDFLSEARCH)<NLS,idlibe,idflsearch>expects four arguments -- the type of search, a string containing the entity to be searched for, a string to contain the entry for a new a new ident (or zero) should the user choose to add one, and a file number. IDFLSEARCH uses NAMSEARCH, described below, to find the entity required. When a search succeeds, it prints out the information NAMSEARCH returns. The IDFLSEARCH resumes looking at the ident file for more matches. When the search is finished, IDFLSEARCH asks the user if he wants to add a new ident. If not, it returns FALSE. Otherwise, it uses NEWIDENT to add an ident and returns TRUE, with the new ident in the string that originially contained the entity to be matched. 3f3

(NAMSEARCH) searches the ident file for the occurrence of different kinds of information. <NLS, idlibe,namesarch> expects four arguments -- a string containing the information to be matched, a string in which to return information about the ident, an stid at which to begin the search (or 0, implying the origin of the ident file, which hasn't been opened) and a parameter indicating the type of search. If TYPE is LNAME, then the string passed is taken as an individual's last name. If IDCHR, then for the first letter in an individual's last name or for the first letter in a group or affiliate's ident; and if TYPE is LITSTR, the string passed is taken as a pattern to be found in an individual's last name or in the name of a group/affiliate

(the string passed need not contain the entire name, just a portion of it). If the specified search succeeds, NAMSEARCH returns TRUE, and, if an stid has been suplied, the stid of the statement that succeeded. In addition, NAMSEARCH has filled in the string passed with the ident SP [affiliation, SP] name. If the search is unsuccessful, then NAMSEARCH returns FALSE.

MSC 23-APR-72 12:49 10211

The Identification System

(J10211) 23-APR-72 12:49; Title: Author(s): Mary S. Church/MSC;
Distribution: Walt Bass, Charles H. Irby, Richard W. Watson/WLB CHI RWW;
Sub-Collections: SRI-ARC; Clerk: HGL;
Origin: <LEHTMAN>DOLID.NLS;5, 17-APR-72 14:57 HGL ; ;

Interrogate interrogation

Why does interrogate no longer work??? 1

HGL 23-APR-72 12:51 10212

Interrogate interrogation

(J10212) 23-APR-72 12:51; Title: Author(s): Harvey G. Lehtman/HGL; Distribution: William S. Duvall, J. D. Hopper/WSD JDH; Sub-Collections: SRI-ARC; Clerk: HGL;

HGL 23-APR-72 13:12 10214

Are the patches covering the holes?

I broght up a running system from <nic-n1s>. I noticed you had a patch in the system. Is it in the source files? Hope I didn't mess things up. 1

Are the patches covering the holes?

(J10214) 23-APR-72 13:12; Title: Author(s): Harvey G. Lehtman/HGL; Distribution: William S. Duvall/WSD; Sub-Collections: SRI-ARC; Clerk: HGL;

HGL 23-APR-72 13:15 10215

NEW NLS

A new NLS was brought up on Sunday containing a fix which will permit a reasonable (we hope) number of tabs on the display. If there is any trouble please tell me 1

NEW NLS

(J10215) 23-APR-72 13:15; Title: Author(s): Harvey G. Lehtman/HGL; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: HGL;

HGL 25-APR-72 9:51 10222

ARC Visit by Lou Katz, Columbia University

Is there a standard destination for visit records? Is there a visit log ident? I used the draft in (9937,) for this document.

HGL 25-APR-72 9:51 10222

ARC Visit by Lou Katz, Columbia University

Visit Date: 24 April 1972 1

Visitor name(s): Lou Katz 2

Position: Director, Computer graphics project 2a

Organization name(s): Columbia University 3

Address: New York 3a

Location of visit: ARC 4

ARC participants: HGL WHP RWW 5

Purpose: Visit-- Friend of Mimi, interested in what we are doing. 6

Action (if any): None. 7

Comments: Appears knowledgeable in graphics. Has been developing a system to aid in the study of molecular structure through the use of color, three dimensional computer graphics. Was in area to speak at Stanford Industrial Engineering Department. Gave brief demonstration of system (which was down when he arrived) and discussed in general what we are, and he is, doing. He has informally invited people from ARC to visit his project when we are in New York. 8

HGL 25-APR-72 9:51 10222

ARC Visit by Lou Katz, Columbia University

(J10222) 25-APR-72 9:51; Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: Douglas C. Engelbart, Charles H. Irby, William H. Paxton,
Richard W. Watson, James C. Norton, Dirk H. van Nouhuys/DCE CHI WHP RWW
JCN DVN; Sub-Collections: SRI-ARC; Clerk: HGL;
Origin: <LEHTMAN>NEWFIL.NLS;1, 8-MAR-72 9:14 HGL ;

delnf jsys and gtjfn(-4) jsys

The following is a desciption of, and the code neccessary to implement, the DELNF jsys. The code should be assembled as part of the file system. We have assigned the jsys number of 430 to this jsys on our system. 1

DELNF - JSYS 430 1a

Delete all but n versions of this file less than or equal to this version 1a1

ACCEPTS IN: 1b

1) JFN 1b1

2) number of versions to keep 1b2

RETURNS: 1c

+1: unsuccessful, error code in 1 (usual file errors) 1c1

+2: successful, (2)= original n minus total number of versions found less or equal to this version, i.e., if (2) negative, (2)=-k, then k versions were deleted 1c2

1d

```
↑.DELNF: JSYS MENTR                                          1e
   PUSHJ P,SNLLK1                                            1e1
   PUSHJ P,GETFDB                                            1e2
   ERUNLK DESX3                                              1e3
   UMOVE B,2          ;NO. VERSIONS                          1e4
DELNF2:     HLLZ C,FDBCTL(A)          ;GET FLAG WD.          1f
   TLNE C,FDBTMP              ;QUIT IF TEMP FLAG             1f1
   JRST DELNF1                                               1f2
   TLNE C,FDBNXF FDBDEL                                      1f3
   JRST DELNF1                                               1f4
   SOJGE B,DELNF1                                            1f5
   MOVSI C,FDBDEL                                            1f6
```

delnf jsys and gtjfn(-4) jsys

```
        IORM C,FDBCTL(A)                                        1f7
DELNF1: HRRZ A,FDBVER(A)                                        1g
        JUMPE A,DELNFE                                          1g1
        ADDI A,DIRORG                                           1g2
        JRST DELNF2                                             1g3
DELNFE: UMOVEM B,2                                              1h
        UNLOCK DIRLCK                                           1h1
        PUSHJ P,UNLCKF                                          1h2
        JRST SKMRTN                                             1h3
```

2

The following are the changes to DIRECT.FAI needed to implement the -4 option to GTJFN. The -4 options provides for the following: 3

Give me a JFN for the most recent version of the file, or if no versions exist then give me a JFN for the newly created file 3a

3b

Insert 4 or 5 statements after VERLKA 3c

LINE 26, PAGE 37 3c1

```
1)              CAME A,[-4]             ;DONT GO FOR -4         3c2
1)              JUMPL A,VERLK2          ; New version
```
wanted 3c3

LINE 26, PAGE 37 3c4

```
2)              JUMPL A,VERLK2          ; New version
```
wanted 3c5

Insert 11 or 12 statements after VERLK1 3d

LINE 18, PAGE 39 3d1

```
1)              CAMN A,[-4]                                     3d2
```

delnf jsys and gtjfn(-4) jsys

```
1)                JRST VERLKG                                    3d3

1)                HRRZ C,@DIRSCN                                 3d4

LINE 18, PAGE 39                                                 3d5

2)                HRRZ C,@DIRSCN                                 3d6

Insert in front of VERLKD                                        3e

LINE 26, PAGE 39                                                 3e1

1)        VERLKG:MOVE B,DIRLOC     ;RESTORE ENTRY STAE AND
MAKE NEW FILE                                                    3e2

1)                HRRZ D,@B                                      3e3

1)                HLRZ C,DIRORG+FDBVER(D)                        3e4

1)                SETO A,                                        3e5

1)                JRST VERLK0                                    3e6

1)        VERLKD: TEST(Z,NEWF,NEWVF)                             3e7

LINE 24, PAGE 39                                                 3e8

2)        VERLKD: TEST(Z,NEWF,NEWVF)                             3e9
```

KEV 25-APR-72 12:23 10223

delnf jsys and gtjfn(-4) jsys

(J10223) 25-APR-72 12:23; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Dan L. Murphy/DLM; Sub-Collections: SRI-ARC; Clerk: KEV; Origin: <VICTOR>MURPH.NLS;3, 20-APR-72 14:11 KEV ;

augmentation of arc operating systems programmers

The primary need in the near future for the augmentation of ARC's operating systems programmers is the ability for them to both use and enjoy using NLS in their work. 1

This means that we would like to be able to maintain all monitor files in NLS form, and not have to translate files back and forth from MACRO to NLS to MACRO. 1a

It then becomes neccassary to be able to run certain sub-systems, e.g. RUNFIL, MACRO, FAIL, and a version of SRCCOM, as NLS sub-systems 1a1

There are three possible ways to achieve this goal: 1a1a

Get TENEX subroutine files to work 1a1a1

This is the most desirable solution, however, it may also take the longest to implement 1a1a1a

If subroutine files were implemented, it would open up whole new worlds of things that could be done using NLS 1a1a1b

Isolate the input and output routines of the concerned systems, and define their interface with the rest of the concerned system. 1a1a2

We would then replace the appropriate in/out routines with routines that could deal with NLS structured files as opposed to TECO structured files 1a1a2a

This is probably the easiest solution to implement. 1a1a2b

However, it requires dealing with each system individually. This is very much a fire fighting mode without being a general solution. 1a1a2b1

(It is conceivable that we could contract out to DEC to make the neccassary changes to MACRO and possibly some other routines) 1a1a2c

Write L10 or TREE META programs that perform the equivalent functions of the systems that we are attempting to run under NLS. 1a1a3

This is the least desirable of the solutions. 1a1a3a

In addition to the above, NLS is not used by operating systems programmers for the following reasons: 1b

it is impossible to do an INSERT SEQUENTIAL followed immmediately by OUTPUT SEQUENTIAL and then do a source compare between the pre- and post- NLS versions of the file without comming up with a difference on every line 1b1

our methods of operations when we get new releases from BBN make this situation extremely undersirable 1b1a

It takes longer to go into NLS, edit, and do an OUTPUT SEQUENTIAL than it does to go into TECO, edit, and then output the file 1b2

Outputting of strings (that contain carriage returns or line feeds) within literals does not work properly 1b3

Control characters (such as form feed) cannot be displayed 1b4

Tabs do not seem to work properly 1b5

KEV 25-APR-72 12:36 10224

augmentation of arc operating systems programmers

(J10224) 25-APR-72 12:36; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Harvey G. Lehtman, William H. Paxton, Richard W. Watson/HGL WHP RWW; Sub-Collections: SRI-ARC; Clerk: KEV; Origin: <VICTOR>SEAS.NLS;2, 20-APR-72 14:03 KEV ;

DCE 25-APR-72 14:00 10225

To PODAC, on its bootstrapping into representaional dialogue skills and practices

This is to communicate briefly some of the actions that I see as relevant and particulrly beneficial for PODAC to take up. I would like to have some dialogue, through PODCOM in a "representational mode," on these points. 1

PODAC should have effective processes for deaing with issues of general concern, and for taking action. Because the rules for PODAC don't allow it to have any direct power over any of the LINAC organization doesn't at all mean that PODAC "can't do anything." There is an important sphere of concern within which PODAC is charged with doing developmental work, and there is much to be done along the lines of:. 2

Developing PODAC itself as unique, working organization, 2a

with a sense of identity, purpose, and usefulness, 2a1

with a capability to pursue issues and take action.. 2a2

Developing within PODAC an understanding of the needs and possibilities for personal development, and for organizational development, that exist within our environment. 2b

Choosing courses of action towards selected developmental goals, and getting about the development work -- learning and adapting as we go. 2c

PODAC is like "the people's organization," representing all of the human beings that work in/for ARC, and aiming for development of their understanding (of each others' understanding, beliefs, and attitudes), and the development of processes within themselves and within the PODAC organization for handling differences in these matters. 3

PODAC isn't expected to take on contracts, meet deadlines, etc. as contracted from the outside; it has a role really different from LINAC's, and I'd expect it to evolve to be a really different organization. (The only contract so far is sort of with me, having to do with the DEVELOPMENT OF PODAC rather than with the DOINGS OF PODAC.) 3a

In these above activities, it is important to consider that learning how to work in a representational mode is part of the current PODAC framework -- so that the matter of identity, purpose, unedrstanding, etc., and of choosing goals and courses of action represents a PROCESS that PODAC has to learn how to do. (And the process of learning is a valid PODAC activity.) 3b

To PODAC, on its bootstrapping into representaional dialogue skills and practices

From the foregoing considerations, I would suggest the following needs/possiblities for PODAC's consideration, as to types of positive action to undertake. 4

1) Develop the process for: 4a

Getting an issue understood and digested thoroughly within a group (a POD, or PODCOM) -- i.e., where a9 everyone understands the issue, and has a good idea of what the others understand and believe, and of what their attitudes are, and b) where the considerations relevant to one's own stand on the issue are becoming clear to him; 4a1

Getting a written statemnt formulated (and transmitted) that REPRESENTS THE GROUP's position on the issue. 4a2

(NOTE: These processes generally require more than the free-for-all bull-session mode.) 4a3

2) Promote interest in, and training and practice for, improving individuals' skills in the basic processes of: 4b

Running a meeting such as the above; (e.g., might it be desireable sometimes to invoke Roberts rules of order, or one of the more modern small-group meeting forms?); 4b1

Carrying one's part within such a meeting (special roles are often valuable, and skills can be developed); 4b2

Carrying one's part in an effective two- or three-party collaborative dialogue aimed at: 4b3

resolving differences in understandng, belief, or attitude; 4b3a

or seeking out and clarifying an issue of mutual concern; 4b3b

or collaboratively formulating a mutual position. 4b3c

(Note: There are explicit skills that can be developed here, and quite a number of useful conventions and agreed-upon practices -- all of which can benefit from consciously pursued studying, discussing, teaching, and coaching, and from practicing with peers where all participate in trying, observing, evaluating and coaching. To me it seems that here are both a need and an opportunity of a central nature for PODAC to pick up on, to begin

working on the development of these skills and practices as a form of both personal and organizational development.) 4b4

3) Begin learning how to get outside help in PODAC's general activity by seeking particular help in these abovementioned, initial pursuits: 4c

Reading will help some; we've begun the process of building up some bibliography, and this should continue, and should be managed in such a way as to make the material usefully accessible. 4c1

Getting more visiting speakers would be better; 4c2

Getting experienced people to come in and work directly with our POD meetings would be even better -- e.g. at first having a really intense dialogue with the consultant about what he thinks and feels the goals and processes could/should be within PODAC; and/or if a POD feels like trying some first-hand exploring, having a skilled facilitator come and "facilitate" one or more of their POD meetings. 4c3

4) Develop the process for PODAC having a dialogue with other people/organizations, where the interface presented to the other is one that really REPRESENTS PODAC. This is what I seek, for the interactions and negotiations associated with PODAC evolution; and it is what should be provided for any unit within LINAC when interacting with PODAC on some issue. 4d

I view this as one of the functions of PODCOM, to facilitate the process of providing a representational interface such as this. 4d1

This "representational-dialogue" process can sometimes be conducted entirely by verbal dialogue, but it seems very improbable to me that this would generally be satisfactory. As part of PODAC's "learning process," toward developing this represenatational-dialogue capability, I very much want to have PODAC learn how to conduct recorded, Journalized dialogue between PODS and PODCOM, between PODs and PODs, and between PODCOM and the OTHER (e.g., me). 4d2

As a starter, I would like for PODCOM to establish a reasonable mode in which dialogue between PODAC and me can proceed toward evaluating PODAC, and toward arriving at changes and next-stage plans. I want this to be a reasonable form of a "represenatational mode" -- when I get a statement from PODCOM

(and perhaps the other PODs), I'd like it to be clear to me what degree of groupiness is represented by the expressed opinion (or understanding or belief), And, I would like this particular memo to be dealt with as part of such dialogue; I want to see action and/or dialogue response to all of the issues included in this memo.

DCE 25-APR-72 14:00 10225

To PODAC, on its bootstrapping into representaional dialogue skills and practices

(J10225) 25-APR-72 14:00; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: Douglas C. Engelbart, Walt Bass, J. D. Hopper, Kenneth E. Victor, Linda L. Lane, Mil E. Jernigan, Cindy Page, Marilyn F. Auerbach, Michael D. Kudlick, Bonnar Cox, David R. Brown/PODCOM BC DRB; Sub-Collections: SRI-ARC PODCOM; Clerk: DCE;

<IJOURNAL>10225.NLS;1, 26-APR-72 14:29 XXX ; .HJOURNAL="DCE 25-APR-72 14:00 10225"; Title: .HED=" To PODAC, on its bootstrapping into representaional dialogue skills and practices"; Author(s): Douglas C. Engelbart/DCE; Distribution: Douglas C. Engelbart, Walt Bass, J. D. Hopper, Kenneth E. Victor, Linda L. Lane, Mil E. Jernigan, Cindy Page, Marilyn F. Auerbach, Michael D. Kudlick, Bonnar Cox, David R. Brown/PODCOM BC DRB; Sub-Collections: SRI-ARC PODCOM; Clerk: DCE; .IGD=0; .SNF=72; .MCH=65; .TABSTOPS=8,16,24,32,40,48,56,64; .PGN=-1; .SCR=2; .PES;

1 This is to communicate briefly some of the actions that I see as relevant and particulrly beneficial for PODAC to take up. I would like to have some dialogue, through PODCOM in a "representational mode," on these points.

2 PODAC should have effective processes for deaing with issues of general concern, and for taking action. Because the rules for PODAC don't allow it to have any direct power over any of the LINAC organization doesn't at all mean that PODAC "can't do anything." There is an important sphere of concern within which PODAC is charged with doing developmental work, and there is much to be done along the lines of:.

2A Developing PODAC itself as unique, working organization,

2A1 with a sense of identity, purpose, and usefulness,

2A2 With a capability to pursue issues and take action..

2B Developing within PODAC an understanding of the needs and possibilities for personal development, and for organizational development, that exist within our environment.

2C Choosing courses of action towards selected developmental goals, and getting about the development work -- learning and adapting as we go.

3 PODAC is like "the people's organization," representing all of the human beings that work in/for ARC, and aiming for development of their understanding (of each others' understanding, beliefs, and attitudes), and the development of processes within themselves and within the PODAC organization for handling differences in these matters.

3A PODAC isn't expected to take on contracts, meet deadlines, etc. as contracted from the outside; it has a role really different from LINAC's, and I'd expect it to evolve to be a really different organization. (The only contract so far is sort of with me, having to do with the DEVELOPMENT OF PODAC rather than with the DOINGS OF PODAC.)

3B In these above activities, it is important to consider that learning how to work in a representational mode is part of the current PODAC framework -- so that the matter of identity, purpose, unedrstanding, etc., and of choosing goals and courses of action

represents a PROCESS that PODAC has to learn how to do. (And the process of learning is a valid PODAC activity.)

4 From the foregoing considerations, I would suggest the following needs/possiblities for PODAC's consideration, as to types of positive action to undertake. .PBS;

4A 1) Develop the process for:

4A1 Getting an issue understood and digested thoroughly within a group (a POD, or PODCOM) -- i.e., where a9 everyone understands the issue, and has a good idea of what the others understand and believe, and of what their attitudes are, and b) where the considerations relevant to one's own stand on the issue are becoming clear to him;

4A2 Getting a written statemnt formulated (and transmitted) that REPRESENTS THE GROUP's position on the issue.

4A3 (NOTE: These processes generally require more than the free-for-all bull-session mode.)

4B 2) Promote interest in, and training and practice for, improving individuals' skills in the basic processes of:

4B1 Running a meeting such as the above; (e.g., might it be desireable sometimes to invoke Roberts rules of order, or one of the more modern small-group meeting forms?);

4B2 Carrying one's part within such a meeting (special roles are often valuable, and skills can be developed);

4B3 Carrying one's part in an effective two- or three-party collaborative dialogue aimed at:

4B3A resolving differences in understandng, belief, or attitude;

4B3B or seeking out and clarifying an issue of mutual concern;

4B3C or collaboratively formulating a mutual position.

4B4 (Note: There are explicit skills that can be developed here, and quite a number of useful conventions and agreed-upon practices -- all of which can benefit from consciously pursued studying, discussing, teaching, and coaching, and from practicing with peers where all participate in trying, observing, evaluating and coaching. To me it seems that here are both a need and an opportunity of a central nature for PODAC to pick up on, to begin working on the development of these skills and practices as a form of both personal and organizational development.)

4C 3) Begin learning how to get outside help in PODAC's general activity by seeking particular help in these abovementioned, initial pursuits:

4C1 Reading will help some; we've begun the process of building up some bibliography, and this should continue, and should be managed in such a way as to make the material usefully accessible.

4C2 Getting more visiting speakers would be better;

4C3 Getting experienced people to come in and work directly with our POD meetings would be even better -- e.g. at first having a really intense dialogue with the consultant about what he thinks and feels the goals and processes could/should be within PODAC; and/or if a POD feels like trying some first-hand exploring, having a skilled facilitator come and "facilitate" one or more of their POD meetings.

4D 4) Develop the process for PODAC having a dialogue with other people/organizations, where the interface presented to the other is one that really REPRESENTS PODAC. This is what I seek, for the interactions and negotiations associated with PODAC evolution; and it is what should be provided for any unit within LINAC when interacting with PODAC on some issue.

4D1 I view this as one of the functions of PODCOM, to facilitate the process of providing a representational interface such as this.

4D2 This "representational-dialogue" process can sometimes be conducted entirely by verbal dialogue, but it seems very improbable to me that this would generally be satisfactory. As part of PODAC's "learning process," toward developing this represenatational-dialogue capability, I very much want to have PODAC learn how to conduct recorded, Journalized dialogue between PODS and PODCOM, between PODs and PODs, and between PODCOM and the OTHER (e.g., me).

5 As a starter, I would like for PODCOM to establish a reasonable mode in which dialogue between PODAC and me can proceed toward evaluating PODAC, and toward arriving at changes and next-stage plans. I want this to be a reasonable form of a "represenatational mode" -- when I get a statement from PODCOM (and perhaps the other PODs), I'd like it to be clear to me what degree of groupiness is represented by the expressed opinion (or understanding or belief), And, I would like this particular memo to be dealt with as part of such dialogue; I want to see action and/or dialogue response to all of the issues included in this memo.

WSD 25-APR-72 21:55 10226

L10 Change

This is up as L10.SAV version 9...version 8 is backup

L10 Change

A Low-level macro facility has been added to L10, which allows the use of no-parameter macros in L10 programs. 1

Syntax: 2

"DEFINE" macdef $(', macdef) '; 2a

macdef = .ID '= $NP $(-'#) '# 2b

In English, a macro is defined by an identifier (the name of the macro (this is the name which will be used to call the macro)) followed by an equal sign, followed by any number of non-printing chracters, followed by any sequence of characters excluding the character '# (Which is the character string which will be substituted for the macro ID), terminated by a '#. 2c

Semantics and discussion 3

A macro definition is legal wherever a DECLARE is legal in L10. 3a

Macros may be nested to a depth of 8. 3b

Macros may be called anywhere in an L10 Program except inside of strings, where they will not be recognised or expanded. 3c

An identifier which has been defined may be re-defined as a macro identifier (a message will be typed), but an attempt to re-define a macro identifier will result in a confusing syntax error. 3d

Basically, when the macro is encountered in the declaration, it will be expanded, and the resulting string will be compiled. 3d1

Note that as a corollary of this, a macro may be called from a declaraction. 3d2

When a syntax error is encountered within a macro expansion, the expanded text will be printed along with the syntax error, rather than the macro name. 3e

L10 Change

(J10226) 25-APR-72 21:55; Title: Author(s): William S. Duvall/WSD; Distribution: James G. Mitchell, L. Peter Deutsch, Diane S. Kaye, Don I. Andrews, Walt Bass, William S. Duvall, Mary S. Church, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Bruce L. Parsley, William H. Paxton/NPG; Sub-Collections: SRI-ARC NPG; Clerk: WSD;

KEV 26-APR-72 8:33 10227

notes on large capacity storage and requested new capabilities

Requested new capabilities 1

The new capability that was originally referred to here was the ability for shared screens when two, or more, users are in NLS and are linked together. 1a

This capability (which has been thought about for some time) was asked for by the speech-recognition group. 1a1

Apparantly, it has already been decided to go ahead and implement this facility. 1b

To my knowledge, we wish to use and demonstrate this facility at the ICCC conference to be held this fall. 1b1

My own personal thoughts on the matter are as follows: 1c

I think it is a good idea to implement such a scheme 1c1

Such a scheme would take on the order of one or two man months to implement 1c2

One of the immediate benefits in having such a scheme would be as an aid in teaching new users how to use DNLS 1c3

Another way of looking at this scheme is as an experiment in augmentation capabilties where several people develope one, or more, files jointly 1c4

Large capacity storage 2

There are several questions to be studied here: 2a

Do we wish to use remote storage? 2a1

Would we prefer to get more local file storage? 2a1a

If so, can we afford to get as much local storage as is neccessary? or desired? 2a1a1

Assuming that we do wish to use remote storage: 2a2

How much storage is available for use by ARC at UCSB and NASA-AMES? 2a2a

How reliable is this storage? 2a2b

How soon is this storage available? 2a2c

How much does it cost? 2a2d

What is the acces time to files kept remotely? 2a2e

How would users get acces to this remote storage? 2a2e1

Would there be NLS commands to directly access this storage? 2a2e1a

Would there be EXEC commands to directly access this storage? 2a2e1b

Would access be handled automatically by the system? 2a2e1c

Would users have to ask the operator to retrieve files for them? 2a2e1d

What would we use this storage for? 2a2f

If we keep the BRYANT disk? 2a2f1

If we get rid of the BRYANT disk? 2a2f2

At this point in time , I know the answers to some of the above questions: 2b

Ideally, we would like to have unlimited reliable local storage. 2b1

However, this is probably unrealistic and too expensive. 2b1a

Therefore, I think that we should seriously continue to pursue the possibilities of remote storage. 2b1b

This is based on the assumption that the remote storage will be cheaper than local storage and at the same time, is reliable enough to be of service. 2b1b1

Concerning user access to this storage, we would probably have both NLS and EXEC (if the EXEC continues to stay around) level commands to get the files. In addition, we would probably let the users place requests with the operator to retrieve files for them. 2b2

Now for the big question, what would we use this storage for? 2b3

If we get rid of the BRYANT disk, we can use this

storage for journal files and for infrequently accessed files. 2b3a

If we keep the BRYANT we could conceivable use this remote storage as a lower level store than the BRYANT for older journal files and infrequently accessed files. 2b3b

In either case, we might want to use the remote storage for NIC files,
and for that matter any files related to systems that might develop with similar needs and status to the NIC. 2b3c

KEV 26-APR-72 8:33 10227

notes on large capacity storage and requested new capabilities

(J10227) 26-APR-72 8:33; Title: Author(s): Kenneth E. Victor/KEV; Distribution: Michael D. Kudlick, Don I. Andrews, Donald C. Wallace, Charles H. Irby/MDK DIA DCW CHI; Sub-Collections: SRI-ARC; Clerk: KEV; Origin: <VICTOR>DELIVERY.NLS;2, 26-APR-72 8:28 KEV ;

MEJ 26-APR-72 9:44 10228

Suggestion for a Speaker For ARC Program

TO: Fir POD, PODCOM, and ARCers 1

FROM: MEJ 2

Please consider the suggestion to invite David Straus, Interaction Associates, Inc., 2637 Rose St., Berkeley, California, phone (415) 849-3622, to speak to us on his problem-solving, group interaction, decision-making research. 3

We have 4 pieces of literature (that I have run across) by or about him and his work in our XDOC files: 3691 3815 4072 9823. At the moment I have checked out 3691, 4072, and have a copy of 9823. Geoff Ball has had 3815 since 1970 and I will call him and ask for it back. 9823 has just been processed and is in the material to be filed in XDOC. 4

A copy of 9823, the November 10, 1971, issue of Interaction, a publication by David Straus, is being circulated in ARC for your further information. To give you the flavor of his thinking, quoted below is a short paragraph from this publication: 5

...."The social, organizational and ecological systems we live in are rapidly becoming more complex and interdependent. Almost every decision we make affects our environment and the lives of other people whether we recognize the fact or not. Our organizational systems in attempting to guard against destructive or irrational decisions being made by any one individual or group have protected themselves by becoming more horizontal. Power is so distributed that no one group has the ability to design and implement a solution by itself. This check and balance system has both the effect of protecting the organization from the change, but can also prohibit or retard the organization from making necessary adaptive changes. The point is we are rapidly reaching a state at all levels of society where we are losing our independence of decision-making and are becoming more dependent on having to work with others to reach solutions that meet many different needs."... 5a

MEJ 26-APR-72 9:44 10228

Suggestion for a Speaker For ARC Program

(J10228) 26-APR-72 9:44; Title: Author(s): Mil E. Jernigan/MEJ; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: MEJ;
Origin: <JERNIGAN>SPEAKER.NLS;2, 26-APR-72 9:31 MEJ ;

HGL 26-APR-72 10:17 10229

Software Group Meeting

I would like to call a meeting of all software people for Friday
o this week at 10:30 AM. Suggested topics include: 1

1. Programming and documentation standards for NLS code. 1a

2. Current assignments. 1b

3. How to make future assignments. 1c

4. Priorities in fixing bugs and starting new developments. 1d

5. Orienting and training new people— problems and suggestions. 1e

6. Staff needs for the future. 1f

The date and time was chosen because WHP will be leaving for Europe next week. The Journal seminar later in the day would bring WSD to ARC. Therefore this seems to be the last opportunity in the near future to get together. While many of the problems above deal with NLS specific problems, we will not discriminate against TENEX people. 2

3

Software Group Meeting

(J10229) 26-APR-72 10:17; Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: James G. Mitchell, L. Peter Deutsch, Diane S. Kaye, Don I. Andrews, Walt Bass, William S. Duvall, Mary S. Church, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Bruce L. Parsley, William H. Paxton, Diane S. Kaye, Kenneth E. Victor, Don I. Andrews, James E. White, Jacques F. Vallee, Donald C. Wallace, William R. Ferguson, J. D. Hopper/NPG DSK KEV DIA JEW JFV DCW WRF JDH;
Sub-Collections: SRI-ARC NPG; Clerk: HGL;
Origin: <LEHTMAN>SOFT.NLS;1, 26-APR-72 9:57 HGL ;

HI (STAN COHEN) HENCEFORTH SC 1

(J10232) 26-APR-72 11:01; Author(s): Stanley Cohen/SC; Distribution: Ernest H. Forman, Stanley Cohen/EHF SC; Sub-Collections: NIC; Clerk: SC;

RWW JFV 26-APR-72 14:52 10234

Tentative definition of the NLS novice mode.

This paper is in response to CHI's proposal for NLS changes -- see JOURNAL -- 10081,) and for recent discussion about text-editors in general and NLS in particular. -- see -- 9946,) (9837,) (10077,). 1

The above discussion also summarizes some ideas that have developed in the course of our experience with the system and in contact with other current and potential users of NLS. 2

There are several ways to think about "novice" mode; you can view it as a mode you pass through quickly on your way to becoming an expert; you can also think of it as THAT SUBSET OF LANGUAGE COMMANDS MOST OFTEN USED by BOTH "experts" and "novices." We favor looking at it in the latter way (for several reasons) and therefore we do not see the "novice" mode as requiring different syntax than used by expert. Rather, we define the "novice" mode as a carefully chosen set of commands that correspond to the most basic tasks. 3

In terms of implementation we envision possibly more than just one novice mode, perhaps "Basic NLS", "Intermediate NLS".. are appropriate names.. The distinction here should never be apparent to the user, but is only made in terms of a hierarchy of sophistication within the NLS command structure. Similarly, a switch is required in the "help" and prompting stuff in order to provide response in terms of concepts corresponding to the particular level. One must also be careful to handle the syntax in such a way that the "novice" need not be aware of "optional fields" while working in his mode. CHI's recent proposal has adopted this approach. 4

Implementation specifications should be designed to make basic and intermediate NLS as inexpensive as possible in terms of system resources. 5

We propose a tentative set of seven basic guidelines under which the problem could be approached: 6

"Novice mode" syntax should be self-consistent and SIMPLE. 6a

There should be a minimum of special characters. 6b

Any special character should only have one meaning. 6c

There must be adequate feedback at each level. 6d

It must be simple to locate and correct errors. 6e

Proper "Help" facilities must be provided. 6f

Tentative definition of the NLS novice mode.

We need a well-defined hierarchy of concepts. 6g

A suggested list of features (oriented in this writeup for TNLS) for the basic and intermediate modes is the following: 7

Operations	Basic NLS	Intermediate NLS
adds		8
LOG	login, logout	same 9
FILES	load, new file, update, directory, delete file.	privacy commands 10
STRUCTURE	statement only	branches, plexes 11
PRINTING	print(forever) outputquickprint, halt printing,	output device printer simple
directives		
	print statement .N print next print previous	print branch print plex print group 12
VIEWSPECS	(m,n),(t,s),(y,z)	(x,w,b,a,q,r),
VIEWCHANGE (C,D),char.define		tabs 13
LOCATOR	/ show context show statement . show cursor	14
TEXT ENTRY	insert statement with CDOT.	levadj 15
EDIT (STATEMENT)	delete, copy, move, replace, break, append	same 16
EDIT (CONTENTS)	delete,insert,replace, move, copy,substitute, for:text,word,char BC, BW, BS, ↑R	same 17

Tentative definition of the NLS novice mode.

JUMP OPERATIONS	jump to origin, to statement.	structure links	18
ADDRESSING	statement number deferred renumbering, content (filters) next, back, SID	stat.names, structures Strucrels	19
JOURNAL	simple entry, simple way to read items	full usage	20
HELP	For above commands only		21
	-:-:-:-:-:-:-:-:-:-		22

RWW JFV 26-APR-72 14:52 10234

Tentative definition of the NLS novice mode.

(J10234) 26-APR-72 14:52; Title: Author(s): Richard W. Watson, Jacques F. Vallee/RWW JFV; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JFV; Origin: <VALLEE>MOVICE.NLS;6, 26-APR-72 10:30 JFV ;

DCE 26-APR-72 14:40 10236

Note to JCN re pooling system-support services with AI.

Jim: Bert Raphael is intersted in the possibilities of ARC/AI pooling of system-support services. I told him to talk with you.
Doug

DCE 26-APR-72 14:40 10236

Note to JCN re pooling system-support services with AI.

(J10236) 26-APR-72 14:40; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: James C. Norton/JCN; Sub-Collections: SRI-ARC; Clerk: DCE;

DHC 26-APR-72 23:00 10237

Read the Proposal, SVP

Proposal address is now (ARPA,DHC,.prop:w). It should be almost legible if you do and output device teletype.

(am feeling a little betterr than when I was talking with you this afternoon. It's just that the quantitiy of work I know I will have to do, to convince one and all that I am right for the job (and to, infact, become fully qualified) is a little frightening. ... oh well.

Thanx for you efforts, etc.) 1

DHC 26-APR-72 23:00 10237

Read the Proposal, SVP

(J10237) 26-APR-72 23:00; Title: Author(s): David H. Crocker/DHC;
Distribution: Steve D. Crocker/SDC2; Sub-Collections: NIC; Clerk: DHC;

Ferg: This morning my initial file, DCE.NLS;430 is much truncated from the one I last saw, containing only two Journal-notification branches showing but a few recent Journal entries each. I have made it a practice to carry other working information in my initial file, which has been lost??? Could you please 1) rescue say version 427 for me, putting it into my directory space as "DCE427.NLS;1", and then 2) advise me of the recommended practice for utilizing my initial file (like, was this some kind of system-process purge that will run periodically in the future?). Thanks, Doug. 1

(J10238) 27-APR-72 8:42; Author(s): Douglas C. Engelbart/DCE;
Distribution: William R. Ferguson, James C. Norton, Charles H. Irby/WRF
JCN CHI; Sub-Collections: SRI-ARC; Clerk: DCE;

PERC NOTES 4/21/72 1

Present: DCE, PR, CHI, RWW, WLB, JCN. 1a

It was agreed PERC will publish notes of its meeting in the Journal. RWW will write them through May. 1b

The following regularly scheduled meetings of various ARC groups was noted. 1c

EMC	Mondays 10-12	1c1
PODCOM	Tuesdays 3-5	1c2
PERC	Wednesdays 10-12	1c3
FRAMAC	Fridays 10-12 (Starting May 5)	1c4

Future PERC meetings will have agendas. 1d

The following topics were discussed. 1e

Planning team review. DCE will be coming around to each team to find out where they are at. 1e1

DCE would like to have each team publish (possibly informal) documents weekly indicating where they are at. These documents would be on a shelf, have certain points to be discussed, and integrate into the BRS. 1e2

CHI, JCN, PR, DCE will meet on details. 1e3

ICC CONFERENCE 2

An International Conference on Computers and Communications is being held in Washington D.C. in October. ARPA is planning to install a TIP and get terminal manufacturing to donate terminals for demonstration. Bob Kahn of BBN is coordinating the Network show. Bob wants sites such as ours to offer demos and has asked us for scenerios of what we would like to do. It was agreed participants would be useful and RWW, DCE, CHI will meet to draft a proposed demo. 2a

TYMSHARE 3

MDK, RWW met with Tymshare representatives to continue discussions. Tymshare wanted to discuss the business risks with them. They will be sending us some ballpark dollar figures on the cost of a PDP-10 facilities management contract shortly. 3a

BRIEF TRIP REPORTS 4

RWW, JEW went to MIT for a meeting of the file an data transfer protocol design committee. A new protocol was designed and will be published as an RFC. 4a

CHI went to a graphics protocol design committee meeting at

MITRE. An initial protocol dealing with output to displays without local strorage and keyboard input and error recovery was designed. 4b

WLB went to a tutorial at CMU on a hardcopy system they have built around a PDP-11 and Xeroc LDX hooked to a PDP-10. He also went to visit NBS in Washington (reported in the journal.) 4c

Hardware reliability was briefly discussed and our continuing frustation expressed. Operations will post a large wall graph of our up time and the delivery team is looking at hardware replacement alternatives. 4d

PERC Notes Apr 21-72

(J10239) 27-APR-72 9:18; Title: Author(s): Douglas C. Engelbart, Walt Bass, Charles H. Irby, Michael D. Kudlick, James C. Norton, William H. Paxton, Paul Rech, Richard W. Watson/PERC; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC;
Sub-Collections: PERC SRI-ARC; Clerk: RWW;
Origin: <WATSON>PERC.NLS;2, 27-APR-72 9:15 RWW ; ;

SEAS Team Notes

While the content seems to fulfill many of the requests of JCN's Plan Elements document (7634,), the structure could be improved. A discussion of times scales and staffing needs is also necessary. We should have a meeting before WHPs departure. It seems that Tuesday would be a good day for the SEAS team to meet next.

SEAS Team Notes

Introduction 1

The first meeting of the Software Engineering Augmentation System (SEAS) planning team was held on Monday 10 April. Present were WHP, RWW, HGL and KEV. These notes were prepared by HGL. 1a

We discussed the proper areas for the SEAS team to consider. We had all read CHI's "Initial Outline for SEAS Activity Plan" (7660,) and discussed which ideas in it reasonably could be implemented given the current scope of ARC resources and commitments. We additionally discussed other problems which could be handled within the SEAS framework. 1b

The basic objectives described by CHI remain relevant: 1c

1) Provide more powerful capabilities, techniques, and methodologies for software development. 1c1

2) Make those tools available to ARC's software engineers more readily available to non-ARC SE's. 1c2

More clear at this later date are some of the ways by which these objectives can be met: 1d

1) The way we ceate the next major revision of nLS when we move over to the Modular Programming System should serve as an example of augmented software engineering. 1d1

2) We should make available more flexibly (and more reliably) tools to the non-NLS programmers closest tous-- our TENEX system people. (See KEV's notes (Journal,10224,) for further discussion of this point.) 1d2

RWW mentioned a study done at Shell which analyzed the time put into various areas in a software project by typical SEs: 1e

Analysis-- 30% 1e1

Design-- 20% 1e2

Implementation-- 1e3

Coding--20% 1e3a

Debugging-- 25% 1e3b

Evaluation-- 5% 1e4

Additionally it was felt that areas of great importance include the coordination of software projects and the creation of documentation tools. 1f

CHI's original suggestions (marked by *) and others are placed under these major headings in the discussion below. 1g

Analysis-- 2

Measurement tools 2a

Design-- 3

Use of the journal for design records (e.g., DEX and MPS). 3a

Teams. 3b

Use of evaluation tools in designs. 3c

Implementation-- Coding and Debugging 4

* Source level debugging and incremental compilation. 4a

* Modular programming system. 4b

* Set facilities for viewing and working on code at different levels. 4c

* Further develop compiler system. 4d

Evaluation 5

RWW was concerned about the small amount of time spent evaluating software projects once they are running. Clearly, evalution and measurement tools would be useful in checking the successes and failures of a particular system in order to learn ways it can be improved and to improve the tools used by SEs in implementing it. He felt tools such as those being developed by DIA to evaluate TENEX and NLS could be made even more powerful. 5a

MSCs control file environment system (Journal, 9727,) is an example of a system devloped from tools we currently have at our disposal to aid in evaluaton. A command usage count system would be another useful tool. 5a1

How the information is used by those who coordinate the whole system development and analyze and design new additions should also be studied. 5b

HGL thought the Delivery and Marketing team was responsible for this undertaking. If it is not, it is clearly a valuable concern and should be handled by SEAS. 5c

Documentation 6

It was clear that documentation is an area which is often sloughed over by SEs making it difficult for others to find and fix bugs in programs and to make additions to the system. 6a

The usual (and lamentable) attitude among software engineers is that once a project works, it's time to go on to something else. (Mea culpa) 6a1

When a system is large and worked on by many people, lack of proper documentation can lead to additional expense in time and energy involved in fixing parts of that system. NLS currently relies far too often on the oral tradition in its documentation. 6b

A cross index to the currently running NLS (which now has over 40 source files) does not exist. 6b1

Standards for documentation and coding have been proposed in (Journal,8573,), (Journal,8637,), and (Journal,8643,) and largely ignored. Also, effctive coding practices should be considered. 6b2

Documentation of a system (aside from the user features standpoint) generally falls into three areas-- 6c

1. Overall Design-- What the system does on a gross level and why. Requirements of the system, etc. 6c1

2. Module Interface-- How the system fits into its environment. 6c2

Cross reference, etc. 6c2a

3. Code documentation-- descriptions od individual procedures. Comments in source code. 6c3

This is far too often neglected in the rush to get a running system. Perhaps a compiler requirement for the presence of a comment as the first statement in a procedure??? 6c3a

Automatic documentation was discussed. Clearly we have a

powerful potential with L10 user programs for making a start in this area. 6d

* Reformatter programs to make embedded documentation more clear. 6d1

* Back link facility for cross reference and annotative documentation. 6e

* Develop catalog and indices for system code file using L10 user programs. 6f

* CAI training techniques. 6g

Coordination 7

What are the special needs of a software project coordinator? We should work here with the BRS team, create standards, and develop evaluation tools to aid in coordination. 7a

* Develop a trace facility in BRS tohelp improve estimating and give a history of our activity. 7b

* Develop clearer picture of the "feature development" pattern and develop terminology to deal with it. 7c

* Develop methods for studying and speciifying designs and requirements in the context of the whole system. 7d

The team concept. 7e

How do we integrate new people most effectively and painlessly? 7f

How do we hire people to fill needed spaces most efficiently? 7g

Miscellaneous notes 8

The need to make more readily available to the professional community the activities of ARC is of prime importance. Publish or perish 8a

* Tools, techniques and methodologies of ARC should be made underatandable through more extensive and explicit tutorial documentation. 8a1

Our languages and compilers should be made available to others more easily. 8a2

SEAS Team Notes

(J10241) 27-APR-72 10:38; Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: Richard W. Watson, William H. Paxton, Kenneth E. Victor,
Douglas C. Engelbart, Charles H. Irby/RWW WHP KEV DCE CHI;
Sub-Collections: SRI-ARC; Clerk: HGL;
Origin: <LEHTMAN>SEAS.NLS;4, 27-APR-72 10:30 HGL ;

Response Time Measurement

Saul Stimler, in CACM Vol 12 Jan 1969 (pg 47-53), suggests that response time in a time sharing system be measured by a ratio he defines as the "Elapsed Time Multiplication Factor", or ETMF. 1

The purpose of this note of mine is to bring this concept to ARC's attention, and suggest that we should try to implement it in place of (or in addition to) our current methods of measuring the system's responsiveness. 2

The ETMF is the measure of how much more time is needed to complete a process in a time sharing system when it runs in a real job-mix situation (i.e., other users on the system) than when it runs in a situation where it is the only process on the system. 3

Specifically, ETMF equals (elapsed time to complete a process, or task, when the job mix is real), divided by (elapsed time to complete this process or task when it is the only one active in the system). 4

Suppose we compose a "typical" process, in which typical editing and file and journal and printing and compilation and other operations exist as tasks. Then it would be a simple matter to measure the elapsed times for each of these tasks under ideal conditions (only one process on the system) and store the process and its known ideal elapsed execution time in the system. A user could then at any time ask the system to run the process (or perhaps any single task) and have computed for him the ETMF. 5

This would then be a measure for him of how sluggish the system is going to be. He may be able to make a decision on whether he wants to use it or not, at that time. 6

In addition, the system's accounting routines (when we get more sophisticated) may be able to encourage or discourage use of heavily loaded systems by particular classes of users, by varying the accounting rates. 7

Finally, it would be a relatively simple matter then to zero in on what types of tasks or job-mixes cause system sluggishness, simply by automatically collecting ETMF's during the day, along

with associated information about the job-mix. Useful job mix information would be what subsystems are in use, how many users are using each subsystem, what time of day it is, what types of terminals are in use, etc.

8

I would appreciate your comments on this idea. 9

MDK 27-APR-72 11:56 10242

Response Time Measurement

(J10242) 27-APR-72 11:56; Title: Author(s): Michael D. Kudlick/MDK; Distribution: Don I. Andrews, Douglas C. Engelbart, Charles H. Irby, William H. Paxton, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson/DIA DCE CHI WHP KEV DCW RWW; Sub-Collections: SRI-ARC; Clerk: MDK;
Origin: <KUDLICK>PERFORMANCE.NLS;2, 27-APR-72 11:50 MDK ;

KEV 27-APR-72 15:22 10245

cedars response to podcom evaluation request

Does your POD feel that it has been successful in contributing to the personal and organizational development of ARC and its members? 1

Our pod has been successful in that we have gotten a little better understanding of some of the people whom we would ordinarily not have too much contact with. 1a

In addition, it speeded up the integration of a new ARC member, i.e. Paul 1b

However, our pod feels that perhaps the pod mechanism, as it currently exists, is a clumsy and time consuming method for achieving the above ends. 1c

Perhaps we were unsuccessful in meeting other goals of pods due to a lack of understanding as to what these goals are, were, or should be. 1c1

We do not feel that pods have contributed greatly to the personnel and organizational goals of its members, except as noted above 1d

If PODAC were to continue as it exists now, what goals would your POD set for itself and what activities would it undertake in persuit of these goals? 2

There are two goals that cedar pod has adopted for itself for the future: 2a

To attempt to accentuate the positive, rather than spending much energy on negative feelings 2a1

To try to attain an increased awareness or understanding of each other's points of view with regard to: 2a2

recognition of problem areas 2a2a

problem definition 2a2b

solutions to problems 2a2c

attitudes towards problems 2a2d

etc. 2a2e

To approach these goals, we are going to try the following procedures: 2b

We feel that having an agenda in advance of a meeting enables members to come to a meeting prepared to discuss an issue. 2b1

(without an agenda it might be easy to fall into a griping mood) 2b1a

Having our pod take on, at times, the nature of a study group. 2b2

This would and could include required reading or studying by the members before the meeting 2b2a

We are going to have a rotating LEADER of our pod 2b3

There will be a different LEADER for each pod meeting 2b3a

Assuming the role of LEADER is a requirement and not a voluntary action 2b3b

It will be the LEADER's choice as to what and how an individual pod meeting will discuss and be run 2b3c

This is subject to the restraints of requests from podcom and other pods 2b3c1

What organizational changes does your POD think would strengthen the POD Activity? 3

We would very definitely like to see a change in pod membership take place. 3a

The crieria for change that we would like see see adopted is one that maximizes the change. 3a1

We would like to avoid as much as possible any professional groupings that might arise 3a1a

We currently feel that three months is/was about the right length of time before an evaluation, (with potential changes in pod members), takes place. 3a2

However, we feel that as PODAC gains strength, three months might be a little short for the next trial period. Another evaluation should therefore be held three months from now unless the general concensus of ARC is to not hold it. 3a2a

We feel that attendance at pod meetings, and participation in

PODAC should be required in the near future and until that point when PODAC is sufficiently strong such that required attendace is no longer needed. 3b

One member felt that since PODAC is Doug's "experiment", that we do not have the authority or the right to change the terms of the experiment, i.e., that attendance is mandatory 3b1

As to when and for how long pods should meet, we had the following feelings: 3c

Pods should meet every other week for an entire morning or afternoon 3c1

Pods should meet when they have a sufficient agenda to merit a meeting 3c2

Pods should continue to meet for two hours every week if they would all meet at the same time 3c3

We would like to see the following organizational rule implosed: 3d

If a pod requests comments or actions from other pods then the other pods would be required to respond to the requesting pod, even if only to tell the requesting pod why it was not willing to talk about or take action on the request. 3d1

It is very frustrating to send out such requests and get no feedback whatsoever. 3d1a

There is some feeling that while the grass roots aproach is ok, it might be nice to have some general guidelines come down from either podcom or more especially from Doug 3e

KEV 27-APR-72 15:22 10245

cedars response to podcom evaluation request

(J10245) 27-APR-72 15:22; Title: Author(s): Kenneth E. Victor/KEV; Distribution: James E. White, Augmentation Research Handbook, Jacques F. Vallee, Diane S. Kaye, Paul Rech, Michael D. Kudlick, Donald R. Cone, Don Limuti, William R. Ferguson, Priscilla Lister, Linda L. Lane, Marilyn F. Auerbach, Walt Bass, Mary S. Church, William S. Duvall, Douglas C. Engelbart, Beauregard A. Hardeman, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Mil E. Jernigan, Harvey G. Lehtman, Jeanne B. North, James C. Norton, Cindy Page, William H. Paxton, Jeffrey C. Peters, Jake Ratliff, Barbara E. Row, Ed K. Van De Riet, Dirk H. van Nouhuys, Kenneth E. Victor, Donald C. Wallace, Richard W. Watson, Don I. Andrews/SRI-ARC; Sub-Collections: SRI-ARC; Clerk: KEV;
Origin: <VICTOR>RESPONSE.;4, 26-APR-72 17:30 KEV ;

This document is a recommendation to reconsider the manner in which NLS commands are defined and used. 1

Three major groupings of commands are proposed in (10081,) 2

first level, second level, and subsystems. 2a

As we understand them, the following are the criteria for inclusion of a command in one of the above groupings. 3

First level commands: 3a

First level commands are those commonly used editing, window movement, printing, and file operations for which one wants to specify the command with minimal keystroking (preferably one character for each operation operand type). 3a1

Second level commands: 3b

Second level commands are those less frequently used commands for which there is a single letter conflict with other commands or for which one wants a repeat operation without going back to a given starting state and respecifying the operation each time. 3b1

Subsystems: 3c

Subsystems are those logically grouped commands, tasks or functions which one must explicitly "quit" to leave. 3c1

It is the purpose of these comments to recommend that there only be subsystems under a primary single-level editing-viewing command system. The concept entails that second level commands be removed and replaced with a mechanism as described below for executing a single command in a subsystem from within any other subsystem. The advantages of this approach are that we don't continually have to match commands to available letters of the alphabet, and that as new commands become popular we don't have to redesign the first and second level command sets. 4

The following recommendations are made: 5

1) All commands belong to one or more subsystems (there should be a primary default subsystem at the highest level) 5a

2) One must be able to go from any subsystem to any other subsystem directly and have stacked returns. 5b

3) Have two modes of getting to subsystems 5c

a) "call" or "goto" which places you in the subsystem, from which you have to explicitly quit to leave. CD does the appropriate things, etc. 5c1

b) An "execute" which allows you with appropriate subsystem qualifications to uniquely specify a subsystem and command within a subsystem which is executed directly, but automatically return you to the "calling" subsystem. For commonly used inter subsystem communication, mouse button or abbreviated strings may get you to a subsystem such as the present use of the mouse buttons to change viewspecs. 5c2

For example, assume a file subsystem. An update would be e f u CA. Alternatively one could just specify commands and the system would try to parse the command for the current subsystems. If it failed, then it would go through the subsystems in some canonical order. Such a scheme probably implies two or more characters to specify commands in any case. The Exec's convention of space or altmode for requesting command recognition could be used .
Alternatively for example, some mechanism such as, viewspec F followed immediately by the desired command "update" would cause NLS to enter the file subsystem, execute the update command, and return to the subsystem you were in before you used viewspec F. (Viewspec F would be automatically turned off.) 5c3

4) Include the ability for users to create their own subsystems and commands from combinations of existing commands. Some form of executable text with appropriate debugging is required. Users should not have to learn L-10 or MPS etc to do fairly sophisticated things once they have learned one language, namely NLS. 5d

5) Command recognition with multiple characters where necessary should be standard. 5e

6) Choose command words for mnemonic user-oriented value rather than character availability or computer-oriented functioning. 5f

Our recommended subsystem organization of CHI's proposed first and second level commands is this: 6

Text/structural editing and Window movement 6a

insert, delete, etc., ..., copy, move, etc., ..., browse, force case, name delimiters, edit, jumps 6a1

(J10246) 27-APR-72 16:01; Title: Author(s): Richard W. Watson/RWW; Distribution: James G. Mitchell, L. Peter Deutsch, Diane S. Kaye, Don I. Andrews, Walt Bass, William S. Duvall, Mary S. Church, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Bruce L. Parsley, William H. Paxton, Paul Rech, Jacques F. Vallee, James C. Norton, Douglas C. Engelbart, Marilyn F. Auerbach, Dirk H. van Nouhuys/NPG PR JFV JCN DCE MFA DVN; Sub-Collections: SRI-ARC NPG; Clerk: RWW; Origin: <WATSON>GROUPING.NLS;4, 27-APR-72 15:43 RWW ;26-APR-72 9:37 BER ;

Correction to Authors on 10246

Journal item 10246 "Grouping of NLS Commands" should have been listed as authored by MDK RWW 1

RWW 27-APR-72 16:17 10247

Correction to Authors on 10246

(J10247) 27-APR-72 16:17; Title: Author(s): Richard W. Watson/RWW; Distribution: James G. Mitchell, L. Peter Deutsch, Diane S. Kaye, Don I. Andrews, Walt Bass, William S. Duvall, Mary S. Church, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, John T. Melvin, Bruce L. Parsley, William H. Paxton, James C. Norton, Marilyn F. Auerbach, Dirk H. van Nouhuys, Douglas C. Engelbart, Jacques F. Vallee, Michael D. Kudlick, Paul Rech/NPG JCN MFA DVN DCE JFV MDK PR; Sub-Collections: SRI-ARC NPG; Clerk: RWW;