Mil E. Jernigan
Augmentation Research Center
Stanford Research Institute
Menlo Park, California 94025

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NOTES ON CATALOG PRODUCTION AND DATABASE HANDLING

By

Mil E. Jernigan

Stanford Research Institute
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ACKNOWLEDGEMENTS

1k

The system reported here was designed in the main part by Jeanne B. North who was brought into the group for that purpose.

1l

Other functions performed by both Jeanne North and others in the development of this collection and system are listed below, chiefly in the section on I. Introduction; History of Past ARC Catalog Work.

1m

I. INTRODUCTION

2

SRI-ARC XDOC Catalog Defined

2a

The SRI-ARC XDOC Catalog and its collection are defined in the following parts:

2a1

Physical Collection

2b

The collection comprises the efforts of Doug Engelbart and his staff over the last almost 15 years. The collection has been directed toward such subjects as:

2b1

Computer design, architecture, hardware, software, peripherals, systems, programs and programming, networks, and communication.

2b1a

Man's use of computers and the man-machine interface and its problems.

2b1b

Human communication - its effectiveness and enhancement through use of automated equipment such as the computer. Means of recording and using communication and optimum results of its use.

2b1c

Psychological background of communicative behavior particularly as applied in research groups, business applications, and in computer research groups.

2b1d

Means of building knowledge into a wholeness from/to which many diverse groups and cultures can both draw and contribute -- a technique Doug Engelbart expresses as a "bootstrap community".

2b1e

As a corollary of the previous, such subjects as management and personnel handling techniques, operations research, organizational development, enhancement of mental activities, group activities, and related

endeavors are also represented in the collection.

2b1f

The collection is composed of books, journals, reports, documents, papers, reprints, video tapes, audio tapes and cassettes, photographs, correspondence, transcriptions, computer-lineprinter printouts, online documentation contained in permanent online archives, handwritten notes placed in the permanent archives, interoffice memos -- every conceivable form of record,., including Item No. 1, which is Doug Engelbart, himself.

2b2

The hardcopy collection is numbered (in the same numbering sequence as the entire collection) and attempts are made to retain the hardcopy documents in the standing files and shelves of the "ARC Library", centered in the "Cave Area" and the vault at ARC. Many books, documents, and other hardcopy type items have been purchased for the use of the staff members and were checked out to the member with no particular attempt to keep a close record. Insufficient personnel and quarters for a "closed Library" type operation precluded any attempt to really keep up with the collection items; rather it is assumed that the staff members will cooperate and make the copies they have in their possession available to all the members, if needed.

2b3

It should be pointed out here that the one thing NOT included in this collection is the SRI-ARC and SRI-NIC NLS Online Journal items. These are a completely different collection of online items whose only relation to the ARC XDOC Catalog collection is that they share the same numbering system; each entry has its own unique number in one overall numbering sequence, whether that entry comes from the Online Journal, the XDOC collection, or wherever.

2b4

Online Catalog

2c

The Online SRI-ARC XDOC Catalog consists of coded entries describing the item being cataloged. These entries are coded, input to the system in NLS in a stated order and respository files, proofed and checked, and the resultant database is used to process indices and hardcopy catalog printouts by use of catalog processing programs.

2c1

The item itself may or may not have been, or be, online in its entirety. Very few of the cataloged items were ever online as a complete entity. The reasons for this are: (1) Most items included graphics, forms, formatted material not suitable for the present state of the art of computers (mixtures of art-work, text, graphics, etc); (2) the computer system does not exist that would be large enough to hold that amount of material (not even the ILLIAC IV); and (3) such an enormous undertaking would not be reasonable...it is not necessary to record the contents of a book on a library catalog card in order to catalog and code the book for reference and location.

2c2

It should be pointed out that ARC does not have in these catalog files/holdings an information retrieval system, but rather, a document citation formatting system. The catalog processing programs are formatting programs. The nearest to a searching mechanism that has so far been established to operate on a continuing and practical basis is the hardcopy card file on the two long tables, currently outside my office door, near J2025. A description of this file and its uses will be given in its proper place below.

2c3

A description of the method of coding, input, proofing, and maintenance of database is given below under Section III, Accession Processing.

2c4

Online Indices and Group Note Indices

2d

Indices of the RFCs and ARPANET Special Interest Groups' Group Notes were kept online in the directory <NIC>. Because the catalog programs did not produce a satisfactory index format and because of the inability to persuade a programmer to correct the indexing programs, these indices were input by Mil Jernigan by hand. This hand production was done on a TI terminal and required considerable sophistication in handling TNLS, since input was tabulated in columns across a wide-page layout, 120 characters wide, and the input printout on the TI necessarily showed doubled back lines. This required careful character position count both in input and editing in order to make the columns align when processed through Output Processor directives and printed on the printer.

2d1

Sixteen of these indices were kept online for the Network users to access. The indices were named by the acronym of the Special Interest Group, followed by the word "INDEX": ASSINDEX, CBIINDEX, IIGINDEX, INWGINDEX, NSCGINDEX, NMGINDEX, NGGINDEX, PRGINDEX, REACGINDEX, RFCINDEX, SURINDEX, TIPUGINDEX, TNGINDEX, USERSINDEX, USINGINDEX, WDBWGINDEX. Input and handling are described below under Section III, Accession Processing.

2d2

After each hardcopy NIC catalog was produced, the Number Index, Author Index and Titleword Index were placed in <CATALOG> directory in order that Network users could access these indices online through the <NIC>LOCATOR File. However, their online life was usually short since directory and disk space were always at a premium and these files usually were deleted to make way for other files.

2d3

Offline Hardcopy Catalogs

2e

Periodically the Catalog processing programs have been run on the catalog database, producing formatted listings and indices. So far hardcopy catalogs of various kinds have been produced. Among these have been:

2e1

National Academy of Sciences Information Systems Panel Study

2e1a

A primitive shelf listing of the document and correspondence holdings covering the Library state-of-the-art study by the NAS INFOSYS Panel (of which Dr. Engelbart was a member) was made 1 April 1971. The first increment of catalog processor programs was run on the NAS database. No formal catalog was published. The listing and the collection are stored in the vault at ARC.

2e1a1

AFIPS Workshop Catalog

2e1b

On 14-15 January 1971 AFIPS held a workshop on Interactive Bibliographic Search: The User/Computer Interface, at Palo Alto. Dr. Engelbart participated

in the workshop, ARC cataloged, processed, and produced the online and offline catalog and indices which were reproduced in the Proceedings, (Donald E, Walker (Ed,), Interactive Bibliographic Search: The User/Compiler Interface - Proceedings of a Workshop, AFIPS Press, Montvale, New Jersey, 1971, 311p, XDOC 9474,)

2e1b1

NIC Catalog Collection

2e1c

1971 - A partial listing was issued early in 1971 and a NIC Catalog, with indices, binders, dividers and regular format was issued in June 1971,

2e1c1

1972 - In October 1972 a NIC Catalog was issued, dated from the previous June, In this issue much of the lost material from the transfer of the ARC system from the XDS 940 to the PDP-10 was recovered and included, A further, complete issue was produced in 1973, dated December 1, 1972, This issue was the last one to include all the formats; i,e,, the Number Index, Author Index, Number Listing (bibliographic citations in number order), TitleWord Index, and RFC and Group Note Indices,

2e1c2

1973 - A new issue of the NIC Catalog was scheduled for 1 March 1973; however, it was never issued because of the inability of management to persuade the person who was responsible for running the catalog programs to run those programs on the database, As time went on and the programs were not run to produce the catalog, the time for the NEXT catalog arrived (6/1/73) and pressure was put on this person to issue a catalog, Eventually the programs were run; the 1 March 1973 issue did not occur, and the partial catalog that was produced was dated 1 June 1973, This issue included the following: Number Index, Author Index, Titleword Index, RFC Index, and Group Note Indices, (Note: The RFC Index and Group Note Indices were not produced through catalog program processing, but were produced by simply putting the online current indices in <NIC> through the output processor to obtain masters,)

2e1c3

In the 1 June 1973 NIC Catalog issue, no Number Listing (bibliographic citations) was made. The catalog had reached such large proportions that issuance of that particular format would have necessitated use of an additional binder to hold the NIC Catalog. Funds were running low on the contract, ARC had been told that the particular contract under which this work was done would not be renewed, and it was therefore decided to forego this expensive step.

2e1c3a

No NIC catalog was planned for 1 December 1973 since the end of the contract and cut-off of funds was approaching. It was known that the NIC operation would greatly diminish if not disappear completely. However, coding and input continued and the database was maintained in good order.

2e1c3b

ARC Catalogs

2e1d

ARC Catalog and KWIC Index, 30 August 1969

2e1d1

At the end of August 1969 input of material for the XDOC collection was halted and during the following month a KWIC program was run on the database. The results (two printouts) were displayed at the October ASIS Conference demonstration in San Francisco. The two printouts are in the XDOC collection, stored in the vault. Material in this KWIC index is for the most part not coded into the present online collection since input was begun from the point current at the time and carried forward and relatively few old items were coded and entered.

2e1d1a

Every effort should be made to maintain these KWIC printouts in good condition and availability, since they cannot be reproduced and they are the only index to this early material. However, a xerox copy of the datafile printout sheets was made and pasted on cards for entries in the card index file mentioned elsewhere.

2e1d1b

ARC Catalog, 30 June 1974

2e1d2

Coding and input of new material was halted as of 30 June 1974 and the catalog programs were run on the entire database (4,637 items online). The resultant catalog indices are: Number Index, Author Index, Organization Index, Titleword Index, and Keyword Index. The RFC Index and Group Note Indices were also printed out through the last notes and RFCs issued, copies were made for mailing to the group membership, and a hardcopy of the printout is in the ARC Library Reading Room (Cave area).

2e1d2a

Here again, the RFC Index and Group Note Indices are printouts of the indices maintained online and input by hand by Mil Jernigan, and were not produced through use of the catalog programs.

2e1d2b

Several copies of the 30 June 1974 ARC XDOC Catalog indices were reproduced. They are being bound in two report-type volumes; the first volume containing the Number Index, Author Index, and Organization Index; the second volume containing the Titleword Index. The large size of the Volume 2 material precluded binding the material into one cover. Here, again, a bibliographic citation (Number Listing) was not produced because of the large printing size of that format with the large database.

2e1d2c

Offline Hardcopy Card Index (Filing Identities)

2f

It is very necessary to have some means of ascertaining

2f1

(1) If a document one has in hand (having no attached XDOC/NIC or other subcollection number sticker on it) has been coded and input to the system or not. (Multiple copies of documents are often received, often by different persons and at different times, and are contributed to the collection. Before documents are coded into the system, a check should be made to find

out if the document has already been input to the system, thereby avoiding duplicate entries.)

2f1a

(2) If material is available in the collection, written by a particular personal or corporate author.

2f1b

The hardcopy 5x8 card index file in the cardboard boxes located in the hall outside J2025 was set up and is maintained for this purpose.

2f2

The present card file includes a card for every entry in the online database (hopefully!) pasted on the green cards, and also a white card for entries in prior databases not now online, such as: (1) the Dura machine tape entries on which the August 1969 KWIC Index were made; (2) additional Dura machine tape input between that time and when the online database was begun in the XDS 940 (not guaranteed complete; cards were made on what I found); (3) input to the XDS 940 which was lost in bringing it over to the PDP-10 (some of the this material had been printed out and I found the print copies; I made xerox copies of the sheets, and cut and pasted the cards for these entries); (4) a special database input and formatted for the AFIPS Workshop in 1971, at which Doug gave a paper and proceedings for which Doug had ARC process a formatted catalog for inclusion in the book.

2f3

Some of the "lost" material and the material not put online at time of original processing (on which only a Dura tape was cut) have been input to the online database (by re-coding and inputting) and green cards made to indicate that the entry is now online. However, there are many, many "old" items in the file cabinets which are numbered and a part of the XDOC collection, but which are not and have never been online. This material should be properly coded and input, if facilities are ever available to do so.

2f4

Further discussion of this card index file, material for creation, and procedures for upkeep will be found under the section: III, Accession Processing; Peripheral Files: Card Index File, for Locating by "Filing Identity".

2f5

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History of Past ARC Catalog Work

2g

The various tasks performed in order to process items into the XDOC collection are as follows and were performed by persons as noted:

2g1

Jeanne North - Early in the design and implementation of the Catalog, Jeanne coded a number of documents. In many cases she did only minimal coding and did not write an abstract or insert keyword/phrases. Jeanne supervised the catalog operation; designed the coding system and the formats of the produced catalogs; conferred with Walter Bass on design of the catalog production programs; conferred with Mil Jernigan on evolution of the codes used and their descriptions in the Code Manual and Codesheet; scanned publishers material for appropriate accessions of books, documents and journals in ARC's fields of interest; ordered material for the collection (Linda Lane and then Carole Guilbault prepared the orders for Jeanne's signature); issued occasional Bulletins announcing the recent ARC accessions (input by Barbara Row, and produced by Walter Bass or Beau Hardeman using the catalog production programs until 1973 when Mil Jernigan took over this over this task in its entirety); issued a calendar notice of meetings which she posted on the bulletin board and circulated among the staff; wrote the interim and final reports on the RINS project; did various bibliographic compilations as called on by the needs of the staff; attended meetings representing the ARC catalog interests.

2g1a

Barbara Row - From the beginning of the implementation of the catalog and database handling, Barbara occasionally handwrote minimal coding to the codesheets, i.e., author, affiliation, title, subtitle, paging, sponsor information, and subcollection assigned by Jeanne North. The codesheets were often audited either by Jeanne North (at first) or by Mil Jernigan (during most of the time the database was being actively implemented), affording the opportunity for addition of abstracts, key phrases, etc. Barbara then input in DEX (Offline text input system) a large proportion of the CIT files. Barbara was quite fast and expert in this latter operation and probably most of the input of the

database during this time was Barbara's work.

2g1b

Kaye Byrd - Kaye was with the group for about a year. During this time she input a number of CIT files in DEX. She worked from the coding done by others and did no coding herself.

2g1c

Linda Lane - Linda did not care for the work of inputting the CIT files and preferred to work on other things. She input only one CIT file during this time, although a fairly large one. Linda did no coding. Linda was responsible for typing all book, journal, document, and microfilm/fiche orders and for maintaining the files related to ordering and purchasing of library-type materials. She also "received" the journals, magazines, books etc, checking in the material for serial and journal publications and the book and document orders. See entry above under "Jeanne North" for additional comments on Linda Lane's work assignments.

2g1d

Carole Guilbault - When Linda resigned, Carole took over her tasks of ordering documents, books, and publications and of checking in the received material and maintaining the records on this material. Carole and Judy Cook, who worked regular time in the NIC office, assisted by cutting and pasting the CIT file entries onto the green index cards for the Card Index File. Judy usually was the one who filed them in the boxes for Mil to check and lower the cards.

2g1e

Judy Cooke - See entry above for Carole Guilbault.

2g1f

Cindy Page - Cindy input two very short files online (not in DEX), but did not like the work and was quite busy with the NIC reproduction and mailing. Cindy did no coding. Her only significant contribution to the catalog work was in the online indices of RFC and Group Notes. Cindy started the files from a baseline of the catalog production program input of the RFCINDEX and for each of the first two NIC Catalogs, she and Barbara Row input by hand the few current items issued while the catalog was in production. The format of the files as produced by the catalog programs was not that desired (only three

files existed at that time), therefore, when Cindy became too busy to work with these indices, Mil Jernigan took over the hand input, reformatted the files by hand into the desired format, and added the additional 13 indices as they became necessary.

2g1g

Mil Jernigan - Almost from the beginning of the implementation of the catalog and input of the database, Mil coded documents, wrote abstracts, assigned numbers to documents, and correlated input and handling of several of the large subcollections that were added to the collection. It was also Mil's task to write abstracts and enter keyword-phrases on material that was minimally coded by others. An advantage was found to this latter procedure: checking the coding of others while still in the code-sheet form and adding the abstracts/keywords afforded the opportunity for audit and corrections on the codesheet, eliminating much online correction to the database itself.

2g1h

Mil also inPut CIT files online; Proofread/audited the input of all the others; kept a current check of the CIT files to see that they did not disappear offline; kept a directory-listing of the CIT files with their names and locations that would be used in the next NIC Catalog production; located and disinterred much of the catalog database that had been lost offline both from people simply deleting the input files and from the material being brought over from the XDS 940 improperly, thereby creating bad files; requested proof programs to be run on the CIT files and checked resultant printouts and made corrections; collated the CIT files into repository files for use when NIC catalog production time came; maintained the "A-SOURCE-#" files (the full catalog database) in recognizable and approachable manner; collated new CIT files into the A-SOURCE files when new NIC catalogs were run; created new versions of A-SOURCE files and supervised their archiving and repository in the permanent archives for future use; affixed the number labels and subcollection labels on the hardcopy items after they were coded and input; filed the labelled documents in the permanent files (shelves and filing cabinets); checked material from these files out to ARC members who requested them and rechecked the material back in again when returned;

maintained the files in good order.

2g1h1

In addition, Mil maintained a log of items given XDOC/NIC/etc numbers for input into the ARC collections (not to be confused with the NIC group notes, etc, numbers assigned by the NIC office); located material from the files on request; did literature searches for material to be used by the group and included in the collection; did subjective searches of the database to locate material for both ARC personnel and for NIC/Net personnel from the Network; answered many requests from Network people for information concerning the NIC catalog collections and information needed on certain subjects; input the RFCINDEX and Group Note Indices (16 indices in the <NIC> directory) by hand, issuing copies for masters to be included in NIC catalogs as they were produced; produced the "NIC Announcement Bulletins" describing new material received in the NIC collections (6 issues were produced before the work load got so heavy and expenses had to be cut and this work had to be dropped); abstracted items from the NIC collection for the ARPANET News from August 1973 through April 1974 when the ARPANET News was dropped from publication; conferred at great length with Jeanne North in assisting in the evolution of the codes used in the Codesheet and the explanations shown in the Code Manual.

2g1h2

Mil also produced the final ARC XDOC catalog (Author, Number, Organization, Titleword, and Keyword Indices) with cutoff date as of 30 June 1974. This work was done during the month of July 1974 and consisted of securing the ARC XDOC database for being taken offline, running the catalog production programs on the database, setting up hardcopy printouts of the database and of the indices produced, and producing masters for printing the Titleword Index by SRI Report Productions. Mil reproduced the other indices by hand on the ARC xerox machine and collated the copies ready for binding by SRI Report production.

2g1h3

SRI Library personnel - Three clerks of the SRI Library staff worked on loan (charging the contract for time spent) coding material, particularly books and reports.

This work was carried on for about a year; about February 1973 it was decided to stop this expense, since the contract showed signs of overrunning and it seemed unlikely the overrun would be funded. Mil Jernigan was assigned the task of doing the work formally assigned to these three people, plus the work formerly done by Barbara Row and Kaye Byrd, in addition to her own regularly assigned duties.

2g1i

Dirk van Nouhuys - Dirk ran the catalog production programs on the 1 June 1972 (produced in October 1972) NIC catalog. Barbara Row, Jeanne North and Mil Jernigan checked proof, made corrections, and checked format. Dirk was too busy with administrative matters to lend assistance in this direction after this issue.

2g1j

Beau Hardeman - Beau was hired about the time that Dirk was assisting with the June 72 NIC Catalog, and was trained to run the programs by Walter Bass (who wrote the Catalog production programs) and Dirk. Beau ran the catalog programs to produce all subsequent catalogs, both NIC and Journal, until the final ARC XDOC Catalog production, 30 June 1974 issue, which was run by Mil Jernigan, with the assistance of Dave Maynard and Harvey Lehtman to correct (re-write) the programs where they would not work correctly.

2g1k

Walter Bass - The catalog production programs for processing (formatting) catalogs of the Journal, the XDOC/NIC/NAS, et al, collections were written by Walter Bass. Walter worked most of the time for about two years on this project, before he started working on the output processor and other programs.

2g1l

II. ACQUISITIONS

3

Buying

3a

Not many journals or serial publications were regularly on subscription at ARC before the expansion of the XDOC holdings under the RINS project. After inclusion of money for library-type purchases in the ARPA and ONR (RINS) contracts, Jeanne North actively scanned the publications lists for likely purchases within our fields of interest and ordered books and journals requested by others.

3a1

Mailing Lists

3b

Because of his wide acquaintance in the computer industry and academic world, Doug Engelbart was (and is) on a large number of mailing lists and this effort toward collection of material for the XDOC collection has always been actively pursued by him. In most cases the professional personnel of the group who found themselves on various mailing lists also contributed their material received in this manner to the collection (but this was not true of all).

3b1

In order to continue receipt of this type of material, it is necessary to take care to complete and return the occasional mailing list check-cards received along with the documents. This must be done if the collection is to continue. Someone in ARC should be assigned this task and the material received checked immediately on receipt for inclusion of mail-list checking inquiries. If the document and journal material received is simply tossed in a box (as is done as of this date, 8/4/74) without being looked at, the ARC XDOC collection will quickly evaporate.

3b2

In the past, Mil Jernigan, Carole Guilbault and Jeanne North actively looked for these renewal notices and took care that they were completed and mailed to the publishers. Whoever receives this type of mail should be assigned this duty in the coming period of only unofficial care for the library holdings, if the collection is to continue.

3b3

III. ACCESSION PROCESSING

4

Coding of Items

4a

General Philosophy of Catalog Coding

4a1

Coding is accomplished by handwriting onto code sheets (XDOC/NIC 10937) in red ink (more visible against the black printing) the information pertaining to each document. Information for coding purposes is taken from the document itself; i.e., the coder may know that there is additional information concerning the author, the project, etc. However, with few exceptions the coding is confined to the information given in the document. If additional material is obtained elsewhere to complete the coding (i.e., author when his name does not appear on the particular item in hand, date if known elsewhere, full source of a partial copy, etc), then the information used in coding and obtained elsewhere should be written on the document somewhere easily seen. Otherwise, the document and the coding will not match, perhaps causing confusion at some later date as to whether the document found is actually the one coded.

4a1a

Coding should be done in conformance with the meanings for codes as assigned in the Code Manual, see second half of the attached Appendix. The Code Manual attached should be the version used for any further coding and for determining the meaning and connotations of the codes used in the present database. Other copies of the Code Manual which may be found around the ARC site may have been changed and not be absolutely current. The attached copy has been carefully edited for this document and the meanings and implications as used in the actual coding of the material for the database are shown here.

4a1b

Every effort should be made in coding a document to ascertain the necessary information for its complete identification. If an item is received for coding which does not have the essentials (author, if any; title, source, paging if any; date or approximate date which may be explained in the abstract), then the incomplete

item should be held until the information is received which will make its inclusion in the database more meaningful. Often if the person who submitted the item for inclusion in the database is questioned or tactfully pressed, he can get or will assist the coder in finding the information necessary for at least a minimal entry.

4a1c

Work Flow of Catalog Coding Process

4a2

ACQUISITION SOURCES -- The general flow of material through the catalog coding process is somewhat as follows: Material is received from several sources: (1) Doug and others contribute material they receive in the mail or is handed to them; (2) material is ordered, for free or paid, and is received in the mail; (3) material is generated within SRI-ARC (documents written and published by SRI-ARC, or documents written here and journalized and considered of sufficient importance to catalog in the XDOC system (as well as being noted in the Journal); (4) material generated within SRI-ARC for which an online retrievable reference is maintained such as Doug's correspondence; (5) material generated within SRI-ARC such as video tapes, taped records of meetings, photographs made at ARC; (6) photocopies of journal, magazine, newspaper, and book chapter information made here and coded into the system; (7) SRI material from other departments, such as SRI reports and proposals sent to ARC. The material is contributed from all these sources and is gathered into one central "to-be-coded" area (either shelves or gathering- or in-boxes). From this central repository, material is taken for coding.

4a2a

Since inquiries are often received concerning something that has recently been contributed for the "coding bin", it assists in finding this material to have it physically located in some logical order. Therefore, the documents and stiff-standing material are placed on a closet shelf, sectioned by issuing organization or agency; i.e., all MIT Project MAC together, all BBN together, all SRI-ARC together, etc; and softer material such as single-sheet correspondence is gathered in a folder or in-box; while manufacturers' and vendors' brochures and advertising material (considered of lower priority for coding) is usually gathered in a box or section,

alphabetically by vendor name; books are gathered together alphabetically by author or editor's name but are coded as soon as possible,

4a2a1

"Collections" of material to be coded are kept in the following order: (1) by organization, the organization groupings on the shelf in alphabetical order; (2) by XDOC number order in a group for that material already assigned numbers for some reason; (3) books alphabetically by author; (4) vendor material, alphabetically by vendor or manufacturer's name; (5) Doug's correspondence, numerically by assigned number (would not have it unless a number had already been assigned, in all probability; if so, then by date).

4a2a2

CODING PRIORITIES -- Priorities are assigned for "first in line for coding" by the following order:

4a2b

1. Specific, and urgent requests for something to be distributed or coded "now".

4a2b1

2. Doug's numbered correspondence to which he is referring by number in some online work.

4a2b2

3. Rush orders of any material.

4a2b3

4. Books - it is assumed that if the book is ordered by someone and that expenditure of money is made, then it must be a highly desired item, and the book should be promptly coded and distributed. Sometimes a xerox copy of titlepage, LC number page (reverse of titlepage), contents page, foreward or preface, and abstract shown on jacket cover, is made and from this material the actual coding and abstract can be written. In this case, the book is labelled and given to the person who ordered it and coding and input can be done more leisurely.

4a2b4

5. Timely reports or material on subjects of

immediate interest,

4a2b5

6, Routine reports and documents of which record should be made, but not of immediate, burning interest,

4a2b6

7, Brochures and vendor material considered by Martin Hardy to be worth coding into the system if time permits -- much of this old material could stand "weeding out" and may not be relevant to cataloging at all,

4a2b7

8, Old material in the vault files that was added to the collection before the current online system was developed and which are not in the system at this time, A check of these number-order hardcopy files against a printout of the online database will readily show which documents are in this category,

4a2b8

CODE SHEET PREPARATION -- Code Sheets are handwritten from information in the material to be coded; the code sheet is attached to the document and the document with its sheet on front is then filed in numerical order in a box or basket ready to be audited and then input to the system, When a box of coded material is completed, it is given to the person who checks/audits the coding, It was found that much time and effort of correcting files was saved if this checking process was done at this point, instead of after the file was input online, If the document has not had an XDOC number assigned to it, then at this point the number is assigned by the person who audits the coding,

4a2c

It was found after considerable experimentation that if the code sheets are handwritten in red ball point pen, the input is faster and easier on the typist; items are not missed on the code sheets by either typist or auditer, It was also found that the handwriting of these code sheets is a necessary and, in the final analysis, a time-saving step: if input is attempted by the typist from the document itself, without a code sheet, then inevitably items of coding will be forgotten, incomplete, or incorrect and more

time is lost in the long run. Also, the person who proofreads and checks the input from the document/code sheets, will waste time in finding material, will miss items to be checked which the typist also forgot, and will make more corrections to the coding than if the code sheets were written and audited. Content of coding is discussed in the Code Manual attached to this document as the last Appendix.

4a2c1

INPUT TO CIT FILES -- Input to the catalog database is usually done in DEX, the offline recording system evolved at ARC. The material is typed from the coding sheets. The sheet after typing is complete on each item, is stamped with a rubber stamp in red ink, and information is entered in the small stamped form, giving date entered online, initials of typist, and name of online file in which the item is input (space is provided in the stamped form for auditer to insert his initials and date audited).

4a2d

Each item is input as a top level statement, with no substatements, and with no punctuation separations other than specified in the Coding Manual attached hereto. Each code field is separated by one space. Care should be taken that in no cases in any of the database should there be two adjacent spaces.

4a2d1

INPUT TO ONLINE INDICES -- During the time the ARPANET Network Information Center was in full operation, Special Interest Working Groups on the ARPANET issued "Group Notes". These were sent to the ARPANET NIC, reproduced there and mailed to the various mailing lists. A copy of the Group Note was then given to Mil Jernigan for hand input to the proper Group Note or RFC Index in ARC directory <NIC>, where it was available online to the group members or Network users.

4a2e

From this point the Group Note hardcopy entered the regular Catalog processing by being included as an item to be input through regular catalog processing, the only exception being that the document would already have had a number assigned, and from its history (which group, etc), the subcollection to

which it would belong was already determined, coding was normal, abstracts would be written, and the hardcopy would be sent to file in the normal way,

4a2e1

For details of input and handling of the online indices, see section below, Peripheral Files; Card Index Files, Online Indices, Archived Tapes; Online Indices and Group Notes - Handling and Input,

4a2e2

PROOFREADING AND CORRECTION -- Proofreading is usually done by the person who audits the records, It is done from an initial quickprint of each CIT file, then from the printout of the PROOFPROGS runs; again, when the CIT files are combined into the subcollection SOURCE files (See section below on CIT Files and Their Handling for details), a printout is obtained and checked for duplicate use of numbers (same number assigned to more than one item), for duplicate codings (same item with same number coded and input twice or coded once and input twice), and to the best of one's ability from "eyeballing" and memory, if an item is coded twice with different numbers, an attempt is made to watch for it,

4a2f

If to the uninitiate to cataloging processes, this seems an exhorbitant series of precautions, then as "an initiate" of a number of years, all I can say is that with even such care and precautions as are listed here, errors still creep through, There never has been and never will be an absolutely correct catalog or bibliographic reference system database; or, at least, if one ever occurs, it will be at a time in the future when mankind has evolved to a higher degree of capability than he now has,

4a2f1

Until after actual production of the catalog for which files are being input, and the files are then incorporated in the permanent database, it is well to keep record copies of the proofprints and subcollection SOURCE files printouts, They form convenient reference sources for many reasons and will be referred to many times until the catalog production of which they are a part becomes a fact and history, Periodically, after production runs are history, such printouts may safely be discarded,

However, if subcollection catalogs are being run periodically in a series (such as the NIC Catalogs), a complete and corrected printout of the subcollection SOURCE files (such as NICSOURCE) should be maintained for information concerning the next incremental catalog production run,

4a2f2

CREATION OF CARD INDEX -- After the CIT Files are proofread and corrected a quickprint of each file is made for creation of the Card Index file, see section on peripheral Files: Card Index Files, Online Indices, Archived Tapes; Card Index File, for Locating by "Filing Identity" for details,

4a2g

CATALOG PRODUCTION RUNS - The catalogs are produced by running a series of intricately nested programs on a copy of the database, For details of this process, see section below, IV, Catalog Program Processing,

4a2h

The final result of the Catalog processing programs is a set of masters, printed on the line printer, formatted to 120 characters per line and 95 lines per page, This master is then used to produce the actual catalog,

4a2h1

PHOTOREDUCTION CATALOG PRODUCTION -- The actual catalog is produced by using a Xerox 6000 with photoreduction capabilities, The line printer master is reduced x5, which brings it to proper size for printing on a regular 8,5x11 sheet of paper,

4a2i

This process at SRI-ARC is done at the SRI Reports Production Section, and was budgeted for and paid from funds for that purpose,

4a2i1

In the case of the NIC Catalogs, this document was considered to be one of the "Functional Documents" of the Network Information Center, New insert pages were produced, collated, three-hole punched, at the SRI Report Productions Section, and the new insert pages were mailed to the recipients (Station Agents, Liaisons, and Associates of the ARPANET) with a

letter of transmittal detailing corrections to be made in filing entries for the Functional Document and new Contents pages, and other pertinent information,

4a2i2

PERMANENT DOCUMENT FILES -- Input and maintenance of the online database and production of printed catalog formats and indices does not end the catalog process. The original documents themselves must be filed and maintained, found, used, and then returned to their proper places in the shelves and cabinets,

4a2j

For details of maintenance of the document files, see section below on Hard Copy Original Documents: Handling and Files,

4a2j1

Catalog Database - Portions, Naming Conventions, Versions, Handling

4b

The catalog online database may be considered to consist of the following distinctive portions:

CIT Files - new input which has not yet been used to produce a hardcopy formatted catalog or inserted into the permanent database,

A-SOURCE-# Files - Permanent and complete database storage files,

Subcollection "SOURCE" Files - A collection of items from various collections, files, directories, gathered into one set of sorted files and used as the database for a particular catalog production run,

"MIX" files - new input gathered into composite files ready for inclusion in the subcollection "SOURCE" files, and then used for catalog production runs,

Special purpose databases not part of the ARC XDOC collection, input for special purpose productions,

A CAT-FILERECORD,NLS; file in which is recorded the whereabouts, status, and contents of each part of the entire Catalog database in its various stages of

processing, handling, or storage.

4b1

A more detailed discussion is given below of each of these types of files.

4b2

A word on the concept of subcollections, such as the NIC subcollection:

4b3

The NIC subcollection of the XDOC database was used to produce several hardcopy published catalogs, published under the title "Current Catalog of the NIC Collection", which were distributed through the Network Information Center facilities to all NIC Station Agents, Liaisons, and Associates.

4b3a

To clarify the coding use of "*z2 NIC" in the online database and the use of a subcollection label on the hardcopy of "NIC", immediately below is quoted the information listed in the Coding Manual concerning the use of "*z2 NIC" in coding.

4b3b

*z2 SUBCOLLECTION --
Use to indicate status of an item as a part of one or more subcollections. Examples: NIC, NAS, NIC SHE, NIC NWG, CBI, SUR, NMN, PODAC, IR, or any of the Group Note indicators. Note: When an item is an ARPANET Special Interest Group Note, subcollections were coded as: NIC SUR, or NIC ASS, etc. The "NIC" was placed first, immediately after the "*z2" and the special distribution as a group note indicated next. When NIC is used in this field, it is placed after the *z2 since it was thought that sometime in the future this indication might possibly desired changed; in that case, the entire database can be "substituted" as "*z2 XX" for "*z2 NIC", making change easy.

SPECIAL NOTE: IN NO CASE does the "*z2 NIC" notation indicate that the document was or is the possession of a "NIC" (or Network Information Center) or that it was purchased from "NIC" funds, or that it is to be found anywhere other than in an online database notation in this field for ease of

automatically separating these particular items from the remainder of the database, It should be emphasized again: Items so coded DO NOT indicate that they "belong" to any organizational structure known either at ARC or elsewhere as the "NIC", or Network Information Center. The documents are the property and an integral part of the collection gathered by and at the direction of Doug Engelbart, SRI-ARC.

4b3b1

The Network Information Center has curtailed activities and ceased production of anything resembling a "NIC Catalog", However, at some time in the future it might be considered appropriate to substitute on the entire database the use of "*Z2 NET" rather than "*Z2 NIC", since the actual meaning of this subcollection usage in coding more nearly conforms to "Network" than to "Network Information Center", Coding of material into this subcollection was chosen from the point of view of:

4b3c

(1) Material relating to computer networks, computer network architecture, design, functions, and operation; telecommunications and communications networks; network theory; existing networks, particularly computer networks,

4b3c1

(2) Material of interest to the work of the various ARPANET Special Interest Working Groups; in their line of work; produced by members of those groups,

4b3c2

(3) Material of or relating to the ARPANET; written or produced by ARPA IPT or the people related thereto,

4b3c3

(4) The Group Notes issued by the ARPANET Special Interest Working Groups,

4b3c4

(5) Documents, articles, etc, published by the various nodes or sites on the ARPANET; i,e,, published by MIT Project MAC, Stanford University Computer Science Department, etc,

4b3c5

From this it may be seen that the collection will contain a wide scope of information on networking and networks, rather than the SRI-ARC Network Information Center, itself.

4b3d

"CIT" Files and Their Handling

4c

Naming of CIT Files

4c1

The naming convention for CIT (Citation) files is:

CIT-(ident of typist)-subcollection-identification of contents-identifying date,NLS;

4c1a

Example:

CIT-MEJ-NICNOTESAUG74,NLS;
CIT-JML-NICNOTESOCT74,NLS; or
CIT-JML-NONICNEW23AUG74,NLS;

4c1b

The identifier of "CIT-" should always preceed the typist's ident and the date (cutoff date). There probably would not be a reason for this format convention for naming filenames to be used by anyone else at ARC. So far, the term "CIT" has been the exclusive identifier of bibliographic citation input files for the catalog database. The date is the month of input, if the amount of input will be small enough that it will not be necessary to make more than one file a month; if input is heavy and a file is made up each week, then it was the custom to use the identifying date of the Friday which would be the cutoff date of input into that file.

4c1c

When input is being made for a number of subcollections and catalog processing is planned on a particular subcollection (e.g., the NIC Catalog productions), the CIT files can be further identified in some manner such as

CIT-JML-NIC-AUG74,NLS; or

CIT-JML-NICNOTES-AUG74,NLS;
CIT-JML-NICNEW-13AUG74,NLS; or
CIT-JML-NCNIC-13AUG74,NLS; or
CIT-JML-NAS-13AUG74,NLS;
CIT-JML-IR-OCT74,NLS; or
CIT-JML-DEIS-MAR74,NLS;

4c1d

If, for instance, a DEIS subcollection catalog is being contemplated, then inputting all the DEIS subcollection material and no non-DEIS material into files labelled as DEIS material will eliminate the step of having to run the GETDEIS,REL; program on the entire database in order to separate off a few entries.

4c1e

Online CII File Input

4c2

Entries are input into the system in NLS (usually through DEX) in the following manner:

4c2a

(D21091) *a1 Dorothy Shuford *a2 Jeffrey Stamen #2 org *b2 Massachusetts Institute of Technology #2 Cambridge Project #5 Cambridge, Massachusetts *c1 The Consistent System - User's Manual for the JANUS Prototype System #6 107p. *d1 Undated *f1 r mn *f2 o *s1 Advanced Research Projects Agency #3 Rome Air Development Center #6 DAHC 15-69-C-0347; F 30602-72-C-0001 *w2 4-5-74 *y1 The JANUS prototype is an operational system available to users of the Consistent System, implemented to test some new design concepts for handling and analyzing data typical of the behavioral sciences. This manual describes all available commands in the JANUS prototype. It supercedes the command descriptions given in the Beginner's Manual, August 31, 1972; however, the reader is assumed to be familiar with the introductory material presented there. *y3 Consistent System; JANUS; Cambridge Project; social sciences; users guides; behavioral sciences; information retrieval; *z2 DEIS *z3 new *z5 EPAC *

4c2a1

(A13490) *a1 Nancy J. Neigus #2 BBN-NET *b2 [ARPA Network Working Group] *b5 [ARPA Network Working Group] *c1 NWG/RFC 432 #1 Network Logical Map #6 2p.

*d1 29 December 1972 *f1 r *f2 o *r1 NWG/RFC 432 *w2 1-23-73 *z1 all *z2 NIC NWG *z3 new *

4c2a2

(A9995) *a1 D. R. Reddy *a2 C. G. Bell *a3 W. A. Wulf #2 org *b2 Carnegie-Mellon University #3 Computer Science Department #5 Pittsburgh, Pennsylvania 15213 *c1 Speech Recognition in a Multiprocessor Environment #6 8p. *c4 Proceedings IEEE Conference on Automatic Control, Miami, Florida *d1 December 1971 *d5 December 1971 *f1 r *f2 o *n1 9429 *n6 9996 9994 9993 9992 9991 9990 *w2 4-11-72 *y1 Discusses role of perception research in AI in task representations, data representations, and program organizations which will permit effective use of many sources of knowledge. Description of HEAR-SAY system, and CMU Multiminiprocessor system. *y3 HEAR-SAY; speech recognition; perception; multiminiprocessor; C.mmp; *z1 all *z2 NIC SUR *z3 new *

4c2a3

(A9994) *a1 D. R. Reddy #2 org *b2 Carnegie-Mellon University #3 Computer Science Department #5 Pittsburgh, Pennsylvania 15213 *c1 Speech Recognition: Prospects for the Seventies #6 14p. *c4 Proceedings of IFIP 1971, Ljubljana, Yugoslavia, Invited paper section, p.I-5--I-13 *d1 1971 *d5 [August 1971] *f1 r *f2 o *n1 9429 *n6 9996 9995 9993 9992 9991 9990 *w2 4-11-72 *y1 Discusses structure and organization of speech recognition systems, and considers a specific example, HEAR-SAY system developed at CMU. 21 references. *y3 HEAR-SAY system; speech recognition; *z1 all *z2 NIC SUR *z3 new *

4c2a4

(A9993) *a1 R. B. Neely *a2 D. R. Reddy #2 org *b2 Carnegie-Mellon University #5 Pittsburgh, Pennsylvania *c1 Speech Recognition in the Presence of Noise #6 7p. *c4 Proceedings of 7th International Congress on Acoustics, Budapest, Vol. 3, p.177-180 *d1 1971 *d5 1971 *f1 r *f2 o *n1 9429 *n6 9996 9994 9992 9991 9990 *w2 4-11-72 *y1 Presents the effect of 3 types of noise, teletype idling, teletype typing, and machine room noise, on a particular speech recognition system and discusses possible transformations on the speech to reduce degradation in recognition. *y3 speech recognition; noise; *z1

all *z2 NIC SUR *z3 new *

4c2a5

(A13323) *a1 Gordon A. Smith #2 Jet ProPulsion Laboratory #5 Pasadena, California *c1 Computer Training, Present and Future *c2 AFIPS Proceedings #1 Spring Joint Computer Conference, 1972 #2 Vol. 40 #6 p.77-101 *d1 1972 *d4 May 1972 *f1 g *f2 c *m1 American Federation of Information Processing Societies #1 Spring Joint Computer Conference *w2 1-22-73 *y1 A discussion of on the job training, equipment, furniture, hardware, and software, for instruction of JPL personnel in various facets of computer use, *y3 audio-visual training; teaching equipment; standardized ADP curricula; job descriptions; CAI; *z3 new *

4c2a6

(A13308) *b4 AFIPS Press #5 Montvale, New Jersey *c1 AFIPS Proceedings #1 Spring Joint Computer Conference, Vol. 40 #6 1225p. *d1 1972 *d4 16-18 May 1972 *f1 g *f2 o *m1 American Federation of Information Processing Societies #1 Spring Joint Computer Conference #5 Atlantic City, New Jersey *n2 10508 10509 10510 10511 *w2 1-17-73 *y1 Contains a section on the ARPANET, *y3 ARPANET; conferences; *z2 NIC *z3 new *

4c2a7

(A13313) *a1 Lawrence G. Roberts #1 Director, Information Processing Techniques #2 Defense Advanced Research Projects Agency #4 1400 Wilson Boulevard #5 Arlington, Virginia 22209 *b5 [Douglas C. Engelbart] #2 [Stanford Research Institute] #3 [Augmentation Research Center] #5 [Menlo Park, California] *c1 Memorandum for Principal Investigators #5 2p. *d1 18 December 1972 *f1 m *f2 p *n7 13528 - 13535; 13537 - 13551; 13552 - 13556; 13558 - 13564; 13566 - 13567; 13481; 13314 *w2 1-17-73 *y1 Personal invitation to attend the 1973 ARPA/IPT Principal Investigators' Conference, San Diego, 8-10 January 1973. Instructions for report; sets up agenda for conference, areas requiring papers. For list of invitees to conference, see 13314, *y3 ARPANET; IPT Conference; *z2 NIC *z3 new *

4c2a8

(A13328) *c1 Secret Test -- Chile Now Run By a

Computer *c2 San Francisco Chronicle #3 Section 3 #6 p.7 *d1 15 January 1973 *f1 a *f2 p *w2 1-19-73 *y1 The first computer system designed to control an entire economy has been secretly brought into operation in Chile, The system was designed by Stafford Beer, of London, Information is daily gathered from Chile's factories and mines and processed in a central control room to ascertain if production in any sector of the economy has varied significantly from pre-set norms, *y3 economy; large data bases; "Big Brother"; Stafford Beer; economic control; production control; controlled economy; *z2 NIC *z3 new *

4c2a9

(A13330) *a1 P, M, McManamon #2 U, S, Department of Commerce, Office of Telecommunications #3 Institute for Telecommunication Sciences #5 Boulder, Colorado *b5 J, A, Hull *b6 D, C, Crombie #2 U, S, Department of Commerce, Office of Telecommunications #3 Institute for Telecommunication Sciences #5 Boulder, Colorado *c1 Subject: Proposed Uses of the ARPA Network by OT/ITS #6 5p, *d1 29 November 1972 *f1 m *f2 p *n1 13329 *n6 13331 *w2 2-7-73 *y1 Proposes using ARPANET for: CATV system interconnection; the NBS/CCST, IBS, OT Joint Program; teleconferencing; NWS network analysis; mobile communications; tie in the proposed CDC 6600 computer with the ARPANET for increase memory facilities, *y3 ARPANET; *z2 NIC *z3 new *

4c2a10

(A13027) *a1 David C, Walden #2 BBN-NET *b2 [ARPA Network TIP Users Group] *b5 [ARPA Network TIP Users Group] *c1 TIPUG Note 1 #1 Distribution List #6 5p, *d1 1 December 1972 *f1 r *f2 o *r1 TIPUG Note 1 *y8 Updated by 13887; *z2 NIC TIPUG *z3 new *

4c2a11

(A9797) *a1 B, J, Mailloux *a2 J, E, L, Peck *a3 C, H, A, Koster *b1 A, vanWijngaarden *b4 Springer-Verlag #5 Berlin *c1 Report on the Algorithmic Language ALGOL 68 *c2 Numerische Mathematik #2 Vol, 14 #6 p.79-218 *d1 1969 *f1 a *f2 o *w2 3-8-72 *y1 First report on Algorithmic Language ALGOL 68, for publication by IFIP, under auspices of Technical Committee 2, and assisted by discussions with Working Group 2,1(ALGOL), for purpose of design

of common programming languages. The report represents one of the possible approaches, rather than a final answer. *y3 languages; metalanguage; universal software; ALGOL 68; techniques; software design; *z2 NIC *z3 new *

4c2a12

(A13000) *a1 William K. Pratt #2 University of Southern California #5 Los Angeles, California *c1 Digital Image Coding *c2 USC Engineer #2 Vol. 24 #3 No. 2 #6 p.26-31 *d1 December 1972 *f1 a *f2 p *w2 1-17-73 *y1 Human comprehension of information is limited to about 50 bits/second. Conventional television presents about 50 million bits per second. Methods of digital image coding are explored to reduce the number of code bits presented, permitting (a) individual images to be transmitted faster; (b) more parallel television channels to be transmitted through a communication link; or (c) a reduction of transmitter power requirements. *y3 digital coding; image coding; data channels; vision threshold; *z2 NIC *z3 new *

4c2a13

By a careful reading of the above illustrations and other portions of the catalog database, it can be noted that:

4c2b

(1) Do not use double spaces in the file. An efficient way to be sure that there are none is: after the file is finished and before the copy is made for proofreading, substitute text on Plex 1 of one space for two spaces until the reply is substitutions = 0. Do not insert a space in the beginning of the statement before the statement name; this will prevent proper handling both by NLS and the catalog programs.

4c2b1

(2) The information included in coding obviously varies to a great extent; however there are some code fields that the programs will not operate without. These are:

4c2b2

*c1 - If you are going to include an item in the collection, you must know what it is in order to

include it. If there is no title (as in a letter) then create one, such as: "Re: Appointment for a Visit to ARC on 15 August 1973". See the section below on TABOO CODINGS for information on formats and characters that the catalog programs will not allow. Regular English grammar rules apply in capitalization of titles.

4c2b2a

*d1 = If no date can be found or arrived at in some manner, use Undated.

4c2b2b

*f1 = A judgement has to be made (not always easy) as to what a thing is; i.e., a report, a brochure, a program, a book (hardbounds and pocketbooks are both coded simply as book), etc. Most miscellaneous material sent to or given to people at conferences, meetings, and the like, are often coded as brochures. The code identifier of "report" is also given a very wide context and is not limited to formal reports, but is used for much material of a general informative nature that is not in a regular letter or memo form. ARPANET Group Notes are coded as "r" for reports, in order that the catalog programs will pick up the item and present the information in the desired manner.

4c2b2c

*f2 = If an item is being coded, then one can (or must make an attempt to) decide what form the item consists of; i.e., mag cartridge, online file, photocopy, original as in an original letter (formal reports are coded original also), copy, etc. Note that some confusion often exists between "copy" and "photocopy". A formal report, such as an SRI or BBN report, was obviously reproduced by some report productions center somewhere from masters before it was bound and distributed. Yet, these reports are considered originals. A photocopy is a copy made by some photocopy process somewhere, such as Xerox, Minoltafax, 3-M, etc. It is impossible to look as a photocopy, say a xerox copy in one's hand, and know whether that copy was made at SRI, BBN, at a copycenter downtown, or where; therefore, the "Photocopy made at ARC" on the coding sheets is ignored in that "made at ARC" is ignored...a photocopy is simply coded "p" for

photocopy, regardless of who made it or where,
4c2b2d

*z3 new * - In order for the catalog programs to process the item, it must contain the coding "*z3 new *". The *z3 new is necessary, and any item must end with a * in order for the programs to be able to set their delimiters and operate on the item. Note that this final coding of each item must be one space and one * with no terminal spaces or other invisibles.
4c2b2e

(3) It will be seen above and found in some databases compiled for special purposes that the accessions number used in the databases as an NLS statement name (See items above repeated from the database, e.g., (A9797), etc) sometimes uses the text of (A1234) and sometimes is seen as (D1234), (M1234), or (X1234). This occurs because the processing programs for the NLS Journal process the number as (M1234), some entries were input for a special collection not belonging to ARC/NIC (for the Energy group) in which the accessions numbers were identified as (D1234), and in some cases very old entries were automatically processed as (X1234). An attempt has been made in the catalog database (the "A-SOURCE-#" files) to change the numbers uniformly to (A1234), the usual form of so-called "XDOC numbers" for the catalog. However, one or two may possibly have escaped notice. The catalog programs accept any capital alpha character in that position.
4c2b3

(4) In some of the earlier portions of the database, it will be found that the statement name (accessions number) is repeated; i.e., the entry will start: (A1234) (A1234) *a1 John J. Jones #2 org etc. This occurs because the first run of the catalog programs made on the database inserted a repetition of the statement name into the database. It was readily seen that several runs over the database would result in more content of statement names than information, so Walter Bass was persuaded to change the programs so that the database would not be altered by running the programs on it. However, the original "damage" had already been done and there has been insufficient time to go into the database and substitute a single

statement name for two statement names on each of the statements so changed.

4c2b4

(5) A particular online "style" or format has been devised for input of the ARPANET Special Interest Groups' Group Notes. See entries for (A13027) and (A13490), above. This is a compromise solution for a difficult problem in formatting and arrived at as an interim solution forced by the peculiarities of the catalog program formatting processes. In all cases of these Group Notes and RFC's, the authors and their organizations are shown in the regular manner; #2 org is not used at all; *b2 (issuing agency) is considered to be the Special Interest Group and is always used in the form of ARPA Network SUR Group, or ARPA Network Working Group, etc.; *b5 (addressee of a memo or letter) is used since the notes are in reality issued to the members of that particular group; and *f1 (what it is) is coded as *f1 r, in order that the programs will pick up the information and format it, using *b2 as the issuing agency (as if the item were a report). Note that the author(s) actually do have a professional affiliation other than the agency issuing the note; by coding in this manner, the author(s)' affiliation is used in addition to the notation of the fact that the Special Interest Group is the issuer of the note. This is not a perfect solution, but is in effect through 30 June 1974. Also note: *z1 all is always used for RFC coding, up through 30 June 1974, since *z1 all means that NIC made distribution of copies to all Station Agents, Liaisons, Principal Investigators, and Associates. Other Group Notes were not so distributed; but instead to the Group membership.

4c2b5

(6) TABOO CODINGS:

4c2b6

IMPORTANT!!! DO NOT ever, anywhere, use a tab (CNTRL-i) in the catalog database, files, or processing. That is a NO! NO! The entire catalog database, production, and processing is done without one single tab. PLEASE keep it that way if you want to stay out of trouble!

4c2b6a

Entire database - Do not use * or # in the coding itself. These characters are reserved for field delimiters. Do not use &, {, }, two spaces, a carriage return, a line feed, a null, any control characters in the database.

4c2b6b

*c1 - Will not accept a quotation mark, single or double, in this field. May use (,), [,], ,, ;, :.

4c2b6c

Input all items at top level and do not use any other level in the file. Do not input any statements in a CIT file except coded items; i.e., do not insert any instructional statements in the file, since the programs will attempt to process every statement except statement zero. If any instructions, notations, reminders, etc are necessary, append them to statement zero.

4c2b6d

If field *f1 is left out, the programs will pick up *c1 and repeat it twice as the title in the Number Index, Titleword Index, Author Index, and presumably the Organization Index.

4c2b6e

If *f1 is coded a and no *c2 is used, the programs will print in the Number Listing a self-generated statement "Comprehensive source document not given", which is discomboberating, to say the least. If you have an article and don't know where it came from, falsely code it as p or r or something besides a or the Number Listing will look pretty odd. Walter Bass was requested many times to take this "editorial comment" from the program, itself, out of the program, but he never would do it.

4c2b6f

If a report (*f1 r) has a personal author (*a1) and the source is listed as *b2 Organization, Inc, etc, and the *a1 coding does not have #2 org under it, the programs will insert a self-generated statement in the Number Listing something like "Organization not Listed", yet list the organization taken from *b2 in the normal manner.

Again, discombooberating! Caution: Remember to code *a1 --- #2 org *b2 Blap Inc, when *f1 is r and there is a personal author.

4c2b6g

Be careful to follow exact format and style in the *d1 field. If, for instance, the date is given as 23-26 May 1973, then the indices will be processed showing in the date column: 23-, and that is all. Even though the code manual instructs to pick up the exact date and that a format like given here can be used, when the catalog programs run over the database, they bomb out on that type entry.

4c2b6h

With names like Dirk H. Van Nouhuys, input as Dirk H. VanNouhuys or the catalog programs will skip the Van and list his entry alphabetically under the N's as Nouhuys. With names such as van der Houten, there is no recourse but to input as vanderHouten, allowing the correct alphabetization of the name under the V's. For a name such as de Solla y Pool, use a form such as deSolla-y-Pool. Looks pretty odd, but at least gets the whole last name picked up and put in the correct alphabetical context. An attempt has been made to go over the entire database and make all such changes, but there may have been a few which have slipped by. It might be well for future catalog production processing to know that apparently in the last (30 June 1974 XDOC ARC catalog) production runs, it was noted that an entry appeared in the author index for Jr. and II where those are part of the last names. It is assumed that the actual last name of these entries was not picked up and does not appear in these author indices. It would be well to look at the processing programs in CPPPROG under the XDOC section to see if the programs should be corrected. Walter made this correction for the NIC runs, but apparently did not correct the other portions of the program.

4c2b6i

Do not at any time input a name such as A.T.Bell, or A.T. Bell, without using spaces between the A. and the T. Exception to this spacing is Washington, D.C., which is input without a space

between the D, and C,

4c2b6j

Spell out the sponsor in *si field if the name is known,

4c2b6k

Proofreading and Correcting of Online CIT Files

4c3

NOTE: All printouts of proofreading copies and proofprogram printouts should be retained, untorn, in their wide-paper format, and stored in the blue plastic binders such as those retained in Mil Jernigan's (Jeanne Leavitt's) office, Record copies of all edit-marked copies of these files should be maintained, with all printouts of a particular file filed together, thereby making a complete record of the file and its contents at various stages, This is insurance: computers have been known to have drastic failures with data losses, In such case, there at least would be a current printout of the various stages, enabling a reconstruction of the database, and enabling various full-dump file recoveries to be identified, including corrections made to them, After a Catalog run, updating, storing of a compiled and completed new database on a checked mag tape, it might be considered possible to discard these printouts, However, it is recommended that they be kept for at least one catalog processing increment back beyond any given point, The handlers of this database have been very thankful in the past that this has been the rule,

4c3a

After a CIT file has been input to its intended capacity, it should be sorted by statement name (accession number) in reverse order (largest number on top; smallest last; use sort program NUMBNAMER,REL;), and a quickprint obtained with viewspec myw, This is proofread against the hardcopy material and coding sheets to ascertain (a) correct typographical content of online entry, and (b) correct coding, Even though the coding sheets were checked before inputting, both coder and auditor at that time may possibly have missed something, have an incorrect understanding, or have learned since that time of some new information or program incompatibility, necessitating changes to the online entry,

4c3b

After proofreading and marking the printouts, the online file should be edited (corrected), and the proofprint checked, showing the correction was made. In handling large and complex databases, these small steps are very necessary to ensure that all steps are properly done.

4c3c

After making corrections from this original proofing and reading, then the file should be run through the set of programs called "PROOFPROGS" in <CAT-PROGRAMS>, see listings in CPPTABLES. These programs are designed to assist checking for correct field entries. It is very difficult to proofread the printouts, checking for this type of entries; one becomes accustomed to seeing things like *c1 and *a1 and the mind does not really register a deviation very well and typos in this area slip by. The PROOFPROGS print the XDOC number of the item and the contents of its field in blocks, or sections, set up by field alone (all the *a1's listed in order, the *a1 #2's in order, etc). If an improper type of content is in a field with this type of printout, it is very easy to spot.

4c3d

When corrections of errors spotlighted by the PROOFPROGS have been made, a quickprint of the file should be obtained, showing it in its correct version, and all proof prints with the corrected print on top should be filed in the big blue binders with a divider to show the name of the file.

4c3e

It is very important to keep copies of these files; if the file should accidentally be lost, those printouts are the only record of the entries. In addition, when checking to find (a) if an item has been coded; (b) if coded, where it is; (c) size and content of files for next catalog; (d) information on online database for various reasons, such as possible informative bulletins or announcements of new accessions, bibliographic input, etc., the quickest source of information is the printouts of these in-process online files. The last catalog issued is a record of completed work; the stacks of material in the coding bins can give information on items still to be entered into the system, but printouts of the online files not yet made into catalogs are the only source of information on material in this stage of

processing,

4c3f

File Copies of Online CIT Files for Card Index File

4c4

When the CIT files have been proofread, corrected, and proofprints from the PROOFPROGS runs have been checked and any corrections made, a quickprint of the CIT files should be obtained for creation of the cards for the 5x8 card index maintained in the cardboard boxes in the hall outside J2025,

4c4a

For details of this file see entry below under "Peripheral Files",

4c4b

Corrections to Coming Catalog Database After CIT File Proofing and Before Catalog Runs

4c5

As can be seen from discussion immediately above, once a cutoff date for a catalog processing run is reached and the finished CIT files are picked up and included into a "mix", or combined, file for use in catalog processing, the individual CIT files are then archived and assumed only "a matter of history". From that point until the current catalog processing is completed and the "mix" database is included into the A-SOURCE-# files for permanent storage, the "mix" files are the matter of immediate concern and the important repository of that interim database. During this time, it always happens that some correction to the database is decided upon: a duplication hitherto unfound is spotted, an item is found to have been already coded and included in past catalogs, a name is found to be wrong, duplicate numbers assigned -- some correction of some kind seems always to be decided upon,

4c5a

These corrections must be made on the "mix" files themselves, a new version brought up, and the new version marked "ARCHIVE - Don't Delete", and the new version used for the catalog processing,

4c5b

It is not important to correct the CIT files which have

been already archived and deleted. The File of Record, the permanent record to be, is now the "mix" file. In case of any restoration of database in the event of a disastrous crash, it is well to keep this in mind: the usable database will not necessarily exactly match the old, archived CIT files. Therefore, it is advisable to always Archive the current and presumably correct version of the "mix" files, each time a new version is made, enabling recourse to Archive System in case of file loss.

4c5c

CAT-FILERECORD.NLS; - A Record of Catalog Database File Whereabouts

4d

Because of the multiplicity of directories, people who work on various tasks, "free-form" file naming conventions and ephemeral environment of the online files (Archive swallows them regularly!), it is very easy for a citation file to be input to the system, the hardcopy original material sent on to file, and the online file to be overlooked, the wrong version kept, the file to be renamed and duplicated under either two names or two versions causing duplicate entries when the file is picked up for the catalog database -- you name it, it has happened!

4d1

To be able to accurately keep up with CIT files, know where they are, how much data is being input for coming catalogs, which is the correct version to pick up, and avoid duplications, a convention has been worked out for recording the existence, status, and whereabouts of CIT files from the time of their creation, through their use in a new catalog, and on until the entries are properly disbursed into the permanent database.

4d2

An online file is created in the central catalog database-handling directory (whichever that is), such as the following imaginary file whose entries should be studied for their relationships:

4d3

<CATALOG>CAT-FILERECORD.NLS;X

4d3a

Permanent Catalog database storage files for Catalog

production as of 4/4/74 were A-SOURCE-#.NLS;11, and NICSOURCE-A.NLS;3 and NICSOURCE-B.NLS;2, all archived in directory <CATALOG>. No corrections need be made to either A-SOURCE-#, Version 11, or the NICSOURCE files. Date: 4/8/74, MEJ

4d3a1

Files input prior to cutoff for NIC Catalog on 31 March 1974 have been inserted into the catalog permanent database, A-SOURCE-# files, as of 4/4/74 - (initials of person responsible for maintenance of the database).

4d3a2

CIT FILES INPUT AFTER LAST CATALOG PRODUCTION AND NOT INCLUDED IN PERMANENT DATABASE ARE:

4d3a3

<JERNIGAN>:
CIT-MEJ-NONICAUG74.NLS;x - Incomplete; not to be included in 31 July 74 cutoff material to be included in main database, A-SOURCE-# files; to be disbursed into A-SOURCE files in next increment.
CIT-MEJ-NICNOTESAUG.NLS;x - Incomplete, not to be included in July 74 NIC catalog processing.
CIT-MEJ-NEWNICJUN74.NLS;9 - Closed and corrected; ready for catalog processing - (date)
CIT-MEJ-DEISJUL74.NLS;4 - New DEIS material, not to be used in NIC or XDOC catalogs, -- NOTE: This is a special project, not part of any other catalog processing or databases! -- closed and corrected (date) - MEJ
CIT-MEJ-NONIC-OLD-JUNE.NLS;6 - Non-NIC material from old files; closed and corrected (date) - Use in XDOC catalog processing but not NIC processing. - MEJ
CIT-MEJ-NICGROUPNOTES-JUN74.NLS;5 - closed and corrected (date) - MEJ
CIT-MEJ-NICGROUPNOTES-JUL74.NLS;7 - closed and corrected (date) - MEJ

4d3a3a

<ROW>:
CIT-BER-NICNOTESAUG74.NLS;x - Incomplete; not to be included in 31 July 74 cutoff material for July NIC Catalog processing.
CIT-BER-NONICAUG74.NLS;x - Incomplete; not to be included in 31 July 74 cutoff material to be

included in main database; pick this file up for later inclusion in next increment.
CIT-BER-NEWNICJUN74,NLS;2 - Closed and corrected; date - BER
CIT-BER-NICOLDSTUFF-JUNE74,NLS;8 - Old material from vault; closed and corrected (date) - BER
CIT-BER-NICGROUPNOTES-JUL74,NLS;2 - closed and corrected (date) - BER

4d3a3b

<CATALOG>:
Picked up CIT files in <JERNIGAN> and <ROW> on 8/2/74 and combined them into catalog processing files as follows:

4d3a3c

<CATALOG>:
CIT-MIX-NICCATALOGSTUFF,NLS;7 - Contains:
  <JERNIGAN>CIT-MEJ-NEWNICJUN74,NLS;9
  <JERNIGAN>CIT-MEJ-NICGROUPNOTES-JUN74,NLS;5
  <JERNIGAN>CIT-MEJ-NICGROUPNOTES-JUL74,NLS;7
  <ROW>CIT-BER-NEWNICJUN74,NLS;2
  <ROW>CIT-BER-NICOLDSTUFF-JUNE74,NLS;8
  <ROW>CIT-BER-NICGROUPNOTES-JUL74,NLS;2

4d3a3d

Note for above CIT-MIX-NICCATALOGSTUFF,NLS;7 file: Not combined with increment of NIC material from last NIC catalog; obtain NICSOURCE-A,NLS; and NICSOURCE-B,NLS; from <CATALOG> Archive; combine with this file, sort using NUMBNAMER,REL; and use for database processing for the 31 July 74 NIC Catalog. Make note here when this process has been completed. 8/2/74 MEJ

CIT-MIX-DEISCATALOGSTUFF,NLS;3 contains:
  <JERNIGAN>CIT-MEJ-DEISJUL74,NLS;4 -- NOTE: Special project, do not include in non-DEIS databases!

CIT-MIX-XDOCGENERALSTUFF,NLS;1 contains:
  <JERNIGAN>CIT-MEJ-NONIC-OLD-JUNE,NLS;6
  <CATALOG>CIT-MIX-NICCATALOGSTUFF,NLS;7

NOTE: The last incremental version of the A-SOURCE-# files is Archived as Version 11; i.e.,

A-SOURCE-0001-0499,NLS;11, etc.

When current catalog processing is complete, the completed increment of new database through cutoff date of 31 July 1974, (i.e., CIT-MIX-XDOCGENERALSTUFF,NLS;1 shown above) should be combined, sorted with NUMBNAMER,REL; and disbursed into the proper A-SOURCE-# files, sorted in order, brought to Version No. 12, and Archived as A-SOURCE-#,NLS;12.

4d3a3e

Note that in the above printout of an imaginary CAT-FILERECORD file, both "Jernigan" and "Row", two of the people obviously inputting database files, have files which are not included in the "MIX" files. These "MIX" files are, as will be seen from the list of their contents, combined CIT files of a particular character of content, pooled and made ready (sorted in reverse numerical order using NUMBNAMER,REL; and checked to be sure there are no duplicates) for further combination with any applicable subcollection "SOURCE" files (like NICSOURCE). The combined new SOURCE file (the old SOURCE file plus the new input in the MIX file) is used for processing by running the catalog processing programs over them to produce formatted indices and printout masters. The "Jernigan" and "Row" files not included in those "MIX" files were started after the cutoff date of a new NIC catalog (to be seen from the above as 31 July 1974), and are shown in the above record as files not yet complete and, therefore, destined for some future catalog processing, not the current one.

4d4

As soon as the completed CIT files are picked up and included into a "mix" file for catalog processing or inclusion into the permanent database, the CIT file should be marked for Archive and deletion.

4d5

By a strict adherence to a naming convention and to listing the existence, status, and whereabouts of CIT files from their creation to completion and use, this complex operation covering efforts of many people can be maintained in good order. The success of the operation will be in direct relation to the care of the participants in keeping this record current and correct.

4d6

A-SOURCE-# Files

4e

The permanent, complete database on which all information is considered to be finished, is the so-called A-SOURCE-# files. These files are maintained in controlled versions; i.e., all files are maintained with the same version number, and that version number has a meaning. For instance the A-SOURCE-# files, Version 8, were the database at the time the NIC Catalog of 30 June 1973 was made. Version 9 of the A-SOURCE-# files is the Version 8, (basic database of 30 June 1973) plus the new material and corrections included in the 30 June 1973 NIC Catalog. Version 10 was an interim version including some corrections partially made to the permanent database in the Spring of 1974 and Version 11, the current permanent database version as of the writing of this document, is the version on which the ARC XDOC Catalog was run as of 30 June 1974.

4e1

Version 10 was only partially archived (and that by accident), while Version 11 is completely archived in <DOCUMENTATION>, and is the version taped in both NLS files and ASCII files from the directory <TEMP-CAT> (tapes given to Doug Engelbart, Jake Feinler, and to the permanent ARC Archive tape files). Further catalog processing and handling of the database will use Version 11 as a starting point.

4e2

The maintenance of this database with the same NLS file version number throughout the many files in the database, is important. In this manner one can know exactly the status of contents of any A-SOURCE file found, and whether that particular version/file is usable and for what purposes it has been used.

4e3

A-SOURCE-# files are named in increments of 500 numbers; i.e., the present highest-numbered A-SOURCE-# file is A-SOURCE-23000-23499,NLS;11. The next A-SOURCE-# file to be created would be named A-SOURCE-23500-23999,NLS;x, where x is the Version number of the next full, and official-use version of the A-SOURCE-# files, presumably Version 12, since Version 11 is the current version. By adhering to a naming convention in increments of 500 numbers, the files have a logical progression of identifiable names and the highest total number of statements possible in any one file

is 500, since numbers are taken from the XDOC number sequence for all purposes, in actuality, no file will ever be that large.

4e4

Files Containing the Catalog Database

4e5

The following citation files (catalog source files) contain the catalog database, and are Archived in directory <DOCUMENTATION>. The NLS version is Version No. 11, the final version, completed as of June 24, 1974. The series of files named SEQ-#-#.TXT;1 etc, are sequential files of this same database, created through output sequential and prepared for taping and taking offline.

4e5a

Note that this series of files contains the catalog citations known locally as "XDOC" citations, and does NOT contain the Journal material, with the exception of some few hand inserted early Journal items, repetitions of chosen items from the actual Journal entries.

4e5b

A-SOURCE-0001-0499,NLS;11
A-SOURCE-0500-0999,NLS;11
A-SOURCE-1000-1499,NLS;11
A-SOURCE-10000-10499,NLS;11
A-SOURCE-10500-10999,NLS;11
A-SOURCE-11000-11499,NLS;11
A-SOURCE-11500-11999,NLS;11
A-SOURCE-12000-12499,NLS;11
A-SOURCE-12500-12999,NLS;11
A-SOURCE-13000-13499,NLS;11
A-SOURCE-13500-13999,NLS;11
A-SOURCE-14000-14499,NLS;11
A-SOURCE-14500-14999,NLS;11
A-SOURCE-1500-1999,NLS;11
A-SOURCE-15000-15499,NLS;11
A-SOURCE-15500-15999,NLS;11
A-SOURCE-16000-16499,NLS;11
A-SOURCE-16500-16999,NLS;11
A-SOURCE-17000-17499,NLS;11
A-SOURCE-17500-17999,NLS;11
A-SOURCE-18000-18499,NLS;11
A-SOURCE-18500-18999,NLS;11
A-SOURCE-19000-19499,NLS;11

```
A-SOURCE-19500-19999,NLS;11
A-SOURCE-2000-2499,NLS;11
A-SOURCE-20000-20499,NLS;11
A-SOURCE-20500-20999,NLS;11
A-SOURCE-21000-21499,NLS;11
A-SOURCE-21500-21999,NLS;11
A-SOURCE-22000-22499,NLS;11
A-SOURCE-22500-22999,NLS;11
A-SOURCE-23000-23499,NLS;11
A-SOURCE-2500-2999,NLS;11
A-SOURCE-3000-3499,NLS;11
A-SOURCE-3500-3999,NLS;11
A-SOURCE-4000-4499,NLS;11
A-SOURCE-4500-4999,NLS;11
A-SOURCE-5000-5499,NLS;11
A-SOURCE-5500-5999,NLS;11
A-SOURCE-6000-6499,NLS;11
A-SOURCE-6500-6999,NLS;11
A-SOURCE-7000-7499,NLS;11
A-SOURCE-7500-7999,NLS;11
A-SOURCE-8000-8499,NLS;11
A-SOURCE-8500-8999,NLS;11
A-SOURCE-9000-9499,NLS;11
A-SOURCE-9500-9999,NLS;11                                    4e5b1

SEQ-0001-0499,TXT;1
SEQ-0500-0999,TXT;1
SEQ-1000-1499,TXT;1
SEQ-10000-10499,TXT;1
SEQ-10500-10999,TXT;1
SEQ-11000-11499,TXT;1
SEQ-11500-11999,TXT;1
SEQ-12000-12499,TXT;1
SEQ-12500-12999,TXT;1
SEQ-13000-13499,TXT;1
SEQ-13500-13999,TXT;1
SEQ-14000-14499,TXT;1
SEQ-14500-14999,TXT;1
SEQ-1500-1999,TXT;1
SEQ-15000-15499,TXT;1
SEQ-15500-15999,TXT;1
SEQ-16000-16499,TXT;1
SEQ-16500-16999,TXT;1
SEQ-17000-17499,TXT;1
SEQ-17500-17999,TXT;1
SEQ-18000-18499,TXT;1
SEQ-18500-18999,TXT;1
SEQ-19000-19499,TXT;1
```

```
SEG-19500-19999.TXT;1
SEG-2000-2499.TXT;1
SEG-20000-20499.TXT;1
SEG-20500-20999.TXT;1
SEG-21000-21499.TXT;1
SEG-21500-21999.TXT;1
SEG-22000-22499.TXT;1
SEG-22500-22999.TXT;1
SEG-23000-23499.TXT;1
SEG-2500-2999.TXT;1
SEG-3000-3499.TXT;1
SEG-3500-3999.TXT;1
SEG-4000-4499.TXT;1
SEG-4500-4999.TXT;1
SEG-5000-5499.TXT;1
SEG-5500-5999.TXT;1
SEG-6000-6499.TXT;1
SEG-6500-6999.TXT;1
SEG-7000-7499.TXT;1
SEG-7500-7999.TXT;1
SEG-8000-8499.TXT;1
SEG-8500-8999.TXT;1
SEG-9000-9499.TXT;1
SEG-9500-9999.TXT;1
```

4e5b2

Corrections to A-SOURCE-# Files Between Catalog Production Runs

4e6

Sometimes, usually through a decision to change coding of a class of items/entries, it is decided to make a number of changes on the A-SOURCE-# files, not involving simply adding new entries from recent input,

4e6a

When this is done, the record printout of the current version of A-SOURCE-# files is marked in red pencil for the editing to be done, the files are read online from Archive, and someone makes the online edits, The files are all then updated to a new version number consistent in all the files, printed in their entirety for a new hardcopy record printout, and re-Archived in the new version number. This new version is then used in future catalog processing.

4e6b

It must be kept in mind in such cases that incremental

catalog processing of subcollection "SOURCE" files may be hampered, If there are a small number of corrections, it is feasible to make the corrections in the A-SOURCE-# files, bringing them up to a new version, as mentioned above; then, have the Subcollection "SOURCE" files also read online and repeat the same corrections in these files, re-Archiving them in their new Version number also, in order that future subcollection catalog processing may use the corrected database, If there are many corrections, it is wisest to spend the effort on the A-SOURCE-# files, bringing them into peak condition, then run the GETNIC,REL; files (amended to "get" whatever the subcollection is) over the entire database, creating a new subcollection "SOURCE" file from the corrected material, This new SOURCE file should then be identified with a new and higher version number than previously used for that subcollection SOURCE file name, and re-Archived,

4e6c

Notations concerning any actions of this type should always be made in the CAT-FILERECORD file in order that each person working on the database can apprise himself of the status of any of the database at any time, These entries must be made promptly and clearly in order that mistakes in handling the database can be avoided,

4e6d

NICSOURCE, DEIS-SOURCE, and Other "Source" Files

4f

When processing is begun for a particular catalog production, the database must be approached from the point of view of that portion of it which is desired for use in that particular catalog,

4f1

If the catalog to be produced is an ARC XDOC Catalog, then, of course, the entire database is used which belongs to the ARC XDOC collection, This database includes such sub-collections as NIC, NAS, IR, DCE (Doug's correspondence), HARDWARE, RFC's, etc, In this case, the entire new material is combined, sorted, and interspersed in the current version for the A-SOURCE-# files; a new permanent version is made; copies of this new A-SOURCE-# file version are pulled off into a "SOURCE" file (named something like A-SOURCEMIX-A,NLS;, A-SOURCEMIX-B,NLS;, etc, for as many files as are needed because of the NLS file

size limitations); the files are carefully maintained in numerical order; and the catalog processing programs are run on these copied files. (Never run the catalog processing programs on the actual permanent A-SOURCE-# files themselves; too many system slips between the cup of intent and the lip of disastrous crashes to take chances on losing the permanent files themselves.)

4f2

However, it should be noted that the cataloging processes, facilities, and programs have been used to produce databases and catalogs that were in no way a part of the XDOC collection. The DEIS (Energy Group) catalog is a case in point. This database will not at any time become a part of the XDOC collection or be included in the A-SOURCE-# files. There have been one or two other databases in the past of similar nature and purpose.

4f2a

If the catalog to be processed is, for instance, a new NIC catalog, one of a continuing series, then there will be a NICSOURCE file archived that was used in the last NIC catalog. If no corrections have been made to the permanent database (the A-SOURCE-# files) since the last NIC catalog was run (or if any corrections were also made to the NICSOURCE files and they were re-Archived under new version numbers, making the corrected files retrievable -- note that all this type of information must be recorded in the CAT-FILERECORD file mentioned above), then the latest version of the NICSOURCE files can be retrieved from Archive, combined with the CIT-MIX files of the new input, sorted, checked for duplicates and any corrections, and then used for the database to be processed for the new NIC Catalog production.

4f3

If too many corrections were made to the A-SOURCE-# files since the last NIC catalog run to make feasible the correction of the NICSOURCE files (duplicate operation with possibility of increeping errors), then it would be best to incorporate the entire database into one set of A-SOURCE-# files, bring up a new version number (to then be Archived and recorded), and run the Catalog processing program called GETNIC.REL; on the entire database. This REL file checks in the *z2 subcollection field, and if the entry is coded for the subcollection of "NIC", then it copies that entry into a new file for use in later processing. In this

way a fresh and correct database for NIC Catalog processing is derived.

4f4

Care must be taken to record in the CAT-FILERECORD file the history of these files, where Archived, what the current version for subsequent use may be, corrections to be made and where they may be found, etc.

4f5

In the case of a special database catalog, such as the DEIS collection, then of course that material is collected and copied into a "DEIS-SOURCE" file, and used for processing for that special catalog.

4f6

Peripheral Files: Card Index Files, Online Indices, Archived Tapes

4g

Card Index File, For Locating by "Filing Identity"

4g1

The alphabetical card index file stored in cardboard filing boxes on the two long tables in the hall across from the door to J2025 is a filing entry listing of material in the XDOC collection. (No cards are there for material not coded and input as a part of the XDOC collection; i.e., special purpose databases, not a part of ARC XDOC holdings such as DEIS collection, do not have cards in that card file.) The cards are made up by cutting each coded item from a printout of the proofread and corrected database "CIT Files" (See description of CIT Files in Section III, Accession Processing, above) and pasting that printed entry onto 5x8 green unruled index cards. Items in this card file are filed under the first major entry in the coding of each particular item, For example:

4g1a

(1) If the item is a piece of literature (report, document, reprint, chapter of a book, etc.) and has a personal author (a person who wrote it), then the coding will take the form of

(accessions number) *a1 Firstname Q. Lastname #1 Position Title etc

4g1a1

In this case, the card would be filed alphabetically under the "L's", for "Lastname", the author's last name. In the event that someone has an unmarked copy of this item and wants to determine if another copy has already been coded into the catalog database, a glance at the document will show the author's last name, "Lastname", and a check of the card file for a card under Mr. F. Q. Lastname will show whether or not that item has been accessed into the collection.

4g1a1a

(2) If the item does not have a personal author, but rather, a corporate author (i.e., a document or report issued by a company but with no personal author name on it), then the coding would take the form of

(accessions number) *b2 MITRE Corporation #5 McLean, Virginia *c1 etc

4g1a2

In this event the card would be filed under the "M's" under the entry of the corporate author, MITRE Corporation. A glance at the document would show only a corporate author, therefore the person searching the card file would obviously check for entries under "MITRE Corporation", the corporate author.

4g1a2a

(3) In the case of a book with no personal or corporate author, but only a publisher (this does sometimes occur, particularly with Parker Publishing Company), the coding would be

(accessions number) *b4 Parker Publishing Company *c1 Title etc

4g1a3

The card would be filed under the "P's", Parker Publishing Company.

4g1a3a

(4) Occasionally an item from a newspaper is coded into the database which does not have a corporate author or corporate publisher and no personal author.

The coding in this event would take the form of

(accessions number) *c1 Title of Article *c2 San Francisco Chronicle #2 Vol, 126 #6 p,24 *d1 23 June 1971 etc

4g1a4

Having no other means of filing, this card would be filed under the first word of the title, in this case in the "T's", for "Title",

4g1a4a

The purpose of this card file is not to record every author or authoring entity, but rather to provide a means of ascertaining whether or not an item has been coded into the database, or is held in the collection. This is to prevent duplicate codings, expensive of computer resources, salaries, and available time spent in upkeep of the cataloging system in general,

4g1b

No effort is made to cross file items by plural authors or other information, with the exception that some few cross index cards are filed under "Douglas C, Engelbart" and under "SRI-ARC" as a convenient method of finding all the SRI-ARC reports and documents. In this case DCE's name is handwritten above the pasted-on entry, and the card is marked in ink as a cross-file entry. The printed information shows immediately the correct filing entry for the original card,

4g1c

Care should be taken to ensure that a printout of each CIT (or input) file is made as soon as it is proofread and corrected and that printout is cut and pasted on cards to be added to the card file. As little delay as possible should be allowed in getting the cards prepared and filed, since the time of greatest occurence of duplication of effort is when items are first received,

4g1d

The time lag between receipt of several isolated copies of a document and getting cards made and filed leaves a hiatus in the records during which many duplications can occur. Because of this, it is wise to keep the unfinished CIT files sorted in numerical order and check new entries to be coded against a oneline printout of the unfinished, interim files. Extra work in

duplications can often be eliminated by this handling.
4g1e

When the printout of the CIT file has been cut into strips containing one item of coding per strip, and pasted onto cards; the cards are filed in the cardboard boxes. In conformance with usual library practices, the cards should be filed on end (sticking up from the remainder of the file) and the auditer should check the filing of the cards before lowering them into the file.
4g1f

Standard ASLIB library filing practices are followed in filing the cards, just as in any library catalog file. The only exception so far followed in this file is that the "Mc's" are not filed in strictly alphabetical order with the "M" section, but are filed behind the regular card index tab card for Mc. Other instances follow ASLIB procedures; i.e., even though the name is John J. Smith (and not Smith, John J.) the card is filed under the S's as Smith; an organization known as the John J. Smith Company, Inc. is filed under the S's, as if it were written as "Smith, John J., Company, Inc."; the words "The", "A" are ignored in a filing entity when they are the first words (i.e., The MITRE Corporation is filed under the M's for MITRE, and not the T's for The).
4g1g

Authors' names appear, as is always true of this type of material, in every conceivable form: John Joseph Smith, J. Smith, J. J. Smith, John J. Smith, J. Joseph Smith, etc. If the person can be identified as the same person, the cards for John Joseph Smith and John J. Smith, etc, will be filed together, even though the actual printout of the name on a particular card may not be complete.
4g1h

In a block of cards of the same author or filing identity, the cards are filed in numerical order with the lowest number in front and the highest in the back.
4g1i

The greatest care should be taken to ensure that cards do not disappear from this file. If someone wants to "borrow the card for a minute", a xerox copy of the card should be made and given him to do with as he chooses, and the card should immediately be returned to the file

box.

4g1j

Online Indices and Group Notes - Handling and Input

4g2

The online indices of Group Notes issued by the ARPANET Special Interest and Working Groups were input in the directory <NIC> and maintained online for reading by the Net users, particularly members of those groups.

4g2a

The indices were input by hand using TNLS. They are formatted for 120-character lines, and for 95-line pages. Since this created a doubled back line when printed on a TI, special techniques had to be devised in order to input this material in such manner that it would line up properly in tabulated columns across a 120-character line. Standard spacing and print directives were established. In setting up each new index file, the information in statement ,0 of a properly set-up file, such as TNGINDEX.NLS; was copied into the new file. Any header information needing changing was amended to the proper content and input was made according to the standard spacing. Following is a copy of the directives and headers of the TNGINDEX, for illustration purposes:

4g2b

```
,D=On; ,IgD=On; <NIC>TNGINDEX.NLS;1, 5-DEC-73 19:15
MEJ ;  ,D=Print; ,F="
[#] See Number Listing for additional information.
,GSP=9; Page ,GPN;"; ,FLM=20; ,FP=FL; ,RM=120; ,PN=0;
,PNType=1; ,SN=0; ,Lmax=105; ,BM=95;
,H1="
TEALWING NET NOTE INDEX ,Split; 5 DECEMBER 73    NIC
20471";
 ,LBH1H2=2;
,H2="
Author ,GSP=7; Title ,GSP=74; Date ,GSP=4;  NIC
TNG"; Comments: Spacing on TI terminal is Name, left
margin; title 16; date (double numbered) 23+2; XDOC
number (5 numbers) 36+2; TNG number (one digit) 46+2;
,PES; ,D=NoPrint; ,IgD=Off;
```

4g2b1

NOTE: If it is desired to pick up the preceeding statement and use it as a template for a future

file, it will be necessary to remove the first two directives (,D=On; ,IgD=On;) and the last two directives (,IgD=Off;) from the statement. These four directives were inserted in order to cancel out the effects of the directives being quoted and tell the computer they were "not for real".

4g2b1a

In the above illustration of an online index statement 0, with directives, note the last portion of the statement in which after "Comments:" spacing of the tabulated columns is given.

4g2c

The first step to inputting text in which character positions are counted (assuming that the input will be in TNLS on a TI) is to open the TI and position correctly the little metal "ruler" attached to the lid. This character position indicater is fastened to the lid by screws and is usually out of adjustment. The screws should be loosened and the metal measuring device slipped sideways, whichever direction is necessary until the first indicated space/position exactly encloses the first character printed in a line of TI type. The ruled metal bar is not printed exactly correctly. By the time it reaches the right side of the paper it is one-half character off in spacing. However, most of the measurements will be done counting from the left, therefore, position the bar to exactly enclose the first letter when looking at it from straight-on in front of the keyboard.

4g2d

Note from the spacing directions given in the above illustration, the author of the item being indexed is typed flush left (all statements are top level statements). Only the last name of the first author can be given. The title begins in space 16, as indicated above. Do not attempt to print the full title, but truncate it, adding three periods (last word ...) to indicate that the entire title is not given. Accomplish the truncation before reaching the end of the first line of typing so that the carriage will return in the free spacings after the title truncation and the three periods.

4g2e

When inputting in NLS, the carriage will return to the

left after a full line of type and the system will input two ** and await your typing. It is impossible to turn those **'s off, unfortunately! Therefore, when inputting the three columns for date, XDOC number, and Group Note Number, it is necessary to mentally add two character positions to the column-start position count. That is the reason for the illustration above showing the date (double numbered date, such as 23 Mar 74, instead of a single numbered date like 3 Mar 74) as starting at 23+2. Those three columns are on the portion of the input string which, on a TI, will occur after the carriage returns to the left.

4g2f

In order to start the character position count from the proper place it is advisable to input to a wide line database of this type using the NLS Useroptions command of Prompts Off. This eliminates all unwanted characters from your string of typing except what you have typed, with the exception of those two **'s; they can be accounted for in character position count by adding the count of two to the proper position.

4g2g

In case of typos, it is advisable to simply abort input and start over, unless the character count is the same and it is a simple matter of substituting another character. If it is attempted to backspace character or backspace word in this type of input, the character position count will become hopelessly confused.

4g2h

In checking to determine if the input matches existing columns correctly, one can "Print Group" of several statements, preferably some above and some below the statement position of the recent input. Printing must be with viewspecs nzw to be able to properly check character position.

4g2i

If it is necessary to issue a number for a Group Note prior to its actual issuance, and later Group Notes are actually issued before the prior one sees the light of day, then in order to keep the Group Note Index in proper order and allow the Group Note Numbers (right column) to give meaningful information, the missing (not yet issued) Group Note should be entered with some text similar to:

Name [Not Yet Issued] xx xxx xx xxxxx 32

where Name is the last name of the person who requested the number and will issue the Note (hopefully!); [Not yet Issued] is placed beginning at 16 for the title; xx xxx xx is placed in position for the date, which is as yet unknown; xxxxx is placed in the column for the XDOC number which is also unknown (give number if assigned); and 32 is an imaginery Group Note number for this illustrative purpose. When the Note is finally issued, the above statement would be very easy to correct using the "Edit" command with all its sub-commands in TNLS.

4g2j

Archiving

4g3

See section above on CIT File, Handling and Input, for details of naming conventions of the CIT files, the A-SOURCE-# files, the subcollection SOURCE files, and their archiving and offline, hardcopy printout records, and whereabouts listings in the CAT-FILERECORD file.

4g3a

In addition to the above information, several points are appropriate for discussion.

4g3b

(1) Do not depend on FULL DUMP listings to maintain a copy of any of the database of any importance. Full Dump tapes are kept infrequently: tapes are discarded or erased and reused except for one full dump tape per month. It has been the happenstance of the past that the full dump tapes are simply filed, and when tapes are erased that one tape per month is kept without checking to see if the tape is good, if it has imperfectly recorded files, if any of the files are usable. The taping goes on even though a particular file or even particular directory achieves a good recording on that tape or not. Obviously, reliance on such a technique for an important database is unwise.

4g3b1

(2) In addition to the unreliability of full dump tapes for a permanent record, if the paper printout of the full dump is lost (and this has happened many

times), the tape is unusable; a particular file cannot be found.

4g3b2

(3) Reliance on Archive System has been good so far. Several problems are associated with this, however: Care must be taken to accurately control the version number and naming of files. If the person's memory loses the name and version number and identification of contents of files archived, then the best Archive System cannot produce the needed data. Therefore, accurate and up to date records must be maintained by the human in some place easily accessible to all persons concerned with the database, whether the computer is up or down. If whereabouts and identification of files are readily available, the Archive System is a good repository.

4g3b3

(4) Sometimes many changes take place to the database within a day, and occasionally it happens that this is done with a very shakey system. When this occurs, frequent updates should be made, using Update File (to a new version). In case the file being changed is one needing to be maintained in a controlled version number, having to update to a new version number poses problems. This can be handled in several ways:

4g3b4

a) Work with the database under a temporary, different name, and when work completed, Update File Rename to the desired name, typing it in all the way through the desired version number.

4g3b4a

b) Work with the database updating as needed, and when changes complete Rename the file in EXEC to the desired name/version number by typing in the name completely through the version number. Care must be taken in deleting any copies to type in the complete name and version number of the file one actually wants deleted...Delete File command takes the oldest (smallest) version number, remember!

4g3b4b

(5) In case of an important completion point in the database (so far, this has been when, after catalog

rpoduction run, databases have been compiled and the incremental new input has been stored and correctly sorted in the database, bringing the database up to a new version), it is really a good idea to ask the operator to read off the entire directory in which the database is stored onto a special Archive tape, This tape with its printout should be carefully marked for identification, and tape and printout stored with the permanent Archive tapes, The tape should be retained until the evolution of the database has brought it considerably past the point of being able to utilize that tape, At least twice in the history of the XDOC database, such a tape has saved the database from partial extinction,

4g3b5

XDOC Hardcopy Original Documents: Handling and Files

4h

After the hardcopy original document is coded and the coding is input to the computer, as mentioned above, the input is proofread against the coding sheet and document, itself, which are still together, Once the proofreading is completed, the documents with coding sheet are stacked back into a box, It is well to keep these documents still in numerical order in case someone needs to find one of the documents before it is filed,

4h1

Labeling

4h2

Before filing the documents in the their final repository, the coding sheets should be removed, and the XDOC number label and subcollection identification label should be affixed as near to the upper right corner of the document as is practical, Special techniques of labelling are:

4h2a

BOOKS -- Stamp the XDOC number in green ink on the edges of the pages, on the upper right corner of the first inside leaf, on the upper right corner of the Titlepage, and on one of the inside pages at or near page 25, if there are that many pages, Stamp a small square label with the number and affix the labels (a) upper right corner of the front of the dust jacket, (b) on the spine of the dust jacket in the lower portion where possible

to do so without covering title or author, (c) upper right corner of the hardcover front, (d) on the spine of the book about same position as on the spine portion of the dust jacket. The number labels may be used on the jacket and cover of the book, but at least the edges of the pages, the titlepage, and page 25 (thereabouts) should be stamped directly on the book itself. Paperbacks without jackets are handled in the same manner as practical, considering the circumstances of the book itself.

4h2b

DOCUMENTS -- Large, stiff documents such as formal reports bound into a report-type cover, should be stamped on the page edges, title page, and a stamped label affixed to the upper right corner of the cover. If the report is quite thick, a label may be affixed to the spine portion of the report, in the same manner as for a book. The subcollection stamped onto a small square label should be pasted on the upper right corner of the cover immediately under the XDOC number label. Pages of the report or document should be firmly bound together in some manner: stapled in upper left corner or down the left edge; filed in a 3-ring binder; or some other appropriate manner, so that they will not come apart and become misplaced.

4h2c

CORRESPONDENCE -- The stamped label should be affixed to the upper right corner of the letter. Pages of the letter or correspondence should be stapled together in upper left corner.

4h2d

MICROFICHE -- Keep microfiche or slides in their dust jackets or boxes. Microfiche may be identified by writing in ink on the front of the dust jacket (remove the fiche first so it will not be indented), the identifying information: XDOC number, subcollection, and any other information felt necessary. Slides should not have a label affixed on the paper rim; the label tends to gum projection equipment and could slip and damage the slide.

4h2e

VIDEO TAPES -- Affix a label to the outside of the case (can, cassette, whatever) of tapes, identifying contents. A stamped XDOC number label may be affixed

beside the identifying label.

4h2f

ONLINE FILE -- Obtain a printout, code and input reference as in any other case, affix a stamped XDOC number label and subcollection label in the same manner as usual.

4h2g

RESTRICTED INFORMATION -- The XDOC collection does not contain any government or military classified information of any kind and is not designed to do so. However, it does contain some documents, memos, correspondence, and proposals which are SRI Company Proprietary or Company Confidential material. In these cases, a label should be prepared in large red letters stating something similar to the following, as appropriate:

SRI COMPANY PRIVATE
Do Not Distribute, Copy or List
Outside SRI or ARC

The label should be prominently affixed on the front page.

4h2h

Filing

4h3

The original documents after being labeled should be filed in the vault and "Cave" area, as appropriate. Full details about where to find this type of information are given below in the section on V. Where to Find Things, Offline XDOC Hardcopy Material.

4h3a

File Maintenance

4h4

When material is pulled from the files for any purpose, it should be returned as promptly as possible and refiled in its proper place. When the material is pulled from the file, an "OUTCARD" (blank cards are stacked at various spots in the Vault and Cave area) should be completed, showing (a) Date checked out, (b) to whom checked out, (c) author and truncated title of document, (d) XDOC number of checked out document. The OUTCARD

should be inserted in the file in place of the removed document. When the material is returned to file, that OUTCARD should be pulled, the charge-out scratched off, and the card dropped back into the box with the other blank cards.

4h4a

If the user wants to keep the document either permanently or for an extended period and it is within a reasonable size to do so, it is well to make a xerox copy for his own use and return the original to the file.

4h4b

Running Catalog Production Programs - See Section 5 Below

4i

For information and details of the processes involved in running the Catalog processing programs on the Catalog database, see section IV, Catalog Program Processing, below.

411

IV. CATALOG PROGRAM PROCESSING

5

The Catalog Programs - Where and What They Do

5a

The Catalog processing programs are in the directory <CAT-PROGRAMS>. Most are listed below:

5a1

```
<CAT-PROGRAMS>   29-AUG-74 15:44:25
AINCFLFMT,REL;1
APROGS,NLS;4
ARCJPROGS,NLS;2
BIBLIOPROGS,NLS;1
CATALOGHEADS-DIRS,NLS;5
CBIPROGS,NLS;3
CPPPROG,REL;5
  ,NLS;3
CPPTABLES,MIL;191
  ,NLS;3
CRLF,REL;1
DEISPROGS,NLS;2
GETARC,REL;1
GETDEIS,REL;3
GETDIRT,REL;1
GETDIRT3,REL;1
GETJITEM,REL;3
GETNIC,REL;1
GETPROGS,NLS;3
GETRADC,REL;3
IDPROGS,NLS;6
JPROGS,NLS;1
KEYPROGS,NLS;3
LPROGS,NLS;1
MASJPROGS,NLS;8
MIL-CATALOG/ETAL/PROGRAMS,NLS;1
MIL-FIELDBREAK,REL;1
MIL-FILELIST,NLS;1
MIL-JBN/CATALOG/CODEMANUAL,NLS;1
MIL-JBN/CATALOG/CODESSHEET,NLS;1
NEWRADC,REL;2
NINCFLFMT,REL;1
NLPROGS,NLS;1
NPROGS,NLS;10
NUMBNAMER,REL;1
OPROGS,NLS;3
PROOFPROGS,NLS;1
```

```
SIMPLEKEY,REL;1
TAFFMT,REL;1
TGOFMT,REL;1
TINCFLFMT,REL;1
TPROGS,NLS;10
TPZFMT,REL;1
UNKEY,REL;1
UPTABLES,MIL;86
  ,NLS;3
XPROGS,NLS;3
XXNPROGS,NLS;1
```

5a1a

Program Processing

5b

A sample of a Catalog program processing session is given immediately below. (In the copy of the TELNET.TYPESCRIPT shown in Branch 5c below, please ignore any appearance of the directives ",D=On; ,IgD=On;" or ",IgD=Off; ", since these directives have to be given to the computer to allow a literal printout of the contents of the typescript, without the computer acting on the directives shown during that typescript.) Note that before the programs can be run, both the files CPPTABLES,NLS; and UPTABLES,NLS; (in <CAT=PROGRAMS>) must be amended to form the pathway for the processing programs.

5b1

In the typescript given below, note that the file <CAT=PROGRAMS>CPPTABLES is loaded and Plex 1 is printed. In the particular Catalog production run being made in this typescript, the XDOC programs are being used. Note in the Plex 1 with viewspecs mxz printout, Branch 13 is the portion of the file CPPTABLES,NLS; which holds the XDOC set of processors. In order for the CPPPROG,REL; program to know where to look for its processing instructions, Branch 1 of CPPTABLES must contain the instructions. Statement 5c9 of this file contains a printout of Branch 1, showing the instruction to use the XDOC processors. By changing the statement to read

```
Names: XDOC --
```

the program looks for the XDOC section. The instructions must precede the "--", since the program ignores anything after those characters.

5b2

Next in the typescript is shown a one line two levels printout of Branch 13 of CPPTABLES,NLS;, showing the various processing formatters under the XDOC section,

5b3

Shown next is a full printout of Statement 13, Note that immediately after "Format Units:" appears the formatters to be used, in this case: "XDOCA XDOCN XDOCK XDOCO XDOCT XDOCL --", These formatters are:

5b4

XDOCA - Formats the Author Index, 5b4a

XDOCN - Formats the Number Index, 5b4b

XDOCK - Formats the Keyword Index, 5b4c

XDOCO - Formats the Organization Index, 5b4d

XDOCT - Formats the Titleword Index, 5b4e

XDOCL - Formats the bibliographic Listing,

5b4f

Next is printed Statement 13A, showing the instructions for the Author Index processing, Note that the formatting programs to be used are shown on the left side of the "--" after "Format:"; a work file creation instruction is shown after "File:"; and the Sort Key instructions are given,

5b5

Although not shown in the typescript, each of the formatters to be used (shown in Statement 13) is set up in the same manner as the Author Index,

5b6

The file CPPTABLES is updated when all instructions are properly inserted,

5b7

Next the file <CAT-PROGRAMS>UPTABLES,NLS; is loaded and the instructions are brought up to date in the same manner as was done for CPPTABLES,

5b8

In the one line one level printout of Plex 1 of UPTABLES,NLS;, the XDOC section of instructions is seen to be Branch 3, Next, Branch 3 is printed, Note that the

source files for processing are shown as "<cat>deis-source --", This forms the instruction to the programs to use that file as the database to be formatted,

5b9

After the proper identification of the database is inserted in the appropriate branch, UPTABLES.NLS; is updated,

5b10

Connect to directory <CAT> and load some file not to be accessed by any of the programs; in this case, the initial file <CAT>MEJ.NLS; was loaded, freeing all other files and programs,

5b11

As of the date of this processing session, the Catalog processing programs had not been thoroughly checked out for running in New NLS, therefore, this processing session was done in Old NLS, Note in the typescript, OLDNLS is loaded, and program processing is set up:

5b12

(1) Program Buffer is set at 30 disk pages,

5b12a

(2) Program <CAT-PROGRAMS>CPPPROG.REL; is loaded,

5b12b

(3) Program <CAT-PROGRAMS>CPPPROG.REL; is "Executed",

5b12c

(4) The remainder of the typescript until the feedback "22-AUG-74 06:17 Catalog Production Completed", is produced automatically by the program with no necessity for any input from the user,

5b12d

After completion of the Catalog production session, the typescript shows a printout of the directory of <CAT> which may be compared against the printout of the directory shown at the beginning of the session for information concerning the files created by the Catalog production run,

5b13

Catalog Program Processing Session Typescript

5c

```
TELNET typescript file started at THU 22 AUG 74 0549:25
```
5c1

```
#sri-arc (settings loaded) is complete.#
```
5c2

```
TENEX 1,31,72, ARC EXEC 1,51,50
@log cat
JOB 11 ON TTY52 22-AUG-74 05:49
TENEX WILL GO DOWN WED 8-28-74 2200 TIL THU 8-29-74 0300
USE DOWNTIME COMMAND TO SEE NEW UP-DOWN SCHEDULE
@refUSE (LINKS)
@dirECTORY
```
5c3

```
   <CAT>
   (CAT)MEJ.PC;1
   ARCJAINCFL-19AUG74-2229.NLS;1
   ARCJAINCNL-19AUG74-2252.NLS;1
   ARCJACP.TXT;1
   BRANCH4.NLS;14
   CATALOG.NLS;41
   CIT-DEIS-NEW-REM.NLS;1
   CIT-DEISAPR74-REM.NLS;1
   CIT-DEISMAR74.NLS;1
   CIT-DEISMAY74-REM.NLS;1
   CRLF.REL;1
   DEIS-SOURCE.NLS;6
   HACKPROGS.TXT;2,1
   MEJ.NLS;1
   MIL-ENLARGEDBIBLIO.NLS;1
   MIL-FILELIST.NLS;1
   MIL-JBN/CATALOG/CODEMANUAL.NLS;1
   MIL-JBN/CATALOG/CODESSHEET.NLS;1
   MIL-WORKREF.NLS;1
```
5c3a

```
@dir<cat-programs>*.*;*
```
5c4

```
   <CAT-PROGRAMS>
   AINCFLFMT.REL;1
   APROGS.NLS;4
   ARCJPROGS.NLS;2
   CPPPROG.REL;4
   .NLS;2
   CPPTABLES.NLS;186
   CRLF.REL;1
```

```
    DEISPROGS,NLS;2
    GETARC,REL;1
    GETDEIS,REL;3
    GETJITEM,REL;3
    GETNIC,REL;1
    GETPROGS,NLS;3
    GETRADC,REL;3
    IDPROGS,NLS;6
    JPROGS,NLS;1
    KEYPROGS,NLS;3
    LPROGS,NLS;1
    MASJPROGS,NLS;8
    MIL-CATALOG/ETAL/PROGRAMS,NLS;1
    MIL-FIELDBREAK,REL;1
    MIL-FILELIST,NLS;1
    MIL-JBN/CATALOG/CODEMANUAL,NLS;1
    MIL-JBN/CATALOG/CODESSHEET,NLS;1
    NLPROGS,NLS;1
    NPROGS,NLS;10
    NUMBNAMER,REL;1
    OPROGS,NLS;3
    PROOFPROGS,NLS;1
    TPROGS,NLS;10
    UNKEY,REL;1
    UPTABLES,NLS;85
    XPROGS,NLS;3
    XXNPROGS,NLS;1
                                                        5c4a

@oldnls
                                                        5c5

*Load File F: <cat-programs>cpptables
                                                        5c6

*Print Plex A: ,1
V: mxz
                                                        5c7

,D=On; ,IgD=On; 1 (Productionruns)
2 (IDENTS)       NIC Identification Directory Production
Run ,GCR;
3 (CBI)         ARC JOURNAL CATALOG PRODUCTION RUN ,GCR;
4 (ARCJ)         ARC JOURNAL CATALOG PRODUCTION RUN ,GCR;
5 (MAS72J)       MASTER CATALOG 1972 JOURNAL CATALOG
PRODUCDUCTION
6 (MAS73JJ)       MASTER CATALOG 1973 JOURNAL CATALOG
PRODUCTION
```

```
7 (MAS73JD)        MASTER CATALOG 1973 JOURNAL CATALOG
PRODUCTION
8 (MAS74J)        MASTER CATALOG 1974 JOURNAL CATALOG
PRODUCTION
9 (DPCSJ)          ARC JOURNAL CATALOG PRODUCTION RUN ,GCR;
10 (IDCHECK)       Identfile Check Production Run ,GCR;
11 (JOUJ)          JOU JOURNAL CATALOG PRODUCTION RUN ,GCR;
12 (DEIS)           DEIS Catalog Production Run ,GCR;
13 (XDOC)           XDOC Catalog Production Run ,GCR;
14 (NIC)           NIC Catalog Production Run ,GCR;
15 (NICJ)          NIC Journal Catalog Production Run ,GCR;
16 (PROOF)         Catalog Proof Production Run ,GCR;
17 (PROOF1)        Catalog Proof Production Run (Subset 1)
,GCR;
18 (PROOF2)        Catalog Proof Production Run (Subset 2)
,GCR;
19 (RADCJ)          RADC Journal Catalog Production Run
,GCR;
20 (HOSTS)        NIC Identification Directory Production
Run ,GCR;
,IgD=Off;                                                    5c8

*Print Branch A; ,1
V; mZW
                                                             5c9

1 (productionruns)
Names; XDOC -- DEIS ARCJ CBI MAS74J MAS72J MAS73JD MAS73JD
MAS73JJ HOSTS TEST DPCSJ NICJ RADCJ FAN JOUJ JoUJ PROOF NIC
BOW IDCHECK PROOF1 PROOFS2 IDENTS
                                                            5c10

*Print Branch A; ,13
V; mxzb
                                                            5c11

,D=On; ,IgD=On; 13 (XDOC)          XDOC catalog Production
Run ,GCR;
13A (XDOCA) One-Line XDOC Author Index Format Unit ,GCR;
13B (XDOCL) XDOC Listing Format Unit ,GCR;
13C (XDOCN) One-Line XDOC Number Index Format unit ,GCR;
13D (XDOCO) One-Line XDOC Organization Index Format Unit
,GCR;
13E (XDOCR) One-Line XDOC RFC Index Format Unit ,GCR;
13F (XDOCT) One-Line XDOC TitleWord Index Format Unit ,GCR;
13G (XDOCK) One-Line XDOC Keyword Index Format Unit ,GCR;
13H (XDOCTAF) One-Line XDOC Titlewords A-F Index Format
Unit ,GCR;
```

```
13I (XDOCTGO) One-Line XDOC Titlewords G-O Index Format
Unit ,GCR;
13J (XDOCTPZ) One-Line XDOC Titlewords P-Z Index Format
Unit ,GCR;
,IgD=Off;                                                    5c12

*Print Statement A: ,13
V: mzw
                                                             5c13

13 (XDOC)          XDOC Catalog Production Run

Source: XDOCSOURCE -- NONE
Format: NONE
File: NONE -- xdocawf
Default Directory: CAT -- XDOC-WORK
Format Units: XDOCA XDOCN XDOCK XDOCO XDOCT XDOCL --
XDOCTAF XDOCTPZ XDOCR XDOCTGO
                                                             5c14

*Print Statement A: ,13a
V:
13A (XDOCA) One-Line XDOC Author Index Format Unit

Format: <cat-programs, aprogs, afmt> -- NONE
File: xdocawf -- NONE
Sort Key: <cat-programs, keyprogs, simplekey> -- NONE
Incremental: XDOCAINC -- NONE
Cummulative: NONE -- XDOCACUM
                                                             5c15

*Print Branch A: ,13a
V: mXzbb
                                                             5c16

   13A (XDOCA) One-Line XDOC Author Index Format Unit

   13A1 (XDOCAINC) One-Line XDOC Author Index Incremental
   Unit
    13A2 (XDOCACUM) One-Line XDOC Author Index Cummulative
   Unit
    13A3 (XDOCAUR) One-Line XDOC Author Index Update Record
   Unit

                                                             5c16a

*Print Statement A: ,13a1
```

```
V: mzw
                                                                    5c17

   13A1 (XDOCAINC) One-Line XDOC Author Index Incremental
   Unit

   Off-Line: XDOCAINCFL -- or NONE
   On-Line: XDOCAINCNL -- or NONE
                                                                   5c17a

*Print Statement A: ,0
V:
<CAT-PROGRAMS>CPPTABLES.NLS;186, 21-AUG-74 18:52 MEJ
;;;;<CAT-PROGRAMS>CPPTABLES.NLS;184, 16-AUG-74 10:29 JCP ;
                                                                    5c18

*Update   Update unnecessary: no changes
<CAT-PROGRAMS>CPPTABLES.NLS;186
                                                                    5c19

*Load File F: <cat-programs>uptables
                                                                    5c20

*\,D=On; ,IgD=On;
<CAT-PROGRAMS>UPTABLES.NLS;85, 21-AUG-74 18:54 MEJ
;;;;<CAT-PROGRAMS>UPTABLES.NLS;83, 16-AUG-74 15:11 JCP ;
,H="Update Processor Tables  ,Split;  ,GDT;";  ,PN=0;
,PFit=On;  ,PES; ,IgD=Off;
                                                                    5c21

*Print Plex A: ,1
V: mxz
                                                                    5c22

1 (ARCJSOURCE)
2 (CBISOURCE)
3 (XDOCSOURCE)
4 (DPCSJSOURCE)
5 (MAS73JJSOURCE)
6 (MAS73JDSOURCE)
7 (MAS72JSOURCE)
8 (MAS74JSOURCE)
9 (IDENTSOURCE)
10 (MAKEUP)
11 (JOUJSOURCE)
12 (NICJSOURCE)
13 (DEISSOURCE)
14 (NICSOURCE)
```

```
15 (PROOF1SOURCE)
16 (PROOF2SOURCE)
17 (PROOFSOURCE)
18 (RADCJSOURCE)
19 (TESTSOURCE)
20 (HOSTSOURCE)
                                                              5c23

*Print Branch A: ,3
V: mzw
                                                              5c24

3 (XDOCSOURCE)
Incremental Files: <cat>deis-source -- <catalog>acat4-a2
<catalog>acat4-b1 <catalog>acat4-b2 <catalog>acat3-a
<catalog>acat3-b <catalog>acat4-a1 <catalog>a-cat
<catalog>acat2-a <catalog>acat2-b
                                                              5c25

*Update   Update unnecessary: no changes
<CAT-PROGRAMS>UPTABLES.NLS;85
                                                              5c26

*Load File F: mej
                                                              5c27

*Goto Programs Buffer Size: 4 Pages = 2048 Words,
New Size (Pages): 30 = 15360 Words,  OK,
*
                                                              5c28

*Goto Programs Get Rel File T: <cat-programs>cppprog
Loading User Program
                                                              5c29

*Goto Programs Execute program T: cppprog
                                                              5c30

22-AUG-74 05:57  Catalog Production Processor In Operation
                                                              5c31

22-AUG-74 05:57  Production Run XDOC
05:57 - Format Unit XDOCA for Source File <cat>deis-source
                                                              5c32

05:59 -- Incremental Unit XDOCAINC
05:59 --- Off-Line Unit XDOCAINCFL
                                                              5c33
```

Notes on Catalog Production, Database 31 AUG 74 XDOC 23924

06:00 --- On-Line Unit XDOCAINCNL
5c34

06:00 - Format Unit XDOCN for Source File <cat>deis-source
5c35

06:01 -- Incremental Unit XDOCNINC
06:01 --- Off-Line Unit XDOCNINCFL
5c36

06:02 ---- *** Can't Delete File, Proceding Hopefully
06:02 --- On-Line Unit XDOCNINCNL
5c37

06:02 - Format Unit XDOCK for Source File <cat>deis-source
5c38

06:06 -- Incremental Unit XDOCKINC
06:06 --- Off-Line Unit XDOCKINCFL
5c39

06:08 - Format Unit XDOCO for Source File <cat>deis-source
5c40

06:10 -- Incremental Unit XDOCOINC
06:10 --- Off-Line Unit XDOCOINCFL
5c41

06:11 - Format Unit XDOCT for Source File <cat>deis-source
5c42

06:13 -- Incremental Unit XDOCTINC
06:13 --- Off-Line Unit XDOCTINCFL
5c43

06:14 - Format Unit XDOCL for Source File <cat>deis-source
06:14 -- Incremental Unit XDOCLINC
06:14 --- Off-Line Unit XDOCLINCFL
5c44

06:16 --- On-Line Unit XDOCLINCNL
5c45

06:17 -- *** Can't Delete File, Proceding Hopefully
5c46

22-AUG-74 06:17 Catalog Production Completed
5c47

```
*^C
@dirECTORY
```

5c48

```
<CAT>
(CAT)MEJ.PC;1
ARCJAINCFL-19AUG74-2229.NLS;1
ARCJAINCNL-19AUG74-2252.NLS;1
ARCJACP.TXT;1
BRANCH4.NLS;14
CATALOG.NLS;41
CIT-DEIS-NEW-REM.NLS;1
CIT-DEISAPR74-REM.NLS;1
CIT-DEISMAR74.NLS;1
CIT-DEISMAY74-REM.NLS;1
CRLF.REL;1
DEIS-SOURCE.NLS;6
HACKPROGS.TXT;2,1
MEJ.NLS;1
MIL-ENLARGEDBIBLIO.NLS;1
MIL-FILELIST.NLS;1
MIL-JBN/CATALOG/CODEMANUAL.NLS;1
MIL-JBN/CATALOG/CODESSHEET.NLS;1
MIL-WORKREF.NLS;1
PRTWORK-22AUG74-0557.NLS;1
PXDOCAINC.TXT;1
PXDOCKINC.TXT;1
PXDOCLINC.TXT;1
PXDOCNINC.TXT;1
PXDOCOINC.TXT;1
PXDOCTINC.TXT;1
UNTWORK-22AUG74-0557.NLS;1
XDOCAINCFL-22AUG74-0559.NLS;1
XDOCAINCNL-22AUG74-0600.NLS;1
XDOCAWF-22AUG74-0558.NLS;1
XDOCKINCFL-22AUG74-0606.NLS;1
XDOCKWF-22AUG74-0604.NLS;1
XDOCLINCFL-22AUG74-0615.NLS;1
XDOCLINCNL-22AUG74-0617.NLS;1
XDOCNINCNL-22AUG74-0602.NLS;1
XDOCNWF-22AUG74-0600.NLS;1
XDOCOINCFL-22AUG74-0610.NLS;1
XDOCOWF-22AUG74-0609.NLS;1
XDOCTINCFL-22AUG74-0613.NLS;1
XDOCTWF-22AUG74-0612.NLS;1
```

5c48a

```
@logo
```

TERMINATED JOB 11, USER CAT, ACCT 101, TTY 52, AT 8/22/74
0618 USED 0:10:44 IN 0:28:39

5c49

Corrections Necessary to Formatted Files for Use as Masters

5d

The formatted files produced by the Catalog processing programs will not be ready, as is, to use as masters for the reproduced (published) catalog.

5d1

Immediately below is a copy of the directives statement inserted by the Catalog processing programs into a formatted file they created.

5d2

```
 ,D=On; ,IgD=On; ,D=Print; ,F="[#] See Number Listing for
additional information. ,GSP=9; ,GPN;"; ,FLM=20; ,FP=FL;
,RM=120; ,PN=0; ,PNType=1; ,SN=0; ,Lmax=105; ,BM=95;
,H1="
XDOC MASTER CATALOG AUTHOR INDEX ,Split; SRI-ARC   ,GD;
????";
 ,LBH1H2=2;
,H2="
Title   ,GSP=75; Date       Number    Author "; ,PES;
,D=NoPrint; ,IgD=Off;
```

5d3

Someone must substitute into this statement the correct information:

5d4

(1) "XDOC CATALOG COLLECTION" is preferred to "XDOC MASTER CATALOG",

5d4a

(2) "(date) XDOC XXXXX" is preferred to "SRI-ARC 6 SEP 74 ????", where "(date)" is the official date of the published catalog, in the format: 30 JUN 74; and where "XXXXX" is the XDOC number assigned to that particular document; i.e., that Author Index of that issue of that published catalog.

5d4b

Each of the formatted files will need some corrective information substituted into the directive statement (always inputted by the programs as Statement 1 in the

formatted files). Before the file may be considered as ready for final printing to obtain a master for photoreduction purposes, a printout should be carefully examined for any incorrect formatting: a statement in the database which may have had some as yet unfound error which causes an improper formatting of that entry; any of a multiple number of unforeseen glitches that seem to occur.

5d5

It is well to keep in mind that during Catalog processing program runs, an error feedback of "Exceed Capacity", will not necessarily mean that any "Capacity" has been "Exceeded", but rather that at some point in processing that particular item (statement), the program found some unprocessable dichotomy which it dropped, fedback that information, and went on to the next statement of the database to continue the processing.

5d6

On a very large database where the formatted files will create a file which exceeds the NLS file handling capacity (reputed to be 370 TENEX disk pages, but NLS will not allow a sort on a file over about 140-150 TENEX disk pages, but will abort the sort, sometimes deleting Plex 1 -- SO, careful!), it is necessary to split the database into several files. In this case, care must be taken to split the database in such manner that the entries over the entire set of files are in a continuous numerical sequence. This will allow instructions to the program in UPTABLES to be given in a way which will allow the program to pick up the files in sequential order, maintaining the file handling in an overall numerical sequence.

5d7

In such split database handling cases, the indices such as Author, Titleword, Organization, and Keyword will be sorted by the formatters into alphabetical sequence within each file. The final formatted files in these cases are useless (i.e., XDOCAINCNL-date-time.NLS;), because the formatters suppress the subsequent use of the same word, deleting that word from the line and allowing the reader to assume the word in that column from its first occurrence. In such a file, one cannot sort alphabetically because only one occurrence of the word exists, making all statements in which the word was suppressed unsortable because no word exists in that position. Therefore, when processing a multiple database, care must be taken to have the formatters create and fail to delete the "work file" (named

something like XDOCWF-date-time.NLS;), or the formatter file (named something like XDOCAINCFL-date-time.NLS;). These files still have the sort key on each statement. From these files it will be necessary to obtain a printout with statement numbers showing, and manually copy groups of statements to alphabetical repository files, which may then be sorted alphabetically. After moving the partially formatted database in the work files into the proper files, and sorting the entries, the remainder of the formatting is done by hand, using the proper sort and formatting keys as content analyzer patterns.

5d8

There is at present no automated way of handling a large database that does this tedious and time-consuming job.

5d9

Common errors to look for in formatted files are:

5d10

Author Index - Names in the wrong position alphabetically because of incorrect inputting in the basic database; i.e., Van Nouhuys input with a space between Van and Nouhuys, making it fall alphabetically in the N's and lose the Van portion of the name. Such entry will have to be manually corrected and manually moved to the proper alphabetical position.

5d10a

Number Index - An entry in the basic database which was input without the code field of *f1, making the programs pick up the title in *c1 and repeat it twice in the title line. An entry in the original database with *f1 field given as "z"; this may be properly entered and actually be a "z" code, but the programs will often incorrectly pick up the *c1 (title) field and repeat it twice (this is a bug which has never been eliminated in the programs).

5d10b

The Number Index should also be examined from the point of view of determining if the programs actually did properly pick up and process the entire database. This is easiest to find in the Number Index since a comparison of the XDOC numbers with a printout of the database will quickly show any lost data.

5d10c

Keyword Index - The column headings of the Keyword Index are incorrect in that the keywords are picked up and a truncation is displayed where the title of the item is usually displayed, yet the heading of that column input by the program is "Title", instead of "Keywords", This change must be made in the header given in the directives statement,

5d10d

All indices - When an alpha sequence is instituted (such as a name with subsequent occurrences of that name) and the page is renewed (another page occurs), the formatter inputs on the top line of the new page a renewal of that name (or word) with ", Cont" after it, Sometimes the program inputs that continuation line two or three lines down into the new page and sometimes not at all -- cause unknown, Also, if it is necessary to move a statement, the lines in relation to the pages are, of course, changed from the point of move, If it is desired to have a perfectly formatted printout, this will have to be checked on a printout put through the output processor and corrections made by hand,

5d10e

When all files of formatted data are considered correct, then each file individually will have to be put through output processor to create a "print" file, which may be copied to the printer as many times as necessary in order to get a good printout of each page, Note that with the present state of printer errors, sometimes as many as 7 or 8 printouts of the same file must be obtained in order to get a specific page without an error on it,

5d11

Hardcopy Catalog Production

5e

When a correct, or acceptable, set of masters is achieved, the actual published catalog is produced by making a photoreduced master from the line printer master and using that photoreduced master to print as many copies of each page as are needed,

5e1

The pages produced on the line printer are planned in size so that a reduction of x5 on the Xerox 6000 will be correct for producing a finished page of 8-1/2x11 inches,

5e2

V. WHERE TO FIND THINGS

6

Online Database

6a

The online database for the ARC XDOC collection (the all-inclusive database) as of 30 June 1974 was contained in the following set of files, Archived in directory <DOCUMENTATION>:

6a1

```
A-SOURCE-0001-0499,NLS;11
A-SOURCE-0500-0999,NLS;11
A-SOURCE-1000-1499,NLS;11
A-SOURCE-10000-10499,NLS;11
A-SOURCE-10500-10999,NLS;11
A-SOURCE-11000-11499,NLS;11
A-SOURCE-11500-11999,NLS;11
A-SOURCE-12000-12499,NLS;11
A-SOURCE-12500-12999,NLS;11
A-SOURCE-13000-13499,NLS;11
A-SOURCE-13500-13999,NLS;11
A-SOURCE-14000-14499,NLS;11
A-SOURCE-14500-14999,NLS;11
A-SOURCE-1500-1999,NLS;11
A-SOURCE-15000-15499,NLS;11
A-SOURCE-15500-15999,NLS;11
A-SOURCE-16000-16499,NLS;11
A-SOURCE-16500-16999,NLS;11
A-SOURCE-17000-17499,NLS;11
A-SOURCE-17500-17999,NLS;11
A-SOURCE-18000-18499,NLS;11
A-SOURCE-18500-18999,NLS;11
A-SOURCE-19000-19499,NLS;11
A-SOURCE-19500-19999,NLS;11
A-SOURCE-2000-2499,NLS;11
A-SOURCE-20000-20499,NLS;11
A-SOURCE-20500-20999,NLS;11
A-SOURCE-21000-21499,NLS;11
A-SOURCE-21500-21999,NLS;11
A-SOURCE-22000-22499,NLS;11
A-SOURCE-22500-22999,NLS;11
A-SOURCE-23000-23499,NLS;11
A-SOURCE-2500-2999,NLS;11
A-SOURCE-3000-3499,NLS;11
A-SOURCE-3500-3999,NLS;11
A-SOURCE-4000-4499,NLS;11
```

```
A-SOURCE-4500-4999,NLS;11
A-SOURCE-5000-5499,NLS;11
A-SOURCE-5500-5999,NLS;11
A-SOURCE-6000-6499,NLS;11
A-SOURCE-6500-6999,NLS;11
A-SOURCE-7000-7499,NLS;11
A-SOURCE-7500-7999,NLS;11
A-SOURCE-8000-8499,NLS;11
A-SOURCE-8500-8999,NLS;11
A-SOURCE-9000-9499,NLS;11
A-SOURCE-9500-9999,NLS;11                                    6a1a

SEQ-0001-0499,TXT;1
SEQ-0500-0999,TXT;1
SEQ-1000-1499,TXT;1
SEQ-10000-10499,TXT;1
SEQ-10500-10999,TXT;1
SEQ-11000-11499,TXT;1
SEQ-11500-11999,TXT;1
SEQ-12000-12499,TXT;1
SEQ-12500-12999,TXT;1
SEQ-13000-13499,TXT;1
SEQ-13500-13999,TXT;1
SEQ-14000-14499,TXT;1
SEQ-14500-14999,TXT;1
SEQ-1500-1999,TXT;1
SEQ-15000-15499,TXT;1
SEQ-15500-15999,TXT;1
SEQ-16000-16499,TXT;1
SEQ-16500-16999,TXT;1
SEQ-17000-17499,TXT;1
SEQ-17500-17999,TXT;1
SEQ-18000-18499,TXT;1
SEQ-18500-18999,TXT;1
SEQ-19000-19499,TXT;1
SEQ-19500-19999,TXT;1
SEQ-2000-2499,TXT;1
SEQ-20000-20499,TXT;1
SEQ-20500-20999,TXT;1
SEQ-21000-21499,TXT;1
SEQ-21500-21999,TXT;1
SEQ-22000-22499,TXT;1
SEQ-22500-22999,TXT;1
SEQ-23000-23499,TXT;1
SEQ-2500-2999,TXT;1
SEQ-3000-3499,TXT;1
SEQ-3500-3999,TXT;1
SEQ-4000-4499,TXT;1
```

SEQ-4500-4999,TXT;1
SEQ-5000-5499,TXT;1
SEQ-5500-5999,TXT;1
SEQ-6000-6499,TXT;1
SEQ-6500-6999,TXT;1
SEQ-7000-7499,TXT;1
SEQ-7500-7999,TXT;1
SEQ-8000-8499,TXT;1
SEQ-8500-8999,TXT;1
SEQ-9000-9499,TXT;1
SEQ-9500-9999,TXT;1

6a1b

The A-SOURCE-#, Version 11, files are the database input in NLS, The SEQ-#,TXT;1 files are the same database output to sequential, creating ASCII files compatible with TENEX and Network FTP services.

6a2

The Catalog processing programs are to be found (either online or Archived) in the directory <CAT-PROGRAMS>. A listing of most of them may be found in this report as statement 5A1A.

6a3

Some special purpose research (experimental) programs may be found as branches in <CAT-PROGRAMS> MIL-CATALOG/ETAL/PROGRAMS,NLS;1. As is usual with NLS user programs, the first line of each program tells its purpose. The user should be warned that about two years ago when these programs were used last, some of them had bugs in them and none of them have been amended to be compatible with New NLS.

6a4

No subcollection "SOURCE" files are stored for retrieval and use in subsequent series catalog productions with the exception of:

6a5

DEIS-SOURCE,NLS; - Archived in <CAT> directory. This file contains all the bibliographic input to the small DEIS database with the exception of the NLS Journal statements. These statements were deleted from the database for production of the DEIS Catalog (24 August 1974) because so many of those entries were poorly produced by the Journal Catalog processing programs that

they would have had to be completely re-written in many cases by hand input in order to use them; i.e., the NLS Journal catalog programs are not compatible with the XDOC Catalog programs, even to using the same field number codes for different purposes in some instances.

6a5a

NICSOURCE files - None available for use. If a NIC subcollection is used again to produce a catalog, the program GETNIC.REL; should be run on the entire XDOC database to achieve a new NICSOURCE set of files.

6a5b

Corrections Needed for Present Online Database, A-SOURCE-#, Version 11

6b

Because of lack of time, the PROOFPROGS were not run on the entire XDOC Catalog database, the A-SOURCE-# files, Version 11, Therefore, in processing the last XDOC Catalog, dated 30 June 1974, it was noted that there are some errors in the database. As these have been found, they have been marked in red pencil on the hardcopy printout of the XDOC A-SOURCE-# files, Version 11, filed in the 2 big binders located on the top shelf of the bookcase in the Cave area where the large dictionary is kept. The pages on which the errors occur are clipped with a plastic paperclip on the outer edge. If the database is brought back online again and it is possible to do so, those corrections should be made and the entire database brought up to A-SOURCE-#,NLS; Version 12, and re-archived and taped as that version. Note that until the future of the computer facilities of ARC are a little more certain, it would be wise again to output sequential on that database-Version 12, and Archive and tape the sequential (ASCII) versions of those files, probably bringing those ASCII files to a Version 12 also, to indicate which version of the A-SOURCE-# files they represent.

6b1

Offline XDOC Hardcopy Material

6c

Reports, Documents, Group Notes, Correspondence, Brochures, Vendor Material

6c1

Reports and documents stiff enough to stand alone are

filed (1) on the shelves in the vault under the appropriate site section, when the report was issued by an ARPANET site; (2) numerically in the file cabinets in the vault when the document or report was issued by an organization not an ARPANET site.

6c1a

Group Notes and RFCs were coded as a regular part of the Catalog database and are filed in numerical order with the remainder of the material in the file cabinets in the vault. There will not be a copy of every Group Note and RFC filed there; a copy was not filed of the first portion of these documents; filing of these started about Spring of 1972 (date may be wrong). There should be a master copy of all the material issued by NIC in the filing cabinets in the "NIC Room"; see Jake Feinler for a copy if not found in the regular XDOC filing cabinets.

6c1b

Correspondence is numbered in the same general sequence, labeled in the usual way, and filed in the filing cabinets in the vault. Not all correspondence is filed here. Check with the secretaries of the group for compelte information on filing this material.

6c1c

Brochures, meeting announcements, conference agendas and general material of this type is filed in numerical sequence with other material in the filing cabinets in the vault.

6c1d

Vendor material, when coded as part of the XDOC collection, is filed in numerical sequence in the cabinets in the vault. Martin Hardy has much vendor material, brochures, specs, and technical literature. It might be well to check with him for information on this subject.

6c1e

Books, Proceedings

6c2

Books are filed in alphabetical order by the first author on the shelves in the Cave area. The alphabet starts on the middle shelf above the couch (placement as of September 4, 1974) and continues to the bottom shelf

over the couch, and from there continues to the two bottom shelves of the bookcase beside the couch on which the large dictionary is kept. The largest proportion of books are in peoples' offices and at their homes. If a particular book is needed, it is suggested that:

6c2a

(1) Look in the card index file in the hall to see if the book is a part of the ARC collection.

6c2a1

(2) Look on the book shelves to see if it is there.

6c2a2

(3) If not there and it is not readily at hand in one of the ARCer's office, then the simplest recourse is to an NLS Journal message to SRI-ARC asking for the book to be returned to circulation or lent to the requestor.

6c2a3

Proceedings (IFIP, NCC, AFIPS, ACM, etc) are stored on the next to the top shelf in the Cave area, above the section containing the magazines/journals, and toward the left end of that shelf. Holdings at ARC are spotty for this material; not all issues were ever a part of the collection. For identification in the holdings, check the card index file under the name of the association for which it is a Proceedings (American Federation of Information Processing Societies, National Computer Conference, etc). If not found, suggest contact the SRI Library; their holdings are extensive in this area.

6c2b

Journals, Newsletters, News Leaflets

6c3

Magazines, journals (not to be confused with NLS Journal System), newsletters and news leaflets are filed in alphabetical order by title in boxes and sections of the bottom four shelves of the longest section of the shelves in the Cave Area. The bottom-most shelf serves as a miscellaneous catch-all of various notebooks, printouts, etc, while the three shelves above that hold the actual journal and magazine files themselves. Old copies of some of the journals are filed in boxes (cardboard Princeton files) on the shelves at the end

and the top shelf of the long section in the Cave area. The boxes are labeled as to journal name and dates.

6c3a

Microfiche, Microfilm, Slides, Photos, Video Tapes, Tape Cassettes

6c4

Microfiche are filed in a grey cardboard filebox which is in the second drawer from the top of the rightmost file cabinet in the bank of cabinets on your left as you enter the vault; this cabinet is the one nearest to the site files shelves in the vault. A label on the drawer reads "Photos". Within the box the fiche were in numerical XDOC number order at one time, although there seemed to be a number of non-filed fiche in the box when I looked in it on 4 September 1974.

6c4a

As of 4 September 1974, the slides were in Doug Engelbart's office.

6c4b

As of 4 September 1974, the cataloged photographs were in their large brown envelopes (marked "Photos", and with XDOC numbers written on the envelope) and the envelopes were lying flat in the same drawer with and under the box of microfiche. Other collections of photos are in the secretary's room in a file drawer. The latter photos are not cataloged into the XDOC collection. There are also some miscellaneous photos included in the report masters in the supply room, next to bottom shelf on left as you enter the supply closet. The masters are in large envelopes, marked with the report name, number, and date. They are filed, more or less, by date.

6c4c

Video tapes are stacked on top of the file cabinets in the vault. Most are not cataloged into the collection.

6c4d

Near the video tapes are several blue boxes which formerly held card index cards and now hold tape recorded cassettes of various lectures, conferences, discussions, phone conversations, and what have you. Some have been given an XDOC number and cataloged before returning to the box, but most have not been cataloged.

A few have been transcribed, but not all.

6c4e

Catalog of ARC Slides, Circa 1971

6c5

The Catalog of the ARC Slide collection was Journalized by Mary Caldwell, 20 November 1970, as Journal No. 5224. The listing was made as of June 1970. A hardCopy was in the Journal red binders on 3 September 1974, filed under 5224.

6c5a

Current Catalog of the NIC Collection

6c6

The last production of a NIC Catalog was as of 1 June 1973. Since that time somewhere around 700-800 entries for the "NIC"-type coding were input to the system. No subcollection database covering the entries relevant to networking (termed "NIC") was made. If such a catalog processing needs to be made again, the program GETNIC.REL; should be run on the entire database to arrive at a "NICSOURCE" set of files for use in processing.

6c6a

First ARC Catalog and KWIC Index, August 1969

6c7

There are two copies of the KWIC Index/Catalog issued in August 1969. Both copies were on the shelves or on the filing cabinets in the vault on 4 September. Both are filed in the greyish computer-printout type binders and are labelled and marked "KEEP - Do Not Discard".

6c7a

Final ARC Catalog Produced as of 30 June 1974

6c8

The final ARC XDOC catalog produced on the entire database as of 30 June 1974, was reproduced in several copies and is being bound into report-like covers by SRI Report Production Services. There will be a very few copies available for ARC use. There will NOT be enough copies for individual possession or for distribution. Furthermore, distribution should not be made of this catalog since this contains material, such as Doug's

correspondence, which should not be distributed outside ARC.

6c8a

One reference copy of Volume 1, Author, Number, and Organization Indices, and of Volume 2, TitleWord Index, will be filed beside the printout of the XDOC database in the shelf under the large dictionary. (If anyone moves the large dictionary, we are in trouble!)

6c8b

Hardcopy Printout of XDOC Database

6c9

Three printouts of the XDOC complete online database were made after the cutoff period of 30 June 1974, Doug Engelbart has a copy together with a tape of the database, Jake Feinler has a copy with a copy of the tape, and a copy of the tape is filed with the permanent archived tapes (in a metal can) and the printout for general ARC use is filed in three large black binders. These binders are located on the shelf directly under the large dictionary in the Cave area.

6c9a

Hardcopy Printout of RFC and Group Note Indices

6c10

A hardcopy printout, formatted in the wide-line format for index masters, of all the Group Note Indices and the RFC Index is filed in a blue computer-printout binder and is on the top of the bookshelf containing the large dictionary in the Cave area (same bookshelf which holds the XDOC database printout).

6c10a

Offline Hardcopy Card Index (Filing Identities)

6c11

The Card Index file containing the information on material included in the XDOC Catalog database is contained in the number of cardboard index boxes that are on the two tables in the hall across the hall from J2025.

6c11a

Please do not remove cards from this file. For any information concerning items found there or assistance

in finding an item, see Jake Feinler or Jeanne Leavitt.

6c11b

XDOC Numbers of All the ARC Produced Documents

6c12

In the card index file in the cardboard boxes in the hall there are two sections which contain cards for all the ARC documents in the XDOC collection written by ARCers. One section is either filed or cross filed under "Doug Engelbart" (when there was a personal author other than Doug, I made an extra card, hand-marking it to file under DCE because it would be easier to find that way), or under "SRI-ARC". For example, an article written about ARC and Doug was written by Nils Lindgren and published in Innovation. An extra copy of the card was made for filing under "Engelbart" because it might not be remembered that the article was actually written by Lindgren (or his name remembered).

6c12a

Online Bibliographic References on ARC Documents

6c13

The Catalog database is not in a form to be used as a bibliographic citation. There are two files where such bibliographic citations are online and in a proper format for use as references when writing papers. The online files are Archived in several directories:

6c13a

<DOCUMENTATION>MIL-WORKREF.NLS;1 contains references used by Doug Engelbart, Jim Norton, Dick Watson and others in various documents and reports. The references are all to papers written by ARCers, about ARC, or on the general subject of augmentation and man-computer interface and used in many of the ARC documents as basic references.

6c13b

<DOCUMENTATION>MIL-ENLARGEDBIBLIO.NLS;3 is the reference section from the last RINS report, written by Jeanne North, and contains many valuable ARC references, both external literature and NLS Journal publications.

6c13c

VI. APPENDICES

SRI-ARC XDOC Catalog Code Sheet XDOC 10937

		7a2
*a1 First Author	*a1	7a3
#1 job title	#1	7a3a
#2 corporate affiliation	#2	7a3b
#3 suborganization	#3	7a3c
#4 street address	#4	7a3d
#5 city, state, zip	#5	7a3e
*a2 Second author	*a2	7a4
#1 job title	#1	7a4a
#2 corporate affiliation	#2	7a4b
#3 suborganization	#3	7a4c
#4 street address	#4	7a4d
#5 city, state, zip	#5	7a4e
*a3 Third author	*a3	7a5
#1 job title	#1	7a5a
#2 corporate affiliation	#2	7a5b
#3 suborganization	#3	7a5c
#4 street address	#4	7a5d
#5 city, state, zip	#5	7a5e
*a4 Fourth author	*a4	7a6
#1 job title	#1	7a6a
#2 corporate affiliation	#2	7a6b

[no limit to number of authors]		7a7
*b1 Editor	*b1	7a8
#1 job title	#1	7a8a
#2 corporate affiliation	#2	7a8b
#3 suborganization	#3	7a8c
#4 street address	#4	7a8d
#5 city, state, zip	#5	7a8e
*b2 First Organization	*b2	7a9
#2 intermediate organization	#2	7a9a
#3 suborganization	#3	7a9b
#4 street address	#4	7a9c
#5 city, state, zip	#5	7a9d
*b3 Second Organization	*b3	7a10
*b4 Publisher	*b4	7a11
#3 suborganization	#3	7a11a
#4 street address	#4	7a11b
#5 city, state, zip	#5	7a11c
*b5 First addressee of letter or memo	*b5	7a12
#1 job title	#1	7a12a
#2 corporate affiliation	#2	7a12b
#3 suborganization	#3	7a12c
#4 street address	#4	7a12d

#5 city, state, zip	#5 ,PES;	7a12e
*b6 Second addressee	*b6	7a13
*b7 Third addressee	*b7	7a14
*b8 Fourth addressee	*b8	7a15
*b9 ARC number of addressee list	*b9	7a16
*b10 Distribution list in ident form	*b10	7a17
*b11 Second, third editors	*b11, *b13	7a18
*c1 Title of item	*c1	7a19
#1 subtitle	#1	7a19a
#6 pages	#6	7a19b
*c2 Title of more inclusive document	*c2	7a20
#1 subtitle	#1	7a20a
#2 volume	#2	7a20b
#3 number	#3	7a20c
#6 pages	#6	7a20d
*c4 Also published in:	*c4	7a21
*c5 Also published as:	*c5	7a22
*c6 Also to be presented at:	*c6	7a23
*d1 Day and/or month and/or year issued	*d1	7a24

Notes on Catalog Production, Database 31 AUG 74 XDOC 23924

*d2	Date written or submitted	7a25
*d3	Period covered	7a26
*d4	Date of conference or meeting	7a27
*d5	Date of *c4, *c5 or *c6	7a28
*f1	Form of item ,LBS=1;	7a29

a	article	ma	map ,LBS=0;	7a29a
ad	advertisement	mn	users' guide or manual	7a29b
b	book	n	newsletter issue	7a29c
bi	biography	p	paper	7a29d
bl	bibliography	pg	program	7a29e
br	brochure	pi	picture, photo	7a29f
ch	chapter	pr	proposal	7a29g
d	draft	pt	patent	7a29h
ds	dissertation	qu	questionnaire	7a29i
f	film	r	report	7a29j
g	proceedings	re	press release	7a29k
gr	graph or chart	s	slide	7a29l
i	abstract or review	sp	specification, standard	7a29m
j	ARC or NIC journal item	t	talk	7a29n
k	periodical, newspaper	th	thesis	7a29o
l	letter	tr	translation	7a29p
lt	transmittal letter	u	functional doc	7a29q
m	memo	z	contents of	

```
    functional doc
                                                          7a29r
                                        ,LBS=1;           7a29s
  *f2  Media
   ,LBS=0;                                                7a30
     a  carbon copy                                       7a30a
     c  copy, not original                                7a30b
     f  film                                              7a30c
     l  microfilm                                         7a30d
     m  microfiche                                        7a30e
     ma magnetic tape cassette                            7a30f
     o  original                                          7a30g
     p  photocopy by ARC                                  7a30h
     pa partial photocopy                                 7a30i
     r  machine readable                                  7a30j
     s  slide                                             7a30k
     t  paper tape                                        7a30l
     v  videotape                                         7a30m
     x  reference only ,LBS=1;
                                                          7a30n
  *f3  Source file name                    *f3
                                                          7a31
  *m1  Sponsor of meeting                  *m1            7a32
     #1 name of meeting                    #1             7a32a
     #5 city, state of meeting             #5
                                                          7a32b
  *n1  Item that includes this item        *n1            7a33
```

Notes on Catalog Production, Database 31 AUG 74 XDOC 23924

*n2 Item(s) this item includes	*n2	7a34
*n4 Doc(s) to which this refers	*n4	7a35
*n5 Doc this abstract describes	*n5	7a36
*n6 Doc(s) this one accompanies	*n6	7a37
*n7 Doc(s) this one is related to	*n7 ,PES;	7a38
*p1 Project name assigned by issuer	*p1	7a39
*p2 Project no, assigned by issuer	*p2	7a40
*r1 No,(s) assigned by issuer	*r1	7a41
*r2 No,(s) assigned by govt agency	*r2	7a42
*s1 Sponsoring agency	*s1	7a43
#3 suborganization	#3	7a43a
#5 city, state zip	#5	7a43b
#6 contract or grant number	#6	7a43c
#7 project number	#7	7a43d
#8 order number	#8	7a43e
#9 other number	#9	7a43f
*s2 Second sponsoring agency	*s2	7a44
#3 suborganization	#3	7a44a
#5 city, state zip	#5	7a44b
#6 contract or grant number	#6	7a44c
#7 project number	#7	7a44d
#8 order number	#8	7a44e

	#9 other number	#9	7a44f
*s3	Third sponsor agency	*s3	7a45
*w1	Date received at ARC	*w1	7a46
*w2	Date cataloged at ARC	*w2	7a47
*w3	Initials of contributor	*w3	7a48
*w4	Source if not a1, b2, or w3	*w4	7a49
*y1	Brief abstract	*y1	
			7a50
*y2	Keywords from doc or author	*y2	7a51
*y3	Keywords assigned at NIC	*y3	7a52
*y8	"Updated by xxxx;" "Updates xxxx;" "Obsoletes xxxx;"	*y8	7a53
*y9	"Obsoleted by xxxx"	*y9	7a54

*z1	NIC holdings	*z1	7a55
*z2	Subcollections	*z2	7a56
*z3	ARC catalog management codes	*z3	7a57
*z4	ARC holdings	*z4	7a58
*z5	Location(s) of copy	*z5	7a59
			7a60

Catalog Instruction Manual for Use of Code Sheet

7b

Augmentation Research Center
Stanford Research Institute
Menlo Park, California

XDOC 9868

7b1

GENERAL

7b2

Abbreviations

7b2a

Abbreviation is avoided except in copying any actually present in proper names and titles.

7b2a1

Exceptions:

7b2a2

Codes of ARPA network sites may be entered in *a1#2 and *b5#2, but only in citations for informal documents.

7b2a2a

Code "org" may be entered in *a#2 when information is identical to *b2 or *b4. See *a1 for further information.

7b2a2b

Added information

7b2b

Information known or very probable and of importance to the reference, such as an unstated author, organization, date of publication, should be given in brackets [ ].

7b2b1

In general, only information actually in the document is to be recorded. Recording presumed information is risky, and is poor practice also because copies of the document don't carry the information thus

supplied,

7b2b2

Proper names

7b2c

All proper names will be entered in direct order, omitting only "the", beginning corporate names, and any title in personal names,

7b2c1

Document reference numbers

7b2d

These numbers will be typed without parentheses; and if there are more than one, without commas between them, just a space, i.e., *n1 5891 5892 5893

7b2d1

Distribution limitation

7b2e

Notice of any limitation on distribution to foreign nationals, of client confidential, etc, will be entered as the first information in the abstract, The text [L] will be entered after the title,

7b2e1

Characters Not to be Used in Coding

7b2f

Because of possible conflict with programs or program processing, do not use the following characters in coding items:

#	" (in *c1)	%	&
{	}	*	-
~	-	|	Control characters

7b2f1

NOTE: A quotation mark (") is permissible in *y1, *y2, *y3, *y4, but not in such fields as *c1, *c2, *d1, *f1, *f2, etc, which through codes describe certain conditions concerning the item, It is also preferred not to use the ampersand (&) in an

organizations name because of possible conflicts in handling of online manipulation of files.

7b2f2

*a1 FIRST AUTHOR --
Author's name, as given, in direct order, omitting Dr., Ph.D., etc. (No limit to number of authors.) Put period and space between initials of names.

7b3

#1 JOB TITLE --
If given in the document.

7b3a

#2 CORPORATE AFFILIATION --
If the author's organization is the publisher of the document, enter the letters "org" in #2, as the same information can be retrieved from *b2 (see below for multiple authors). For ARPA Network nodes, this may be entered in the code: "ARC", "LINC", etc. If author's organization is not the publisher of the document, as in a periodical article, meeting proceedings, letter or memo, enter the the organization information as given. (Author's organization is not considered the publisher of his letter or memo.) When two or more consecutive authors of an article have the same org, enter the org after the last. When *b2 is used and two or more consecutive authors have the same org, type "org" in #2 after the last author of these. For other notes on organization names, see notes on *b2.

7b3b

#3 SUBORGANIZATION --
If more than one subordinate level is given, select one.

7b3c

#4 STREET ADDRESS --
Use this element for building name or number, suite number, or other specific of address when practicable, the intent being to allow construction of a mailing address from #1-#5. When an organization, e.g., Chemical Abstracts Service, is situated at another org, but is not a sub-org, use #4 for the site, e.g., Ohio State University. cf. *b2#2.

7b3d

#5 CITY, STATE, ZIP --

Spell out, e.g.: Washington, D.C. 20202; New York, New York 10036; Menlo Park, California 94025.

7b3e

#7 IDENT --
Not used for manual input; supplied by journal.

7b3f

*a2 SECOND AUTHOR --
No limit to number of authors. Use separate number for each author.

7b4

*b1 EDITOR --
Use for editor or compiler. Use same subordinates #1, #2, etc. as for authors. For additional editors use *b11 and *b13

7b5

*b2 FIRST ORGANIZATION --
Use for agency preparing or issuing a report, or other case of non-commercial publisher. For agencies, such as National Library of Medicine, which usually appear independently, enter these as *b2, not as subordinate to U.S. HEW. Ambiguous names, such as Office of Education, should be entered in #3, with U.S. HEW as *b2.

7b6

#2 INTERMEDIATE ORGANIZATION --
Use when essential to completeness, as in some government organizations. Always use #3 for significant suborganization, inserting #2 when essential.

7b6a

#3 SUBORGANIZATION --
Use for significant suborganization, skipping #2 unless an intermediate is important for clarity. Avoid using when an organization is a smaller unit, e.g., an Institute, but only based physically at the larger, such as a university. Place the Institute in *b2, and the university in *b2#4.

7b6b

#4 and #5 --
Use street and city address, use zip code.

7b6c

*b3 SECOND ORGANIZATION --

Use for a second agency (not a government sponsor) in case of joint effort resulting in a document bearing both names.

7b7

*b4 PUBLISHER --
Use for commercial publishers, when documenting books, or noting periodicals as entities. Use only #5 city when well known. Abbreviate name when well known (McGraw-Hill; Wiley; etc).

7b8

*b5 FIRST ADDRESSEE OF LETTER OR MEMO --
To be used, even when addressee list is so lengthy as to cause use of *b9. Can be a group or class, even when non-explicit, such as [ARPA Network Working Group]. Use ident, in *b10. Use form of address in #1, #2, etc, given in the document, do not try to standardize (NOTE: 1. No control over outside entries. 2. Retrieval may be by entry as given, as often as not). When a memo or letter but no addressee given: [unaddressed].

7b9

*b6 through *b8 additional addressees

7b10

*b9 ARC DOCUMENT NUMBER OF ADDRESSEE LIST --
When an addressee list is attached, or when list of addressees exceeds 4, a separate document should be indicated or created, and referenced here.

7b11

*b10 DISTRIBUTION LIST IN IDENT FORM --
For group ident, when addressed to Network Working Group or other recognized group whose membership is given in its ident file. Journal system uses this.

7b12

*b11 SECOND EDITOR

7b13

*b12 Used by journal for additional addressees, after *b10

7b14

*b13 THIRD EDITOR

7b15

*c1 TITLE OF ITEM --

Title of report, article, book or journal considered as a whole,
When a memo contains the line "Subject: ..." or "Re: ..." this text, including "Subject:" or "Re:", is entered as the title,
Title is essential; letters with no explicit title should have descriptive title in brackets, Example: [Transmittal Letter],
When the item referenced is a review or abstract of another work of the same title, add [Review] or [Abstract],
Limitation on use of a document should be indicated by [L] following the title, with an elaboration in *y1,

7b16

#1 SUBTITLE --
Include any subordinate phrase in the title rather than as subtitle, as a rule,
Use subtitle only for lengthy title strings or for alternate titles, and for series notes,
Vol, 1 etc, of books goes into subtitle when subtitle is title of vol, only,

7b16a

#6 PAGES --
Use for page data when *c2 is not present or when *c1 is independently paginated, Examples: 263p, [for book with 263 pages], When document is not paged : [unpaged], When document is numbered by sections: [separately paged],

7b16b

*c2 TITLE OF MORE INCLUSIVE DOCUMENT --
Use for name of journal when *c1 is an article from it,
Use for name of book when *c1 is a chapter from it,
Use for Proceedings when *c1 is a paper published in it,
Use for encyclopedic work or series when *c1 is a volume from it,
Use for functional document name when *c1 is a part or section of contents, Example: Section 3, Network User Guide,

7b17

#1 SUBTITLE --
Use only when inclusion in *c2 is awkward,

7b17a

Examples: *c2 MICRODOC #1 Journal of the Microfilm Association of Great Britain -or- *c2 Bulletin de Documentation Bibliographique #1 pt, 2 of Bulletin

des Bibliotheques de France.

7b17a1

#2 VOLUME --
Examples: Vol. 35, for volume of periodical, Vol. 35 for volume of encyclopedia or a series, Vol. 1, etc. of books goes into subtitle when subtitle is title of vol. only.

7b17b

#3 NUMBER --
Use for issue number of periodical.
Examples: No. 10
No. 106 when no volume number exists.

7b17c

#6 PAGES --
Use for articles or other parts of documents. Include "p."
Examples: p.256-275, when item is a series of pages within a larger document, all of which is not included; or 25p., when item is a document which is being coded in its entirety and the entire number of pages are applicable. When pages are not numbered, use [Unpaged]. When sections are separately paged, use [Separately paged].

7b17d

*c4 ALSO PUBLISHED IN: --
When such information is given, Use *d5 for date.

7b18

*c5 ALSO PUBLISHED AS: --
When such information is given, Use *d5 for date.

7b19

*c6 ALSO TO BE PRESENTED AT: --
For reports or articles which contain such a statement, code as *f1 p after *f1 r or *f1 a, Use *d5 for date.

7b20

*d1 DAY AND/OR MONTH AND/OR YEAR ISSUED --
Use for all types of items. Use for date of publication of published items, for date of letter or memo. If approximate date is known, use [Undated] and put info in *y1. If the item has no date and none can be inferred for coding within brackets, then enter the word Undated (starting with a capital letter). Use *d2 if an earlier

date of preparation is given. Use *d4 for a meeting date or dates whether the same as or different from *d1. Use form: 12 November 1969, [Spring 1970], November 1969, or just 1968, when only the year is known. This field should never be left blank. Never use the format "1972-73"; use 1972 and explain in *y1 that date is 1972-73. The catalog programs will process such a format as "72-".

7b21

NOTE: Never use additional information in this field, such as "Rev.", etc. The programs will not accept any characters in this field beyond the day, month, and year or Spring (Summer, Fall, Winter) year. If the date is given on the document as 1972-73, for instance, the program will not accept this form but the indices will instead show "72-" as the date. In this case, it would be best to enter 1972 as the date under *d1, and under *y1, Abstract, make a statement as to the correct date of the document.

7b22

*d2 DATE WRITTEN OR SUBMITTED --
Use in addition to *d1 when an earlier date of preparation or submission is shown. Use form: 12 November 1970. Use for patent filing date.

7b23

*d3 PERIOD COVERED --
Use for progress reports, etc., when indicated by cover, title or abstract. Use forms: 1 July 1969 - 30 June 1970; 1 July - 30 September 1970.

7b24

*d4 DATE OF CONFERENCE OR MEETING --
Use in addition to *d1 whether or not *d1 gives date of published proceedings. Use forms: 12-15 November 1970; 30 November - 2 December 1970.

7b25

*d5 DATE OF *c4, *c5 or *c6

7b26

*d6 DATE OF FILE REVISION -- (used by Journal system)
Example: 1/20/72

7b27

*d7 TIME OF FILE REVISION -- (used by Journal system)
Example: 1920:32

7b28

*f1 FORM OF ITEM --

7b29

NOTE: MULTIPLE CODES MAY BE USED, e.g., r p - numbered report to be given at a meeting; a tr - translation of an article. FIRST CODE DETERMINES FORMAT. This element has two uses: formatting for the printed catalog, and search keys for online retrieval.

7b29a

a - ARTICLE --
article in journal

7b29b

ad - ADVERTISEMENT --
Advertisement, from newspaper, periodical (Compare br - brochure; pg - meeting program).

7b29c

b - BOOK --
For commercially published work, often hardbound. Pocketbooks and folio size softbounds are also coded "b".

7b29d

bi - BIOGRAPHY --
a resume or a biographical note in a journal, program, etc.

7b29e

bl - BIBLIOGRAPHY --
May be a separate, or a part of a larger work primarily coded ch. In the latter case, *c2 should contain overall title.

7b29f

br - BROCHURE --
For separate promotional material, even 1 page.

7b29g

ch - CHAPTER --
Chapter or portion of book not a proceedings volume. Use *c1 for title of chapter and include ", Chapter ??"; and use *c2 for overall title of book or volume.

7b29h

d - DRAFT --

Use when stated or known to be a draft, not a finished product.

7b29i

ds - DISSERTATION
Also see Thesis.

7b29j

f - FILM --
Use for movie or sound. Not for microfiche

7b29k

g - PROCEEDINGS --
use when *c1 is a proceedings volume, When a paper, from a published proceedings is indicated, use a. Place name of Proceedings of overall book title in *c2.

7b29l

gr - GRAPH OR CHART --

7b29m

i - ABSTRACT OR REVIEW --
Use when the item catalogued is an abstract or review, as well as bracketing the word following the title in *c1.

7b29n

j - ARC OR NIC JOURNAL ITEM

7b29o

k - PERIODICAL, NEWSPAPER --
periodical, newsletter, journal, use when journal, etc, in its entirety is meant. For an article use a, for a newsletter issue use n.

7b29p

l - LETTER --
Use for a personal letter or where the term appears. For an unspecified letter to several addressees, usually use m.

7b29q

lt - TRANSMITTAL LETTER

7b29r

m - MEMO --
Use when the term appears, and when a group of

addressees are indicated.

7b29s

ma = MAP

7b29t

mn = USER's GUIDE OR MANUAL

7b29u

n = NEWSLETTER ISSUE --
A newsletter as an entity, not a specific issue, should be indicated k.

7b29v

p = PAPER --
Use for an individually issued preprint or reprint of a presentation, as well as for a paper.

7b29w

pg = PROGRAM --
Program of meeting, including first announcements. When ARC member is speaker, etc., indicate in abstract, and note in Keywords: e.g., DCE speaker.

7b29x

pi = PICTURE, PHOTO --
Use for references to photographs or pictures when separately cataloged in *c1.

7b29y

pr = PROPOSAL

7b29z

Use *b5 for addressee, and note "Proposal to ..." in *y1.

7b29z1

pt = PATENT
Note in *y1 to whom patent was issued, and to whom assigned.

7b29a@

qu = QUESTIONNAIRE

7b29aa

r = REPORT --
Use for technical reports and short publications not

known to be articles, papers, etc, Use for RFC's,

7b29ab

re - PRESS RELEASE --
Intended for announcements so labelled, and other announcements not meeting programs, advertisements, or brochures,

7b29ac

s - SLIDE

7b29ad

sp - SPECIFICATION, STANDARD

7b29ae

t - TALK --
Use for an oral presentation recorded on audio or video tape, and for a written version of an oral presentation not expected to be published,

7b29af

th - THESIS
A thesis is often also published as a report (code: r) or as a book (code: b). In such cases, the r or b is entered first, since catalog programs process on the first entry in *f1,

7b29ag

tr - TRANSLATION --
May be accompanied by original or original may be separately cataloged, e.g., an original in Japanese may be attached to a translation, rather than separated,

7b29ah

u - FUNCTIONAL DOCUMENT --
Use when major content of the document is subject to addition, deletion or substitution, as in looseleaf changes,

7b29ai

z - CONTENTS OF FUNCTIONAL DOC --
Use as primary code for any document made a part of a functional document, In conjunction, use *c2 to contain the name of the functional document, Examples: *c2 Part, ARPA Network Resource Notebook, *c2 Section 3, Network Information Center User Guide,

7b29aj

*f2 MEDIA

7b30

a - CARBON COPY --
Use if copy in hand is a carbon copy.

7b30a

c - COPY, NOT ORIGINAL --
If copy received at ARC is obviously a copy made of an existing document such as a periodical article. Use for a reprint received which is printed for the author by the publishing journal. If copy is obviously a "xerox" or other photoprint copy, use "p".

7b30b

f FILM --
Use for movie and/or sound film. Not for microfiche.

7b30c

l - MICROFILM --
Use for roll microform.

7b30d

m - MICROFICHE --
Use for items on sheet film.

7b30e

ma - MAGNETIC TAPE CASSETTE OR REEL
Use for taped recordings, such as a tape taken of a meeting, tc.

7b30f

o - ORIGINAL --
Original as first issued. Use c if copy received at ARC is obviously a copy made of an existing document e.g., a periodical article. Use p if copy is a photocopy. Use a if copy in hand is a carbon copy.

7b30g

p - PHOTOCOPY --
Use for photocopy such as a xerox copy. Compare pa.

7b30h

pa - PARTIAL PHOTOCOPY
Use for photocopy of cover, title page, etc, sometimes made to capture part of a document when the whole is not obtainable or retainable.

7b30i

ph - PHOTOGRAPH --
Use to indicate a photograph, such as a glossy print or color photograph. Describe content of photograph in *y1 and indicate names of people shown, if any.
7b30j

r - MACHINE READABLE --
Use to indicate existence of item in machine readable form. May be used in addition to o, etc.
7b30k

s - SLIDE --
Use to indicate a chart, photograph etc, is in form of slide.
7b30l

t - PAPER TAPE --
Use to indicate existence on paper tape.
7b30m

v - VIDEOTAPE
7b30n

x - REFERENCE --
Used to indicate ARC has recorded the reference but does not have the full document.
7b30o

*f3 SOURCE FILE NAME -- (used by Journal system)
Use for name of machine file if document is machine-readable.
7b31

*m1 SPONSOR OF MEETING --
Name of sponsor of conference or meeting. Use for name of organization holding or sponsoring meeting.
7b32

#1 NAME OF MEETING --
examples: Conference On Image Transmission, Annual meeting.
7b32a

#5 CITY, STATE OF MEETING
7b32b

*n1 ITEM THAT INCLUDES THIS ITEM --
ARC number of item that includes this item. Use to

record ARC number of book, Proceedings, etc., where item in hand is a part, or attachment. Example: 5606. In all the *n series, when multiple numbers are used, separate numbers by one space and no other punctuation.

7b33

*n2 ITEMS(S) THIS ITEM INCLUDES --
ARC number(s) of item(s) this item includes. Use to record ARC numbers of subordinate parts or enclosures, etc, of item in hand. Example: 5603 5604

7b34

*n3 Not presently used.

7b35

*n4 DOC(S) TO WHICH THIS REFERS --
ARC number(s) of ARC document(s) to which this refers. Use to record explicit reference by document in hand to other ARC documents.

7b36

*n5 DOC THIS ABSTRACT DESCRIBES --
ARC number of document this abstract describes. Use to record number of complete document when a condensation is in hand.

7b37

*n6 DOC(S) THIS ONE ACCOMPANIES --
ARC number(s) of documents this one accompanies. Use to record transmittal letter for doc, and such.

7b38

*n7 DOC(S) TO WHICH THIS ONE IS RELATED --
Use for related documents not necessarily received or filed together.

7b39

*p1 PROJECT NAME ASSIGNED BY ISSUER --
Use when explicit; use for code names. Examples: Project MAC; MEDLARS

7b40

*p2 PROJECT NUMBER ASSIGNED BY ISSUER --
Use when organization assigns a project number, often in addition to a sponsoring agency's number.

7b41

*r1 NUMBER(S) ASSIGNED BY ISSUER --

Serial or or code number(s) assigned by issuer. Use for serial or codes assigned to the individual title by the agency issuing it. Examples: TM 42; Report 17; ISBN 13-165969-3

7b42

*r2 NUMBER(S) ASSIGNED BY GOVT AGENCY --
Serial or code number(s) assigned by government. Use for numbers assigned to individual report titles. Examples: AD 651 730; PB 117 190; LC 70-79429

7b43

*s1 SPONSORING AGENCY --
Use for funding agency, private or governmental.

7b44

#3 SUBORGANIZATION --
Use for most significant subdivision of relevant sponsor, skipping #2 unless an intermediate is important for clarity.

7b44a

#5 CITY, STATE, ZIP --
Use in full.

7b44b

#6 CONTRACT OR GRANT NUMBER --
Use as given, excluding "No." or "#".

7b44c

#7 PROJECT NUMBER --
Use for sponsor's project number if any

7b44d

#8 ORDER NUMBER --
Use for sponsor number so designated

7b44e

#9 OTHER NUMBER --
Use for any other number(s) attached by the sponsor

7b44f

*s2 SECOND SPONSORING AGENCY --
Use for second sponsor with same subelements as *s1

7b45

*w1 DATE RECEIVED AT ARC --

Use form: 12-27-70

7b46

*w2 DATE CATALOGED AT ARC --
Use form: 12-28-70

7b47

*w3 INITIALS OF CONTRIBUTOR --
Use for attribution to ARC source when desired, Use form: dce, Seldom used,

7b48

*w4 SOURCE IF NOT *a1, *b2, or *W3 --
Use as credit to donor or as indication of future source, Examples: John F, Bennett, IBM Los Gatos; CFSTI; ERIC CLIS; NTIS, Seldom used,

7b49

*w5 CLERK SUBMITTING FOR AUTHOR --
Ident of person creating online file for author, Seldom used or relevant,

7b50

*w6 DATE LAST EDITED --
Use when changing a statement, Used only in exceptional cases,

7b51

*w7 IDENT OF PERSON CHANGING --
Used with *W6 when changing a statement

7b52

*y1 BRIEF ABSTRACT --
Use abstract in report, if brief and informative, Use modified abstract from copyrighted publication, Use for clarification when title is not informative, Use (with [L] in title) for statement of any limitation imposed on the contents or citation, Example: LIMITATION: This document not to be cited, Indicate valuable bibliographies,

7b53

*y2 KEYWORDS FROM DOC OR AUTHOR --
Keys to subject content, For keywords assigned by report producer or NTIS, etc, Separate with semicolons and end with semicolon, Do not use parentheses in this field,

7b54

*y3 KEYWORDS ASSIGNED AT ARC --

Keys to subject content. For keywords assigned by ARC coder in absence of or in addition to ones given in the document or index. Separate with semicolons and end with semicolon. Do not use parentheses in this field.

7b55

*y4 KEYWORDS ASSIGNED AT ARC --
For use in special cases. Do not use parentheses in this field.

7b56

*y8 "UPDATED BY xxxx;" "UPDATES xxxx;" "OBSOLETES xxxx;" --
Documents updated or obsoleted, where xxxx is the XDOC number of the document updated or obsoleted.

7b57

*y9 "OBSOLETED BY xxxx" --
Notation of document which obsoletes the document being coded.

7b58

*z1 ARPANET DISTRIBUTION --
Use when transmission or general distribution is made. Examples: all; MAC, SDC, UCSB. I.e., "all" for amterial sent to all station agents, principal investigators, and associates. To date (8-14-74) that is only coding used here.

7b59

*z2 SUBCOLLECTION --
Use to indicate status of an item as a part of one or more subcollections. Examples: NIC, NAS, NIC SHE, NIC NWG, CBI, SUR, NMN, PODAC, IR, or any of the Group Note indicators. Note: When an item is an ARPANET Special Interest Group Note, subcollections were coded as: NIC SUR, or NIC ASS, etc. The "NIC" was placed first, immediately after the "*z2" and the special distribution as a group note indicated next. When NIC is used in this field, it is placed after the *z2 since it was thought that sometime in the future this indication might possibly desired changed; in that case, the entire database can be "substituted" as "*z2 XX" for "*z2 NIC", making change easy.

SPECIAL NOTE: IN NO CASE does the "*z2 NIC" notation indicate that the document was or is the possession of a "NIC" (or Network Information Center) or that it was purchased from "NIC" funds, or that it is to be found anywhere other than in an online database notation in this

field for ease of automatically separating these particular items from the remainder of the database. It should be emphasized again: Items so coded DO NOT indicate that they "belong" to any organizational structure known either at ARC or elsewhere as the "NIC", or Network Information Center. The documents are the property and an integral part of the collection gathered by and at the direction of Doug Engelbart, SRI-ARC.

7b60

*z3 ARC CATALOG MANAGEMENT CODES --
ARC master catalog management descriptions. Use for notation of data management, such as form of entry, examples: old, Walt 1; new, Present coding uses: new

7b61

*z4 ARC HOLDINGS --
Not really relevent at this time since no record is kept of ARC holdings and their whereabouts; cannot be kept current or useful in a fluid environment, so ignore in coding.

7b62

*z5 LOCATION(S) OF COPY --
e.g., original DCE; partial photo ARC.

7b63

All statements terminate with: space *

7b64

Notes on Catalog Production and Database Handling

(J23924) 6-SEP-74 13:47; Title: Author(s): Mil E. Jernigan/MEJ;
Distribution: /JI ARH JNH STW RFB SRI-ARC; Keywords: XDOC Catalog;
Sub-Collections: SRI-ARC; Clerk: MEJ;
Origin: < CAT, CATALOG,NLS;144, >, 6-SEP-74 12:42 MEJ ;;;;(JERNIGAN,
CATALOG,NLS;3,), 18-JUL-74 07:34 MEJ ;

(J23926) 6-SEP-74 17:52;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /NPG([INFO-ONLY]) JBP([INFO-ONLY]) RWW([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG; Clerk: JEW; Origin: < WHITE, PCP-FILSTR,NLS;13, >, 6-SEP-74 15:18 JEW ;;;; ####;

For comment,

INTRODUCTION 1

The File Storage Package (package name=$FILSTR) contains those procedures and data structures which a remote environment requires to employ the file storage services of the host environment. The package contains procedures for opening, closing, and listing directories, for creating, deleting, and renaming files, and for outputting, updating, and deleting elements of files. It also contains data structures of directory and file descriptors. 1a

Files 1b

Introduction 1b1

A "file" is a named PCP data structure, stored not in the host environment's address space, but on secondary storage. A file thus has an indefinite lifetime, and in particular is not destroyed by the deletion of its host environment. Files are manipulated via procedures provided by $FILSTR, rather than via the PCP Support Package's $RDDATA and $WRDATA procedures. 1b1a

A file (or any of its elements, selected by means of the ELEM attribute) can be arbitrarily complex. However, some very simple and commonly-used file types can also be identified: 1b1b

1) Unstructured binary files 1b1b1
   ub= BITSTR 1b1b1a
2) Paged (and possibly holey) binary files 1b1b2
   pb= LIST (BITSTR / EMPTY, ...) 1b1b2a
3) Unstructured text files 1b1b3
   ut= STRING 1b1b3a
4) Record-structured text files 1b1b4
   rt= LIST (STRING, ...) 1b1b4a

Access Controls 1b2

The "creator" of a file can independently grant or refuse the following types of access to it: 1b2a

1) READ: the right to read the file (with the $OPTELM procedure), 1b2a1
2) WRIT: the right to modifiy, delete, or rename the file (with the $UPDELM, $DELELM, $DELFIL, and $RENFIL procedures), and 1b2a2
3) CTRL: the right to modify the access assignments themselves, 1b2a3

to the following classes of users: 1b2b

1) CRT: the creator himself, 1b2b1
2) MEM: a directory member, i.e. anyone with its password (described more fully later), and 1b2b2
3) PUB: the general public, 1b2b3

The access assignments for the file are stored in the file's "access descriptor": 1b2c

```
ACCDSC* ==> LIST (crt, mem, pub)                                  1b2c1

crt= LIST (read% BOOLEAN, writ% BOOLEAN, ctrl% BOOLEAN)           1b2c2
mem= LIST (read% BOOLEAN, writ% BOOLEAN, ctrl% BOOLEAN)           1b2c3
pub= LIST (read% BOOLEAN, writ% BOOLEAN, ctrl% BOOLEAN)           1b2c4
```

The access descriptor is specified initially when the file is created (via the $CRTFIL procedure), and can be modified any time thereafter by anyone with controlling access to the file. 1b2d

File Descriptors 1b3

Associated with every file is a secondary data structure called a "file descriptor", which contains information about the file, and which has the following format: 1b3a

```
FILDSC* ==> LIST (                                                1b3a1

   crtor:  file,creator% STRING,                                  1b3a1a
   accdsc: access,descriptor% ACCDSC*,                            1b3a1b
   crdat:  creation,date,and,time% STRING,                        1b3a1c
   rddat:  date,and,time,of,last,read% STRING,                    1b3a1d
   wrdat:  date,and,time,of,last,write% STRING,                   1b3a1e
   acct:   account% STRING)                                       1b3a1f
```

Directories 1c

Introduction 1c1

The files within an environment are partitioned into one or more "directories". Directories are referred to initially (in the $OPNDIR procedure) by name, and thereafter via a "directory identifier", or DID. A directory is "known" if and only if it has been successfully "opened" (i.e. if a DID has been obtained for it). 1c1a

NOTE: the "login directory" (if any) implied by the USERname last specified via $PCPSUp's $LOGIN procedure is always considered open (with DID=0) and need not, indeed cannot, be explicitly opened or closed (with $OPNDIR and $CLSDIR). 1c1a1

Access Controls 1c2

The "creator" of a directory can independently grant or refuse the following types of access to it: 1c2a

1) READ: the right to open and list the directory (with the $OPNDIR and $LSTDIR procedures), 1c2a1
2) WRIT: the right to create a file in the directory (with the $CRIFIL procedure), and 1c2a2
3) CTRL: the right to modify the access assignments themselves. 1c2a3

to the same classes of users to which file access can be assigned. 1c2b

The access assignments for the directory are stored in the directory's "access descriptor", identical in form to a file's access descriptor. The access descriptor is specified initially when the directory is created, and can be modified any time thereafter by anyone with controlling access to the directory. 1c2c

Directory Descriptors 1c3

Associated with every directory is a data structure called a "directory descriptor", which contains information about the directory, and which has the following format: 1c3a

```
DIRDSC* ==> LIST (                                          1c3a1

    crtor: file,creator% STRING,                            1c3a1a
    accdsc: access,descriptor% ACCDSC*)                     1c3a1b
```

Identifying the Invoking Environment 1d

The host environment identifies the invoking environment, for purposes of enforcing access controls for the directory itself, and for files within it, whenever the directory is opened. The user associated with the invoking environment is taken to be, for purposes of establishing or refuting his creatorship of the directory, or of files within it, that specified in the most recent invokation of SPCPSUP's $LOGIN procedure. The invoking environment is identified as a directory member if it supplies the proper directory password in the $OPNDIR procedure. 1d1

Some Similarities 1e

Files and directories bear a striking similarity to external data structures and packages, respectively. The similarity is so strong that we define a shorthand for denoting a reference to an attribute of a file, qualified by its directory name, as: 1e1

```
FILETRIB* ==> DATATRIB*                                     1e1a
```

with FILENAME and DID, substituted in the definition for STRUCNAME and PKID, respectively. A similar definition is given to that file attributes which designate an element of the file (i.e. which are constructed exclusively by means of the VALUE and ELEM attributes): 1e2

```
FILEELM* ==> DATAELM*                                       1e2a
```

Finally, we define the following shorthand to denote a filename FILENAME, qualified by the directory DID that contains it: 1e3

```
FILE* ==> LIST (did% INTEGER, filename% STRING)             1e3a
```

PROCEDURES 2

Directory manipulation 2a

Open directory 2a1

$OPNDIR (dirname, password => did) 2a1a

Provided the invoking environment has read access to the directory, this procedure opens the host environment's directory DIRNAME, and makes it known to the invoking environment via the handle DID. 2a1b

If PASSWORD is specified (correctly), the user associated with the invoking environment is identified as a directory member (a fact considered in subsequent file access control checks). 2a1c

Argument/result types: 2a1d

dirname = STRING 2a1d1
password= STRING / EMPTY 2a1d2
did = INTEGER 2a1d3

Close directory 2a2

$CLSDIR (did) 2a2a

This procedure closes the host environment's previously-opened directory, known via DID, and makes it again unknown. 2a2b

Argument/result types: 2a2c

did= INTEGER 2a2c1

List directory 2a3

sLSTDIR (did, dst, dstype => value) 2a3a

provided the invoking environment has read access to the directory, this procedure outputs a list of the files in the directory identified by DID in the host environment, in the form LIST (filename% STRING, ...), to a destination DST whose nature is specified by DSTYPE: 2a3b

PARM: the list is to be returned to the caller as VALUE (i.e. as a result of the procedure). 2a3b1

FILE: the list is to replace the current value of an element DSTELM of a file in one of the host environment's previously-opened directories (implicitly named by DSTELM). 2a3b2

NETC: the list is to be transmitted via a network connection, to socket SOCKET at host HOST, in one of the following formats FORMAT: 2a3b3

PCPFRK: that defined by PCP for IEC of data structures between Tenex forks (a 36-bit connection). 2a3b3a

PCPNET: that defined by PCP for IEC of data structures between ARPANET user and server processes (an 8-bit connection). 2a3b3b

CRLF: (for UT and RT file elements only) the text of the string, or of each string in the list, terminated by CRLF, appended to the connection's 8-bit byte stream. 2a3b3c

This destination type can be employed both to drive peripherals attached directly to network connections, and to transfer directory listings between a pair of sFILSTR packages in different environments. 2a3b4

Argument/result types: 2a3c

did = INTEGER 2a3c1
dstype= INTEGER [PARM=0 / FILE=1 / NETC=2] 2a3c2
PARM: dst= EMPTY 2a3c2a
FILE: dst= dstelm% FILEELM* 2a3c2b
NETC: dst= LIST (host% INTEGER, socket% INTEGER,

```
                format% INTEGER [PCPFRK=0 / PCPNET=1 /
                CRLF=2])                                        2a3c2c
        value = LIST (filename% STRING, ...) / EMPTY            2a3c3
```

File manipulation 2b

Create file 2b1

$CRTFIL (file, accdsc) 2b1a

Provided that the invoking environment has write access to the directory, this procedure creates a file FILE with access descriptor ACCDSC in the directory implied by FILE in the host environment. 2b1b

Argument/result types: 2b1c

file - FILE* 2b1c1
accdsc- ACCDSC* 2b1c2

Delete file 2b2

$DELFIL (file) 2b2a

Provided the invoking environment has write access to the file, this procedure deletes file FILE from the host environment. 2b2b

Argument/result types: 2b2c

file- FILE* 2b2c1

Rename file 2b3

$RENFIL (file, newfile) 2b3a

Provided the invoking environment has write access to the file and the directory implied by NEWFILE, this procedure renames file FILE to be NEWFILE. 2b3b

Argument/result types: 2b3c

file - FILE* 2b3c1
newfile- FILE* 2b3c2

File element manipulation 2c

Output file element 2c1

sOPTELM (fileelm, mode, disp, dst, dstype => value) 2c1a

Provided the invoking environment has read access to the file, this procedure outputs either a copy or a prototype (according to MODE) of an element FILEELM of a file in one of the host environment's previously-opened directories (implicitly named by FILEELM), to a destination DST whose nature is specified by DSTYPE: 2c1b

PARM: the file element is to be returned to the caller as VALUE (i.e. as a result of the procedure). 2c1b1

FILE: the file element is to replace the current value of an element DSTELM of a file in one of the host environment's previously-opened directories (implicitly named by DSTELM). The invoking environment must have write access to the destination file. 2c1b2

NETC: the file element is to be transmitted via a network connection, to socket SOCKET at host HOST, using format FORMAT (same as for sLSTDIR). 2c1b3

This destination type can be employed both to drive peripherals attached directly to network connections, and to transfer files between a pair of $FILSTR packages in different environments. 2c1b4

The file element is either replaced by EMPTY (i.e. moved) or left unchanged (copied), according to DISP. To move the element, the invoking environment must have write access to the file. 2c1c

Argument/result types: 2c1d

```
fileelm- FILEELM*                                              2c1d1
mode    - BOOLEAN [COPY=TRUE / PROTO=FALSE]                    2c1d2
disp    - INTEGER [DELETE=0 / RETAIN=1]                        2c1d3
dstype  - INTEGER [PARM=0 / FILE=1 / NETC=2]                   2c1d4
   PARM: dst- EMPTY                                            2c1d4a
   FILE: dst- dstelm% FILEELM*                                 2c1d4b
   NETC: dst- LIST (host% INTEGER, socket% INTEGER,
                    format% INTEGER [PCPFRK=0 / PCPNET=1 /
                    CRLF=2])                                   2c1d4c
```

value = any / EMPTY 2c1d5

Update file element 2

sUPDELM (fileelm, disp, src, srctype) 2c2

provided the invoking environment has write access to the file, this procedure replaces an element FILEELM of a file in one of the host environment's previously-opened directories (implicitly named by FILEELM), from a source SRC whose nature is specified by SRCTYPE: 2c2b

PARM: the source is SRC (i.e. an argument of the procedure). 2c2b1

FILE: the source is the current value of an element SRCELM of a file in one of the host environment's previously-opened directories (implicitly named by SRCELM). The invoking environment must have read access to the source. 2c2b2

The source element is either replaced by EMPTY (i.e. moved) or left unchanged (copied), according to DISP. To move the source element, the invoking environment must have write access to the source file. 2c2b3

NETC: the source will be transmitted via a network connection, from socket SOCKET at host HOST, using format FORMAT (same as for sLSTDIR). 2c2b4

This source type can be employed both to read peripherals attached directly to network connections, and to transfer files between a pair of $FILSTR packages in different environments. 2c2b5

Argument/result types: 2c2c

```
fileelm- FILEELM*                                              2c2c1
disp   - INTEGER [DELETE=0 / RETAIN=1]                         2c2c2
srctype- INTEGER [PARM=0 / FILE=1 / NETC=2]                    2c2c3
   PARM: src- any                                              2c2c3a
   FILE: src- srcelm% FILEELM*                                 2c2c3b
   NETC: src- LIST (host% INTEGER, socket% INTEGER,
                format% INTEGER [PCPFRK=0 / PCPNET=1 /
                CRLF=2])                                       2c2c3c
```

Delete file element 2c3

$DELELM (fileelm) 2c3a

Provided the invoking environment has write access to the file, this procedure replaces an element FILEELM of a file in one of the host environment's previously-opened directories (implicitly named by FILEELM) with EMPTY. 2c3b

Argument/result types: 2c3c

fileelm- FILEELM* 2c3c1

DATA STRUCTURES 3

$DESCS List of directory and file descriptors 3a

This data structure is a list of the directory descriptors DIRDSCs, and file descriptors FILDSCS for all files FILENAMEs, for all open directories DIDs with names DIRNAMEs within the host environment. It also contains for each directory, the user USER who opened it, and his relationship REL to it. The data structure is read-only, except for the ACCDSC field of each directory and file descriptor, which can be written by anyone with controlling access to the directory or file. 3a1

Data structure type: 3a2

```
$descs: LIST (dirname: LIST (did% INTEGER, dirdsc% DIRDSC*,
        usedsc% LIST (user% STRING, rel% INTEGER [CRT=0 /
        MEM=1 / PUB=2]), fildscs% LIST (filename: fildsc%
        FILDSC*, ...)), ...)
```
3a2a

$NTPORT Network port for NETC file transfers 3b

This read-only data structure identifies the host and socket from which the host environment will initiate network connections for NETC file transfers requested via $LSTDIR, $UPDFIL, or $OPTFIL. $NTPORT is a constant for the life of the host environment. By supplying this information to the $FILSTR package of a second environment, the invoking environment can arrange inter-environment file transfers. 3b1

Data structure type: 3b2

```
sntport: LIST (host: INTEGER, socket: INTEGER)
```
3b2a

DRAFT $FILSTR
The File Storage Package

6-SEP-74

James E. White
Augmentation Research Center

Stanford Research Institute
Menlo Park, California 94025

$FILSTR is a file storage tool that operates within the setting provided by the Procedure Call Protocol (PCP -- xxxxxx,), with which the reader of the present document is assumed familiar.

(RWW)23927	(RWW)23927	(RWW)23927	(RWW)23927	(RWW)23927	(RWW)239
(RWW)23927	(RWW)23927	(RWW)23927	(RWW)23927	(RWW)23927	(RWW)239
(RWW)23927	(RWW)23927	(RWW)23927	(RWW)23927	(RWW)23927	(RWW)239

INTRODUCTION .H2=".Split;Introduction"; .PBS;

The Remote Job Entry Package (package name=$RJE) contains those procedures and data structures which a remote environment requires to employ the batch processing services of the host environment. The package contains procedures for creating and deleting batch jobs, for retrieving or altering the status of a batch job, for controlling the transmission of its input/output streams, and for communicating with the batch system's operator.

PROCEDURES .H2=".Split;Procedures"; .PBS;

Create batch job

$CRTJOB (infiles, outfiles -> jobid)

This procedure queues a job for processing by the host environment's batch system, and returns the job identifier JOBID by which the job is thereafter known.

As a result of the procedure and in parallel with its completion, the host environment will retrieve the job's input files INFILES, schedule the job for execution, and eventually return its output files as requested by OUTFILES.

The batch input/output stream to which each file corresponds is identified by STRMNAME. The following universal stream names are defined (but not necessarily accepted by every host environment); other stream names may be defined and accepted by a particular host environment: .IOvr=5;

CRD: the job's primary card (input) stream, .LBS=0;

PRT: the job's primary print (output) stream, and

PUN: the job's primary punch (output) stream; .LBS=1; .IOvr=0;

The host environment is to retrieve each input file in the following manner SRCTYPE: .IOvr=7;

FILE: the input file is to be retrieved from directory DIRNAME (with password PASSWORD) in environment ENVNAME (assumed by the host environment to support the $FILSTR package), using login parameters LOGINPARMS. FILEELM and DISP, as required by $FILSTR's $OPTELM procedure, are provided by the invoking environment.

NETC: the input file will be transmitted via a network connection, from socket SOCKET at host HOST, using format FORMAT (same as in $FILSTR's $UPDFIL procedure). .IOvr=0;

The host environment is to return each output file in the following manner DSTYPE: .PBS; .IOvr=7;

FILE: the output file is to be stored in directory DIRNAME (with password PASSWORD) in environment ENVNAME (assumed by the host environment to support the $FILSTR package), using login parameters LOGINPARMS. FILEELM and DISP, as required by $FILSTR's $UPDELM procedure, are provided by the invoking environment.

NETC: the output file is to be transmitted via a network connection, to socket SOCKET at host HOST, using format FORMAT (same as in $FILSTR's OPTFIL procedure).

DSCD: the output file is to be discarded. .IOvr=0;

Argument/result types: .IOvr=10;

infiles - LIST (strmname: LIST (src, srctype), ...) .LBS=0;

outfiles- LIST (strmname: LIST (dst, dstype), ...)

srctype - INTEGER (FILE=1 / NETC=2) .IOvr=11;

dstype - INTEGER (FILE=1 / NETC=2 / DSCD=3) .IOvr=11;

FILE: dst- LIST (envname% STRING, dirname% STRING, password% STRING / EMPTY, fileelm% FILEELM*, disp% INTEGER, loginparms% LIST (user% STRING, password% STRING, acct% STRING) / EMPTY)

NETC: dst- LIST (host% INTEGER, socket% INTEGER, format% INTEGER) .IOvr=11;

DSCD: dst- EMPTY

jobid - INTEGER .IOvr=0; .LBS=1;

Delete batch job

$DELJOB (jobid)

This procedure deletes the previously-created batch job identified by JOBID. Any input/output files that have yet to be retrieved/returned are ignored/discarded.

Argument/result types:

jobid- INTEGER

Read IO stream specifications .PBS;

$RDIO (jobid, strmnames -> files)

This procedure retrieves the current specifications FILES for one or more input/output streams STRMNAMES for the previously-created job identified by JOBID.

Argument/result types: .IOvr=11;

jobid - INTEGER .LBS=0;

strmnames- LIST (strmname% STRING, ...)

files - LIST (strmname: LIST (src, srctype) / LIST (dst, dstype), ...)

srctype - INTEGER (FILE=1 / NETC=2) .IOvr=11;

dstype - INTEGER (FILE=1 / NETC=2 / DSCD=3) .IOvr=11;

FILE: dst- LIST (envname% STRING, dirname% STRING, password% STRING / EMPTY, fileelm% FILEELM*, disp% INTEGER, loginparms% LIST (user% STRING, password% STRING, acct% STRING) / EMPTY)

NETC: dst- LIST (host% INTEGER, socket% INTEGER, format% INTEGER) .IOvr=11;

DSCD: dst- EMPTY .LBS=1; .IOvr=0;

Write IO streams

$WRIO (jobid, files)

provided they have not as yet been processed by the host environment's batch system, this procedure respecifies one of more input/output streams FILES for the previously-created job identified by JOBID.

Argument/result types: .IOvr=9;

jobid - INTEGER .LBS=0;

files - LIST (strmname: LIST (src, srctype) / LIST (dst, dstype) , ...)

srctype- INTEGER (FILE=1 / NETC=2) .IOvr=11;

dstype - INTEGER (FILE=1 / NETC=2 / DSCD=3) .IOvr=11;

FILE: dst- LIST (envname% STRING, dirname% STRING, password% STRING / EMPTY, fileelm% FILEELM*, disp% INTEGER, loginparms% LIST (user% STRING, password% STRING, acct% STRING) / EMPTY)

NETC: dst- LIST (host% INTEGER, socket% INTEGER, format% INTEGER) .IOvr=11;

DSCD: dst- EMPTY .LBS=1; .IOvr=0;

Cancel batch job .PBS;

$CANJOB (jobid)

This procedure cancels the execution phase (interrupting the job's execution if necessary) of the previously-created job identified by JOBID. The job remains in the batch system's queue, and any output files generated by the job before its cancellation will be disposed of as previously specified.

Argument/result types:

jobid- INTEGER

Retrieve batch job status

$STSJOB (jobid -> status)

This procedure returns the status STATUS, in a host-environment dependent format, of the job identified by JOBID.

Argument/result types:

jobid - INTEGER .LBS=0;

status- LIST* (STRING) .LBS=1;

Modify batch job

$MODJOB (jobid, parms)

This procedure modifies, in a host-environment-dependent way PARMS, the previously-created job identified by JOBID.

Argument/result types:

jobid- INTEGER .LBS=0;

parms- any .LBS=1;

Query batch system operator .PBS;

$QRYOPR (message, rsvp -> reply)

This procedure transmits message MESSAGE to the batch system's operator, and, if RSVP is TRUE, returns his reply REPLY.

Argument/result types:

message- STRING .LBS=0;

rsvp - BOOLEAN

reply - STRING / EMPTY .LBS=1;

Execute remote-operator command

$EXECMD (command -> response)

This procedure executes the host-environment-dependent

remote-operator command COMMAND, and returns the batch system's response to it.

Argument/result types:

command - STRING .LBS=0;

response- LIST* (STRING) .LBS=1;

Alter job stream transmission

$ALSTRM (jobid, strmname, op, parm)

This procedure alters OP the currently ongoing transmission (assuming it to be of type NETC) of stream STRMNAME of the job identified by JOBID. The following alterations are defined: .IOvr=7;

ABRT: transmission of the stream is to be aborted, .LBS=0;

SUSP: transmission of the stream is to be temporarily suspended,

RESM: transmission of the stream is to be resumed, and

REPO: the stream is to be either backed up PGCNT pages (if page count is negative), or the next PGCNT pages skipped. .LBS=1; .IOvr=0;

Argument/result types: .IOvr=10;

jobid - INTEGER .LBS=0;

strmname- STRING [=CRD / =PRT / =PUN / any]

op - INTEGER [ABRT=0 / SUSP=1 / RESM=2 / REPO=3]

parm - pgcnt% INTEGER / EMPTY .LBS=1; .IOvr=0;

DATA STRUCTURES .H2=".Split;Data Structures"; .PBS;

$WSRJE contains no external data structures.

TITLE PAGE .PBS;
.IgD=0;.IgText=0;.Post=1;.Trun=All;.IgLS;.H1Sw=0;.H2Sw=0;.H3Sw=0;.H4Sw=0;.SN=0;.SNFShow=Off;.YBS=0;.YBL=0;.PES;

.SP=C;.FSw=0;.GYBL=12;**DRAFT** $RJE.GCR;The Remote Job Entry Package.VSplit;.GCR;6-SEP-74.GCR=2;James E. White.GCR;Augmentation Research Center.GCR=2;Stanford Research Institute.GCR;Menlo Park, California 94025.GCR=6;.SP=FL;$RJE is a batch processing tool that operates within the setting provided by the Procedure Call Protocol (PCP -- xxxxxx,), with which the reader of the present document is assumed familiar.

DCE 6-SEP-74 19:09 23928

For Pete Tasker, MITRE, re, AKW access

(J23928) 6-SEP-74 19:09;;;; Title: Author(s): Douglas C. Engelbart/DCE; Distribution: /JCN([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: DCE;

DCE 6-SEP-74 19:09 23928

For Pete Tasker, MITRE, re, AKW access

This was sent via SNDMSG, c/o BOSLEY@ISI, 6-SEP-74 18:53

DCE 6-SEP-74 19:09 23928

For Pete Tasker, MITRE, re. AKW access

Pete: Very sorry that we seem to have impeded communications. I went through our records and found two SNDMSGs from Wilcox, and an intervening one by me to him; then (it seems to us) we sent off a batch of documents to him, addressed CINCPAC Staff, Box 29, ATTN: Maj Wilcox FPO San Francisco 96610. 1

At any rate, we definitely aren't indifferent to your needs. Will bundle up and send some (again?). 2

For an immediate, skeletal response: 3

1) Our AKW computer tools are definitely available for outside experimental use -- the whole purpose of our setting up the OFFICE-1 TENEX system at TYMSHARE is to sell AKW service to outside subscribers, and our whole approach toward continued evolution of AKW tools and techniques is oriented around the establishment of a large, diverse community of serious, exploratory users. 3a

2) Terminals: 3b

For TNLS (TYpewriter NLS, where NLS is the name of our whole system of computer aids), any ASCII TY-like device will work, from an upper-case-only TTY33 to the fastest of the typewriter-equivalent, upper-lower-case display terminal. 3b1

For DNLS (Display NLS), where we make heavy use of two-dimensional screen changes, and have two auxiliary devices ("mouse", a pointing device, and a one-handed keyset) besides the normal keyboard that are part of our standard setup, we have a special "Line Processor" box (about $2500 cash) that fits in the communication line for any of the four terminals listed below. This couples in the mouse and keyset, and gives full DNLS capability. It provides increasing utility to the user for higher-speed connections to your TIP, up to 9600 baud (4800 is quite good, 2400 is very useable but definitely not as effective, and 1200 baud starts being slow enough to spoil the powerful viewing and text-modifying effects achieved with the two-dimensional display). 3b2

Delta Data 5200 3b2a

Hazeltine 2000 3b2b

Data Media Elite 2500 3b2c

Lear Siegler Inc. ADM-2 3b2d

We also provide service for a sort of batching mode, where

keyboarded material from any of the on-line type of tpewriters can be collected on a magnetic cassette (or even pape tape, or in a local-host file), and processed at OFFICE-1 as a batch job. We call this "deferred execution" (DEX) -- for practical production work it can be very valuable in conserving on-line time. A number of manufacturers produce cassette units that can be used with a variety of typewriters. Our DEX system is designed to execute almost any of the text manipulation, file-structure reorganization, file-management, and print-format operations. 3b3

3) Contract considerations and cost: 3c

Our Utility is reachable through the ARPANET; any group eligible to use the NET can access our service that way. 3c1

We sell the service in units called "slots". One slot entitles a subscriber to have gauranteed access by one terminal at any time during the 6-day, 16-hr/day gauranteed up time (when operators are on duty). 3c2

The number of users allowed on is limited to the number of slots sold, and the computer is configured to give practical responsivenss for that many NLS users. To preserve reasonable service level for NLS, we don't allow other subsystems than NLS to be run (except for SNDMSG, READMAIL, RD, and perhaps a few other simple service programs -- definitely no FORTRAN or LISP). 3c3

If all permissible slots aren't in use at any given time, any subscriber organization may have more than its quota of users logged in, under "offquota" basis. When the eligible users claim their rightful service later, an offquota person will be automatically but gently bumped off (with something like five minute's warning). 3c4

A slot costs $40 K/yr; this includes the computer service, plus technial support (personalized training, application-development consultation, documentation, etc.) We pro-rate the charges for new subscribers, between the service-start date and the next anniversary date (mid Jan) of our Utility services. 3c5

We are a not-for-profit, so we actually bill for the costs incurred, with the computer-service slot gauranteed, and the level of special services tailored to needs/costs within the (subscriber-gauranteed) maximum. 3c6

We have used the AKW tools within our own organization for

For Pete Tasker, MITRE, re. AKW access

many years, and we have really learned that there has to be a very high reliability and accessibility before our kind of tools can meaningfully be integrated into a real working environment. It was because of this that we contracted to have the computer, operating-system maintenance, and on-duty operator support handled by professional time-sharing service people (i.e. TYMSHARE). Doing the support things that are necessary in order to given the experimental use a chance are deemed inescapable; we do them, add up the costs, and that is what we charge. 3c7

If you want more detail soon, we have various documents that we can easily make available for your on-line typeout. E.g, from 3 to 10 times the size of this one. We could arrange to leave them as sequential text files in a location from which you could copy to your typewrite; or we could send them as a SNDMSG. Let us know. 4

Hope this is useful. Let me point out that Jim Norton (NORTON@ARC) heads the Application Group here at ARC; he is responsibl for all of the service contracting and delivery. Consider that I am here answering for him; feel free to communicate with either of us again. Regards, Doug Engelbart 5

KIRK 8-SEP-74 22:28 23929

two new (to me) bugs

(J23929) 8-SEP-74 22:28;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /BUGS([ACTION]) DSM([ACTION]) ; Sub-Collections:
SRI-ARC BUGS; Clerk: KIRK;

KIRK 8-SEP-74 22:28 23929

two new (to me) bugs

A couple of funny things happend to me in xnls that have never happened to me before. Suddenly it said I had "no write access" to a file in my directory group to which I've always had write access. It said this again even after I connected to the directory. I had to reenter work to solve the problem. 1

The Set Content (pattern) To command with a split screen caused the name of the file loaded in the window that did NOT contain my cursor to appear in the tty window (there was no refresh). I think I then tried to do something and got "fst entry nonexistant" over and over until I did a ^C. 2

Again, reentering work solved the problem, both files verified. 3

DVN 9-SEP-74 10:27 23930

Thoughts on Glossary

(J23930) 9-SEP-74 10:27;;;; Title: Author(s): Dirk H. Van Nouhuys/DVN; Distribution: /KIRK([ACTION]) ; Sub-Collections: DIRT SRI-ARC; Clerk: DVN;

DVN 9-SEP-74 10:27 23930

Thoughts on Glossary

While I was waiting for output device printer to run I looked at he text of glossary, I had a few toughts: It would be nice if Old commands were scattered alphabetically as well as in one place, It cites ##<@>## but I could find "@" no where as a statement name, What about making links to online files, e.g. in userguides, references to the hardcopy equivalnt? It's not clear how much trouble each of these things is to do at this pint, 1

For your information, The index program somehow ended when it had listed all the words but only partially assembled them into statements, I will try again tonight, 2

```
FILE sortnocase % L10 <user-progs>sortnocase,sk %                    2a

%sorts alphabetically, regardless of case                            2b

   Buffer pages required: 1                                          2b1

   When instituted as sort key extractor, whenever Goto Sort Plex
   is executed, the sort will be done regardless of character
   case,                                                             2b2

   Author: NDM %                                                     2b3

DECLARE FIELD chif=[0,7:35] ;                                        2c

(sortnocase)PROCEDURE(stid,outb,num);                                2d

   LOCAL pst,val,flg,char,cnt,wdcnt,firstf,m;                        2d1

   LOCAL TEXT POINTER pt;                                            2d2

   REF outb;                                                         2d3

   %initializations%                                                 2d4

      wdcnt _ 0;                                                     2d4a

      flg _ FALSE;                                                   2d4b

      firstf _ TRUE;                                                 2d4c

   %set at beginning point%                                          2d5

      CCPOS SF(stid);;                                               2d5a

   WHILE num > 0 DO  %fill num words, beginning at address outb%     2d6

      BEGIN                                                          2d6a
```

```
        m_2; %sets number of characters skipped%                          2d6b
        cnt_0;                                                            2d6c
        val_0;                                                            2d6d
        pst_chif+sval; %pointer into first character position in
        val%                                                              2d6e
        FOR i_0 UP 1 UNTIL >= m DO char _ READC;                          2d6f
        WHILE cnt<5 AND NOT flg DO  %fill a word (5 characters)%          2d6g
           BEGIN                                                          2d6g1
           IF ((char_READC) = '@ AND NOT firstf) OR char = ENDCHR
           THEN BEGIN                                                     2d6g2
              flg_TRUE;                                                   2d6g2a
              EXIT; END;                                                  2d6g2b
           'pst _ (IF char IN ['a, 'z] THEN char-40B ELSE char);          2d6g3
           BUMP cnt;                                                      2d6g4
           firstf _ FALSE;                                                2d6g5
           END;                                                           2d6g6
        outb_val;                                                         2d6h
        BUMP wdcnt;                                                       2d6i
        BUMP &outb;                                                       2d6j
        BUMP DOWN num;                                                    2d6k
        IF flg THEN EXIT;                                                 2d6l
        END;                                                              2d6m
     RETURN (flg,wdcnt);                                                  2d7
     END.                                                                 2d8
  FINISH                                                                  2e
```

SRI-W demo needs &a possible application

(J23931) 9-SEP-74 11:04;;;; Title: Author(s): Susan R. Lee/SRL;
Distribution: /JCN([ACTION]) DCE([ACTION]) ; Sub-Collections:
SRI-ARC; Clerk: SRL; Origin: < LEE, BLAP,NLS;2, >, 9-SEP-74
10:57 SRL ;;;;####;

SRL 9-SEP-74 11:04 23931

SRI-W demo needs &a possible application

I talked with John Crandell Sept, 6 for an hour or so, He's a consultant to SRI and was interested in DNLS, He has an interest in aiding physically handicapped people and is associated with the National Deaf Network, 1

The network is nationwide and has 6600 units, They use a Baudot code and one of his major questions was whether there was a way they could link to a system such as ours which uses ASCII, If anyone knows if a connection like that has been done or if there is anything published that describes the difficulties involved he would be interested in knowing about it, 1a

He also was interested in uses that are made of remote terminals - what types were used (any with limited bandwidth linkages) and for what purpose they were being used, I didn't know of any major uses besides computer scientists, 1b

I also talked with Fran Greehan about future demonstrations for SRI, He said I should get in touch with Bob Dehn but that he thought there should be several formal demonstrations at SRI, 2

He thought there should be demonstrations for the marketing group, the administrative office, the Strategic Studies Center, NIOSH, and a group of miscellaneous people, I told him I'd have to talk to Jim Norton first, 2a

Another guy - C, Starr is interested in a demo - he's from DOT and is interested in Text Editing - has seen Bialik's system, 2b

If you know of any documents that John Crandell would be interested in let me know or bring copies when you come to Washinton next, 3

KIRK 11-SEP-74 00:59 23935

Universal commands

(J23935) 11-SEP-74 00:59;;;; Title: Author(s): Kirk E. Kelley/KIRK;
Distribution: /HGL([ACTION]) FEEDBACK([ACTION]) ;
Sub-Collections: SRI-ARC FEEDBACK; Clerk: KIRK;

Universal commands

The universal commands (help, execute, quit, jump, etc,,,) do not work
with control q in many cases because in help they are under the subsystem "universal" and in the help code, they are under the subsystem in which ctrl-q is typed. 1

KIRK 11-SEP-74 01:51 23936

interpreter/parser/cml/control-q bug

(J23936) 11-SEP-74 01:51;;;; Title: Author(s): Kirk E. Kelley/KIRK;

Distribution: /HGL([ACTION]) DSM([ACTION]) CHI([ACTION])
KEV([ACTION]) FDBK([INFO-ONLY]) DVN([INFO-ONLY]) ;
Sub-Collections: SRI-ARC; Clerk: KIRK;

KIRK 11-SEP-74 01:51 23936

interpreter/parser/cml/control-q bug

After the substitute command, Control-q doesn't work until some other character is typed (this happens in many other places in NLS some of which occur after displaying a message that requires a CA to continue). What happens in these cases is the user keeps typing control-q until giving up and going on to something else in which case the user then gets into help recursively ... Needless to say, this experience with the system makes it look very stupid. 1

RLL 11-SEP-74 07:42 23937

bug: terminating space gives delete command, (jump file return)

(J23937) 11-SEP-74 07:42;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /FDBK([ACTION]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 11-SEP-74 07:42 23937

bug: terminating space gives delete command, (jump file return)

If one types jump file return <space> the command is deleted instead of theusual ?, This is in the nls system (as opposed to the work system) 11 Sepp 74 1

HGL 11-SEP-74 09:33 23939

Universal commads bug and waiting for CNTL-Q

(J23939) 11-SEP-74 09:33;;;; Title: Author(s): Harvey G. Lehtman/HGL; Distribution: /DIRT([ACTION]) KIRK([ACTION]) ; Sub-Collections: SRI-ARC DIRT; Clerk: HGL;

HGL 11-SEP-74 09:33 23939

Universal commads bug and waiting for CNTL-Q

someone else reported the waiting for CNTL-Q bug yesterday and it has

been fixed. (One of those instances in which something outside of the immediate system changed and had the reported side effect occured.)

As for the universal commands, there is no way we ca differentiate between a cmmand in, say, the Base sbsystem and in the universal subsystem in the code. Needless to say, this is a problem. I'm not sure what to do about this. (We can either put links in the DB or, when the item is not found, change the search to lookunder the Univesal branch. This has the disadvantage of having that search occur for all failing searches the first time and would not be done any other time.) 1

RLL 11-SEP-74 09:42 23940

Comments on new insert/delete edge commands (in work) and bugs.

(J23940) 11-SEP-74 09:42;;;; Title: Author(s): Robert N. Lieberman/RLL; Distribution: /FDBK([ACTION]) NDM([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RLL;

RLL 11-SEP-74 09:42 23940

Comments on new insert/delete edge commands (in work) and bugs.

(edges) 1

The word perpendicular I think is not clear to many users. First to the class of people not familar to this geometric term and second to those who are but bug some random point in the window. Are we to assume that the window is divided into sections in order for the system to determine which margin edge is used for pegging the "perpendicularness"? what is the algorithm that determines which margin to use? I think is would be BEST to NOT use the term and second best (at the very least) give feedback to user asking for him to point to a margin directly (do not accept bugs not at a margin.) 1a

What ever happened to ndm's proposal on this. I think that a better (more consistent, clearer) idea. 1b

I suppose the following bugs are known (being quite apparent): 1c

Moving an edge off the window results in an empty screen (with the final bug (ok) in the window with an existing file. 1c1

If one has three windows (insert edge first vertically then horizontally on the right side), and then delete the edge between the left right windows, keeping the bug on the right bottm window then one still has the right bottom window. The left bottom «window»« remains blank due to the funny delete of edge. 1c2

JEW 11-SEP-74 16:50 23941

DRAFT JEW 11 SEP 74 7:39PM Tenex Inter-Fork PCP Encoding

(J23941) 11-SEP-74 16:50;;;; Title: Author(s): James E. (Jim) White/JEW; Distribution: /NPG([INFO-ONLY]) JBP([INFO-ONLY]) RWW([INFO-ONLY]) ; Sub-Collections: SRI-ARC NPG; Clerk: JEW;
Origin: < WHITE, PCPFRK,NLS;13, >, 11-SEP-74 16:41 JEW ;;;; ####;

DRAFT JEW 11 SEP 74 7:39PM Tenex Inter-Fork PCP Encoding

For comment.

INTRODUCTION 1

This document defines an encoding of the Procedure Call Protocol, appropriate for communication between TenexX forks. It includes encodings for data structures, and for references to attributes of external data structures, along with implementation descriptions for the IEC primitives described in the PCP document. 1a

The IEC Window 1b

Connected forks communicate by means of shared pages in their respective address spaces, the intersection of which constitutes a "window" through which PCP communiques and lower-level control information are passed. The window has the following format: 1b1

LOCK (1 word) Window lock 1b1a
- FREE=0 Window is free 1b1a1
- BUSY=1 Window is in use 1b1a2
- ENQ>=2 Window is in use and a lock request is pending 1b1a3

REQCDE (1 word) Request code 1b1b
- NOP=0 No operation 1b1b1
- PRCOMQ=1 Process PCP communique in DATA 1b1b2
- SIGONE=2 Signal with value 1 (push environment state) 1b1b3
- SIGZRO=3 Signal with value 0 (pop environment state) 1b1b4
- TRMEVM=4 Terminate environment (from superior only) 1b1b5
- TRMCPL=5 Termination complete (from inferior only) 1b1b6

DATA (remainder) Datastrucencde (PRCOMQ only) 1b1c

Window Etiquette 1c

The window is a half-duplex communication device whose use is controlled by means of the lock LOCK, and an interrupt channel in each of the connected forks' PSI systems. Before it may prepare a "request" for transmission to the connected environment (i.e. before it may begin modifying the window), an environment must first obtain control of the window. 1c1

A fork gains control of the window by either: 1c2

1) successfully locking it (i.e. by adding one to LOCK and discovering the result to be BUSY), or 1c2a
2) receiving a request from the connected fork. 1c2b

A fork relinquishes window control by either: 1c3

1) transmitting a request to the connected fork, or 1c3a
2) unlocking the window (i.e. by exchanging the contents of LOCK for the value FREE) and, if LOCK is discovered to have been ENQ, transmitting a NOP request to the connected fork. 1c3b

As a result of these conventions, inter-fork requests are acknowledged only in situations where there is immediate contention for the window. 1c4

Once a fork has gained window control, it loads REQCDE and (if REQCDE is PRCOMQ) DATA into the window and transmits the request to the connected fork which, after processing it, either issues its own request or simply releases the window. 1c5

IEC IMPLEMENTATION 2

Open path to environment 2a

OPNPTH (envname => pathndle) 2a1

The host fork infers a SAV file name from ENVNAME, creates an inferior fork (whose handle becomes PATHNDLE), maps the file into the inferior fork, and dispatches it at its entry point. When the inferior receives control, it finds in its ACs: 2a2

0	Superior's proposed window	XWD SL,SU	2a2a
1	Superior's interrupt channel number		2a2b
2-15	Unpredictable		2a2c

SL and SU are page numbers which define the portion of its address space which the superior is prepared to devote to the window. The inferior initializes itself and then returns via HALTF to its superior, who extracts the following from the inferior's ACs: 2a3

1	Inferior's proposed window	XWD IL,IU	2a3a
2	Inferior's interrupt channel number		2a3b

The superior then establishes via the appropriate map operations, the following compromise windows in the inferior's and superior's address spaces, respectively: 2a4

```
XWD IL, IL + MINIMUM (IU-IL, SU-SL)          2a4a
XWD SL, SL + MINIMUM (IU-IL, SU-SL)          2a4b
```

and restarts the inferior. 2a5

At this point, initialization of the inferior environment is complete, and either fork may request control of the window. If the host fork and its newly created inferior bear a user-server relationship to one another, then the inferior will idle and await a request from its superior. 2a6

Close path to environment 2b

CLSPTH (pathndle) 2b1

The host fork transmits a TRMEVM request to the inferior fork whose handle is PATHNDLE. The inferior cleans up and returns a TRMCPL request to its superior. The host fork then deletes the window, via the appropriate map operations, and the fork itself, via KFORK. 2b2

Send data structure to environment 2c

SNDPTH (pathndle, datastrucencde) 2c1

The host fork transmits a PRCOMQ request, using DATASTRUCENCDE, to the fork whose handle is PATHNDLE. 2c2

Accept data structure from environment 2d

RCVPTH (pathndle => datastrucencde) 2d1

The host fork waits for a PRCOMQ request from the connected fork, and then returns the DATASTRUCENCDE it contains to its caller. 2d2

Test for data structure from environment 2e

TSTPTH (pathndle) 2e1

The host fork checks for a queued request of type PRCOMQ, sent by the fork whose handle is PATHNDLE. 2e2

Signal environment 2f

SIGPTH (pathndle, bit) 2f1

The host fork transmits a SIGZRO or SIGONE request, according to BIT, to the fork whose handle is PATHNDLE. 2f2

STRUCTURE ENCODING 3

A data structure shall be encoded in the following manner: 3a

Descriptor (1 word) 3a1
Bit 0 STRUCTURE=0 3a1a
Bits 1-4 Structure Type 3a1b
0=STRING 4=EMPTY 3a1b1
1=INTEGER 5=LIST 3a1b2
2=WORD 6=BITSTR 3a1b3
3=BOOLEAN 3a1b4
Bits 5-6 Structure Value Encoding 3a1c
STRING 3a1c1
0=header-ASCII format 3a1c1a
1=ASCIZ format 3a1c1b
BOOLEAN 3a1c2
0=FALSE 3a1c2a
1=TRUE 3a1c2b
LIST 3a1c3
0=element by element 3a1c3a
1=single element replicated 3a1c3b
Bits 7-10 Gross name length 'GNL' in words (=0 no name) 3a1d
Bits 11-17 Unused (zero) 3a1e
Bits 18-35 Gross value length 'GVL' in words (=0 no value) 3a1f
Value (GVL words) 3a2
STRING 3a2a
Maximum number of characters 'm' (18 bits) 3a2a1
Current number of characters 'c' (18 bits) 3a2a2
ASCII string ((c+4)/5 words) 3a2a3
-OR- 3a2a3a
ASCIZ string (m=c) ((c+5)/5 words) 3a2a4
INTEGER Two's complement value (1 word) 3a2b
WORD Value (1 word) 3a2c
BOOLEAN Not used 3a2d
EMPTY Not used 3a2e
LIST 3a2f
Maximum number of elements (18 bits) 3a2f1
Current number of elements (18 bits) 3a2f2
Value of each element (GVL-1 words) 3a2f3
-OR- 3a2f3a
Value of replicated element (GVL word) 3a2f4
BITSTR 3a2g
Maximum number of bits (18 bits) 3a2g1
Current number of bits 'c' (18 bits) 3a2g2
Value (c bits) 3a2g3
Unused (REMAINDER (c/35) bits) 3a2g4
ASCIZ name (GNL words) 3a3

ATTRIBUTE ENCODING 4

A reference to an attribute of an external data structure shall be encoded in the following manner: 4a

Descriptor (1 word) 4a1
Bit 0 ATTRIBUTE=1 4a1a
Bits 1-4 Attribute Type 4a1b
0=VALUE 3=LENGTH 4a1b1
1=DIMEN 4=MAXLEN 4a1b2
2=MAXDIM 5=ELEM 4a1b3
Bits 5-6 Attribute value Encoding 4a1c
ELEM 4a1c1
0=reference by index 4a1c1a
1=reference by name 4a1c1b
Bits 7-10 Gross target structure name length 'GTSNL' in words 4a1d
Bits 11-17 Unused (zero) 4a1e
Bits 18-35 (if ELEM) 4a1f
Name Gross element name length 'GENL' in words 4a1f1
Index Unsigned Index (GENL=0) 4a1f2
ASCIZ Target name (GTS_{NL} words) 4a2
ASCIZ Element name (if ELEM) (GENL words) 4a3

DRAFT $PCPFRK
Tenex Inter-Fork PCP Encoding

11-SEP-74

James E. White
Augmentation Research Center

Stanford Research Institute
Menlo Park, California 94025

$PCPFRK is an encoding, for Tenex inter-fork communication, of the Procedure Call Protocol (PCP -- xxxxxx,), with which the reader of the present document is assumed familiar.

RWW 12-SEP-74 08:50 23942

ARPA Actions Relative to Net Mail Systms

(J23942) 12-SEP-74 08:50;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /DCE([INFO-ONLY]) JCN([INFO-ONLY]) CHI([INFO-ONLY]) JEW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RWW;

RWW 12-SEP-74 08:50 23942

ARPA Actions Relative to Net Mail Systms

Craig fields has just created a committee to make recommendations on future directions of Network Mail systems, the committee is to be chaired by Tom Ellis of ISI and consists of myself, Vezza, Burchfiel, Kirstein, I lost the message creating the committe in yesterdays system crash so am a little short on details t this point,
Bob Kahn is at SRI and will be dropping by to discuss COTCO with me,
There has been no meeting yet, 1

RWW 12-SEP-74 10:23 23943

Here's a copy ofFields Message creating the Mail committee

(J23943) 12-SEP-74 10:23;;;; Title: Author(s): Richard W. Watson/RWW; Distribution: /DCE([INFO-ONLY]) JCN([INFO-ONLY]) CHI([INFO-ONLY]) JEW([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: RWW;

RWW 12-SEP-74 10:23 23943

Here's a copy ofFields Message creating the Mail committee

It seems pretty clear what is wanted, its not clear that NLS or a more sophisticated recorded or distributed system can be pushed under this charter, but please give me you thoughts. Dick

RWW 12-SEP-74 10:23 23943

Here's a copy ofFields Message creating the Mail committee

11-SEP-74 13:23:39-PDT,2368;000000000000 1

Date: 11 SEP 1974 1323-PDT
From: FIELDS
Subject: MAIL SERVICE FOR THE ARPANET
To: ELLIS, KIRSTEIN, WATSON at SRI-ARC, BURCHFIEL at BBN,
To: VEZZA at MIT-DMS
cc: LICKLIDER 1a

GENTLEMEN: 1b

WE ARE INTERESTED IN ACQUAINTING DOD OPINION LEADERS WITH THE CAPABILITIES OF THE ARPANET. TRADITIONALLY, THE USE OF NETWORK MAIL FACILITIES HAS BEEN AN EFFECTIVE WAY OF ACHIEVING THIS GOAL. HOWEVER, WE ALL KNOW THAT THE CURRENT MAIL SERVICE COMMONLY IN USE (TENEX-SNDMSG-READMAIL-RD) IS IMPERFECT FROM THE VIEWPOINT OF TYPICAL MANAGEMENT-TYPES. 1c

HENCE, WE ARE INTERESTED IN IMPROVING THE FACILITIES AVAILABLE. OUR GOAL IS TO HAVE A CONSERVATIVE, RELIABLE, EASY-TO-USE MAIL SERVICE WITH SUFFICIENTLY POWERFUL FEATURES TO ALLOW COMMON TASKS TO BE ACCOMPLISHED BY THE USER GROUP MENTIONED ABOVE. TO THIS END, WE WOULD LIKE TO HAVE A SHORT BUT WELL THOUGHT THROUGH DESCRIPTION OF THE CHARACTERISTICS OF A MILE SYSTEM THAT WOULD DO THE JOB AND THE IMPROVEMENTS NEEDED IN THE CURRENT MAIL SERVICE FOR OUR NEEDS. 1d

IN ORDER TO PRODUCE THIS DESCRIPTION, WE WOULD LIKE SOME OF THE MOST EXPERIENCED AND RELEVANT MEMBERS OF THE COMMUNITY TO FORM A SMALL AND SHORT LIVED COMMITTEE TO THINK ABOUT THE PROBLEM AND PREPARE A REPORT. THE REPORT WOULD BE NEEDED IN A MONTH OR TWO. AS IMPLIED ABOVE, IT NEED NOT BE LONG BUT SHOULD BE DETAILED (THESE ARE NOT IN CONFLICT SINCE THE SYSTEM SHOULD BE RELATIVELY SIMPLE) AND THE ISSUES SHOULD BE WELL THOUGHT THROUGH. WE CONSIDER THE MAIL SERVICE TO CONSIST OF A TRANSMISSION CAPABILITY, A COMPOSING CAPABILITY, AND A FILING AND RETRIEVAL CAPABILITY. 1e

I ASK EACH OF YOU IF YOU WOULD BE WILLING TO SERVE ON THIS COMMITTEE AND LEND YOUR EXPERIENCE FOR THIS IMPORTANT PURPOSE. I AM SURE YOU ALL UNDERSTAND THE SIGNIFICANCE OF ACQUAINTING IMPORTANT DOD LEADERS WITH THE ARPANET AND OUR DESIRE TO PUT OUR BEST FOOT FORWARD. 1f

FURTHER, I ASK TOM ELLIS TO BE CHAIRMAN OF THIS VENTURE, AND EXPLICITLY DO NOT WISH TO IMPLY THAT HE DO ALL OF THE WORK! I EXPECT THE COMMUNICATION TO BE PRIMARILY BY SNDMSG AND TELEPHONE, ALTHOUGH THE CHAIRMAN IS IN CHARGE

RWW 12-SEP-74 10:23 23943

Here's a copy ofFields Message creating the Mail committee

AND WILL DECIDE ONT HE EXACT PROCEDURE THE THE NUMBER OF FACE-TO-FACE MEETINGS THAT ARE NECESSARY. 1g

PLEASE REPLY TO TOM AND MYSELF IF YOU CANNOT SERVE, ALTHOUGH I CERTAINLY HOPE THAT YOU ALL WILL BE WITH US. 1h

BEST 1i

CRAIG FIELDS 1j

JCP 12-SEP-74 10:31 23944

BILL FERGUSON'S NEW ADDRESS IN COLORADO

(J23944) 12-SEP-74 10:31;;;; Title: Author(s): Jeffrey C. Peters/JCP; Distribution: /SRI-ARC([INFO-ONLY]) ; Sub-Collections: SRI-ARC; Clerk: JCP;

JCP 12-SEP-74 10:31 23944

BILL FERGUSON'S NEW ADDRESS IN COLORADO

Bill Ferguson and Linda now have finally got a permenant address and phone number in Colorado, so here goes:

William Ferguson
903 East Moorhead, Apt. #2B
Boulder, Colorado 80303
phone: (303) 499-5360

For those who won't remember this message or its journal number, the new address can also be found in the JARCM,NLS file to be found in Jeanne Leavitt's directory. - Jeff 1