most recent user documentation for the debugger

obsoletes previous documents and contains new user interface and new way of putting it all together

most recent user documentation for the debugger

1 this document attempts to describe how to use some of the debugger back end routines from ddt to assist in debugging x110 programs. 1

2 the basic approach consists of editting a file (for address space configuration constraints), compiling one file, loading this file and other precompiled debugger files with the files you wish to debug, using tenex ddt to set breakpoints, examine/modify memory, etc., calling procedures that i have provided to display stack frames, records, catchframes, etc. 2

3 detatiled instructions: 3

3a 1) edit the file [isic]<nine>tenmem.nls as follows: 3a

3a1 the two constants: frstpage & lastpage define the inclusive bounds of pages in the address space to be used as window pages for examining a fork. set these up to point to an unused area in your address space; the larger this area the better; 3a1

3a2 (all these constants are statement names so it should be easy to find them) 3a2

3b 2) compile the following file using x110 to whatever rel files you like: 3b

3b1 [isic]<nine>tenmem.nls % as editted above % 3b1

3c 3) load the above compiled rel file and the following rel files (all at [isic]<relnine>) with your rel files 3c

3c1 ddtdat.rel 3c1

3c2 ddtdbg.rel 3c2

3c3 ddtcor.rel 3c3

3c4 ddtini.rel 3c4

3c5 p10msc.rel 3c5

3c6 p10sym.rel 3c6

3c7 l10ddt.rel 3c7

3c8 l10sym.rel 3c8

3c9 l10msc.rel 3c9

3c10 l10ini.rel 3c10

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3c11 debug.rel 3c11

3d 4) this step is optional but recommended for your own convience: 3d

3d1 debugger functions are invoked by the execution of the followings instruction in ddt: 3d1

3d1a pushj s,func 3d1a

3d2 it is impossible in l10 to define a symbol with a 36bit value such that the righthalf is a relocatable adr, therefore i recommend that in your runfil for loading that after the load is done, you go into ddt and perform the following steps to define shorthand representations for the needed procedure calls (I also recommend that we all use the same shorthands for the obvious reasons) : 3d2

3d2a to define the symbol "sf" to have the value "pushj s,func" type the following to ddt: 3d2a

3d2a1 pushj s,func<sf: 3d2a1

3d2b (see the appendix for a complete list of currently supported functions, recommended shorthands, and arguments reequired.) 3d2b

3e 5) using the debugger 3e

3e1 the procedures in the debugger all assume that a valid l10 environment exists at the time they are called, therefore it is your responsibility to set up this environment before calling any of the debugger procedures, you may then set tenex ddt breakpoints as you wish. 3e1

3e2 Before using any of the debugger functions for displaying memory or state information, you must first establish the debugger context, this is accomplished by calling the debugger procedure dini, this must be done first each time you hit a breakpoint (or after you have "GET"ed the file and established the L10 environment), to call this procedure type the following to ddt: 3e2

3e2a inix if you did step 4 above or pushj s,dinix 3e2a

3e3 you may now call any of the debugger functions you want by typing the following to ddt: 3e3

3e3a sfx if you did step 4 above or pushj s,funcx 3e3a

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3f 6) debugger output 3f

3f1 all output is in octal (will be user settable in the nsw debugger) 3f1

3f2 the number of declared formals and number of locals will always be zero, but the number of passed formals to a procedure will be right 3f2

3f3 in displaying a record the field value will always be displayed in octal, and if there is a symbol in the symbol table with the exact value of the field value it will also be displayed symbollically. 3f3

3f4 in displaying a record the size of each field is shown in (octal) bits 3f4

3g 7) where to set breakpoints 3g

3g1 for best results set breakpoints at the following places: 3g1

3g1a procedure-name + 1 3g1a

3g1b coroutine-name + 3 3g1b

3g1c after a pcall after the store of the calling frame port id (this is usually a movem 6,-1(M) inst after a jsp a4,pcall inst) 3g1c

4 i believe that the debugger does not clobber anything and that it works, but please understand that it is still under development. please advise me of any problems you run into 4

5 my current plans call for me to work on a higher level in the debugger, but am open for suggestion if you would like other primitives (e.g. show list) that would assist in your current debugging 5

6 APPENDIX - currently supported functions 6

6a each function will be listed by showing first the function name, then the longhand calling sequence, then the recommended shorthand symbol, and finally a description of globals (if any) that need to be set up and the function performed by this procedure. 6a

6b dini - pushj s,dini - ini 6b

6b1 this procedure establishes the debugger context needed to perform its functions 6b1

6c sfra - pushj s,sfra - sf 6c

6c1 this procedure displays the stack frame whose mark is in the global "frame" (frame should not be changed by anything the debugger does so it should live accross breakpoints) 6c1

6d sstr - pushj s,sstr - ss
srec - pushj s,srec - sr
sadr - pushj s,sadr - sa 6d

6d1 these 3 procedures are used for showing state information or memory (as either 110 strings, records, or assembly language). they will all ask you for an ADDRESS LIST which you must supply (edit with ctrl-A, rubout (to delete entire line), and ctrl-R, and terminate with CR or CA). (see next appendix for ADDRESS LIST syntax and semantics.) the procedure sstr will show memory as 110 strings; the procedure srec will show memory as 110 records (you must set up the 110 global string crname with the name of the record you want to see using ddt.); the procedure sadr will show memory as assembly language. 6d1

6e fcon - pushj s,fcon - fc 6e

6e1 this procedure will find the content contained in cell "srcval" as masked by the value in "srcmask" between the bounds specified in cells "srcsadr" (starting address) and "srceadr" (ending address) 6e1

6f fncon - pushj s,fncon - fnc 6f

6f1 this procedure is a "not content" search using the same cells as fcon. 6f1

6g fadr - pushj s,fadr - fa 6g

6g1 this procedure will search the bounds specified by "srcsadr" and "srceadr" for the address which is in "srcval" 6g1

7 appendix - ADDRESS LIST syntax and semantics 7

7a FORMAL DEFINITION 7a

7a1 ADRLIST := ADRRANGE ['; ADRLIST] 7a1

7a2 ADRRANGE := RANGE / BUILTIN 7a2

7a3 BUILTIN := FRAME / PARAM / SIGNAL / CATCH 7a3

7a4 CATCH := '<ESC> ('C / 'c) 7a4

7a5 SIGNAL := '<ESC> ('S / 's) 7a5

7a6 PARAM := '<ESC> ('P / 'p) 7a6

7a7 FRAME := FSPEC [', FSPEC] 7a7

7a8 FSPEC := '<ESC> ('F / 'f) [FQUAL] 7a8

7a9 FQUAL := FO / FT / FB / FR 7a9

7a10 FO := 'O / 'o 7a10

7a11 FT := 'T / 't 7a11

7a12 FB := 'B / 'b 7a12

7a13 FR := ('+ / '-) [number] 7a13

7a14 RANGE := ASPEC [', ASPEC] 7a14

7a15 ASPEC := an expression that evaluates to an address. The expression may contain the following entities: 7a15

7a15a a number (all input is currently interpretted as octal) 7a15a

7a15b a symbol 7a15b

7a15b1 a symbol may be preceeded by the string: block& where block is the file name, this provides a mechanism to get to specific local symbol (eventually you will be able to open blocks ala ddt) 7a15b1

7a15c '<ESC> ('L / 'l) 7a15c

7a15c1 this entity has the value of the most recently completely evaluated ASPEC 7a15c1

7a15d '(/ ') 7a15d

7a15d1 paranthesis allow grouping since expression evaluation is non-hierarchical and strictly left to right. 7a15d1

7a15e the arithmetic operators '+ for addition, '- for subtraction, '* for multiplication, '' for division. 7a15e

7a15f one or more spaces separating any of the above will be used to mean additon unless the spaces are adjacent to an arithmetic operator, to the right of a left paranthesis, or to the left of a right paranthesis. 7a15f

7b SEMANTICS 7b

7b1 spaces will be ignored except in the evaluation of an ASPEC or after the '+ / '- in an FR 7b1

7b2 CATCH := '<ESC> ('C / 'c) 7b2

7b2a used to show the catchphrases for the current frame. 7b2a

7b3 SIGNAL := '<ESC> ('S / 's) 7b3

7b3a used to show the signal status of the process. 7b3a

7b4 PARAM := '<ESC> ('P / 'p) 7b4

7b4a used to show the formal parameters of the current frame 7b4a

7b5 FSPEC := '<ESC> ('F / 'f) [FQUAL] 7b5

7b5a an FSPEC without any FQUAL refers to the current frame, the current frame is the most recently displayed frame or the frame on the top of the stack after the debugger context is established (via calling the procedure dini). 7b5a

7b6 FO := 'O / 'o 7b6

7b6a used to show the owner frame of the current frame; the owner of a procedure is its caller; the owner of a coroutine is the routine that did the openport to the coroutine. 7b6a

7b7 FT := 'T / 't 7b7

7b7a used to show the top frame on the stack 7b7a

7b8 FB := 'B / 'b 7b8

7b8a used to show the bottom frame on the stack 7b8a

7b9 FR := ('+ / '-) [number] 7b9

7b9a if number is not specified it defaults to 1; no spaces

most recent user documentation for the debugger

may precede the number; number specified the number of frames to move relative to the current frame; e.g. the FRAME: <ESC>FT,<ESC>F-2 would display the frame on the top of the stack, and the next two frames towards the bottom of the stack in the control thread. 7b9a

most recent user documentation for the debugger

(J26115) 9-JUL-75 16:42;;;; Title: Author(s): Kenneth E. (Ken) Victor/KEV; Distribution: /NPG([ACTION]) RWW([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG; Clerk: KEV; Origin: < NSW-DEBUGGER, DOC-DEBUGGER.NLS;1, >, 9-JUL-75 16:40 KEV ;;;;####;

1 26115 Distribution
1a Andy Poggio, David L. Retz, Jan A. Cornish, Larry L. Garlick, Robert Louis Belleville, Elizabeth J. Feinler, Joseph L. Ehardt, Jonathan B. Postel, Kirk E. Kelley, Karolyn J. Martin, David S. Maynard, Kenneth E. (Ken) Victor, James E. (Jim) White, Elizabeth K. Michael, Don I. Andrews, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, Richard W. Watson,

EKM 11-JUL-75 10:53 26116

Message from Elizabeth about Cassettes at Gunter

This reply raises several questions which HGL will present in a separate message.

EKM 11-JUL-75 10:53 26116

Message from Elizabeth about Cassettes at Gunter

1 10-JUL-75 1242-PDT MICHAEL: answers (some) to cassette questions
Distribution: BELLEVILLE, LEHTMAN, KREMERS, watson
Received at: 10-JUL-75 12:42:37-PDT 1

1a Devices at Gunter
1 TI 733 Silent 700 ASR dual unit with the
Auto Device Control options
2 Hazeltine 2000
2 ICP 3310,2 1a

1b They will be buying 10 to 15 additional units 1b

1c Initially they will be running 5 dex workstations and plan to expand to 15 within a year 1c

1d They have on tip line with an 80 char input buffer
All other lines are 6 char buffers 1d

1e The Hazeltine units can run at 2400 baud and they would like to take
advantage of this at at least one workstation running the cassette unit through the
line processor. Larry has successfully, (sort of) transmitted from all three type of units to ISI. However, he has not been able to transmit to Office-1 (where he does his work) at all 1e

1f The ICP's transmit 3 control characters at the beginning of a record so he has to use teco to edit the file when it gets to ISI Office 1 looks to him as though it isn't getting the end-of record charActer and just sits there waiting for more until it times out. 1f

1g I forgot to send this to Jon postel. would you give him a copy. 1g

1h Gunter's PDP11: ADR is writing the software to support the DH11. I asked about the schedule for completing this and Larry said every time he asks them the completion date is always 3 weeks away. 1h

1i ITS HOT HERE. 1i

1j Elizabeth 1j

EKM 11-JUL-75 10:53 26116

Message from Elizabeth about Cassettes at Gunter

(J26116) 11-JUL-75 10:53;;;; Title: Author(s): Elizabeth K. Michael/EKM; Distribution: /RLB2([ACTION]) JBP([ACTION]) JHK([ACTION]) RWW([ACTION]) JCN([ACTION]) MEH([ACTION]) HGL([ACTION]) EKM([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: HGL;

Some Cassette Considerations-- Preliminary Notes

1 The following notes respond to Elizabeth's answers to Cassette device questions. They are preliminary notes and in some cases require further study. 1

2 Devices -- 2

2a While it's nice for the TI 733 to have the Auto Device Control option, if it doesn't have the Remote Device Control option it is virtually unuseable as a device which can be controlled remotely by the CASSETT program. Both ADC and RDC options are necessary. 2a

2b No one here has any experience with the cassette device associated with the Hazeltine 2000. We need a user's manual to evaluate it, but looking at the sales manual which we have here raises several questions: It appears that there is no way to buffer material into blocks less than the size of a terminal page-- 2000 characters. Given the TIP buffer size and the baud rate which the Line Processor printer port can support (given that the current LPs have no internal buffers), this will lead to lost data. Other devices can be made to stop sending after a particular character is reached; thus we buffer by lines on other devices. 2b

2c How does the ICP 3310 differ from the ICP 3300 which we support? If the correct control options are not present it is not useable. 2c

3 Given the current unreliability of cassette hardware, the purchase of 10 to 15 devices at an approximate cost of $20,000 to $40,000 may freeze the operation into an unstable and soon obsolete mode. Bob Belleville and I have recently had productive discussions about an offline system centered around an LSI-11, floppy disc, and multiple terminals which could give a limited dynamic editing capability much more powerful than that offered by the CASSETT/DEX combination. While this is not far along, it suggests that premature committment to the cassette will be unfortunate. 3

4 The TIP buffer sizes listed are hopelessly inadequate. It is absolutely essential for the size of the buffer to be at least as large as the largest record on the tape. If my reading of the Hazeltine manual is correct, the buffer is far too small for what I assume to be a 2000 character record. 4

5 It is not at all clear that the Hazeltines run at 2400 baud in CASSETT output mode: the sales manual suggests that they send as a paper tape device simulator at 1200 baud and that they dump page records form the screen to the tape at 2400 baud. Note, however, that if the cassette unit were to run through the Line Processor printer port, we cannot guarantee secure reception of data at a rate

greater than 300 baud becuase the current line processor doesn't have a buffer. (We must know more about the Hazeltine device before we can say even this with assurance. I can say that Gunter should not commit themselves to hardware which will be impossible for us to support! Please note that some configurations are better than others and some are simply impossible to use in the network environment.) 5

5a One of Jan Kremers' tasks is to develop standards for devices and TIP buffer sizes for certifcation for use with the CASSET system. 5a

6 I have no idea what you mean by the appearance of the control characters at the head of records: we don't get them on our ICP devices. How were they read in at ISI? With the small input buffers, it is not at all unclear why the system would not work at OFFICE-1: blown buffers would lose control characters as well as data. 6

7 Dick Watson would like to know about any negotiations between Larry Crain and Duane Stone concerning support for Cassettes and associated software development in the 11 and a background process for getting sequential files into NLS. I would like to know how committed they are to Cassettes. Do we need to get a proposal together? We must be very careful with cassettes and our promises about associated software since we have such little control over the hardware and have been burned repeatedly. 7

Some Cassette Considerations-- Preliminary Notes

(J26117) 11-JUL-75 12:37;;;; Title: Author(s): Harvey G. Lehtman/HGL; Distribution: /RWW([ACTION]) JCN([ACTION]) EKM([ACTION]) JBP([ACTION]) JHK([ACTION]) RLB2([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: HGL;

NSW Frontend Status Report: 11-July-75

1 CLI-10: 1

1a Recently completed: 1a

1a1 Attended several meetings/discussions on how to support 20 to 30 users on the PDP-11. 1a1

1a2 CHI took vacation Wed, Thurs, Fri. 1a2

1b In progress: 1b

1b1 CML list variables 1b1

1b2 Show syntax of commands 1b2

1b3 Command backup. 1b3

1b4 Helping JEW as needed in DPS checkout. 1b4

1b5 CML grammar for PDP-11 -- debugging aid only. 1b5

1c Near-term todo list: 1c

1c1 Half duplex and line at a time support 1c1

1c2 provide multiple grammars, universal commands, etc. 1c2

1c3 CML LOOP facilities 1c3

1c4 CML PERFORM facilities. 1c4

2 CLI-11: 2

2a Recently completed: 2a

2b In progress: 2b

2b1 - JLE is reading CLI-11 code for PDP-10/PDP-11 compatibility problems on a very low priority basis. 2b1

2c Near-term todo list: 2c

2c1 - Decide whether to debug CLI using standalone support or immediately adapt to VM-ELF to minimize development effort. 2c1

3 LSI-11: 3

3a Recently completed: 3a

3a1 - JLE wrote and debugged DH11 standalone device driver. 3a1

3a2 - JLE created an LSI runtime package that requires minimal stroage. 3a2

3b In progress: 3b

3b1 - JLE continued to give general support to RLB2 in LSI-11 activity. 3b1

3c Near-term todo list: 3c

3c1 - JLE has nothing scheduled at the moment. 3c1

4 L1011: 4

4a Recently completed: 4a

4a1 - JLE recently handcoded all strings primitives in the L10 runtime package and reduced storage for just those primitives from 676 words to 322 words. 4a1

4a2 L1011 now compiles LIST syntax. Resulting code is known to have some bugs, has not been executed. 4a2

4b In progress: 4b

4b1 Debugging signals. 4b1

4b2 Debugging LIST code. 4b2

4b3 Re-do register allocation scheme in L1011 to be more efficient and correct bugs. (Coded, not debugged) 4b3

4b4 Compress amount of code produced for frequently used things like INVOKE and some LIST runtime procedure calls (planned) 4b4

4b5 Do branch forwarrd where posible (planned) 4b5

4b6 Recuce amount of code produced for field definitions by removing duplication, and improve code produced for field references when the field is defined in same file. (planned) 4b6

4b7 'destination' scheme - pass destination of code branch thru compiler to optimize branch instrs in CASE, WHILE, IF LOOP etc. 4b7

4c Near-term todo list: 4c

4c1 - JLE eventually intends to handcode the entire L10 runtime package to reduce storage requirements to the minimum. 4c1

4c2 Map the LIST runtime package over to the 11. 4c2

4c3 Check out and debug LIST stuff on 11. 4c3

5 VM-ELF: 5

5a Recently completed: 5a

5a1 DLR: Implemented IMP-11A I/O driver and NCP changes to run VM ELF on development machine. 5a1

5a2 DLR: Configured VM ELF on development machine to support 16 jobs. 5a2

5a3 JLE,DLR: Discussed various trade-offs about what facilities ELF should provide to FE processes. 5a3

5a4 DLR,JLE: Discussed the problems that have been discovered to-date in running VM-ELF on the ANTS interface machine. 5a4

5b In progress: 5b

5b1 DLR: Implement DH-11 multiplexor I/O handler for development machine to support 16 users. 5b1

5b2 DLR: (with JLE) Evaluate UNIX, ELF, and RSX-11D operating systems to determine effectiveness for front-end. 5b2

5b3 DLR: Test VM ELF on development machine with 16 active users. 5b3

5b4 DLR: Make changes necessary to run VM ELF with ANTS interface on TSP machine. 5b4

5c Near-term to-do list: 5c

5c1 Continue meetings discussing design trade-offs that might require changes in ELF. 5c1

5c2 DLR: Confer with SCRL group to lay out NCP/File system interface. 5c2

6 FE RESOURCE MANAGEMENT STUDY 6

6a Recently completed: 6a

6a1 - Convened second meeting to discuss the consequences of these various approaches with the intention of preparing a viable plan that will be implemented for NSW. 6a1

6a2 - JLE got price and product specifications from DEC for mass storage devices. 6a2

6a3 - JLE updated FE resource memorandum with new information. 6a3

6a4 - JLE wrote very rough draft of position paper to NSW steering committee on Frontend issues. 6a4

6b In progress: 6b

6b1 - Continuing to seek alternatives in the FE implementation plan. 6b1

6b2 - JLE continuing to work on position paper. 6b2

6c Near-term todo list: 6c

6c1 - Convene second meeting to discuss strategies toward meeting the NSW FE tasks. 6c1

NSW Frontend Status Report: 11-July-75

(J26120) 12-JUL-75 11:24;;;; Title: Author(s): Joseph L. Ehardt, Charles H. Irby/JLE CHI; Distribution: /ARC-DEV([INFO-ONLY]) ; Sub-Collections: SRI-ARC ARC-DEV; Clerk: JLE;

1 26120 Distribution

1a Andy Poggio, David L. Retz, Jan A. Cornish, Larry L. Garlick, Delorse M. Brooks, Beverly Boli, James E. (Jim) White, Ann Weinberg, Kenneth E. (Ken) Victor, Dirk H. Van Nouhuys, Jonathan B. Postel, Elizabeth K. Michael, David S. Maynard, Karolyn J. Martin, Harvey G. Lehtman, Kirk E. Kelley, Charles H. Irby, Joseph L. Ehardt, Robert Louis Belleville, Don I. Andrews, Richard W. Watson, Douglas C. Engelbart,

DVN 14-JUL-75 11:57 26122

Please Add Jim Bair to Docplan

1 Would you please do that, Marcia. Jim is JHB. 1

DVN 14-JUL-75 11:57 26122

Please Add Jim Bair to Docplan

(J26122) 14-JUL-75 11:57;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /MLK([ACTION] I'll give you the film $ next time we meet) KLM([ACTION] docplan notebook please) DOCPLAN([INFO-ONLY]) JHB([INFO-ONLY]) ; Sub-Collections: SRI-ARC DOCPLAN; Clerk: DVN;

1 26122 Distribution

1a Marcia L. Keeney, Kathey L. Mabrey, David R. Brown, Glenn A. Sherwood, N. Dean Meyer, Kathey L. Mabrey, Norman R. Nielsen, Thomas L. Humphrey, Robert Louis Belleville, Elizabeth K. Michael, Richard W. Watson, James C. Norton, Robert N. Lieberman, Pat Whiting O'Keefe, Douglas C. Engelbart, Dirk H. Van Nouhuys, James H. Bair,

JCN POOH 14-JUL-75 12:37 26124

gunter goodies

1 For anyone that is interested, we will give a short report about our trip to Alabamy Tuesday July 14 at ten in the conference room..see yo'all then. 1

JCN POOH 14-JUL-75 12:37 26124

gunter goodies

(J26124) 14-JUL-75 12:37;;;; Title: Author(s): James C. Norton, Ann Weinberg/JCN POOH; Distribution: /SRI-ARC([INFO-ONLY]) ;
Sub-Collections: NIC SRI-ARC; Clerk: POOH;

1 26124 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

POOH 14-JUL-75 13:59 26125

Time change for gunter

1 The time for the Gunter presentation will be at 1:30 instead of 10:00. 1

POOH 14-JUL-75 13:59 26125

Time change for gunter

(J26125) 14-JUL-75 13:59;;;; Title: Author(s): Ann Weinberg/POOH;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: POOH;

1 26125 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

Documentation Weekly Report for week ending 7/11/75

1 Bev 1

1a This Week 1a

1a1 Completed Third Course. 1a1

1a2 Glossary, Glossary, glossary glossary... Completed online edits of last half, but suspect I should look over first half again too. 1a2

1b Next Week 1b

1b1 Check over first part of Glossary. 1b1

1b2 Review milestones and documentation requirements with Ann and Kirk. 1b2

1b3 Final edits on sample sessions. 1b3

1b4 Get things into printing? Probably not ready next week. 1b4

1b5 Discuss procedures with Jim B. 1b5

1b6 Leave town. 1b6

2 POOH 2

2a This Week 2a

2a1 This week was spent at Gunter looking over the situation and gathering information about the next nine months will be like. For a complete description of more complete description about the week see: <weinberg, gunter,>. 2a1

2a2 I worked some more on the diagrams that are being printed for the preface. 2a2

2b Next Week 2b

2b1 Write up a report on Gunter and make some recommendations as to what the schedule will be like for the next nine months. 2b1

2b2 Finish up the deiagrams for the preface and sent it to printing. 2b2

2b3 work some on the new figures that have been made in graphics. 2b3

3 KIRK 3

3a This Week 3a

3a1 Debugged help code. 3a1

3a2 Did a structured walk through the multi-file help code with Harvey. I received many valuable suggestions and recommend this practice. I wish I had the opportunity to do this when I first started programming. We decided that it would save time in the long run to spend time now cleaning up code I've copied over from WUC and some of the old help code with known bugs. 3a2

3a3 Discussed documentation transfer procedures with BEV. 3a3

3b Next Week 3b

3b1 Clean up help code, debug new multi-file system. 3b1

BEV KIRK POOH 14-JUL-75 16:25 26126

Documentation Weekly Report for week ending 7/11/75

(J26126) 14-JUL-75 16:25;;;; Title: Author(s): Beverly Boli, Kirk E. Kelley, Ann Weinberg/BEV KIRK POOH; Distribution: /SRI-ARC([INFO-ONLY]) DIRT([INFO-ONLY]) ; Sub-Collections: SRI-ARC DIRT; Clerk: POOH;

1 26126 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews, Jonathan B. Postel, Priscilla A. Wold, Rita Hysmith, Pamela K. Allen, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Lawrence A. Crain, Kirk Sattley, Susan Gail Roetter, Robert N. Lieberman, Ann Weinberg, Kenneth E. (Ken) Victor, Douglas C. Engelbart, James H. Bair, Elizabeth K. Michael, Richard W. Watson, Elizabeth J. Feinler, Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould, Jeanne M. Beck, Dirk H. Van Nouhuys, James C. Norton,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

RWW 14-JUL-75 16:50 26127

Intelligent Terminal System Talk by Bob Anderson

1 Some of the AI guys are starting to get interested in buildingsystems to help naive users learn and deal with systems like test editors etc. I talked with them briefly about what I knew was going on at RAND ISI BBN. They have gotten back in contact with RAND and Bob Anderson is coming up next week to talk with them about the Intelligent Terminal project. Bob will review what RAND is doing at 10:30 Monday in the AI conference room . Interested people are invited to attend.

1

RWW 14-JUL-75 16:50 26127

Intelligent Terminal System Talk by Bob Anderson

(J26127) 14-JUL-75 16:50;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RWW;

1 26127 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

RWW 14-JUL-75 16:59 26128

Dealing with agricultural Surplus - Help

1 A number of people in ARC have started small to medium size gardens and if the rest of you are like me things get ripe faster than they can be eaten. They can be either allowed to go to seed and be tossed in the composte pit or we can figure out some system of letting each other know who has what in excess and help each other eat the stuff, we could possible set up an online or offline notice board that we could indicate what we had in excess and people who would like some could let us know and we could pick it and bring it i n. Or we could just bring it in and put it someplace which gets into the problem of keeping it fresh d4ciding when to throw it out etc. Any suggestions? 1

RWW 14-JUL-75 16:59 26128

Dealing with agricultural Surplus - Help

(J26128) 14-JUL-75 16:59;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RWW;

1 26128 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

River Trip

1 I have 2 places on the Stanislaus River trip July 26 and 27 (sat. and Sun.) that I would like to get rid of. It's only $50 per person which includes food, drink, equipment, experienced boatmen as guides, etc. Unfortunately, I can't go due to unforeseen circumstances, and unless I can find replacements, I'll have to pay a 20% cancellation penalty. So if anyone is interested in going, please contact George Black (of Staff Activitites G1000 ext 3740). 1

River Trip

(J26129) 14-JUL-75 18:33;;;; Title: Author(s): Marcia L. Keeney/MLK; Distribution: /SRI-ARC([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: MLK;

1 26129 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

Weekly Report

1 14-July-75 1

1a Last Week 1a

1a1 continued to watch developments on the move to isic for nsw staff 1a1

1a1a current status: files and users are set up and use is proceeding without major difficulty (except jsys traps), service is more reliable than bbnb. JSYS TRAPS dont work -- this is a major problem for nsw debugging. 1a1a

1a2 worked not at all on updating the document specifying the file package as agreed to at the protocol meeting 1a2

1a3 Worked on NSW project plan 1a3

1a3a Task/People/Time Chart 1a3a

1a3b Milestones 1a3b

1a3c Budget 1a3c

1b Next Week 1b

1b1 send milestones to compass 1b1

1b2 continue to harass isi about JSYS TRAPS 1b2

1b3 complete updating the filepackage specification documents. 1b3

2 7-July-75 2

2a Last Week 2a

2a1 continued to watch developments on the move to isic for nsw staff 2a1

2a1a current status: files have been transfered for files only directories, people should beginn working at isic now. 2a1a

2a2 finished updating the document specifying the pcpb8 format for dps interhost messages as agreed to at the protocol meeting 2a2

2a3 worked not at all on updating the document specifying the file package as agreed to at the protocol meeting 2a3

2b Next Week 2b

2b1 complete the move to isic. 2b1

2b2 complete updating the filepackage specification documents. 2b2

Weekly Report

(J26130) 14-JUL-75 19:58;;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /ARC-DEV([INFO-ONLY]) ; Sub-Collections: SRI-ARC ARC-DEV; Clerk: JBP;

1 26130 Distribution
ia Andy Poggio, David L. Retz, Jan A. Cornish, Larry L. Garlick, Delorse M. Brooks, Beverly Boli, James E. (Jim) White, Ann Weinberg, Kenneth E. (Ken) Victor, Dirk H. Van Nouhuys, Jonathan B. Postel, Elizabeth K. Michael, David S. Maynard, Karolyn J. Martin, Harvey G. Lehtman, Kirk E. Kelley, Charles H. Irby, Joseph L. Ehardt, Robert Louis Belleville, Don I. Andrews, Richard W. Watson, Douglas C. Engelbart,

known cassett rstrictions to data (7/14/75)

1 < KREMERS, JHK.NLS;4, >, 14-JUL-75 18:07 JHK ;;;; 1

1a 1a

1a1 1a1

1a1a 1a1a

1a1b 1a1b

1a1b1 The following restrictions apply to the use of the CASSETT utility and DEX: 1a1b1

1a2 1a2

1a2a 1a2a

1a2a1 At present (7/10/75) ONLY (!) the following cassett drives 1a2a1

1a3 are supported by CASSETT: 1a3

1a3a 1a3a

1a3a1 ICP-TERMICETTE 3100 1a3a1

1a3a2 TECHTRAN 4100 1a3a2

1a3a3 PHEONIX 1a3a3

1a4 1a4

1a5 Operation of the CASSETT UTILITY and hence DEX itself cannot be 1a5

1a6 guaranteed when any other type of drive is used. This list will be expanded in the future. 1a6

1a7 1a7

1a8 1a8

1a9 In all of the above cases the cassett drive must run no faster than 300 baud when running through a line processor. This restriction is 1a9

1a10 necessary due to the limited buffer capacity of the line processor. 1a10

1a10a 1a10a

1a10a1 When the CASSETT UTILITY is used on a TIP line one must be 1a10a1

1a11 absolutely sure that the size of the TIP buffer for the line being used is greater than the size of the longest tape record to be processed. This restriction is necessary because the cassett drive cannot be stopped while it is reading a record. If this rule is not followed, the program will hang, drop characters and in general behave in an unpredictable and unreliable manner. 1a11

1a12 1a12

1a12a 1a12a

1a12a1 We are in the process of investigating the CASSETT problem 1a12a1

1a13 and hope to have a somewhat more reliable software package 1a13

1a14 available within the next few weeks. The above restricions, however, 1a14

1a15 will remain in force. Problems and questions concerning the DEX and 1a15

1a16 CASSETT UTILITY systems should be forwarded to KREMERS@SRI-AI, or 1a16

1a17 KREMERS@BBNB. 1a17

1a17a 1a17a

1a17b 1a17b

JHK 14-JUL-75 20:38 26131

known cassett rstrictions to data (7/14/75)

(J26131) 14-JUL-75 20:38;;;; Title: Author(s): Jan H. Kremers/JHK;
Distribution: /RLB2([ACTION]) ; Sub-Collections: NIC; Clerk: JHK;

DVN 14-JUL-75 20:39 26132

Draft Description of Documentation Production and Control System Community

There have been several attemps to writeup the proposed 'Documentation DeVelopment Production and Control System Community'. The end purpose has been to have a piece of paper to give to a customer. Last week Norm asked me to have a cut at it. Here it is. It is written as if to a customer. It is incomplete, tentative, and debatable in places; that seems useful at this stage. Occasionally I comment or raise questtions in square brackets.####;

Draft Description of Documentation Production and Control System Community

1 SRI is creating a community of organizations interested in sharing long-range development of computer-based document production. The comminuty pools information, selected developments in procedures and softeware, and has access to the Augmented Knowedge Workshop. The latter is a flexible, sophisticated compter infromation handling system suitable not only for document production but for development of prototype software and procedures, and for information exchange among community members. 1

2 The field of machine-aided text handling is experiencing a period of chaotic growth. New hardware and systems raging from type writers with limited magenetic card memory through highly sophisticated systems like the Augmented Knowledge Workshop are appearing and disappearing from the marktplace. User's report startling successes and faileurs, but more frequently report uncertain outcomes in a fieled where the real costs of the old procedures are normally unknown, where organizational lines frequently inhibit change, and where the benifits as well as the problems of a new medium are frequently unforseen. 2

3 SRI has been active in this area since 1962. We have chosen this time to begin this community because three lines of activity appear ripe to come together synergistically. 3

3a [] First SRI has perfomred system analysis of machine-aided publication, analyzing in detail and choosing the most economical or efficient combination of procedures, hardware, and software, for a number of customers substantilly committed to computer-based document production since 19??. 3a

3b [] Second SRI has separately brought to prototype operation the Machine Aied Editing system, a mini-computer-based interactive, documentation production system. 3b

3c []Finally SRI has developed the Augmented Knowledge Workshop, a related system based on time sharing and frequently used through computer netwroks. It is a highly interactive system which aides a variety of knowledge tasks, such as managment informaton flow, software system development. A community of users exists where document production in is now a principal activity. 3c

4 The publications activity among the subscribers to the Augmented Knowledge workshop along with the usefulness demonstrated among them of a development community convinced us that combination of these activities on a community basis would provide useulful opprotunities for shared growth among all concerned. 4

5 Membership in the Documentation Development Laboratory [Or other

Draft Description of Documentation Production and Control System Community

Name] requires subscritpion to one slot in the Augmented Knowledge Workshop, payment of $N * for community membership and, at least half-time participation by a specialist in this activity in the employ of the subscriber. The subscriber receives the services associated with the AKW slot, the servies of an information exchange system, and a certain amount of consulting service from SRI specialists. 5

5a *[Here is a proposal: For all such communities the community bank gets money by collecting $2000, of its own and $2000 from the slot for services, thus slots come to cost $42,000 of which ARC Applications gets $38,000] 5a

6 An AKW slot consists of the following servces...[edited version of 24031]... It is important to repeat tthat NLS offers a flexible substrate for developing advanced text handling systems of several kinds. 6

7 Information exchange consists of: ...an online newsleter, meetings...acess to the journal records of other publications attempts. 7

8 Consulting services conists of: ...question answering from specialist in developments based on the NLS system, and other related areas [We need to define this carefully] 8

9 More on Document Prodution through NLS: [Edited from the following] 9

9a Documentation NLS 9a

9b NLS provides the basis for flexible systems of creating, modifying, disseminating, and controlling documentation. NLS has particular advantages in easy modification of master copies, large-scale modification and reorganization of documents either as initial drafts or later for revision after publication, facil detailed editing, and flexibility of printed output, including line drawings. NLS is used as a medium to make printed or microfilm versions of files that are primarily intended for reading online an to publish material that would not otherwise be online. 9b

9c NLS has been used for over six years to produce, reports, small users' guides, proposals, and other technical documents for the Augmentation Research Center. Beginning in 1974 it has been used for publication in other organizations including Airforce dodcuments in the range of 1000's of pages. 9c

9d Input:
Input into NLS is through typing directly online at a display terminal or typewriter-like terminals, or offline onto a magnetic medium that is later read into the computer, or through copying online files from other computer systems. 9d

9d1 To put text directly online, NLS users employ group of commands beginning with "Insert" in the NLS 8.5 Editor Subsystem. The basic insert commands are illustrated in the accompanying Editing Sample Session. 9d1

9d2 Input to magnetic media, on the other hand, is normally through the NLS 8.5 DEX (Deferred Execution) system. The present DEX system can operate through several terminals and digital cassette recorders. It is possible to record limited editing during input. A userguide for DEX is available. 9d2

9d3 Input from other systems may require special-purpose translations programs to format the text into ASCII TENEX files. Insert Sequential Commands in the Editor subsystem convert such files to NLS files with options to preserve their format and/or translate it into NLS hierarchy. 9d3

9e Draft Development:
All NLS files are organized in outline form. A group of commands in the Editor subsystem can rearrange and reorder these outlines more rapidly and flexibly than is the case with paper copy or online online systems that address text line by line. This facility is particuarlly useful the initial stages of creating a document. Similar commands can transfer or copy files or parts of files according to their outline position or content. 9e

9f Editing:
Copying transfer, and replacement commands that operate on small units of text can greatly increase the productivityof editors. Automatic editing facilities are found in the NLS 8.5 Publish, Modify and Format Subsystem. The Publish Subsystem contains, for example, a command to generate a table of contents. The Modify subsystem contains a command to correct the number of spaces between sentences, and the Format subsystem a command to set up an online file for printing in one of several standard formats. Basic information about editing can be found in the accompanying Editing Sample Sessions. 9f

9g Illustration:
: The NLS 8.5 Graphics subsystem allows you to draw and edit simple illustrations, e.g. organization or flow charts, that are part of NLS files. Text and graphics are fully integrated. Users

with screens of sufficient resolution may view and edit such drawings and print them through appropriate printers. In the case of half tones and complex line drawings, the user must set aside white space with format directives and strip in the the illustrations during printing in the manner normal to photo offset publication. 9g

9h Output:
Commands in the Editor subsystem allow printing text in a simple draft form (Output Quickprint), or a format with headers, footers, control of top and side margins, etc., in a monospace font on a local printer or terminal (Output Printer), or via output to microfilm and offset plates with a variety of type sizes, fonts, and columnation (Output COM). Coded directives, visible online but not printed, control format via Output Printer or Output COM. Such directives are most often inserted automatically by use of the Format subsystem or the Sendmail subsystem, but may also be inserted by users with spcial training. The operation of the Format subsystem appears in the accompanying Format Sample Session. 9h

9i Control:
The Automatic numbering and indexing services of the NLS Sendmail subsystem provide a medium for freezing, cataloging, and identifying documents, and recording their standing with respect to updates. 9i

9j Procedures:
NLS offers new freedom to the publications process. Procedures that have in the past been forced on us by the medium, for example limited distribution of drafts, become matters of option. As a result introduction of NLS into a publications operation on more than an occcasional basis requires careful planning. 9j

9k TITLE PAGE 9k

9k1 Introduction to Documentation through NLS
Augmentation Research Center Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025 9k1

10 More background on MAE: [a page or so edited from writeups on MAE] 10

11 More background on previous ISL work: [a page or so edited from existing writeups of ISL work] 11

Draft Description of Documentation Production and Control System Community

(J26132) 14-JUL-75 20:39;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DOCPLAN([INFO-ONLY]) ; Clerk: DVN; Origin: < VANNOUHUYS, TRANSCOD.NLS;1, >, 14-JUL-75 20:36 DVN ;;;; < IJOURNAL, 26096.NLS;1, >, 7-JUL-75 06:31 XXX ;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /KLM([ACTION] docplan notebook please, this is the documetn I asked you to journalize, as you see I got to it myself) DOCPLAN([INFO-ONLY]) ; Sub-Collections: SRI-ARC DOCPLAN; Obsoletes Document(s): 26096; Clerk: DVN;

1 26132 Distribution
1a David R. Brown, Glenn A. Sherwood, N. Dean Meyer, Kathey L. Mabrey, Norman R. Nielsen, Thomas L. Humphrey, Robert Louis Belleville, Elizabeth K. Michael, Richard W. Watson, James C. Norton, Robert N. Lieberman, Pat Whiting O'Keefe, Douglas C. Engelbart, Dirk H. Van Nouhuys,

1 We need to get together today (Tues.) to continue our meeting of last week. Since Ann has the Gunter meeting at 1:3, how does 4 p.m. strike you? 1

(J26133) 14-JUL-75 21:01;;;; Title: Author(s): Beverly Boli/BEV;
Distribution: /KIRK([ACTION]) POOH([ACTION]) ; Sub-Collections:
SRI-ARC; Clerk: BEV;

Known cassett restrictions to date (7/14/75)

1 < KREMERS, JHK.NLS;5, >, 14-JUL-75 21:04 JHK ;;;; 1

1a 1a

1a1 1a1

1a1a 1a1a

1a1b 1a1b

1a1b1 The following restrictions apply to the use of the CASSETT utility and DEX: 1a1b1

1a2 1a2

1a2a 1a2a

1a2a1 At present (7/10/75) ONLY (!) the following cassett drives 1a2a1

1a3 are supported by CASSETT: 1a3

1a3a 1a3a

1a3a1 ICP-TERMICETTE 3100 1a3a1

1a3a2 TECHTRAN 4100 1a3a2

1a3a3 PHEONIX 1a3a3

1a4 1a4

1a5 Operation of the CASSETT UTILITY and hence DEX itself cannot be 1a5

1a6 guaranteed when any other type of drive is used. This list will be expanded in the future. 1a6

1a7 1a7

1a8 1a8

1a9 In all of the above cases the cassett drive must run no faster than 300 baud when running through a line processor. This restriction is 1a9

1a10 necessary due to the limited buffer capacity of the line processor. 1a10

Known cassett restrictions to date (7/14/75)

1a10a 1a10a

1a10a1 When the CASSETT UTILITY is used on a TIP line one must be 1a10a1

1a11 absolutely sure that the size of the TIP buffer for the line being used is greater than the size of the longest tape record to be processed. This restriction is necessary because the cassett drive cannot be stopped while it is reading a record. If this rule is not followed, the program will hang, drop characters and in general behave in an unpredictable and unreliable manner. 1a11

1a11a An addditinal problem may arise when the user is in a small pie-slice group on a heavily loaded TEENX system (such as OFFICE-1). In this case it may happen that the users' job may not run often enough to empty the tty buffers, thus causing characters to be dropped. A software solution to this problem exists and will be implemented in a new version of CASSETT now being written. 1a11a

1a12 1a12

1a12a 1a12a

1a12a1 We are in the process of investigating the CASSETT problem 1a12a1

1a13 and hope to have a somewhat more reliable software package 1a13

1a14 available within the next few weeks. The above restricions, however, 1a14

1a15 will remain in force. Problems and questions concerning the DEX and 1a15

1a16 CASSETT UTILITY systems should be forwarded to KREMERS@SRI-AI, or 1a16

1a17 KREMERS@BBNB. 1a17

1a17a 1a17a

1a17b 1a17b

JHK 14-JUL-75 21:08 26134

Known cassett restrictions to date (7/14/75)

(J26134) 14-JUL-75 21:08;;;; Title: Author(s): Jan H. Kremers/JHK;
Distribution: /RWW([ACTION]) HGL([ACTION]) JCN([ACTION])
EKM([ACTION]) JBP([ACTION]) JHK([ACTION]) RLB2([ACTION])
; Sub-Collections: NIC; Clerk: JHK;

First Half July Message Group Dialog

1 14-JUL-75 1612-PDT STEFFERUD at USC-ISI: New MsgGroup Member Distribution: RYLAND AT ISI, [isi]<msggroup>mailing.list: Received at: 14-JUL-75 19:54:44-EDT 1

1a Hi Chris, Welcome to Message Group. Your name in now in the master Mailing list in [ISI]<MsgGroup>Mailing.list. 1a

1b You have received some introductory stuff to get you into it. 1b

1c Message Group Members should add Ryland@ISI to their lists or get a new list from [ISI]<MsgGroup>, or ask me to SNDMSG a new official copy. 1c

1d Best Regards, Stef 1d

2 14-JUL-75 1445-PDT STEFFERUD at USC-ISI: ((XMAIL circa July 1, 1975)) Distribution: MYER AT BBN-TENEXA, [isi]<msggroup>mailing.list:, Message-ID: <[USC-ISI]14-JUL-75 14:45:24-PDT.STEFFERUD>, In-Reply-To: <[BBN-TENEXA]11-JUL-75 20:40:07-EDT.MYER> Received at: 14-JUL-75 18:00:30-EDT 2

2a Hi Ted, 2a

2b It appears that we have orthogonal views of the world, which have led to significant differences in our expectations. 2b

2c First to answer the points in your message of 11-July-75. 2c

2d 1. XMAIL NEWS, "Changes as of July 1" told me that XED had been "put into XMAIL. I took the announcement at face value and assumed the obvious when I read it on July 9. 2d

2e 2. Ron Tugender's message does explain what happened (XMAIL pointed to a version of XED that was in an unaccessible Directory). Your message explains that you did not check out the operation of XED from the situation to be faced by MsgGroup users. I would like to assume that you will modify your release procedures for future changes to achieve better quality assurance for MsgGroup. 2e

2f 3. XED does work now as you supposed it should, and I agree that it is well done, both in design and implementation. It works exactly as I expected when I tried to use it on July 9. 2f

2g 4. I accept your apology regarding the documentation goof and

I
apologize for reacting so strongly when I found that it was not properly done. My reaction was based on the assumption that it had been the way I found it since July 1, 1975 since that is what NEWS said. If one can't trust the documentation, who can one trust? 2g

2h 5. I agree about the "occasional <CR>" to cope with the "long
lines problem in FORMAT" but I will now use XED to enter text because it gives me auto <CR> insertion and gives me the power of the edit features of XED right there in my text entry facility. The assembly line approach to text entry is not reasonable, in my opinion. 2h

2i It does not make sense to me to enter text in one system, edit it
in another , and square it up in yet another. If XED only had a "Fill" capability to square text without "Justification" I would find that it meets all my needs for message text entry. At least until something better came along in a single "package." 2i

2j Actually, I find that FORMAT messes up my intersentence spacing
and makes the text look like I don't know the typing rules. (ie. two spaces following a period at the end of a sentence.) I would prefer simple filling of lines in place of low quality justification procedures. Non-network recipients of FORMATted messages must wonder about our secretaries' training. 2j

2k The other problem with the "occasional <CR>" solution is that I
typically discover that I need the <CR> after it is too late. When I am composing my thoughts at the keyboard, it is very distracting to think about things like "occasional <CR>s." 2k

2l 6. I understand and appreciate the "limited release" concept and
I apologize for violating the spirit of it by blasting in the MsgGroup channel instead of commenting privately to MAIL2@BBN. 2l

2m Indeed one alternative is for you to withdraw from MsgGroup
exposure until the whole "package" is completed and then deliver it as a fait accompli. As things are going now, we are not far from that because we only get to feed back our concerns after you have done the implementation, which puts us in the position of attackers if we don't like what we see. By the time we get to

register our thoughts, you are too far down the pike to accomodate our ideas (I think). 2m

2n Another alternative is for us to withdraw from commenting. 2n

2o I would like to suggest another alternative. 2o

2p A. I suggest that you let us know more in advance what you are going to do to XMAIL. For example, what are your next changes in the works? I would much prefer to give you constructive suggestions than carping criticism after it is too late. 2p

2q B. I also suggest that you adopt well thought out release procedures for system releases to MsgGroup which are like those for real products, at least to the extent that you don't leave such big holes for MsgGroup members to fall into. I would have had no reaction at all if the "Changes as of July 1" had been dated July 9, or had indicated that the "XED in XMAIL" feature was coming in the near future. 2q

2r Ted, We all want to help make XMAIL succeed. To help, we need more than the privilege of previewing it before public release. Hopefully we can have a better information interchange through the MsgGroup. I would like to hear from others in the group on this subject. 2r

2s My very best regards, Stef 2s

2t PS: 2t

2u I just discovered that XMAIL steals ^Es so the ^E command in XED is lost. It seeems that XMAIL remembers about ^E typed into XED and saves it for after return to XMAIL, where upon it reacts to the ^E and wipes out the modified text in the buffer. Its kind of an interesting bug. Good luck Stef 2u

3 14-JUL-75 1405-PDT TOM ELLIS: SUBCOMMITTEE REPORT Distribution: MESSAGE-SERVICES-COMMITTEE:, subcommittee:, Message-ID: <[USC-ISIB]14-JUL-75 14:05:38-PDT.PATTI> Received at: 14-JUL-75 17:10:43-EDT 3

3a The Subcommittee Report on structured protocols has been distributed. 3a

3b First, I want to thank the subcommittee (Jack Haverty

[JFH@MIT-DMS],
Austin Henderson [HENDERSON@BBN-TENEX], and Don Oestreicher [OESTREICHER@
ISIB], for a very thorough report which obviously has much thought and work behind it. 3b

3c since this subject is a major issue in near future military message
handling implementation planning by Walker, et al, I would appreciate
a quick response from Committee members for comments on the contents
of this report as a formal recommendation to ARPA. 3c

3d Comments should be out by next week to have affect on the Military
message planning. 3d

3e Regards, Tom 3e

3f TOE/ph 3f

4 11-JUL-75 2040-EDT MYER at BBN-TENEXA: (XMAIL circa July 1, 1975)
Distribution: STEFFERUD AT USC-ISI, [isi]<msggroup>mailing.list:,
Message-ID: <[BBN-TENEXA]11-JUL-75 20:40:07-EDT,MYER>, In-Reply-To:
<[USC-ISI]9-JUL-75 21:32:43-PDT,STEFFERUD> Received at: 11-JUL-75
20:43:06-EDT 4

4a Stef: 4a

4b 1. I don't know who told you that XED had been "put into XMAIL"
as of July 1. No link between the two was attempted at ISI til July 9. 4b

4c 2. When we did make the attempt, XED was not in [ISI]<SUBSYS>,
where we had expected it, so we put a private copy in [ISI]<SUSSMAN>. In so doing, we failed to realize that <SUSSMAN> had unusually stringent file protection. We were able to access it -- logged in as SUSSMAN -- but apparently you were not. Ron Tugender's attached message explains this further. In any case the situation should now be restored to normal. 4c

4d 3. I'm not familiar with XED, but I believe it is supposed to
hand it's text buffer back to XMAIL through the EXIT command. We have tried this with the current implementation on ISI and it appears to work. 4d

4e 4. I apologize for the documentation problem you ran into. That
was my decision, and apparently a mistake in judgement. I felt
that the notice we included in the NEWS command would be
sufficient to get people started. Evidently I was wrong. 4e

4f 5. Thanks for pointing out the long lines problem in Xmail's
formatter. We'll fix it as soon as we can. In the meantime if
you'll remember to toss in an occasional <cr>, I think you'll
find the formatter can straighten out quite considerably ragged
text. Even with the bug you discovered, we have found XMAIL to be
far from "useless for reasonable text entry". 4f

4g 6. This leads to a general comment. Please bear in mind that
XMAIL represents the "limited experimental release of a
developing system to a select group of friendly co-workers." As
long as that's the case, you are going to keep seeing various
forms of ragged behavior, especially when we put up new versions. 4g

4h The alternative is to regard XMAIL as a production system. If
that's to be the case, then we'd prefer to withdraw it altogether
until we ourselves are far more satisfied, not only with it's
operation, but also the underlying design. 4h

4i Regards, 4i

4j Ted Myer

Mail from USC-ISIB rcvd at 10-JUL-75 1219-EDT
Date: 10 JUL 1975 0927-PDT
Sender: TUGENDER at USC-ISIB
Subject: XMAIL-XED problems on ISIA
From: TUGENDER at USC-ISIB
To: Myer at BBNA
Cc: Stefferud at ISIA, Cc: ISI-IA:
Message-ID: <[USC-ISIB]10-JUL-75 09:27:14-PDT,TUGENDER> 4j

4k Ted, 4k

4l I checked out Stef's problems on ISIA and the reason he can't
get XED from XMAIL is that the private copy of XED you are using
is on a directory which is protected against any files being
opened by other users. Its protection would have to be relaxed
for users to access files there. 4l

4m Since you may not know as yet, the runnable version of XED

at ISIA is <OESTREICHER>XED.SAV (analogous to <IADOCUMENTS>XED.SAV on ISIB). Having XMAIL call the version of XED on <OESTREICHER> assures you of accessing the latest version of XED on ISIA. 4m

4n Ron 4n

4o ---------- 4o

5 11-JUL-75 1211-PDT STEFFERUD@ISI: Subdivision of Messages
Distribution: [ISI]<MSGGROUP>MAILING.LIST; Received at: 11-JUL-75 15:15:13-EDT 5

5a Message-ID: <[USC-ISI]11-JUL-75 12:11:39-PDT.STEFFERUD>
Keywords: ENVELOPE,HEADING,TEXT,ANNOTATION,REFERENCES,KEYWORDS
Keywords:
SUBDIVISION,ATTN,TO,FROM,DATE,POSTMARK,CARE-OF,SUBJECT,IN-REPLY-TO
,PLEASE-REPLY-TO,POINTERS,RETRIEVAL
Keywords: MESSAGE,REVISION,COORDINATION,EDITING,NOTES
Keywords: 5a

5b This message is prompted by an exchange of messages with Peter
Kirstein following his "The Attention Field" message (MsgGroup #82). 5b

5c I hope it does not depend on any of the content of the messages
you don't have, since we don't want to burden you with the whole bunch. 5c

5d I have been putting ATTN: stuff in the subject line of messages
to shared mailboxes. The POST system certainly provides a systematic way to use ATTN fields, though I appreciate that the POST system has not been made efficient. I would like to see the idea propigated to MSG and XMAIL. 5d

5e Actually, I am beginning to see that there are several legitimate
subsections of messages, though I agree that subdividing will threaten to over complicate things again for our non-computernik friends, including our secretaries (bless them, its hard to get along without them in here). My ideas are only half formed at this time. How about the following: 5e

5f ENVELOPE: 5f

5g Contains the addresses, including ATTN:, Care-Of: and Post-Mark:

subfields, ATTN and Care-Of subfields would have to be associated with specific addressees on the envelope. Addressing protocols are messy, especially since SNDMSG preempted the comma which is normally used to put Last names first in addresses. Dave Farber and I have had several discussions on this topic without resolving it. We need Sur-names, Given-names, ATTN, Care-of, plus mailbox location fields. 5g

5h HEADING: 5h

5i Contains the Date: To: From: Subject: In-reply-to: Ref: Please-reply-to: etc. type fields such as we find on normal office correspondence now. This Header should not have all the stuff that XMAIL puts there now. Much of what MSG and XMAIL put in the Header belongs on the envelope, or elsewhere, eg. SENDER belongs on the envelope, Message-ID belongs on the envelope, "Mail From . . . . . ." belongs on the envelope, etc. The date and time of release of the message belong in the header, but the time and date of posting and delivery belong on the envelope. Keywords belong elsewhere. 5i

5j TEXT: 5j

5k Contains the main body of the message, letter, memo, note,
document, or what have you. 5k

5l ANNOTATIONS: 5l

5m Contains notes and comments such as one writes on envelopes and
in the margins to keep track of things like "Who received copies," "What I think of this or that," etc. This subsection should be subject to appending after receipt, and subject to selective dissemination when the message is forwarded in a new envelope. Two way pointers into text would be nice. 5m

5n REFERENCES: 5n

5o Contains formal references to other system accessible documents,
messages, etc. which might be susceptible to automatic retrieval via pointing to the reference. This subsection should also be susceptible to appending after receipt. Again, pointers would be nice. They might even be used to point to other messages which make up a collection of coordination information as required by the IA Project. 5o

5p KEYWORDS: 5p

5q Contains specifically chosen words or phrases to serve as keywords for keyword searches. Possibly there might be a program that analyzes messages to prepare keyword tables automatically and store them in a keyword subsection to avoid recomputing the keyword list for future searches. Again, this subsection should be susceptible to modification after receipt, or later to allow for revision of keywords in new situations. 5q

5r Any Comments, Stef 5r

6 10-JUL-75 1333-PDT STOTZ at USC-ISIB: Need for Message Structure Distribution: (ISI)<MSGGROUP>MAILING.LIST; Received at: 10-JUL-75 17:12:22-EDT 6

6a I would like to re-emphasize the points Dick Watson and Al Vezza have made for the value of having a structured data representation for messages and the requirement to be able to pass that structure conveniently across the net. 6a

6b This is particularly important to IA in providing a service that can handle coordination. Coordination is really nothing more than a controlled collaboration on a single, central document. The author who creates the document (in our case, a message) in general controls the collaboration. He sends the message out for review (he chooses the participants and sequencing of the message to them). Each participant (coordinator) can edit and change the message and/or add comments associated with any part of it. A coordinator can also delegate the message to others for review. All of the changes and additions are attached to the original document in a structured file that allows viewing and manipulation in a variety of ways through flexible access controls. The author has aids for scanning and the comparing the various renditions of the message from the coordinators

and for creating a new version from them. This new version can then
be sent back out for review by the same or a different set of
reviewers. Eventually when the message is released, the information
deemed appropriate is preserved and archived, the rest purged. 6b

6c This same basic mechanism will be provided for informal
(nonrecord traffic) and received messages, so that users can
coordinate action on these messages as well. For received traffic no
changes to the message itself are allowed and the mechanism for
deletion of the information is different. 6c

6d Rob 6d

7 4-JUL-75 1412-PDT KIRSTEIN: The Attention Field Distribution:
[ISI]<MSGGROUP>MAILING.LIST:, MSGGROUP Received at: 7-JUL-75
20:13:48-EDT 7

7a attn:ptk,srw 7a

7b I have not entered the latest set of Mail Dialog, though I have also
been following it with great interest. As many of you know, we
are in the positon of having several users sharing one account.
For this we developed the simmpleminded POST system, which sorted mail by the
ATTENTIPN field at the start of the message(see above). We
realize 7b

7c this should ideally be iin the header, and it was so defiined in one of
the versions of mailsys of BBBN. Particularly when there is the sort of
quantity of mail as is being generated by this recent spate of
corresspondence, this ATTN field could come iin very useful. In
one version it could act as a comnmonly recognized keyword,
which could be appropriately sorted into a special file of that name
in each recipients directory. It can also be used , if defined
differently, to be sorted into a ffile other than the general message
file, in the directory of any particular account so desiring it.
If such a tecnique is not used, the general message file quickly becomes

Completely unusable in an environment like ours."Peter T Kirstein
----
The above message is forwarded from the MsgGroup Proceedings for your convenience. Stef 7c

8 3-JUL-75 1646-PDT STOTZ at USC-ISIB: Organizing our messages
Distribution: [ISI]<MSGGROUP>MAILING.LIST: Received at: 3-JUL-75 19:48:21-EDT 8

8a Although I am enjoying the teleconference, I am having difficulty
with the "stream of consciousness" nature of the result. This points out the need that many military action officers have for machine aids to organizing the mass of data (messages) they receive. 8a

8b To give some direction to these deliberations, Jean Iseli (4 JUN 2329-PDT)
and Dave Crocker (20 JUN 1529-PDT) have suggested a point for point consideration of message service features. So far no one has stepped up to the task. I am not anxious to undertake it; partly because of the magnitude of the job, partly because I think the evaluation varies according to the user community, and partly from sheer cowardice. 8b

8c As a step toward getting there however, I suggest that we categorize
the message service problems and then put our past and future messages into separate files on each category. This will at least provide some organization to our discussion. 8c

8d For this purpose the taxonomy that Dave Crocker suggested is a good start but I have expanded it to include: access control, user aids, system issues, social issues and a catch-all category for discussions of general functional performance (such as comparing
two existing systems). In addition I have a catogory just for administrative messages. I have also added some sub-topics under the major topics for consideration. The resulting taxonomy is shown below. I have put in caps a word for each category as a suggested keyword and for a file name for storing the messages. If we had a mechanism for adding keywords to a keyword field in existing messages, we could just retrieve on these words and not have to store the message twice. 8d

8e With this in mind I read through all of the messages in <MSGGROUP>MESSAGE.TXT and have shown my assignment by message numbers in brackets with each category. I welcome any suggestions for reclassification, new categories,

whatever. As these categories get more full they will need to be further subdivided. Can someone take on the task of managing this for the group? 8e

8f 8f

8g USER Interface [11,12,17,20,21,25,28,30,37,38,46,49,53,56,76] "Profiles" for user-specific tailoring, between sessions Intuitive command words Multi-level commands, for collecting generic functions Command macros Single interface to all the tools Variety of command invocation styles Ability to "hide" capabilities, to provide simple view On-line Help Error detection and action Off-line documentation 8g

8h Message CREATION [25,37,49,70,71] Create message fields in any order Creation separated from transmission Editor available for each/every buffer Spelling corrector Text formater Table of contents builder (?) Multiple users editing and commenting in parallel (coordination) 8h

8i Message READing and Processing [16,50,58,68,70,71,73,74,76,78] Ability to refer to classes of messages, by name (Recent, Old, ...) Labelled filters, by date and/or string content Table of contents generated Multiple open message files Answerback facility Forwarding facility Notification of new traffic Annotation and comments 8i

8j Message FILING and Retrieval [22,23] Automatic filing, according to filtering System knowledge of file names (=> naming conventions) Ability to delete messages Ability to archive messages, only saving local pointer Automatic catalog building 8j

8k ACCESS control [54,61,62,67,70,71,74] Who can access on users behalf (secretaries, superiors, subordinates) What capabilities do they have (read, append, change, execute)? Access by name, by title To what level is access controlled (message, message field)? 8k

8l AIDS [] Message status Subscriber directory Suspense files Event notification 8l

8m SYSTEM considerations [9] Scalability Efficiency Security Reliability Access to service Interface to external systems (paper world, other nets) 8m

8n SOCIAL considerations [] Conrol of Junk Mail Classes of service Privacy policies Aditing kept Pricing policies 8n

8o FUNCTIONal performance
[12,16,18,19,22,23,25,27,33,34,39,42,50,53,77] SYstem comparisons
Message characteristics (precedence, etc.) Measures of performance
Collections of functions etc. 8o

8p ADMINistrative
[1:8,10,11,13:15,21,24,26,29,31,32,35,36,40,41,43,44,
47,48,51,52,55,57,59,60,63:66,69,72,75,79:81]
Material related to conduct of this conference 8p

First Half July Message Group Dialog

(J26135) 15-JUL-75 12:22;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RWW; Origin: < WATSON, M.NLS;1, >, 15-JUL-75 12:14 RWW ;;;;####;

1 26135 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

Introduction to Documentation through NLS

For NSW and other documentation purposes,####;

Introduction to Documentation through NLS

Augmentation Research Center

15 JUL 75

Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

Documentation Production through NLS 1

NLS provides the basis for flexible systems of creating, modifying, disseminating, and controlling documentation. NLS has particular advantages in easy modification of master copies, large-scale modification and reorganization of documents either as initial drafts or later for revision after publication, facil detailed editing, and flexibility of printed output, including line drawings. NLS is used as a medium to make printed or microfilm versions of files that are primarily intended for reading online an to publish material that would not otherwise be online. 2

NLS has been used for over six years to produce, reports, small users' guides, proposals, and other technical documents for the Augmentation Research Center. Beginning in 1974 it has been used for publication in other organizations including Airforce dodcuments in the range of 1000's of pages. 3

Input:
Input into NLS is through typing directly online at a display terminal or typewriter-like terminals, or offline onto a magnetic medium that is later read into the computer, or through copying online files from other computer systems. 4

To put text directly online, NLS users employ group of commands beginning with "Insert" in the NLS 8.5 Editor Subsystem. The basic insert commands are illustrated in the accompanying Editing Sample Session. 4a

Input to magnetic media, on the other hand, is normally through the NLS 8.5 DEX (Deferred Execution) system. The present DEX system can operate through several terminals and digital cassette recorders. It is possible to record limited editing during input. A userguide for DEX is available. 4b

Input from other systems may require special-purpose translations programs to format the text into ASCII TENEX files. Insert Sequential Commands in the Editor subsystem convert such files to NLS files with options to preserve their format and/or translate it into NLS hierarchy. 4c

Draft Development:
All NLS files are organized in outline form. A group of commands in the Editor subsystem can rearrange and reorder these outlines more rapidly and flexibly than is the case with paper copy or online online systems that address text line by line. This facility is particularly useful the initial stages of creating a document. Similar commands can transfer or copy files or parts of files according to their outline position or content. 5

Editing:
Copying transfer, and replacement commands that operate on small units of text can greatly increase the productivityof editors. Automatic editing facilities are found in the NLS 8.5 Publish, Modify and Format Subsystem. The publish Subsystem contains, for example, a command to generate a table of contents. The Modify subsystem contains a command to correct the number of spaces between sentences, and the Format subsystem a command to set up an online file for printing in one of several standard formats. Basic information about editing can be found in the accompanying Editing Sample Sessions. 6

Illustration:
The NLS 8.5 Graphics subsystem allows you to draw and edit simple illustrations, e.g. organization or flow charts, that are part of NLS files. Text and graphics are fully integrated. Users with screens of sufficient resolution may view and edit such drawings and print them through appropriate printers. In the case of half tones and complex line drawings, the user must set aside white space with format directives and strip in the the illustrations during printing in the manner normal to photo offset publication. 7

Output:
Commands in the Editor subsystem allow printing text in a simple draft form (Output Quickprint), or a format with headers, footers, control of top and side margins, etc., in a monospace font on a local printer or terminal (Output Printer), or via output to microfilm and offset plates with a variety of type sizes, fonts, and columnation (Output COM). Coded directives, visible online but not printed, control format via Output Printer or Output COM. Such directives are most often inserted automatically by use of the Format subsystem or the Sendmail subsystem, but may also be inserted by users with spcial training. The operation of the Format subsystem appears in the accompanying Format Sample Session. 8

Control:
The Automatic numbering and indexing services of the NLS Sendmail subsystem provide a medium for freezing, cataloging, and identifying documents, and recording their standing with respect to updates. 9

Procedures:
NLS offers new freedom to the publications process. Procedures that have in the past been forced on us by the medium, for example limited distribution of drafts, become matters of option. As a result introduction of NLS into a publications operation on more than an occcasional basis requires careful planning. 10

Introduction to Documentation through NLS

(J26136) 15-JUL-75 12:24;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DMB([ACTION] dirt and dpcs noteboks please) KLM([ACTION] docplan notebook please) DIRT([INFO-ONLY]) DOCPLAN([INFO-ONLY]) DPCS([INFO-ONLY]) SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC DIRT DOCPLAN DPCS; Clerk: DVN; Origin: < VANNOUHUYS, DOCINTRO.NLS;2, >, 15-JUL-75 12:09 DVN ;;;; ####;

1 26136 Distribution

1a

1b Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews

1c James C. Norton, Robert N. Lieberman, Pat Whiting O'Keefe, Douglas C. Engelbart, Dirk H. Van Nouhuys, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Joseph L. Ehardt, James H. Bair, Robert N. Lieberman, Pat Whiting O'Keefe, James H. Bair, Robert Louis Belleville, Ann Weinberg, Thomas L. Humphrey, Jeanne M. Leavitt, Kirk E. Kelley, Duane L. Stone, Elizabeth J. Feinler, N. Dean Meyer, Dirk H. Van Nouhuys, Douglas C. Engelbart, James C. Norton, Richard W. Watson, Charles H. Irby, Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli

1d Delorse M. Brooks, Kathey L. Mabrey, Jonathan B. Postel, Priscilla A. Wold, Rita Hysmith, Pamela K. Allen, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Lawrence A. Crain, Kirk Sattley, Susan Gail Roetter, Robert N. Lieberman, Ann Weinberg, Kenneth E. (Ken) Victor, Douglas C. Engelbart, James H. Bair, Elizabeth K. Michael, Richard W. Watson, Elizabeth J. Feinler, Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould, Jeanne M. Beck, Dirk H. Van Nouhuys, James C. Norton, David R. Brown, Glenn A. Sherwood, N. Dean Meyer, Kathey L. Mabrey, Norman R. Nielsen, Thomas L. Humphrey, Robert Louis Belleville, Elizabeth K. Michael, Richard W. Watson

FE Meeting Summary

1 This note summarizes meetings held 1-July-75, 8-July-75 and 15-July-75 about the NSW Front End (FE) implementation. 1

1a The attendees were : rww dlr jle chi jew llg jbp andy 1a

1b The main issues is space: the pieces of code and data that need to be present in the FE wont fit together in the address space of the pdp11. 1b

1c Our current estimates of the sizes of the various code and data modules are given in the file <ehardt, fe-memory-consumption,>. 1c

1d Much discussion of various possibilities resulted in the following questions from the first meeting, with the response supplied at the second meeting filled in down from the questions: 1d

1d1 (1) CHI - reduce to size of the CLI context: goal 8K 1d1

1d1a 8K is ok 1d1a

1d2 (2) CHI JEW LLG - combine DPS and CLI into a single process 1d2

1d2a case 1 - B4700 code also works with DPS 1d2a

1d2b case 2 - only CLI uses DPS 1d2b

1d2b1 This appears not to be promising, rather a design utilizing a shared page between DPS and CLI containing both code and data, and using signals or EMTs to communicate events to each other looks more interesting. 1d2b1

1d3 (3) DIA - fix L1011 compliler to parse large segments of code to generate more optimal code (this version of the compiler will not run under nls but from the exec) 1d3

1d3a This looks to be more work that previously discussed, but is still being explored. 1d3a

1d4 (4) JEW - reduce the size of the DPS context: goal 2K 1d4

1d4a 2K appears to be fine. 1d4a

1d5 (5) JLE DLR - investigate the buffer and memory magement in ELF, investigate buffer and code optimization in exec and telnet. 1d5

1d5a Suggested that demand paging system would be a win, but this appears to be far more work than we want to take on. 1d5a

1d5b For system with no normal TELNET, only special TELNET for CLI old tool access the TELNET code could be reduced from 1000 to 600 words for a savings of 400 words. In such a system if the CLI were to play the role of the EXEC the 3000 word EXEC would be eliminated. 1d5b

1d6 (6) JLE - talk to DEC about prices for disks, memory etc, for 11/40, 11/45, and 11/70. 1d6

1d6a Price List Obtained 1d6a

1d7 (7) CHI - figure out the size of the code for CLI mannaged context switching and for display featurets 1d7

1d7a Display code on 10 takes 4K, so estimate 6-8K on 11. 1d7a

1d7b Context switch code should be small a few hundred words at the most. 1d7b

1d8 (8) LLG - investigate the ELF facilities that can be used to reduce the size of the DPS code 1d8

1d8a This goes with (2) above. 1d8a

1d8b There is not very much to be saved here, but the ELF primitives will be used where appropriate. An estimate of 20-24K for the DPS code is reasonable. 1d8b

1d9 (9) DLR JEW CHI - investigate eliminating ELF. 1d9

1d9a There is not much to be saved, but it would be useful to list the primitives along with the amount of space that would be saved if the primitive were deleted and the programs that would be impacted if the primitive were deleted. 1d9a

1e Several new tasks were genetated at the second meeting, with the response supplied at the third meeting filled in down from the questions: 1e

1e1 (10) JLE DLR - Evaluate the relative merits of ELF, UNIX and RSX11 for our needs. 1e1

1e1a Some preliminary discussion occured, but this topic need further exploration. 1e1a

1e2 (11) LLG - Prepare a note on a tentative design for the DPS - CLI communication assuming a sharedvpage in ELF. 1e2

1e2a A note was distributed to CHI and JEW for comments. 1e2a

1e3 (12) JLE - Prepare order of disk 1e3

1e3a ??? 1e3a

1e4 (13) RWW - Send note stating our general problem to nsw steering committee. 1e4

1e4a A note was sent (see -- 26099,). 1e4a

1f Several new tasks were genetated at the third meeting: 1f

1f1 (14)CHI JEW LLG - Review of the proposed DPS/CLI interface design with attention to the single vs. multi- process alternatives. 1f1

1f2 (15) DLR JLE - Investigate alternative memory management schemes 1f2

1f3 (16) JLE - Continue developing the position paper for the steering committee, deliver a draf version to COMPASS. 1f3

1f4 (17) CHI - Breakdown of CLI code. 1f4

1f5 (18) DIA - L1011 status report: what remains to be done, current expectations of savings. 1f5

1f6 (19) [to be scheduled] Study the relative efficiency of L1011 vs assembly code. 1f6

1g It was also resolved at the second meeting that we should proceed to construct a test version of the system even tho it may only support one or two users. 1g

1h There should also be a position paper prepared to presents these problems to the nsw steering committee. 1h

1i The next meeting is scheduled for 10 am Tuesday 22th July. 1i

FE Meeting Summary

(J26137) 15-JUL-75 16:31;;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /RWW([ACTION]) DLR([ACTION]) JLE([ACTION]) CHI([ACTION]) JEW([ACTION]) LLG([ACTION]) JBP([ACTION]) ANDY([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: JBP; Origin: < POSTEL, FE-PROBLEMS.NLS;5, >, 15-JUL-75 16:28 JBP ;;;;####;

Vacation

1 I would like to take two weeks vacation from Aug 18 through Aug 29
if this does conflict with the groups immediate needs. 1

DSM 15-JUL-75 20:25 26138

Vacation

(J26138) 15-JUL-75 20:25;;;; Title: Author(s): David S. Maynard/DSM; Distribution: /RWW([ACTION]) EKM([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: DSM;

DLR 15-JUL-75 23:21 26139

Reading my mail at BBNB

1 Pricilla, I can't seem to receive journal mail at BBNB. At least I haven't received any messages we've sent and been able to read them from nls. Is something I'm doing wrong?

yours,
Dave

1

DLR 15-JUL-75 23:21 26139

Reading my mail at BBNB

(J26139) 15-JUL-75 23:21;;;; Title: Author(s): David L. Retz/DLR; Distribution: /PAW2([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: DLR;

BEV 16-JUL-75 11:21 26140

Getting Together for Sample Sessions and Other Things

1 Thanks for your message this morning. I appreciate your being patient the last week or two. I felt like I initiated discussion on some topics, and asked for review of the sample sessions, then dropped everything in the middle. Which is what I did, thanks to the good old glossary. Anyway, that's over with now, hopefully. I'd like to discuss packaging the ss. And also, perhaps in a different meeting, some procedures for coordinating our efforts on Help. I'm taking off for the mountains today, and will be gone the rest of the week. With Monday to get my head together again, I should be ready to talk on Tues., any time.--Bev 1

BEV 16-JUL-75 11:21 26140

Getting Together for Sample Sessions and Other Things

(J26140) 16-JUL-75 11:21;;;; Title: Author(s): Beverly Boli/BEV; Distribution: /JHB([ACTION]) KIRK([INFO-ONLY]) POOH([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: BEV;

BEV 16-JUL-75 14:55 26141

Sending Stuff to be COM'd

1 Sandy--I've put two files into the COM Directory that I would like to have processed as soon as you get the chance. They are BEV,SEND1.COM 1; and BEV,GLOSSARY.COM.1. Both of thsees could be confused with other files in the Directory (well, the glossary is really the most similar; there's a glossary in there from DVN), so please check it. Thanks. BEV 1

BEV 16-JUL-75 14:55 26141

Sending Stuff to be COM'd

(J26141) 16-JUL-75 14:55;;;; Title: Author(s): Beverly Boli/BEV;
Distribution: /SLJ([ACTION]) KIRK([INFO-ONLY]) POOH([INFO-ONLY
]) ; Sub-Collections: SRI-ARC; Clerk: BEV;

RLL 16-JUL-75 17:23 26142

2ND DRAFT: Annouucement of Workshop seminar.

Comments please... Does anyone think the overall form should cbe changed?...

2ND DRAFT: Announcement of Workshop seminar.

1 ANNOUNCEMENT OF A SEMINAR ON THE AUGMENTED WORKSHOP 1

2 WHO ARE WE? 2

2a The Augmentation Research Center (ARC) of Stanford Research Institute (SRI) has developed for the past 13 years a computer augmented workshop to help people with their information handling. 2a

2b Our goal is the evolution of a coherent set of facilities to aid people with their reading, writing, communicating, and management of information. 2b

3 WHY ARE WE OFFERING A SEMINAR? 3

3a We feel that a diverse (substantial) community of users participating in an augmented environment is necessary for the continuation of workshop developments. Also, the gradual transfer of this advanced technology to organizations requires careful attention at every stage. 3a

3b As part of this effort to transfer our developments to a growing community of users, we are offering an intense, one week seminar on the capabilities and use of ARC's workshop facilities. 3b

3c The participants will gain an insight into the tools, techniques, and methodology of this augmented workshop. 3c

4 WHO SHOULD ATTEND? 4

4a This seminar is intended for those people who wish to assess the workshop capabilities and its potential value to an organization. 4a

4a1 Those individuals whose job is to give experienced appraisals of new working methods and new technology will find this week beneficial. 4a1

5 WHAT WILL BE GIVEN? 5

5a Actual training in many of the features will be given with several hours of individual, on-line, interactive computer experience. 5a

5b Documentation, training aids, and demonstrations will provide more breadth and depth on the workshop's facilities. 5b

5c Consulting and workshop sessions on applications of this technology to each organization will highlight the week's work. 5c

5d The emphasis will be placed on each person experiencing the potential of these capabilities with respect to his organization. 5d

6 WHAT TOPICS WILL BE DISCUSSED? 6

6a Among the topics to be covered will be the following: 6a

6a1 Studying online documents 6a1

6a2 Document production 6a2

6a3 Collaborative dialogue and teleconferencing 6a3

6a4 Organizational communication systems 6a4

6a5 Community communications 6a5

6a6 Organizational intelligence 6a6

6a7 Personal data management 6a7

6a8 ARPA network information center (NIC) 6a8

6a9 Software engineering augmentation system 6a9

7 WHERE AND WHEN? 7

7a This five day seminar will be held at SRI from 25 August to 29 August. The seminar will be limited to six active participants so that individualized and intense training, consulting, and experiencing can take place. 7a

7b The cost of this seminar will include all materials and computer time. 7b

RLL 16-JUL-75 17:23 26142

2ND DRAFT: Announcement of Workshop seminar.

(J26142) 16-JUL-75 17:23;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /DCE([ACTION]) JCN([ACTION]) JHB([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

DLR 16-JUL-75 17:26 26143

this is a sample of journal mail from dr.

1 this is a message how come the system isn't capitalizing?
because we have no raise? or am i just not hitting the shift key
hard enough?..... -retz

DLR 16-JUL-75 17:26 26143

this is a sample of journal mail from dr.

(J26143) 16-JUL-75 17:26;;;; Title: Author(s): David L. Retz/DLR;
Distribution: /ANDY([ACTION]) LJM([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: DLR;

Address space breakdown for the NSW CLI

1 The following is a breakdown of the address space used by the CLI on the PDP-10. Equivalent numbers can be generated for some of the catagories for the PDP-11 if needed. Units are in words. 1

1a CLI proper: 6044 TOTAL 1a

1a1 Read only data: 96 1a1

1a2 Initialization/ restart code: 454 TOTAL 1a2

1a2a Highest level startup/initialization routine: 318 1a2a

1a2b Create Works Manager and open packages: 123 1a2b

1a2c Restart from serious error: 13 1a2c

1a3 CML instruction executor/sequensers: 1436 TOTAL 1a3

1a3a Interact with user to process curreent alternatives: 907 1a3a

1a3b process the successor of an instruction: 83 1a3b

1a3c compute next instruction address: 111 1a3c

1a3d Sequenser support: 373 TOTAL 1a3d

1a3d1 build unique prompt: 129 1a3d1

1a3d2 compare substrings routine: 38 1a3d2

1a3d3 user feedback routine: 127 1a3d3

1a3d4 process syntax request: 79 (plus pieces of each opcode function) 1a3d4

1a4 OPCODE functions: 4058 TOTAL 1a4

1a4a recognize a command word: 412 (four recognition schemes) 1a4a

1a4b process a CONFIRM: 151 1a4b

1a4c PROCeSS a selection (destination, source, typein): 491 1a4c

1a4c1 typein literal and password: 355 1a4c1

1a4c2 point selection of a character: 150 (not debugged) 1a4c2

1a4d push accumulator value onto call argument stack: 39 1a4d

1a4e process yes/no answer: 216 1a4e

1a4f process an OPTION: 131 1a4f

1a4g call a parse function: 55 1a4g

1a4h make a DPS call to execution function: 305 1a4h

1a4h1 simulate call in typeout or shared page modes: 288 1a4h1

1a4h2 process DPS help returns: 246 1a4h2

1a4i show value of accumulator to user: 135 1a4i

1a4j abort current command specification: 56 1a4j

1a4k resume DPS help from help rule: 34 1a4k

1a4l present user with noise words, clear command area: 160 1a4l

1a4m store value of accumulator into a CML variable: 137 1a4m

1a4n append value of accumulator to a CML list variable: 150 (approx.) 1a4n

1a4n1 store/append support functions: 140 1a4n1

1a4o load variable, constant, boolean, EMPTY into accumulator: 103 1a4o

1a4p process conditional (IF) test: 304 1a4p

1b Operating system interface: 4774 TOTAL 1b

1b1 tty input/output/echoing: 664 (could shrink or grow depending on terminals supported) 1b1

1b2 read literal typein from tty: 364 (should shrink) 1b2

1b3 DPS interface (will be quite different for PDP-11): 3746 TOTAL 1b3

1b3a writeable data: 2639 (includes 2560 word block for use by DPS) 1b3a

1b3b read-only data: 124 1b3b

1b3c VJSYS routines: 162 1b3c

1b3d VJUSR routines and dispatch routine: 397 (DSM can give better numbers here) 1b3d

1b3e conversion routines: 424 TOTAL 1b3e

1b3e1 CML to PCP format: 274 1b3e1

1b3e2 PCP to CML format: 150 (approx.) 1b3e2

1c Works Manager support routines: 603 TOTAL (will grow somewhat) 1c

1c1 login new user: 149 1c1

1c2 logout user: 71 1c2

1c3 generate instance name for a tool: 143 1c3

1c4 run tool: 137 1c4

1c5 end tool: 103 1c5

Address space breakdown for the NSW CLI

(J26144) 15-JUL-75 17:41;;;; Title: Author(s): Charles H. Irby/CHI;
Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC;
Clerk: CHI; Origin: < NSW-SOURCES, CLI-ADDRESS-SPACE.NLS;1, >,
15-JUL-75 17:40 CHI ;;;;####;

1 26144 Distribution

1a J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart, Martin E. Hardy

Dialogue Concerning Help Data Base for the Worksmanager

1 Kirk, I had been working on (help,worksmanager,) for about 2 hours on the basis of Charles' note in branch 2 below when he walked by and mentioned your message now in branch 3. I have to stop now. I will study your changes and you can study mine. I will send you a message tomorow about what I think we should do next. I am finishing up some documentation tasks that were going on, and our part of the worksmanager help data base is one. 1

2 15-JUL-75 1943-PDT IRBY at USC-ISIC: Comments on WM help data base
Distribution: VANNOUHUYS, VANNOUHUYS AT BBNB, SATTLEY AT BBNB
Received at: 15-JUL-75 22:44:46-EDT 2

2a Dirk, following are some comments on the WM help data base you gave me to read. It is indeed in very rough shape. I hope these comments will be helpful. You may have fixed many already. I have avoided commenting on typoes and awkward wording since you will surely be addressing that yourself. Kirk, please correct anything I say that is incorrect or misleading. 2a

2b 1) there is no statement named "GRIPE", referred to in 2a1. 2) in 2b, you might say "files that may be manipulated through command to the Works Manager or to NSW tools." as the first sentence. Also, "created by an NSW tool" instead of "created in an NSW tool". With respect to scope, it is my impression that this is merely a convenient defaulting mechanism (like TENEX connect to directory or multix working directory) so you don't have to type the whole filename all the time. It is not used to restrict access to files, however. you can refer to files outside your current scope by prefixing %NSW to the filespec. 3) NSW-filenames (2b1): This is pretty awkwardly worded. It is not clear the average reader will understand the path name explanation. It is my understanding that name-parts and attributes must be 12 or fewer characters in length. See Millstein's Catalog description memo of about a month ago (maybe two month??) and 25659. I beleive that filespecs can identify groups of files that can be manipulated by some commands (delete file seems like a good

example).
4) name-parts (2b1b): what is this about the user choosing two name-
parts for and entry name?? He should be able to use as many or few name
parts as he wishes. The WM or tool MAY add additional name fields,
probably attributes not name parts. again, user's powers are not limited by their scopes.
5) keys (2b1d): a key is just a file spec that defines some set of files. It is not actually used as the beginning of the name of a file. A key may include attribute as well as name-part components.
The user (project,node) has access to files that are described by his keys.
6) 2b1e, scope: again, scope defines defaults not limitations.
7) 2b2: filespec can also identify a group of files and is used in commands to tools as well as to the WM. 2b

2c 8) 2b2a: I don't beleive the ... could be used to pass from name-part
into attributes as you suggest in your example. Right, Kirk?
9) 2b2b: you could delete the clause up to the comma, and it would still
be true.
10) 2b3: I beleive "job" should be "file".
11) userid (2d): I dont understand this term nor the need for it. It might be usefull to distinguish between the individual and the (project,node) user, but this seems not to be doing this. How is it different from "identification"? Also, the last word should be "projects" not "project".
12) integrated tool (2e1): discussion of internal transfer of control,
etc. is very unclear. Ditto for old-tool (2e2).
13) recognition (2f): the whole issue of file name recognition is still
quite uncertain in my mind. I strongly suspect there will be none in the initial system and I suggest you edit this paragraph accordingly.
14) identification (2g): I suggest that describing the parallel between
user-account and node-project would be most elucidating to most readers.
Just as a user may work under many different accounts, a node may exist
in many project trees. I would suggest "access rights and accounting"
instead of "file scopes".
15) projects (2g1): there is no "tool supplied attributes"

description.
16) 2g2: what is this about a second password??
17) FE (2h): I would suggest some discussion of command interpretation
here and command execution in BE.
18) tool-use-name (2k): The current wm-cml uses "instance" instead
of "use". Also, this is only brought to the user's attention when
he attempts to invoke a second instance of the same tool, while the
first is still active.
19) commands: The word "change" is often used For "charge". a CONTENT
is missing in the logout command. Also, I beleive this command will
allow the user to logout fast, having the WM terminate active tools for 2c

2d him. "terminate tool" is used in the current CML instead of "end tool".
Run tool allows frequently used tools to be recognized as command words
(specified for each (project,node) in the node-profile). I suggest you
try running <nsw-sources>cli.wm to get a better feel for the commands.
the reference to USERID in 3g1 is unclear. Kirk, can you delete a group of files at one time? Is there a way of saying "do to the whole group" in response to the "several files" help return? Can you
say "i meant to replace the old file" in the "replace" help return? 2d

2e -- Charles. 2e

3 16-JUL-75 1648-EDT SATTLEY: WM Help Data Base, comments on CHI's comments.
Distribution: VANNOUHUYS AT ISIC, IRBY AT ISIC, VANNOUHUYS, sattley
Received at: 16-JUL-75 16:57:24-EDT 3

3a Dirk, Charles -- 3a

3b Dirk, congratulations on your new position. Perhaps the rest of
this is addressed to your replacement... 3b

3c I'm sorry I didn't at least send you an acknowledgement sooner.

As soon as I received your Journal message with the Draft data base
in it, I made a copy, and started rewriting paragraphs. I hoped to
finish at least the Concepts branch rapidly, and send it off to you;
but then, of course, I got derailed. The file I'm working on is
< bbnb, sattley, wm-help, > and either of you, or the DIRT people, are
welcome to look at it at any time. The current version
is 2, and it contains my changes through statement 2b1e4.
You'll be able to read my changes easily by filtering; and I'll
update the version number whenever I make any significant
additions. 3c

3d Charles -- all of your corrections, I believe, are correct. The
changes I've already made to the file cover your points through 6),
and, as far as the rest go, I think I'd rather continue working on
the file itself, than run through the points separately. To answer
your questions in 19), though --
The word I get from upstairs is no, on multiple deletions, or
any other use of a non-unique Filespec to designate a set of files,
EXCEPT for the DISPLAY command (maybe I can get them to call it
<>SHOW).
For the first cut, anyhow, the user will have to delete files
individually. Eventually, there should be some form as useful as
the * in Tenex for designating a set of related files for deletion,
copying, etc.
Yes, when a Copy or Rename or Import gives as destination
Newfilename the name of an existing file, the user will be told that
the execution of the command will replace an existing file, and if
he says <CA>, the replacement will be done (assuming he -- excuse
me -- she) has Delete and Enter access to that Filename. 3d

3e I'll try to get back to work on the file tomorrow, if possible,
-- Kirk. 3e

CHI KS DVN 17-JUL-75 11:23 26145

Dialogue Concerning Help Data Base for the Worksmanager

(J26145) 17-JUL-75 11:23;;;; Title: Author(s): Charles H. Irby, Kirk Sattley, Dirk H. Van Nouhuys/CHI KS DVN; Distribution: /KS([ACTION]) DMB([ACTION] dirt notebook please) DIRT([INFO-ONLY]) ; Sub-Collections: SRI-ARC NIC DIRT; Clerk: DVN;

1 26145 Distribution

1a Kirk Sattley, Delorse M. Brooks, Jonathan B. Postel, Priscilla A. Wold, Rita Hysmith, Pamela K. Allen, Delorse M. Brooks, Elizabeth F. Finney, Beverly Boli, Lawrence A. Crain, Kirk Sattley, Susan Gail Roetter, Robert N. Lieberman, Ann Weinberg, Kenneth E. (Ken) Victor, Douglas C. Engelbart, James H. Bair, Elizabeth K. Michael, Richard W. Watson, Elizabeth J. Feinler, Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould, Jeanne M. Beck, Dirk H. Van Nouhuys, James C. Norton,

NSW Protocols Weekly Status Report: 16-JUL-75

1 NSW Protocols Weekly Status Report: 16-JUL-75 1

1a JIM WHITE 1a

1a1 Major Responsibility: DPS-10 1a1

1a2 Accomplished Last Week 1a2

1a2a - Continued debugging CLI/DPS/NLS system with DSM/CHI. 1a2a

1a2b - Implemented the four DPS efficiency-related modifications spec-ed last week in (26100,). One has been debugged and is working; the remaining three have yet to be exercised by FE/WM/NLS. 1a2b

1a2c - Updated DPSJSYS to reflect above modifications and other, minor changes to spec. 1a2c

1a2d - Wrote and issued DPS-10 storage requirement breakdown (32949,) at request of RWW. 1a2d

1a2e - Issued DPS-10 status report to NSW PIs, Steering Committee, and Protocol Working Group. 1a2e

1a2f - No debugging of CLI/DPS/WM system with Stu Schaffner this past week; all DPS primitives he's currently using work. 1a2f

1a3 Scheduled Next Week 1a3

1a3a - Continue debugging CLI/DPS/NLS system with DSM/CHI. 1a3a

1a3b - Continue debugging CLI/DPS/WM system with Stu Schaffner, who will be exercising ITDPS and the data store primitives for the first time. 1a3b

1a3c - Review LLG's DPS-11 user interface spec. 1a3c

1a3d - Review report of Message Transmission Protocol Subcommittee at request of RWW. 1a3d

1a3e - Code inter-host inter-process communication (carry over from last three weeks; this is not critical path and may be held even longer). 1a3e

1a4 Problems encountered 1a4

1a4a - JSYS trap still does not work at ISIC. 1a4a

1b LARRY GARLICK 1b

1b1 Major Responsibility: DPS-11 1b1

1b2 Accomplished Last Week 1b2

1b2a - Completed first draft of DPS-user interface document. It is being reviewed by JEW and CHI. 1b2a

1b2b - Revised the core estimates for DPS-11 code and jump tables. Using the user interface specified above, the estimate is 20K (+/- 2K). 1b2b

1b2c - Reviewing single-processes versus multiple-processes for DPS and CLI, especially with respect to core-consumption . 1b2c

1b2d - Evaluating storage management requirements using ELF primitives rather than L10 storage management . 1b2d

1b3 Scheduled for Short Term 1b3

1b3a - Start inserting DPS-11 code into JEW's DPS. 1b3a

1b3b - When L1011 supports lists and prepares rel files compatable with the virtual loader of VM-ELF, begin testing DPS code. 1b3b

1b4 Scheduled for Long Term 1b4

1b4a - Install a swapping version of DPS on the PDP-11 running under ELF. 1b4a

JEW 17-JUL-75 11:41 26146

NSW Protocols Weekly Status Report: 16-JUL-75

(J26146) 17-JUL-75 11:41;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JEW; Origin: < JWHITE, PROSTS.NLS;4, >, 16-JUL-75 18:02 JEW ;;;;####;

1 26146 Distribution

1a Martin E. Hardy, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Buddie J. Pine, Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart

DVN 17-JUL-75 13:20 26147

I'd Like a Chance to Talk With Ron Uhlig

1 I talked with Ron about the DPCS Community a little bit in the past. I'd like maybe half an hour if it's easey to breif him on what's happening and to find out what they have been doing, their hopes. 1

DVN 17-JUL-75 13:20 26147

I'd Like a Chance to Talk With Ron Uhlig

(J26147) 17-JUL-75 13:20;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /DCE([ACTION]) RLL([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DVN;

RLL 17-JUL-75 15:02 26148

Uhlig visit: my interest

1 In order to keep abreast of what user would like i7 NLS, I would like t see Ron sometime during the day. Spcifically any interes he as in teleconferencing (how much is he committed to it), data base management sys, DEX, etc.. What is his ordering and what can he contribute. 1

RLL 17-JUL-75 15:02 26148

Unlig visit: my interest

(J26148) 17-JUL-75 15:02;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /DCE([ACTION]) JCN([INFO-ONLY]) RA3Y([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RWW 18-JUL-75 11:18 26149

home base for mail for development and applications

1 most of us now have accounts at 2-3 places. i find myself not knowing where people consider their normal home base on the applications side and i find myself getting mail at isic when i rarely go there. it seems to me we need some rule of thumb such as development people guarantee to look at bbnb a couple times a day as that is where journal mail goes and that anybody on applications reads mail at office 1 so we have some assurance of same day reading. unless applications lets me know differently that is rule of thumb i will follow from now on. i do not guarantee to log into isic on a daily basis. 1

home base for mail for development and applications

(J26149) 18-JUL-75 11:18;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /SRI-ARC([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RWW;

1 26149 Distribution

1a Martin E. Hardy, J. D. Hopper, Charles H. Irby, Harvey G. Lehtman, James C. Norton, Jeffrey C. Peters, Dirk H. Van Nouhuys, Kenneth E. (Ken) Victor, Richard W. Watson, Don I. Andrews,

1b Buddie J. Pine, Andy Poggio, David L. Retz, Laura J. Metzger, Karolyn J. Martin, Jan A. Cornish, Larry L. Garlick, Priscilla A. Wold, Pamela K. Allen, Delorse M. Brooks, Beverly Boli, Rita Hysmith, Log Augmentation, Joseph L. Ehardt, Raymond R. Panko, Susan Gail Roetter, Robert Louis Belleville, Rene C. Ochoa, Ann Weinberg, Joan Hamilton, Adrian C. McGinnis, Robert S. Ratner, David S. Maynard, Robert N. Lieberman, Sandy L. Johnson, James H. Bair, Jeanne M. Leavitt, Rodney A. Bondurant, Jeanne M. Beck, Marcia L. Keeney, Elizabeth K. Michael, Jonathan B. Postel, Elizabeth J. Feinler, Kirk E. Kelley, N. Dean Meyer, James E. (Jim) White, Douglas C. Engelbart

DVN 18-JUL-75 12:54 26150

Please PLEASE get the New Version of the Modify Subsystem at Office-1

1 I am doing more work at office-1 these days. Imagine my consternation when I discovered that the Modify there did not include the subsitute command! I had to haul a file back to BBNB to fix up the spacing. 1

DVN 18-JUL-75 12:54 26150

Please PLEASE get the New Version of the Modify Subsystem at Office-1

(J26150) 18-JUL-75 12:54;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /FEEDBACK([ACTION]) JHB([INFO-ONLY]) JDH([INFO-ONLY]) KIRK([INFO-ONLY]) EKM([INFO-ONLY]) ; Sub-Collections: SRI-ARC FEEDBACK; Clerk: DVN;

1 26150 Distribution
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NSW Frontend Packages and procedures

obsoletes 25552

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1 Introductory notes: 1

1a The following document (updates Journal # 25552) is a description of the DPS externally callable procedures in the NSW Frontend for special interactions with the user and for managing display terminals. As always, comments are invited and welcome. This description will be modified if comments and reactions seems to indicate that there are holes in the design. However, until it is updated, this should serve as the current description of the Frontend (Command Language Interpreter) callabe procedures and data structures. I expect we will come up with some more compact encoding of the data structures used herein, but this should serve as a logical description in any case. 1a

1b The Frontend will allow certain of the display primitives to be used for graphics display manipulation. This usage will be detected on the basis of the window-id that is used in the call. This is also true of printers and tape cassette units that are part of the terminal configuration (used in conjuction with Line Processors for July 1975). For the graphics terminal, the CLI will be able to mark selections made by the user on the graphics display in two ways: 1) by drawing a dot at the specified location and 2) by redrawing characters that are being selected. Any other marking will have to be done by the tool using the write-graphics procedure. 1b

1c To support this, the Line Processor should be slightly changed to specify the device it will support on its Copy Printer port as part of its response to the Interrogate command. This in turn will tell the CLI which functions the tool can reasonably perform on this terminal. 1c

2 PACKAGES: 2

2a tool-package: 2a

2a1 PROCEDURES: show, show-error, get-info. 2a1

2b wm-package: 2b

2b1 PROCEDURES: new-node-profile, new-profile, get-info, show, show-error. 2b1

2c up-package: 2c

2c1 PROCEDURES: new-profile. 2c1

2d dpy-package 2d

2d1 PROCEDURES: get-windows, batch-display-commands, create-window, delete-window, clear-window, scroll-window, set-window-attribute, write-string, write-line-segment, replace-string, move-string, delete-string, set-string-attribute, write-graphics. 2d1

3 PROFILE UPDATING PROCEDURES: 3

3a new-profile (user-id, profile); 3a

3a1 This allows the USER-OPTIONS tool to update the user's interaction profile in the FE when the user runs this tool to change the way the FE behaves towards him. The profile is assumed to be a simple bitstr that is already properly setup for use by the FE. This will minimize the amount of time needed to load the user profile. 3a1

3a2 user-id: INTEGER 3a2

3a3 profile: BITSTR 3a3

3b new-toollist (user-id, toollist); 3b

3b1 This allows the WM to update the list of tools this user is allowed to run whenever conditions warrent. This list is used to give help and tool name recognition to the user. It in no way "grants the user actual access to the tool. For July 75 the tool list will be defines as described below. This may change as we learn more about how we can help the user in this domain. 3b1

3b2 toollist: LIST (%toollist% LIST (LIST (%user's tool name% CHARSTR, %WM's tool name% CHARSTR), ...), %entry tool% (INTEGER %index to toollist% / EMPTY)) 3b2

4 PRESENTING INFORMATION TO THE USER (WOULD NORMALLY BE DONE THROUGH CML STATEMENTS): 4

4a show (message, confirmflag); 4a

4a1 The message is presented to the user. If confirmflag is TRUE, the user may not continue until he confirms that he saw the message. In this case, the SHOW procedure does not return to the caller until the user has confirmed the message. 4a1

4a2 message: CHARSTR %may contain formatting chars such as CR/LF% 4a2

4a3 confirmflag: BOOLEAN 4a3

4a3a IF TRUE, user must confirm that he saw message before he may continue. 4a3a

4b show-error (message, confirmflag); 4b

4b1 This procedure is used to present error or warning messages toothe user. Confirm flag is used as in SHOW. 4b1

5 GETTING CLARIFYING INFORMATION FROM THE USER (AMBIGUOUS FILES NAMES, ETC) 5

5a get-info (message, string -> string-2); 5a

5a1 GET-INFO presents message to user, presents string to user as starting value. User may edit this or start over. In either event a new string is returned as string-2. This allows WM to interact with user to clarify ambiguous file names, etc. 5a1

5a2 message, string, string-2: CHARSTR. 5a2

6 GETTING TERMINAL CHARACTERISTICS: 6

6a get-windows (-> characterisicts); 6a

6a1 characteristics: LIST (terminal-class, default-text-window, printer-window, graphiics-window, tool-created-windows) 6a1

6a2 where the third and fourth elements may be EMPTY. 6a2

6a2a terminal-class: INDEX [1 %line-at-a-time typewriter, 2 %full-duplex typewriter, 3 %full duplex display with pointer%] 6a2a

6a2b default-text-window: LIST (owning-window-id, window-id, type, diag-coords, window-att); 6a2b

6a2b1 diag-coords are upper-left and lower-right and are with respect to the coordinate system of the owning window. In the case of the graphics and default text windows, the coordinates are with respect to the virtual coordinate system of the terminal (or combination of physical terminals). In either type of window, the coordinates (0,0) represent the lowest left-most corner of the window. 6a2b1

6a2b2 See definitions below. 6a2b2

6a2c printer-window: EMPTY / default-text-window; 6a2c

6a2d graphics-window, graphics-window: EMPTY / default-text-window; 6a2d

6a2e tool-created-windows: (each) default-text-window; 6a2e

7 MANIPULATING DISPLAY IERMINALS (NOT NECESSARY FOR MOST TOOLS) 7

7a MANY CHANGES TO THE SCREEN AT ONCE: 7a

7a1 batch-display-commands (display-commands -> ids); 7a1

7a1a This routine is used to effect many changes to the screen at once. display-commands is a data structure that is decoded and in general results in calls on the rest of the display primitives described below. The form of display-commands is as follows: 7a1a

7a1a1 LIST(LIST (opcode, params), ...) 7a1a1

7a1a2 opcode: CHARSIR %procedure name -- could make this an integer??% / EMPTY %default to last procedure name used% 7a1a2

7a1a3 params: as appropriate for given procedure but EMPTY can be used to default things like window-id and string-id. 7a1a3

7a1b A list of string and line-segment identifiers is returned. 7a1b

7a1b1 ids: LIST (LIST (%string-id% INTEGER, LIST(%line-seg-id% INTEGER, ...)), ...) / EMPTY 7a1b1

7b WINDOW MANIPULATION: 7b

7b1 create-window (old-window-id, type, diag-coords, new-window-att -> window-id); 7b1

7b1a Used to create new text windows. Windows must be created with respect to an old window. The coordinate system is relative to the window and is in termms of character positions 7b1a

7b1b new-window-att: EMPTY %use old window values% / window-att; 7b1b

7b1c window-att: LIST (%window-visible% BOOLEAN, %window-priority% INTEGER, string-att) 7b1c

7b1c1 %window priority is an integer from 1 to 10 (1 being highest priority). Whenever two windows overlap, the text of the higher priority window will dominate (note this only effects the overlapped area, not necessarily the whole window). The lowest priority of the current tool's window is higher than those of active, but not current tools. The NSW EXEC also has a window, which is high priority when the user is talking to it. A high priority window that has nothing displayed in it will not effect the display of lower priority windows. The CLI's command feedback window is always higher priority than tool or NSW EXEC windows. The window that is created by the CLI when it starts a new tool will have priority 1 for that tool. The tool may change this if desirable.% 7b1c1

7b1c2 %A window (as well as individual line segments and strings within it) may be set invisible, in which case the user sees no image from that window.% 7b1c2

7b1c3 The coordinates in string-att is ignored. 7b1c3

7b1d old-window-id, window-id: INTEGER 7b1d

7b1e diag-coords: LIST (%upper-left x% INTEGER/EMPTY, %upper-left y% INTEGER/EMPTY, %lower-right x% INTEGER/EMPTY, %lower-right y% INTEGER/EMPTY); %not necessarily in character coordinates.% %EMPTY implies use of old value in window identified by old-window-id% 7b1e

7b1f type: INTEGER [0 = random, 1 = sequential, 2 = graphics] 7b1f

7b1g Special note: For display terminals with graphics capabilities, this primitive can be used to create graphics windows also. 7b1g

7b2 delete-window (window-id); 7b2

7b2a Delete the specified window. The window-id will no longer be valid, nor, of course, will any string-i's or line-seg-id's that belonged in that window. Any image on the user's terminal of this window is cleared. 7b2a

7b2b May be used for graphics windows as well as text windows. Can only delete windows that belong to you. Windows created for the tool by the CLI at run-tool time do not belong to the process and thus cannot be deleted. They can be manipulated in other ways, however. 7b2b

7b3 clear-window (window-id); 7b3

7b3a Deletes the contents of the window. Frees all string-id and line-seg-id's. Removes the image from the user's display. 7b3a

7b3b May not be used for graphics or printer windows. 7b3b

7b4 scroll-window(window-id, change, (EMPTY/string-id-1), (EMPTY/string-id-2)); 7b4

7b4a change: INTEGER % >0 => scroll up that many lines, < 0 => down% 7b4a

7b4b This scrolls a sequential window CHANGE lines (up if CHANGE is positive, down if negative). If the window is a random window, the whole window or a group of strings may be scrolled together. In this case CHANGE has the same effect as with a sequential window. 7b4b

7b5 set-window-attributes (window-id, window-att); 7b5

7b5a Set the specified attributes for the window. See definition of window-att. 7b5a

7c STRING MANIpULATION: 7c

7c1 write-string (window-id, string-att, string -> string-id, LIST(%line segment ids% INTEGER, ...)); 7c1

7c1a Write the specified string at the specified location with the specified attributes. The string consists of individually attributed and positioned line segments (which do not cross line boundaries). An identifier for the string as a whole and for the individual line segments are returned. 7c1a

7c1b string-att: line-seg-att; 7c1b

7c1b1 If EMPTY use window defaults as string defaults. 7c1b1

7c1b2 MUST supply cords for origin of string. 7c1b2

7c1c string: LIST(linesegment, ...) / string-addr 7c1c

7c1c1 The coordinates in line segments are relative to origin-cords, which are relative to window cords. 7c1c1

7c1d linesegment: LIST (line-seg-att, (CHARSTR / line-seg-addr)); 7c1d

7c1e line-seg-att: EMPTY/ LIST (cords/EMPTY %highlight% INTEGER [0 %default it%, 1 %highlight it%, 2 %dont highlight%], %visible% INTEGER [0 %default it%, 1 %visible%, 2 %invisible%], %selectable% BOOLEAN/EMPTY, %selector code% INTEGER/EMPTY); 7c1e

7c1e1 %highlight: make this line segment stand out from the rest of the text on the display (in a manner that is appropriate for the device).% 7c1e1

7c1e2 % visible: A line segment or string's image can be made visible or invisible to the user.% 7c1e2

7c1e3 % selectability: a line segment can be made selectable (in DSEL's and SSEL's only) or not selectable. If selectable, then a selector code can be stored with it to be used by the selection processor. This allows line segments to be selectable in some contexts and not in others.% 7c1e3

7c1e4 IF EMPTY use string defaults. 7c1e4

7c1f cords: LIST(%x -- in character positions (0 is leftmost position)% INTEGER, %y -- in line positions (0 is top line)% INTEGER) 7c1f

7c1g string-addr: string-id / LIST(window-id, string-id); 7c1g

7c1h NOTES: 7c1h

7c1h1 Could also be used to write on copy-printer if have special window-id for that. 7c1h1

7c1h2 Also serves copy-string function. 7c1h2

7c1h3 May be used to write text into graphics windows, also. This implies FE know how to write text on graphics device. 7c1h3

7c2 replace-string (window-id, string-id, string-att, string); 7c2

7c2a Replaces the specified string with a new string or with a copy of a string already in a window belongiing to this process. Note that the old string-id now applies to the new string. Note also that the strings position within the window can be changed during the replace. 7c2a

7c3 move-string (window-id, string-att, string-addr ->
string-id, LIST(%line segment ids% INTEGER, ...)); 7c3

7c3a Note set-string-attributes can be used to change the pposition of a string within a window. Move-string can be used to move a string from one window to another. It is equivalent to using write-string to copy a string and then delete-string to delete the old copy. 7c3a

7c4 delete-string (window-id, string-id); 7c4

7c4a Delete the specified string and free the string-id. All line-segments that are part of the string are deleted also, of course. 7c4a

7c5 set-string-attribute (window-id, string-id, string-att); 7c5

7c5a Set the specified attributes for the specified string. Note that the position of the string within the window can be changed with this primitive. See definition of string-att (defaults will be the old values, in this case). 7c5a

7c6 reposition-string (window-id, string-id, cords); 7c6

7c6a This is just a special case of set-string-attributes, but the frequency with which it is done warrents a separate, more efficient call. 7c6a

7d LINE SEGMENT MANIPULATION: 7d

7d1 Write-line-segement(window-id, string-id, linsegment ->
line-seg-id); 7d1

7d1a Append a new line segment to the specified string. The identifier for the new line segment is returned. 7d1a

7d1b Note that his serves the copy function also. 7d1b

7d2 replace-line-segment (window-id, string-id, line-seg-id,
linesegment); 7d2

7d2a Replace a specified line segment with a new or a copy of an old line segment. Note that attributes of the string can be changed during the replace. 7d2a

7d3 line-seg-addr: line-seg-id / LIST (window-id, string-id,
line-seg-id) / LIST (string-id, line-seg-id); 7d3

7d4 move-line-segment (window-id, string-id, linesegment); 7d4

7d4a Note, this is equivalent to using write-line-segment to copy a line segment and then delete-line-segment to delete the old copy. 7d4a

7d5 set-line-segment-attributes (window-id, string-id, line-seg-id, line-seg-att); 7d5

7d5a Set the specified attributes for the specified line segment. 7d5a

7d6 reposition-line-segment (window-id, string-id, line-seg-id, cords); 7d6

7d6a This is just a special case of set-line-segment-attributes, but its frequency warrents a special, more efficient call. 7d6a

8 SECONDARY DEVICE MANIPULATION: 8

8a write-literal(window-id, literal-string); 8a

8a1 literal-string: CHARSTR 8a1

8a2 This is treated in a device dependent manner. It is expected to be used to drive secondary devices (such as a graphics display) attached to Line Processors but will also be used for other things. The window-id will tell the FE how to get the liiteral string to the correct device. The literal string will be passed to the device unchanged. 8a2

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