DCE 5-JUN-75 17:50 32682

Oops, duplicate deliveries of some Journal items today

1 I apparently received the following sets of Journal items twice, once yesterday at 1351 on 4 Jun, and once today at 1335 on 5 Jun.
Four messages: (JOURNAL, JRNL27, J25957) J25956 J25958 and J25955
Three memos: (HJOURNAL, 32609, 1) (32657, 1) and (25954, 1) 1

DCE 5-JUN-75 17:50 32682

Oops, duplicate deliveries of some Journal items today

(J32682) 5-JUN-75 17:50;;;; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: /JDH([ACTION]) JCP([ACTION]) FEED([INFO-ONLY]) JCN([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DCE;

FPA 6-JUN-75 04:31 32683

I am sending ycu a file named 'rfp'. I have been unable to format it correctly and need help. When I use the output processor it doublespaces scmetimes and singlespaces sometimes.

1

TECHNICAL EVALUATION CRITERIA

The following evaluation factors listed in descending order of importance shall be used in the technical evaluation of proposals received in response to the Request for Proposal (RFP) to be generated for the Base TOP V&V procurement.

SOUNDNESS OF APPROACH

The proposal must state how the offeror proposes to manage and perform the tasks contained in the Statement of Work. It must also contain the organizational structure the offeror proposes for the verification and validation function and the management concept. Each task to be performed should be addressed with at least the following: (1) Task description, (2) SOW reference, (3) Period of Performance, (4) Approach to be taken, and (5) Task manning requirements.

SPECIAL TECHNICAL FACTORS

The offeror shall briefly describe prior esperience in the areas specified in the Statement of Work. Attach to the proposal a resume, not exceeding two pages, for each individual the offeror shall permanently assign to the contract. Identify other resources available to the offeror that may be applied to the contract should a situation warrant such action.

COMPLIANCE WITH REQUIREMENTS

State how the offeror intends to comply with the requirements specified in the Request for Proposal. 9

(J32683) 6-JUN-75 04:31;;;; Title: Author(s): Frederick P. Ariail/FPA; Distribution: /LAC([ACTION]) ; Sub-Collections: NIC; Clerk: FPA; Origin: < ARIAIL, RFP.NLS;2, >, 5-JUN-75 09:21 FPA
;;;;####;

JNH 6-JUN-75 04:31 32684

NSA Host

Gerry & Tom, I got this today, and think you should be the ones to act on it. Jess

NSA Host

1 5-JUN-75 1653-EDT FEINLER at BBN-TENEXB: NSA Host
Distribution: HILL AT OFFICE-1, feinler
Received at: 5-JUN-75 13:52:18-PDT 1

1a Dear Jesse, 1a

1b Couple of quick questions about NSA host. When will it be up (estimated), is NSA the name you want (its short and sweet), and are you the Liaison or whould you like to appoint someone else, 1b

1c Hope all goes well! 1c

1d Regards, 1d

1e Jake
(FEINLER@BBNB) 1e

NSA Host

(J32684) 6-JUN-75 04:31;;;; Title: Author(s): Jesse N. Hill/JNH;
Distribution: /JWB3([ACTION]) TEH([INFO-ONLY]) ;
Sub-Collections: NIC; Clerk: JNH;

MIKE 6-JUN-75 07:07 32685

Ben Ho's reaction to Turoff proposal for research in '75.

1 I talked with Murray on June 18th, and he told me that he had responded to BNR's request for a project proposal; he included things like help with the evaluation of cmi, help for BPG's work in cross-impact and multi-dimensional scaling, and general consulting in tech. forecasting and tech assessment. 1

2 He also included what I thought was a neat pitch for them to help him buy a portable terminal: 2

2a He had to let the portable he had last year (leased for him by BNR) go, since he could not be sure that he would get any funding from us in '75. Now that he has funding (almost), he wants the terminal back. (It 's not clear yet whether he actually needs it to do work for us; I suspect not.) He points out that although six months of this calender year's contract are already gone, to lease a terminal for less than a twelve month period costs just abot as much as a full twelve month lease (not sure about this), ie, 12x$150=$1800. Now what Murray proposes is that we give him the $1800 in one shot; he'll use it to buy a terminal, paying the difference out of his pocket. (He thinks he could avoid paying taxes on the $1800 if he indcates that it's not income, but equipment; again, I'm not sure about that.) 2a

3 I phoned Elhami Abdou, and got referred to Tony Kitteridge right away; he was surprised that I had not yet heard of Ben's reply to Murray's proposal. It went out from BNR about May 27, I think. A copy went to you, but not to me; I informed him that I thought it was nice that he would want to keep you informed, but that I was still looking after the case and I thought I should have gotten a copy as well.....Anyway, he read parts of the letter to me..... 3

4 It seems that Murray included about five different areas that he would like to consult in; the major one was CMI-III; what he proposed to do was examine the software-user interface, and critique it. I thought that was pretty slick; in other words, to do the job, he'd have to have a copy of the program that makes CMI go. 4

5 In his letter, Ben requested a modified proposal from Murray to include consulting in one area, general computer conferencing: what's going on now, and what are the indications for the future (including current systems, costs and revenues, hardware and software breakthroughs expected, networking possibilities, etc.) He indicated that he expected maybe 2 -3 days personal consulting visits, plus a 20 - 30 page report covering the findings. No mention was given to the other items in Murray's proposal. The request for help with the portable terminal was turned down. (What Ben asked him to do would not require the need of a terminal; what Murray proposed to do would not require the need of a terminal for more than, say 4 months out of '75, assuming he was one of the first users on CMI-III, since it was

Ben Ho's reaction to Turoff proposal for research in '75.

not planned to make it available outside BPG, BNR, CC-MKTG, until Sept. 1 / 75.) He made the further point that Murray's operating costs (such as terminal rental, student support, etc,) should be included in the $5000, not in addition to it. 5

6 If there's a letter from these guys in your in-basket, I can't find it. I don't know what's going to become of Murray's work for us in '75. I wish Ben had talked this one over with us before firing off the reply (I know, I'm dreaming again.). What he want's Murray to do sounds like what Bill McLean should be doing. What Murray wants to do sounds like what Kitteridge should be doing. What's going on arond here ? 6

MIKE 6-JUN-75 07:07 32685

Ben Ho's reaction to Turoff proposal for research in '75.

(J32685) 6-JUN-75 07:07;;;; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /LHD([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: MIKE;

ELF 6-JUN-75 07:13 32686

vugraphs for fy 76 efforts

1 mr mcnamara has requested a new vugraph for each of the approved fy 76 efforts . each project engineer is responsible for providing same with as many of the blocks filled in as possible. these were due as of the 25th of may. so far, i have received one. there is a lot of preparation required by the pso, ejk and marcelle prior to each confession. don't complicate the process,please. 1

ELF 6-JUN-75 07:13 32686

vugraphs for fy 76 efforts

(J32686) 6-JUN-75 07:13;;;; Title: Author(s): Edward F. LaForge/ELF; Distribution: /RADC([ACTION]) ; Sub-Collections: RADC; Clerk: ELF;

INFORMATION GATHERING

FGB 6-JUN-75 07:29 32687

1 Please ignore this message. 1

FGB 6-JUN-75 07:29 32687

INFORMATION GATHERING

(J32687) 6-JUN-75 07:29;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /FGB([ACTION]) FGB([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: FGB;

TEST RUN

FGB 6-JUN-75 08:16 32688

1 Ignore this message, if you will, please. 1

FGB 6-JUN-75 08:16 32688

TEST RUN

(J32688) 6-JUN-75 08:16;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /NALCON([INFO-ONLY]) ; Sub-Collections: NIC NALCON; Clerk: FGB;

trip report

1 5-21-75 All of Tuesday was spent at ARPA. Working on the feedback file and studying an ARPA organizational chart prior to my trip helped with associating names and faces. Jeanne Beck gave a demo of DNLS that morning for 2 secretaries from the Director's office who are potential users. The demo included simple editing, printing the file on the terminet, and the letter program. They were concerned about the difficulty of learning a complicated system. The older one seemed adverse to changing her present work habits. However, the younger seemed excited and enthusiastic. This may have been because she had some previous exposure to TNLS in a class last fall. Some of their questions were whether using the system would save time, whether the quality of their work would be the same or better, how long it would take to learn enough to do their work, and how they would find that time. Had a brief meeting with Connie Mclindon to discuss my visit to ARPA. 1

1a 1a

2 5-22-75 Spent the morning at SRI-Washington. Jeanne and I tried to get the workstation into operation, but no success. The problem was with the modem. Martin Hardy will fix it on his trip this week. Went back to ARPA for the afternoon. Jeanne was scheduled to give some help to two users, but only Diana from Keydata could attend. She was interested in learning about directives and the usersubsystem, publish. 2

3 5-23-75 Friday morning Jeanne and I went to the Pentagon. Jeanne was to give some help on the locator to the NSW people. Attending were Betty Finney and Liz Riddle. They have one directory to be used exclusively for one large document. Files within the directory will be individual chapters. They had requested an explanation of how best to use links in a locator to reference these files. 3

4 There was some conversation about various things such as the location of a tape that had been mailed to Bob Martinez for Elizabeth Michael, etc. There were several questions about future ARC plans (OFFICE-2); Jeanne referred them to Jim Norton. 4

5 We then left to return to ARPA for the afternoon. ARPA seems to want someone from ARC present at all times. Jeanne spent an hour with Arlene Einbinder, Connie Mclindon's secretary, working on links and structuring. I observed. Had some time to edit a paper for Jim Bair and work on the feedback file. The offices at ARPA are the epitome of efficiency, but I was happy to conclude my visit to return to the chaotic bustle of ARC. 5

trip report

(J32689) 6-JUN-75 09:32;;;; Title: Author(s): Pamela K. Allen/PKA;
Distribution: /ARC-APP([INFO-ONLY]) ; Sub-Collections: SRI-ARC
ARC-APP; Clerk: PKA; Origin: < ALLEN, TRIPNOTES.NLS;9, >,
6-JUN-75 09:28 PKA ;;;;####;

Licklider Visit Info for File

1 1. The following are interpretations of the comments made by dr licklider, Dr Fields, and Mr. Carlson during their visit to IS on 15 April 1975. 1

2 2. Proliferation of Software Environment: Large contractors are now building their software factories. Dr. Licklider expressed the fear that in five years we would have many different programming environments. This would add one more complexity factor and introduce additional proliferation. We need to standardize the software environment as much as possible. Later he indicated that the key task in DOD software is to get together and determine th critical issues and then, by government agreement and edict, lay out criteria and standards in order to avoid proliferation of automated confusion in software factories. 2

3 3. Technology Demonstrations: Licklider expressed the desirability of a controlled experiment with controlled variables. Else one doesn't know for sure that success was really due to objective of test or other causes. Also , if there is a failure (e.g. structured programming comes out worse than present method), is this due to the concept being tested or due to factors such as the learning curve. The interior programming method may even come out best due to variability in programmer productivity. By controlled experiment, Licklider expressed possibility of laying out test with consultation with experts such as members of the American Statistical Association. The IS consensus seemed to be that there are too many variables to do this properly today and the costs will be astronomical for a dual experiment with a large enough system and no one is willing to pay for it. 3

4 4. Design Against Requirements: Licklider seems to think that we should be able to test design against requirements. Does the system do what it is suppose to do? 4

5 5. National Software Works (NSW): 5

5a a. View of NSW. Carlson sees the NSW as being a framework on which different tools can be attached and effectively used. The important contribution of NSW is the skeleton for managing and measuring the process. Licklider said that the software system can be seen as one of two views: All facilities within four walls or facilities scattered throughout nation. NSW must be able to make the second appear as the first, i.e. both must appear to be the same to the programmer. Except possibly for time delays, the programmer should not operate any differently with NSW as without NSW. 5a

5b b. Proposed TRW Participation in NSW: A certain amount of discussion centered around TRW's proposed participation in NSW.

Carlson thought the effort should be to install some of TRW tools on NSW. This could evaluate the practicality of the NSW system being able to serve as a framework for attachment new tools and determine the cost in terms of overhead. Wingfield thought TRW's interest was in the opposite direction, i.e. trying to use the tools already on the network (e.g. NLS). 5b

5c c. Relationship of Structured Programming: Carlson wanted to pursue the relationship of structured programming and NSW. He doesn't want conflict between the two concepts but mutual support between them. He is concerned that NSW may not support structured programming or vice versa. 5c

5d d. Place of NSW in Software Exhibit: Carlson stated his opinion that NSW should be a separate section of the software exhibit rather than a subsection as it is now. 5d

5e e. Interface Between Tools: Licklider stated that we are really talking about interface between tools. Barnum reiterated that protocals are needed for interface and we should try to make these interfaces and protocals compatible to NSW. Carlson then stated that the alternative is to change NSW protocols if necessary. 5e

6 6. Associative Processor: Dr. Fields seemed interested in the work in the associative processor area. He thinks cost per bit is a critical parameter. He thinks we can get fast associative speed today at $1 or more per bit. He seemed pleased at the type of capability at less than 1 cent per bit (e.g. in the mass memory where 109 bits is estimated at around $1 million.) 6

ARB 6-JUN-75 11:43 32690

Licklider Visit Info for File

(J32690) 6-JUN-75 11:43;;;; Title: Author(s): Alan R. Barnum/ARB;
Distribution: /JLM([ACTION]) FJH([ACTION]) FJT([INFO-ONLY])
; Sub-Collections: NIC; Clerk: ARB; Origin: < BARNUM,
LICKLIDERVISIT.NLS;1, >, 7-MAY-75 08:46 ARB ;;;;####;

SGR 6-JUN-75 12:22 32691

Response to (32584,) - Comments on Last tripreport

1 I don't know what I was thinking about with copy Sequential - you're right - no problem appending more with it. I wasn't talking about CR's without LF's just plain CR's and extra spaces sometimes ending up in messages if sucked in the wrong way. But I'll keep your suggestion is I do run into such a problem. The only other kind of terminal I can think of right off that people use are Execuports and we have one here that can be checked about Simulate versus not. I think you got the message about Instituting programs just as did I.
--Susan

1

SGR 6-JUN-75 12:22 32691

Response to (32584,) - Comments on Last tripreport

(J32691) 6-JUN-75 12:22;;;; Title: Author(s): Susan Gail Roetter/SGR; Distribution: /JMB([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: SGR;

SGR 6-JUN-75 12:41 32692

Group Ident Change Requested

1 Please remove STW from NSA and add MEJ. Thanks --Susan 1

SGR 6-JUN-75 12:41 32692

Group Ident Change Requested

(J32692) 6-JUN-75 12:41;;;; Title: Author(s): Susan Gail Roetter/SGR; Distribution: /MLK([ACTION]) JNH([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: SGR;

SGR 6-JUN-75 13:03 32693

Some Aspects of the ARPA Application needing thought

Any suggestions gladly accepted

SGR 6-JUN-75 13:03 32693

Some Aspects of the ARPA Application needing thought

1 Unresolved problems with the MRAO and AO applications at ARPA 1

1a The process is underway for producing MRAO's (Memo of Request for an ARPA Order) online with NLS. They only need to be distributed internally so online distribution is fine (everyone receiving them either reads online mail or their secretary does). The perceived problem is that most of these people receive most of their mail at ISI via sndmsg. How is the best way to get the item created at office-1 sent to isi? Network journal delivery doesn't work, send message command in message subsystem would allow for this (but too many steps to go through?), and we could have them make text files and send them with sndmsg but again many steps. Any thoughts as to which way would be best (maybe something not mentioned above). 1a

1b Also in looking to the future, they would like to broaden this application by also being able to do ARPA Orders online. The distribution problem increases because the AO's must get outside distribution (hardcopy). Three copies are needed and the following are some problems encountered while trying to figure how to get the copies (in a way that would be faster than typing the AO in the first place with carbon paper). 1b

1b1 The copies need to be made at the individual's terminal because people will be working on several floors of ARPA with an electrostatic copier on only one floor which is too busy and too far away for some people to use on a continuing basis. A terminal set up with continuous form paper with carbons would be unwieldy for the same reason. It was also felt it would be too much trouble to switch back and forth between regular continuous form paper and carbon filled sets. If you were to print 3 copies on standard Terminette paper you have to reposition the paper each time because the output terminal command must be given once for each copy. What would really solve their problem would be to have the option in output terminal to say how many copies they'd like. Unless someone else has another idea I can't think of any other alternatives that would be more efficient than using a typewriter and carbon paper - ugh! 1b1

SGR 6-JUN-75 13:03 32693

Some Aspects of the ARPA Application needing thought

(J32693) 6-JUN-75 13:03;;;; Title: Author(s): Susan Gail Roetter/SGR; Distribution: /JCN([ACTION]) JHB([ACTION]) RLL([ACTION]) NDM([ACTION]) DCE([ACTION]) RH([INFO-ONLY]) JMB([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: SGR;

1 Trip report for 6.47.40.F, Applications of Information Processing Technology Meeting held at AFSC, 28-30 May 75 : Lt Col J. Hilbing and Mr R. B. Panara. 1

2 28 May 75 2

3 After introductory remarks by Major Gordon/XRF, Major Noble/MCI, the OPR for the Engineering Development Program Element, 64740F, Applications of Information Processing Technology presented an overview. Col Emma, MCI, then presented the group with the same briefing he had just given to General Dunn on the status of ISIAO. He said that MCI support to SPO's now accounted for approximately 60% of man-years and that the goal was 52%. He also stated the work of 42 MITRE people was being directed by MCI. 3

4 Lt. Col Manley, XRF, then gave a brief review of the status of the JLC Software Committee recommendations (plans). He said the plan was now being reviewed at the 4-star level at AFSC and that he was responsible for getting an implementation plan out to DDR&E by 1 July. 4

5 The proposed management methods for running the program element were discussed. It was decided to try to time the call for proposed tasks from April - June to be concurrent with other RDT&E planning and to have only a planning committee, similar to the 5550 steering group, instead of separate planning and technical committees. ASD and SAMSO expressed concern over the division of responsibility between AFSC/XRF and ESD/MCI for running the program. They wanted XRF to retain responsibility for redirection of funds. MOA's and the meaning of coordination were discussed. More definitive direction will be forthcoming from AFSC/XRF. 5

6 29 May 75 6

7 The results of the previous days' meeting were discussed. Major Gordon said that the FY 76 program was fixed and that no new tasks could be introduced. ASD and SAMSO did not appear to be very happy with this ground rule. Details of each task were presented and disscussed: 7

7a 1. Engineering Approach to Computer Program Development - John Mott-Smith, ESD/MCI: This task is a survey to identify tools and develop methodologies for their uses. A draft copy of the task description was obtained and brought back to RADC. This appears to be general analysis of the software problem and RADC may have already looked at many of these factors. RADC/IS should closely review this task description. 7a

7b 2. CARA - Major Eiden, ESD/MCI: This includes certain extensions to the present CARA work. 7b

7c 3. HOL Study - John Mott-Smith, ESD/MCI: This task was limited to conducting the study outlined in the AFSC Form 56. Mr. Panara said he thought that the task plan should indicate a long range objective to develop a HOL Control Facility starting in FY 78 to be based on results of the 6.3 pilot facility. Major Luce, SAMSO, suggested that an effort be initiated in FY 76 to modify the Aerospace developed Compiler Writing System for J-73. He said that it could be done for 100K in a short time. We suggested that Sam DiNitto comment on this proposal. 7c

7d 4. Guidebooks - Major Eiden, ESD/MCI: Everyone thought that the idea of developing guidebooks was good. ASD and SAMSO were concerned that the guidebook would be too general and that if they became mandatory, they would not meet their needs and become a hardship. ASD, in particular, was concerned because of the differences in methods of supporting SPOs that exist between ASD and ESD. Major Eiden will look into this area of concern. 7d

7e 5. ADP System Security - Nothing was presented: Major Schell was not in attendance and it was thought that people were familiar with that effort. 7e

7f 6. Software Quality - Major Eiden: This work could be duplicative of work proposed in 5550. MCI and IS will have to get together on it. 7f

7g 7. Software Cost Performance Analysis - Major Eiden: The approach is to improve upon a MITRE model. While duplication with the approach in 5550 may be warranted, it may be beneficial to run both models at the RADC. MCI and IS should meet on this item. 7g

8 30 May 8

9 This last part of the meeting was set aside for writing a short description of new tasks to be inculuded in the 6.4 PMP as part of the three year plan. These are proposed tasks that were drafted rather rapidly. No attempt was made to closely evaluate the individual proposals. This will be accomplished later during the planning committee's actions. RADC did submit one general task in the associative processor area. Also mentioned was the possible inclusion of the HOL Control Facility starting in FY 78. During the discussion it was determined that Mr. Phil Babel, ASD/ENAIA is collecting certain software data on a contract with Singer. RADC/IS should further discuss this with him to determine if the data is appropriate for consideration in the Software Data Repository. 9

10 Summary: 10

11 1. PE 64740F will have a planning committee similiar to the initial 5550 steering committee and RADC will be a member of this committee. 11

12 2. The PMP will be revised and RADC will be furnished with a revised plan. 12

13 3. Discussions must be held between RADC/IS and ESD/MCI regarding the FY76 tasks of software quality and cost performance models to ensure that the tasks are complementary to and not duplicative of tasks in 5550. 13

14 4. A discussion should be held between RADC/IS and SAMSO/DYAC regarding the efforts of CWS and JOCIT. 14

15 5. RADC/IS should review closely the draft task description for the Engineering Approach to Computer Program Development. 15

16 6. RADC/IS should contact ASD/ENAIA regarding the software data that may be available through that organization. 16

(J32694) 6-JUN-75 13:36;;;; Title: Author(s): Roger B. Panara/RBP;
Distribution: /RDK([ACTION]) ARB([ACTION]) FJT([ACTION])
FJH([ACTION]) DRL2([ACTION]) RN2([ACTION]) JLM([ACTION])
RBP([INFO-ONLY]) ; Sub-Collections: RADC; Clerk: RBP;
Origin: < PANARA, 6.4-TRIP-1;1, >, 6-JUN-75 13:21 RBP ;;;;; ####;

SGR 6-JUN-75 13:41 32695

Proposed Viewgraphs For User Services

This is submitted for consideratin by JHB. User Services will provide personpower if needed.

Proposed Viewgraphs For User Services

1 The following is a proposed list of viewgraphs to be produced by the SRI art department and made available for all trainers to use. I've grouped them first by the course they would accompany and then by how I view their usefulness. 1

2 This is a revision of the set proposed in (32303,) per comments by JMB and RH (32504,). If you're not familiar with some of the ones I have copies of let me know and I'll show you. 2

3 BASIC COURSE 3

3a Useful 3a

3a1 1. Relationship between ARPANET, TENEX, NLS, SNDMSG, etc. 3a1

3a1a JHB has a drawing that would replace the ones currently in use. 3a1a

3a2 2. Difference between insert statement and insert text 3a2

3a2a Suggested Content: 3a2a

3a2b Insert Statement - used to add a new paragraph 3a2b

3a2c Insert Text - used to add to an existing paragraph 3a2c

3a2d It was noted that this doesn't have much content on it - it could be used to write examples of inserting text. 3a2d

3a3 3. Differences between sndmsg and Sendmail 3a3

3a3a Suggested Content: 3a3a

3a3b	SNDMSG	SENDMAIL	3a3b
3a3c	Sent in TENEX	Sent in NLS	3a3c
3a3d	Sent to usernames (directories)	Sent to idents	3a3d
3a3e	Used to send impromptu messages	Used to send impromptu messages, and files and statements prepared in advance	3a3e
3a3f	Not catalogued	Automatically catalogued	3a3f

3a3g No author copy — Automatic author copy — 3a3g

3a3h Delivered immediately — Delivered several times/day — 3a3h

3a3i Read in TENEX (mess) — Read in NLS (Print Journal) — 3a3i

3a4 4. Example of using Help and ? — 3a4

3a4a Suggested Content: — 3a4a

3a4b There are currently two viewgraphs dealing with this and it's been suggested that they be combined by eliminating the example of typing ? at BASE C: and adding the example of typing Help followed by a word and an example of using a number to pick an item from the menu. — 3a4b

3a4c This means the following events would be shown: typing a d at BASE C: then a ?, typing an F and then CTRL Q, typing CTRL x, typing H and then create file, typing 1 and then CTRL x. — 3a4c

3a5 5. Getting back and forth between NLS and TENEX. — 3a5

3a5a Suggested content: — 3a5a

3a5b A chart with ways of getting to TENEX along the top (Quit Nls, Goto Tenex and CTRL C) and 3 rows describing when you can use each way, how to get back to NLS after using each way, and whether you can logout from that TENEX. I have a rough example.) — 3a5b

3b Of Questionable Use — 3b

3b1 1. Steps a user goes through to do a job — 3b1

3b1a I have a xerox copy - Jeanne has original — 3b1a

3b2 2. Example of Login and Logout — 3b2

3b2a Terminette and TI paper could be copied to show different kinds of logins and logouts with the appropriate example used for different clients. — 3b2a

4 SECOND COURSE — 4

4a Useful — 4a

Proposed Viewgraphs For User Services

4a1 1. Example of structured file to show branch and group 4a1

4a1a Suggested content: 4a1a

4a1b Menu (see back of second course, has been recently revised to incorporate suggestions made earlier) 4a1b

4a1c Something with real paragraphs and headings (similar to the ones currently in use without dots) 4a1c

4a1c1 I have a few samples (xeroxed) Jeanne has originals 4a1c1

4a1d Possibly a view with statement numbers and one without 4a1d

4a2 2. A matrix showing how editing commands fit together (verbs and nouns in columns) with definitions of STRING and STRUCTURE 4a2

4a3 3. An example of printing the file with paragraphs mentioned in 1 above with different viewspecs; suggested views would be: wm, xI, yG, xb, ct, xbbr (a smaller subset might be sufficient) 4a3

4a3a Jeanne has original I have a xerox 4a3a

4a4 4. Something for links 4a4

4a4a One possibility - example of initial file (journal and author branch) with citations and messages (to show differences) with statement numbers on; could be used later to describe names and how to go about organizing your initial file; should have print command used at top. 4a4a

4a4a1 A series of examples of the above would be good so they could be used to show different ways of printing journal mail, i.e., Print Journal for the first course (with short files!), Print Group 1-2 for the second, jumping to a link for the second, and Print Branch journal for the third course. 4a4a1

5 THIRD COURSE 5

5a Useful 5a

5a1 1. A couple of views of journal catalogs in locator with print commands used: xbm, xbb and xbbb 5a1

5a2 2. An example of Show File Status with the comment that an Update File Compact is needed 5a2

5a3 3. The Output Processor page diagram 5a3

6 FOR GENERAL USE 6

6a Useful 6a

6a1 1. A viewgraph of BASE C: with the rest blank to be filled in with whatever example is being explained (for people who prefer writing on viewgraphs to the blackboard). 6a1

6b Questionable 6b

6b1 1. A viewgraph of each page of the course so the trainer can be pointing to the place being talked about and it can easily be seen by everyone so people don't get lost. 6b1

SGR 6-JUN-75 13:41 32695

Proposed Viewgraphs For User Services

(J32695) 6-JUN-75 13:41;;;; Title: Author(s): Susan Gail Roetter/SGR; Distribution: /JHB([ACTION]) US([INFO-ONLY]) DIRT([INFO-ONLY]) JCN([INFO-ONLY]) ; Sub-Collections: SRI-ARC US DIRT; Clerk: SGR; Origin: < ROETTER, VIEWS.NLS;3, >, 6-JUN-75 13:37 SGR ;;;;####;

RA3Y 6-JUN-75 15:48 32696

More Comments on Stats on Feedback <32649,>

1 I was also pleased to see the analysis of Feedback statistics. It is nice to see us begin to "close the loop" on the bootstrap process which, after all, is the whole reason for the Utility's existence. One thing was very surprising to me, however. This was the small number of bug reports. Does this indicate user contentment or a feeling that nothing is done about bug reports? 1

RA3Y 6-JUN-75 15:48 32696

More Comments on Stats on Feedback <32649,>

(J32696) 6-JUN-75 15:48;;;; Title: Author(s): Raymond R. Panko/RA3Y; Distribution: /SGR([ACTION]) FEEDBACK([ACTION]) SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC FEEDBACK; Clerk: RA3Y;

User Services Report for Week of 6/2/75

1 USER SERVICES WEEKLY REPORT from JMB: on vacation 1

2 USER SERVICES WEEKLY REPORT from SGR: 2

2a MON Time: 6 hrs 3074 ==> at SRI-ARC
Time: 2 hrs 750D32 COY ==> at SRI-ARC 2a

2a1 Organized trip, edited third course, talked with PKA about how to teach the Basic Course in preparation for her teaching Jan Cornish (our latest programmer), met with JHB and BEV on future NSW documentation 2a1

2b TUES Time: 6 hrs 3074 ==> at SRI-ARC
Time: 2 hrs 750D32 COY ==> at SRI-ARC 2b

2b1 Proofed third course and sent it to be printed, created (usreport,) (for better or for worse...), rewrote description of archive file in 1,33 for JHB to send around, answered questions about telnet,typescript files and process branches, discussed proposed changes to second course with JHB, began Jan C. on second course 2b1

2c WED Time: 6 hrs 3074 ==> at SRI-ARC
Time: 2 hrs 750D32 COY ==> at SRI-ARC 2c

2c1 Edited second course, finished second course with JAC3, made more travel arrangements, met with DVN, DMB, and JML on how to get the Final Report out, worked on viewgraph proposal, discussed link Vs. addressing with reference to second course with JHB: discovered that ,1 looks only through the statement with the pointer for a link and stops, also that links are valid after any A: in a command that requires only one A: except for Jump to Address 2c1

2d THUR Time: 4 hrs 3074 ==> at SRI-ARC
Time: 4 hrs 750D32 COY ==> at SRI-ARC 2d

2d1 Sent message to KWAC about feedback stats, started 3rd course with JAC3, worked on description of directives to accompany page diagram, went to ARC-APP meeting 2d1

2e FRI Time: 6 hrs 3074 ==> at SRI-ARC
Time: 2 hrs 750D32 COY ==> at SRI-ARC 2e

2e1 Studied up on Content analyzer, more of 3rd course for JAC3, journalized viewgraph proposal, finished directives description, tidied up loose ends in preparation for taking off for 2 weeks (sending messages, talking to people etc.) 2e1

User Services Report for Week of 6/2/75

2f Note: After looking over this format I'm not sure how important the daily charges are. The only ones I need to know are from people dealing with clients and if I get copies of what you send to JOAN each week that should be fine. Anyone else interested in charges? Also, Rita gave a weekly description which I think is probably better than a blow by blow as above. Again what do you think? 2f

3 USER SERVICES WEEKLY REPORT from RH: 3

3a MON Time: 5 hrs charge 9259 ==> ARPA 3a

3b Time: 3 hrs charge 720D62 COY ==> SRI-WDC 3b

3c TUES Time: 6 hrs charge 9259 ==> ARPA 3c

3d Time: 3 hrs charge 720D62 COY ==> SRI-WDC 3d

3e WED Time: 6 hrs charge 9259 ==> ARPA 3e

3f Time: 3 hrs charge 720D62 COY ==> SRI-WDC 3f

3g THUR Time: 5 hrs charge 9259 ==> ARPA 3g

3h Time: 3 hrs charge 720D62 COY ==> SRI-WDC 3h

3i FRI Time: 6 hrs charge 9259 ==> ARPA 3i

3j Time: 3 hrs charge 720D62 COY ==> SRI-WDC 3j

3K Note: I have spent a great deal of time working for and on ARPA projects. Most of my time has been spent with the Program Management Division there, namely Ginny Gross and Bill Bangert. Ginny has been putting ARPA Orders on-line, printing them on letter head. In this capacity she has been getting additional NLS training. Bill Bangert has funding files on line and we have been experimenting with different ways of printing them using the XGP. As a matter of fact I have spent a great deal of my time experimenting with the XGP trying to get some set rules down for printing with it, besides what Jeanne's document of printing on the XGP does. Some people want just a piece of paper so they don't have to think and some want to know what does what to what. I have the forms for the ARPA Orders on-line and am in the process of writing instructions for them. 3K

4 8SER SERVICES WEEKLY REPORT from PKA: 4

4a MON Time: 8 hrs charge 750D32 ==> at SRI-ARC 4a

User Services Report for Week of 6/2/75

4b Finally journalized the March feedback file as Dialogue. Talked about changes to my file on the statistics of the feedback file with SGR. Met with SGR to discuss how to teach the Basic Course to JAC3, the new programmer. Taught JAC3 the Basic Course. 4b

4c TUES Time: 8 hrs charge 750D32 ==> at SRI-ARC 4c

4d Finished all editing of the file of statistics on feedback (March), and journalized this. Sat in on SGR's second course session with JAC3. Met with SGR, Jake Feinler, and PAW to discuss work to be done for NIC this week. 4d

4e WED Time: 8 hrs charge 750D32 ==> at SRI-ARC 4e

4f Worked for the NIC all day. Made edits in files. 4f

4g THUR Time: 8 hrs charge 750D32 ==> at SRI-ARC 4g

4h Worked for the NIC all morning editing files. ARC-APP meeting during the afternoon. Then more NIC work. 4h

4i FRI Time: 8 hrs charge 750D32 ==> at SRI-ARC 4i

4j Finished editing my trip report, and journalized to ARC-APP. Worked for NIC for about 6 hours completing everything given to me to date. Met with SGR and PAW to discuss work to be during next 2 weeks while SGR is away. 4j

4K Note: 4k

5 USER SERVICES WEEKLY REPORT from PAW2: 5

5a MON Time: 8 hrs charge 750D32 COY ==> at SRI-ARC 5a

5b TUES Time: 8 hrs charge 750D32 COY ==> at SRI-ARC 5b

5c WED Time: 8 hrs charge 750D32 COY ==> at SRI-ARC 5c

5d THUR Time: 8 hrs charge 750D32 COY ==> at SRI-ARC 5d

5e FRI Time: 8 hrs charge 750D32 COY ==> at SRI-ARC 5e

5f Note: This past week has been reasonably productive. I concluded the editions on the most recent print-out of the glossary...but from past experience I know better than to believe I have put the finishing touches on the final edition! Am now working on editing a rough draft of ARC's final report to be sent to the people at ARPA, again using pretty basic editing commands. Am reading over Dean Meyer's report, an NLS promotional paper

geared toward potential exec.-type users. He had thought by having me read it, someone relatively new to the NLS system, I might be able to determine clearness, understandability, etc., of the report. 5f

User Services Report for Week of 6/2/75

(J32697) 6-JUN-75 17:43;;;; Title: Author(s): Susan Gail Roetter, Pamela K. Allen, Priscilla A. Wold, Rita Hysmith/SGR PKA PAW2 RH; Distribution: /JCN([INFO-ONLY]) US([INFO-ONLY]) ; Sub-Collections: SRI-ARC US; Clerk: PKA;

FGB 6-JUN-75 18:51 32698

New Keyboards for Old

1 AIDers, 1

1a I was talking with Martin Hardy today and he tells me that he could probably get keyboards of Selectric quality for use with the DNLS workstation for about $350 or $400 a keyboard. 1a

1b Two of us have just spent an hour or so with pliers,screwdriver, and soldering iron moving plungers around on our keyboard so that it was usable again, I think it would be time well spent if he looks into geting some decent keyboards. 1b

1c If anybody out there agrees with me, let me know & I''ll pass the consensus on to Jim Norton. 1c

2 Regards. 2

3 Frank 3

New Keyboards for Old

(J32698) 6-JUN-75 18:51;;;; Title: Author(s): Frank G. Brignoli/FGB; Distribution: /AID([ACTION]) JCN([INFO-ONLY]) ; Sub-Collections: NIC AID; Clerk: FGB;

Comments on the proposed Host/IMP Protocol Change

1 Network Working Group Jon Postel
Request for Comments 690 (POSTEL@BBNB)
NIC 32699 June 6, 1975 1

2 Comments on the proposed Host/IMP Protocol Change 2

3 This is a set of comments on Dave Walden's RFC 687 suggesting a set of changes to the host--imp protocol. Dave's points are reproduced here with my comments underneath. 3

4 1. Expanded Leader Size. The leader will be expanded from two to five 16-bit words. This will provide space for necessary field expansions and additions. 4

4a The existing protocols set the host header at 40 bits so that taken together with the leader the length was 72 bits a nice boundary for both 8 bith and 36 bit machines. This suggestion would result in a prefix of 80 + 40 = 120 bits, not so nice (unless the host header is extended to 64 bits for a total prefix of 144 bits). 4a

5 2. Expanded Address Field. The address field will be expanded to 24 bits, 16 bits of IMP address and 8 bits of host address. This expansion is more than adequate for any forseeable ARPA Network growth. 5

5a Just a few years ago 256 seemed like a lot of hosts, perhaps a extensible scheme might be more approiate. (i concede 16,777,216 is big.) 5a

6 3. New Message Length Field. A new field will be added which will allow the source host to optionally specify the message length (in bits) to the IMP subnetwork. The IMP subnetwork may be able to use this information (when available) to better utilize network buffer storage. The destination host may also be able to use this information to better utilize its buffer storage. This field will be 13 bits wide. 6

6a This sound very useful, but if we every want to have longer messages than now the field should be wider, say 16 bits. 6a

7 4. Expanded Handling Type Field. The handling type field which now is used to distinguish between priority and non-priority message

streams, etc., will be expanded to eight bits. This expanded field will provide for the possibility of a number of parallel message streams having different handling characteristics between pairs of hosts; e.g., priority, non-priority, varying numbers of packets per message (see below), unordered messages (i.e., the present type-3 messages), a message stream requiring guaranteed capacity, etc. Note that only some of these facilities will be available in the near term. 7

7a This sounds like a good extension. 7a

8 5. Source Host Control of Packets per Message. The possibility will exist for the source host to specify a message stream which will use a given number of packets per multi-packet message (e.g, two packets per message or five packets per message). Since the IMP network will not have to use eight packet-buffers for reassembly purposes, as at present, this may result in better services for such messages. This will help users who need both low delay and high throughput. 8

8a This seems strange, why not use the message length (as provided in 3 above) to determine the number of packets needed for this message. 8a

9 6. Unordered (type-3) Message Change. Unordered messages will be indicated by a handling type rather than by a message type as at present. This is compatible with the need to check the host access control capabilities of all messages. This will provide a slight backward incompatibility for the three or so hosts which presently use type-3 messages in their research. 9

9a Good, a current special case becomes a general facility. 9a

10 7. Change in Format of Fake Host Addresses. The For/From IMP bit will be eliminated. The fake host addresses will be the four highest host numbers (e.g., IMP Teletype will be host 252). 10

10a Another change for the better. 10a

11 8. Addition of a Parameter to the IMP to Host NOP. The IMP to host NOP will have added to it a parameter specifying the address (IMP and host number) of the host. 11

11a Ah, a clever touch, very handy. 11a

12 9. Backward Compatibility. The old and new formats will be supported in parallel in the IMPs for the foreseeable future to allow gradual phaseover of host software. A host will be able to specify to its IMP whether the old or new formats are to be used; thus, it will be possible for the host to specify switching back and forth between the two modes for debugging purposes. The specification of the mode to be used will be possible via a proper choice of format in the host to IMP NOP message; the IMP will use the mode of the host to IMP NOP message the IMP has received. Further, a host may select to use either the old or new format without needing to know more about the other format messages than to discard them should they arrive. The IMP will initialize by sending several NOP messages of each type to give the hosts its choice. Although a host not implementing the new format will not be able to address hosts on IMPs with IMP-number greater than 63, the IMPs will wherever possible do the conversion necessary to permit hosts using the old format to communicate with hosts using the new format and the reverse. Finally, it will be possible to convert the leader format from old to new or the reverse without knowledge of the message type. 12

12a This sounds difficult to implement, but it is all in the imp, so fine. Of course, something along these lines is crucial in an operating environment. But i am beginning to get concerned about changes to host--host protocol and network control programs. 12a

13 [What happened to 10 ?] 13

14 11. Non-blocking Host Interface. A mechanism will be provided which allows the IMP to refuse a message from a host without blocking the host interface. This mechanism will permit the IMP to gather the necessary resources to send the refused message and then ask the host to resend the message. Finally, the host will be permitted to ask to be able to send a message and be notified when it is possible without requiring the message to actually be sent and refused. 14

14a This is another welcome addition. 14a

15 12. Maximum Message Length. The maximum number of bits of data in a message may be reduced by a few bits. 15

15a I don't see why, but it dosen't matter much. 15a

16 On the whole a fine set of suggestions, tho i am concerned about changes to host--host protocol implied here or made more desirable by these suggestions. A rough guess is that there is easily a couple of person-months of system programmer time for each operating system on the net implied here. Say 24 systems times 2 person-months each equals 48 person-months equals 4 person-years. And this may be the lower bound. 16

17 17

NWG/RFC# 690 JBP 6-JUN-75 23:19 32699
Comments on the proposed Host/IMP Protocol Change

(J32699) 6-JUN-75 23:19;;;; Title: Author(s): Jonathan B. Postel/JBP; Distribution: /JBP([INFO-ONLY]) ; Sub-Collections: NIC NWG SRI-ARC; RFC# 690; Clerk: JAKE; Origin: < NETINFO, JP-RFC,NLS;2, >, 6-JUN-75 23:17 JAKE ;;;;####;

NWG/RFC# 691 BH 6-JUN-75 23:15 32700
One More Try on the FTP

1

Brian Harvey
SU-AI
Re: File Transfer Protocol May 28, 1975
Ref: RFC 354, 385, 414, 448, 454, 630, 542, 640 1

2 One More Try on the FTP 2

2a This is a slight revision of RFC 686, mainly differing in the discussion of print files. Reading several RFCs that I (sigh) never heard of before writing 686 has convinced me that although I was right all along it was for the wrong reasons. The list of reply codes is also slightly different to reflect the four lists in RFCs 354, 454, 542, and 640 more completely. Let me also suggest that if there are no objections before June 1, everyone take it as official that HELP should return 200, that SRVR should be used as discussed below, and that "permanent" 4xx errors be changed to 5xx. And thanks to Jon Postel who just spent all evening helping me straighten this all out. 2a

2b Aside from a cry of anguish by the site responsible for the security hassle described below, I've only had one comment on this, which was unfavorable but, alas, unspecific. Let me just say, in the hopes of avoiding more such, that I am not just trying to step on toes for the fun of it, and that I don't think the positive changes to FTP-1 proposed here are necessarily the best possible thing. What they are, I think, is easily doable. The great-FTP-in-the-sky isn't showing any signs of universal acceptability, and it shouldn't stand in the way of solving immediate problems. 2b

3 Leaving Well Enough Alone 3

4 I recently decided it was time for an overhaul of our FTP user and server programs. This was my first venture into the world of network protocols, and I soon discovered that there was a lot we were doing wrong--and a few things that everyone seemed to be doing differently from each other. When I enquired about this, the response from some quarters was "Oh, you're running Version 1!" 4

5 Since, as far as I can tell, all but one network host are running version 1, and basically transferring files OK, it seems to me that the existence on paper of an unused protocol should not stand in the way of maintaining the current one unless there is a good reason to

believe that the new one is either imminent or strongly superior or both. (I understand, by the way, that FTP-2 represents a lot of thought and effort by several people who are greater network experts than I, and that it isn't nice of me to propose junking all that work, and I hereby apologize for it.) Let me list what strike me as the main differences in FTP-2 and examine their potential impact on the world. 5

5a 1. FTP-2 uses TELNET-2. The main advantage of the new Telnet protocol is that it allows flexible negotiation about things like echoing. But the communicators in the case of FTP are computer programs, not people, and don't want any echoing anyway. The argument that new hosts might not know about old Telnet seems an unlikely one for quite some time to come; if TELNET-2 ever does really take over the world, FTP-1 could be implemented in it. 5a

5b 2. FTP-2 straightens out the "print file" mess. First of all, there are two separate questions here: what command one ought to give to establish a print file transfer, and which end does what sort of conversion. For the second question, although all of the FTP-1 documents are confusing on the subject, I think it is perfectly obvious what to do: if the user specifies, and the server accepts, an ASCII or EBCDIC print file transfer parameter sequence, then the data sent over the network should contain Fortran control characters. That is, the source file should contain Fortran controls, and should be sent over the net as is, and reformatted if necessary not by the SERVER as the protocol says but by the RECIPIENT (server for STOR, user for RETR). (The "Telnet print file" non-issue will be debunked below.)
As a non-Fortran-user I may be missing something here but I don't think so; it is just like the well-understood TYPE E in which the data is sent in EBCDIC and the recipient can format it for local use as desired. One never reformats a file from ASCII to EBCDIC at the sending end. Perhaps the confusion happened because the protocol authors had in mind using these types to send files directly to a line printer at the server end, and indeed maybe that's all it's good for and nobody's user program will implement TYPE P RETR. 5b

5c As for the specific commands used to negotiate such a transfer, there may currently be some confusion because the most recent FTP-1 document on the subject (RFC 454) invents a new

command, FORM, which is not in general use as far as I know. (Most of my experiments have been on PDP-10s; perhaps other systems have adopted this command.) FTP-2 puts the format argument in the TYPE command as a second argument. Either way, using a two-dimensional scheme to specify the combinations of ASCII/EBCDIC and ASA/normal conveys no more information than the present A-P-E-F scheme. FTP-2 also introduces the notion of Telnet formatted vs. non-print files. These types are used when a Telnet format oriented system is sending a file to an ASA oriented one, and the recipient needs to know, not what is coming over the net, but how to solve a local file storage problem. It is unnecessary and unfair for hosts to have to negotiate something which does not acttually affect what gets sent over the net. It is unnecessary because the sending user process (there is no problem if the user process is receiving) need not understand what the issue is, it need only make the server understand by transmitting a message from the human user to the server process. Any TYPE parameter must be understood by both processes even if the user treats it just like some other type. 5c

5d To take a specific example, if I want to send an ASCII file to a 360, my FTP user program needs to have built into it the knowledge that there are two TYPEs which are really the same, AN and AT in the FTP-2 notation. If tomorrow someone needs to know the ultimate use of a binary file (for instance, the old PDP-6 DECtape format stores dump files differently from ordinary data files), I will have to add another piece of information to my FTP user and server (maybe they try to read such a file from me). Instead, information which affects only the RECIPIENT of a file, and not the format AS SENT OVER THE NET, should be specified in some form which the sending process can ignore. This is what the SRVR command should be used for. 5d

5e If a user at a 360 wants to retrieve a "Telnet print file" from another system, he might tell his FTP user process something like 5e

```
5e1 TYPE A
DISP PRINT
RETR FOO etc.                                    5e1
```

5f (or whatever syntax they use in their FTP). If a user at a 10 wants to send such a file to a 360, he would say 5f

5f1 TYPE A
SRVR PRINT
STOR FOO etc. 5f1

5g His FTP user program would send on the SRVR command without comment. Suppose that the transformation is one which might be used in either direction between the same two hosts. (This is not the case for the Telnet print file thing because two 360s would be using ASA format.) Then the user process could accept the equivalent of DISP PRINT from the user, and if the transfer turned out to be a STOR it would decide to send SRVR PRINT first. In this way the FTP user program can be written so that the human user types the same command regardless of the direction of transfer. 5g

5h Thus, FTP servers which care about the distinction between Telnet print and non-print could implement SRVR N and SRVR T. Ideally the SRVR parameters should be registered with Jon Postel to avoid conflicts, although it is not a disaster if two sites use the same parameter for different things. I suggest that parameters be allowed to be more than one letter, and that an initial letter X be used for really local idiosyncracies. The following should be considered as registered: 5h

5h1 T - Telnet print file 5h1

5h2 N - Normal. 5h2

5h2a Means to turn off any previous SRVR in effect. (This makes "non-print" the default case, rather than making "Telnet print" and "non-print" equal. It is probably a good idea if a user program can count on being able to turn off an earlier SRVR without having to know a specific inverse for it. Servers which do not implement any other SRVR parameters need not implement SRVR N either; user processes shouldn't send SRVR N just for the hell of it.)

5i 3. FTP-2 reshuffles reply codes somewhat. There have been four attempts altogether, that I know of, at specifying a list of reply codes: RFCs 354 and 454 for FTP-1, and RFCs 542 and 640 for FTP-2. There is not much to choose from among the first three of these, which are basically the same, except for a slight increase

in specificity each time through, e.g., the introduction of reply code 456 for a rename which fails because a file of the same (new) name already exists. This increased specificity of reply codes doesn't seem to be much of a virtue; if a rename operation fails, it is the human user, not the FTP user program, who needs to know that it was because of a name conflict rather than some other file system error. I am all for putting such information in the text part of FTP replies. Some real problems are actually addressed in the reply code revision of RFC 640, in which the basic scheme for assigning reply code numbers is more rational than either the FTP-1 scheme or the original FTP-2 scheme. However, I think that most of the benefits of RFC 640 can be obtained in a way which does not require cataclysmic reprogramming. More on this below. 5i

5j 4. FTP-2 was established by a duly constituted ARPAnet committee and we are duty-bound to implement it. I don't suppose anyone would actually put it that baldly, but I've heard things which amounted to that. It's silly. 5j

5k 5. FTP-2 specifies default sockets for the data connection. Most places use the default sockets already anyway, and it is easy enough to ignore the 255 message if you want to. This is a security issue, of course, and I'm afraid that I can't work up much excitement about helping the CIA keep track of what anti-war demonstrations I attended in 1968 and which Vietnamese hamlets to bomb for the greatest strategic effect even if they do pay my salary indirectly. I could rave about this subject for pages, and probably will if I ever get around to writing an argument against MAIL-2, but for now let me just get one anecdote off my chest: I have access to an account at an ARPAnet host because I am responsible at my own site for local maintenance of a program which was written by, and is maintained by, someone at the other site. However, the other site doesn't really trust us outsiders (the account is shared by people in my position at several other hosts) to protect their vital system security, so every week they run a computer program to generate a new random password for the account (last week's was HRHPUK) and notify us all by network mail. Well, on my system and at least one of the others, that mail isn't read protected. I delete my mail when I read it, but since it is hard enough remembering HRHPUK without them changing it every week, I naturally write it in a file on our system. That file could in principle be read protected but it isn't,

since sometimes I'm in someone else's office when I want to use it, and the other passwords in it are for open guest accounts which are widely known. Moral #1: Security freaks are pretty weird. Moral #2: If you have a secret don't keep it on the ARPAnet. (In the past week I have heard about two newly discovered holes in TENEX security.) 5k

51 6. FTP-2 is available online and FTP-1 isn't, so new hosts can't find out how to do it. Aargh!!! What a reason for doing anything! Surely it would be less costly for someone to type it in again than for everyone to reprogram. Meanwhile these new hosts can ask Jon or Geoff or Bobby or even me for help in getting FTP up. 51

5m 7. FTP-2 has some changes to the strange MODEs and STRUs. This is another thing I can't get too excited about. We support only MODE S and STRU F and that will probably still be true even if we are forced into FTP-2. If the relatively few people who do very large file transfers need to improve the restart capability, they can do so within FTP-1 without impacting the rest of us. The recent implementation of paged file transfers by TENEX shows that problems of individual systems can be solved within the FTP-1 framework. If the IBM people have some problem about record structure in FTP-1, for example, let them solve it in FTP-1, and whatever the solution is, nobody who isn't affected has to reprogram. 5m

6 Well, to sum up, I am pretty happy with the success I've had transferring files around the network the way things are. When I do run into trouble it's generally because some particular host hasn't implemented some particular feature of FTP-1, and there's no reason to suppose they'll do it any faster if they also have to convert to FTP-2 at the same time. The main thing about FTP-2, as I said at the beginning, is that its existence is an excuse for not solving problems in FTP-1. Some such problems are quite trivial except for the fact that people are reluctant to go against anything in the protocol document, as if the latter were the Holy Writ. A few actually require some coordinated effort. Here is my problem list: 6

6a 1. It is almost true that an FTP user program can understand reply codes by the following simple algorithm: 6a

6a1 a. Replies starting with 0 or 1 should be typed out and otherwise ignored. 6a1

6a2 b. Replies starting with 2 indicate success (of this step or of the whole operation, depending on the command). 6a2

6a3 c. Replies starting with 4 or 5 indicate failure of the command. 6a3

6a4 d. Replies starting with 3 are only recognized in three cases: the initial 300 message, the 330 password request, and the
350 MAIL response. (Note that the user program need not distinguish which 300 message it got, merely whether or not it is expecting one right now.) 6a4

6b The only real problem with this, aside from bugs in a few servers whose maintainers tell me they're working on it, is the HELP command, which is not in the original protocol and which returns 0xx, 1xx, or 2xx depending on the server. (Sometimes more than one message is returned.) The word from one network protocol expert at BBN is that (a) 050 or 030 is the correct response to HELP, and (b) there is a perfectly good mechanism in the protocol for multi-line responses. Unfortunately this does not do much good in dealing with reality. There seems to be a uniform procedure for handling the STAT command: 6b

```
6b1 151 information
151 information
151 ...
151 information
200 END OF STATUS                                   6b1
```

6c which fits right in with the above algorithm. This is despite the fact that 1xx is supposed to constitute a positive response to a command like STAT, so that according to RFC 354 it ought to be 6c

```
6c1 151-information
information
...
151 information                                     6c1
```

6d instead. RFC 414, which approves of the 200 reply for STAT, also gives 200 for HELP. (It seems to me, by the way, that 050 and 030 aren't good enough as responses to HELP since they "constitute neither a positive nor a negative acknowledgement" of the HELP command and thus don't tell the user program when it ought to ask the human user what to do next.) I suggest that, despite RFC 354, a 200 response be given by all servers at the end of whatever other HELP it gives as of, let's say, June 1. The alternatives are either to let the current rather chaotic situation continue forever while waiting for FTP-2, or to try to standardize everyone on a multi-line ixx for both HELP and STAT. I'm against changing STAT, which works perfectly for everyone as far as I can tell, and it should be clear that I'm against waiting for FTP-2. Unfortunately there is no real mechanism for "officially" adopting my plan, but I bet if TENEX does it on June 1 the rest of the world will come along. 6d

6e 2. Another reply code problem is the use of 9xx for "experimental" replies not in the protocol. This includes the BBN mail-forwarding message and one other that I know of. This procedure is sanctioned by RFC 385, but it seems like a bad idea to me. For one thing, the user program has no way of knowing whether the reply is positive, negative, or irrelevant. The examples I've been burned by all should have been 0xx messages. I propose that all such messages be given codes in the 000-599 range, chosen to fit the scheme given above for interpreting reply codes. x9x or xx9 could be used to indicate experiments. 6e

6f 3. One more on reply codes: RFC 630 (the one about the TENEX mod to the reply codes for MAIL and MLFL) raises the issue of "temporary" versus "permanent" failures within the 4xx category. RFC 640 deals with this question in the FTP-2 context by changing the meaning of 4xx and 5xx so that the former are for temporary errors and the latter are for permanent errors. I like this idea, and I think it could easily be adapted for FTP-1 use in a way which would allow people to ignore the change and still win. At present, I believe that the only program which attempts to distinguish between temporary and permanent errors is the TENEX mailer. For other programs, no distinction is currently made between 4xx and 5xx responses; both indicate failure, and any retrials are done by the human user based on the text part of the message. A specific set of changes to the reply codes is proposed below. 6f

6g Perhaps I should make a few more points about RFC 640, since it's the best thing about FTP-2 and the only argument for it I find at all convincing. Let me try to pick out the virtues of 640 and indicate how they might be achieved in FTP-1. 6g

6g1 a. The 3xx category is used uniformly for "positive intermediate replies" where further negotiation in the Telnet connection is required, as for RNFR. I'm afraid this one can't be changed without affecting existing user programs. (One of my goals here is to enable existing user programs to work while some servers continue as now and others adopt the suggestions I make below.) However, although this 3xx idea is logically pleasing, it is not really necessary for a simple-minded user program to be able to interpret replies. The only really new 3xx in RFC 640 is the 350 code for RNFR. But this would only be a real improvement for the user program if there were also a 2xx code which might be returned after RNFR, which is not the case. 640 also abolishes the 300 initial connection message with 220, but again there is clearly no conflict here. 6g1

6g2 b. The use of 1xx is expanded to include what is now the 250 code for the beginning of a file transfer. The idea is that a 1xx message doesn't affect the state of the user process, but this is not really true. Consider the file transfer commands. The state diagram on page 13 of RFC 640 is slightly misleading. It appears as if 1xx replies are simply ignored by the user program. In reality, that little loop hides a lot of work: the file transfer itself! If the server replied to the file transfer command immediately with a 2xx message, it would be a bug in the server, not a successful transfer. The real state diagram is more like 6g2

6g2a B --> cmd --> W --> 1 --> W --> 2 --> S

6g3 (with branches out from the "W"s for bad replies). It should be clear from this diagram that the user program, if it trusts the server to know what it's doing, can expect a 2xx instead of the 1xx without getting confused, since it knows which of the W states it's in. In fact, the use of 1xx in file transfer is very different from its other uses, which are indeed more like the 0xx and 1xx replies in FTP-1. I'd call this particular point a bug in RFC 640. 6g3

6g4 c. Automatic programs which use FTP (like mailers) can decide whether to queue or abandon an unsuccessful transfer based on the distinction between 4xx and 5xx codes. I like this idea, although those temporary errors virtually never happen in real life. This could be accomplished in FTP-1 by moving many of the 4xx replies to 5xx. Mailers would be modified to use the first digit to decide whether or not to retry. This scheme does not cause any catastrophes if some server is slow in converting; it merely leads to unnecessary retries. A few CPU cycles would be wasted in the month following the official switch. Thus, this feature is very different from (a) and (b), which could lead to catastrophic failures if not implemented all at once. (Yes, I know that FTP-2 is supposed to be done on a different ICP socket. I am not discussing FTP-2 but whether its virtues can be transferred to FTP-1.) The specific codes involved are listed below. 6g4

6g5 d. The use of the second digit to indicate the type of message. (The proposed division is not totally clean; for example, why is 150 ("file status okay; about to open data connection") considered to be more about the file system than about the data connection?) This can easily be done, since the second digit is not currently important to any user process--the TENEX mailer is, in this plan, already due for modification because of (c). Since this is mostly an aesthetic point, I'm hesitant to do it if it would be difficult for anyone. In particular, I would want to leave the 25x messages alone, in case some user programs distinguish these. This is especially likely for the ones which are entirely meant for the program: 251 and 255. Therefore I propose that if this idea is adopted in FTP-1 the meanings of x2x and x5x be interchanged. This proposal is reflected in the specific list below. 6g5

7 Let me summarize the specific changes to FTP-1 I'd like to see made, most of which are merely documentation changes to reflect reality: 7

7a 1. HELP should return 200. All commands should return 2xx if successful, and I believe all do except HELP. 7a

7b 2. The definition of 1xx messages should be changed to read:

"Informative replies to status inquiries. These constitute neither a positive nor a negative acknowledgment." 7b

7c 3. Experimental reply codes should be of the form x9x or xx9, where the first digit is chosen to reflect the significance of the reply to automated user programs. Reply codes greater than 599 are not permitted. The xx9 form should be used if the reply falls into one of the existing categories for the second digit. User programs are encouraged to determine the significance of the reply from the first digit, rather than requiring a specific reply code, when possible. 7c

7d 4. The STAT command with no argument is considered a request for a directory listing for the current working directory, except that it may be given along with TELNET SYNCH while a transfer is in progress, in which case it is a request for the status of that transfer. (Everyone seems to do the first part of this. I'm not sure if anyone actually implements the second. This is just getting the protocol to agree with reality.) The reply to a STAT command should be zero or more 1xx messages followed by a 200. 7d

7e 5. TYPEs P and F mean that the source file contains ASA control characters and that the recipient program should reformat it if necessary. Servers which care about Telnet-print vs. non-print should implement SRVR T and SRVR N. All user processes should provide a way for the human user to specify an arbitrary SRVR command. 7e

7f 6. (This is just a resolution of a loose end in documentation.) Nested reply codes are not allowed. I don't think this really needs more discussion; they never happen and can't possibly work, and FTP user programs shouldn't have to worry about them. 7f

7g Here is a list of the current FTP-1 replies, and how they should be renumbered for the new scheme. The changes from 4xx to 5xx should be REQUIRED as of June 1; changes in the second or third digit are not so important. (As explained above, it will not be catastrophic even if some hosts do not meet the requirement.) The list also contains one new possible reply adapted from RFC 640. Replies invented in RFC 454 are so noted; since some of them are for commands largely not implemented like REIN, they may be irrelevant. 7g

```
7g1 OLD   NEW   TEXT                                                  7g1

7g2 0x0   0x0   (These messages are not very well defined nor
very
                important.  Servers should use their judgment.)
100   110       System status reply.  (Since nobody does STAT as
in
                the protocol, this may be a moot point.)
110   111       System busy doing...  (This RFC 454 message could
                easily be considered an example of the one above,
                but since the 454 authors want to distinguish it,
                here it is in another number.)
150   150       "File status reply."  (If this were really that,
it
                would be switched to 120, but I believe what is
meant
                is the response to a bare STAT in mid-transfer,
which
                is more a connection status reply than a file
status
                reply.)
151   121       Directory listing reply.
200   200       Last command ok.
201   251       ABOR ok.                                             7g2
7g3 202   252   ABOR ignored, no transfer in progress.
new   206       Command ignored, superfluous here.
230   230       Login complete.
231   231       Logout complete.  (RFC 454: Closing connection.)
232   232       Logout command will be processed when transfer is
                complete.                                            7g3
7g4 233   233   Logout complete, parameters reinitialized.
(RFC 454              for REIN)                                      7g4
7g5 250   250   Transfer started correctly.
251   251       MARK yyyy = mmmm
252   252       Transfer completed ok.
253   223       Rename ok.
254   224       Delete ok.
255   255       SOCK nnnn
256   256       Mail completed ok.
300   300       Connection greeting
301   301       Command incomplete (no crlf)
330   330       Enter password                                       7g5
```

```
7g6 331   331   Enter account (RFC 454)
350   350   Enter mail.                                          7g6
7g7 400   huh?  "This service not implemented."  I don't
understand
          this; how does it differ from 506?  If it means no
FTP
          at all, who gave the message?  Flush.                7g7
7g8 401   451   Service not accepting users now, goodbye.
430   430   Foo, you are a password hacker!
431   531   Invalid user or password.
432   532   User invalid for this service.
433   533   Need account to write files.
434   454   Logout by operator.
435   455   Logout by system.
436   456   Service shutting down.
450   520   File not found.
451   521   Access denied.
452   452   Transfer incomplete, connection closed.              7g8
7g9 453   423   Transfer incomplete, insufficient storage
space.
454   454   Can't connect to your socket.
455   425   Random file system error (RFC 454)                   7g9
7g10 456   526   Name duplication, rename failed (RFC 454)
457   557   Bad transfer parameters (TYPE, BYTE, etc) (RFC
454)
500   500   Command gibberish.
501   501   Argument gibberish.
502   502   Argument missing.
503   503   Arguments conflict.
504   504   You can't get there from here.
505   505   Command conflicts with previous command.
506   506   Action not implemented.
507   507   Some other problem.  (RFC 454)
550   520   Bad syntax in pathname.  (RFC454)                    7g10
```

NWG/RFC# 691 BH 6-JUN-75 23:15 32700
One More Try on the FTP

(J32700) 6-JUN-75 23:15;;;; Title: Author(s): Brian Harvey/BH; Distribution: /JBP([INFO-ONLY]) ; Sub-Collections: NWG NIC; RFC# 691; Clerk: JAKE; Origin: < POSTEL, HARVEY.NLS;3, >, 6-JUN-75 01:36 JBP ;;;;####;

RA3Y 8-JUN-75 15:10 32705

Process Command Branches don't work on Office-1

1 process commands at branch instructions often end in a bad condition. You are kicked into Tenex and just about have to log out to recover. Another problem, which may be related, is that ^v^d do not cause a <CA> to be printed out: istead you get garbage that usually, but perhaps not always, acts like a CA 1

Process Command Branches don't work on Office-1

(J32705) 8-JUN-75 15:10;;;; Title: Author(s): Raymond R. Panko/RA3Y; Distribution: /FEEDBACK([ACTION]) JCP([ACTION]) ; Sub-Collections: SRI-ARC FEEDBACK; Clerk: RA3Y;

1 32705 Distribution
1a Special Jhb Feedback, Jeffrey C. Peters,

Practice Message

JHK2 9-JUN-75 08:43 32706

1 This is a test message. 1

JHK2 9-JUN-75 08:43 32706

Practice Message

(J32706) 9-JUN-75 08:43;;;; Title: Author(s): James H. Kollen/JHK2; Distribution: /LDM([INFO-ONLY]) MK6([INFO-ONLY]) GCE([INFO-ONLY]) ; Sub-Collections: NIC; Clerk: JHK2;

1 32706 Distribution
1a Leslie D. McTavish, Mike Katsoulis, Gwen C. Edwards,

SMT 9-JUN-75 08:43 32707

BRL and MERDC RH Write-up

Jake, At Last!!!! Here is the promised write up. Sorry to take so #'#%?** long. Stan Taylor

BRL and MERDC RH Write-up

1 This is a proposed write-up for Branch 3e &&Interests& for the BRL. 1

2 Starting from the Development of the world's first successful electronic computer --the ENIAC -- developed for the BRL by the Moore School of Engineering, University of Pennsylvania -- the interests of the BRL span practically the entire specctrum of possible applications in the computational field. 2

3 The BRL is the Technical Manager for the Army Materiel Command experiment in the use and development of computer networks.. This has lead to the use of the mini-front-end concept, currently using the ANTS software, developed by the University of Illinois. This system if soon to be replaced by a version of ELF. The BRL is responsbile for the development and installation of the 'Front-End' systems both at the BRL and at MERDC, Ft. Belvoir. 3

4 The broad interests of the Scientific Community of the BRL dictate that it obtain a certain portion of its computational services from sources other than its own in-house system. 4

4a The principal areas of interest which fall into this category are; the very large hydrodynamic codes [lagrangian, eulerian, method of characteristics, and finite element], Magneto-hydrodynamics, Aerodynamics (fluid dynamics) Continuum Mechanics, Radiation Transport, Structural Response (both finite difference and finite element], Combinatorial Geometry, Operations Reserch & Systems Analysis (including game theory), Pattern Recognition, Symbol Manipulation, data bank/data base development, managemend and applications, etc. 4a

4b These applications areas involve the development and applications of 'models' for 2-D and 3-D applications, as well as inclusion of models for the effects of chemical kinetics whever such effects are important to the process being modeled. 4b

5 Another area of interest is the development and application of the Workshop Utility Concept, as developed by ARC at SRI to the various technical and management problems of the AMC and BRL. 5

6 Refer to Branch 3c1 , please change the phone number to 6

6a (301) 278-3389; -4149; -2236; 2131 6a

7 Refer to Branch 3d1 Current System is ANTS. Plans are to change over to a version of ELF in the near future. 7

8 Refer to Statement 3b2: Change ANX BR-Xa to AMXBR-X 8

9 9

10 MERDC., FT. BELVOIR WRITE-UP 10

10a Refer to Statement 3a1: PDP-11/40 10a

10b Refer to Statement 3d1: Current system is ANTS. Plans are to change over to a version of ELF in the near future. The ELF system is being developed by the BRL. 10b

10c Refer to Statement 3e &&INTERESTS&: The 'Front-End' network system at MERDC is a part of the Army Materiel Command experiment in the development and application of computer networks for its Scientific and Engineering Community. The Technical Manager for this experiment is the Ballistic Research Laboratories. 10c

BRL and MERDC RH Write-up

(J32707) 9-JUN-75 08:43;;;; Title: (Unrecorded) Title: Author(s): Stan M. Taylor/SMT; Distribution: /JAKE([ACTION]) ; Sub-Collections: NIC; Clerk: SMT; Origin: < TAYLOR, RESOURCE-HNDBK-WRITE-UP.NLS;1, >, 9-JUN-75 08:33 SMT ;;;;####;

1 32707 Distribution
1a Elizabeth J. Feinler,

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

This will look better if you use the OUTPUT Command. Either OUTPUT REMOTE to send to printer or OUTPUT TERMINAL to have it print where you are.

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

1 To use the MODIFY subsystem GOTO PROGRAMS<cr>. LOAD FILE MODIFY<cr>. When the program is loaded MODIFY has become a subsystem. At this point you can GOTO MODIFY<cr> or QUIT<cr> back to BASE. While in BASE you can use the command EXECUTE PROGRAM in MODIFY (no command accept or <cr>), and do one command (or with a control B) a series of the same command. Alternatively, you can go to MODIFY and do a series of operations there and then QUIT and go back to BASE. 1

2 I suggest you start a new file to practice with. Before doing anything too strenuous, UPDATE your FILE so that if you screw it up too badly you can DELETE the MODICATIONS to the file. Be liberal in your use of the question mark, the control Q (Takes you to the HELP subsystem) and the control S (prints out a series of correct commands as examples) 2

3 3

4 The MODIFY subsystem is one way to perform simultaneous operation on files in the Vertical dimension. Rather than try to explain these rather complicated effects I will demonstrate some of them to you. The original file is shown below: (NOTE: All changes will be made in lower case) 4

4a 4a

4b DEMONSTRATION OF MODIFY SUBSYSTEM 4b

4c DEMONSTRATION OF MODIFY SUBSYSTEM 4c

4c1 DEMONSTRATION OF MODIFY SUBSYSTEM 4c1

4c2 DEMONSTRATION OF MODIFY SUBSYSTEM 4c2

4c2a DEMONSTRATION OF MODIFY SUBSYSTEM 4c2a

4c2a1 DEMONSTRATION OF MODIFY SUBSYSTEM 4c2a1

4c2a1a DEMONSTRATION OF MODIFY SUBSYSTEM 4c2a1a

4d DEMONSTRATION OF MODIFY SUBSYSTEM 4d

4d1 DEMONSTRATION OF MODIFY SUBSYSTEM 4d1

4d1a DEMONSTRATION OF MODIFY SUBSYSTEM 4d1a

4d1b DEMONSTRATION OF MODIFY SUBSYSTEM 4d1b

4d1c DEMONSTRATION OF MODIFY SUBSYSTEM 4d1c

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

4d1d DEMONSTRATION OF MODIFY SUBSYSTEM 4d1d

4d2 DEMONSTRATION OF MODIFY SUBSYSTEM 4d2

4d3 4d3

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5 DEMO 1 - The first command of interest is INSERT. You can INSERT FRONT of or BACK of statements, branches, plexes and groups. Additionally you can filter so that the text you enter will apply to only one or more levels. For example I will use the command INSERT FRONT of branch unfiltered and insert the word radc. Then I will use the command INSERT BACK and use the viewspec dbb, using the control U after INSERT BACK to exercise the option to have the directive .lbl=1; appear at the back of a selected group of statements apply to only the first two levels. A very handy feature of the subsystem is the capability to INSERT ADDRESS for an ident such as JCRL or for .licklider if you dont't know the ident. I wil l do this after the last statement in the file. If you want to repeat the command the Conrol B does work so that you can sucessively insert different material in front of a series of statements. 5

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem,

5a

5a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5b DEMONSTRATIUN OF MODIFY SUBSYSTEM .lbl=1;                    5b
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5c radc DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1;                    5c
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5c1 radc DEMONSTRATION OF MODIFY SUBSYSTEM ,lbl=1;                    5c1
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5c2 redc DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1;                    5c2
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5c2a radc DEMONSTRATION OF MODIFY SUBSYSTEM 5c2a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5c2a1 radc DEMONSTRATION OF MODIFY SUBSYSTEM 5c2a1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5c2a1a radc DEMONSTRATION OF MODIFY SUBSYSTEM 5c2a1a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5d DEMONSTRATION OF MODIFY SUBSYSTEM ,lbl=1;                    5d
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5d1 DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1;                    5d1
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5d1a DEMONSTRATION OF MODIFY SUBSYSTEM 5d1a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5d1b DEMONSTRATION OF MODIFY SUBSYSTEM 5d1b

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5d1c DEMONSTRATION OF MODIFY SUBSYSTEM 5d1c

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5d1d DEMONSTRATION OF MODIFY SUBSYSTEM 5d1d

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

```
5d2 DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1;                    5d2
```

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5d2a J. C. R. Licklider
Advanced Research Projects Agency
1400 Wilson Boulevard
Arlington, Virginia 22209 5d2a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

5d2b 5d2b

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6 DEMO 2 - Another interesting feature is the DELETE command. This command can be used for deleting columns. The procedure is to DELETE COLUMN beginning at A: and ending at A:, the intent is to have you identify the beginning and end, in the X dimension, of the column you want to delete. Unfortunately you must indicate one LESS than you realy want to delete. If you want to delete a column six characters wide, indicate the first and then the fifth character and all six will go. If you indicate the sixth it will remove seven. The deletion does not affect other levels or skip to another plex. I will delete the word MODIFY in one plex to show this, and the word OF in the first statement to show the effect of this. Two other commands are DELETE NAMES if you want to get rid of the statement (NAMES) and DELETE LEADING spaces. I won't demonstrate these since they are not of general interest. 6

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6a 6a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6b DEMONSTRATION MODIFY SUBSYSTEM 6b

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6c DEMONSTRATION MODIFY SUBSYSTEM 6c

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6c1 DEMONSTRATION OF MODIFY SUBSYSTEM 6c1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6c2 DEMONSTRATION OF MODIFY SUBSYSTEM 6c2

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6c2a DEMONSTRATION OF MODIFY SUBSYSTEM 6c2a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6c2a1 DEMONSTRATION OF MODIFY SUBSYSTEM 6c2a1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6c2a1a DEMONSTRATION OF MODIFY SUBSYSTEM 6c2a1a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d DEMONSTRATION MODIFY SUBSYSTEM 6d

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d1 DEMONSTRATION OF MODIFY SUBSYSTEM 6d1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d1a DEMONSTRATION OF SUBSYSTEM 6d1a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d1b DEMONSTRATION OF SUBSYSTEM 6d1b

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d1c DEMONSTRATION OF SUBSYSTEM 6d1c

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d1d DEMONSTRATION OF SUBSYSTEM 6d1d

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d2 DEMONSTRATION OF MODIFY SUBSYSTEM 6d2

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

6d3 6d3

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7 DEMO 3 - A useful command is APPEND. This is used for appending a series of statements into one statement. You can append all the statements in a plex or a group to each other in one swell foop, rather than doing them individually. This could be useful if you have a bunch of substatements of just a word or two, as in a list, and then decide that you'd rather have them sequentially in a single statement. The command APPEND PLEX at A: lets you indicate which plex you want to append. You wil be asked append with T: This gives you a chance to type in what you would like the statements seperated with (usually two spaces). I will use two asterisks so that you can see the effect. 7

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7a

7a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7b DEMONSTRATION OF MODIFY SUBSYSTEM 7b

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7c DEMONSTRATION OF MODIFY SUBSYSTEM 7c

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7c1 DEMONSTRATION OF MODIFY SUBSYSTEM 7c1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7c2 DEMONSTRATION OF MODIFY SUBSYSTEM 7c2

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7c2a DEMONSTRATION OF MODIFY SUBSYSTEM 7c2a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7c2a1 DEMONSTRATION OF MODIFY SUBSYSTEM 7c2a1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7c2a1a DEMONSTRATION OF MODIFY SUBSYSTEM 7c2a1a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7d DEMONSTRATION OF MODIFY SUBSYSTEM 7d

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7d1 DEMONSTRATION OF MODIFY SUBSYSTEM 7d1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

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7d1a DEMONSTRATION OF MODIFY SUBSYSTEM**DEMONSTRATION OF
MODIFY SUBSYSTEM**DEMONSTRATION OF MODIFY
SUBSYSTEM**DEMONSTRATION OF MODIFY SUBSYSTEM                    7d1a
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EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7d2 DEMONSTRATION OF MODIFY SUBSYSTEM 7d2

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

7d3 7d3

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8 DEMO 4 - The last command that is different from those in the other subsystems is that of FORCE(sentence case). This command goes through a statement, branch, group, plex or file and capitalizes the initial letter in each sentence. This is good if you have inadvertently forced the whole thing into UPPER or lewer case or if, like me, you forget to capitalize the first word in your sentences. It is bad in the sense that words like Arpa and Radc can result, or afsc or dod. To show this effect, I will APPEND the last GROUP using a period and two spaces to join the statements and then FORCE the case of the whole file. 8

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8a 8a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8b Demonstration of modify subsystem 8b

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8c Demonstration of modify subsystem 8c

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8c1 Demonstration of modify subsystem 8c1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8c2 Demonstration of modify subsystem 8c2

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8c2a Demonstration of modify subsystem 8c2a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8c2a1 Demonstration of modify subsystem 8c2a1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8c2a1a Demonstration of modify subsystem 8c2a1a

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8d Demonstration of modify subsystem 8d

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8d1 Demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem 8d1

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

8d2 8d2

EJK 9-JUN-75 08:55 32708

Helpful hint #5 from yur friendly AKW - MODIFY Subsystem.

(J32708) 9-JUN-75 08:55;;;; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /RADC([ACTION] This runs 5 or 6 pgs) ; Sub-Collections: RADC; Clerk: EJK;

1 32708 Distribution

1a Rocco F. Iuorno, Thomas J. Bucciero, Roger B. Panara, John L. McNamara, Joe P. Cavano, Duane L. Stone, Marcelle D. Petell, Thomas F. Lawrence,

1b Stephen P. Sutkowski, Richard Calicchia, William W. Patterson, Francis J. Hilbing, Robert K. Walker, Frank P. Sliwa, Joe F. Femia, Roger W. Weber, Melville J. Draper, Robert D. Krutz, James W. Hyde, David T. Craig, Fred N. Dimaggio, Robert E. Doane, Robert J. Kenyon, Richard Nelson, William F. Stinson, Daniel R. Loreto, John B. McLean, Murray L. Kesselman, Edward F. LaForge, Agatha C. Deconde, Alan R. Barnum, Larry M. Lombardo, Anna A. Cafarelli, Roberta J. Carrier, Donna R. Robilotta, Richard H. Thayer, Frank J. Tomaini, Mike A. Wingfield, Edmund J. Kennedy, Ray A. Liuzzi, Donald VanAlstine, Deane F. Bergstrom, Frank S. LaMonica, William E. Rzepka

DLS 9-JUN-75 09:53 32709

DNLS Keyboards

Keyboards are not a place to cut corners.

DLS 9-JUN-75 09:53 32709

DNLS Keyboards

1 If there are real problems with the keyboard that goes with the Data Media, we would like to know it now. We are getting 10 for RADC, 1 for NAVCOSSACT and possibly 2 for NSA. Frank, what specifically were the problems with your keyboard? Individual keys malfunctioning? Our experience with the IMLAC Corp indicates that there are as many keyboard manufactureres as there are makers of terminals. Is there any concensus on the "best" technology...suppliers? 1

DNLS Keyboards

(J32709) 9-JUN-75 09:53;;;; Title: Author(s): Duane L. Stone/DLS;
Distribution: /MEH([ACTION]) JCN([ACTION]) RLL([ACTION])
AID([INFO-ONLY]) ; Sub-Collections: RADC AID; Clerk: DLS;

1 32709 Distribution
1a Martin E. Hardy, James C. Norton, Robert N. Lieberman, Frank G. Brignoli, Inez M. Mattiuz, Connie K. McLindon, Michael A. Placko, David A. Potter, Terry H. Proch, Rudy L. Ruggles, Robert M. Sheppard, Duane L. Stone, Stan M. Taylor, Ronald P. Uhlig,

practice

1 are you the the character who said "Fay has to go" 1

FJT 9-JUN-75 11:43 32710

practice

(J32710) 9-JUN-75 11:43;;;; Title: Author(s): Frank J. Tomaini/FJT;
Distribution: /EJK([ACTION]) EJK([INFO-ONLY]) ; Sub-Collections:
RADC; Clerk: FJT;

ident problem

1 This morning we were trying to use the interrogate command and the following happened. When we typed in the distribution list we were using .lastnames because we didn't know the idents. First we did .mctavish and it worked fine, then we did .katsoulis and it didn't echo the Katsoulis but did enter it into the list of people to distribute it to. Then we did .edwards and it gave us several options - we picked gce and again we didn't see what it typed and it also didn't give us the chance to type in any more idents. Seems there's a problem here? 1

ident problem

(J32711) 9-JUN-75 12:01;;;; Title: Author(s): James H. Kollen/JHK2;
Distribution: /FEEDBACK([ACTION]) IMM([INFO-ONLY]) ;
Sub-Collections: NIC FEEDBACK; Clerk: JHK2;

EJK 9-JUN-75 12:18 32712

OOOPS!!!! On Helpful Hint #5

1 DO NOT SEND HJOURNAL 32708 to the printer or output it on a terminal. I used Modify to Insert the output directive PBS in front of the group at the first level. BUT, despite my own admoonitions I did not use the viewspect and Instead of just the first level I put the directive to start a new page in front of EVERY STATEMENT. I'll send it again with the proper directives. 1

EJK 9-JUN-75 12:18 32712

OOOPS!!!! On Helpful Hint #5

(J32712) 9-JUN-75 12:18;;;; Title: Author(s): Edmund J. Kennedy/EJK; Distribution: /RADC([ACTION]) ; Sub-Collections: RADC; Clerk: EJK;

EJK 9-JUN-75 12:25 32713

Helpful Hint #5 from your friendly AKW - Subsystem MODIFY (Again)

This file is OK to OUTPUT REMOTE to the printer or OUTPUT TERMINAL to print it out at yur terminal.

EJK 9-JUN-75 12:25 32713

Helpful Hint #5 from your friendly AKW - Subsystem MODIFY (Again)

1 To use the MODIFY subsystem GOTO PROGRAMS<cr>. LOAD FILE MODIFY<cr>. When the program is loaded MODIFY has become a subsystem. At this point you can GOTO MODIFY<cr> or QUIT<cr> back to BASE. While in BASE you can use the command EXECUTE PROGRAM in MODIFY (no command accept or <cr>), and do one command (or with a control B) a series of the same command. Alternatively, you can go to MODIFY and do a series of operations there and then QUIT and go back to BASE. 1

2 I suggest you start a new file to practice with. Before doing anything too strenuous, UPDATE your FILE so that if you screw it up too badly you can DELETE the MODICATIONS to the file. Be liberal in your use of the question mark, the control Q (Takes you to the HELP subsystem) and the control S (prints out a series of correct commands as examples) 2

3 3

4 The MODIFY subsystem is one way to perform simultaneous operation on files in the Vertical dimension. Rather than try to explain these rather complicated effects I will demonstrate some of them to you. The original file is shown below: (NOTE: All changes will be made in lower case) 4

4a 4a

4b DEMONSTRATION OF MODIFY SUBSYSTEM 4b

4c DEMONSTRATION OF MODIFY SUBSYSTEM 4c

4c1 DEMONSTRATION OF MODIFY SUBSYSTEM 4c1

4c2 DEMONSTRATION OF MODIFY SUBSYSTEM 4c2

4c2a DEMONSTRATION OF MODIFY SUBSYSTEM 4c2a

4c2a1 DEMONSTRATION OF MODIFY SUBSYSTEM 4c2a1

4c2a1a DEMONSTRATION OF MODIFY SUBSYSTEM 4c2a1a

4d DEMONSTRATION OF MODIFY SUBSYSTEM 4d

4d1 DEMONSTRATION OF MODIFY SUBSYSTEM 4d1

4d1a DEMONSTRATION OF MODIFY SUBSYSTEM 4d1a

4d1b DEMONSTRATION OF MODIFY SUBSYSTEM 4d1b

4d1c DEMONSTRATION OF MODIFY SUBSYSTEM 4d1c

4d1d DEMONSTRATION OF MODIFY SUBSYSTEM 4d1d

4d2 DEMONSTRATION OF MODIFY SUBSYSTEM 4d2

4d3 4d3

5 DEMO 1 - The first command of interest is INSERT. You can INSERT FRONT of or BACK of statements, branches, plexes and groups. Additionally you can filter so that the text you enter will apply to only one or more levels. For example I will use the command INSERT FRONT of branch unfiltered and insert the word radc. Then I will use the command INSERT BACK and use the viewspec dbb, using the control U after INSERT BACK to exercise the option to have the directive .lbl=1; appear at the back of a selected group of statements apply to only the first two levels. A very handy feature of the subsystem is the capability to INSERT ADDRESS for an ident such as JCRL or for .licklider if you dont't know the ident. I wil l do this after the last statement in the file. If you want to repeat the command the Conrol B does work so that you can sucessively insert different material in front of a series of statements. 5

5a 5a

5b DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5b

5c radc DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5c

5c1 radc DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5c1

5c2 radc DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5c2

5c2a radc DEMONSTRATION OF MODIFY SUBSYSTEM 5c2a

5c2a1 radc DEMONSTRATION OF MODIFY SUBSYSTEM 5c2a1

5c2a1a radc DEMONSTRATION OF MODIFY SUBSYSTEM 5c2a1a

5d DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5d

5d1 DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5d1

5d1a DEMONSTRATION OF MODIFY SUBSYSTEM 5d1a

5d1b DEMONSTRATION OF MODIFY SUBSYSTEM 5d1b

5d1c DEMONSTRATION OF MODIFY SUBSYSTEM 5d1c

5d1d DEMONSTRATION OF MODIFY SUBSYSTEM 5d1d

5d2 DEMONSTRATION OF MODIFY SUBSYSTEM .lbl=1; 5d2

5d2a J. C. R. Licklider
Advanced Research Projects Agency
1400 Wilson Boulevard
Arlington, Virginia 22209 5d2a

EJK 9-JUN-75 12:25 32713

Helpful Hint #5 from your friendly AKW - Subsystem MODIFY (Again)

5d2b 5d2b

6 DEMO 2 - Another interesting feature is the DELETE command. This command can be used for deleting columns. The procedure is to DELETE COLUMN beginning at A: and ending at A:, the intent is to have you identify the beginning and end, in the X dimension, of the column you want to delete. Unfortunately you must indicate one LESS than you realy want to delete. If you want to delete a column six characters wide, indicate the first and then the fifth character and all six will go. If you indicate the sixth it will remove seven. The deletion does not affect other levels or skip to another plex. I will delete the word MODIFY in one plex to show this, and the word OF in the first statement to show the effect of this. Two other commands are DELETE NAMES if you want to get rid of the statement (NAMES) and DELETE LEADING spaces. I won't demonstrate these since they are not of general interest. 6

6a 6a

6b DEMONSTRATION MODIFY SUBSYSTEM 6b

6c DEMONSTRATION MODIFY SUBSYSTEM 6c

6c1 DEMONSTRATION OF MODIFY SUBSYSTEM 6c1

6c2 DEMONSTRATION OF MODIFY SUBSYSTEM 6c2

6c2a DEMONSTRATION OF MODIFY SUBSYSTEM 6c2a

6c2a1 DEMONSTRATION OF MODIFY SUBSYSTEM 6c2a1

6c2a1a DEMONSTRATION OF MODIFY SUBSYSTEM 6c2a1a

6d DEMONSTRATION MODIFY SUBSYSTEM 6d

6d1 DEMONSTRATION OF MODIFY SUBSYSTEM 6d1

6d1a DEMONSTRATION OF SUBSYSTEM 6d1a

6d1b DEMONSTRATION OF SUBSYSTEM 6d1b

6d1c DEMONSTRATION OF SUBSYSTEM 6d1c

6d1d DEMONSTRATION OF SUBSYSTEM 6d1d

6d2 DEMONSTRATION OF MODIFY SUBSYSTEM 6d2

6d3 6d3

7 DEMO 3 - A useful command is APPEND. This is used for appending a series of statements into one statement. You can append all the statements in a plex or a group to each other in one swell foop, rather than doing them individually. This could be useful if you have a bunch of substatements of just a word or two, as in a list, and then decide that you'd rather have them sequentially in a single statement. The command APPEND PLEX at A: lets you indicate which plex you want to append. You wil be asked append with T: This gives you a chance to type in what you would like the statements seperated with (usually two spaces). I will use two asterisks so that you can see the effect. 7

7a 7a

7b DEMONSTRATION OF MODIFY SUBSYSTEM 7b

7c DEMONSTRATION OF MODIFY SUBSYSTEM 7c

7c1 DEMONSTRATION OF MODIFY SUBSYSTEM 7c1

7c2 DEMONSTRATION OF MODIFY SUBSYSTEM 7c2

7c2a DEMONSTRATION OF MODIFY SUBSYSTEM 7c2a

7c2a1 DEMONSTRATION OF MODIFY SUBSYSTEM 7c2a1

7c2a1a DEMONSTRATION OF MODIFY SUBSYSTEM 7c2a1a

7d DEMONSTRATION OF MODIFY SUBSYSTEM 7d

7d1 DEMONSTRATION OF MODIFY SUBSYSTEM 7d1

7d1a DEMONSTRATION OF MODIFY SUBSYSTEM**DEMONSTRATION OF MODIFY SUBSYSTEM**DEMONSTRATION OF MODIFY SUBSYSTEM**DEMONSTRATION OF MODIFY SUBSYSTEM 7d1a

7d2 DEMONSTRATION OF MODIFY SUBSYSTEM 7d2

7d3 7d3

Helpful Hint #5 from your friendly AKW - Subsystem MODIFY (Again)

8 DEMO 4 - The last command that is different from those in the other subsystems is that of FORCE(sentence case). This command goes through a statement, branch, group, plex or file and capitalizes the initial letter in each sentence. This is good if you have inadvertently forced the whole thing into UPPER or lewer case or if, like me, you forget to capitalize the first word in your sentences. It is bad in the sense that words like Arpa and Radc can result, or afsc or dod. To show this effect, I will APPEND the last GROUP using a period and two spaces to join the statements and then FORCE the case of the whole file. 8

8a 8a

8b demonstration of modify subsystem 8b

8c demonstration of modify subsystem 8c

8c1 demonstration of modify subsystem 8c1

8c2 demonstration of modify subsystem 8c2

8c2a Demonstration of modify subsystem 8c2a

8c2a1 Demonstration of modify subsystem 8c2a1

8c2a1a Demonstration of modify subsystem 8c2a1a

8d demonstration of modify subsystem 8d

8d1 demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem. Demonstration of modify subsystem 8d1

8d2 8d2

EJK 9-JUN-75 12:25 32713

Helpful Hint #5 from your friendly AKW - Subsystem MODIFY (Again)

(J32713) 9-JUN-75 12:25;;;; Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /RADC([INFO-ONLY] This runs 5 or 6 pages) ;
Sub-Collections: RADC; Clerk: EJK;

1 32713 Distribution
1a Rocco F. Iuorno, Thomas J. Bucciero, Roger B. Panara, John L. McNamara, Joe P. Cavano, Duane L. Stone, Marcelle D. Petell, Thomas F. Lawrence,
1b Stephen P. Sutkowski, Richard Caliccnia, William W. Patterson, Francis J. Hilbing, Robert K. Walker, Frank P. Sliwa, Joe F. Femia, Roger W. Weber, Melville J. Draper, Robert D. Krutz, James W. Hyde, David T. Craig, Fred N. Dimaggio, Robert E. Doane, Robert J. Kenyon, Richard Nelson, William F. Stinson, Daniel R. Loreto, John B. McLean, Murray L. Kesselman, Edward F. LaForge, Agatha C. Deconde, Alan R. Barnum, Larry M. Lombardo, Anna A. Cafarelli, Roberta J. Carrier, Donna R. Robilotta, Richard H. Thayer, Frank J. Tomaini, Mike A. Wingfield, Edmund J. Kennedy, Ray A. Liuzzi, Donald VanAlstine, Deane F. Bergstrom, Frank S. LaMonica, William E. Rzepka