Reply to Licklider on Office Automation Collaboration

Lick,   Thanks for your reply to my note to John. I was delighted
with your enthusiasm about getting collaboration going in the Office
Automation area, or is it now officially Management Systems
Technology? You asked a number of good questions o which I will
formulate a reply before the end of the month in writing. I would be
happy to talk with you or JOhn on the phone about them anytime.   1

19610 Distribution
    John S. Perry, Douglas C. Engelbart, James C. Norton, Charles H.
    Irby, J. C. R. Licklider,

Reply to Licklider on Office Automation Collaboration

(J19610)   11-OCT-73 12:07;   Title: Author(s): Richard W. Watson/RWW;
Distribution: /JSP DCE JCN CHI JCRL; Sub-Collections: SRI-ARC; Clerk:
RWW;

3.11   Technology Planning Objective No. 11 — SOFTWARE SCIENCES
TECHNOLOGY   1a

3.11.1   GENERAL OBJECTIVES: 1b

The general objectives of this TPO are to develop
techniques to improve the reliability, reduce the cost and increase
the usefulness of computer systems to the Air Force.   1c

3.11.2   SPECIFIC GOALS AND TECHNICAL APPROACHES: 1d

The overview chart (Fig. 3.11-2) illustrates the plan
for meeting the general objectives. The objectives are a
distillation of requirements of the systems listed on the right side
of the chart. These systems are essential to any application of Air
Force power in response to a directive from the President of the
United States. In addition, data processing supports data reduction
activities in practically all other systems. To support these
systems, the three areas of effort in this TPO are oriented toward
the major goals or products shown on the overview chart. Each of the
areas of effort will be discussed in the order indicated on the
overview chart.   1e

3.11.2.1   SOFTWARE TECHNOLOGY — The goal of this
Technical Area is to develop a methodology for quality control of
computer Higher Order Languages (HOLs) and procedures for the
generation of cost effective error free software systems.   1f

The goals of the HIGHER ORDER LANGUAGES
DESIGN TOOLS effort are to produce tools to test Higher Order
Language compilers, and to produce high quality compilers in an
expedient, low cost manner so that they will be more readily
available for Air Force use.   1g

The development of compiler validation
systems is one part of this effort. A compiler validator for
JOVIAL/J3 called JCVS has been developed and augmented to a degree
where it is the most complete single test of a compiler in existence.
The success of this tool has prompted the development of a similar
system for JOVIAL/J73 compilers. An evaluation of compiler
validators already in the field for COBOL and FORTRAN is also
underway. A BASIC compiler validator is under development in-house,
and a follow-on is planned to utilize modern "theorem-proving"
techniques to build an "absolute" compiler validator.   1h

In an attempt to capitalize on
state-of-the-art compiler building techniques, a compiler building

tool called JOCIT will be completed in FY-74 for JOVIAL/J3, which will produce high quality transferrable JOVIAL compilers with reduced cost and effort. The first compiler will be ready for use by the WWMCCS community by November 73, as can be seen from the milestone chart. Again looking at the chart, it is apparent that a follow-on effort to develop a JOCIT system for JOVIAL/J73 will be completed in FY-76.   1i

There are also efforts in the program which will provide the Air Force with the ability to evaluate its applications with respect to which HOL and/or compiler will meet its needs, and the ability to better specify the HOL or compiler.   1j

The results of this program are directed toward giving the Air Force a measure of control over the HOLs it uses. The first effort undertaken was to develop a HOL, called JOVIAL/J73, that is more responsive to Air Force needs. The specification of this HOL was completed in FY-73 as shown by the milestone chart.   1k

The problem of multiple interpretations of programming languages, arising from incomplete, ambiguous specifications, was attacked by the development of a system called SEMANOL which enables one to precisely specify and check out the syntax and semantics of a HOL. SEMANOL was applied to JOVIAL/J3 in FY-73 with satisfying results and will be utilized to "debug" the JOVIAL/J73 specification mentioned above in FY-74. Future plans include the application of this system to other Air Force standard HOLs such as FORTRAN and COBOL.   1l

In order to collect proper data on HOL use in the Air Force so that constructive changes can be added, statistics gathering packages for JOVIAL and BASIC are being developed. These packages will utilize information available to HOL compilers to provide the data which was drastically lacking in the past when HOL or compiler updates were attempted.   1m

Other work in this area includes studies into HOL requirements of specific Air Force systems such as DAIS (Digital Avionics Information System), the comparison of all Command and Control HOLs in use by DOD, the development of one Extensible Language as a contrast to the Air Force's support of several disjoint HOLs, and the development of a translator which will automatically rewrite computer programs from older JOVIAL dialects to the new dialect, J73, thus saving programming costs and easing the transition.   1n

The last product on the milestone chart, in FY-77, represents the gathering of the tools and technology developed

from the Compiler Technology and Language Control area into one neat
package which will give the Air Force complete control over any HOL
it chooses to use.   1o

The goals of the RELIABLE SOFTWARE DESIGN
TOOLS effort are to investigate and develop techniques to reduce the
time and cost of procurement and increase the reliability of complex
system software.   1p

The development of complex software systems
necessitates the need for increasingly more reliable techniques for
designing and controlling the software development process. Study
efforts completed during FY-73 demonstrated that structured
programming technology may significantly increase programmer
productivity and software reliability. Contractual efforts have
accordingly been initiated in FY-74 which will attempt to develop a
complete environment for software production. A detailed set of
guidelines will be produced that will serve to transfer present
technology in structured programming (SP), top-down programming,
chief programmer team (CPT) and programming support libraries (PSL)
to the Air Force for further application. Areas to be investigated
include: the development of SP language standards for COBOL, FORTRAN,
JOVIAL J3 and J73; analysis of data structuring methods, and
development of requirements for a CPT and PSL. Other aspects of
software quality architecture and software quality engineering will
also be explored including the metrics of software quality.   1q

Another aspect of software that currently
requires vast expenditures of manpower and computer resources is the
area of testing. Because of the size and complexity of current
software systems, it has become virtually impossible to certify
system software performance. To increase software reliability,
automated verification systems (AVS) are being increasingly employed.
A contractual effort was initiated in FY-74 to explore the
feasibility of developing verification tools for use on software
written in JOVIAL. Future versions will also be able to process
software written in other HOLs, such as FORTRAN and COBOL.   1r

AVS systems allow segmentation of source code
into user defined segments and based upon a given set of input data,
the program produces counts on the number of times each segment is
executed (if at all). Cumulative statistics are collected over many
test cases to determine the efficiency and thoroughness of testing.
Concurrent in-house evaluation of existing AVS designs will be
performed to further assess the merit of such systems for eventual
transfer to other Air Force commands.   1s

Initial design of a centralized software data
file on software reliability models, statistics, and software error

data was initiated in FY-73.   Several contractual efforts were also
initiated in FY-73 to study the nature of software reliability
modeling, software errors, their classification and number, their
removal during testing and correction, the prediction of their
occurrence, and techniques for writing low error content software.
An effort was also initiated in FY-73 to study existing methods of
detecting and evaluating software failures during testing and
operational phases of large Command and Control Software Systems.   1t

3.11.2.2   MANAGEMENT INFORMATION SYSTEMS - The goals of
this Technical Area are to develop for users the ability to
manipulate large data bases for Command and Control and Air Force
Management Systems with particular emphasis on multi-level security;
and develop on-line computer tools, which directly aid the Air Force
knowledge worker (commander/manager).   1u

The goals of the DMS DESIGN TOOLS effort are
to develop and exploit new data management concepts, to improve the
performance of existing systems and to provide specifications for
future systems.   The approach consists of examining the data
management requirements of the Air Force, assessing currently
available software to meet these requirements and utilization of
advanced operating systems, new computer architectures and networking
techniques.   1v

RADC is completing the first implementation
of a data management system DM-1 [Data Manager).   This system is
extremely flexible in design, is programmed in JOVIAL and its overall
design contains the best features of many other systems incorporated
into one system design.   From DM-1 will come many of the items that
will aid in future Data Management System acquisition, such as:
complete separation of logical and physical files and a library
service which will allow application program generation from a pool
of common processes (subroutines).   1w

In in-house effort to investigate the
potential of the ARPA sponsored MULTICS operating system as a host
for data management system development has been highly successful.
It has produced a set of primitive tools for the construction of a
DMS in the Multics environment.   The tools provide a development
framework in the DMS functional areas of storage management, process
control, access control and related maintenance operations.   One of
the products of this work is a GCOS Multics File Transfer Facility
being built for the Data Services Center using these functions.   This
effort is expanding in conjunction with ESD/MCI in producing a secure
data management system within a modified, secure MULTICS.   1x

Another effort involves analysis of various
GCOS functions that could be exploited by data management systems.

4

Functions under investigation are; transaction processing, priority
dispatching and network processing. In addition, this work will
study capabilities which could be added to GCOS to support advanced
DMS concepts.   Exploratory efforts are also beginning to assess the
feasibility of distributed data management using the ARPA network.
Functions to be analyzed include remote transactions, concatenation
of logically identical data bases and provision for data base
interrelations to span system boundaries. An effort to study the
effects of associative processing on data management requirements and
capabilities is underway. The purpose is to conduct experiments and
studies which will determine the most effective way to utilize the
associative processor to handle DMS operations which are presently
performed inefficiently by conventional systems. File searches,
index searches, updates and field comparisons are some of the DMS
operations to be examined.   1y

                    The goal of the AUGMENTED WORKSHOP
IMPLEMENTATION effort is to implement and evaluate the
cost-effectiveness of providing the Air Force knowledge worker
(commander, manager, staff, worker) with a computer based
augmentation system to assist him in his daily work.   1z

                    The efforts in this area are based on the
Augmented Knowledge Workshop (AKW) technology developed at Stanford
Research Institute (SRI) under ARPA sponsorship over the past 10
years. RADC personnel have monitored this program for the past 5
years and are convinced that the feasibility of significant job
performance improvement in a knowledge work environment is indeed
possible.   1a@

                    SRI has developed an On Line System (NLS)
through a "bootstrapping" process where the system's capabilities at
any particular instance in time are used to further develop the
system. The augmentation capabilities of the system have evolved
through the individual, to the team, to the organization stage, and
are now approaching the community stage via use by individuals and
teams around the ARPANET. This evolutionary interplay between
development and evaluation is the approach being used at RADC to
adapt the technology to Air Force needs.   1aa

                    The activity during FY-72 was concentrated on
acquiring the necessary physical plant for use and evaluation of the
SRI AKW system. RADC was connected to the ARPANET via a Terminal
Interface Processor (TIP). Internal lines were acquired to connect
terminals to the TIP. Six portable teleprinters, three CRT display
terminals, and four digital cassette recorders were purchased. By
the end of FY-72 the AKW research group at RADC (3 people) had
progressed to the point where they were doing the bulk of their daily
work using the system.   1ab

The FY-73 activity was concentrated on
training the rest of the ISIM section, procuring additional terminals
and defining and refining procedures for use of the system. The need
for a calculator capability was identified and programmed into the
system. Comparisons of the text editing capability were made with
other similar systems and pilot work performance tests were given.
In addition, attitude questionnaires and surveys were made. By the
end of FY-73 there were 20 people using the system on a daily basis;
including managers, engineers and secretaries.   1ac

The activity in FY-74 will consist of
training 20 additional people in the ISI branch, procuring additional
terminals, NLS service and a line printer and conducting work
performance tests. Development activity will be concentrated in
three areas; building a forms generation package, interfacing NLS
with a data management system and adding a Computer Aided Instruction
(CAI) package. The CAI package will be SCHOLAR, developed by BBN and
supported by ESD. These development activities will be significantly
enhanced by the use of others' research work via the ARPANET.   1ad

The evaluation of a system as complex as AKW
must be conducted over an extended period of time, on an extended
set of jobs, and across a representative sample of Air Force people
to allow the results to be generalized to other environments. The
evaluation at RADC will cover a two-year period, and include
engineers, secretaries, administrators, and managers at three levels
in the chain of command. The measures currently used in the
evaluation include: 1ae

Psychometric--questionnaires, surveys, and
interviews given in a controlled experimental environment.   1af

Performance--whenever a working group,
section, or branch is charged with a specific job their performance
will be compared with that of an equivalent organizational unit.
Data will be collected on elapsed time, manhour time, and the
subjective judgements of the quality of the work made by the two
units' common manager. Comparisons will be made between the AKW
system and other available systems with comparable capability in
specific areas; eg. text editing.   1ag

Cost/Benefit--A running systems analysis will
be conducted over the two year period to enable detailed
specification of the cost/benefit trade-offs which can be made in
implementing portions of the general system in other environments. 1ah

During FY-75 and 76 it will be possible
(based on the evaluation activity under 6.2 and 6.3 conducted in
previous years) to specify and refine the design of a prototype AKW

for a larger population. It is planned to expand the use of the
system to the IS Division at RADC (about 100 people) and to implement
it at ESD/MCI (about 50 people). This will allow a practical test of
the AKW concepts on a large scale basis and for the first time test
its utility for remote collaboration, prior to introduction into
segments of Air Staff or other large organizations.   1ai

The goal of the PERFORMANCE TEST and
EVALUATION STANDARDS effort is to provide the Air Force with
procedures and standards for specifying and evaluating Data
Management Systems.   1aj

In the data management testing area, RADC &
JTSA are jointly supporting research to develop data management
evaluation tools. The activity has two facets: 1ak

1) The user and source selection boards need
a technology to assess the GDMS capabilities being requested by the
user and/or being offered by the vendor. A handbook as well as some
method of benchmarking or validating the vendor's software is
anticipated. Also an ability to translate the users' needs into a
feasible set of GDMS needs is required. The current program is
addressing these needs.   1al

2) In addition, once the user selects a
particular computer, he is faced with a set of choices as to which
data sructures fit his problem. Currently, a user is forced to
assess the systems on a parameter basis. Not until he has
implemented the system, does he find out its deficiencies. A second
chance is too costly. It is the goal of this area to develop a
Simulation Facility where the user can analytically and empirically
experiment with his problem and various DMS alternatives prior to a
commitment to a specific system. Basic research indicates the
feasibility of builiding a set of models and simulation tools which
could be used to guide the system designer in his design decisions.
For instance, a simulation model has been built for GCOS. RADC will
experiment with this model in house and use this in conjunction with
other research at RADC and at various other DOD agencies to build
this facility.   1am

3.11.2.3 SECURITY TECHNOLOGY - The goal of this
Technical Area is to develop the ability to share EDP systems and the
information therein with the assurance that classified information
stored and processed will receive appropriate protection.   1an

The purpose of the AFDSC SECURE FACILITY
effort is to technically support the Air Force Data Services Center
in the acquisition, installation and implementation of a Multics
system. The system is required to provide on-line, time sharing and

batch computer services to a broad community of users. These users
will have differing levels (secret and top secret) of clearance. The
technical support to be provided applies to the areas of Multics
acquisition, testing of software enhancements, performance evaluation
and system engineering. The support will be provided in two phases.
Phase One covers the period from the present to the completion of
System Acceptance Testing (SAT). Phase Two involves providing
continuing support for software enhancements, performance upgrades
and extended applications.   1ao

              The goal of the OPEN COMPUTER SYSTEM effort
is to provide Air Force users with the ability to share EDP systems
and the information therein with the assurance that classified
information stored and processed will receive appropriate protection. 1ap

              Recent theoretical work has developed a
generalized model for protection systems. It has been shown that the
two-dimensional vertical memory addressing scheme of the Multics
system is a special case of this protection system model. The
approach is to build on the Multics vertical memory foundation.
Since this approach is based on concepts already shown to be
technically and economically feasible, the planned development
concentrates on applying them to satisfy USAF computer security
requirements. Areas of investigation include: the central computer
and its operating system, front end processor/crypto-multiplexor,
secure terminals and application engineering.   1aq

              This effort will provide technology that can
be used to satisfy the security requirements of a number of planned
Air Force systems that are now technically infeasible. In addition,
it will assure the certification of EDP systems security controls and
eliminate costs of current dedicated computer usage to achieve
computer security.   1ar

     3.11.3 RELATED EFFORTS: 1as

              The following efforts are related to work being pursued
under this TPO. In general, compiler-compiler efforts being pursued
by industry involve "many-to-many" language-to-computer
configurations. This is different from RADC's "one-to-many" approach
in JOCIT, which it is felt should produce higher quality compilers.
In addition, the JOCIT effort is the only known effort producing
compilers for the JOVIAL language.   1at

              AVS efforts under investigation by other organizations
are principally concerned with the FORTRAN language, hence no
developments are being pursued along this line other than transfer of
a FORTRAN test tool to RADC. Development of an AVS type capability
for JOVIAL is required.   1au

In the area of data management software, industry is now producing generalized data management software hence the emphasis of this program is shifting from large scale developments to tools for specifying, selecting and tuning generalized data management software. In security, ARPA sponsored work at MIT on Multics will be used directly in the development of a long range solution to the security problem. In the tools to knowledge workers area, the ARPA sponsored research at Stanford Research Institute is being exploited directly and other related research is being followed closely. There is no other major activity in this area where a subset of an organization is attempting to systematically exploit sophisticated on-line computer tools.   1av

All other software efforts are being considered either complementary to work being pursued at RADC, or are serving as a baseline upon which further advancements are being made. None of the efforts below are considered duplicative in any way.   1aw

3.11.3.1 SOFTWARE TECHNOLOGY - NASA presently has a contract with McDonnell Douglas (Contract No. NASA-27202) to design a compiler-compiler capable of producing compilers for all HOLs which NASA uses, or plans to use, such as FORTRAN, SPL, CLASP, etc.   1ax

NELC has a contract with Intermetrics Corporation (Contract No. N00123-73-C-1177) to design a HOL for the AADC computer. This effort is under Project W3150, Program Element 63202N.   1ay

The U. S. Army Electronics Command is developing a Compiler Generation Tool for TACPOL, a PL-1 Command and Control Subset. This work is being performed in-house under System Software Program Element 627703, Program Element 15662703A327, Task Element 03, Work Element 361C8.   1az

IBM Federal Systems Division, Owego, is working on a compiler-compiler to handle several DOD HOLs.   1b@

Boeing Corporation is performing an anlaysis of present HOLs for B-1 follow-on implementations. At the present time, JOVIAL/J73 is the strongest contender.   1ba

Univac of Minneapolis is using IR&D funds to develop translators between the Command and Control HOLs in use by DOD, namely JOVIAL, CMS-2, and TACPOL.   1bb

AFAL has a program entitled the Digital Avionics Information System (DAIS) under the TPO-S1 which is attempting to choose a HOL for Avionics programming. They are seriously considering JOVIAL/J73 for the follow-on system.   1bc

NASA/MSC has implemented an AVS for FORTRAN
programs written for the Univac 1108 as part of the Mission
Trajectory Control Program and the Skylab Activities.   1bd

Software Reliability studies at
Carnegie-Mellon University, University of Wisconsin and MIT in Common
Base Languages (Dennis) and NSF sponsored work at SRI and University
of California at Irvine are also on-going government sponsored
programs.   1be

Air Force sponsored work on the Attack
Assessment Program for SAMSO includes provisions for collection and
analysis of software error data.   1bf

U.S. Army and Navy sponsored work at PIB
(Shooman) involves software error collection/analysis and procedures
for software modeling and reliability prediction.   1bg

The Air Force is currently AVS testing
FORTRAN programs on the IBM 360/370 and Assembly Code on the IBM 7090
written as part of the Minuteman Program.   1bh

The Army is investigating the problem of
verifying Safeguard Software at Huntsville, Alabama.   1bi

The Navy is investigating the software
verification problem in support of system software activities at NEL. 1bj

Projects employing Structured Programming and
Chief Programmer Teams and Top Down Programming include government
sponsored programs such as: Safeguard (PAR Program), AWACS/JOVIAL
Support, RTCC/Skylab Real Time Computing Complex); Systems 7, 370/EMS
(Energy Management System), NMCS and NIPS System 360 FFS (National
Intelligence Processing System 360 Formatted File System).   1bk

3.11.3.2 MANAGEMENT INFORMATION SYSTEMS — ARPA is
sponsoring data management activities in conjunction with the
development of the CONSISTENT System at MIT. The data management
system base for this effort is JANUS. This DMS is founded on a set
theoretic approach to the problem of managing large files for the
behavioral scientist.   1bl

The Joint Technical Service Agency (JTSA) is
working with Honeywell in the area of DMS development for the WWMCCS
Honeywell 6000 computer.   1bm

ARPA is sponsoring work in the area of secure
DMS at RAND Corporation. This work is exploring issues of user data
base privacy. ARPA is also sponsoring work in the area of data

management systems at USC/ISI.   This effort is examining the
flexibility and integration of several management information systems
within the context of a large organization.   1bn

              SAC has initiated an effort, SAC On Line
Interactive Controller (SONIC), designed to meet their on line and
interactive user applications using the WWMCCS Honeywell 6070
computer system.   1bo

              The Joint Technical Service Agency (JTSA) is
actively involved in the testing of WWMCCS and its associated
software packages.   1bp

              DIA has sponsored research for the
development of a GCOS simulator written in Simscript and operational
under IBM Operating System 360.   1bq

              ESD has an effort with Case Institute to
model the military security requirements within the Multics operating
system.   1br

              ESD is currently conducting a test and
evaluation of the performance characteristics of the Air Force Data
Services Center's Multics implementation.   1bs

              Air Force Data Services Center is currently
developing a test plan to evaluate the DM-1 system with respect to
meeting their DMS requirements.   1bt

              The Air Force Design Center is currently
evaluating the transfer of the Air Force On Line Data System (AFOLDS)
from the Burroughs 3500 to the Honeywell 6000 computer.   1bu

              There are a number of other ARPA sponsored
efforts in related areas such as; On-Line Conferencing, Technological
Forecasting and DELPHI; FORUM-Institute For the Future, Information
Sciences Institute and UCLA.   1bv

              3.11.3.3 SECURITY TECHNOLOGY - DIA has conducted
studies of security in the DIAOLS System, which has exposed
weaknesses but does not provide positive direction for development of
an open secure system.   1bw

              NSA is investigating a number of computer
related security problems and is particularly involved in the
communication security problem.   1bx

              ARPA sponsors research in new computer

architecture for security and is funding teams that attempt to
penetrate existing systems.   1by

    3.11.4 REQUIREMENTS: 1bz

    In addition to the overall objectives indicated on the
overview chart, this TPO is responsive to the following requirements: 1c@

SOFTWARE TECHNOLOGY   1ca

REQUIREMENT ID	TITLE	TPO APP.	
CCIP-85	AF C&C Info Processing/1980's	Signif.	1ca1
CCIP-85	AF C&C Info Processing/1980's	Signif.	1ca2
TN-SAMSO-0902-71-21	Software Verification Tech	Signif.	1ca3

MANAGEMENT INFORMATION SYSTEMS   1cb

CCIP-85	AF C&C Info Processing/1980's	Signif.	1cb1
TN-ESD-0902-69-14	Associative Proc. Tech & App	Applic.	1cb2
TN-ESD-0902-69-15	Struct. Large Data Bases for DM	Signif.	1cb3
TN-ESD-0508-71-17	Man-Computer Communication	Signif.	1cb4
TN-SAMSO-0902-71-27	Software Development-Network Tech.	Signif.	1cb5
TN-ESD-0902-72-01	Security/Multi-User Comp Sys	Signif.	1cb6
PMD R-R3=020-(1)	S&T Intel Predict & Manage Sys	Applic.	1cb7
PMD R-R-2-105-(1)	Improved Indication & Warning	Applic.	1cb8
RADC-TR-73-108	Intell Functional Require	Signif.	1cb9

SECURITY TECHNOLOGY   1cc

CCIP-85	AF C&C Info Proces-1980's	Signif.	1cc1
TN-ESD-0902-72-01	Security-Multiuser Comp Sys	Signif.	1cc2
PMD-56	AF Data Services-Multics Imp	Essent.	1cc3

19611 Distribution
    Frank J. Tomaini,

(J19611) 11-OCT-73 12:25;   Title: Author(s): Duane L. Stone/DLS;
Distribution: /FJT; Sub-Collections: RADC; Clerk: RJC;
Origin: <STONE>TPO.NLS;1, 11-OCT-73 06:09 DLS ;

user/using

isnt this all rather petty ?   1

19612 Distribution
   Elizabeth J. (Jake) Feinler, David H. Crocker, Nancy J. Neigus, Jean
   Iseli,

user/using

(J19612)   11-OCT-73 12:33;   Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /JAKE DHC NJN JI; Sub-Collections: NIC; Clerk: JBP;

up grade of h6060 possible ?

can you give me an estimate of the changes needed to convert a
honneywell 6060 or 6080 or 6090 to a machine that can run Multics ?
what is the cost ? how sure of your answer are you ? is there someone
i should talk to about this ?
--jon.   1

19613 Distribution
    Abhay K. Bhushan, Michael A. Padlipsky, Jerome H. Saltzer, Jack
    William Benoit,

up grade of h6060 possible ?

(J19613)   11-OCT-73 12:40;   Title: Author(s): Jonathan B. Postel/JBP;
Distribution: /AKB MAP JHS JWB; Sub-Collections: NIC; Clerk: JBP;

Comments on mail header standardization-part 1

I exceeded literal in submit message, I originally intended to just
type a short note. I shall continue with my thoughts in next
message.

Comments on mail header standardization-part 1

This is my response to the various comments on RFC 561 on Mail Header
Standardization.

1. The date controversy is perhaps best resolved by following the
unambiguous "vdate" format as THE network standard. (perhaps we
should allow vyear to be either 2 or 4 decimal digits.
2. Alex's suggestion of GMT standard is a good one. It is easier for
a program to convert from local time to GMT and vice-versa, than to
recognize 10-20 different time zones. On the other hand it is easier
for users to generate and understand the "local" time zones (at least
the US ones) than GMT. We should proceed as suggested in RFC 561
with our minds open for converting to GMT, if the situation warrants
it.
3. I believe we should propose a standard for multiple author syntax,
the following is my suggestion:
   From: author1 at site1, author2 at site2
that is use comma as a separator.
4. Either space or TAB should be acceptable terminator/separator.
5. Multiple lines for title are not required as CRLF's can be
inserted by receiver and taken out by sender. The same position is
for text of message. We should not require CRLF's or prohibit any
combination of the above from message text. That is it is allowed
for a user to have CRCRLFLFLFCR etc in any order in
hs text.
   The above seems reasonable if we consider that many systems use
CR for underscoring, and a user may infact use LF for line separation
(also refer to Wayne Hathway's comment).
6. Responding to Wayne's comment about author being a mailbox
address, I feel that we cannot and should not legislate it. First it
may be useful to give the users full name instead of 49cn103fooxbar
computer address, when I don't have the foggiest notion who thethe
mail is from. Second it may not be possible for the mail sending
system to provide a computer mailbox address (consider RSEXEC and
users who do not have mailboxes. The solution then lies in using a
different mailbox keyword. I propose that we use:
Mailbox: computer-address @ decimal host add   1

19614 Distribution
    Kenneth T. Pogran, Alex A. McKenzie, James E. (Jim) White, Robert H.
    Thomas, A. Wayne Hathaway,

Comments on mail header standardization-part 1

(J19614)   11-OCT-73 13:18;   Title: Author(s): Abhay K. Bhushan/AKB;
Distribution: /KTP AAM JEW RHT AWH; Sub-Collections: NIC; Clerk: AKB;

AKW System Inputting

Mrs. Cafarelli has progressed to the point where she can input the
system with reasonable proficiency. This I define as being better
than many of us males. You may have noticed that yesterday and today
I was logged into the system quite a bit. Most of that was really
her. She has been inputting quite a few things, some of which wil
appear in the tickler file as links. For example, when the tickler
shows that the R & T Selection of the month is due, moving to the
link in that statement will give you the latest instructions on what
is appropriate for consideration and the format in which it should be
submitted.   Anne, however, is not my personal inputter she is
available for any sizeable inputting jobs you may have. Please
contact me if you have an inputting job, or if you have any
questions.   1

19616 Distribution

Roberta J. Carrier, Donna R. Robilotta, David L. Daughtry, Richard H. Thayer, Frank J. Tomaini, Mike A. Wingfield, Edmund J. Kennedy, Ray A. Liuczi, Richard Calicchia, John W. Johnson, Donald Van Alstine, Dean F. Bergstrom, William P. Bethke, Frank S. LaMonica, William E. Rzepka, Rocco F. Iuorno, Frank P. Sliwa, Thomas J. Bucciero, Robert E. Doane, David A. Luther, Roger B. Panara, John L. McNamara, Joe P. Cavano, Duane L. Stone, Marcelle D. Petell, Josephine R. Stellato, Robert K. Walker, Thomas F. Lawrence, James H. Bair,

AKW System Inputting

(J19616)   11-OCT-73 13:25;   Title: Author(s): Edmund J. Kennedy/EJK;
Distribution: /RADC; Sub-Collections: RADC; Clerk: EJK;

test branch one

QUESTIONS ON THE SERVICES   1

  (comminfo)   1a

    On the average, how often would a householder access this
    service (for all types of information) ?   1a1

    Would this service offer any improvement in the way
    householders currently retrieve these types of information ?   1a2

      weather forecasts   1a2a

      bus, train, and plane schedules   1a2b

      road and traffic conditions   1a2c

      movie reviews for local theaters   1a2d

      general commercial messages (advertisements)   1a2e

      other (specify) 1a2f

    To what degree would this service tend to substitute for these
    existing communications media ?   1a3

      daily newspapers   1a3a

      traditional AM-FM radio   1a3b

      traditional television programming   1a3c

      traditional mail service, as offered by the Post Office 1a3d

      tradtitional telephone service   1a3e

    In what percentage of North American urban homes will this
    service be found in 1985 ?   1a4

  (enter)   1b

    To what degree would this service tend to substitute for these
    existing entertainment media ?   1b1

      motions pictures in theaters   1b1a

      traditional television programming   1b1b

      recreational reading   1b1c

test branch one

spectator sports   1b1d

participation sports   1b1e

attending live drama, poetry radings, ballet, opera, etc.   1b1f

If this service is to achieve widespread use by 1985, how
important is it that the service offer only the highest quality
programs available ?   1b2

Similarly, if the service is too achieve widespread use by
1985, how important is the variety of programming available ?   1b3

In what percentage of North American urban homes will this
service be found in 1985 ?   1b4

(educ)   1c

By the year 1985, what parcentage of a student's time in school
would be replaced by tme spent at home using the educational
programming service described here ?   1c1

To what extent will the programming of this service be
integrated with the lessons presented in local schools ?   1c2

Would the availability of such a service have any significant
effect on the amount of material a student could cover in a
given amount of time ?   1c3

Would the availability of such a service have any significant
effect on the student's ability to learn material that was
covered ?   1c4

How important would it be to provide programming at an adult
level as part of the basic service package ?   1c5

How would the costs of this service be shared by the following
groups: 1c6

governments, through tax revenues ?   1c6a

users of the service, in the form of rental payments or
perhaps payment by the lesson ?   1c6b

private industry, in the form of sponsorship of
community-oriented goodwill ?   1c6c

(hhinfo)   1d

test branch one

(dn)   1e

(banking)   1f

(sandp)   1g

(wfh)   1h

(rmd)   1i

(polpart)   1j

19617 Distribution
   Michael T. Bedford,

test branch one

(J19617) 11-OCT-73 13:35; Title: Author(s): Michael T. Bedford/MIKE; Distribution: /MIKE; Sub-Collections: NIC; Clerk: MIKE;

Comments on Mail Header Standardization (contd)

This is a continuation of previos message

Comments on Mail Header Standardization (contd)

Previous message contd.

The use of separate mailbox identifier for computer mailbox is
superior for several reasons. First it is difficult to identify
individuals from their mailbox address, we need both the mailbox and
user's name, affiliation. Whereas the FROM identifier is
username at affiliation [which can be a mailbox address too but this
is coincidental), the MAILBOX identifier is mailbox at host address,
and it guarantees a reply box which can be easily used by a program.
This also avoids th issue of updated standard host names tables being
identical in every system. The programs that do the replying will be
very happy with a decimal address, and human users would like the
expanded real name and affiliation (which could be standard host name
in specific cases). Consider the following:
From: Joe Blow at London University
Date: 12 OCT 73 1243-GMT
Subject: Mail
Mailbox: c42jab7000 @ 42
    How many of us would like to see just c42..., how many programs
would know the standard host name for london-360 (does one exist
yet?). I think you get the point.
Considering the above we should allow spaces in the username field.
7. We probably should specify standards for other optional
identifiers such as LOCATION, NIC, TO, ADDRESS, etc. Note that
MAILBOX suggested above is an optional identifier.

    Please respond with your comments, specially on numbers 6 and 7.

1

19618 Distribution
   Alex A. McKenzie, Kenneth T. Pogran, James E. (Jim) White, Robert H.
   Thomas, A. Wayne Hathaway,

(J19618) 11-OCT-73 13:50; Title: Author(s): Abhay K. Bhushan/AKB; Distribution: /AAM KTP JEW RHT AWH; Sub-Collections: NIC; Clerk: AKB;

Another Look at Privacy

Copies to JDH, CHI, DCW, KEV, and WRF. Arising from our discussion
on 9-OCT.

Another Look at Privacy

INTRODUCTION   1

   The following proposal for NLS privacy features -- in very rough
   form -- is an alternative to (18976,) and stems from our
   discussion of 9-OCT-73. Comments, corrections, additions,
   evaluations, etc. are solicited.   1a

MOTIVATION   2

   The change in approach considered here is motivated by the
   following: 2a

      (1) We have no evidence that the need to conduct private
      dialog within the Journal is widespread. The only specific
      user group that has expressed such a need, as far as I know, is
      the ARPA IPT office.   2a1

         If this is in fact the case, then the assumption of
         (18976,1b1:g) -- that NLS idents (at least those of users
         who need to engage in private, Journal-supported dialog)
         cannot be placed in one-to-one correspondence with TENEX
         directories -- is false.   2a1a

      (2) An acceptable (and therefore TENEX) solution to the
      general problem of restricting access to files to arbitrary
      sets of NLS users seems very difficult to implement properly.   2a2

      (3) The proposal made in (18976,) has all the ear marks of
      being a cludge.   2a3

   We therefore consider a way of providing for private,
   Journal-based dialog which, though less general than the mechanism
   proposed in (18976,), nevertheless meets the demand, while being
   at the same time more secure, less costly to implement, and
   cleaner.   2b

PROPOSAL   3

   EXPLOIT TENEX RATHER THAN SUBVERT IT   3a

      We suggest that any user who wishes to participate in private
      (i.e., non-public), Journal-supported dialog be assigned his
      own TENEX directory. That is, we recommend exploiting TENEX
      access controls, rather han subverting them.   3a1

         In actuality, we can back off quite a bit from the
         requirement above and only insist that two users who wish to
         restrict journalized material from ONE ANOTHER not be
         assigned to the same directory. All of the ARPA IPT users,

for example, could be assigned to a single directory, use
the Journal for all their internal communication, and be
confident that the content of that communication would not
be compromised, PROVIDED they had no need to keep secrets
from ONE ANOTHER.   3a1a

Given his own directory and using normal TENEX protection
mechanisms, the user can insure the integrity of his initial
file (and thus of non-public journal correspondence whose text
is delivered to him there), and that of files containing
working copies of private documents he has yet to journalize.   3a2

PRIVATE SUBCOLLECTIONS   3b

We define the notion of a "private subcollection". Several
such subcollections could be supported by the Journal.   3b1

CONTROLLING ACCESS TO PRIVATE SUBCOLLECTIONS   3b2

Each subcollection (private or otherwise) is named by an NLS
group ident (let's call it the "subcollection group"). For
private subcollections, the membership of this group would
be the set of users permitted by NLS to place documents in
that subcollection.   3b2a

Corresponding to each private subcollection group would be a
TENEX directory group with the same membership (hence the
need that users conducting private dialog have their own
directories). Documents placed in a private subcollection
(hereafter called "private documents") would be stored in
directories to which only members of the TENEX group had
read access. Thus, the membership of the journal group
would also be the set of users permitted by TENEX to read
the private documents.   3b2b

Since a TENEX directory group must be created for each
private subcollection, the maximum number of such groups
permitted by TENEX (36) is an upper bound on the number
of private subcollections which could coexist.   3b2b1

THE DATA BASE   3b3

For each private subcollection, we would create one or more
system directories, as required, to hold the documents
placed in that subcollection. Read access to files in these
directories would be controlled as described above.
Extending the convention currently in force, we might assign
directory names of the form: 3b3a

[letter A-M] "JOURNAL-" <private subcollection group>   3b3a1

Documents recorded as messages (rather than files) would be
collected in a single file in the first of those
directories, as is done currently.   3b3b

PROVIDING CATALOGS   3b4

We are in a position, using existing machinery, to provide
members of the subcollection group with catalogs describing
the private dialog. The catalog entry (i.e., the document's
title, distribution list, etc.) would not itself be
considered private and would therefore be accessible to any
user. An entry would always be made in the master catalog,
regardless of whether the document was recorded in a private
subcollection or not.   3b4a

    A user might have to show restraint in titling private
    documents.   3b4a1

THE USER INTERFACE   3b5

Under normal circumstances [i.e., barring error conditions),
there would be no changes to the Journal visible to the
user. A submitted document would be automaticaly placed in
a private subcollection whenever a private subcollection
group was included in the subcollection list.   3b5a

The user would be required to EXPLICITLY request via the
Subcollection comand that the document be included in a
private subcollection; simply causing a private
subcollection group to be added to the subcollection list by
including it in the distribution list would be insufficient
to cause the document to be made private. Thus, documents
would default public.   3b5b

The following restrictions would be imposed at submission
time: 3b5c

    (1) The Subcollection subcommand would be refused if a
    private subcollection were specifed but the submitting
    user were not a member of that subcollection group.   3b5c1

        The journal could determine whether or not 'RADC' was
        the name of a private subcollection by checking the
        string 'JOURNAL-RADC' with the STDIR JSYS.   3b5c1a

        The journal could determine whether or not the
        submitting user was a member of that group by checking

          to see whether or not the connected directory was a
          member of the TENEX directory group RADC.   3b5c1b

    (2) Private subcollectons as they are defined are
    necessarily non-overlapping. A document that belongs to
    a private subcollection can belong to no other
    subcollection, private or otherwise.   3b5c2

       Hence, an explicit attempt -- by means of the
       Subcollection subcommand -- to assign a private
       document to subcollection(s) other than that one
       private one would be rejected by NLS.   3b5c2a

       Implicit attempts -- by including other group idents
       in the distribution list -- would be ignored (i.e.,
       those group idents would not automatically be added to
       the subcollection list, as is always done currently). 3b5c2b

    (3) The distribution list for a private document,
    whether at submission time or for secondary distribution,
    would be restricted to a subset of the subcollection
    group's membership, since it presumably makes little
    sense to deliver a piece to someone who's not allowed to
    read it.   3b5c3

ACCESS COPIES   3b6

    Hardcopy of documents published in a private journal would
    not be maintained at ARC.   3b6a

CONCLUSION   4

    The mechanisms described here seem adequate, cleaner, and MUCH
    simpler to implement. What do you all think? Any inadequacies or
    implementation pitfalls?   4a

19619 Distribution
  J. D. Hopper, Charles H. Irby, Donald C. (Smokey) Wallace, Kenneth E.
  (Ken) Victor, Ferg R. Ferguson,

Another Look at Privacy

(J19619) 11-OCT-73 14:42;   Title: Author(s): James E. (Jim)
White/JEW; Distribution: /JDH CHI DCW KEV WRF; Sub-Collections: SRI-ARC;
Clerk: JEW;
Origin: <WHITE>PRIVPROP.NLS;5, 11-OCT-73 14:38 JEW ;

Dean-- Your RUNOFF before-during-and-after listings are on their way
by mail. Sorry for the delay. --Jim   1

19620 Distribution
   N. Dean Meyer,

(J19620)   11-OCT-73 14:44;   Title: Author(s): James E. (Jim)
White/JEW; Distribution: /NDM; Sub-Collections: SRI-ARC; Clerk: JEW;

Bug in DNLS response to VSPEC e

For quite a while (maybe ever since it was implemented on the 10?) I
have noticed odd things about the execution of VSPEC e.   I use it
quite a lot.   Sometimes it seems to work as specified, and sometimes
its use has no apparent effect.   1

Noticed a repeatable, "odd" feature in it today.   Had a link with
"e" in VSPECs.   Very reliably, doing successive Jump Link operations
(no other intervening operations at all) -- every other time it did
as expected, but alternately it would act as though it were VSPEC c
instead.   2

Try it here, successive Jump Link executions on this link (:ge)   3

    Dummy, Level 2   3a

      Dummy, Level 3   3a1

        Dummy, Level 4   3a1a

        Dummy, Level 5   3a1a1

I notice that it also alternates the way it treats the "e" VSPEC
when you introduce it by hand on a Jump Item, or with just the
Mouse-Button VSPEC control.   In the latter case, it sometimes works
correctly, depending upon the view state when the successive
viewchaging is started.   4

This may be the whole problem.   At least it is a definite bug that
needs fixing.   5

19621 Distribution
    Bgs Bugs, Diane S. Kaye, Harvey G. Lehtman, Charles H. Irby, Richard
    W. Watson, James C. Norton,

Bug in DNLS response to VSPEC e

(J19621) 9-OCT-73 11:11;   Title: Author(s): Douglas C. Engelbart/DCE
; Distribution: /bugs   rww (Dick, fyi) jcn (Jim, fyi) ; Sub-Collections:
SRI-ARC BUGS; Clerk: DCE ;

Server-Side Runtime Statistics on FTP of NLS Files

FTPSRV maintains a sequential-file log of its activity which I dump
to the LPT periodically. One of the statistics it records is the
amount of CPU time used by the fork it creates on behalf of the user.
In essence, it measures the CPU time consumed on the user's behalf
during the life of the conection (i.e., between calls to FTPOPN and
FTPCLS).   1

   Not included in this figure is time spent by two inferior forks
   which handle (I think) input and output over the TELNET control
   connections. But time spent packing files and transmitting them
   over the data connection IS included.   1a

I looked at a couple of the test cases you ran this morning, and
thought you might be interested in the results. In each case, the
time includes not only the actual file transfers, but also the login,
renames, etc. you do: 2

   (1) One small (three-page) file -- runtime = 4.757 secs   2a

   (2) Two small (three-page) files -- runtime = 8.436 secs   2b

   (3) The ident file (131 pages) -- runtime = 9.724 secs   2c

19622 Distribution
   J. D. Hopper,

Server-Side Runtime Statistics on FTP of NLS Files

(J19622) 11-OCT-73 15:22;   Title: Author(s): James E. (Jim)
White/JEW; Distribution: /JDH; Sub-Collections: SRI-ARC; Clerk: JEW;
Origin: <WHITE>JDHMSG.NLS;2, 11-OCT-73 15:20 JEW ;

Jump to Name bug fixed long ago-- old files may still have problems
See (19576,)

Doug: 1

I just read your bug note (19576,) about Jump to name not working on
an old file (last change date-- 15-SEP-72. I believe you were the
victim of an obscure bug which had been around since the early days
of the PDP-10 which, due to improper coding of the Transpose command,
caused Jump to name not to work in some instances   2

    Among other victims were the builders of the Resource Notebook
    Data Base who were told to get around the bug, which caused the
    Query system not to work around ICCC time, by running a substitute
    on ALL statements to cause the proper name information to be set
    in the file blocks.   2a

I am pleased to say that this bug was found (in conjunction with
another related bug) and fixed in June. The old file, however, could
still have bad name information in it. This may be corrected by
doing a substitute "a" for "a" or something similar in order to force
an edit on every statement. All files edited since that date should
be OK.   3

19623 Distribution
    Bgs Bugs, Diane S. Kaye, Harvey G. Lehtman, Charles H. Irby, Douglas
    C. Engelbart,

Jump to Name bug fixed long ago-- old files may still have problems
See (19576,)

(J19623) 11-OCT-73 15:43;   Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: /BUGS DCE; Sub-Collections: SRI-ARC BUGS; Clerk: HGL;

New Description of Help Version of Query

This supercedes (19493,). A supplement will describe proposed
expansions for Help (which concern links in nodes) and the first
implementation of Query (which will have additonal user commands
available permitting multifile querying of assorted system and user
databases.)

New Description of Help Version of Query

Introduction   1

   This is a revised version of (19493,) which was written by Kirk.
   While that document was not a totally inaccurate description of
   the features of the Query/Help systems, the priorities and
   emphases left somewhat inaccurate impressions about features to be
   implemented immediately for the help system and about features
   which were contemplated for the more general query system and also
   for later versions of the help system.   1a

   In particular, the query system will generally make little use of
   the included nodes and linking capabilities except for the ability
   to link together many files in a single data base; the expanded
   linking capabilities will primarily be of use for the help system.
   Moreover, the list of proposed commands for the more general Query
   system is incomplete; it is in general set capabilities and
   content searching that Query gains its power as well as in its
   ability to permit the user to switch the databases over which
   queries are to be carried out.   1b

   The description of the help system was also slightly incomplete.
   Because this part is of the utmost importance for the builders of
   the help data base, I have rewritten only that section of the
   paper.   The discussion of the general query system, and also a
   discussion of additional data base features for use by help data
   base builders will follow in another document.   1c

Entrance to the Help System   2

   "Front" entrances-- HELP command at the TENEX-EXEC level; "Go to
   Help" in NLS (Other names possible.)   2a

      These commands will put the user into the NLS Help system at
      the "top" of the data base.   There will be an introdutory
      message printed (one line on how to get more information) as
      well as the "top" node.   2a1

         Note that this is different than the case in the query
         system.   There, the user does not get a node printed unless
         it is specifically requested   Note also that the Help data
         base, as well as any other NLS file, may be queried using
         the query system with its more complete assortment of
         commands.   2a1a

   Control-Q from an NLS command   2b

      This character will place the user in the help system at a node
      wich has to do with the command state he was in when it was

New Description of Help Version of Query

typed.   This node will be displayed as well as the short
message explaining what to do toget more information.   2b1

User Commands in the Help System   3

  Recognition modes and help   3a

    The parser for Help will be written in the new CML.   Therefore,
    all recognition modes and help features available in the rest
    of NLS are applicable to Help.   3a1

    The commands are a subset of the commands available int the
    query system both in the commands available (e.g., the set
    producing FIND command is missing) and in the parameters
    permitted (no multiname options, no ellipsis, no content
    searching, no booleans.) We may wish to modify some of these
    restrictions which were imposed for smplicity of presentation
    to the user.   (Ellipsis and simple content searches may be
    desirable.)   3a2

      Perhaps we could have a mode switch in the future which
      would shift to the more complete parser?   3a2a

  Show   3b

    Syntax: Show NODE CONFIRM   3b1

    NODE is the Help node specification which is a made up of any
    number of the following (a subset of the elements available in
    the more complete Query system) which may be intermixed to the
    delight and amazement of the user.   3b2

      NAME-- An node name in the database.   3b2a

        If a name appears in the first position in a node
        specification, we search the database for an occurance of
        a node with that name. (See search description below.
        See also the discussion on error conditions for
        information on what happens if a node with that name is
        not found.)   3b2a1

        In any position other than the first, the name must be
        found as a direct descendant of the noe which was
        specified up to that point.   If descendant node with that
        name is not found, a message is sent to the user, the
        parse of the name list is terminated, and the last "good"
        location specified by the NODE is displayed to the user.   3b2a2

          Thus if the user said "Show name1 name2", and name2

was invalid for some reason, a message would be
printed to that effect and the node name1 would be
shown. If name1 was invalid, a message would be
printed, but no node would be shown.   3b2a2a

First position means the first position beyond the
leading group of RETURN keys "<".   3b2a3

NUMBER-- A decimal number.   3b2b

In the first position, a number is interpreted to be a
menu item from the most recently displayed menu (or from
the menu specified by the leading group of RETURN keys.)
If the number is invalid for some reason (too large,
etc.), a message is typed out to the user and a node not
shown.   3b2b1

In any position other than the first, the number must be
a menu item under the node specified up to that point.
If it is an invalid number, a message is sent to the user
and the last "good" location specified by the NODE is
displayed. [This is similar to the case for NAME.)   3b2b2

RETURN-- The character "<".   3b2c

Refers to the previously displayed mode. May be
clustered to back up more than one node (or menu display)
at a time. These character must appear at the beginning
of the NODE. They need not be separated, but can be.   3b2c1

This may be used to either show a previously displayed
node again or to reposition the NODE location for a
search.   3b2c2

UPNODE-- The character "↑".   3b2d

This character gets the parent node of the current
location and may occur anywhere in NODE. If the up is
the origin of a file, this goes to the top of the
database. (Sorry, we don't have back links)   3b2d1

SEPARATOR-- A comma "," or any number of non-printing
characters.   3b2e

Quit   3c

Puts the user back at the "Command reset" level in NLS if he
entered through "Control-q" from an NLS command or from a "Go
to Help" command. (We could just as easily permit the user to

continue in the command he was entering at the time a
"control-Q" was typed, but this may prove confusing and
dangerous) If the user entered at the exec level, return to
the exec.   3c1

Probable additional commands (The names are unattractive to us and
may be changed to some others. Suggestions will be accepted.)   3d

   Top   3d1

      Positions the user at the top of the database, a node which
      may be decalared in a general database in a manner described
      below.   3d1a

   Entry point   3d2

      Positions the user and displays the view seen at the time he
      entered the system.   3d2a

   General information   3d3

      Prints out a node in the data base containing general
      information if desired by the data base builder and
      specified in a manner described below. (In Query, if no
      general information is specified for a data base, the top
      will be displayed; in help, there will be one.)   3d3a

Help on help   3e

   Because help is an NLS subsystem, the rules which govern
   obtaining help for any other command apply here as well.
   Thus, "?" at any point will display the command options
   available; "Control-Q" will give the user help on help. (He
   will be moved to an appropriate part of the data base without a
   new instance of the system being created in this case.)   3e1

Error handling   4

General philosophy   4a

   In Help (and to a lesser extent in Query) errors must be
   intercepted and the error message typed to the user must be as
   conciliatory as possible, particularly for those errors which
   were not the result of user mistakes. Moreover, in Help, if an
   error occurs, we must try to execute as much of the specified
   command as possible so that the user does not get completely
   lost.   4a1

Failure of search on name in first position in node specification.   4b

Message "<name> does not occur in this database" will be
displayed where <name> is the name which failed. If nothing
preceded the name, that is all; if a return cluster preceded
the name, the relevant return node will be displayed.   4b1

Failure of search for number in first position in node
specification   4c

Message "<number> is an invalid menu number" will be displayed
where <number> is the number which failed. If nothing preceded
the number that is all; if a return cluster preceded it, the
relevant return node (and menu) will be displayed.   4c1

Failure of any other name or number search   4d

A message "<name-or-number> not under node:" will be displayed
followed by the node (and possible menu) for the node specified
by the preceding "good" part of the node specification.   4d1

Illegal link in data base.   4e

This error as well as other data base errors will be mentioned
to the user with the message "Data base error in node
<node-name>; Please call ..."The node will be printed without
the link if possible. (This has certain advantages over not
giving an error message: we will be able to discover data base
mistakes and give the user the feeling that somebody cares.)   4e1

More general and obscure system errors should be trapped and
translated into friendlier language. As much as possible, the
user should be permitted to continue with his session.   4e2

The Help Data Base   5

Node definition (proposed initial implementation.)   5a

Introduction   5a1

The code currently written-- particularly that part which
deals with multiple links in nodes, the sequence generator
code, satisfies the more general and complete specification
described earlier. It appears, however, that the time
required to scan for and execute those links in nodes being
menued is just too long on a congested system.   5a1a

It also appears that the possibilities available with
that complex system were so great that much time was
spent on the part of the data base builders trying to
decide how to use them.   5a1a1

Thus, for the sake of simplicity and also because most of the DB builders only used single links at the end of node text, we offer the following proposed design. We need not throw away previously written code; some of the currently written code could be tuned up and some options could be commented out.

5a1b

Types of statements available in substructure.

5a2

1. Menued Nodes (default)

5a2a

All statements, both named and unnamed, will be menued as a default. Statements which begin with the character "]" (chosen because it looks reasonable to the user and because it is unlikely to appear as the first character of a file) wll not be menued, but will be printed out to the user in full. Executable links (enclosed in pound signs) will be invisible to the user; they are restricted to the end of the node in this implementation.

5a2a1

Unnamed menued statements wll have their first line of text printed out in both linear and collumnated menus.

5a2a2

2. Comment Nodes visible to the user but not menued.

5a2b

Preceded by "close bracket"]. No executable links in this implementaton.

5a2b1

In the original design, the character went on unnamed statements which were to be menued in order to avoid conflict with the resource notebook which has unnamed statements which should not be menued.

5a2b1a

The Help DB builders feel the more usual mode will be the other way around: that there will be many menued unnamed statements.

5a2b1b

The resource notebook could be updated to this form by doing a content analyser for unnamed statements and "addtext"] to the beginning of each one.

5a2b1c

3. Invisible nodes for the database maintainer.

5a2c

Preceded by percent sign.

5a2c1

View of addressed node.

5a3

When a node is shown the user sees all lines, independent of line clipping in viewspecs. Executable links invisible, but

all lines at the linked to node will be printed if a link is
present. (This is a subset of the options available in the
earlier design.) If a link is present, the builder has the
option of including the substructure at the linked to node
or not. If it is included, substructure will be menued
where appropriate, but executable links at the end of the
linked to node will be ignored.   5a3a

After the linked nodes and their substructure, the
substructure of the current node will be menued and printed.   5a3b

View of substructure.   5a4

Default one line, one level, but dependent on viewspecs in
optional link at the end of top node. More than one level
is allowed with sequential menu numbers for each menu item
regardless of structural level.   5a4a

   While this sounds like a good idea, I cannot guarantee
   its implementation by the deadline.   5a4a1

Viewspecs in a link to a node take precedence over any
viewspecs in the executable link at the end of that node.   5a4b

   An extension would permit in the qspec area a number
   specification idicating the number of links which may be
   taken in nodes after the first link. This is better than
   simply restrcitin the number of "chained" levels to one
   and yet still prevents loops.   5a4b1

Links in items being menued (i.e., sbstructure) will NOT be
taken (in this implementation.) This should speed menu
creation considerably Thus it is desirable to have text
before unnamed statements which are to be menued to offer
some clue to the user concerning wha will be seen when the
node is selected. Only the first line will be shown in a
linear menu.   5a4c

Links   5b

Links must be located at the end of a statement in this
implementation. (Double pound signs are still necessary for
future expansion. There may be more than one link in this
group.) The code which permits links interspersed in the node
is written; we will have to remove some of it to make the
"faster" version. We might just leave it in if we discover the
scanning operation is not too slow, but the data base builders
should only assume the subset of possibilities (i.e., no links
in the middle of the text) for now.   5b1

Qspecs-- builder control of portrayal   5c

    Qspecs available. (Others may be added.)   5c1

        I include the substructure of this linked to node as a menu   5c1a

        C columnate the menu in the substructure of this node   5c1b

        N=15 (of lines) Will ask "More?" if there are more than 15.   5c1c

Search algorithm for help   6

    Search through previous menu context stack   6a

        Advantages-- Fastest method. Permits the user to find an item
on the basis of what he has seen.   6a1

        Disadvantages-- Because it is limited to what menus had been
generated, it must be used in conjunction with one of the other
algorithms.   6a2

    Canonical walk   6b

        Advantages-- This is a relatively fast method of finding an
item given NLS tree structured files. It is similar to the NLS
Jump to name first method used now; after going through ons
file from the top, we must do the same thing for each file in
the data base.   6b1

        Disadvantages-- If there are multiple occurances of the same
name (as in the Help system) the user could get a name
different than that desired by the DB builder. For instance,
if statement 1a1a1a1a had the same name as statement 2, and
those statements at the highest levels had the greatest
importance, the user who said show name would get the node at
the very low level under statement 1 before he found statement
2. (Moreover, in Help, though not in query, ther would be no
way of gettng to the next occurance of a name without getting
there through a menu)   6b2

        occurances of the same name   6b3

        the wrong name.   6b4

    Examination by level-- highest levels first. Neighbor search. 6c

        Advantages-- Gets to the name desired by the DB builder, the
name at the highest level. Again, must be done for each file
in the data base.   6c1

Disadvantages--   Inordinately slow.   Also, is a prson sees an
item in a menu, and show it by name rather than by menu number
he could get the wrong occurance.   6c2

Combination--   6d

The data base builders want a Neighbor search without context
stack searching for names. While this is easy to code, the
programmers feel it is so slow that we would suggest a
compromise which would limit the number of levels oer which a
neighbor search took place and then did a canonical walk
search.   6d1

We plan to implement all of the above primitives and provide
the builders the opportunity of combining them and using them
just to see which algorithm (or combination) is most desirable.
For query, however, we plan to use an algorithm which combines
the context stack search with the canonical walk from the top
of each file.   6d2

In query, the user may specify a search for all occurances
or any number of occurances or any specific occurrance.
Thus, the problem we have in query of giving the user a
specific (hopefully correct) occurance is avoided to some
extent.   6d2a

Perhaps, we can also permit any data base builder the option of
combining these primitives through a specifcation in the origin
statement of the top file (though I wouldn't hold my breath
waiting for it)   6d3

Note that the can of worms which would be opened by
implementing a algorithm which followed links in searches is
avoided altogether in the discussion above. Other possible
variations include searching down form the current location
before going to the top, searching successively higher branches
unti the top is reached, etc.   6d4

Linking together files-- Definition of multifile databases   7

In the origin statement of the file which will serve as the "top"
of a data base, the following items may be defined with the
following (tentative) syntax. The items are all optional; those
left out will be defaulted as described below.   7a

This scheme is proposed to make searches over multifile
databases feasible without taking links in each node. It also
permits the DB builder to specify a branch to be printed out in
response to user commands wthout our reserving words to be used

for the names of those branches. Because the list of files
need be contained in only one file, some files could be members
of more than one data base. Moreover, because of the defaults,
individual files may be queried be themselves.   7a1

It is implemented primarily for the benefit of the more
complete query system in which the user could change databases
and make use of system data bases as well as his own, but the
Help DB must follow the convention.   7a2

Syntax for directives: 7b

TYPE = (nlslink) where TYPE is one of the three items TOP,
INTRO, or DIREC and nlslink is a link to the branch in the data
base containing the information expected by the type. The same
branch may be used to define more than on e of the types if
desired.   7b1

TOP   7c

A node with substructure which will be displayed and menued
when the top command is entered by the user. This could be
used to provide the user an easy way to get to the highest
point in the data base (as defined by the builders) with a
corresponding menu and information printout even if he knows
nothing about the database.   7c1

If left out, the default is statement one of the current file.   7c2

INTRO   7d

Similar to top, this defines a node which is displayed in
response tothe Introduction or general information command.   It
talks abot te data base.   7d1

If left out, the default is statement one of the current file.   7d2

DIREC   7e

Refers to a branch which has at the end of its lowest level
statements links to all of the files in the data base. While
this could imply a branch as simple as a link rack (enclosed in
the query double pound signs unless we assume a different
convention for this branch), it also permits the directory
branch to be used as a menu which could be "shown" to the user,
perhaps as the top of the data base with other textual material
explicating the (to the user) hidden links.   7e1

If this directive is absent, it is assumed that the database
has only one file.   7e2

19624 Distribution

Elizabeth K. Michael, Richard W. Watson, Elizabeth J. (Jake) Feinler,
Harvey G. Lehtman, Kirk E. Kelley, Laura E. Gould, N. Dean Meyer,
Jeanne M. Beck, Charles F. Dornbush, Dirk H. Van Nouhuys, Michael D.
Kudlick, Diane S. Kaye, James C. Norton, Elizabeth K. Michael,

1

New Description of Help Version of Query

(J19624) 11-OCT-73 17:22;   Title: Author(s): Harvey G. Lehtman/HGL;
Distribution: /DIRT EKM; Sub-Collections: SRI-ARC DIRT; Clerk: HGL;
Origin: <LEHTMAN>HELP.NLS;4, 11-OCT-73 17:15 HGL ;

help database examples ready for you

Dean, there is a branch "EXAMPLE" in <userguides>help where I've put
the examples we have so far in editor and programs, or you to work
on.   Will put in those we have for help & journal subsystems soon. (I
see that many of the commands have changed since we wrote
examples--and I will update the command summary to include those
changes Chuck is currently making as I can).   The organization of the
branch EXAMPLE is pretty much as we envision its final form.
Anything I can help with call me.--Jeanne B.   1

help database examples ready for you

(J19626)   11-OCT-73 18:07;   Title: Author(s): Jeanne M. Beck/JMB;
Distribution: /NDM; Sub-Collections: SRI-ARC; Clerk: JMB;

Your Visit / L10

Dave: I am currently working part-time via teletype from Berkeley
(where I am completing my last quarter of school).   I am in Menlo
Park for a day periodically. I will be there Tuesday, Oct. 16, but
not Friday, Oct. 19.
This quarter I can only get away on Tuesdays and Thurdays. If you
could make it up here on either of those days, I would be happy to
consider arranging a coinciding visit. However, if you want to learn
L10, I think it would be more productive for you to work through at
least the first part of the new L10 Users' Guide (18969,) before
coming here.   I would be glad to help you via link, SNDMSG, and
Journal. I think this new Users' Guide is good enough for you to
make significant progress before needing personal attention.
Let me know what you think of this idea.   --Dean   1

19627 Distribution
    David H. Crocker,

1

Your Visit / L10

(J19627)   11-OCT-73 18:15;   Title: Author(s): N. Dean Meyer/NDM;
Distribution: /DHC; Sub-Collections: SRI-ARC; Clerk: NDM;

Information Sciences MIS

unit-rec (100)

    column   disposition fields

    01   a = add; d = delete;   m = modify

    02 - 04   record-type = 100

                      data fields

    05 - 08   organizational symbol

    09 - 44   organization's name

    45 - 47   authorized military strength (numeric)

    48 - 50   military over-strength   (numeric)

    51 - 53   military vacancies   (numeric)

    54 - 56   authorized civilian strength (numeric)

    57 - 59   civilian over-strength   (numeric)

    60 - 62   civilian vacancies   (numeric)

    63 - 80   blank fill

                      Synopsis

     The "unit-rec" record type describes the aggregations of people
that coombine structurally to make up the Information Sciences
Division (IS). This is a "calc" record stored with the
organizational symbol as the randomizing value. "Unit-rec" is a

basic entry for entering the data base and searching any or all
chains for required data.

Information Sciences MIS

org-rel (110)

column   disposition fields

01   a = add; d = delete; m = modify

02 - 04   record-type = 100

                        data fields

                        link-data fields

05 - 08   office symbol of "parent" organization

09 - 12   office symbol of "child" organization

13 - 80   blank fill

                        Synopsis

     The "org-rel" record is a connector record that is a detail in
both the unit-dn chain and the unit-up chain. It is used to
associate organizations (unit-rec's) in a heirachial structure thus
permitting a realistic structural representation of the information
sciences division. The "org-rel" record type must be stored each
time a new job unit is added to the data base.

Information Sciences MIS

employee (200)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 200

data fields

05 - 13	social security number of employee
14 - 26	employee's last name
27 - 36	employee's first name
37	employee's middle initial
38	sex
39	service, i.e. c = civil service; m = military
40 - 45	date of birth yymmdd
46 - 51	service computation date yymmdd
52 - 53	veteran? "no" or "ye"
54 - 59	date of last promotion yymmdd

link-data fields

60 - 63	assigned job unit; example = isim
64 - 80	blank fill

5

Synopsis

The "employee" record type consist of basic data items stored
for each inndividual in the Information Processing Branch (ISI). The
record is central to sub-file one and therefore has to exist before
the "degree", "grade-status", "skill-level", "applied-mnhrs", and
other related details can be stored. The details just mentioned
contain data that may exist for one or several employees. The
"employee" record should be reviewed periodically and modified or
deleted as required. The record can be scanned using the Inquiry
Command Language (ICL) query: display for "employee" if "ssan" gr
"000000000".

Information Sciences MIS

skill-level (210)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 210

data fields

05	level of competence

link-data fileds

06 - 14	social security number of employee
15 - 26	skill name
27 - 80	blank fill

Synopsis

The "skill-level record type associates the employee with particular skills required of people in the ISI branch. The record establishes the individual's degree of knowledge of the related skill. A person may have from zero to "n" skills.

The "skill-level record should be reviewed monthly and modified or updated to reflect changes in employee proficiency. The record should be scanned using the ICL query: display "ssan" "comp-level" "skill-name" for "skill-level" if "ssan" equal "(any ssan)".

Information Sciences MIS

comp-desc (215)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 215

data fields

05	level of proficiency
06 - 77	description of proficiency level
79 - 80	blank fill

Synopsis

The "comp-desc" record type is stored using the "calc" method. It is a record that describes the level of proficiency an employee may have in a partiicular skill. For example, if the level of proficiency is "3" for a skill such as Cobol, it means that the individial has a working knowledge of the computer language and uses it daily in his job.

The "comp-desc" record needs very little attention. The programmer can add as many records of this type as required. Duplicates are not allowed. The record should be scanned using the ICL query: display for "comp-desc" if "level-code" gr 0.

skill (220)

   column   disposition fields

   01   a = add; d = delete;   m = modify

   02 - 04   record-type = 220

                         data fields

   05 - 16   skill name (example = cobol)

                         link-data fields

   17 - 20   skill class (example = lang, dms)

   21 - 80   blank

                         Synopsis

   The "skill" record-type is stored using the "calc" method.   All
skills related to work performed in the ISI branch are stored by the
record-type.   Some example skills are Fortran, pl/1, ahi, etc.   These
records are associateed with the employee via the connector record
skill-level.

   The "skill" record needs very little updating.   The programmer
can add as many entries of this type as required; however, duplicates
are not allowed.

   The record should be scanned using the ICL query: display for
"skill" if "skill-name" gr "   ".

skill-class (230)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 230
	data fields
05 - 08	class of skill (example = lang, dms etc)
09 - 38	title of skill

The "skill-class" record-type is stored using the "calc" method. The skill class combines groups of similar skills under one "master". For example, the skill claass "lang" has Cobol, Fortran, basic etc as "details".

The "skill-class" records needs very little update or maintainance attention. the programmmer can store as many entries required without storing duplicates.

The record should be scanned using the ICL query: display for "skill-claass" if "class-code" gr " ".

degree I240)

    column   disposition fields

    01   a = add; d = delete; m = modify

    02 - 04   record-type = 240

                         data fields

    05 - 08   year degree conferred (example = 1973)

    09 - 10   major field of study (example = ee,me etc)

    11 - 42   name of university

                         link-data fields

    43 - 51   ssan of person with above degree

    52 - 54   degree conferred (example = phd, ms, bs etc)

                         blank fill

                         synopsis

    The "degree" record-type is stored as a detail in the degree-chn chain and the deg-class-chn chain. The record associates a person with a degree-class such as master of science, etc and establishes the major field of study, school and date of separation.

    The "degree" entity is a connector record and therefore cannot be stored unless the pertinent "master" records exist in the data

base.   The record type should be reviewed periodically for each
employee and must be modified or added to reflect the current
education levels of all employees.

The record should be scanned using the ICL query: display for
"degree" if "ssan" eq "(any ssan)".   All the degrees for the
particular employee will be displayed.   You may change the query to
get all degrees for every employee by using the sattement: display
for "degree" if "ssan" gr "000000000".

degree-desc (245)

    column   disposition fields

    01   a=add; d=delete;   m=modify

    02 - 04   record-type = 245

                             data fields

    05 - 06   major field of study (example ee, ma, etc)

    07 - 48   expansion of above abbreviation

    49 - 80   blank

                             synopsis

The "degree-desc" is a "calc" record stored with "major field of study" as the randomizing field. The record-type is used solely to show the meaning of the abbreviated form of "major field of study" that occurs in the degree record-type.

The "degree desc" needs very little update attention. Other entities of this type may be added as desired, however, duplicates are not allowed.

The record should be scanned using the icl query.... display for "degree-desc" if "field-code" gr " ". All "degree-desc" entities will be displayed.

degree-class (250)

    column   disposition fields

    01   a = add; d = delete; m = modify

    02 - 04   record-type = 250

                        data fields

    05 - 07   degree conferred (example = phd, ms, etc)

    08 - 80   blank

                        synopsis

The "degree-class" record-type is stored as a "calc" record and is "master" of the deg-class-chain. The randomizing field is "degree conferred".

The record requires little update attention. Other entities of this type may be added as desired. Duplicates are not allowed.

The record may be scanned using the icl query... display for "degree-class" if "degree-class" gr " ". All "degree-class" entities will be displayed.

Information Sciences MIS

grade-status (300)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 300

data field

05	grade status (c = current; p = old)

link-data fields

06 - 14	ssan of employee
15 - 19	grade of employee (gs11, capt, etc)
20 - 80	blank

synopsis

The "grade-status" record-type is stored as a detail in the
code-chn chain and the grade-chn chain. "Grade-status" is "master"
of the salary-chn chain. The record associates a person with a civil
service grade or military rank. An individual may be associated with
several grades; wherein, the grade status of "c"indicates the current
grade while the grade-status with "p" shows the persons previous
grades. A history of the employees grades are kept using this
record-type.

The "grade-status" entity should be scanned and updated
constantly at least, an a monthly basis. The entity is a connector

15

record and can only be stored if the employee and grade records
exist in the data base.

The "grade-salary" record should be scanned using the ICL
query... display "ssan" "statuss" "grade-level" for "grade-status"
if "ssan" eq "any ssan".   you may change the query to read: display
"ssan" ......For "grade-status if "ssan" gr "000000000". This would
cause all grade-status and related data to be displayed.

salary-history (305)

column   disposition fields

01   a = add;   d = delete;   m = modify

02 - 04   record-type = 305

                          data fields

05 - 10   date of salary change (yymmdd)

11 - 15   annual salary (right justified)

16 - 17   within-grade step (two digits)

18   change code (1 = step;   2 = percent;   3 = merit)

                          link-data fields

19 - 27   ssan of employee

28 - 32   grade of employee (gs11, capt)

33 - 80   blank

                          synopsis

     The "salary-history" record-type is a detail in the salary-chn
chain. Its "master" is the grade-status record. Since, within each
civil service or military grade, an individual may have several pay
raises for various reasons, the salary-history record is used to
record the changes. This record is associated with the "currunt"

grade-status.   When the "grade"is changed this record becomes "prior"
of history data.

The salary-history record requires constant attention by the
data administrater because pay changes occur frequently.   Since
salary-history is a detail to a connector record (grade-status) it
cannot be stored or modified unless the employee, grade, and
grade-status records exist in the data base.

This record should be scanned using the ICL query...   "display
"ssan" "status" "salary-date" "annual-salary".......   for
"grade-status" if "salary-date"gr "yymmdd".   All data from the dates
after "yymmdd" will be displayed.

grade (310)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 310
	data fields
05 - 09	salary grade (gs11, gs12, ... gs18, capt, etc)

pay-table (320)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 320

data fields

05 - 09	step number 1 salary; example = 09493
10 - 14	step number 2 salary; example = 09809
15 - 19	step number 3 salary; example = 10125
20 - 24	step number 4 salary; example = 10441
25 - 29	step number 5 salary; example = 10757
30 - 34	step number 6 salary; example = etc
35 - 39	step number 7 salary; example = etc
40 - 44	step number 8 salary; example = etc
45 - 49	step number 9 salary; example = etc
50 - 54	step number 10 salary; example = etc

link data fields

55 - 59	salary grade (gs11, gs12, ... gs18, capt, etc)

Information Sciences MIS

formal-course (260)

column   disposition fields

01   a = add;   d = delete;   m = modify

02 - 04   record type = 260

                        data fields

05 - 10   date course completed; yymmdd

11 - 16   course number; example ie535

17 - 41   name of course studied

42 - 66   name of university or college

67   grade recieved in course; example = a

68   credit hours; example = 3

                        link-data fields

69 - 77   student's social security number

78 - 80   blanks

Information Sciences MIS

short-course (261)

    column   disposition fields

    01   a = add; d = delete;   m = modify

    02 - 04   record-type = 261

                        data fields

    05 - 10   date course completed; example yymmdd = 710831

    11 - 44   name of course studied

    45 - 69   name of university or college

    70 - 71   duration of course in weeks; example = 06

                        link-data fields

    72 - 80   students social security number

job-course (262)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 262

data fields

05 - 10	date course completed; yymmdd
11 - 44	name of course studied
45 - 69	name of company presenting course
70 - 71	course duration in weeks, example = 02

link - data fields

72 - 80	students social security number

programs (400)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 400

	data fields
05 - 10	program element code; example = 6248
11 - 35	program title
36 - 80	blanks

Information Sciences MIS

project (410)

    column   disposition fields

    01   a = add;   d = delete;   m = modify

    02 - 04   record-type = 410

                        data fields

    05 - 08   project number; example = 5581

    09 - 33   project title

    34 - 37   fund source; example = afsc

    38 - 44   total allocated funds; example = 9999925

    45 - 51   released funds; example = 7843925

    52 - 58   withheld funds; example = 02156000

                        link - data fields

    59 - 64   program element code

    65 - 68   unit symbol; example = isim

    69 - 77   social security no. of project engineer

    78 - 80   blanks

task (420)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 420

data fields

05 - 10	task number; example = 558102
11 - 35	task title
36 - 39	office of primary responsibility; example = isim

link data fields

40 - 43	project number; example = 5581
44 - 80	blanks

work-unit (430)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 430

data fields

05 - 12	work unit number; example = 55810204
13	work unit sub-number; example = A
14 - 26	work unit leader (engineer last name only)
27 - 51	work unit title
52	jocas category; example = c

link data fields

53 - 58	task number; example = 558102
59 - 80	blanks

Information Sciences MIS

planned-mnhrs (435)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 435

data fields

05 - 08	date plan submitted i.e yymm = 7209
11 - 12	planned over - run(man-yrs) example = 01
13 - 14	actual manyears example = 12
15 - 16	total expended manyears example = 25

link data fields

17 - 24	work-unit number example = 55810204
25 - 33	employee social security number
34 - 80	blanks

applied mnhrs (436)

columns	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 436

data fields

05 - 10	date form 2 submitted i.e. yymmdd
11 - 22	report period yymmdd to yymmdd = 720901 to 720909
23 - 25	regulas manhours expended example = 032
26 - 28	over time manhrs expanded; example = 000

link data fields

29 - 36	work unit number; example = 55810204
37 - 45	employees social security number
46 - 80	blanks

Information Sciences MIS

keyword (500)

columns	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 500

data fields

05 - 09	keyword; example = ahi, or dm7, or dm1, etc
10 - 80	blanks

word-word (510)

    columns   disposition fields

    01   a = add;   d = delete;   m = modify

    02 - 04   record type = 510

                         data fields

          data fields

    05 - 29   title or area of effort

    30 - 34   key word

                         link data fields

    35 - 38   project number (example = 5581)

    39 - 46   work unit number (example = 55810102)

    47 - 62   contract number (example = f30602-72-c-1102)

    63 - 80   blanks

Information Sciences MIS

work-request (431)

columns	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 431
	data fields
05	blank
06	blank
07	blank
	link data fields
08 - 15	work unit number (example = 55810102)
16 - 21	purchase request number (example = b33409)
22 - 80	blanks

Information Sciences MIS

request-contract (521)

columns	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 521
	data fields
05 - 07	blanks
	link data fields
08 - 13	purchase request number (example = b33409)
14 - 29	con:contract number (example = f30602-72-c-1102)
30 - 80	blanks

employee-assignment (199)

    column   disposition fields

    01   a = add;   d = delete; m = modify

    02 - 04   record-type = 199

                     data fields

                     link data fields

    05 - 13   social security number of employee

    14 - 17   organizational unit of employee

    18 - 80   blank fill

Information Sciences MIS

project-assignment (409)

    column   disposition fields

    01   a = add;   d = delete;   m = modify

    02 - 04   record-type = 409

                      data fields

                      link data fields

    05 - 08   project number (example 5581)

    09 - 12   office of primary resposiblity (example = radc)

    13 - 80   blank fill

form-30-plan#1 (550)

columns	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 550

data fields

05	blank
06	a
07	blank

link data fields

08 - 11	form 30 id number
12 - 17	purchase request number (example - b33109)
18 - 42	title
43 - 46	project number
47 - 61	responsible engineer (lastname)
62 - 80	blanks

Information Sciences MIS

form-30-plan#2 (550)

    column   disposition fields

    01   a = add; d = delete;   m = modify

    02 - 04   record-type = 550

                            data fields

    05   blank

    06   code = b

    07   blank

    08 - 13   sow done date (example = yymmdd = 720430)

    14 - 19   contract start date (example = yymmdd = 720430)

    20 - 25   contract end date (example = yymmdd = 740429)

    26 - 32   total estimated cost (example = 2004000)

    33 - 39   first year cost (example = 0015000)

    40 - 45   fund citation (example =   )

    46 - 47   fiscal yeat (example = 74)

    48 - 50   effort class (example = 01r)

    51 - 76   blanks

                            link-data-fields

    77 - 80   form 30 id number (if modifying existing record)

pr   card#1 (541)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 542

data fields

05	blank
06	code = a
07	blank
08 - 13	purchase request number
14 - 21	work-unit-number
22 - 46	title
47 - 59	pma administrator (last name)
60 - 63	pma administrator office symbol
64 - 74	blanks

link-data-fields

75 - 80	purchase request number (if modifying)

pr card#2 (541)

01   a = add; d = delete; m = modify

02 - 04   record-type = 541

                      data fields

05   blank

06   code = b

07   blank

08 - 20   engineer's last name

21 - 30   engineer's first name

31   middle initial

32 - 35   engineer's office symbol

36 - 41   type contract

42   type vencor

43 - 74   blanks

                      link-data-fields

75 - 80   purchase request number (if modifying)

pr card#3 (541)

   column   disposition fields

   01   a = add; d = delete; m = modify

   02 - 04   record-type = 541

                          data fields

   05   blank

   06   code = c

   07   blank

   08 - 32   contractor name

   33 - 57   contractor division

   58 - 74   blanks

                          link-data-fields

   75 - 80   purchase request number (if modifying)

Information Sciences MIS

pr card #4 (541)

column   disposition fields

01   a = add; d = delete; m = modify

02 - 04   record-type = 541

                            data fields

05   blanks

06   code = d

07   blanks

08 - 37   contractor street address

38 - 57   contractor city

58 - 62   contractor state

63 - 67   contractor zip code

68 - 69   fund year

70 - 74   blanks

                            link data fields

75 - 80   purchase request number (if modifying)

pr card #5 (541)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 541
	data fields
05	blank
06	e
07	blank
08 - 13	bpac
14 - 17	mpc
18 - 25	program element code
26	year-fund code
27 - 28	lead division
29 - 32	fund source
33	rppr suffix
34 - 37	procurement branch
38 - 50	pma buyer last name
51 - 57	d and f number-
58 - 61	date form 77 approved (ex. yymm = 7205
62 - 74	blanks

link data-fields

75 - 80   purchase request number (if modifying)

pr card #6 (541)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 541

data fields

05	blank
06	f
07	blank
08 - 12	original form 77 amount (ex. = 97000)
13 - 19	project fund total (ex. = 2700500)
20 - 26	initial funding (ex. = 2700500)
27 - 33	committed funds (ex. = 2700500)
34 - 40	obligated funds (ex. = 2700500)
41 - 47	pma obligations (ex. = 2700500)
48 - 53	pma savings (ex. = 290000)
54 - 74	blanks

link-data-fields

75 - 80	purchase request number (if modifying)

Information Sciences MIS

pr-step (542)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 542

data fields

05 - 07	blank
08 - 09	step number
10 - 15	original forecast completion date (ex. = 720231)
16 - 21	current forecast completion date (ex. = 720931)
22 - 27	actual completion date (ex. = 720903
28 - 74	blanks

link-data-fields

75 - 80	purchase request number

Information Sciences MIS

contract #1 (531)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 531

data fields

column	
05	blank
06	a
07	blank
08 - 23	contract number (ex. = f30602-73-c-0015)
24 - 48	title
49 - 61	contract administrator last name
62 - 65	contract administrator office symbol
66 - 80	blanks

Information Sciences MIS

contract #2 (531)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 531

data fields

column	
05	blank
06	b
07	blank
08 - 20	contract engineer last name
21 - 30	contract engineer first name
31	contract engineer middle initial
32 - 35	contract engineer office symbol
36 - 41	type contract
42	type vendor
43 - 64	blanks

link-data-fields

column	
65 - 80	contract number (if modifying)

47

contract #3 (531)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 531

data fields

05	blank
06	c
07	blank
08 - 32	contractor name
33 - 57	contractor division
58 - 64	blanks

link-data-fields

65 - 80	contract number (if modifying)

contract #4 (531)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 531

data fields

05	blanks
06	d
07	blank
08 - 37	contractor street address
38 - 57	contractor city
58 - 64	blanks

link-data-fields

65 - 80	contract number (if modifying)

Information Sciences MIS

contract #5 (531)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 531

data fields

05	blanks
06	e
07	blank
08 - 12	contractor state
13 - 17	contractor zip code
18 - 23	effective date of contract (ex. = yymmdd = 720709)
24 - 29	delivery date for contract (yymmdd)
30 - 31	per cent contract completed (ex. = 85)
32 - 37	purchase request number
38 - 41	project number
42 - 64	blanks

link-data-fields

65 - 80	contract number (if modifying)

contract-event (532)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record-type = 532

data fields

05 - 07	blanks
08 - 09	event number (step) (ex. = 02)
10 - 15	forecast completion date (ex. = 730515)
16 - 21	actual completion date (ex. = 730930)
22 - 64	blanks

link data fields

65 - 80	contract number

Information Sciences MIS

pr-fund (530)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 530

data fields

05 - 11	total money expended to date (ex. = 9797294)
12 - 18	current year expenditure
19 - 25	second year expenditure
26 - 32	third year expenditure
33 - 35	effort class

link data fields

36 - 51	contract number
52 - 57	purchase request number
58 - 80	blanks

travel (411)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 411

data fields

05 - 08	funding project number (06dm, 5581, symp, etc)
09 - 14	fund allotment purchase request number
15 - 22	note/other data
23 - 26	project number (time expended for)
27 - 80	blank

Information Sciences MIS

trip (412)

column	disposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 412

data fields

column	data fields
05 - 09	trip number (example = 0001c, etc) unique
10 - 22	travelers last name
23 - 31	travelers ssan
32 - 37	charge symbol (226702 for isi)
38 - 41	plane fare etc (est nonvoucher cost)
42 - 45	perdiem, etc (est voucher cost)
46 - 49	actual voucher cost
50 - 55	start date of travel (yymmdd)
56 - 60	number of days (ex. = 09275 = 92.75 days)
61	"x" = trip cancellation; " " = not cancelled
62 - 66	mode of x's portation (cac, pas, etc)
67 - 74	link to nls
75 - 76	filler (blanks)

link data fields

77 - 80   funding project number (06dm, 5581, symp, etc)

Information Sciences MIS

trip-info (413)

column	ddsposition fields
01	a = add; d = delete; m = modify
02 - 04	record type = 413

data fields

column	
05 - 12	job order for time expenditure charge
13 - 37	organization or company visited
38 - 57	city visited
58 - 62	state visited
63 - 68	date action required (yymmdd)
69	directed/nondirected ie(=d or =n)
70	participant/observer ie(=p or =o)
71	blank or filler

link data fields

column	
72 - 75	funding project (06dm, 5581, symp, etc)
76 - 80	trip number (example 001c, etc)

19628 Distribution

1

(J19628) 12-OCT-73 06:03;   Title: Author(s): William P. Bethke/WPB;
Distribution: /; Sub-Collections: RADC; Clerk: WPB;
Origin: <BETHKE>RECDSC.NLS;1, 26-SEP-73 14:08 WPB ;

we are helping the national cancer institute (nci) evaluate the potential utility of a computer communications network, such as arpanet, to their research and management activities. for the purpose of conducting this experiment we would like to dial your tip modem(s) -for very short periods and on an infrequent basis only. please let us know if this would inconvienence you in any way. thanks a million, ernie forman (ehf) mitre corp. 1820 dolley madison blvd. mc lean va. 22101 (703) 893-3500 1

19630 Distribution

John Davidson, A. Wayne Hathaway, David C. Walden, Hallam G. Murray, Schuyler Stevenson, E. R. (Dick) Reins, John C. Thomas, Robert Rosenthal, Thomas F. Lawrence, Michael B. Young, James M. Pepin, Jean Iseli,

(J19630)   12-OCT-73 06:42;   Title: Author(s): Ernest H. Forman/EHF;
Distribution: /JD AWH DCW3 HGM SS ERR JCT RR TFL MBY JMP JI;
Sub-Collections: NIC; Clerk: EHF;

An Observers Opinion of USING Apparent Controversy

In response to NJN (19603) et al

I agree with Nancy's comment that the sole criteria for membership in any of these groups is a persons willingness and demonstrated ability to help promote user issues and work towards their solutions. On the other hand, membership without contribution appears to create more unnecessary load for the distribution system. People who have the desire to assist in achievement of the groups goals should be given the opportunity to contribute and caution should be exercised to protect people from overcomitting because of their goodwill since in time this simply creates much embarrassment to everyone.

I strongly agree with nancy that instead of counterproductive fencing we begin to address ourselves to the achievement of the goals we outlined in may. We have yet to take any action on Mike's fine specification for NETED and have yet to see progress with CCL.

Expending our efforts in these areas would go another step towards accrueing a degree of viability to the concepts of both USING and USERS. I sincerely believe we have a lot of potential to acheve the goals that were set out, let's get to work in manifesting that potential.   1

19631 Distribution
    Jonathan B. Postel, Nancy J. Neigus, Elizabeth J. (Jake) Feinler,
    David H. Crocker,

1

An Observers Opinion of USING Apparent Controversy

(J19631)   12-OCT-73 08:28;   Title: Author(s): Jean Iseli/JI;
Distribution: /JBP(in support) NJN(I agree, let's focus on achieveing
the goals) JAKE(I think nancy's point is well taken) DHC(lets convert
controversy to productivity); Sub-Collections: NIC; Clerk: JI;

Second to Need for Line Entity

I would like to strongly second the request of DCE for a line entity.
I remmber we discussed it at the ealy command language meetings, and
there were some problems associated with statement numbers,
addressing them in TNLS, naming the entity etc., but the need for
scrolling and others mentioned by DCE (19580,) make this an item
that should get serious thought again shen (this keyboard souldn't
give me a W) the current crush is off.   1

19632 Distribution
  Charles F. Dornbush, Douglas C. Engelbart, Charles H. Irby, Harvey G.
  Lehtman,

Second to Need for Line Entity

(J19632)   12-OCT-73 08:48;   Title: Author(s): Richard W. Watson/RWW;
Distribution: /CFD DCE CHI HGL; Sub-Collections: SRI-ARC; Clerk: RWW;

Using/Users hassle response

Jon -- yes   1

19633 Distribution
    Jonathan B. Postel,

Using/Users hassle response

(J19633)   12-OCT-73 09:14;   Title: Author(s): David H. Crocker/DHC;
Distribution: /JBP; Sub-Collections: NIC; Clerk: DHC;