

Away With 037s-- We Beat You to Them (Almost), Mike

You will be pleased to know that, as a result of some horrible experiences trying to use MULTICS ( ), I have brought up a version of NLS which does not send out TENEX EOLs (037s) in sequential files produced through Output Quickprint, Sequential, or Assembler. The next version of the Output Processor (Output Device Printer) will also have this feature; it is not up right now, though, because we are putting some changes in which will greatly increase its efficiency. Expect it next week some time.

1

You are right, though, in suggesting that sequential files exist for ease of FTPing.

2

A question, Mike Padlipsky. We have been trying to use JANUS on MULTICS for some other people here. Trying to FTP something from here to there (logged in here) seems to run into problems (does the period between name and project really work?). Logging in at MULTICS and doing the FTP doesn't work any better (the person who gave us instructions didn't specify how to open the connection here and Help is unimplemented in the MULTICS FTP. Someone there finally got a sequential file over to MULTICS (but didn't give complete instructions) and, of course, we found the 037s. The rest is history. (The changes were implemented on Tuesday and a new system brought up on Thursday.)

3

If Mike Padlipsky could help us FTP we would greatly appreciate it.

4

Regards, HGL

5

HGL 1-FEB-74 14:30 21727

Away With 037s-- We Beat You to Them (Almost), Mike

(J21727) 1-FEB-74 14:30; Title: Author(s): Harvey G. Lehtman/HGL;  
Distribution: /USING MAP(Thanks for the suggestion. Our FTP  
instructions may be found in >udd>CPAdmin>jm>ftp on MULTICS.) ARH; they  
are incomplete.) ARH(Thanks for the suggestion.); Sub-Collections:  
SRI-ARC USING; Clerk: HGL;

Response to Susan's (21685,) and KIRKS (21700) Feedback.

There definitely needs to be some acknowledgement of any feedback received, although this is far more important for those who are not members of ARC. For my part, I would like to offer the FEEDBACK directory as place where all those who can get into the Utility could read all the feedback. The location in the file would indicate the status of their particular item. It still will be necessary to send one acknowledgement-- this presently is the final disposition. The structure of the file may be seen at Office-1 in (feedback,feed,1:xbm). (I am writing it up, and will distribute it as soon as I can find my file again...).

1

JHB 1-FEB-74 15:39 21728

Response to Susan's (21685,) and KIRKs (21700) Feedback.

(J21728) 1-FEB-74 15:39; Title: Author(s): James H. Bair/JHB ;  
Distribution: /DVN JMB KIRK PR (fyi) JCN (fyi) ; Sub-Collections:  
SRI-ARC ; Clerk: JHB ;



Using Note9 oversight

Marcia -- I just submitted USING Note 9 (20804,) and forgot to include you in distribution list (sorry). USING and USERS were included, however.

Using Note9 oversight

(J21729) 1-FEB-74 16:40; Title: Author(s): David H. Crocker/DHC;  
Distribution: /MLK; Sub-Collections: NIC; Clerk: DHC;

Letter Program

Jeff, I played with the letter formater a bit and found the following.

- 1) When it asks for RECEIVER's IDENT, you have two choices: a) type an ident (with no spaces) and b) just type CA (in which case it will ask for name, adress, etc.)
- 2) when it asks for Journal Number, you can either type one if you have reserved one, or just type CA.

Lets try it together some time today. When do you normally use our system? -- Charles.

CHI 4-FEB-74 06:48 21772

Letter Program

(J21772) 4-FEB-74 06:48; Title: Author(s): Charles H. Irby/CHI;  
Distribution: /JGR; Sub-Collections: SRI-ARC; Clerk: CHI;

## NLS files and the DATA Computer

Jeff, The following is a crude attempt to describe the desired definition of an NLS file. If I can figure out how to do it in data language, I will send that along later.

A BRANCH consists of two components

- 1) a STATEMENT and
- 2) ANY-NUMBER-OF BRANCHES

A STATEMENT consists of the following components

- 1) An array of up to 2000 characters
- 2) A NAME (set up for fast look-up on this name)
- 3) Name Deliminters, left and right.
- 4) A system-assigned NAME (actually a number)
- 5) Last modified data, including IDENT of user and time/date.

An NLS file is nearly a BRANCH. A Journal Item consistst of a HEADER (containing components such as TITLE, AUTHOR, NUMBER, RECIPIENTS, etc.) and ANY-NUMBER-OF BRANCHES. I hope this is helpful to you and I hope you can see the importance of such a general definition. Our current size limitations (which seem satisfactory for 98% of user needs) is 10,000 nodes in the hierarchy and 800,000 character of text, whichever happens first.

-- Charles.



NLS files and the DATA Computer

(J21773) 4-FEB-74 07:06; Title: Author(s): Charles H. Irby/CHI;  
Distribution: /TMM( Please Forward to Jeff Hill ); Sub-Collections:  
SRI-ARC; Clerk: CHI;

ANTS, Well Done

John and company,

I read your ANTS documentation on the plane back from Boston. You guys are really to be commended on the system architecture of ANTS. I was very pleased to read about it. (Many similar ideas in the Modular Programming System under development here and at XEROX-PARC). Well done

I do, however, have to be concerned with performance also. Can you send (before the front-end meeting on the 18th) any performance data you have collected, in particular, how expensive the EM instruction queue/data-path mechanism is? I am also not clear whether our Command Language Interpreter (CLI) would live on level 3 or be an EM on level 2.

Much thanks for you help. -- Charles.

1

CHI 4-FEB-74 07:13 21774

ANTS, Well Done

(J21774) 4-FEB-74 07:13; Title: Author(s): Charles H. Irby/CHI;  
Distribution: /DAY; Sub-Collections: SRI-ARC; Clerk: CHI;

Change in RADC Journal Delivery

At the suggestion of Mike Kudlick and Jim Bair , we are changing the journal delivery of all RADC members from hardcopy to online. Sorting through, stapling, and mailing every journal message sent to RADC members seems an unnecessary and untimely (it's over a week old by the time it is received) task. If online delivery is for some reason less convenient than hardcopy, please notify me, and I will change it back.

Marcia Keeney

MLK 4-FEB-74 08:29 21775

Change in RADC Journal Delivery

(J21775) 4-FEB-74 08:29; Title: Author(s): Marcia Lynn Keeney/MLK;  
Distribution: /RADC-TIP; Sub-Collections: SRI-ARC RADC-TIP; Clerk: MLK;



Daughter of Group Madness

The problem that caused me to write (gjournal,21714,) turned out to be that the ident status command was misinforming me. All the right people got the journal items in question.

1

DVN 4-FEB-74 08:41 21776

Daughter of Group Madness

(J21776) 4-FEB-74 08:41; Title: Author(s): Dirk H. Van Nouhuys/DVN;  
Distribution: /CHI HGL COM DPCS; Sub-Collections: SRI-ARC COM DPCS;  
Clerk: DVN;

comments#2

To: CCLers

hi--

my comments on Bob's comments are supposed to be in  
<mit-multics>cclcom at NIC. my latest attempt at coming  
up with a nice format is: no underlining (sigh), no  
tabs, no formfeeds, no page breaks at all.

1

that is, you should be able to ftp it "home" and lineprint  
with no sweat (unless yr lineprinter doesn't count lines and  
handle page breaks appropriately). let me know if you'd  
be happier with formfeeds. cheers, map  
p.s. there are 3 leading spaces on left of each line so as  
to keep away from paper holes if printer doesn't.

2

comments\*\*2

(J21777) 4-FEB-74 09:04; Title: Author(s): Michael A. Padlipsky/MAP  
; Distribution: /CCL ; Sub-Collections: NIC CCL; Clerk: MAP;

Setting data in an NLS file header

Jim, there is a routine called makepc (ioexec) and another called lkfile. If you call these routines before setting your bit, and then do an update old, everything will be ok. I have known about these problems for some time. -- Charles.

1



Setting data in an NLS file header

(J21778) 4-FEB-74 09:21; Title: Author(s): Charles H. Irby/CHI;  
Distribution: /JEW; Sub-Collections: SRI-ARC; Clerk: CHI;

I need Journal help

Dave and Diane, I inadvertantly deleted plex 1 of my initial file and lost all mail that was sent to me during the time I was gone. Is there any way the Journal can deliver it all over again? I have been going through IJCAT, but that is very time consuming and I may miss some. -- Charles.

1

CHI 4-FEB-74 09:27 21779

I need Journal help

(J21779) 4-FEB-74 09:27; Title: Author(s): Charles H. Irby/CHI;  
Distribution: /JDH DSK; Sub-Collections: SRI-ARC; Clerk: CHI;

PGK HOMEWORK

HI DIRK, I FOUND "BEIGE" BUT ONLY BY READING YOUR ENTIRE DVN FILE.  
WE ONLY HAVE THE UPPER CASE MACHINE. I GUESS THAT ONLY POSSIBLE  
TO GET LINE NUMBERS WITH AN UPPER/LOWER CASE MACHINE.  
I SEE YOU CANNOT USE A CARRAGE RETURN IN A SUBMIT MESSAGE. IT MUST  
BE LIKE A COMMAND ACCEPT? MAYBE LATER I WILL TRY CREATING A FILE  
AND SENDING THAT THROUGH THE JOURNAL.  
BYE FOR NOW.  
PAMELA

1

PGK HOMEWORK

(J21780) 4-FEB-74 09:44; Title: Author(s): Pamela G. Kruzic/PGK;  
Distribution: /DVN; Sub-Collections: NIC; Clerk: PGK;



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Date: 4-FEB-74 1114-PDT

From: POSTEL at USC-ISI

Re: ACKNOWLEDGE YOUR NOTE

- - - - -

EUZ: GOT YOUR NOTE ON MAIL AND FTP. I WILL THINK ABOUT WHAT MAIL  
PROTOCOL FEATURES COULD BE USED IN THE CURRENT FTP, THO MY INITIAL  
REACTION IS THAT ONLY A FEW WOULD BE ACCEPABLE TO THE COMMUNITY. I  
DO THINK THAT A STANDARD MAIL HEADER CAN BE SPECIFIED THO.

--JON.

-----

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12

JBP 4-FEB-74 11:45 21781

(J21781) 4-FEB-74 11:45; Title: Author(s): Jonathan B. Postel/JBP ;  
Distribution: /ADO ; Sub-Collections: NIC; Clerk: JBP;

Nic-provided kludge to get clean text from NLS files

Mike (and everyone else) -- there IS a way to get clean ASCII text from NLS files, and that includes fully processed Output Directives. The process of getting the text is quite dirty:

```
*Output Device Printer [it gives a filename] F:[I give it a filename
*Quit
@sendprint<cr>
File: [name I gave above]
Output to File [confirm]<cr>
File: [I give some new name] [confirm]<cr>
File to be (something or other) on Tenex? No [confirm]<cr>
More file? No [confirm] <cr>
@
```

I may have a few things off, but you get the idea. The result is 100% certified pure ASCII text. I've been using it for a year and, am sorry to say, have almost gotten used to the inconvenience. The new version of the NLS environment is supposed to make the interface cleaner.

Dave.

DHC 4-FEB-74 11:58 21782

Nic-provided kludge to get clean text from NLS files

(J21782) 4-FEB-74 11:58; Title: Author(s): David H. Crocker/DHC;  
Distribution: /USING USERS; Sub-Collections: NIC USING USERS; Clerk:  
DHC;

problems today (Feb 4) with X-TNLS

There seem to be some bad glitches in the recognition modes for new TNLS today (Feb 4):

I couldn't get at the Protect command in Expert; I changed to Fixed and got a different list of commands if I typed a question mark right after the herald than if I typed a space and then ?, though I couldn't get to Protect at all in either case though it was listed. I then changed to Anticipatory--as soon as I typed a "p" I got "Playback" and could get neither Print nor Protect. I also could not get out of Anticipatory mode because I couldn't do "Set Recognition".....very frustrating.

1



JMB 4-FEB-74 12:51 21783

problems today (Feb 4) with X-TNLS

(J21783) 4-FEB-74 12:51; Title: Author(s): Jeanne M. Beck/JMB;  
Distribution: /NEWNLS DCW; Sub-Collections: SRI-ARC NEWNLS; Clerk: JMB;

Some Organizational Issues for MST

This is the file I sent out last week to all attendees of the MST organizational meeting which was hosted by BBEN on Thursday Jan 31 and Friday Feb 1. It was sent along with RWW's and CHI's position papers as our preliminary contribution to the meeting.

## Some Organizational Issues for MST

## SOME ORGANIZATIONAL ISSUES FOR MST

1

To achieve its goals, the MST program will have to be organized both into tasks and functions that will focus in a balanced fashion on all the major aspects of the project. Given the size and scope of the program, it seems to me that such a general organization ought to be adopted and mirrored in the organizations of the different projects working on this program. It would ensure a balanced development of all major activities and would keep the whole project on target.

2

The "tasks" would be pieces of the overall development effort that are, or will be, subcontracted to the various organizations participating in the program, whereas the "functions" would be essentially program-oriented and interorganizational in nature.

3

For instance, the program could formally recognize the following functions through all its activities and allocate its resources accordingly. - My emphasis on Analysis is to illustrate the need for it, a need that has so far be largely unrecognized at the planning level of the program -

3a

- A Planning and Review Function.

3b

Effective planning must be a coordinated and ongoing activity that cannot be dealt with in a casual fashion. Some resources should probably be devoted to that activity to pull together facts, to focus on overall users' needs, to evaluate the impact, or potential impact, of the new technologies and to offer a logical framework within which all contemplated development efforts can be reviewed.

3b1

- An Operations Function.

3c

Many of the MST subsystems and procedures that will be developed will be made available as tools for further advanced R&D efforts, for exploratory applications or even for some advanced operational applications.

3c1

These prototypical support services will probably have to be run in a much tighter fashion than strictly R&D systems if the whole R&D community is to derived a maximum benefit from these services.

3c2

Thus, the need for these tighter deliverability standards ought to be acknowledged and some resources ought to be allocated to organize these services accordingly and increase their reliability, availability and stability.

3c3

- A System R&D Function.

3d

## Some Organizational Issues for MST

It would basically include all the R&D tasks. This function should, of course, get the lion's share of the funds available to MST but not to the extent that the purpose of the overall project would be defeated by useless uncoordinated fragmentation.

3d1

## - An Applications Function.

3e

That function would select exploratory application areas, determine the profile of MST services that is most appropriate for each application, and provide support for or carry out experimental application programs.

3e1

It should also be responsible for determining those MST features that can be made available on a large scale basis to all potential users. This would involve developing in each case an effective strategy for carrying out the needed technology transfer.

3e2

## - An Analysis Function.

3f

An independent Analysis function is needed within the MST program to provide in a coordinated fashion the analytical support needed for all phases of its activities.

3f1

The MST program will be an evolutionary development process that will produce numerous prototypical systems that must be constantly analyzed and evaluated as stand alone systems as well as within the context of the whole program.

3f1a

The various prototypes will be applied in experimental situations where their impact and usefulness must be assessed in as unbiased a fashion as possible.

3f1b

Experiments must be designed and sensitivity studies must be conducted to provide the feedback needed both by the development process and by the applications function.

3f1c

A few examples of the support such a function could provide are the following:

3f2

- Analysis and evaluation of user needs.

3f2a

- Analysis and evaluation of applications.

3f2b

- Analysis and evaluation of the MST operational environment.

3f2c



## Some Organizational Issues for MST

- Development of the tools and methodology needed for the experimental study of MST systems and procedures. 3f2d
- Provide the feedback needed for the development process. 3f2e
- Conduct sensitivity analyses to determine operational bottlenecks. 3f2f
- Develop tools and procedures for improving the operational control of MST systems. 3f2g
- Conduct economic analyses of existing MST systems and forecast trends in costs of future MST systems. 3f2h
- Conduct comparative studies with alternate systems techniques and procedures. 3f2i
- Evaluate the impact MST will have on organizational structures, if any. 3f2j
- Evaluate the impact MST will have on the flow of information within the organizations. 3f2k
- and so on. 3f2l

3f3

4



PR 4-FEB-74 13:27 21784

Some Organizational Issues for MST

(J21784) 4-FEB-74 13:27; Title: Author(s): Paul Rech/PR;  
Distribution: /DCE RWW CHI JCN MDK SRL; Sub-Collections: SRI-ARC; Clerk:  
PR;  
Origin: <RECH>MST2.NLS;3, 29-JAN-74 16:55 PR ;

## NIC Support of the Documents for the IPT Meeting

As support to the Principal Investigators' meeting in Los Angeles, the NIC arranged to receive online copies of the 2-page summaries prepared by the attendees and to forward them to USC-ISI for reproduction and inclusion in the notebook of such reports issued each year.

1

A directory named <PI> was set up to receive these summaries by FTP. ARPA sent NIC a list of PI's and NIC sent ARPA a set of page headings which included the NIC number and name and address. Then Licklider sent instructions to inform the PI's of the arrangement, including the page heading for their individual report.

2

This is a report of the activities at NIC in getting and forwarding these summaries.

3

## Receipt of Summaries

3a

21 summaries were received through FTP in the <PI> directory.

3a1

2 summaries were received through FTP in <GUEST> directory, and were rescued just before they were deleted.

3a2

1 summary was pulled by our FTP from the author's Host.

3a3

1 summary was pulled by our FTP from another Host to which it had been FTP'd by its sender.

3a4

4 summaries were received by SNDMSG.

3a5

1 summary was received in hardcopy only.

3a6

## Processing of Summaries

3b

12 of the online summaries were used directly as they came off the NIC lineprinter. Some of these had minor deformities from transfer, and were cut and pasted for reproduction.

3b1

8 of the online summaries were treated by Insert Sequential process and then given NLS editing to make them conform better to the standard format. Most of these could have been used in their transferred condition, but editing allowed some improvement and in several cases allowed condensation of three pages to two.

3b2

The User Program INRUN was tried on several of these, with poor results: in two cases, all caps became lower case and all lower case became caps. In the same two cases, the processed file contained only multiple copies

## NIC Support of the Documents for the IPT Meeting

of the text of the heading and first paragraph, in one case 39 copies and in the other 7 copies. 3b2a

The User Program APPEND was not useful because indentation and short paragraphs made it inadequate or cumbersome. 3b2b

The version obtained by Insert Sequential was not always used because a gain made in reformatting the heading or correcting a page length problem was offset by the loss of right justification. 3b2c

In some cases cutting and pasting was employed to correct problems in heading or page length. 3b2d

1 of the SNDMSG files was retyped to improve it. 3b3

Each of the summaries was photocopied, with reduction where advantageous. 3b4

For each, an original off the line printer and a photocopy as finally formatted were mailed to USC-ISI for quantity reproduction and collation into the notebooks to be distributed at the meeting. 3b5

Only one report came to NIC without the assigned number, and most followed the standard format. At USC-ISI where 12 other summaries were received, there was one problem of an extra paper without a NIC number, and one paper not submitted, so the unused number was substituted. In previous years there had always been misnumbering, and papers submitted without adequate heading information for identification. 4

NIC put forth a lot more effort than in previous years, and gained a better product and some experience, as did the Network users. 5

JBN 4-FEB-74 16:06 21785

NIC Support of the Documents for the IPT Meeting

(J21785) 4-FEB-74 16:06; Title: Author(s): Jeanne B. North/JBN;  
Distribution: /DCE RWW MDK JCN; Sub-Collections: SRIARC NIC ; Clerk:  
JBN;  
Origin: <NIC-WORK>PIRPT.NLS;9, 31-JAN-74 09:01 JBN ;

Answer to Questions about System Usage

Answer to Inez's question on system use.



## Answer to Questions about System Usage

Inez: You have a whole bunch of questions, so I'll try to take them one at a time:

1

Yes there is a limit to file name length of 39 characters. But your problem was probably something else...suggest you try it again.

1a

It will make it a lot easier for us if you will send all your problems, questions, etc. to FEEDBACK (sndmsg) or FEED (journal ident). KWAC should be used when you think your question will be of interest to the other architects or you want to ask them (eg. in this case); JCN should be used only when policy and political or funding matters are concerned.

1b

Confidential info cannot be sent through the Journal, but we are working on a system to do that in the near future.

1c

To protect a file for confidentiality, you give the NLS command:  
Output File f: FILENAME.NLS;##;P770000; CR

The # refers to the version number which you can get from the directory listing. The numbers are in groups of 2 so that the 77 means YOU can read or write on the file, the 00 means that your GROUP cannot read or write, and the next 00 means that NO ONE else can read or write on it. The normal is 775252 where 52 means that the group and world can only look at and read your file. NOTE that if you Update New then protection will change back to the default 775252. You must Update Old to retain the protections you set. Type DIR, CR PRO CR CR to see your directory at the exec level with the protections for each file.

1d

There are two ways to transfer a file from one dir to another: 1) give a COPY (file) FILENAME<esc> (to) <esc> CR The system will then create a new copy file in the dir of the person issuing the command by the same name (and echo it). The more typical way is to do a Null file f: NEWFILENAME CR in NLS and then Copy Plex a: (OLDFILENAME,1) CR to a: (NEWFILENAME,0) CR CR. In either case you can then delete the old file.

1e

If you have any additional questions, please feel free to link, call, or communicate through Feedback. Jim

1f

1g

JHB 4-FEB-74 16:55 21786

Answer to Questions about System Usage

(J21786) 4-FEB-74 16:55; Title: Author(s): James H. Bair/JHB;  
Distribution: /KWAC; Sub-Collections: SRI-ARC KWAC; Clerk: JHB;

Journal delivery, hardcopy vs online

Mike: Jim has agreed that your staff can change those idents to online delivery only that have the capability and keep it that way for the future. However, some programming change is desirable that would automatically set the default to online when the person entering the ident specified an online address. Otherwise (of course), it would default to hardcopy. Jim

1

Journal delivery, hardcopy vs online

(J21787) 4-FEB-74 20:27; Title: Author(s): James H. Bair/JHB;  
Distribution: /KWAC MDK CHI HGL JEW; Sub-Collections: SRI-ARC KWAC;  
Clerk: JHB;

Ken,  
Pogran.CompNet@mit-multics doesn't seem to be working as a network  
address -- I get "Cannot locate mailbox for "pogran.CompNet"; please  
check spelling of user name". What's up?

Marcia

1



(J21788) 5-FEB-74 08:06; Title: Author(s): Marcia Lynn Keeney/MLK;  
Distribution: /KTP; Sub-Collections: SRI-ARC; Clerk: MLK;

Update Compact Scrambles Markers

I was partially wrong about Update Compact . It preserves most markers but not in the statments they originally marked.

1

To be more specific, it removes markers from the origin statemnt and moves others apparently at random by statement, but leaves them at the original character position.

2

Update Compact Scrambles Markers

(J21789) 5-FEB-74 08:25; Title: Author(s): Dirk H. Van Nouhuys/DVN;  
Distribution: /NEWNLS JCN EKM; Sub-Collections: SRI-ARC NEWNLS; Clerk:  
DVN;

## Rough Cut at ARC Manpower Needs

COMMITMENTS AND MINIMUM MANPOWER NEEDS THAT I AM AWARE OF to meet present and near term expected commitments.

1

It is clear to me that we are seriously overcommitted and either have to decommit or increase funding and staff. Along with the lack of staff goes a lack of computer and terminal capacity. We are operating or are about to operate at about a 50% overcommitment level, which is way above a healthy overload for any group. Areas of my responsibility Development, Analysis, and NIC are either at or below what I consider tolerable levels given commitments at last summers levels let alone new ones being made. The result in all ARC areas can only be failure to deliver in the near to medium term and to be technologically and economically viable in the longer term and eventual (present?) staff demoralization. Even being more conservative and cutting my estimates by 20% still leads to over commitment as a conclusion. My recommendation is to take a hard look at my estimates to see where I might be wrong, examine carefully why we are heading where we seem to be heading and ask ourselves where additional funds can come from or what we should drop and yet have some hope in maintaining critical mass in what remains while yet meeting short term problems and long term viability.

1a

ARC TOTAL (being conservative) 53-60

1b

MANAGEMENT 3 people

1c

DEVELOPMENT 12-17 people

1d

APPLICATIONS SUPPORT 2-3 software people required, 2 methodology people required

1d1

We have to assume that each serious application, NIC, DEIS, VELA, ARPA and other will require additions changes tailoring etc. not anticipated when a basic function was originally developed. We have to have adequate manpower budgeted for this purpose. For example, the NIC really needs at least one fulltime programmer. We seem to be heading toward enough application use that a minimum of one or two additional programmers should be budgeted for applications, plus the one for the NIC yields 2-3 software people required.

1d1a

Procedure and methodology development must proceed with any applications and if these are to develop with coherence development must have staff to work closely with Applications, I feel a couple of people minimum are needed.

1d1b

FUNCTION DEVELOPMENT 5-6 software people

1d2



## Rough Cut at ARC Manpower Needs

Under function development I include areas such as DSS, Information Management, DPCS etc. Past experience has convinced me that there is a symbiotic effect if there can be more than one person working in an area and therefore I feel that we should only work in as many areas as we can staff to at least a 2-3 man level. Because of the nature of our applications I feel we must work in DSS and Information Management (the nature of the tasks open to negotiation but having to have the quality of more general applicability and of a fundamental nature than would generally be expected for an immediate need of a given application). I feel that some effort should be going into the DPCS area in improving tools for multiple authorship collaboration. I feel a minimum healthy level of 5-6 software people and will assume that the methodology people listed above can also contribute here. Planning for participation in the MST effort may alter the areas but its not likely to do anything but increase the effort required.

1d2a

## BASIC SYSTEM STRUCTURE 3-6 software people

1d3

There is very important work to be done in this area if the Knowledge Workshop concept is really going to be fruitful and if we are going to have an economically viable system for application use. It is in this area that I expect initial forces from the MST project to hit us first. The need to proceed with the NLS frontend system, participating in system protocol design, collaboration and interfacing with other contractors, need for possible reimplementations as MST program moves ahead will require 3-6 software people working at this level.

1d3a

## ANALYSIS 4-6 people

1e

We have looked at Analysis in the past and while we could limp along with present staffing of 2 people I feel a minimum is really closer to 4 to lay the ground work of this new area, really look into areas of vital concern, service requests from applications and development and do some promotion and collaboration out on the Net. I would expect that active participation in the MST program will be very important. The ONR project will require 3/4 of a person.

1e1

## APPLICATIONS 34-37 people

1f

## ARC Operations 15 people

1f1

We are presently drawing DEIS support heavily out of ARC Operations and as a temporary expedient thats ok but not



## Rough Cut at ARC Manpower Needs

<p>viable over a longer time. For example our documentation effort is critical to all applications and it is going to be hit hard.</p>	1f1a
<p>2 minimum for documentation</p>	1f1b
<p>1 Tenex</p>	1f1c
<p>1 NLS maintenance</p>	1f1d
<p>1 administrative</p>	1f1e
<p>3 clerical</p>	1f1f
<p>4 hardware people</p>	1f1g
<p>1 making catalogs</p>	1f1h
<p>2 operators</p>	1f1i
<p>NIC 7-8 people</p>	1f2
<p>We have made several cuts at looking at the NIC and ACIS and its present 4 person level is just not viable except as a desparate holding action. Each look comes up with a real minimum need of from 7-8 people (software support counted earlier)</p>	1f2a
<p>UTILITY 5-7 people</p>	1f3
<p>We have looked hard here also several times and see a need for 5-7 people.</p>	1f3a
<p>DEIS 5 people plus software above, maybe 2-4 more</p>	1f4
<p>Basic support of the two stations was estimated at about 4 people, about 1/2 person in technical support. If Capps wants more demo support of prototype services tht could require 2-3 more people of various skills. Support of Christianson could require another person.</p>	1f4a
<p>VELA 2-3</p>	1f5
<p>Its clear that a couple people would be required to help design data bases, do procedure development collaboraion, liaison etc besides some software effort estimated earlier.</p>	1f5a
<p>OTHER LIKELY TO COME UP IN THE NEXT YEAR? 2-5 people?</p>	1f6

From: HHughes.MAC at MIT-Multics

1

Date: 02/05/74 1222-edt

2

3

this is to test the journal subsystem.

4

this is more of the same

5

now 2 cr

6

7

one more line

8

(J21794) 5-FEB-74 09:23; Title: Author(s): Herb S. Hughes/HSH ;  
Distribution: /HSH ; Sub-Collections: NIC; Clerk: HSH;

Preparations Needed for Frontend Meeting

Don, Charles, Smokey,

Preparation needs for March Frontend meeting would seem to be the following:

- 1) A written description of our planned two PDP 10 experiment to be handed out and discussed.
- 2) A reasonably clear picture of functions we think should be in frontend.
- 3) A clear image of our views on existing PDP 11 operating systems, ANTS , Speech, LLL, etc.
- 4) A rough analysis of computation and terminal data flow requirements that makes plausible that 11/40 can support our frontend functions and terminal data requirements for reasonable number of terminals 8-16. This should be written.

I'd like to see drafts by 23 Feb. I do not know yet how many people we can send or whether I should plan to attend. Dick

1

RWW 5-FEB-74 09:40 21795

Preparations Needed for Frontend Meeting

(J21795) 5-FEB-74 09:40; Title: Author(s): Richard W. Watson/RWW;  
Distribution: /DIA CHI DCW KEV DCE JCN; Sub-Collections: SRI-ARC; Clerk:  
RWW;



netedification

hi--

Re implementation status, I'm a bit swamped to do any checkout for a while, so can Wayne and Dave give each other's a going over and maybe Chris or Jim can look at mine. Eventually, I think we should all try to put the others through the paces, but we still have a couple of spec issues to clarify, so in the meantime maybe some sort of pairing would help. Re one spec issue, I've put into the document an attempted solution to Dave's observation about getting help initially. (Haven't put it into my version (pgm) yet.) Does this seem agreeable? Re other spec issue, how about the following phrasing/spec (in the appropriate place):

...the argument is separated from the request by at least one blank; that is, for many requests any number of additional blanks is permitted, but for those where leading blanks are significant (see "l", "i", and "r", below) a single blank is used as the delimiter.

And then the appropriate requests will be so described.

I don't relish it, but it seems MUCH easier to use than any sort of special character or delimiters. (Either way there'd be an asymmetry, but this way feels cleaner to me.) Or do we -- shudder -- want to go to one blank everywhere? (Seems silly and old-fashioned)? Note that we can't go to no blanks unless we really hair up the parsing, for "save" and "quit" are required to be spelled out. Also, it's my experience that for naive users the whole concept of requests is hard enough to grok that it seems worthwhile to have them physically set off -- though that might be a bit overpsychological.

cheers, map

p.s. I've remembered something I left out of the document. there will be some sort of prize for whoever spots it (maybe that'll getcha to read the dumb thing).

pp.s. Wayne tells me I blew the file structure a bit and that there are tabs in it. sorry bout that. thought I'd eliminated them. will do so on next draft, when I get yr comments on present one. (subtle little devil, ain't I?)

ACKNOWLEDGE\*THIS PLEASE

1

("this" = the message in general, not the last thought)

cheers...

2

MAP 5-FEB-74 10:28 21796

netedification

(J21796) 5-FEB-74 10:28; Title: Author(s): Michael A. Padlipsky/MAP  
; Distribution: /NETED ; Sub-Collections: NIC NETED; Clerk: MAP;

A Hopefully Private Document

Test Private Message.

A Hopefully Private Document

(J21797) 5-FEB-74 11:39; Title: Author(s): James E. (Jim) White/JEW;  
Distribution: /JEW; Sub-Collections: SRI-ARC; AccessList: JEW; Clerk:  
JEW;

FEEDBACK 5-FEB-74 15:35 21798

test2 netgripe/netcomment

FEEDBACK 5-FEB-74 10:40 21790

netgripe/netcomment test

Message: test

\*\*\*\*\*Note: Author Copy\*\*\*\*\*

1



test2 netgripe/netcomment

(J21798) 5-FEB-74 15:35; Title: Author(s): Jean Nmi Iseli, Jonathan B. Postel, Jean Iseli, David H. Crocker, Al J. Rosenfeld, Jim O. Calvin/FEEDBACK; Distribution: /NETGRIPE NETCOMMENT; Keywords: test2 netgripe netcomment; Sub-Collections: FEEDBACK; Clerk: FEEDBACK;

Picnic for Diane on Friday

As a sendOff for Diane, there will be a picnic lunch on Friday at noon, in the recreation room and patio of Mary's place, Laurel Grove Apartments, at the corner of Laurel and Oak Grove.

1

The signup sheet with map is on the Office window. Please indicate if you are coming, and what you plan to bring.

2

JBN 5-FEB-74 15:42 21799

Picnic for Diane on Friday

(J21799) 5-FEB-74 15:42; Title: Author(s): Jeanne B. North/JBN;  
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: JBN;  
Origin: <NORTH>DIANE.NLS;1, 5-FEB-74 15:22 JEN ;

%In the Jump to File Return command. Since "Ahead" went away,  
"Return" should be a noise word instead of a Command-word so that you  
don't have to type it every time.

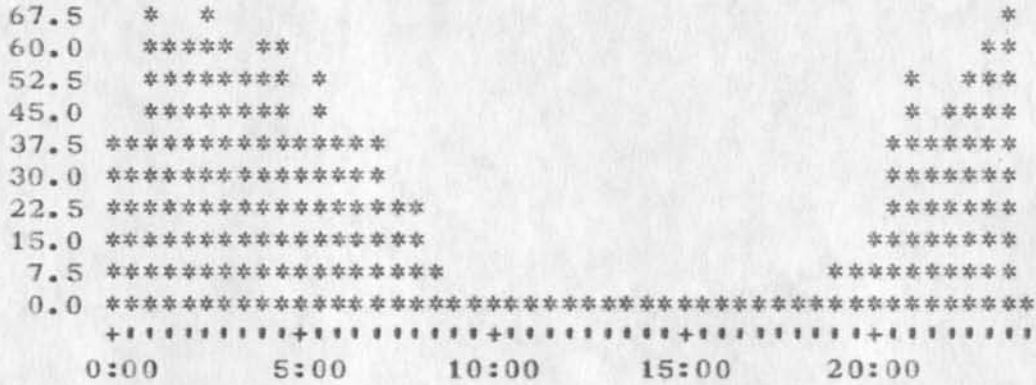
(J21800) 5-FEB-74 16:14; Title: Author(s): Kirk E. Kelley/KIRK;  
Distribution: /NP; Sub-Collections: SRI-ARC NP; Clerk: KIRK;



Superwatch Average Graphs for Week of 1/27/74

TIME PLOT OF AVERAGE IDLE TIME FOR WEEK OF 1/27/74  
 x axis labeled in units of hr:min, xunit = 30 minutes

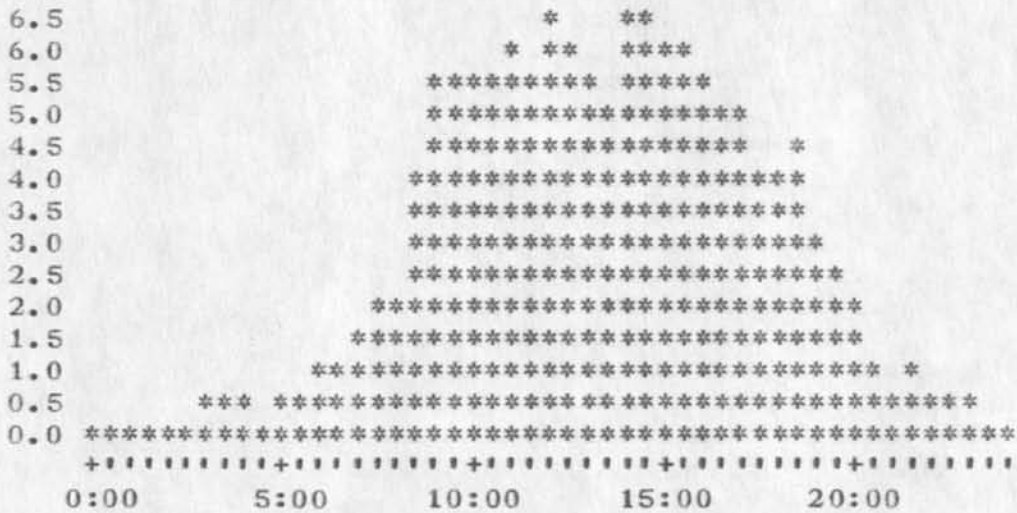
1



1a

TIME PLOT OF AVERAGE NUMBER OF GO JOBS FOR WEEK OF 1/27/74  
 x axis labeled in units of hr:min, xunit = 30 minutes

2



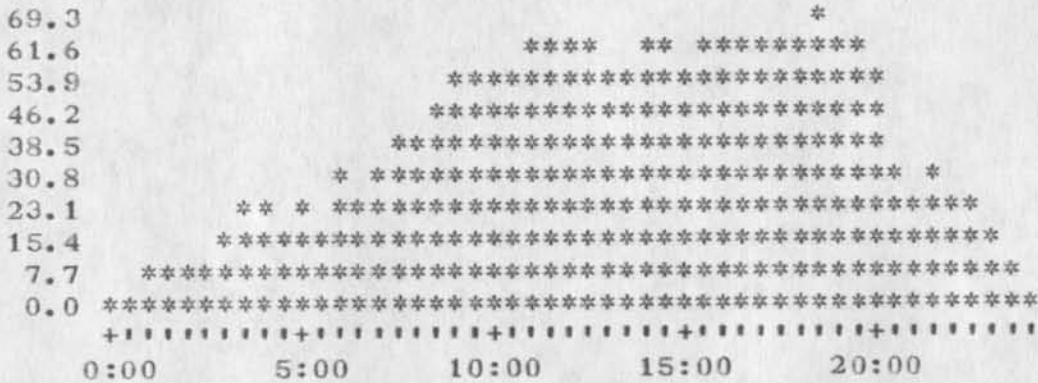
2a

Superwatch Average Graphs for Week of 1/27/74

TIME PLOT OF AVERAGE PER CENT OF CPU TIME CHARGED TO USER ACCOUNTS FOR WEEK OF 1/27/74

x axis labeled in units of hr:min, xunit = 30 minutes

3

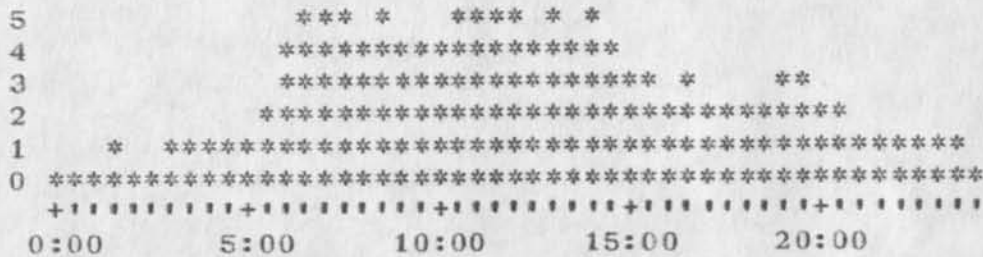


3a

TIME PLOT OF AVERAGE NUMBER OF NETWORK USERS FOR WEEK OF 1/27/74

x axis labeled in units of hr:min, xunit = 30 minutes

4



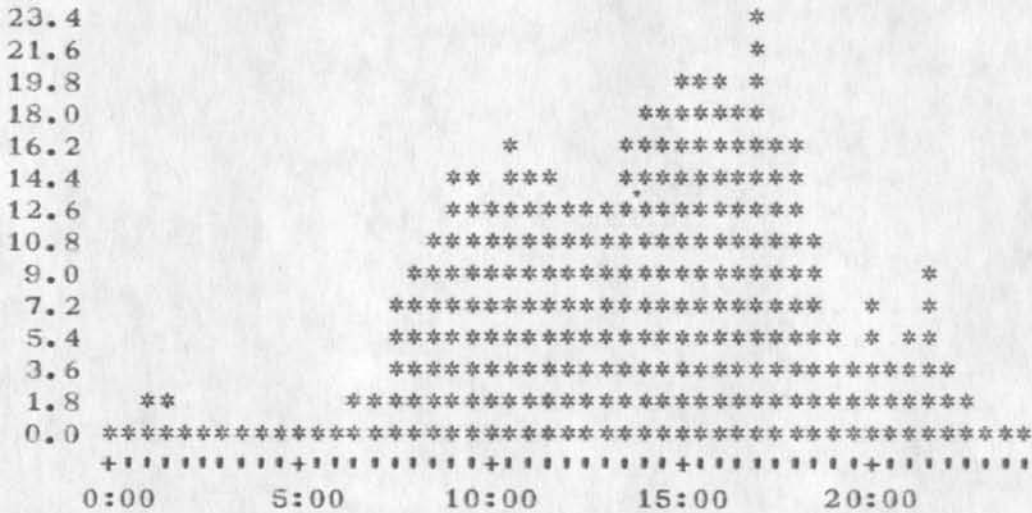
4a

Superwatch Average Graphs for Week of 1/27/74

TIME PLOT OF AVERAGE PER CENT OF SYSTEM USED IN DNLS FOR WEEK OF 1/27/74

x axis labeled in units of hr:min, xunit = 30 minutes

5

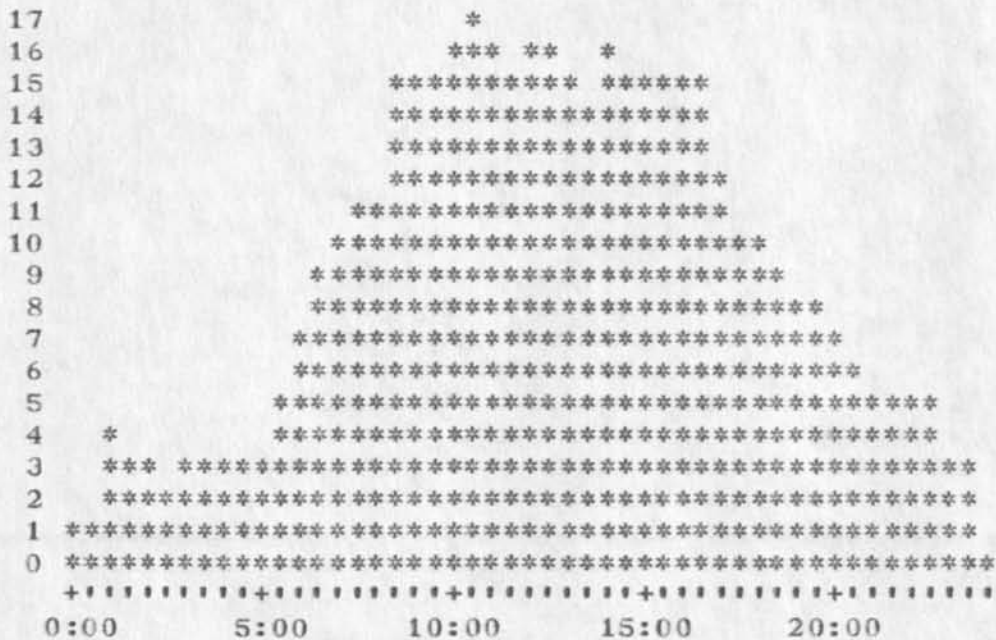


5a

TIME PLOT OF AVERAGE NUMBER OF USERS FOR WEEK OF 1/27/74

x axis labeled in units of hr:min, xunit = 30 minutes

6



6a

SRL 5-FEB-74 16:40 21801

Superwatch Average Graphs for Week of 1/27/74

(J21801) 5-FEB-74 16:40; Title: Author(s): Susan R. Lee/SRL;  
Distribution: /JCN RWW DCE PR JCP DVN JAKE DLS BAH; Sub-Collections:  
SRI-ARC; Clerk: SRL;  
Origin: <LEE>WEEK1/27GRAPHS.NLS;2, 5-FEB-74 16:37 SRL ;



Arpanet Directory Update

5-FEB-74 14:39:58 Net mail from site MIT-MULTICS 1

From: Pogran,CompNet at MIT-Multics 1a

Date: 02/05/74 1740-edt 1b

Subject: Change of Address and Phone Number 1c

We have played "musical offices" once again here at Project MAC, 1d

and my new address and phone are as follows: 1e

Kenneth T. Pogran 1f

MIT Project MAC 1g

545 Technology Square Room 502 1h

Cambridge, MA 02139 1i

(617) 253-6012 1j

There is, of course, NO change in my Network mail address. 1k

Mail may still be sent to Pogran at MIT-Multics. 1l



MDK 5-FEB-74 16:55 21802

Arpanet Directory Update

(J21802) 5-FEB-74 16:55; Title: Author(s): Michael D. Kudlick/MDK;  
Distribution: /NIC; Sub-Collections: SRI-ARC NIC; Clerk: MDK;

thoughts about the tty window in new DNLS

When commands appear in the tty window, how about getting rid of viewspecs and the subsystem name. They could be readily available like the time and everything else. Viewspect "?" would display the current viewspecs, and we already have the "<" and ">" commands for getting the subsystem.

1

This would allow all but except for two lines of the screen to contain text.

2

There are certain things that should not be displayed in the tty window. Things like file status and other show commands. I don't think text insertion should show up there because you couldn't read two lines above what you have written and you couldn't have automatic backspace reformatting.

3

KIRK 5-FEB-74 17:53 21803

thoughts about the tty window in new DNLS

(J21803) 5-FEB-74 17:53; Title: Author(s): Kirk E. Kelley/KIRK;  
Distribution: /NP; Sub-Collections: SRI-ARC NP; Clerk: KIRK;

## PSO Meeting Thursday

PSO will meet to exchange information as usual this Thursday at 2:00 in the Parsley. JML KIRK and MEJ are expected to attend, and everyone is welcome. As many of you know, Sandy Johnson will come to work as a secretary February 19. We will have no trouble finding things for her to do. However many tasks have been swept under the rug while that job was vacant; it is a good time to mention them so we can create a new list of priorities.

DVN 5-FEB-74 17:54 21804

PSO Meeting Thursday

(J21804) 5-FEB-74 17:54; Title: Author(s): Dirk H. Van Nouhuys/DVN;  
Distribution: /SRI-ARC; Sub-Collections: SRI-ARC; Clerk: DVN;



Next step in User definition

Jake--

There are now two files in <USING> called UDEF1.NLS and UDEF2.NLS which are Wayne's thoughts and my thoughts on the User definition problem. Please take a look at them, add your contributions, remodel them, put them together, or in some way take the next step. We are supposed to have this thing done by Mar. 1. Please try to have something done by next week. Thanks, Nancy

1

Next step in User definition

(J21805) 6-FEB-74 06:22; Title: Author(s): Nancy J. Neigus/NJN;  
Distribution: /JAKE AWH(for your information); Sub-Collections: NIC;  
Clerk: NJN;

## Availability of USING documents

## USING members--

Although Output Device Printer, Output Sequential, SENDPRINT and other nice formatting facilities exist at the NIC, and although the NIC has made the much needed patch of changing TENEX EOL's <037> to <CR><LF>, it is still difficult to get a formatted copy of an NLS document to another site, especially during hours when the NIC is heavily loaded. At those times, when it is difficult to get logged in, much less get processing time, it would be very nice to have a sequential text file all ready to be FIP'ed out. Therefore, I request that all future documents left for perusal by other members of USING or any of its subcommittees be left in ASCII text form, as well as NLS form, in the <USING> directory. It is a simple matter for the last person who edits and updates a particular file in <USING> to use Output Device Printer and SENDPRINT to file (as specified by DHC in his ncte) in order to leave a good sequential copy in the directory.

On the other hand, it is also only fair that anyone making a file available from the outside in sequential form, also leave an NLS version of the file in the <USING> directory. Please follow these requests, so that the group may have less infighting and get more work done. Thanks, Nancy

Availability of USING documents

(J21806) 6-FEB-74 06:37; Title: Author(s): Nancy J. Neigus/NJN;  
Distribution: /USING; Sub-Collections: NIC USING; Clerk: NJN;



Demonstration File: DEIS Meeting 1/30/74

DEFENSE ENERGY R&D REPORT (DEIS-1R) 1

ORGANIZATION: 1a

Stanford Research Institute  
333 Ravenswood Avenue  
Menly Park, California 94025 1a1

US Government  
ENERGY RELATED PROJECTS DURING 1973 1b

1. A Technology Assessment of a Hydrogen Energy Economy 1b1

FIELD OF INTEREST: New Energy Sources 1b1a

ORGANIZATION: Stanford Research Institute 1b1b

PRINCIPAL INVESTIGATOR: E. M. Dickson (415) 326-6200, ext  
4371 1b1c

CLASSIFICATION: Unclassified 1b1d

CONTRACT NUMBER: Grant No. GI-39694 1b1e

CONTRACT MONITOR: Mr. J. Coates / NSF 1b1f

FUNDING AGENCY: National Science Foundation 1b1g

SCHEDULE DATA: 7/2/73 to 12/31/74 1b1h

PROJECT DESCRIPTION: 1b1i

TITLE: A Technology Assessment of a Hydrogen Energy  
Economy 1b1i1

SRI is currently conducting a technology assessment for the National Science Foundation of hydrogen as an energy carrier to substitute for fossil fuels and as an alternative to distribution of energy in electrical form. Although preliminary analyses have revealed many apparent advantages of hydrogen over other alternative energy carriers and many important energy supplies and governmental agencies have begun to consider hydrogen as part of the energy economy of the future, the societal and environmental consequences of a gradual change to a hydrogen economy have scarcely been examined. This one-year study will investigate and assess such matters, and its results should assist



Demonstration File: DEIS Meeting 1/30/74

in the rational formulation of a national energy policy concerning a hydrogen economy. 1b11a

Specific items of work to be accomplished in this research include: 1b11a1

Delineation of the technologies relevant to a hydrogen energy economy. 1b11a1a

Identification of the relevant competing and complementing technologies. 1b11a1b

Specification of the current institutional, legal, and regulatory setting. 1b11a1c

Identification of the major impact areas and the stakeholders affected. 1b11a1d

Analysis of the impacts and the likely responses of the impacted groups. 1b11a1e

Formulation of policy options to maximize social benefit from the technological change. 1b11a1f

Preparation of a technical report for dissemination by the National Science Foundation. 1b11a1g

Preparation of a popularized version of the technical report for dissemination at the discretion of the National Science Foundation. 1b11a1h

This study is being conducted by an interdisciplinary team drawn from SRI, public utilities, and private companies. Its members were selected on the basis of their professional backgrounds providing team competence in sociology, chemical engineering, chemistry, physics, cryogenics, fossil fuels, energy economics, environmental analysis, transportation planning, fire and explosive research, and legal and regulatory policy. 1b11b

2. Assessment of Total Energy Systems for the DOD. 1b2

FIELD OF INTEREST: Conservation 1b2a

ORGANIZATION: Stanford Research Institute 1b2b

Demonstration File: DEIS Meeting 1/30/74

PRINCIPAL INVESTIGATOR: R. L. Goen (415) 326-6200, ext 3198 1b2c

CLASSIFICATION: Unclassified 1b2d

CONTRACT NUMBER: DACA 23-73-C-0014 1b2e

CONTRACT MONITOR: R.G. Donaghy  
US Army Construction Engineering Research Laboratory (CERL) 1b2f

FUNDING AGENCY: Defense Advanced Research Projects Agency (ARPA) 1b2g

SCHEDULE DATA: 3/12/73 to 12/31/73 1b2h

PROJECT DESCRIPTION: 1b2i

TITLE: Assessment of Total Energy Systems  
for the Department of Defense 1b2i1

SRI is currently completing a study to assess the potential applicability of total energy systems and other types of energy systems to military installations. The study is sponsored by the Defense Advanced Research Projects Agency and is monitored by the U.S. Army Construction Engineering Research Laboratory. In addition to an assessment of the potential energy savings and the costs of the various types of energy systems, another objective is to provide a model which can be used to conduct preliminary feasibility studies for particular applications. 1b2i1a

The principal effort in the study is on the fossil fuel systems -- diesel electric, gas turbine, and steam turbine -- which generate electricity on-site and make use of heat recovered from the electric generation for other purposes. Conventional systems which use electricity from a utility and have centralized heating for thermal needs are also covered as a basis for comparison. Other types of energy systems covered are geothermal, solar, nuclear, and use of solid wastes. Estimates are given of the potential number of military bases for which geothermal energy might be available, and costs are given for geothermal applications. Solar energy applications are limited to thermal conversion; in one case, used only for heating and cooling, and in

Demonstration File: DEIS Meeting 1/30/74

another case, used for electricity generation as well as heating and cooling.

1b2i1b

Analysis was first made of the energy load profiles for military installations. Performance characteristics and costs of the various types of energy systems were developed. From this basis, a number of energy system configurations were synthesized to cover the different energy systems, sizes of bases, and types of energy load profiles. A model was developed to calculate fuel consumption for each of the cases. Uniform annual costs were then calculated for each case, with fuel costs as a parameter, and comparisons were made with the costs of conventional systems.

1b2i1c

- |   |     |
|---|-----|
| 3. Appraisal of Energy Resources and Programs<br>in the Soviet Union and Eastern Europe | 1b3 |
| 4. Control of Environmental Imports from Advanced Energy<br>Sources                     | 1b4 |
| 5. Defense Energy Information System  | 1b5 |
| 6. Patterns of Energy Consumption in the United States                                  | 1b6 |
| 7. Etc.   | 1b7 |

Demonstration File: DEIS Meeting 1/30/74

TYPE OF QUERY / OUTPUT		2
TYPE OF QUERY		2a
ENERGY RESEARCH CATEGORY	Conservation	2a1
TYPE OF RESEARCH	Feasibility	2a2
POTENTIAL APPLICATION	Reduce PEL Consumption at Military Bases	2a3
CLASSIFICATION	ALL	2a4
RESEARCH TIME FRAME	1973	2a5
APPLICATION TIME FRAME	1980	2a6
OUTPUT		2b
Assessment of Total Energy Systems for the Department of Defense		2b1
ORGANIZATION:	Stanford Research Institute	2b1a
PRINCIPAL INVESTIGATOR:	R.L. Goen (415) 326-6200 ext 3198	2b1b
CONTRACT AGENCY/ FUNDING AGENCY:	CERL/ARPA	2b1c
RESULTS OF INTEREST TO:	ASD (I&L) USA (CE)	2b1d
Utilization of Solid Wastes for Heating on Military Installations		2b2
ORGANIZATION:	Stanford Research Institute	2b2a
PRINCIPAL INVESTIGATOR:	R.L. Goen (415) 326-6200 ext 3198	2b2b
CONTRACT AGENCY/ FUNDING AGENCY:	SRI - Research Concept Paper	2b2c
RESULTS OF INTEREST TO:	ARPA	2b2d
Solar Energy Applications for Military Installations		2b3
ORGANIZATION:	Stanford Research Institute	2b3a
PRINCIPAL INVESTIGATOR:	R.L. Goen (415) 326-6200 ext 3198	2b3b



Demonstration File: DEIS Meeting 1/30/74

CONTRACT AGENCY/  
FUNDING AGENCY:

SRI - Research Concept Paper

2b3c

RESULTS OF INTEREST TO: ARPA

2b3d



Demonstration File: DEIS Meeting 1/30/74

REPORT: Defense Supply Agency Report RCS-DD-I&L (W) 1313 3  
 Region: OEP Region 9 (Arizona, California, Nevada) 3a  
 Wholesale: 3a1  
 Fuel: JP4 3a1a  
 Barrels: [Regional Summary in thousands of Barrels] 3a1a1

	last expected week outflow	last week's stock	last week's inflow	last week's outflow	present stock	expected inflow	
---							3a1a1a
12/17/73	N/A	N/A	568	1,381	428	496	3a1a1b
12/28/73	1,381	412	405	1,388	407	325	3a1a1c
1/4/74	1,388	202	235	1,354	347	315	3a1a1d
1/10/74	1,354	504	380	1,478	431	397	3a1a1e
1/17/74	1,478	498	413	1,564	541	350	3a1a1f
1/23/74	1,564	346	404	1,506	413	559	3a1a1g

Demonstration File: DEIS Meeting 1/30/74

STOCKS: Defense Supply Agency Report RCS-DD-I&L (W) 1313 4

Region: OEP Region 9 (Arizona, California, Nevada) 4a

Wholesale:(DFSC Terminals) 4a1

Fuel: JP4 4a1a

Regional: Comparison of Actual/Estimated STOCKS  
 [In thousands of Barrels] 4a1a1

Week	Actual	last week's Estimate	Actual As % of Estimate	
---				4a1a1a
12/17/73	1,381	N/A	N/A	4a1a1b
12/28/73	1,388	1,314	95	4a1a1c
1/4/74	1,354	1,470	92	4a1a1d
1/10/74	1,478	1,385	106	4a1a1e
1/17/74	1,564	1,512	103	4a1a1f
1/23/74	1,506	1,755	86	4a1a1g

Demonstration File: DEIS Meeting 1/30/74

CONSUMPTION: Defense Supply Agency Report RCS-DD-ISL (W) 1313 5

Region: OEP Region 9 (Arizona, California, Nevada) 5a

Wholesale:(DFSC Terminals) 5a1

Fuel: JP4 5a1a

Regional: Comparison of Actual/Estimated CONSUMPTION  
[In thousands of Barrels] 5a1a1

Week	Actual	last week's Estimate	Actual As % of Estimate	
---				5a1a1a
12/17/73	568	N/A	N/A	5a1a1b
12/28/73	405	496	82	5a1a1c
1/4/74	235	325	73	5a1a1d
1/10/74	380	315	120	5a1a1e
1/17/74	413	397	104	5a1a1f
1/23/74	404	350	115	5a1a1g

Demonstration File: DEIS Meeting 1/30/74

## IMPROVEMENTS:

Desired Improvements in DEIS-IH Reports			
	INPUTS	OUTPUTS	
Quality in Storage (bbl)	Q		6a
Consumption Rate (bbl/wk)	C		6b
Arrival Rate (bbl/wk)	A		6c
Outage Rate (wk)		$Q/(C-A)$	6d
Response Time for Resupply (with safety factor)	NT		6e
Raw Deficiency		$(NT-O)(C-A)$	6f
Priority (weighted)	P/W		6g
Deficiency Effect		$(NT-o)(C-A)(P/W)$	6h
			6i



Demonstration File: DEIS Meeting 1/30/74

BASES: Defense Supply Agency Report RCS-DD-I&L (W) 1313 7

Individual Base in OEP Region 9 7a

Retail/Wholesale: 7a1

Fuel: JP4 [barrels] 7a1a

BASE A INPUT 7a1a1

Quantity in Weighted Priority	Stocks as % of Storage	Consump tion Rate Total	Arrival Rate (bbl/wk)	Resupply Response (bbl/wk)	(wk)
--	------------------------------	-------------------------------	-----------------------------	----------------------------------	------

----- 7a1a1a

100,000(bbl) 30 10,000 5000 4 1 7a1a1b

BASE A OUTPUT 7a1a2

Operating Stocks (bbl)	Outage Rate (wks)	Raw Deficiency (bbl)	Deficiency Effect (bbl)
------------------------------	-------------------------	----------------------------	-------------------------------

----- 7a1a2a

30,000 6 -10,000 -10,000 7a1a2b

DIVERSION: BASE A REQUIRED TO DIVERT SUPPLIES TO BASE B 7a1b

BASE A INPUT 7a1b1

Quantity in Weighted Priority	Stocks as % of Storage	Consump tion Rate Total	Arrival Rate (bbl/wk)	Resupply Response (bbl/wk)	(wk)
--	------------------------------	-------------------------------	-----------------------------	----------------------------------	------

----- 7a1b1a

100,000(bbl) 30 10,000 +2,000 5000 4 1 7a1b1b

BASE A OUTPUT 7a1b2

Operating Stocks (bbl)	Outage Rate (wks)	Raw Deficiency (bbl)	Deficiency Effect (bbl)
------------------------------	-------------------------	----------------------------	-------------------------------



Demonstration File: DEIS Meeting 1/30/74

-----  
--- 7a1b2a  
30,000 4.3 2100 2100 7a1b2b

Demonstration File: DEIS Meeting 1/30/74

(1b1:xbbbzn)  
(1b1i:wgyn)  
(1b2:xbbbzn)  
(1b2i:wgyn)  
(1:xbbzn)  
(2a:xbbbgz)  
(2b:xbbgnz)  
(3:xgz)  
(4:xgz)  
(5:xgz)  
(6:xgz)  
(7:xbbgz)  
(7a1a:wgz)  
(7a1b:wgz)

8

JCN 6-FEB-74 07:23 21807

Demonstration File: DEIS Meeting 1/30/74

(J21807) 6-FEB-74 07:23; Title: Author(s): James C. Norton/JCN;  
Distribution: /JCN; Sub-Collections: SRI-ARC; Clerk: JCN;  
Origin: <NORTON>DEMO.NLS;2, 30-JAN-74 08:11 JCN ;

## Staged Forms System

## INTRODUCTION

## Form System Proposal

This document describes the Form System proposed for implementation at the Stanford Research Institute Augmentation Research Center (SRI-ARC) for the Rome Air Development Center (RADC).

The Form System will permit the creation of templates for forms and groups of forms which will be used to prompt users for data entry and will also be used for formatted printing on standard documents. Data entered into the Form System will be accessible for later queries. An attempt will be made to deal with the problem of imposing privacy restrictions over fields of data.

Contained below are sections discussing the background and requirements of the system both in the RADC and general environments. A presentation of design considerations and the proposed user interface follows.

A discussion of the use of the CCA data computer and the associated data language for the storage and retrieval of data bases is also included.

Appendices present general definitions, a possible implementation schedule, user interaction scenarios, functional requirements (manpower and hardware) of the system, and miscellaneous design notes.

Footnotes reference pertinent quotations from RADC papers on the form system and on data management.

Elizabeth Michael and Harvey Lehtman are responsible for the document. They had the assistance of Richard Watson, Charles Irby, and Dirk van Nouhuys.

## The Problem in General

Filling out forms by hand duplicates effort at every step. The number of times a person is required to submit his own name and the name and address of his organization is one example. There is also the problem of reaching and using the information contained on previously completed forms.

In many cases other people need information contained on various forms. In a manual system they will either be forced to go back to the source or copy from one form to



## Staged Forms System

another form, perhaps a computer coding sheet. This process results in lost time, proliferation of data errors, and inconsistencies between data bases.(1)

1b1a

Other typical problems associated with manual forms systems include:

1b2

Identifying the correct form for a particular occasion.

1b2a

Entering the information in the proper place and in the proper format.

1b2b

Locating and editing the information.

1b2c

Editing a form draft.

1b2d

Sequentially routing a form draft to the proper persons,(2)

1b2e

For completion,

1b2e1

For approvals.

1b2e2

Parallel delivery of a form draft for review and information.

1b2f

Preparation of the final, typed version of the form with the required number of copies.

1b2g

## The RADC Background

1c

RADC provided us with a sample of about eighty different forms regularly used in their work. They diverged widely in complexity and character.

1c1

The sample included forms that were simple check lists to record actions taken, subjective personnel and performance rating sheets, tabular forms for statistical and financial data with complex, mathematical relationships between form items, descriptive-essay-type forms, and many others.

1c1a

There was as much variation in the method of processing the forms as there was in the content and layout. Some were to be filled in by an individual whereas others required coordination among several people, not necessarily in the same department or physical location.

1c2

Procedural relationships existed between forms and groups of forms. A particular form could, for example, be one of many



## Staged Forms System

forms necessary to initiate an action. This procedural relationship led to the 'package' concept.

1c2a

## The Concept of a Package

1d

A group of forms which are to be filled out together and which may or may not have common information is called a "package".

1d1

In a package each form would be described individually, and templates for packages of forms would be supplied in more generalized descriptions of packages. The template is a file that contains information needed to create the form or package --- that is the graphic layout, the location of data, etc.(3) Package templates would note when several forms had the same information in a box. A particular form could be part of several packages.

1d2

An "instance" of a form or package contains the data associated with a filled out template. The structural mapping from data to individual data fields within a package is contained in the package template and is generated automatically when some knowledgeable person defines the package.

1d3

The form template includes the graphic data necessary to position and print the text on pre-existing forms, interactive prompting and editing of responses to encourage a user to supply complete and correct information, and instructions regarding disposition of the form, including required approvals with appropriate routing.(4)

1d4

## Proposed system

1e

The proposed Form System fulfills the need for a general purpose system that allows moderately experienced users to a) describe a functional template, b) create an "instance", and c) print on pre-printed hardcopy. Each phase will be an interactive, system driven process with a simple command language. It will also draw on a generalized information retrieval system for later querying and report generation.(5)

1e1

In view of the diversity of intent, content and shape observed in our sample, we decided to make the 'form generator' system as broad and as general as possible. It will additionally be used for tasks which are not document oriented as a type of on line questionnaire.

1e1a

Thus, for example, the Form System could be used to gather data for formatted data bases such as the NLS

## Staged Forms System

IDENT file and for other on-line data bases which have little need for highly formatted hard copy output. 1e1a1

Whereas some data items require information that would change every time some one filled out the form, much of the data is repetitive across forms, across form packages, and across successive instances of the same form. Much of the information could be part of data bases that could be most valuable in the context of a generalized data management and information retrieval system. 1e1b

## SYSTEM REQUIREMENTS 2

## Introduction 2a

Design and implementation work on the forms project has proceeded on the basis of the following requirements. 2a1

## General 2b

The system is designed for non-technical, administrative personnel. All phases should be simple to use and self teaching where possible. 2b1

Some segments of the system such as the form and package definition segments will be used only by more sophisticated users and these parts of the system will of necessity tend to be more complicated. These users, however, will not necessarily be people trained in the use of computers. 2b1a

Users will have at least some familiarity with NLS, and Form System commands should be compatible with NLS. 2b2

Data collected by the system will be stored on the CCA Datacomputer and will be accessible by an interface in NLS. (See the discussion in Appendix B for a justification of the use of the Datacomputer.) 2b3

## Form and Package Description 2c

The user will be guided through the steps necessary to describe a form to the system. 2c1

In this case the "user" is probably a specially trained person who is thoroughly familiar with all aspects of the form being described and with the form description system. 2c2

This process will produce: 2c3

## Staged Forms System

- an overall textual description of the form describing its purpose, routing and disposition which may be displayed to people who fill out instances of the form, 2c3a
- a description of the names and explanations, where needed, of each data field on the form including validity checks for each item when possible, 2c3b
- information necessary to format the data for printing.(6) 2c3c
- Equivalences between data fields on different forms within a package may also be supplied. This information will enable the system to fill in automatically any data that is repeated on a form or across related forms. 2c4
- Preparing a Form Instance 2d
- Prompting and keywords associated with each form and package will guide the user in choosing the form or forms that will serve his purpose within his organization. 2d1
- He will be prompted for all items that require entry. The system may check the information entered by the user item by item for validity - e.g. an appropriate number or an ident. Other items may be filled in from information contained in other form instances, from files, and from standard responses contained in the form description. 2d2
- Many forms are prepared by more than one person. The form description should contain routing information and the system should have a facility to deliver a form in process to the appropriate people and to notify them of the delivery. 2d3
- A facility is needed to protect information contained in a form in process (as well as in stored data). Some items, such as approval signatures, must allow inscription only by certain people.(7) Other items containing sensitive information should only be read by certain people. 2d4
- Form Portrayal 2e
- The system must provide facilities for portraying the form template and given instances both on display and typewriter type terminals for review and editing purposes and for final printing. 2e1
- Final printing will generally be on preprinted forms. The system will instruct an operator which form to use, how to align it, how many copies, etc. A split platen printing device



## Staged Forms System

will allow the needed system - operator interaction while the form is being printed. This could also be accomplished with two terminals, a good quality, impact printer for the forms and an inexpensive teletype for operator interaction.

2e2

## Data Capture

2f

Information submitted to the system must be retained wherever it is needed for completion of other forms or for other data management systems.

2f1

It should be saved in a format that permits other NLS systems such as Query, the Calculator, the Editor, and the Journal to operate on the data. It should be accessible for reformatting and transfer to other data management systems via the network.(8)

2f2

Close attention should be given to storing data in the most compact manner possible. Automatic archival and house cleaning facilities should be provided.

2f3

## Evolutionary Implementation

2g

The system described in this document is ambitious in regard to its concepts and implementation details. It is important that implementation occur in considered phases of increasing power and usefulness. (See appendix B for suggested phase breakdown.)

2g1

## DESIGN CONSIDERATIONS

3

## NLS, new file design concepts, and the Datacomputer

3a

The current NLS file structure is not ideally suited to large-scale, general data management systems, primarily because statements have a fixed record format that does not permit redefinition.

3a1

Plans for the redesign of the NLS file system have been under discussion for some time. They include provision for a variety of types of statements which would include formats more efficient in storage for each class of statement. This change would resolve a major design problem associated with the Form System.

3a2

Priorities and time pressures are such that the Form System cannot wait upon the redesign of the NLS file system.

3a3

Alternatives are

3a4

## Staged Forms System

- Accept present NLS statement and field definitions. 3a4a
- Design a file structure in accordance with the principles suggested for a new NLS. 3a4b
- Interface to an existing data management system such as the Datacomputer. 3a4c
- The third alternative appears to be the best because of the flexibility and power of the evolving Datalanguage and because of the large amount of storage available through the ARPANET on the Datacomputer. See the extended discussion of this question in Appendix E. 3a5
- The second alternative has obvious advantages over the first in the opportunities for optimizing the Form System response within NLS. Drawbacks are: 3a6
- Form generated data files could be incompatible with the rest of NLS. 3a6a
- Other NLS systems, such as Query, might have difficulty in making use of form generated data. 3a6b
- As the future NLS file structure is not yet nailed down, the form data could compound the conversion problem. 3a6c
- Interface to general data management and retrieval facilities(9)(10) 3b
- If Query could read form-generated data, the system's potential power would be much greater. 3b1
- Data on an individual could be entered via the Form System which would also produce hard copy when needed. Online inquiries of the data base would be made using the Query subsystem. 3b1a
- The Form System should be consistent with the overall "set system" design of the Query system. 3b1b
- Portrayal Generator - Formater: There are some special requirements for a portrayal generator for the forms system. The portrayal generator is the portion of NLS code that translates records in the machine into forms humans can read - displayed on terminals or typed on paper. 3b2
- The system must be able to interact with the printer/terminal operator. It must tell the operator which



## Staged Forms System

form to insert in the printer, when a form must be printed on both sides, how many copies, etc.

3b2a

Secondly, because of the sequential nature of the data and the non-sequential nature of the forms themselves, the portrayal generator must format a whole page at a time, not a line at a time.

3b2b

The present Output Processor does not offer either of these features. Though later evolution of the Output Processor will solve this problem, an immediate solution for the Form System is necessary.

3b2b1

## Dialogue Support System:

3b3

Sequential Delivery: the preparation of the instance of a form that requires several approvals, for example, will need a sequential delivery system.

3b3a

The appropriate place for the programs that control delivery is in the Journal system, rather than in the forms system itself.

3b3a1

It is a service that has many applications and should present no problems in being external to the forms system.

3b3a2

The Form System would call the journal module responsible for the process and maintain its own records. This could be a background process. A facility for appending and displaying comments should be included in the distribution system.

3b3a3

Privacy, Access, Distribution: Form descriptions and data generated by preparation of form instances will require restriction as to access.

3b3b

Only certain individuals, or classes of individuals, should be able to write certain items, for example approval signatures.

3b3b1

Data generated by the system will have all the problems of any other general data base. Failure to protect personal information generated by instances of certain personnel forms could be considered a violation of privacy rights.

3b3b2

The group working on the specifications for privacy in NLS files has been asked to consider and solve these

## Staged Forms System

problems. Further study should be given to use of the NLS IDENT system for restricting access. 3b3b3

## Generality 3c

The system should be designed to permit adding both higher index levels as well as lower level descriptor and data elements. For example, we might want to tie together groups of packages perhaps under a master index of job descriptions. 3c1

## Space 3d

The better the Form System is, particularly as a data entry system, the faster it will consume quantities of storage. Close attention should be given to avoiding the repetition of data elements within the system. 3d1

Data compaction techniques should be used wherever space/speed considerations indicate they could improve performance. For example, form item coordinates should probably be stored in the form descriptor in binary form. 3d2

Some of the prime reasons for choosing the Datacomputer interface for the Form System is its current availability through the Arpanet, its excellent Datalanguage, and the large, inexpensive storage it will provide. 3d3

## Speed 3e

Response time for the user while creating either a form description or a form instance will to a great extent determine the success and usefulness of the system. 3e1

Formatting for hardcopy output will not be as important to the user because it will generally be a background job. However, we have observed in the output processor and display systems how inefficiencies in portrayal generation can consume scarce system resources. 3e2

## USER INTERFACE -- Command language 4

## Introduction 4a

The user command language will be kept as simple as possible. Following the Goto Forms command given to NLS there will be five top level commands. 4a1

## Top level commands 4b

## Staged Forms System

**Describe:** This command will place the user in the mode required to create the package and form templates. The 'user', in this case, will be a person experienced in use of the system and with a thorough knowledge and understanding of the packages and forms being described.

4b1

**Describe Package:**

4b1a

In the initial terminal session describing a new package the system will assign a package number. If the package description was started in a previous session the user will give the system the number or title of the package. This will put the system in edit mode. The system will not permit changes to package or form descriptions if instances have already been filled out and completed. This is necessary to prevent the obsolescence of existing data. If a form or package changes, a new descriptive template will have to be made.

4b1a1

This process can be kept simple by employing the generation template concept. That is, the form or package identification will remain the same and a generation number (which could be a date) would be appended to it.

4b1a1a

The system will prompt the user for the package title, keywords to be used in searching for a package, textual information describing the package, identification numbers of all forms in the package and equivalences between forms (data fields within a form identical to data fields on other forms in the package).

4b1a2

The system will then begin prompting the user for descriptions of any forms in the package for which templates do not yet exist.

4b1a3

**Describe Form:**

4b1b

The system prompts first for information about the overall form - name, size, archive status, distribution lists, access restrictions, etc.

4b1b1

Each item and sub-item is then described. In addition to information about the nature of the data and any validity checks to be made, the coordinates on the page needed to format the data for printing are required.

4b1b2

**Create:** This command is used to produce an instance of a package with its forms.

4b2



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The 'user' is assumed to have some knowledge of general NLS editing techniques. Knowledge of the forms system beyond this command should not be necessary. 4b2a

A sub-mode of the create command is 'mail'. In this mode a user may direct the system to begin the sequential delivery process to other people who will add data and/or approvals. The delivery list may be specified by the user or it may be contained in the template. 4b2b

A Status command will be provided to show the progress of the form/package instance. Comments made by people on the distribution and approval lists will be reported by this command. 4b2c

Examine: This permits review of existing package and form instances. 4b3

A package or form may be identified by its ID (e.g. RADC 77) or name. If both are unknown a search for the appropriate package (or form) may be made using keywords. Finally, the master directory may be searched. 4b3a

Print: This command produces formatted files for later printing. 4b4

The printer operator will enter the Form System and will be informed of the contents of the form printer queue, what paper to have available, how to align it in the printer, etc. 4b4a

Quit: This is the normal NLS Quit out of a subsystem and normally returns the user to the subsystem he was in prior to entering the forms system. 4b5

#### Appendix A: General Definitions 5

##### Form 5a

A form corresponds to a predefined set of data elements. Each element is entered, edited and formatted according to the specifications of the definer of the form template. 5a1

##### Package 5b

A collection of forms to be filled in as a group by end users. 5b1

##### Template 5c

## Staged Forms System

Within the Form System there will be two types of templates. 5c1

A form template contains information about the data fields within a form, the text to be used to prompt a user in filling out the form and information to be used in portraying the form on output media such as a printer. 5c2

A package template contains information about the forms within the package and equivalences between the forms. 5c3

Instance 5d

An instance of a form or package is one occurrence of actual data associated with that form's template elements. 5d1

Appendix B: Proposed Implementation Schedule 6

Introduction 6a

The Form System described above has several sophisticated elements within it, many of which will involve novel technical approaches. The success of the system will depend on a well planned, carefully phased implementation program. The following order discusses one possible approach. Other considerations which may serve to alter the approach have to do with the continuing evolution of the rest of the NLS environment: changes in basic elements in NLS, such as the basic file system or the Journal, and in the Datacomputer implementation schedule could serve either to facilitate or hinder the Form System development. 6a1

Following the usual ARC bootstrapping approach, the first stages of implementation will not produce a complete and finished system. Rather, a less general, but still usable, system will be implemented and from experience and modifications of modules, this system will grow. The users will contribute as much to its future evolution as the designers and programmers. 6a2

Use of the Datacomputer 6b

While the stages described below assume the use of the Computer Corporation of America (CCA) Datacomputer and Datalanguage through the ARPANET by the NLS Form System, the designs are easily modified if necessary to make use of NLS file structure on the ARC managed computers. 6b1

In fact, our earlier preliminary designs assumed the sole use of NLS files. However, we feel the use of the



## Staged Forms System

Datacomputer for this project is advantageous for the following reasons:

1. The Datacomputer is currently available through the Arpanet, and has been designed to serve as the primary Network data management facility.

2. Large amounts of file storage are available at low costs.

3. The Datalanguage is a high level language which permits creation of very general, complex data structures and a straightforward, simple interface to NLS.

4. The NLS file structure limitations would require a major modification of internal file mechanisms to optimize the performance of the Form System with attendant revisions to the rest of NLS.

5. Certain structural bookkeeping operations concerned with multiple instances of a particular data structure are natural in the Datalanguage, but would require in NLS a catalog file and mechanism much like the Journal catalog. Earlier designs made use of this "Master Access Directory" which would be, by comparison with the Datacomputer, slow and unnatural requiring complex access control mechanisms.

6. Computer and manpower resources are already heavily loaded at the ARC facility. The Datacomputer is a Network server suited to these tasks and, while it has no direct interactive user interface, provides through the Datalanguage the means for connecting a sophisticated NLS Form System front end.

7. Sites on the Network should gain experience in interconnecting resources rather than reinventing large systems on local sites. We currently have little experience with the performance characteristics of such network interconnected systems. This interconnection will provide experimental results of value to the Network community in general.

## Basic Modules of the Form System

The completed Form System will have within it several modules--some unique to it and some shared with other NLS subsystems currently under development. Additionally, the NLS environment

## Staged Forms System

including the basic file system will also affect the implementation. Such modules include: 6c1

Template creation-- permits a (sophisticated) user to define package or form templates. 6c1a

Instance creation-- permits a user to fill in a form or package, parts of such an instance, or modify the contents of fields within instances. 6c1b

Formatting and printing-- prints formatted forms on a special printer under operator supervision. 6c1c

Query system-- Permits querying of data bases created under the Form System as well as other data bases within NLS. May also interface to data base systems elsewhere on the network. 6c1d

Privacy and protection-- Permits access control over fields with forms and form instances. 6c1e

Sequential delivery-- Permits delivery to a list of users in succession. Probably part of the NLS Journal system or making use of some of the basic modules. 6c1f

Connection to Datacomputer-- We need to have basic NLS procedures for access to external modules on the ARPANET in general and, in particular, the CCA Datacomputer. 6c1g

Stage 0 -- Present to 28 February 1974 6d

The purpose of Stage 0 is to produce for RADC in a very short time a workable and useful demonstration system for the creation of instances of a particular form. 6d1

Limiting the system to a specific form(s) permits easy implementation of and changes to the user interface. This technique will not work in the more general case in which user prompting will be controlled by information in templates. 6d2

In this phase an Nls file will be created that contains information to format instance data for printing in one branch and individual instance data in another branch. 6d3

It will include a module that formats the form instances for printing and prints them on a hardcopy terminal. 6d4

While this initial system will differ internally in many

## Staged Forms System

respects from later stages, it will be useful for the following reasons:	6d5
Use of CML for the command interface prototype will permit easy experimentation to test the human factors of the system.	6d5a
The printing module will be useable in later stages.	6d5b
Stage 1 -- Present to 28 February 1974	6e
This stage will progress concurrently with Stage 0. Its purpose is to gain experience with the Data Computer and determine its usefulness for storage and retrieval of form system data.	6e1
Experiment with Datacomputer connection to NLS	6e2
Check Network response time; interact with CCA staff to discover limitations of Datalanguage and to prepare for Datalanguage expansions.	6e2a
Prepare preliminary specifications of structures for templates and data files in the Datalanguage.	6e3
Review responses and (if necessary) revise design	6e4
If Network response or Datalanguage limitations are too great, revise design for Stage 1 (and later stages) to use ARC PDP10 computer and NLS file system (with the requisite changes to NLS file structure.)	6e4a
Stage 2 -- 1 March 1974 to 30 June 1974	6f
Introduction	6f1
Stage 2 is oriented toward gaining experience valuable in the implementation of the complete form system. Toward this end, we propose implementing a Form System dealing with a limited group of related forms used in the RADC environment:	6f1a
RADC 30 -- Project Summary Precedence List	6f1a1
RADC 30a -- Proposed Effort for FY Program Call	6f1a2
RADC 77 -- Request for Preparation of Purchase Request	6f1a3
These forms were chosen for several reasons:	6f1b



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They are important in the RADC operation, yet are filled out by a limited number of people, the project monitors. Therefore, we would have an easily trained group of people with which to experiment on the human interface problems of the initial system.

6f1b1

They do not have some of the more complex data structure problems (e.g., multiple boxes with conditional responses) and yet present interesting features (shared data across the package) for the first implementation.

6f1b2

Direct interface to the Query system will begin in this stage, but will not be completed. Privacy restrictions will also be examined, but will not be implemented on a field basis because of the current limitations of the Datacomputer on this pass.

6f1c

## Available features

6f2

Template Creation System

6f2a

Form Instance Creation

6f2b

Formatted Printing Software

6f2c

Formatted Printing Hardware

6f2d

Privacy Restrictions at the File Level

6f2e

The following features will be made available in stages following Stage 1:

6f3

Templates with more complex data structures. (Some of the sample forms require highly sophisticated data structures to make possible nodes with, for example, multiple choice box answers coupled with textual modifiers for certain of the available responses.)

6f3a

Privacy protection over individual form items. (The Datacomputer will not have access restrictions at individual data field levels; we must provide an appropriate interface.)

6f3b

Sequential delivery.

6f3c

Access through the query system to the data bases (through reformatting programs or filters will be available to permit data analysis.)

6f3d



## Staged Forms System

Stage 3 -- 1 July 1974 to ???

6g

At this stage we will permit more complex template structures and querying capabilities. Also at this stage we hope to have the data structures of both the Form System, Query, and NLS more uniformly efficient.

6g1

Privacy protection, sequential delivery.

6g2

## Appendix C: Scenarios

7

## Introduction

7a

The following scenarios are included to provide a general feeling for the forms system - user interface. All command options are not included. They are not meant to be a final statement of this interface. It is hoped they will generate comments and suggestions.

7a1

Syntax: Commands and information entered by the user are in upper case characters. System prompts and responses are in lower case characters. "CA" represents any valid command accept character.

7a2

## Package Template Creation

7b

Enter the Form System

7b1

Goto Forms CA

7b1a

The user may now give any of the five Forms system top level commands. The usual NLS help facilities and features common to all NLS subsystems are available .

7b2

Describe Package new ? ANSWER

7b2a

ANSWER = Yes CA

or CA Same as Yes CA

or No CA

package ? PACKAGE ID, NAME, or KEYWORD CA

7b2a1

The system supplies a unique package id for new packages.

7b3

p123 title ? TITLE OF PACKAGE P123 CA

7b3a

The user may associate keywords with the package for search and retrieval purposes. For example, a package may be titled 'TRAVEL REPORTS'. Keywords might include trip, conference, expense, seminar, etc.

7b4

## Staged Forms System

keywords KEYWORD1, KEYWORD2,.....,KEYWORDn CA

7b4a

A brief textual description should be given for each package suitable for informing a person filling out a package of the purposes, restrictions, etc. of the package.

7b5

initial message to the user TEXTUAL DESCRIPTION FOR THE USER  
CA

7b5a

The unique identification of each form included in the package is required. These may be forms that have already been described to the system or forms that do not yet have templates in the system.

7b6

form 1 id FORM ID CA for example SRI 1234  
form 2 id FORM ID CA  
form 3 id FORM ID CA  
form 4 id CA No more forms in package

7b6a

form 1 and form 3 have completed descriptions in the system

7b6b

The system will now enter Form Description mode and prompt for template information for the form or forms which do not yet have templates. See Form Description Scenario below.

7b7

When every form in the package has been described the equivalences between elements of different forms must be specified. For example, if a data element 'address' occurs in all the forms in the package this fact must be noted.

7b8

equivalent items ? ANSWER

7b8a

ANSWER = CA no equivalent items between forms  
or FORM NUMBER ITEM NUMBER = FORM NUMBER ITEM NUMBER/  
FORM NUMBER ITEM NUMBER = FORM NUMBER ITEM NUMBER/  
...../  
CA

7b8a1

## Form Template Creation

7c

Detailed information must be entered into the system for each form.

7c1

A description of the overall form is entered. This is followed by descriptors for each item to be filled in on the form. Much of the information required concerns the precise position of the item on the page. A clear grid will be provided to aid in determining exact item locations. When superimposed on a form, the grid will give the coordinates

## Staged Forms System

necessary to describe the items on the form. The forms system will prompt the user with the nature of the information needed and instructions on how to use the grid. 7c1a

Sample Session Describing the Form: 7c2

Form template creation may be initiated with the Describe Template command or it may be initiated by the package creation routines. 7c2a

The system begins by giving the user instructions on use of the grid, etc. 7c2b

place the form under the grid so that the first character to be printed by the system is directly under the grid square labeled 1/1. 7c2b1

Information About the Overall Form: 7c3

form number FORM ID CA e.g RADC 77 7c3a

form name NAME OF FORM CA 7c3b

number of pages NUMBER CA 7c3c

maximum characters/line NUMBER CA 7c3d

maximum lines/page NUMBER CA 7c3e

date format DATE FORMAT CA e.g 'yyddd' 7c3f

73174 (System echos current date in requested format.) 7c3g

archive ? Yes CA 7c3h

on line access Yes CA 7c3i

distribution list IDENT1, IDENT2, ..., IDENTn CA 7c3j

required approvals IDENT1, ..., IDENTn CA 7c3k

access restrictions IDENT LIST CA 7c3l

Information about Individual Form Items: responses to the following prompts determine the prompts a user preparing a form instance will see and what validity checking the system will perform on the data the user enters. 7c4

## Staged Forms System

Item Identification ITEM ID CA For forms which do not have numbered items the user may assign a number, or alphabetic identifier. (e.g. 'name ) 7c4a

Read Access Restricted ? No CA A yes response will cause a prompt for the access list. 7c4a1

write access restricted ? No CA 7c4a2

description DESCRIPTION OF ITEM CA e.g 'name of requestor' 7c4b

page No. NUMBER CA or CA Default page number is '1'. 7c4c

Max Chars across NUMBER CA 7c4d

Max lines NUMBER CA 7c4e

coords of first character (row) NUMBER (Column) NUMBER CA 7c4f

item type Numeric or Alpha-numeric or Text or Mark box with or LITERAL CA If The response to this prompt is LITERAL, the system will fill in the item with that literal whenever the form is being filled out unless the user overrides it. 7c4g

## Package Instance Preparation 7d

Enter the forms system 7d1

Goto Forms CA 7d1a

Initiate package preparation mode for the desired package 7d2

Create Package instance for PACKAGE NAME or ID CA 7d2a

The system will display the general information contained in the package template and the list of forms to be completed. 7d3

textual material describing the package 7d3a

form 1 ident of form 7d3b

form 2 ident of form 7d3c

etc 7d3d

An CA entered after the last form ident indicates that the user wishes to proceed sequentially filling out the forms in the order listed. The user may elect to begin with a form other



## Staged Forms System

than the first. In this case he enters the form number, e.g. '2'.

7d4

The system will enter the Forms instance preparation mode for the indicated form.

7d5

## Filling out a form

7e

Enter the Form System

7e1

Goto Forms CA

7e1a

Tell the system you want to fill out the form and which form.

7e2

Create Form RADC 77 CA

7e2a

The system will respond with general information about the form and it's associated packages, if any.

7e3

form 77, request for preparation of purchase request, is part of the procurement package. do you wish to prepare a new package? No CA

7e3a

add this form to a partially completed package? Yes CA

7e3b

package id? P123DLS CA

7e3c

The system will begin prompting for form items.

7e4

1. code nr (dd 1630) NUMBER CA

7e4a

2. objective DESCRIPTION CA In phase 1 this description will be entered from the keyboard. In later phases it will be constructed by the system from the information contained in form RADC 30a.

7e4b

3. follow-on funding

next fy NUMBER CA fy NUMBER CA fy NUMBER CA

7e4c

5. approvals required

name of division chief NAME CA

name of branch chief NAME CA

name of eng. & tel. nr NAME CA

7e4d

Items 6, 7, 9, 10, and 20 below represent a special case. Phase 1 implementation may treat each box as a separate item. Later phases will provide a more sophisticated design.

7e5

6. coord. req. Yes CA

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done ? No CA  
 by dod? No CA arpa? Yes CA nsa? No CA user? No CA other?  
 No CA 7e5a

7. resources req. ? Yes CA  
 avail ? Yes CA  
 from gfp? No CA glp? No CA Facilities? Yes CA other? No  
 CA 7e5b

ETC. 7e5c

You may wish to save the form for completion or revision at a  
 later session. 7e6

Quit CA This takes you out of the Form System and saves  
 your form for later completion and printing. 7e6a

Appendix D: Special Requirements of the Form System 8

Introduction 8a

The Form System will have special manpower and hardware  
 requirements. Unique job functions will have to be performed  
 and new equipment must be obtained. 8a1

Job Functions 8b

Template Administrator 8b1

will describe all forms and packages to the system. This  
 person must be well trained in all aspects of the Form  
 System and have a thorough knowledge of the forms and their  
 relationships. 8b1a

Output Printer Operator 8b2

will monitor the printer queue, initiate output sessions,  
 insert and align the proper forms, and distribute completed  
 forms. He must be trained in the operation of the printer  
 and in the use of the interactive subsystem to print forms. 8b2a

Form Entry Specialist 8b3

will be available to answer questions about filling out  
 forms. When a form has been filled out manually, the Form  
 Entry Specialist will be responsible for entering the data  
 in the system. 8b3a

Equipment 8c

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Grid	8c1
a specially designed grid to be superimposed on a form that will aid the Template Administrator in determining the coordinates of form items.	8c1a
Printer	8c2
a reasonably high quality impact printer. This should be a split-platen typewriter with full ASCII terminal capabilities. One side of the platen would be used to print the forms. The other would be used by the system to give operator instructions and to receive commands from the operator.	8c2a
An alternative is using two terminals, one for operator interaction, the other for form printing.	8c2b
Terminals	8c3
Display or typewriter type terminals for filling out forms. The system assumes that all personnel who are required to fill out forms will have access to a terminal. The occasions on which a form is filled out manually and entered into the system afterwards should be minimized.	8c3a
Appendix E: Some Miscellaneous Design Notes on Implementation of Completed System -- Files on Datacomputer; general NLS questions	9
Package and Form Templates	9a
Each instance of a package has a unique identifier.	9a1
Perhaps a number series as in the Journal; we could make use of the Journal number system primitives.	9a1a
We could use a name generated from the date/time/initials of the creator.	9a1b
Forms within a package instance share data in a manner determined by the package definer through an equivalence specification.	9a2
The mappings between data items within the package instance and the templates for the forms within the package are contained in the package template which is generated automatically at the end of the package definition from the individual form templates and the equivalency table.	9a2a

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The Package definition process and the form template definition process take place once for each package and form. 9a3

A form template is a package definition made up of one form; instances of a form may or may not be generated depending on whether the form definer specified that the form could exist in a package by itself (and thus created a package template for the single form,) Generally, forms will be part of several packages. As packages are defined, an item is added to a structure in the form template which contains a list of the packages of which the form is a part. If a user tries to fill out an instance of a form, he is told in which packages it is contained and is asked to select the package he wants before continuing to fill in the form. 9a4

Copies of existing package instances may be used to create new instances; new data may replace the old. 9a5

It may be possible to maintain an audit trail of modifications to specific data fields; this could include an identifier of the person modifying a field and the date it was modified. It is conceivable that some modification ability is desirable-- addresses change as do positions, ranks, etc. 9a5a

Master Form Directory 9b

One record for each package. Each package has a unique name. 9b1

Within the package record there is historical information concerning the package definition. 9b2

e.g., definer ident + idents of modifiers of the package definition. Date of definition, short descriptive statement for the package. 9b2a

Other fields in the package record 9b3

Forms-in-package -- 9b3a

Contains one data element for each form in the package. Each contains an identifier of a form template and a short description of the form. 9b3a1

Package template -- 9b3b

Contains the equivalency table information (which is useful in inputting changes.) 9b3b1



- Completed instance records-- 9b3c
- Contains information for each completed (data) instance of this package. In each, the name is a (unique) instance ID; the date the instance was created and the ID of the people who were responsible for filling in the instance. The idents of all forms in this package instance are also contained here. 9b3c1
- Instances in progress record-- 9b3d
- Contains one record for each data instance of the package which is incompletely filled in. It has the same information as a record in the completed instance record, but also has (as substructure) a list of IDs (or positions) of people who will be asked sequentially (by a sequential delivery system which operates in background mode) to fill in parts of the instance. 9b3d1
- Positional IDs may be specified by the package/form definer. These could include, for example, "branch chief", "supervisor", etc. They could be translated into the IEs of real people with knowledge of the affiliation of the first person to begin to fill in an instance. 9b3d1a
- The current person filling in parts of the package could add names (IDs) to the list. 9b3d1b
- A background system would find the first name or position in the list which has not been checked off (or moved into the citation) and will construct a Journal message informing him that action on a package is required. Such a message may be sent daily until action is taken, 9b3d1c
- The ident system must be capable of translating between positional IDs and real IDs. 9b3d1d
- When the end of the approval list is reached, the citation is moved to the completed branch. 9b3d1e
- If hard copy is desired, a request may be included at the end of the list. 9b3d1f
- We must have security on some items. In other words, certain people should not be able to read (or write) information contained in some parts of a package. 9b3d1g

## Staged Forms System

Form templates must contain information for printing a form (if desired.) They must also contain information concerning prompting as well as a list of the packages of which a form is a part.

9b3d1h

## Miscellaneous Questions

9c

We assume query is able to work over the data bases generated by the Form System. Within query, we must provide access locks on specific items within files as well as over entire files.

9c1

Problems with write access to the Master Form Directory could be solved similarly to the Journal message stuff. Workfiles could buffer information from a user until the end of a process. Then a final write-out to the appropriate system files could take place.

9c2

## FOOTNOTES

10

<MJOURNAL>13779 Author: Stone, Duane L.

10a

(1) 1d There are a number of forms in use at RADC which have information which is of lasting value. The information content of these forms can now be prepared, coordinated, reviewed, and edited using NLS. When the final version is obtained, however, they must be retyped by a secretary on a normal office typewriter before they can be sent to the outside world. I am unsure of the additional amount of work this creates. I have seen instances where a secretary spends as much as 4 hours on one form that must be letter perfect.

10b

(2) 6a4 The question of how to pass a file up the chain of command needs to be addressed. This is currently accomplished manually by the use of a "buck" slip. Each person on the list reviews the form and initials the buck slip indicating he has seen the form.

10c

(3) 4b3a The first branch would contain the blank form with preprinted information in a hierarchical format that was "naturally" derived from the form itself. This branch would be copied by the user to his directory when he needed to fill out the form.

10d

4b3b The second branch would contain the coordinate(s) of the area of each box which is preprinted on the form. The structure of branch two should be identical to branch one to eliminate confusion during the creation of the form description. The individual creating the form description would need a transparent grid, which could be overlaid on the

## Staged Forms System

form being input. Most of the important forms at RADC have a preprinted boundary which could be used as a reference. The upper left hand corner of a form could be 0,0 with positive X,Y coordinates emanating from there. A quick check of the forms used within the section was made. The longest vertical printing area measured was 12.25 inches and the longest horizontal printing area measured was 11.5 inches. It seems that a 132X132 printing area would be sufficient to cover most cases.

10d1

4b3c Branch three should also be identical to the two previous branches in structure. Each statement would contain a code for error checking purposes. A=alpha, N=numeric, AN=alphanumeric, any other string of characters would be interpreted literally, ie X would mean that only a capital X would be accepted. The main purpose of the error checker is to determine if the text entered by the user will fit in the box and if its the right kind of data. We should not try to cover all cases but only the most frequently occurring ones.

10d2

(4) 2a2 Form creation includes the initial filling in of the blanks in the form (this may be done by several people who are not in the same office), coordination of the form through the chain of command, editing and otherwise changing the content of the form and indicating approval (now accomplished by signature). Some forms may have to be recalled at a later date (several months) and information added to them.

10e

(5) 1d1 More important than the manhours which would be saved, is the data bases that would be "automatically" created, which would be useful to management and engineers alike. This is particularly true in the procurement area, where managers need to know the rate at which money is being acquired, committed and expended.

10f

(6) 2a 2a1 A requirement exists for a general purpose forms package which will allow the description of a form, the creation and editing of the form, and the printing of the form.

10g

Form description should include the specification of the size, location, and dimensions of the preprinted boxes. In addition one should be able to specify any information which is preprinted on the form which indicates the nature of the response expected from the individual filling out the form. It is also desirable for error checking purposes, but not absolutely necessary, to indicate the type of data that is expected in the boxes; ie, a particular character (X), numeric data only, alpha data only, alphanumeric data, etc.

10g1



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(7) 6a5 Another question arises of how to handle signatures in the system. We could simply have the individual put his initials in the appropriate box on the form in the beginning. Eventually some "secret" password or overprinted code might be needed to give management some assurance that others are not signing off for them.

10h

<JJOURNAL>17489 Author: Joel P. Cavano

10i

(8) 1d ... Once data is entered, not only should it be available for feedback on the system it was entered on but it should also be accessible to any other subsystem. In our case this is part of a larger question of somehow connecting NLS with a data management system on the H-635.

10j

<IJOURNAL>20430 Author(s): Duane L. Stone

10k

(9) 1h1 One of the biggest problems in creating an operational MIS is collecting the data and getting it input correctly into the DMS. If it relies heavily on administrative people to copy key information from forms filled out by the working level troops, it will never work. By not working I mean that the data will be out-of-date, erroneous, inconsistent, and misleading at best. A system like this is less than useful to management.

10l



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