DAVID W. TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
Bethesda, Maryland 20084

COMPUTER CENTER
CDC LIBRARIES/UTILITY
(PROGRAMS)

by

David V. Sommer

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Computation, Mathematics and Logistics Department
Departmental Report

February 1981 CMLD-81-09
MAJOR DTNSRDC ORGANIZATIONAL COMPONENTS

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**Abstract**

Computer Center CDC Libraries/Utility (Programs), CLIB/U is a reference manual which describes the programs in library PUTILITY on the CDC 6000/ Cyber 74 computers. These programs are utilities such as tape and disk dumps, listers, selective copies, document generators/printers, card reformatters, library maintenance. CLIB/U lists programs by functional category and alphabetically with a descriptive title. All machine-readable documents detailing the use of these programs are included.
DAVID W. TAYLOR
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
BETHESDA, MARYLAND 20084

**********

COMPUTER CENTER
CDC LIBRARIES / UTILITY
(PROGRAMS)

**********

BY
DAVID V SOMMER
USER SERVICES BRANCH
CODE 1892

COMPUTATION, MATHEMATICS AND LOGISTICS DEPARTMENT
DEPARTMENTAL REPORT
FEBRUARY 1981 CMLD-81-09

THROUGH REVISION 0 (FEB 1981)
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2  PROGRAM DOCUMENTATION
   HOW TO PRINT A DOCUMENT  2-1
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* - A LISTING OF THE DOCUMENTS IS NOT INCLUDED IN THIS TABLE OF
   CONTENTS (SEE PAGE 1-7). AS NEW ROUTINES ARE DEVELOPED, THEY WILL
   BE INSERTED ALPHABETICALLY INTO THIS DOCUMENT AND MAY BE PRINTED ON
   THE COMPUTER.
INTRODUCTION

THE COMPUTER CENTER MAKES AVAILABLE ON THE CDC COMPUTERS, IN ADDITION TO THE NOS/BE OPERATING SYSTEM, A WIDE VARIETY OF BOTH SCIENTIFIC AND UTILITY PROGRAMS, SUBPROGRAMS AND CATALOGUED PROCEDURES. MOST OF THE ROUTINES ARE MAINTAINED IN LIBRARIES ON PERMANENT FILES AND MAY BE INVOKED BY THE APPROPRIATE (LOADER) CONTROL CARDS. A FEW PROGRAMS ARE AVAILABLE AS INDEPENDENT PERMANENT FILES.

THE CLIB-SERIES OF MANUALS CONSISTS OF THE FOLLOWING, WHICH DESCRIBE THE CONTENTS OF THE VARIOUS CDC 6000 LIBRARIES MAINTAINED BY THE COMPUTER CENTER:

- CLIB - COMPUTER CENTER CDC LIBRARIES
- CLIB/N - COMPUTER CENTER CDC LIBRARIES/NSRDC
- CLIB/P - COMPUTER CENTER CDC LIBRARIES/PROCfil
- CLIB/U - COMPUTER CENTER CDC LIBRARIES/UTILITY
- CLIB/M - COMPUTER CENTER CDC LIBRARIES/MNSRDC

THIS MANUAL, CLIB/U, IS A REFERENCE MANUAL WHICH DESCRIBES MOST OF PROGRAMS IN LIBRARY 'UTILITY'.

*** HOW TO USE THIS MANUAL ***

THE PROGRAMS ARE CLASSIFIED IN ONE OR MORE FUNCTIONAL CATEGORIES (SEE PAGE 1-2 FOR A LIST OF CATEGORIES). THEY ARE LISTED, BEGINNING ON PAGE 1-5, UNDER THE VARIOUS CATEGORIES. THE INDIVIDUAL PROGRAMS ARE LISTED, WITH DESCRIPTIVE TITLE, BEGINNING ON PAGE 1-7. CHAPTER 2 CONTAINS ALL CURRENTLY AVAILABLE MACHINE-READABLE DOCUMENTS DESCRIBING THE USE OF PROGRAMS IN LIBRARY 'UTILITY'.

*** LIBRARY UTILITY ***

'UTILITY' IS A LIBRARY OF DTNSRDC WRITTEN AND/OR SUPPORTED UTILITIES AND INCLUDES TAPE AND DISK DUMPS, LISTERS, SELECTIVE COPIES, DOCUMENT GENERATORS/PRINTERS, CARD REFORMATTERS, AND LIBRARY MAINTENANCE ROUTINES.

*** EXECUTING A PROGRAM ***

PROGRAMS IN THIS LIBRARY ARE EXECUTED IN ONE OF THE FOLLOWING WAYS:

A) ATTACH,UTILITY.
   LIBRARY,UTILITY, OR LDSET,LIB=UTILITY.
   <PROG>,<PARAMETERS>, WHERE <PROG> IS THE DESIRED PROGRAM.

B) BEGIN,UTILITY,,<PROG>,<PARAMETERS>.
### Functional Categories

The following functional categories are used at DTNSRDC. Those categories preceded by an asterisk (*) are local DTNSRDC categories. The other are from the VIM (CDC Users Group) list.

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<td>I2</td>
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01 OFF-LINE EQUIPMENT (LISTERS, REPRODUCERS, ETC.)
03 COMPUTERS
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05 SOFTWARE SIMULATION OF PERIPHERALS
09 COMPOSITE

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00 SERVICE OR HOUSEKEEPING, PROGRAMMING AIDS
02 CHECKSOM ACCUMULATION AND CORRECTION
03 REWIND, TAPE MARK, LOAD CARDS, LOAD TAPE PROGRAMS, ETC.
04 INTERNAL HOUSEKEEPING, SAVE, RESTORE, ETC.
05 REPORT GENERATOR SUBROUTINES
06 PROGRAM DOCUMENTATION: FLOW CHARTS, DOCUMENT, STANDARDIZATION
07 PROGRAM LIBRARY UTILITIES

R0 LOGIC AND SYMBOLIC
R1 FORMAL LOGIC
R2 SYMBOL MANIPULATION
R3 LIST AND STRING PROCESSING
R4 TEXT EDITING

S0 INFORMATION RETRIEVAL
T0 APPLICATIONS AND APPLICATION-ORIENTED PROGRAMS
T1 PHYSICS (INCLUDING NUCLEAR)
T2 CHEMISTRY
T3 OTHER PHYSICAL SCIENCES (GEOLOGY, ASTRONOMY, ETC.)
T4 ENGINEERING
T5 BUSINESS DATA PROCESSING
T6 MANUFACTURING (NON-DATA) PROCESSING AND PROCESS CONTROL
T7 MATHEMATICS AND APPLIED MATHEMATICS
T8 SOCIAL AND BEHAVIORAL SCIENCES AND PSYCHOLOGY
T9 BIOLOGICAL SCIENCES
T10 REGIONAL SCIENCES (GEOGRAPHY, URBAN PLANNING)
T11 COMPUTER ASSISTED INSTRUCTION

U0 LINGUISTICS AND LANGUAGES

V0 GENERAL PURPOSE UTILITY SUBROUTINES
V1 RANDOM NUMBER GENERATORS
V2 COMBINATORIAL GENERATORS: PERMUTATIONS, COMBINATIONS & SUBSETS
V3 STANDARD AND SPECIAL PROBLEMS

X0 DATA REDUCTION
X1 RE-FORMATTING, DECOMMUTATION, ERROR DIAGNOSIS
X2 EDITING
X3 CALIBRATION
X4 EVALUATION
X5 ANALYSIS (TIME-SERIES ANALYSIS)
X6 SIMULATION (GENERATE TEST DATA FOR DATA REDUCTION SYSTEM)

Y0 INSTALLATION MODIFICATION
Y1 INSTALLATION MODIFICATION LIBRARY
Y2 NEWPL TAPE OF INSTALLATION MODIFICATIONS

Z0 ALL OTHERS
*** LIST OF PROGRAMS BY CATEGORY ***

THE PROGRAMS IN LIBRARY 'UTILITY' ARE LISTED BELOW UNDER THEIR FUNCTIONAL CATEGORIES. AN ALPHABETICAL LIST, WITH A BRIEF DESCRIPTION OF EACH PROGRAM BEGINS ON PAGE 1-7.

J1 BINARY
   CV029

J4 BCD (HOLLERITH)
   BANNER
   BANNER3
   BANNERS
   BANNER6

J9 COMPOSITE
   HEXDMP
   PRUDMP
   TAPDMP

K1 EXTERNAL-TO-EXTERNAL
   COPYRE
   DOCUMNT
   COPYSEL
   PROMNT

K3 DISK
   COPYLIB
   NEWNAME
   GETOBJ
   PRUDMP

K4 TAPE
   AUDPFT
   HEXDMP
   TAPDMP

M0 DATA HANDLING
   COMPAR

M1 SORTING
   AUDSORT
   DEKSORT

M2 CONVERSION AND/OR SCALING
   CV029

M4 CHARACTER MANIPULATION
   ASCDC
   COPYEXT

M6 REPORT GENERATORS
   PR2UP

N2 DUMPING
   DMPFIL
   PRUDMP
   HEXDMP
   TAPDMP

O1 OFF-LINE EQUIPMENT (LISTERS, REPRODUCERS, ETC.)
   CARDS
   GETREV
   LIST2
   CARDS2
   LINERL
   LIST3
   COPYEXT
   LISTCMP
   LIST4
   COPYRE
   LISTEDI
   MANUAL
   COPYSEL
   LISTN
   PAGEPRT
   CV029
   LISTZ
   PR2UP
   FRAME
   LIST1
Q0 SERVICE OR HOUSEKEEPING, PROGRAMMING AIDS
   AUDPFT      CBLFMT       LINERL
   BANNER      DFDATIM      PTIM
   BANNERS     EOFAD        S2KRNM
   BANNER3     FRAME        WHATLIB
   BANNER6     JOBTIME      WHICHMF
   CALCIBL     LINER        WHICHOS

Q3 FILE MANIPULATION
   EDI

Q6 PROGRAM DOCUMENTATION: FLOW CHARTS, DOCUMENT STANDARDIZATION
   DOC        EXECARD      PROGDDC
   DOCDAT     MANYDOC      PURPOSE
   DOCIT      MTDOC        TAPLIST
   DOCUMNT    PFDOC        UNDOCIT

Q7 PROGRAM LIBRARY UTILITIES
   BIN INDEX    DEK SORT     PROMNT
   DECK        LISTBIN      REDECK
   DECKLST     LISTCMP      SORTUP

S0 INFORMATION RETRIEVAL
   AUDPFT      GETREV       PROMNT
   AUDSORT     MANUAL       PURPOSE
   DOCDAT      MANYDOC      TAPLIST
   DOCUMNT     PAGEPRT      PROGDDC
   EXECARD     PROGDDC      PROGDDC
*** DESCRIPTIVE TITLES ***

PROGRAMS IN LIBRARY 'UTILITY' ARE LISTED ALPHABETICALLY BELOW.

ASCDC   CONVERT 7-BIT ASCII FILE TO 6-BIT CDC AND VICE VERSA
AUDPFT  PRODUCE MINI-AUDIT OF USER PFDUMP TAPES CREATED BY SELDUMP
        OR PRIVATE PACK PFDUMP
AUDSORT SORT OUTPUT FROM USER AUDIT
BANNER  PRINT A BANNER (PAGE)
BANNERS PRINT 1 TO 8 BANNERS ON ONE PAGE
BANNER3 PRINT 3 BANNERS ON ONE PAGE (LETTERS ARE 10 LINES HIGH)
BANNER6 PRINT 1-6 BANNERS ON ONE PAGE (LETTERS ARE 6 LINES HIGH)
BINDEX  GIVE LIST AND SORTED LIST OF OUTPUT OF EDITLIB 'LISTLIB' AND
        'CONTENT' DIRECTIVES
CALCIBL CALCULATE BEST BLOCK LENGTHS (I.E., MINIMUM TIME REQUIRED FOR
        RANDOM ACCESS AND MINIMUM BUFFER SIZE) FOR INDEX SEQUENTIAL
        FILE
CARDS   REPRODUCE A BCD DECK WITH MODIFICATIONS. (FIELDS MAY BE
        MOVED, DELETED, INTERCHANGED, GANG PUNCHED AND/OR SEQUENCED)
CARDS2  REPRODUCE A BCD DECK WITH MODIFICATIONS. (FIELDS MAY BE
        COPIED, MOVED. DELETED, INTERCHANGED, GANG PUNCHED AND/OR
        SEQUENCED.)
CBLFMT  REFORMAT A COBOL SOURCE PROGRAM TO ENHANCE ITS READABILITY,
        THEREBY MAKING IT EASIER TO UNDERSTAND AND MODIFY
COMPAR  COMPARE TWO TEXT FILES AND REPORT ANY DIFFERENCES
COPYEXT COPY UNIT RECORDS (ZERO BYTE TERMINATED) EXTRACTING SPECIFIED
        COLUMNS AND OPTIONALLY MOVING THEM AND OPTIONALLY ADD EDITOR
        SEQUENCING
COPYLIB FROM AN EDITLIB LISTLIB LISTING, CREATE SORTED (OR UNSORTED)
        DIRECTIVES TO COPY AN EDITLIB USER LIBRARY
COPYRE  COPY AND REARRANGE FILE OF ZERO BYTE TERMINATED RECORDS (150
        CHARACTERS MAXIMUM PER RECORD; FILE PROCESSED IN CORE)
COPYSEL COPY AND REARRANGE FILE OF ZERO BYTE TERMINATED RECORDS (150
        CHARACTERS MAXIMUM PER RECORD; FILE PROCESSED DIRECTLY)
CV029   CONVERT TO 029 PUNCH CODE
DECK    LIST UPDATE 'SOURCE' FILE DECK/COMDECK NAMES, SEQUENCE NUMBER
        AND NUMBER OF CARDS
DECKLIST  LIST UPDATE 'SOURCE' FILE DECK/COMDECK NAMES, SEQUENCE NUMBER, NUMBER OF CARDS, NUMBER OF LINES AND PAGES (IF COLUMN 1 CARRIAGE CONTROL IS USED). (LIST CONTENTS OF A DOCUMENTATION FILE)

DEKSORT   SORT IDENT AND DECK LISTINGS FROM UPDATE OUTPUT FILE

DFDATIM   PUT DATE/TIME INTO DAYFILE

DMPFIL    DUMP FIRST N WORDS OF EACH LOGICAL RECORD IN M FILES

DOC       PREPARE (SUB)PROGRAM AND CATALOGUED PROCEDURE DOCUMENTATION

DOCDAT    LIST DOCUMENT NAMES, DATES AND PAGE NUMBERS

DOCIT     ADD PAGING TO ONE OR MORE DOCUMENTS

DOCUMNT   MAINTAIN A FILE OF DOCUMENTS

EOFAD     ADD OR DELETE EOF'S TO/FROM A FILE (THRU EOI)

EOI       POSITION A FILE AT END-OF-INFORMATION (EOI)

EXECARD   EXTRACT EXECUTE CARD PARAMETER/SUBPROGRAM USAGE/PROCEDURE USAGE INFORMATION FROM DOCUMENTATION FILES (WHICH WERE PREPARED IN THE FORMAT GENERATED BY PROGRAM 'DOC')

FRAME     PRINT A FRAME FOR LINING UP PRINTOUTS

GETOBJ    EXTRACT ONE OBJECT MODULE FROM A SEQUENTIAL OBJECT FILE OR AN EDITLIB USER LIBRARY

GETREV    EXTRACT ALL PAGES FROM A MANUAL WHICH WERE MODIFIED AFTER USER-SPECIFIED DATE

HEXDMP    DUMP 9-TRACK TAPE IN HEXADECIMAL FORMAT

JOBTIME   PUT JOB CP EXECUTION TIME TO THIS POINT INTO DAYFILE

LINER     COUNT LINES AND PAGES OF A FILE HAVING FIRST CHARACTER CARRIAGE CONTROL

LINERL    LIST A DOCUMENT (CARRIAGE CONTROL IN COLUMN 1, ZERO BYTE TERMINATED RECORDS) WITH RECORD COUNT AND COUNT OF LINES ON EACH PAGE. LIST THRU END-OF-INFORMATION.

LISTBIN   LIST BINARY MODULES AND PROCEDURES IN ONE OR MORE FILES

LISTCMP   LIST AN UPDATE COMPILE FILE, EACH DECK BEGINNING ON A NEW PAGE WITH A BANNER PAGE PRECEDING IT

LISTEOI   LIST A FILE INSERTING *EOR, *EOF, *EOI WHERE APPROPRIATE
LISTN  NUMBERED LIST OF ONE FILE OF ZERO-BYTE TERMINATED RECORDS
LISTZ  LIST ZERO-BYTE TERMINATED RECORDS WITH RECORD NUMBER AND LENGTHS (USER MAY SPECIFY MAXIMUM NUMBER OF CHARACTERS TO READ (DEFAULT: 140) AND PRINT (DEFAULT: 110)
LIST1  LIST (CENTERED) ONE COPY OF CARDS (UP TO 90 CHARACTERS) HAVING CARRIAGE CONTROL IN COLUMN 1. OPTIONALLY PRINT CARD, PAGE AND LINE COUNTS AND LINE LENGTHS.
LIST2  SINGLE/DouBLE SPACE LISTING. 6 OR 8 LINES PER INCH, WITH OPTIONAL SKIP OVER PERFORATION AT BOTTOM OF PAGE (FIRST 120 CHARACTERS)
LIST3  LIST FIRST (UP TO 90-CHARACTER, ZERO BYTE TERMINATED) RECORD IN EACH LOGICAL RECORD THROUGH E01
LIST4  LIST UNIT RECORDS, THRU E01, WHICH HAVE '1' IN COLUMN 1
MANUAL  EXTRACT (PRINT) REVISION PAGES FROM A MANUAL
MANYDOC  EXTRACT (PRINT) TWO OR MORE DOCUMENTS FROM A DOCUMENT FILE
MTDOC  CREATE DOCUMENTATION TO DESCRIBE THE CONTENTS OF A MAGNETIC TAPE
NEWNAME  RENAME A SIMPLE ABSOLUTE MODULE
PAGEPRT  PRINT SELECTED PAGE(S) FROM A DOCUMENT
PFDOC  CREATE PERMANENT FILE DOCUMENTATION
PROGDOC  EXTRACT (PRINT) ONE OR ALL DOCUMENT(S) FROM A DOCUMENT FILE
PROMNT  MAINTAIN AN ALPHABETICAL, SEQUENTIAL PROCEDURE FILE
PRUDMP  OCTAL AND CHARACTER DUMP OF DISK FILE BY RELATIVE PRU NUMBER
PR2UP  REFORMAT A SINGLE-COLUMN REPORT FILE COMPOSED OF 60-CHARACTER LINES INTO A DOUBLE-COLUMN FORMAT HAVING A MAXIMUM TOTAL LINE LENGTH OF 132 PRINTABLE CHARACTERS (PLUS 1 POSITION FOR CARRIAGE CONTROL). THE OUTPUT WILL BE SUITABLE FOR PRINTING EITHER ON A LINE PRINTER OR ON XEROX 8-1/2 X 11 PAPER.
PTIM  PRINT CPA. CPB, CPA+CPB, IO AND PP TIMES SINCE START OF JOB OR INTERCOM SESSION
PURPOSE  EXTRACT PURPOSE INFORMATION FROM DOCUMENTATION FILES (WHICH WERE PREPARED IN THE FORMAT GENERATED BY PROGRAM 'DOC')
REDECK  CHANGE AN UPDATE COMPILe FILE BACK INTO A SOURCE FILE
SORTUP  GENERATE UPDATE DIRECTIVES TO SORT OLDPL
S2KRNM  RENAME ACCOUNT NUMBER ON CATALOGED S2000 DATA BASE FILES
TAPDMP

DUMP SELECTED PORTIONS OF A 7-TRACK MAGNETIC TAPE WRITTEN IN AN UNKNOWN DENSITY AND/OR MODE. IT IS CONTROLLED BY A SERIES OF FREE-FIELD CONTROL CARDS CONTAINING ORDERS FOR THE DUMPING, SKIPPING OR BACKspacing OF RECORDS OR FILES.

TAPLIST

PREPARE TWO LISTS FROM MAGTAPEDOCUMENTATION FILE: 1) LIST OF TAPE NUMBER, LABEL, DENSITY, REMARKS AND DESCRIPTION FOR EACH TAPE DOCUMENTED IN FILE 2) LIST OF TAPE NUMBERS AND LABELS

UNDOCIT

REMOVE THE PAGING WHICH WAS ADDED TO DOCUMENT(S) BY PROGRAM 'DOCIT'

WHATLIB

LIST LIBRARIES SPECIFIED ON LAST LIBRARY CARD

WHICHMF

TELL TELETYPE USER WHICH MAINFRAME HE IS USING

WHICHOS

TELL TELETYPE USER WHICH OPERATING SYSTEM HE IS USING
***** PROGRAM DOCUMENTATION *****

THIS CHAPTER CONTAINS THE DOCUMENTATION FOR ALL PROGRAMS IN LIBRARY 'UTILITY' AS OF THE PUBLICATION DATE.

*** HOW TO PRINT A DOCUMENT ***

INDIVIDUAL DOCUMENTS MAY BE PRINTED USING:

BEGIN,DOCGET,,UTILITY,,<PROG>,OUTPUT.

WHERE <PROG> IS THE DESIRED DOCUMENT.

SEVERAL DOCUMENTS MAY BE PRINTED AT ONE TIME USING:

JOBNAME.
CHARGE......
BEGIN,UTILITY,,MANYDOC,UTILITY.
' 7/8/9  EOR
<PROG1>
<PROG2>
...
<PROGN>
" 6/7/8/9  EOI
PROGRAM 'ASCDC'

PURPOSE
CONVERT 7-BIT ASCII FILE TO 6-BIT CDC AND VICE VERSA

FUNCTIONAL CATEGORIES: M4

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
CDC 63-CHARACTER SET USED.

5 7-BIT ASCII CHARACTERS PER CDC WORD: EACH 7-BIT CHARACTER OCCUPIES THE RIGHT-MOST 7 BITS OF EACH 12-BIT BYTE.

EXECUTION
FROM BATCH
ATTACH,TAPE1...... (FILE TO BE CONVERTED)
ATTACH,UTILITY.
LIBRARY,UTILITY.
ASCDC....... (DO SOMETHING WITH TAPE2)

FROM TTY
ATTACH,TAPE1...... (FILE TO BE CONVERTED)
BEGIN,UTILITY,,ASCDC.
(Do SOMETHING WITH TAPE2)

EXECUTE CARD PARAMETERS
ASCDC,INFILE,OUTFILE,TYPE,OUTPUT.
INFILE - INPUT FILE TO BE CONVERTED
(REWOUND BEFORE AND AFTER USE)
OUTFILE - OUTPUT CONVERTED FILE
(PUT ON PF SPACE)
(TYPE CONVERSION
OMITTED OR A2C - ASCII-TO-CDC
ANYTHING ELSE - CDC-TO-ASCII)
OUTPUT - LISTABLE OUTPUT (FTN ERROR MESSAGES)

DEFAULT EXECUTE CARD
ASCDC,TAPE1,TAPE2,A2C,OUTPUT.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 26000B
FL NEEDED TO RUN: 16000B

ERROR MESSAGES
INPUT FILE EMPTY
NO INFORMATION IN INPUT FILE
### INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT (FTN ERROR MESSAGES)</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>INPUT FILE TO BE CONVERTED</td>
<td></td>
</tr>
<tr>
<td>TAPE2</td>
<td>OUTPUT CONVERTED FILE</td>
<td></td>
</tr>
<tr>
<td>DLYFILE</td>
<td>PROGRAM ERROR MESSAGES</td>
<td></td>
</tr>
</tbody>
</table>

### METHOD

**FOR ASCII-TO-CDC**  
Each 12 bits (containing the ASCII character in the right-most 7 bits) is converted to the 6-bit CDC equivalent. The resulting lines will be half the length of the ASCII lines.

**FOR CDC-TO-ASCII**  
Each 6-bit CDC character is converted to its 7-bit ASCII representation and is stored in the right-most 7 bits of each 12-bit byte. The resulting lines are twice the length of the CDC lines.

### SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

**PART OF LANGUAGE**  
CLOSEM, ENDFILE, FILES, GET, IFETCH, OPENM, Put, STOREF, WEOR

**PART OF PROGRAM**  
TRANAC, TRANCA - TRANSLATE FROM ASCII TO CDC

**OTHERS**  
GETCHA - EXTRACT CHARACTER FROM ARRAY
GETLFNS - GET ACTUAL LOCAL FILE NAMES
MOVSTR - MOVE CHARACTER STRING
PUTCHA - INSERT CHARACTER INTO ARRAY
REQUEST - REQUEST TAPE2.*PF.
TRAILBZ - CHANGE TRAILING BLANKS TO OOB

### AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

### DATE WRITTEN:
03/04/77

### DATE(S) REVISED
04/18/79 - CHANGE NAME FROM ASCDC7 TO ASCDC
- MOVE PROGRAM TO LIBRARY 'UTILITY'

### LOCATION OF DECKS
SOURCE  
UPDATE LIBRARY: UTILITYPL, ID=CSYS

OBJECT  
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'AUDPFT'

PURPOSE
PRODUCE MINI-AUDIT OF USER PFDUMP TAPES CREATED BY SELDUMP
OR PRIVATE PACK PFDUMP

FUNCTIONAL CATEGORIES: Q0 S0 K4

LANGUAGE: FORTRAN IV EXTENDED

COMPUTER
CDC 6000

REMARKS
REQUIRES FULL OUTPUT LINE, LISTS CYCLE, ID, PFNAME, AC,
EST, SD, CREATION DATE, RP, LAST ACCESS, LAST MOD. #
ATTACHES, #EXTENDS, #MODIFIES, REEL NUMBER.
(THE THREE DATES ARE JULIAN DAY, YEAR.)

THE LAST FILE LISTED FOR A REEL PROBABLY SPANS ONTO THE NEXT
REEL ALSO.

THE LABEL CARD MAY REQUIRE 'V' OR 'E' PARAMETERS IF NOT THE
FIRST REEL OR IF CREATED BEFORE LEVEL 506 OF NOS/BE.

EXECUTION
FROM BATCH
PAUSE CARD TO INDICATE REELS, IF MULTI-REEL
VSX,TAPE24=....
LABEL,TAPE24,L=$DUMP TAPE- NEWS,F=S,D=HY,NORING.R.
BEGIN.UTILITY..AUDPFT.

FROM TTY
NOT EXECUTABLE INTERACTIVELY, REQUIRES TAPE.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 33000B
FL NEEDED TO RUN : 17600B

OUTPUT DESCRIPTION
OUTPUT CONTAINS MOST AUDIT FIELDS EXCEPT SIZE OF FILE.

INPUT/OUTPUT UNITS

\[\begin{array}{ccc}
\text{UNIT} & \text{LFN} & \text{USE} \\
24 & \text{Tape24} & \text{INPUT PFDUMP SET} \\
6 & \text{OUTPUT} & \text{MINI-AUDIT OUTPUT LISTING} \\
\end{array}\]

METHOD
READS PERMANENT FILE HEADERS FROM THE PFDUMP TAPES.

02/24/81 2-4 AUDPFT - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
BUFFERIN SHIFT
PART OF PROGRAM
JOBNO

AUTHOR
SHARON E. GOOD - DTNSRDC CODE 1892.1

DATE WRITTEN: 06/09/80

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
CARD DECK CODE 1892.1 (S GOOD)

OBJECT
EDII1LIB USER LIBRARY: UTILITY
PROGRAM 'AUDSORT'

PURPOSE

SORT OUTPUT FROM USER AUDIT

FUNCTIONAL CATEGORIES: M1 S0

LANGUAGE: FORTRAN IV EXTENDED

COMPUTERS

CDC 6000

REMARKS

THIS PROGRAM IS NORMALLY EXECUTED USING PROCEDURE 'AUDIT'.

THIS PROGRAM PROCESSES ALL AUDIT FORMATS, WHICH MAY BE MIXED IN ANY ORDER.

THIS PROGRAM WILL SORT UP TO 8 FIELDS, DEPENDING UPON THE AUDIT FORMAT. THE FIELDS ARE DESCRIBED IN THE EXECUTE CARD PARAMETERS BELOW. FOR AN AC AUDIT, THE DEFAULT SORT FIELDS ARE 4A, 3A, 1A, 2D. FOR ALL OTHER AUDITS, THEY ARE 1A, 2D.

EXECUTION FROM BATCH AND TTY

BEGIN,AUDIT,,<KEYWORD-PARAMETERS>.
-- OR --
AUDIT,LF=TEMP,<KEYWORD-PARAMETERS>.
ATTACH,UTILITY.
LDSET,LIB=UTILITY, OR LIBRARY,UTILITY.
AUDSORT,TEMP,OUTPUT,<SORT-OPTIONS>.

EXECUTE CARD PARAMETERS

AUDSORT,INFILE,OUTPUT,S1,S2,S3,S4,S5,S6,S7,S8,PL=.
INFILE - INPUT FILE (OUTPUT OF AUDIT)
OUTPUT - LISTABLE OUTPUT
S1-S8 - SORT OPTIONS
(A=ASCENDING, D=DESCENDING)
1A/1D - PF NAME - ALL SORTS
2A/2D - CYCLE - ALL SORTS
3A/3D - ID - AC SORT ONLY
4A/4D - ACCOUNT - ID (AI=1) OR SEG - AC=JJJJJJJJJJJJ
5A/5D - CREATED - AC OR ID (AI=1)
6A/6D - USED-ON - AC OR ID (AI=1)
7A/7D - #USES - AC OR ID (AI=1)
8A/8D - #PRUS - AC OR ID (AI=1)
PL= - PRINT LINE LIMIT

DEFAULT EXECUTE CARD

AUDSORT,TAPE1,OUTPUT,4A,3A,1A,2D,PL=5000. - AC AUDIT
AUDSORT,TAPE1,OUTPUT,1A,2D,PL=5000. - ALL OTHERS

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN: 52000B
(PROGRAM ADJUSTS CORE AS REQUIRED)
ERROR MESSAGES

ABEND
PROGRAM TERMINATED ABNORMALLY (PROBABLY CAUSED BY THE USER)

INPUT FILE EMPTY
INPUT FILE HAS NO INFORMATION IN IT

**F** UNDEFINED KEY(S)
SORT/MERGE MESSAGE. NO SORT KEYS WERE DEFINED. ALL USER-SPECIFIED SORTS WERE INVALID. RE-EXECUTE WITH VALID SORT OPTIONS OR DEFAULTS.

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>INPUT FILE (AUDIT OUTPUT FILE)</td>
<td>REWOUND BEFORE AND AFTER USE</td>
</tr>
<tr>
<td>ZZZWORK</td>
<td>WORK FILE FOR SORT/MERGE</td>
<td>(RETURNED AT END-OF-PROGRAM)</td>
</tr>
</tbody>
</table>

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE

<table>
<thead>
<tr>
<th>AND</th>
<th>CLOSEM</th>
<th>FILESQ</th>
<th>GET</th>
<th>IFETCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPENN</td>
<td>OR</td>
<td>PUT</td>
<td>RECOVC</td>
<td>REMARK</td>
</tr>
<tr>
<td>REWIND</td>
<td>SHIF</td>
<td>SKIP</td>
<td>SMEND</td>
<td>SFILE</td>
</tr>
<tr>
<td>SMKEY</td>
<td>SMOPT</td>
<td>SMOWN</td>
<td>SMRTN</td>
<td>SMSORT</td>
</tr>
</tbody>
</table>

PART OF PROGRAM

ABORT - NON-EXISTENT ROUTINE TO FORCE ABORT
EOJ - ABNORMAL TERMINATION ROUTINE
AUDVAL - VALIDATE AUDIT HEADER LINE
HEADER - PROCESS HEADER RECORDS
ISHDR - IS IT FIRST LINE OF AUDIT OUTPUT?
OUT3 - OUTPUT ROUTINE FOR SORT/MERGE
PRINT1 - PRINT SINGLE AUDIT ENTRY
SORT1 - SORT-KEYS FOR AUDIT AI=S FORMAT
SORT2 - SORT-KEYS FOR AUDIT AI=I ID FORMAT
SORT3 - SORT-KEYS FOR AUDIT AI=I AC FORMAT
SORT4 - SORT-KEYS FOR AUDIT AI=P AND AI=F FORMATS

OTHERS

GETLFNS - GET ACTUAL LOCAL FILE NAMES
MOVEIT - MOVE AN ARRAY
MOVSTR - MOVE CHARACTER STRING
REPLAC - CHARACTER REPLACEMENT

ARITHMETIC STATEMENT FUNCTIONS

AORD - TEST FOR 'A' OR 'D'
A12FMT - FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
I74FMT - FAST I-FORMAT DECODE
L11FMT - FAST L=FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
R29FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R92FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 03/22/78 (PROGRAM 'SRTFAUD')

DATE(S) REVISED
10/01/78 - EXPAND TO HANDLE ALL AUDIT FORMATS
- NAME CHANGED TO 'AUDSORT' (OLD PROGRAM 'AUDSORT' DROPPED)
12/08/78 - CORRECT PROBLEM WITH MULTIPLE ID'S, ONE OF WHICH HAS 0 PRUS
08/18/80 - UPGRADE FOR CYBER 74
10/21/80 - ADD EST DAILY CHARGE TO AI=I/P/F AUDITS
10/28/80 - ADD EST MONTHLY CHARGE TO AI=I/P/F AUDITS
- ADD # RBS AND UNUSED PRUS TO AI=I/P/F AUDITS
01/02/81 - EXPAND TO HANDLE USER DEVICE SET AUDITS

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'BANNER'

PURPOSE
PRINT A BANNER (PAGE)

FUNCTIONAL CATEGORIES: J4

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
THE BANNER PRINTED IS 10 LINES HIGH. IT MAY BE PRINTED ON A
NEW PAGE OR THE CURRENT PAGE, DEPENDING ON THE ABSENCE OR
PRESENCE OF A THIRD PARAMETER IN THE EXECUTE CARD.
ONLY 2 BANNERS WILL FIT ON A PAGE.

EXECUTION
FROM BATCH
ATTACH,UTILITY.
LIBRARY,UTILITY.
BANNER,ANY. PRINT BANNER PAGE WITH WORD 'ANY

FROM TTY
BEGIN,UTILITY..BANNER,ANY,OUT.
... NORMAL, MORE PROGRAMS WILL WRITE ON
OUT'
ROUTE,OUT,DC=PR,TID=<TID>.

EXECUTE CARD PARAMETERS
BANNER,NAM,OUTPUT,WHERE.

NAME - WORD TO BE PRINTED (1-7 CHARACTERS -
LETTERS AND NUMBERS ONLY)
THE FOLLOWING VALUES OF NAME HAVE SPECIAL
MEANING:
CPU - THE CPU (6400/6600/6700/CY74)
DATE - TODAY'S DATE (MMDDYY)
MF - THE MAINFRAME (MFA/MFB/MFC/MFD)
TIME - THE CURRENT TIME (HHMMSS)

OUTPUT - LISTABLE OUTPUT
WHERE - OMITTED - PRINT BANNER ON A NEW PAGE
NON-BLANK - PRINT BANNER ON SAME PAGE

DEFAULT EXECUTE CARD
BANNER,DUMMY,OUTPUT,NEWPAG.

FL NEEDED TO LOAD: 24000B
FL NEEDED TO RUN : 14000B

OUTPUT UNIT
UNIT # LFN USE
-------- ------- ------------
OUTPUT LISTABLE OUTPUT

01/15/81
2-9
BANNER - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND DATE SHIFT TIME

OTHERS
GETLFS - GET ACTUAL LOCAL FILE NAMES
LEFTADJ - SQUEEZE LEFT AND REMOVE BLANKS AND OOB
MFRAME - GET MACHINE AND MAINFRAME

AUTHOR
DAVID V SOMMER - NSRDC CODE 1892.2

DATE WRITTEN: 06/20/74

DATE(S) REVISED
06/19/75
11/02/76 - ADD BANNER, CPU,....
01/15/81 - RECOGNIZE 'MF' AS THE RUNNING MAINFRAME

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITY,PL, ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY

DATE: 01/15/81
2-10
PROGRAM 'BANNERS'

PURPOSE
PRINT 1 TO 8 BANNERS ON ONE PAGE

LANGUAGE: FORTRAN IV EXTENDED

FUNCTIONAL CATEGORIES: J4

REMARKS
PROGRAM 'BANNERS' SHOULD BE EXECUTED BY USING PUBLIC-ACCESS
PROCEDURE 'BANNERS'. THIS DOCUMENT DESCRIBES ONLY THE
PROGRAM 'BANNERS'.

1, 2, 3, 5, AND 6 BANNERS PER PAGE ARE PRINTED AT 6 LPI.

4, 7 AND 8 BANNERS PER PAGE ARE PRINTED AT 8 LINES/INCH WITH
THE PRINTER RESTORED TO 6 LINES/INCH AT END-OF-JOB.

EXECUTION
FROM BATCH
ATTACH,UTILITY.
LIBRARY,UTILITY.
BANNERS,INPUT,OUTPUT.
...
7/8/9 EOR
<NBANR>, 'B1", "B2", "B3", "B4", "B5", "B6", "B7", "B8"
7/8/9 EOR
-OR-
BEGIN,BANNERS,.....

FROM INTERCOM
BEGIN,UTILITY..BANNERS.<BANNER-INPUT-FILE>,OUTPUT.
...
-OR-
BEGIN,BANNERS,.....
...
ROUTE,OUTPUT,DC=PR,.....
EXECUTE CARD PARAMETERS
BANNERS, INPUT, OUTPUT, NBANR, B1-B8
CONSOL.
(MUST FIT ON ONE CARD)

INPUT - OPTIONAL INPUT FILE WITH BANNERS
(USE 0 TO INDICATE BANNERS ARE IN THE
EXECUTE STATEMENT)

OUTPUT - LISTABLE OUTPUT
NBANR - NUMBER OF BANNERS TO PRINT (0-8)
(0 - PROGRAM WILL DETERMINE # OF BANNERS AND
WILL ADD DATE AND TIME BANNERS. IF
THERE IS ROOM)

B1-B8 - UP TO 8 BANNERS (1-7 CHARACTERS EACH)
(WHEN THE PROCEDURE 'BANNERS' IS USED,
BANNERS ARE 1-10 CHARACTERS EACH.)
(WHEN DATA CARD(S) USED, BANNERS ARE 1-10
CHARACTERS EACH AND EIGHT (8) MUST BE
SUPPLIED, EVEN IF THEY ARE BLANK.)

THE FOLLOWING ARE RECOGNIZED FOR AN' BI:
  CPU - MACHINE JOB IS RUNNING ON
    (C700/G600/6400/C174)
  DATE - CURRENT DATE
  MF - MAINFRAME JOB IS RUNNING ON
    (MFA/MFB/MFC/MFD)
  TIME - CURRENT TIME

CONSOL - TTY LIST OF BANNERS PRINTED
(0 - OMIT LIST)

DEFAULT EXECUTE CARD
BANNERS, INPUT, OUTPUT.
-OR-
BEGIN, BANNERS, OUTPUT, NBANR = 0, E1 = CPU, B2 = DATE, B3 = TIME.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 36000B
FL NEEDED TO RUN: 24000B

DATA CARD
FREE-FORMAT (LIST-DIRECTED) WITH FIELDS SEPARATED BY COMMAS:

FIELD CONTENTS
-------- -----------
1 NUMBER OF BANNERS (0-8)
2 BANNER 1 (ENCLOSED IN QUOTES (" " ))
3 BANNER 2 (ENCLOSED IN QUOTES (" " ))
4 BANNER 3 (ENCLOSED IN QUOTES (" " ))
5 BANNER 4 (ENCLOSED IN QUOTES (" " ))
6 BANNER 5 (ENCLOSED IN QUOTES (" " ))
7 BANNER 6 (ENCLOSED IN QUOTES (" " ))
8 BANNER 7 (ENCLOSED IN QUOTES (" " ))
9 BANNER 8 (ENCLOSED IN QUOTES (" " ))

E.G., 3. "BANR1","BANR2","BANR3","","","","",""

NOTE: IF A SECOND CARD IS NEEDED, BREAK AFTER A COMMA.
E.G., 7. "BANR1","BANR2","BANR3","BANR4","BANR5","BANR6","BANR7",""
INPUT/OUTPUT UNITS
UNIT # LFN USE
-------- ------- ------------------------
   3  CONSOL  LIST OF BANNERS AT TTY

  INPUT  OPTIONAL INPUT FILE WITH BANNERS
  OUTPUT  LISTABLE OUTPUT

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND  CONNEC  DATE  MAX  MIN
SHIFT  TIME

OTHERS
BANR  - WRITE A 20-LINE BANNER
BANR6 - WRITE A 10-LINE BANNER
IFMTV  - FAST VARIABLE I-FORMAT DECODE
MFRAME - GET THIS CPU AND MAINFRAME
MOVEIT - MOVE AN ARRAY
UNLOAD  - RETURN CONSOLE

AUTHORS
DAVID V SOMMER - DTNRDSC CODE 1892.2 - ORIGINAL 3-BANNER PROGRAM
GARY L STUMP  - DTNRDSC CODE 2731  - 6-BANNER PROGRAM
DAVID V SOMMER - DTNRDSC CODE 1892.2

DATE WRITTEN: 03/22/78 - GLS

DATE(S) REVISED
06/23/78 - DVS - ADD BANNERS TO EXECUTE CARD
01/15/81 - DVS - ADD 'MF' AND CY74 RECOGNITION

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'BANNER3'

PURPOSE
PRINT 3 BANNERS ON ONE PAGE

FUNCTIONAL CATEGORIES: J4

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
NONE

EXECUTION
FROM BATCH
BEGIN,UTILITY,BANNER3,OUTPUT,<PARAMS>.

FROM TTY
ATTACH,UTILITY.
LIBRARY,UTILITY.
BANNER3,OUT,<PARAMS>.
(USUALLY MORE OUTPUT IS WRITTEN ON OUT)
ROUTE,OUT,DC=PR,....

EXECUTE CARD PARAMETERS
BANNER3,OUTPUT,BANR1,BANR2,BANR3.
OUTPUT - LISTABLE OUTPUT
BANR1 - FIRST BANNER 1-7 CHARACTERS
BANR2 - SECOND BANNER 1-7 CHARACTERS
BANR3 - THIRD BANNER 1-7 CHARACTERS

THE FOLLOWING ARE RECOGNIZED FOR ANY BANR-N:
CPU - BANNER IS MACHINE JOB IS RUNNING ON
      (6700/6600/6400/CY74)
DATE - BANNER IS CURRENT DATE
MF - BANNER IS MAINFRAME JOB IS RUNNING ON
      (MFA/MFB/MFC/MFD)
TIME - BANNER IS CURRENT TIME

DEFAULT EXECUTE CARD
BANNER3,OUTPUT,CPU,DATETIME.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN : 16000B

OUTPUT UNIT
UNIT #  LFN USE
-------  -------
          OUTPUT LISTABLE OUTPUT

01/15/81 2:14 BANNERS - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND DATE TIME
OTHERS
BANR - WRITE A BANNER
GETLFNS - GET ACTUAL LOCAL FILE NAMES
MFRAME - GET THIS CPU AND MAINFRAME

ARITHMETIC STATEMENT FUNCTIONS
L82FMT - FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/11/77

DATE(S) REVISED
02/10/78 - 'TIME' CORRECTED
01/15/81 - ADD 'MF' AND CY74 RECOGNITION

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'BANNER6'

PURPOSE
PRINT 3-6 BANNERS ON ONE PAGE

FUNCTIONAL CATEGORIES: J4

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
NONE

EXECUTION
FROM BATCH
BEGIN,UTILITY.,BANNER6,OUTPUT,<PARAMS>.

FROM TTY
ATTACH,UTILITY.
LIBRARY,UTILITY.
BANNER6,OUT,<PARAMS>.

<USUALLY MORE OUTPUT IS WRITTEN ONTO OUT>
ROUTE.OUT,DC=PR......

EXECUTE CARD PARAMETERS
BANNER6,OUTPUT,BANR1,BANR2,BANR3,BANR4,BANR5,BANR6.
OUTPUT - LISTABLE OUTPUT
BANR1 - FIRST BANNER (1-7 CHARACTERS)
BANR2 - SECOND BANNER (1-7 CHARACTERS)
BANR3 - THIRD BANNER (1-7 CHARACTERS)
BANR4 - FOURTH BANNER (1-7 CHARACTERS)
   (IF OMITTED OR 'DUMMY4', A BLANK BANNER IS WRITTEN)
BANR5 - FIFTH BANNER (1-7 CHARACTERS)
   (IF OMITTED OR 'DUMMY5', A BLANK BANNER IS WRITTEN)
BANR6 - SIXTH BANNER (1-7 CHARACTERS)
   (IF OMITTED OR 'DUMMY6', A BLANK BANNER IS WRITTEN)
THE FOLLOWING ARE RECOGNIZED FOR ANY BANR-N:
CPU - BANNER IS MACHINE JOB IS RUNNING ON
   (6700/6600/6400/CY74)
DATE - BANNER IS CURRENT DATE
MF - BANNER IS MAINFRAME JOB IS RUNNING ON
   (MFA/MFB/MFC/MFD)
TIME - BANNER IS CURRENT TIME

DEFAULT EXECUTE CARD
BANNER6,OUTPUT,CPU,DATE,TIME.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN: 15000B

OUTPUT UNIT
UNIT # LFN USF
-------- -------- -----------------
OUTPUT LISTABLE OUTPUT

01/15/81 2-1E BANNER6 - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND DATE TIME
OTHERS
BANR6  - WRITE A BANNER (6 LINES HIGH)
GETLFNS - GET ACTUAL LOCAL FILE NAMES
MFRAME - GET THIS CPU AND MAINFRAME

ARITHMETIC STATEMENT FUNCTIONS
L82FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 10/18/77

DATE(S) REVISED
01/15/81 - ADD 'MF' AND CY74 RECOGNITION

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'BINDEX'

PURPOSE
  GIVE LIST AND SORTED LIST OF OUTPUT OF EDITLIB 'LISTLIB'
  AND 'CONTENT' DIRECTIVES

FUNCTIONAL CATEGORIES: Q7

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
  'CONTENT' AND 'LISTLIB' DIRECTIVES SHOULD NOT BE MIXED IN
  THE SAME EDITLIB. MULTIPLE 'LISTLIB' DIRECTIVES
  MAY BE USED IN ONE EDITLIB. ONLY ONE 'CONTENT' DIRECTIVE
  SHOULD BE USED IN AN EDITLIB.

EXECUTION
  FROM BATCH
    ATTACH.LFN..... (FILE/LIBRARY TO BE 'BINDEYED')
    EDILIB.L=TAPE1.
    BEGIN.UTILITY.,BINDEX.
      7/8/9     EOR
      (EDITLIB LISTLIB OR CONTENT DIRECTIVES)
    ENDRUN.
      6/7/8/9   EDI

  FROM TTY
    ATTACH.LFN..... (FILE/LIBRARY TO BE 'BINDEYED')
    CONNECT.INPUT
    EDILIB.L=TAPE1.
      (ENTER EDITLIB LISTLIB OR CONTENT DIRECTIVES)
    ENDRUN.
      (PERCENT) EOF
    BEGIN.UTILITY.,BINDEX.,OUT.
    ROUTE,OUT,DC=PR,.....

EXECUTE CARD PARAMETERS
  BINDEX,TAPE1,OUTPUT,FILENAME,SIZE,LEFT,SORT.
  TAPE1 - INPUT FILE
  OUTPUT - LISTABLE OUTPUT
  FILENAME - FILE NAME FOR HEADING
  USED WHEN TAPE1 IS OUTPUT OF 'CONTENT'
  DIRECTIVE. IS MISSING, 'BINARY FILE' IS
  USED.
  SIZE - ESTIMATED NUMBER OF FILES LISTED ON
  TAPE1. RANGE IS 20-2000.
  DEFAULT: 20.
  LEFT - PRINT CENTERING
  LEFT OR MISSING - PRINT LEFT-ADJUSTED ON
  PAGE
  OTHER - PRINT IN CENTER OF PAGE
  SORT - IF OMITTED OR 'SORT' - PRINT SORTED LIST(S)
  IF ANYTHING ELSE - PRINT FIRST LIST ONLY

DEFAULT EXECUTE CARD
  BINDEX,TAPE1,OUTPUT,'BINARY FILE',20,LEFT,SORT.
FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN: 21000B (MINIMUM)
(PROGRAM GETS CORE AS IT IS NEEDED)

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>OUTPUT LISTABLE OUTPUT</td>
</tr>
</tbody>
</table>
| 1      | TAPE | INPUT FILE 'OUTPUT OF EDITLIB 'LISTLIB'
          |      | OR 'CONTENT' DIRECTIVE)

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
AND EOF MAXO MINO MOD
MOVLEV OR RECOVR REMARK SHIFT

PART OF PROGRAM
EGD - ABNORMAL TERMINATION ROUTINE
PRINTIT - PRINT ORIGINAL LISTING
SORTIT - SORT AND PRINT ADDITIONAL LISTINGS

OTHERS
ASORTMV - SORT 2 DIMENSIONAL ARRAY
FTRNFL - GET CURRENT FL
GETLFHS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST VARIABLE I-FORMAT DECODE
ISITCNF - TEST FOR CONNECTED FILE
REDUCE - GET CORE AS REQUIRED
REPLAC - REPLACE ONE CHARACTER BY ANOTHER

ARITHMETIC STATEMENT FUNCTIONS
FAST 4-FORMAT DECODES
A22FMT A55FMT A62FMT A63FMT
FAST L-FORMAT DECODES (LEFT-ADJ,ZERO-FILLED)
L43FMT L45FMT L71FMT L76FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 02/06/75

DATE(S) REVISED
03/03/75
11/03/75
04/06/75
10/22/76 - BYPASS PAGE HEADINGS WHEN ENTRY POINTS ARE ON TWO
          PAGES. ADD THE PAGE NUMBER FROM THE EDITLIB LISTING TO THE FIRST LIST IN COLUMNS 118-120. IF
          THE OUTPUT FILE IS CONNECTED TO A TELETYPewriter AND LEFT JUSTIFICATION IS REQUESTED, COLUMNS 70-72
          ARE USED.
02/15/78 - ADD SUPPORT FOR PROCEDURES

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITY\PL.ID=CS\S
OBJECT
EDITLIB USER LIBRARY: UTILITY

02/15/78 2-19 BINDEX - 2 OF 2
PROGRAM 'CALCIBL'

PURPOSE
CALCULATE BEST BLOCK LENGTHS (I.E., MIN TIME REQUIRED FOR RANDOM ACCESS AND MINIMUM BUFFER SIZE) FOR INDEX SEQUENTIAL FILE

FUNCTIONAL CATEGORIES: QO

LANGUAGE: FORTRAN IV

REMARKS
THIS PROGRAM ASKS THE USER FOR INPUT VALUES, THEN CALLS THE IBL FUNCTION TO PERFORM THE CALCULATION OF BEST BLOCK SIZES. REFER TO WRITE-UP OF IBL IN CCLIB/J FOR DISCUSSION OF ASSUMPTIONS USED IN DERIVING FORMULA FOR BEST BLOCK LENGTH.

EXECUTION
FROM TTY
SCREEN,80
CONNECT,INPUT,OUTPUT
BEGIN,UTILITY,.CALCIBL

PROGRAM WILL PROMPT USER FOR INPUT. WILL ASK FOR ONE LINE OF DATA VALUES OF THE FORM:
FLM,RL,KL,IP,DP,MRL
WHERE
FLM IS THE NUMBER OF RECORDS THE FILE IS TO CONTAIN (1 TO 7 DIGITS)
RL IS THE AVERAGE LENGTH OF A RECORD IN CHARACTERS (1 TO 3 DIGITS)
KL IS THE KEY LENGTH IN CHARACTERS (1 OR 2 DIGITS)
IP IS THE INDEX PADDING PERCENT (1 OR 2 DIGITS)
DP IS THE DATA PADDING PERCENT (1 OR 2 DIGITS)
MRL IS THE MAXIMUM RECORD LENGTH IN CHARACTERS (1 TO 3 DIGITS)

IF ZERO OR NULL VALUE IS GIVEN FOR A PARAMETER, THE FOLLOWING DEFAULT VALUES ARE USED:
FLM - 100000
RL - MRL
KL - 15
IP - 5
DP - 0
MRL - 70

OUTPUT FORMAT
THE OUTPUT FROM CALCIBL IS A SHORT REPORT GIVING BEST BLOCK LENGTH FOR ONE LEVEL INDEX AND TWO LEVEL INDEX. IBL LENGTH IS GIVEN IN BOTH CHARACTERS AND PRUS. THE BUFFER SIZE REQUIRED IS GIVEN IN WORDS. RELATIVE
TIMES PER RECORD ARE GIVEN FOR RANDOM AND SEQUENTIAL ACCESS. BLOCKING FACTORS FOR INDEX AND DATA BLOCKS ARE GIVEN. MAXIMUM AND PADDED FILE SIZES (QUOTED IN NUMBER OF RECORDS) ARE GIVEN. FINALLY INPUT PARAMETER VALUES ARE PRINTED.

THE RESULTS CAN BE USED TO SELECT BLOCK LENGTHS FOR INDEX AND DATA BLOCKS. FOR INSTANCE, AFTER DECIDING ON WHETHER A 1 OR 2 LEVEL FILE IS BEST THE SIZES CAN BE SET IN COBOL VIA THE STATEMENTS

INDEX-BLOCK CONTAINS ___ CHARACTERS
DATA-BLOCK CONTAINS ___ CHARACTERS

IN THE SELECT CLAUSE FOR THE FILE.

FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN : 17000B

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
NONE
PART OF PROGRAM
IBL - PERFORM BEST BLOCK CALC AND PRINT REPORT
OTHERS
NONE

AUTHOR
BRUCE D. BLACK - DTNSRDC CODE 1892.1

DATE WRITTEN: 04/03/78

DATE(S) REVISED:

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'CARDS'

PURPOSE
REPRODUCE A BCD DECK WITH MODIFICATIONS. (FIELDS MAY BE MOVED, DELETED, INTERCHANGED, GANG PUNCHED AND/OR SEQUENCED)

FUNCTIONAL CATEGORIES: 01

REMARKS
1) UP TO 5 FIELDS MAY BE INTERCHANGED
2) UP TO 10 FIELDS MAY BE MOVED AND REPLACED BY BLANKS
3) UP TO 5 FIELDS MAY BE DELETED
4) GANG PUNCHING OF UP TO 65 COLUMNS MAY BE INSERTED IN A FIXED FIELD
5) SEQUENCING MAY BE PERFORMED IN A FIELD OF UP TO 10 COLUMNS
6) OPTIONS MAY BE SPECIFIED IN ANY ORDER, BUT ARE PROCESSED AS FOLLOWS:
   A) ALL SWAPS, IN THE ORDER READ
   B) ALL MOVES, IN THE ORDER READ
   C) ALL DELETES, IN THE ORDER READ
   D) ALL GANGPUNCHING, IN THE ORDER READ
   E) SEQUENCING IS PUT IN

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
DATE EDF
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES

ARITHMETIC STATEMENT FUNCTIONS
NONE

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS
FORTRAN LOCAL
LOGICAL FILE
UNIT NAME USE
5 INPUT INPUT FILE CONTAINING FIELD CONTROL CARDS AND THE DECK TO BE REPRODUCED
OUTPUT LISTABLE OUTPUT
PUNCH PUNCHED OUTPUT
EXECUTION
FROM BATCH
ATTACH,UTILITY.
LDSET,LIB=UTILITY.
CARDS:
' 7/8/9 EOR
(FIELD CONTROL CARDS)
(BLANK CARD OR 7/8/9)
(DECK TO BE REPRODUCED)
' 6/7/8/9 EOF

FROM TTY
ATTACH,....
   (FIELD CONTROL CARDS AND DECK)
ATTACH,UTILITY.
LIBRARY,UTILITY.
CARDS,IN.OUT.
ROUTE,OUT,DC=PR,TID=....
ROUTE,PUNCH,DC=PU,TID=....

EXECUTE CARD PARAMETERS
CARDS,INFILE,OUTPUT,PUNCH,LIST.
INFILE - INPUT FILE CONTAINING FIELD CONTROL CARDS AND THE DECK TO BE REPRODUCED
OUTPUT - LISTABLE OUTPUT
PUNCH - PUNCHED OUTPUT
LIST - PRINT OPTION
   OMITTED OR 'LIST' - LIST CARDS
   ANYTHING ELSE - DO NOT LIST CARDS

DEFAULT EXECUTE CARD
CARDS,INPUT,OUTPUT,PUNCH,LIST.

FL NEEDED TO LOAD: 26000B

DATA CARDS
ONE OR MORE FIELD CONTROL CARDS FOLLOWED BY A BLANK CARD (OR 7/8/9 END-OF-RECORD) FOLLOWED BY THE DECK TO BE REPRODUCED.

FIELD CONTROL CARDS
  COL CONTENTS
     ------ ------
      1   TYPE OF MODIFICATION
          D - DELETE
          E - ENDPUNCH (SEQUENCE)
          G - GANG PUNCH
          M - MOVE
          S - SWAP (INTERCHANGE)
      2-3   BLANK
      4-15 UP TO FOUR (4) 3-COLUMN INTEGER PARAMETERS
             '11 12 13 14'
      16-80 ALPHANEMERIC TEXT FIELD, LEFT-JUSTIFIED
             '"G' TYPE ONLY"
MODIFICATION TYPES

D 11 12  DELETE COLUMNS 11 THRU 12 AND REPLACE WITH BLANKS
E 11 12 13 14  PUT SEQUENTIAL NUMBERS INTO COLUMNS 11 THRU 12, RIGHT-JUSTIFIED, ZERO-FILLED, BEGINNING WITH 13, INCREMENTING BY 14 (DEFAULT: E 77 80 10 10)
G 11 12  TEXT... REPLACE COLUMNS 11 THRU 12 WITH THE SPECIFIED TEXT FIELD (DEFAULT: G 73 76)
M 11 12 13 14  MOVE FIELD IN COLUMNS 11 THRU 12 TO FIELD IN COLUMNS 13 THRU 14 AND BLANK THE FORMER FIELD (14 MAY BE OMITTED)
S 11 12 13 14  SWAP FIELD IN COLUMNS 11 THRU 12 WITH FIELD IN COLUMNS 13 THRU 14. (14 MAY BE OMITTED)

AUTHORS
SHARON E GOOD - NSRDC CODE 1892.1
DAVID V SOMMER - NSRDC CODE 1392.2

DATE WRITTEN: 12/72
DATE(S) REVISED
07/16/75

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY

01/22/81 2-24 CARDS - 3 OF 3
PROGRAM 'CARDS2'

PURPOSE

REPRODUCE A BCD DECK WITH MODIFICATIONS. (FIELDS MAY BE COPIED, MOVED, DELETED, INTERCHANGED, GANG PUNCHED AND/OR SEQUENCED.)

FUNCTIONAL CATEGORIES: 01

REMARKS

1) UP TO 10 FIELDS MAY BE COPIED
2) UP TO 10 FIELDS MAY BE INTERCHANGED
3) UP TO 10 FIELDS MAY BE MOVED AND REPLACED BY BLANKS
4) UP TO 10 FIELDS MAY BE DELETED
5) GANG PUNCHING OF UP TO 65 COLUMNS MAY BE INSERTED IN A FIXED FIELD
6) SEQUENCING MAY BE PERFORMED IN A FIELD OF UP TO 10 COLUMNS
7) OPTIONS ARE PERFORMED IN THE FOLLOWING ORDER:
   A) ALL COPIES, IN THE ORDER READ
   B) ALL DELETES, IN THE ORDER READ
   C) SEQUENCING
   D) ALL GANG PUNCHING, IN THE ORDER READ
   E) ALL MOVES, IN THE ORDER READ
   F) ALL SWAPS, IN THE ORDER READ

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE

CLOSEM DATE FILESQ GET IFETCH
MOVLEV OPENM RECOVR SHIFT TIME

OTHERS
EDJ - ABNORMAL TERMINATION ROUTINE
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMT10 - FAST 110-FORMAT ENCODE
IOPEN - TEST FOR RM FILE OPEN
REDUCE - REDUCE CORE TO MINIMUM NEEDED TO RUN
REPLAC - REPLACE ONE CHARACTER BY ANOTHER
VALID - VALIDATE FIELD CONTROL CARDS
VFILL - FILL ARRAY WITH WORD

ARITHMETIC STATEMENT FUNCTIONS
FAST I-FORMAT DECODES
I33FMT I34FMT I37FMT I310FMT
FAST L-FORMAT DECODES (LEFT-ADJ. ZERO-FILLED)
L1FMT L11FMT

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS

FORTRAN LOCAL
LOGICAL FILE
UNIT NAME USE

---------- ------------------
DECK DECK TO BE REPRODUCED
FCC FIELD CONTROL CARDS
OUTPUT LISTABLE OUTPUT
PUNCH PUNCHED OUTPUT

01/22/81 2-25 CARDS2 - 1 OF 3
EXECUTION
FROM BATCH
ATTACH,UTILITY.
LDSET,LIB=UTILITY.
CARDS2,INPUT,INPUT.
  7/8/9  EOR
   (FIELD CONTROL CARDS)
   (BLANK CARD OR 7/8/9)
   (DECK TO BE REPRODUCED)
  6/7/8/9  EOF

FROM TTY
ATTACH,FCC,....  (FIELD CONTROL CARDS)
ATTACH,DEK,....  (DECK TO BE REPRODUCED)
ATTACH,UTILITY.
LIBRARY,UTILITY.
CARDS2,OUT.
ROUTE,OUT,DC=PR,TID=....
ROUTE,PUNCH,DC=PU,TID=....

EXECUTE CARD PARAMETERS
CARDS2,FCC,DEK,OUTPUT,PUNCH,OPTION.
FCC - INPUT FILE OF FIELD CONTROL CARDS
DEK - INPUT FILE OF DECK TO BE REPRODUCED
   (MAY BE SAME AS FCC)
OUTPUT - LISTABLE OUTPUT
PUNCH - PUNCHED OUTPUT
OPTION - OUTPUT OPTION
  OMITTED OR 'ALL' - LIST AND PUNCH
  'LIST' - LIST ONLY
  'PUNCH' - PUNCH ONLY
  ANYTHING ELSE - NO LIST OR PUNCH
   (FIELD CARDS CHECKED)

DEFAULT EXECUTE CARD
CARDS2,FCC,DEK,OUTPUT,PUNCH,ALL.

FL NEEDED TO LOAD: 32000B
(PROGRAM REDUCES TO MINIMUM NEEDED TO RUN)
DATA CARDS
ONE OR MORE FIELD CONTROL CARDS FOLLOWED BY A BLANK CARD
(OR 7/8/9 END-OF-RECORD). DECK TO BE REPRODUCED MAY
FOLLOW OR BE IN A SEPARATE FILE.

FIELD CONTROL CARDS

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TYPE OF MODIFICATION</td>
</tr>
<tr>
<td>C</td>
<td>COPY</td>
</tr>
<tr>
<td>D</td>
<td>DELETE</td>
</tr>
<tr>
<td>E</td>
<td>ENDPUNCH (SEQUENCE)</td>
</tr>
<tr>
<td>G</td>
<td>GANG PUNCH</td>
</tr>
<tr>
<td>M</td>
<td>MOVE AND BLANK FORMER FIELD</td>
</tr>
<tr>
<td>S</td>
<td>SWAP (INTERCHANGE)</td>
</tr>
<tr>
<td>2-3</td>
<td>BLANK</td>
</tr>
<tr>
<td>4-15</td>
<td>UP TO FOUR</td>
</tr>
<tr>
<td></td>
<td>(11 12 13 14)</td>
</tr>
<tr>
<td>16-80</td>
<td>ALPHAMERIC TEXT FIELD, LEFT-JUSTIFIED</td>
</tr>
</tbody>
</table>

MODIFICATION TYPES
C 11 12 13 COPY FIELD IN COLUMNS 11 THRU 12 INTO FIELD STARTING AT 13. RETAIN THE FORMER FIELD.
D 11 12 DELETE COLUMNS 11 THRU 12 AND REPLACE WITH BLANKS.
G 11 12 TEXT... REPLACE COLUMNS 11 THRU 12 WITH THE SPECIFIED TEXT FIELD. (DEFAULT: G 73 76)
M 11 12 13 MOVE FIELD IN COLUMNS 11 THRU 12 TO FIELD STARTING IN 13. BLANK THE FORMER FIELD.
S 11 12 13 SWAP FIELD IN COLUMNS 11 THRU 12 WITH FIELD STARTING IN 13.

NOTE: IN ALL CASES, 12 MAY NOT BE LESS THAN 11.

AUTHOR
DAVID V SOMMER - NSRDC CODE 1892.2
(BASED ON PROGRAM 'CARDS' BY SHARON E GOOD)

DATE WRITTEN: 07/21/75

DATE(S) REVISED
11/10/75
10/04/76 - CORRECT D/G OPTIONS REQUIRING 13 FIELD

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILIT"
PROGRAM 'CBLFMT'

PURPOSE

REFORMAT A COBOL SOURCE PROGRAM TO ENHANCE ITS READABILITY, THEREBY MAKING IT EASIER TO UNDERSTAND AND MODIFY.

FUNCTIONAL CATEGORIES: 00

LANGUAGE: COBOL5

REMARKS

A TOOL OF THIS TYPE CAN BE VERY USEFUL IN BOTH MAINTENANCE AND DEVELOPMENT ACTIVITIES.

THE MODIFICATION OF AN EXISTING PROGRAM IS FREQUENTLY PERFORMED BY SOMEONE OTHER THAN THE PROGRAM'S AUTHOR, AND THE ABILITY TO GRASP THE PROGRAM'S LOGIC QUICKLY IS ESSENTIAL. IN THESE CASES, REFORMATTING THE SOURCE CAN COMPENSATE FOR A LACK OF CLARITY IN THE ORIGINAL CODING AND CAN GREATLY AID COMPREHENSION.

WHEN A PROGRAM IS BEING DEVELOPED, ESPECIALLY WHEN "STRUCTURED" CODING TECHNIQUES ARE USED, A FORMATTING TOOL CAN SAVE A CONSIDERABLE AMOUNT OF TIME. MODIFICATION OF A NESTED CONDITIONAL STRUCTURE FREQUENTLY REQUIRES RECODING STATEMENTS FOLLOWING THE CHANGE JUST TO MAINTAIN PROPER RELATIVE INDENTATION. CBLFMT HANDLES THIS PROBLEM AUTOMATICALLY.

EXECUTION

FROM BATCH

ATTACH,UTILITY.
LIBRARY,UTILITY.
ATTACH,PRGIN,...
REQUEST,PROGOUT,*PF.
CBLFMT.
CATALOG,PROGOUT,... EXECUTE REFORMAT PROGRAM
SAVE REFORMATTED PROGRAM
REWIND,PROGOUT.
COBOL5,1=PROGOUT,... CALL COBOL COMPILER
FROM TTY
DISCONNECT OUTPUT.
ATTACH,UTILITY.
LIBRARY,UTILITY.
ATTACH,PROGIN,...
REQUEST,PROGOUT,*PF.
CBLFMT.
CATALOG,PROGOUT,...
REWIND,PROGOUT.
COBOL5,I=PROGOUT,...
ROUTE,OUTPUT,DC=PR,TID=.... PRINT OUTPUT

DEFAULT EXECUTE CARD
CBLFMT.

FL NEEDED TO LOAD: 35600B
FL NEEDED TO RUN: 75000B

INPUT UNITS
LFN USE
------------- -------------
PROGIN SOURCE PROGRAM TO BE REFORMATTED (DISK ASSUMED).

OUTPUT UNITS
LFN USE
----------- -------------
PROGOUT REFORMATTED SOURCE PROGRAM (DISK ASSUMED).
SUITABLE FOR PROCESSING BY COBOL COMPILER.
OUTPUT LISTING OF OLD SOURCE PROGRAM, REFORMATTED
PROGRAM AND ERROR MESSAGES (PRINTER ASSUMED).
METHOD

FORMATTING FUNCTIONS
1. PLACE EACH SECTION HEADER AND PROCEDURE NAME ON A SEPARATE LINE.
2. HIGHLIGHT EACH PARAGRAPHS AND SECTION NAME BY PRECEDING IT WITH A BLANK COMMENT LINE (\* IN COLUMN 7).
3. BEGIN EACH NEW PROCEDURE DIVISION STATEMENT ON A NEW LINE.
4. BEGIN EACH PROCEDURE DIVISION SENTENCE IN COLUMN 12 OF A NEW LINE.
5. INDENT CONTINUATION LINES OF A PROCEDURE DIVISION SENTENCE.
6. INDENT EACH SUCCEEDING "IF" STATEMENT IN A NESTED CONDITIONAL STRUCTURE.
7. ALIGN EACH "ELSE" STATEMENT WITH ITS CORRESPONDING "IF"; HIGHLIGHT THE "ELSE" BY PLACING IT ON A LINE BY ITSELF.
8. ALIGN "AND" AND "OR" LOGICAL CONNECTORS WITH THEIR ASSOCIATED "IF" IN ORDER TO CLARIFY THE CONDITIONS TO BE TESTED.
9. INDENT ALL IMPERATIVE STATEMENTS WITHIN AN "IF" CONDITIONAL STATEMENT AND BLOCK THEM ACCORDING TO THEIR NESTING LEVEL.
10. ASSIGN SEQUENCE NUMBERS TO THE REFORMATTED SOURCE PROGRAM IN COLUMNS 1-6.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
NONE
OTHERS
NONE

AUTHOR
CHARLES L. ORR

DATE WRITTEN: 1/31/80

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL, ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'COMPAR'

PURPOSE
COMPARE TWO TEXT FILES AND REPORT ANY DIFFERENCES

FUNCTIONAL CATEGORIES: MO

LANGUAGE: PASCAL

COMPUTER
CDC 6000

REMARKS
THE COMPAR DOCUMENT IS FROM THE UNIVERSITY OF MINNESOTA. ONLY A FEW MODIFICATIONS HAVE BEEN MADE TO THE DOCUMENT REFERENCES TO KRONOS/NOS SHOULD BE IGNORED.

NOTE THAT THE NAME HAS BEEN CHANGED TO 'COMPAR' TO AVOID CONFUSION WITH THE NOS/BE CONTROL CARD 'COMPARE'.

EXECUTION
FROM BATCH AND TTY
ATTACH,FILEA,.... (FIRST FILE TO BE COMPARED)
ATTACH,FILEB,.... (SECOND FILE TO BE COMPARED)
ATTACH,UTILITY.
LDSET,LIB=UTILITY, -OR- LIBRARY,UTILITY.
COMPAR,FILEA,FILEB,....

EXECUTE CARD PARAMETERS
COMPAR,FILEA,FILEB,OUTPUT,MODFILE/<OPTIONS>,
FILEA - FIRST FILE TO BE COMPARED
FILEB - SECOND FILE TO BE COMPARED
OUTPUT - LISTABLE OUTPUT
MODFILE - FILE OF UPDATE/MODIFY DIRECTIVES TO CONVERT FILEA TO FILEB
OPTIONS - CONTROL FOR THE COMPARISON

DEFAULT EXECUTE CARD
COMPAR,FILEA,FILEB,OUTPUT,MODS/C6,D,W120.

FL NEEDED TO LOAD: 6000B
FL NEEDED TO RUN : 25000B
(PROGRAM ADJUSTS CORE AS REQUIRED)

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: PTOOLSPL,ID=CSYS.TK=**----**
OBJECT
EDITLIB LIBRARY: UTILITY
WHAT COMPAR DOES

COMPAR IS USED TO DISPLAY THE DIFFERENCES BETWEEN TWO SIMILAR TEXTS (REFERRED TO AS "FILEA" AND "FILEB"). SUCH TEXTFILES COULD BE PASCAL SOURCE PROGRAMS, CHARACTER DATA, DOCUMENTATION, ETC.

COMPAR IS LINE-ORIENTED MEANING THE SMALLEST UNIT OF COMPARISON IS THE TEXT LINE (IGNORING TRAILING BLANKS). COMPAR GENERATES A REPORT OF DIFFERENCES (MISMATCHES OR EXTRA TEXT) BETWEEN THE TWO TEXTFILES. THE CRITERION FOR DETERMINING THE LOCALITY OF DIFFERENCES IS THE NUMBER OF CONSECUTIVE LINES ON EACH FILE WHICH MUST MATCH AFTER A PRIOR MISMATCH, AND CAN BE SELECTED AS A PARAMETER.

BY SELECTING OTHER PARAMETERS, YOU CAN DIRECT COMPAR TO RESTRICT THE COMPARISON TO VARIOUS LINELengthS, MARK COLUMN-WISE THE DIFFERENCES IN PAIRS OF MISMATCHED LINES, GENERATE TEXT-EDITOR DIRECTIVES TO BE USED TO CONVERT FILEA INTO FILEB, OR GENERATE A LISTING WHICH WILL FLAG LINES ON FILEB INDICATING THEIR ADDITION OR DELETION AS A RESULT OF THE APPLICATION OF THE EDITOR DIRECTIVES.

HOW TO USE COMPAR

COMPAR IS AVAILABLE AS AN OPERATING SYSTEM CONTROL STATEMENT ON CDC 6000/CYBER 70,170 COMPUTER SYSTEMS. THE GENERAL FORM OF THE CONTROL STATEMENT IS:

COMPAR (A,B,LIST,MODFILE/OPTIONS)

COMPAR. MEANS

COMPAR (FILEA,FILEB,OUTPUT,MODS/C6,D,W120)

CN MATCH CRITERION (1 <= N <= 100).
C determines the number of consecutive lines on each file
which must match in order that they be considered as
terminating a prior mismatch. C therefore affects Compar's
"sensitivity" to the "locality" of differences. Setting C to
a large value tends to produce fewer (but longer) mismatches
than does a small value. C6 appears to give good results on
Pascal source files, but may be inappropriate for other
applications.
Default: C6.

D REPORT DIFFERENCES.
D directs Compar to display mismatches and extra text
between FileA and FileB in a clearly annotated report. Only
one of D, F, or M can be explicitly selected at one time.
Default: selected.

F SELECT FLAG-FORM OUTPUT.
F directs Compar to list FileB annotated with lines prefixed
by an "A" or "D" indicating "additions" or "deletions"
respectively. Such modifications could have been generated
with the M option. Only one of D, F, or M can be explicitly
selected at one time.
Default: not selected.

M PRODUCE MODS FILE.
M directs Compar to produce a file of "insert" or "delete"
directives ready for the CDC modify or update text editors
(an 'IDENT' directive must be added). The insertions and
deletions will convert FileA into FileB. FileA and FileB
should be files with sequencing appearing in columns beyond
the linewidth specified by the W option. This is true of
modify and update "compile" files (W72 is recommended).
Sequence numbers are of the form:

<BLANKS> IDENTNAME <BLANKS> UNSIGNEDINTEGER.

Only one of D, F, or M can be explicitly selected at one
time.
Default: not selected.

P MARK PAIRS OF MISMATCHED LINES.
P alters the action of the D directive by marking differing
columns in pairs of lines which mismatch in sections of equal
length. This is especially useful for comparing packed data
files.
Default: not selected.

WN SPECIFY SIGNIFICANT LINE WIDTH (LENGTH) (10 <= N <= 150).
W determines the fixed number of columns of each line which
will be compared. W is ideal to use when sequence information
is present at the right edge of the text file.
COMPAR - COMPARE TWO TEXTFILES

DEFAULT: W120.

EXAMPLE

-------------

SUPPOSE FILEA IS:

PROGRAM L2U(INPUT, OUTPUT):
(* CONVERT CDC 6/12-ASCII LOWER-CASE LETTERS TO UPPER CASE. *)
BEGIN
WHILE NOT EOF(INPUT) DO
BEGIN
WHILE NOT EOLN(INPUT) DO
BEGIN
IF INPUT- < 'CHR(76) THEN WRITE(INPUT-1):
GET(INPUT)
END:
READLN:
writeln
END:
(*ALL DONE.*)
END.

AND FILEB IS:

PROGRAM U2L(INPUT, OUTPUT):
(* CONVERT CDC ASCII UPPER-CASE LETTERS TO 6/12 LOWER CASE. *)
BEGIN
WHILE NOT EOF(INPUT) DO
BEGIN
WHILE NOT EOLN(INPUT) DO
BEGIN
IF INPUT- IN 'A'..'Z' THEN WRITE(CH(76));
WRITE(INPUT-);
GET(INPUT)
END:
READLN:
writeln
END:
END.

COMPAR - 4 OF 6
THEN A REPORT FROM COMPAR LOOKS LIKE THIS:

```
COMPAR,L2U,U2L,LIST/C1,D.P. 78/12/31.#20.23.25.
COMPARE VERSION 3.0 CDC (78/12/19)
OUTPUT OPTION = DIFFERENCES.
INPUT LINE WIDTH = 120 CHARACTERS.
MATCH CRITERION = 1 LINES.
FILEA: L2U
FILEB: U2L

MISMATCH: L2U LINES 1 THRU 3 <NOT EQUAL TO> U2L LINES 1 THRU 3:
A 1. PROGRAM L2U(INPUT, OUTPUT):
B 1. PROGRAM U2L(INPUT, OUTPUT):

A 2. /* CONVERT CDC 6/12-ASCII LOWER-CASE
B 2. /* CONVERT CDC ASCII UPPER-CASE LETTERS

A 3. LETTERS TO UPPER CASE. */
B 3. TO 6/12 LOWER CASE. */

MISMATCH: L2U LINE 9 <NOT EQUAL TO> U2L LINES 9 THRU 10:
A 9. IF INPUT<>CHR(76) THEN WRITE(INPUT-):
B 9. IF INPUT- IN 'A'..'Z'! THEN WRITE(CHR(76)):
B 10. WRITE(INPUT-):

EXTRA TEXT ON L2U, BETWEEN LINES 15 AND 16 OF U2L
A 15. /*ALL DONE.*/

HOW COMPAR WORKS

COMPAR EMPLOYS A SIMPLE BACKTRACKING-SEARCH ALGORITHM TO ISOLATE MISMATCHES FROM THEIR SURROUNDING MATCHES. THIS REQUIRES DYNAMIC STORAGE ROUGHLY PROPORTIONAL TO THE SIZE OF THE LARGEST MISMATCH, AND TIME ROUGHLY PROPORTIONAL TO THE SQUARE OF THE SIZE OF THE MISMATCH FOR EACH MISMATCH. THUS IT MAY NOT BE FEASIBLE TO USE COMPAR ON FILES WITH VERY LONG MISMATCHES.
COMPAR - COMPARE TWO TEXTFILES

HISTORY

COMPARE WAS DEVELOPED AS A PORTABLE PASCAL SOFTWARE TOOL BY JAMES MINER OF THE SOCIAL SCIENCE RESEARCH FACILITIES CENTER AT THE UNIVERSITY OF MINNESOTA, IN EARLY 1977. IT WAS WRITTEN IN STANDARD PASCAL AND DEVELOPED INITIALLY UNDER CDC 6000 PASCAL. ALTHOUGH THE ORIGINAL VERSION SIMPLY REPORTED DIFFERENCES IN A TEXTFILE, COMPARE WAS DESIGNED TO FIT NATURALLY INTO A LARGER TEXT-EDITING SYSTEM. PLANS FOR COMPARE'S ACCOMMODATING LATER ENHANCEMENTS TO GENERATE TEXT-EDITOR DIRECTIVES WERE MADE FROM THE BEGINNING. IN SUMMER OF 1977, JOHN STRAIT AT THE UNIVERSITY OF MINNESOTA COMPUTER CENTER ADAPTED COMPARE NOT ONLY TO GENERATE SUCH A MODIFICATIONS FILE, BUT ALSO FLAG-FORM OUTPUT AND USER-SELECTABLE OPTIONS.

COMPARE HAS BEEN DISTRIBUTED TO SEVERAL PASCAL ENTHUSIAST'S IN THE UNITED STATES WHO HAVE MADE IT OPERATIONAL ON OTHER PASCAL IMPLEMENTATIONS. SEE PASCAL NEWS #12, MAY, 1978, PAGES 20-23. IN LATE 1978, WILLETT KEMPTON OF THE ANTHROPOLOGY DEPARTMENT AT THE UNIVERSITY OF CALIFORNIA BERKELEY, INSTALLED COMPARE (WITH NO CHANGES REQUIRED WHATSOEVER) UNDER BERKELEY UNIX PASCAL ON A PDP 11/70 COMPUTER SYSTEM. HE LATER ADAPTED THE PROGRAM TO NOTE COLUMN-WISE DIFFERENCES IN PAIRS OF DIFFERENT LINES AND MADE MINOR CHANGES TO THE FORMAT OF THE REPORT.

RICK MARCUS AND ANDY MICKEL AT THE UNIVERSITY OF MINNESOTA COMPUTER CENTER MADE MINOR ENHANCEMENTS TO COMPARE AND FULLY DOCUMENTED IT FOR RELEASE 3 OF PASCAL 6000 IN DECEMBER, 1978.

COMPARE SERVES AS A MODEL PROGRAM IN MANY RESPECTS. IT SERVES TO ILLUSTRATE JUST HOW POWERFUL AND FLEXIBLE SUCH A COMPARISON PROGRAM CAN BE.

AT DTNSRDC, COMPARE HAS BEEN RENAMED COMPAR TO AVOID CONFLICT WITH THE NOS/BE COMMAND COMPARE.
PROGRAM 'COPYEXT'

PURPOSE
COPY UNIT RECORDS (ZERO BYTE TERMINATED) EXTRACTING SPECIFIED COLUMNS AND OPTIONALLY MOVING THEM AND OPTIONALLY ADD EDITOR SEQUENCING

FUNCTIONAL CATEGORIES: 01 M4

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
DEFAULT IS TO COPY FIRST 72 COLUMNS.

EXECUTION
FROM BATCH
ATTACH,TAPE1..... (FILE TO BE COPIED)
ATTACH,UTILITY.
LIBRARY,UTILITY.
COPYEXT,...<PARAMETERS>.
'DO SOMETHING WITH TAPE2)

FROM TTY
ATTACH.TAPE1..... (FILE TO BE COPIED)
BEGIN,UTILITY,,COPYEXT,...<PARAMETERS>,
'DO SOMETHING WITH TAPE2)

EXECUTE CARD PARAMETERS
COPYEXT,INFILE,OUTFILE,REW,FROM,TO,AT,EDITSEQ,START,INCR,
OUTPUT.
INFILE - INPUT FILE TO BE COPIED
OUTFILE - OUTPUT FILE (NOT REWOUND)
REW - INFILE REWIND OPTION
A -REWIND AFTER USE
B -REWIND BEFORE USE
R -REWIND BEFORE AND AFTER USE
U -REWIND BEFORE,REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
FROM -STARTING COLUMN FOR EXTRACTING
(1-140; DEFAULT: 1)
IN ADDITION TO THE FIELD SPECIFIED, ENTER FROM AS A NEGATIVE NUMBER.
BECAUSE - IS A SPECIAL CHARACTER, WHEN USED, THIS PARAMETER MUST BE ENCLOSED IN $...$.
THIS IS USEFUL IN COPYING A DOCUMENT TO ALSO COPY THE CARRIAGE CONTROL CHARACTER. SEE EXAMPLE 3.)
TO - ENDING COLUMN FOR EXTRACTING
(1-140; DEFAULT: 72)
AT - FIRST COLUMN IN OUTFILE FOR EXTRACTED RECORD
(1-140; DEFAULT: 1)
EDITSEQ - EDITOR SEQUENCING OPTION
'=' - ADD EDITOR SEQUENCING
ANYTHING ELSE - NO EDITOR SEQUENCING
START - STARTING SEQUENCE NUMBER
(DEFAULT: 100)
INCR - SEQUENCING INCREMENT
(DEFAULT: 10)
OUTPUT - LISTABLE OUTPUT (FTN ERROR MESSAGES)

DEFAULT EXECUTE CARD
COPYEXT.TAPE1.TAPE2,NOREW,1,72,1.NOEDSEQ,100,1,OUTPUT.

DEFAULT PL: 5000 LINES
FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN : 20000B

ERROR MESSAGES
CANNOT COPY ALL CHARACTERS
THE SPECIFIED FIELD (FROM THRU TO) WILL NOT FIT IN
OUTFILE STARTING AT COLUMN AT. ONLY 14^ AT COLUMNS
WILL BE MOVED.
FROM GT TO
NEGATIVE FIELD SIZE NOT VALID - JOE TERMINATED
INCR INVALID - 10 USED
USER SPECIFIED A NON-POSITIVE-INTEGER FOR EDITOR
SEQUENCING INCREMENT. DEFAULT OF 10 IS USED.
INPUT FILE EMPTY
INPUT FILE AT EOI -- JOB TERMINATED
IF REW=B, R OR U WAS SPECIFIED, FILE HAS NO INFORMATION
IN IT.
START INVALID - 100 USED
USER SPECIFIED A NON-POSITIVE-INTEGER FOR STARTING EDITOR
SEQUENCE NUMBER. DEFAULT OF 100 USED.

INPUT/OUTPUT UNITS
UNIT # LFN USE
-------- ---------------
OUTPUT FTN ERROR MESSAGES
TAPE1 INPUT FILE TO BE COPIED
TAPE2 OUTPUT FILE (NOT REWOUND)
DAYFILE PROGRAM ERROR MESSAGES

EXAMPLES
1. COPY A COMPIL E FILE AND REMOVE IDENTIFICATION COLUMNS (73 ON):
COPYEXT.INFILE.OUTFILE.R.

2. EXTRACT A FORTRAN SOURCE PROGRAM FROM AN OUTPUT LISTING
(NOTE THAT PAGE HEADING RECORDS WILL HAVE TO BE REMOVED
BY THE USER):
COPYEXT.INFILE.OUTFILE.R.20.91. (72 COLUMNS)

3. MOVE COLUMNS 10-72 OF A DOCUMENT TO COLUMNS 2 ON AND
RETAIN THE CARRIAGE CONTROL CHARACTERS:
COPYEXT.INFILE.OUTFILE.R.5-105..2.
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
CLOSEM FILESQ GET IFETCH MAXO
MIND OPENM PUT REMARK WEOR

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST VARIABLE I-FORMAT DECODE
IPAKLFT - SQUEEZE LEFT AND REMOVE BLANKS
LASTC - FIND LAST NON-BLANK CHARACTER
MOVSTR - MOVE CHARACTER STRING
PUTCHA - INSERT CHARACTER INTO ARRAY
SETREW - DECODE REWIND OPTION
VFILL - FILL ARRAY WITH WORD

ARITHMETIC STATEMENT FUNCTIONS
L11FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
R11FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 02/25/77

DATE(S) REVISED
11/04/77 - ADD NEGATIVE 'FROM' TO ALSO COPY COL 1

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS

OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'COPYLIB'

PURPOSE
FROM AN EDITLIB LISTLIB LISTING, CREATE SORTED (OR UNSORTED)
DIRECTIVES TO COPY AN EDITLIB USER LIBRARY

FUNCTIONAL CATEGORIES: K3

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
FOR EDITLIB SYSTEM LIBRARIES, USE PROGRAM USYSLIB.

EXECUTION
FROM BATCH AND TTY
USE PUBLIC PROCEDURE 'COPYLIB'.

EXECUTE CARD PARAMETERS
COPYLIB,INFILE,LIBDIF,NEWLIB,SORT,OUTPUT.
  INFILE - INPUT FILE CONTAINING EDITLIB LISTLIB LIST
  LIBDIF - OUTPUT FILE CONTAINING THE UPDATE
              DIRECTIVES
  NEWLIB - LFN OF NEW LIBRARY
  SORT - OMITTED OR 'SORT' - SORT ROUTINE NAMES
         ANYTHING ELSE - DO NOT SORT
  OUTPUT - FTN ERROR MESSAGES

DEFAULT EXECUTE CARD
COPYLIB,TAPE1,LIBDIF,NEWLIB,SORT,OUTPUT.

FL NEEDED TO LOAD: 35000B
FL NEEDED TO RUN : 25000B
(PROGRAM ADJUSTS CORE AS REQUIRED)

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIBDIF</td>
<td>OUTPUT FILE CONTAINING EDITLIB DIRECTIVES</td>
</tr>
<tr>
<td></td>
<td>NEWLIB</td>
<td>FILE TO CONTAIN NEW LIBRARY (\text{PF SPACES IS OBTAINED BUT NOTHING IS WRITTEN ON THE FILE})</td>
</tr>
<tr>
<td></td>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT (FTN ERROR MESSAGES)</td>
</tr>
<tr>
<td>1</td>
<td>TAPE1</td>
<td>INPUT FILE CONTAINING EDITLIB LISTLIB LISTING</td>
</tr>
</tbody>
</table>

06/22/77  2-40  COP YLIB - 1 OF 1
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
CLOSEM FILESQ GET IFETCH MOVLEV
OPENM PUT REMARK

OTHERS
ASORTMV - SORT ARRAY USING MOVLEV
GETLFNS - GET ACTUAL LOCAL FILE NAMES
LEFTADJ - SQUEEZE LEFT AND REMOVE BLANKS AND OOB
MOVSTR - MOVE A STRING OF CHARACTERS
PUTCHA - INSERT A CHARACTER INTO AN ARRAY
REDUCE - ADJUST CORE UP AND DOWN
REPLAC - REPLACW ONE CHARACTER WITH ANOTHER
REQUEST - REQUEST,NEWLIB.*PF.

ARITHMETIC STATEMENT FUNCTIONS
FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L11FMT L61FMT L81FMT
FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R10FMT R47FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 11/15/76

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'COPYRE'

PURPOSE
COPY AND REARRANGE FILE OF ZERO BYTE TERMINATED RECORDS
(150 CHARACTERS MAXIMUM PER RECORD)

FUNCTIONAL CATEGORIES: 01 K1

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
UP TO 500 RANGE PAIRS (CARDS) CAN BE PROCESSED AT A TIME.

EXECUTION
FROM BATCH
ATTACH,TAPE1,....  (FILE TO BE COPIED AND RE-ARRANGED)
ATTACH,UTILITY.
LDSET,LIB=UTILITY.
COPYRE.
CATALOG,TAPE2,....
   7/8/9 EOR
   (RANGE CARDS. END WITH 0,0)
   6/7/8/9 EOF

FROM TTY
ATTACH,TAPE1,....  (FILE TO BE COPIED AND RE-ARRANGED)
ATTACH,UTILITY.
LIBRARY,UTILITY.
CONNECT,INPUT,OUTPUT.
REQUEST,TAPE2,*PF.
COPYRE.
   (ENTER RANGES - THERE IS NO PROMPTING - END WITH 0,0)
   CATALOG,TAPE2,....

EXECUTE CARD PARAMETERS
COPYRE,INPUT,INFILE,OUTFILE,REW,OUTPUT.
   INPUT - RANGE CARD INPUT FILE
   INFILE - FILE TO BE COPIED AND RE-ARRANGED
   OUTFILE - OUTPUT (RE-ARRANGED) FILE
   REW - INFILE REWIND OPTION
     A - REWIND AFTER USE
     B - REWIND BEFORE USE
     R - REWIND BEFORE AND AFTER USE
     U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE (IF ABEND, U IS CHANGED TO R)
   OTHER - NO REWIND (DEFAULT)
   (ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS.)

   OUTPUT - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
COPYRE,INPUT,TAPE1,TAPE2,NOREW,OUTPUT.
DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 34000B
FL NEEDED TO RUN : 24000B
PROGRAM ADJUSTS CORE UP AND DOWN AS REQUIRED

DATA CARDS
RANGE SPECIFICATION CARDS ARE FREE-FORM. EACH CARD MUST CONTAIN TWO (2) NUMBERS, EVEN IF THE SECOND IS 0, SEPARATED BY A COMMA (,). THE FIRST NUMBER IS THE STARTING RECORD NUMBER. THE SECOND NUMBER IS THE ENDING RECORD NUMBER.

IF RI GT R2, PROGRAM ABORTS.

IF RI GT MAXIMUM NUMBER OF RECORDS IN INFILE, PROGRAM ABORTS.

IF R2 GT MAXIMUM NUMBER OF RECORDS IN INFILE, THE MAXIMUM NUMBER IS SUBSTITUTED.

IF R2 IS 0, RI IS SUBSTITUTED.

IF RI IS 0, IT SIGNALS THE END OF THE RANGE CARDS.

END RANGE CARDS WITH 0,0.

ERROR MESSAGES
INVALID RANGE - FATAL
SECOND RANGE VALUE MUST BE ZERO OR GREATER THAN FIRST VALUE

MORE THAN 500 RANGES
PROGRAM CAN HANDLE ONLY 500 RANGE PAIRS AT A TIME

NO RANGES SPECIFIED
SELF-EXPLANATORY

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>RANGE CARDS INPUT FILE</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>FILE TO BE COPIED AND RE-ARRANGED</td>
<td></td>
</tr>
<tr>
<td>TAPE2</td>
<td>OUTPUT (RE-ARRANGED) FILE</td>
<td></td>
</tr>
</tbody>
</table>

METHOD
1. READ RANGE CARDS.
2. READ INPUT FILE INTO CORE.
3. VERIFY AND LIST RANGES.
4. IF ALL RANGES VALID, COPY FILE AS REQUESTED.
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM EOF FILESQ GET IFETCH
MOVLEV OPENM PUT RECOVR REMARK
PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
OTHERS
FTNRFL - GET CURRENT FIELD LENGTH
GETLFNS - GET ACTUAL LOCAL FILE NAMES
LASTC - FIND LAST NON-BLANK CHARACTER
REDUCE - ADJUST CORE AS REQUIRED
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
NONE

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 03/30/76

DATE(S) REVISED
04/02/76
04/26/76
05/20/76 - INCREASE TO 150 CHARACTER RECORDS
12/11/76 - INCREASE TO 500 RANGE PAIRS

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'COPYSEL'

PURPOSE
COPY AND REARRANGE FILE OF ZERO BYTE TERMINATED RECORDS
(150 CHARACTERS MAXIMUM PER RECORD: FILE PROCESSED DIRECTLY)

FUNCTIONAL CATEGORIES: 01 K1

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
'COPYSEL' IS SIMILAR TO 'COPYRE'. 'COPYSEL' WORKS DIRECTLY
WITH INFILE. 'COPYRE' READS THE ENTIRE FILE INTO CORE FIRST.
USE 'COPYSEL' IF INFILE IS TO BE PROCESSED. FOR THE MOST
PART, IN THE FORWARD DIRECTION. USE 'COPYRE' IF THERE IS A
MUCH RE-ARRANGING TO BE DONE. USE 'COPYSEL' IF INFILE IS
TWO LARGE FOR 'COPYRE'.

EXECUTION
FROM BATCH
ATTACH TAPE1.... (FILE TO BE COPIED AND RE-ARRANGED)
ATTACH UTILITY,
REQUEST TAPE2,*PF.
LDSET,LIB=UTILITY:
COPYSEL.
CATALOG TAPE2....
7/8/9 EOR
(RANGE CARDS. END WITH 0,0)
6/7/8/9 EDF

FROM TTY
ATTACH TAPE1.... (FILE TO BE COPIED AND RE-ARRANGED)
ATTACH UTILITY,
LIBRARY UTILITY,
DISCONT OUTPUT,
REQUEST TAPE2,*PF.
COPYSEL.
(ENTER RANGES - THERE IS NO PROMPTING - END WITH 0,0)
ROUTE OUTPUT, DC=PR,....
CATALOG TAPE2.....

EXECUTE CARD PARAMETERS
COPYSEL, INPUT INFILZE, OUTPUT, REW, OUTPUT.
INPUT - RANGE CARD INPUT FILE
INFILE - FILE TO BE COPIED AND RE-ARRANGED
OUTFILE - OUTPUT (RE-ARRANGED) FILE
REW - INFILZE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD
     AFTER USE (IF ABEND, U IS CHANGED
     TO R)
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL
     PRODUCE THE SAME RESULTS.)
OUTPUT - LISTABLE OUTPUT

08:22:77
2-45
COPYSEL - 1 OF 3
DEFAULT EXECUTE CARD
COPYSEL,INPUT,TAPE1,TAPE2,NOREW,OUTPUT.

FL NEEDED TO LOAD: 32000B
FL NEEDED TO RUN : 22000B

DATA CARDS
RANGE SPECIFICATION CARDS ARE FREE-FORM. EACH CARD MUST
CONTAIN TWO (2) NUMBERS, EVEN IF THE SECOND IS 0, SEPARATED
BY A COMMA (,).
THE FIRST NUMBER IS THE STARTING RECORD NUMBER.
THE SECOND NUMBER IS THE ENDING RECORD NUMBER.
IF R1 GT R2, PROGRAM ABORTS.
IF R1 GT MAXIMUM NUMBER OF RECORDS IN INFILE, PROGRAM ABORTS.
IF R2 GT MAXIMUM NUMBER OF RECORDS IN INFILE, INFILE IS
COPIED TO END-OF-FILE.
IF R2 LT 0, INFILE IS COPIED TO END-OF-FILE.
IF R2 IS 0, R1 IS SUBSTITUTED.
IF R1 IS 0, IT SIGNALS THE END OF THE RANGE CARDS.
END RANGE CARDS WITH 0.0.

ERROR MESSAGES
INPUT FILE EMPTY
INPUT FILE IS EMPTY OF NOT REWOUND

INPUT/OUTPUT UNITS
UNIT #  LFN USE
-------- --------------
DAYFILE  ERROR MESSAGE IF INPUT FILE EMPTY
INPUT    RANGE CARDS INPUT FILE
OUTPUT   LISTABLE OUTPUT
TAPE1    FILE TO BE COPIED AND RE-ARRANGED
TAPE2    OUTPUT (RE-ARRANGED) FILE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM  D4TE  EOF  FILESQ  GET
IFETCH  OPENM  PUT  RECOVR  REMARK
REWND   SKIP  TIME
PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
LASTC  - FIND LAST NON-BLANK CHARACTER
SETREW - DECODE REWIND OPTION
PROGRAM 'CV029'

PURPOSE

CONVERT TO 029 PUNCH CODE

FUNCTIONAL CATEGORIES: J1 M2 O1

LANGUAGE: FORTRAN IV EXTENDED

REMARKS

THE INPUT FILE IS REWOUND BEFORE AND AFTER USE, EXCEPT WHEN THE LFN IS 'INPUT'.

THE OUTPUT CONVERTED FILE IS NOT REWOUND.

THE INPUT FILE IS READ THROUGH END-OF-INFORMATION.

EMBEDDED END-OF-RECORDS AND END-OF-FILES ARE COPIED.

EXECUTION

FROM BATCH AND TTY

ATTACH,ANY,.... (FILE TO BE CONVERTED)
BEGIN.CV029,,ANY,<TID-FOR-ROUTE>;

-OR-

ATTACH,ANY,.... (FILE TO BE CONVERTED)
BEGIN,UTILITY..CV029,ANY.
ROUTE.ZZZ029,DC=FU,EC=80COL,TID=.... (USER MUST COMPLETE)

EXECUTE CARD PARAMETERS

CV029,INFILE,OUTFILE.OUTPUT.
INFILE - FILE TO BE CONVERTED
(REWOUND, UNLESS 'INPUT')
OUTFILE - CONVERTED FILE (80-COLUMN BINARY)
(NOT REWOUND)
OUTPUT - FTN ERROR MESSAGES

DEFAULT EXECUTE CARD

CV029,INPUT,ZZZ029,OUTPUT.

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 17000B

DAYFILE MESSAGES

INPUT FILE EMPTY
INPUT FILE HAS NO INFORMATION

NNNNN CARDS PUNCHED
(INNNNN DATA, NNN EOR, NN EOF)

OUTPUT SUMMARY

INPUT/OUTPUT UNITS

UNIT # LFN USE

1 INPUT INPUT FILE
ZZZ029 CONVERTED FILE
DAYFILE NUMBER OF CARDS PROCESSED

10/17/78 2-48 CV029 - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND FILESM GET IFETCH
OPENM PUT REMARK SHIFT
PART OF PROGRAM
BEOR - WRITE END-OF-FILE (ENTRY IN BEOR)
BEOR - WRITE END-OR-RECORD
BPUNCH - WRITE DATA RECORD
UNPACK - BREAK WORD INTO 10 CHARACTERS
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTEN - FAST I-FORMAT ENCODE
REQUEST - REQUEST.ZZ029.*Q.

AUTHORS
? - ORIGINAL AUTHOR OF CV29
SHARON E GOOD - DTNSRDC CODE 1892.1
DAVID V SOMMER - DTNSRDC CODE 1892.2
ED ZIVI - DTNSRDC CODE 2731 (SUBROUTINES)

DATE WRITTEN: UNKNOWN

DATE(S) REVISED
10/10/75
1978 - SEG
10/17/78 - COMPLETE REWRITE, NAME CHANGED TO CV029
(DVS. USING EZ SUBROUTINES AND RECORD MANAGER)

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'DECK'

PURPOSE
LIST UPDATE 'SOURCE' FILE DECK/COMDECK NAMES, SEQUENCE NUMBER AND NUMBER OF CARDS

FUNCTIONAL CATEGORIES: Q7

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
NUMBER OF RECORDS DOES NOT INCLUDE *DECK/*COMDECK CARDS.

EXECUTION
FROM BATCH
ATTACH,UTILITY.
ATTACH,TAPE1..... (UPDATE 'SOURCE' FILE)
LDSET,LIB=UTILITY.
DECK.

FROM TTY
ATTACH,UTILITY.
ATTACH,TAPE1..... (UPDATE 'SOURCE' FILE)
LIBRARY,UTILITY.
DECK,OUT.
ROUTE,OUT,DC=PR,.....

EXECUTE CARD PARAMETERS
DECK,INFILE,OUTPUT,REW,LIB,PD,ID.
INFILE - INPUT FILE (UPDATE 'SOURCE' FILE)
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
LIB - (FIRST PART OF) PFN
(IF OMITTED, HEADING IS: "LFN: INFILE")
PD - SECOND PART OF PFN
D - LIB_DOCUMENTATION
P - LIB_PL
OMITTED - LIB
OTHER - LIB_PD
ID - ID UNDER WHICH LIB_PD IS CATALOGED
(IF OMITTED, NO ID IN HEADING)

DEFAULT EXECUTE CARD
DECK,TAPE1,OUTPUT,NOREW.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 21000B
(PROGRAM ADJUSTS CORE AS REQUIRED)
ERROR MESSAGES
INPUT FILE EMPTY
INPUT FILE HAS NO INFORMATION OR IS NOTREWOUND

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ERROR MESSAGES

INPUT FILE EMPTY
INPUT FILE HAS NO INFORMATION OR IS NOTREWOUND

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAYFILE</td>
<td>TOTALS ARE PUT INTO DAYFILE</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>INPUT UPDATE 'SOURCE' FILE</td>
<td></td>
</tr>
</tbody>
</table>

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
AND CLOSEM DATE FILESQ GET
IFETCH MOD MOVLEV OPENM OR
RECOVR REMARK SHIFT TIME

PART OF PROGRAM
EDJ - ABNORMAL TERMINATION ROUTINE

OTHERS
ADJL - SQUEEZE LEFT (ENGLISH WORDS)
CENTER - CENTER PHRASE IN LINE
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IPARLFN - SQUEEZE LEFT AND REMOVE BLANKS AND DOB
LASTC - FIND LAST NON-BLANK CHARACTER IN STRING
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS

FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L11FMT L51FMT L91FMT L97FMT L910FMT

FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R16FMT R19FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/04/73

DATE(S) REVISED
03/07/75
01/23/76 - V2.0 - REWRITTEN TO CUT PRINTOUT IN HALF (SAME FORM OUTPUT AS 'DECKLST')
02/02/76 - V2.1
05/04/76 - V2.2 - ADD OPTIONAL USER HEADING
06/10/76 - V2.3 - ADD SEARCH FOR *DECK, AND *COMDECK,
11/13/77 - V2.4 - FIX HEADING WHEN ONLY ONE DECK

LOCATION OF DECKS

SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS

OBJECT
EDITLIB USER LIBRARY: UTILITY

10.13/77 2-51 DECK - 2 OF 2
PROGRAM 'DECKLST'

PURPOSE
LIST UPDATE 'SOURCE' FILE DECK/COMDECK NAMES, SEQUENCE NUMBER, NUMBER OF CARDS, NUMBER OF LINES AND PAGES (IF COLUMN 1 CARRIAGE CONTROL IS USED).

(LIST CONTENTS OF A DOCUMENTATION FILE)

FUNCTIONAL CATEGORIES: Q7

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
NUMBER OF CARDS DOES NOT INCLUDE *DECK/*COMDECK CARDS.

FROM BATCH
ATTACH,UTILITY.
ATTACH,TAPE1,.......
LDSET,LIB=UTILITY.
DECKLST.

FROM TTY
ATTACH,UTILITY.
ATTACH,TAPE1,.......
LIBRARY,UTILITY.
DECKLST.OUT.
ROUTE.OUT,DC=PR,....

EXECUTE CARD PARAMETERS
DECKLST,INFILE,OUTPUT,REW,LIB,PD,ID.
INFILE - INPUT FILE (DOCUMENT PD)
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
LIB - (FIRST PART OF) PFN
(IF OMITTED, HEADING IS: "LFN: INFILE")
PD - SECOND PART OF PFN
D - LIB_DOCUMENTATION
P - LIB_PDP
OMITTED - LIB
OTHER - LIB_PD
ID - ID UNDER WHICH LIB_PD IS CATALOGED
(IF OMITTED, NO ID IN HEADING)

DEFAULT EXECUTE CARD
DECKLST,TAPE1,OUTPUT,NOREW.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 310008
FL NEEDED TO RUN : 210006
10/13/77 2-52
ERROR MESSAGES
INPUT FILE EMPTY
INPUT FILE HAS NO INFORMATION OR IS NOT REWOUND

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAYFILE</td>
<td>TOTALS ARE PUT INTO DAYFILE</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>INPUT DOCUMENT FILE</td>
<td></td>
</tr>
</tbody>
</table>

EXECUTION
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND CLOSEM DATE FILESQ GET
IFETCH MOD MOVLEV OPENM OR
RECOVR REMARK SHIFT TIME
PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE

OTHERS
ADJL - SQUEEZE LEFT (ENGLISH WORDS)
CENTER - CENTER PHRASE IN LINE
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IPAKLFT - SQUEEZE LEFT AND REMOVE BLANKS AND 00B
LASTC - FIND LAST NON-BLANK CHARACTER IN STRING
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)
L11FMT L51FMT L81FMT L97FMT L910FMT
FAST R-FORMAT DECODE (RIGHT-ADJ. ZERO-FILLED)
R16FMT R19FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 02/20/74

DATE(S) REVISED
11/11/75 - V2.0 - CONVERTED TO RECORD MANAGER CALLS
01/23/76 - V2.1
02/02/76 - V2.2
05/05/76 - V2.3 - ADD OPTIONAL USER HEADING
06/10/76 - V2.4 - ADD SEARCH FOR *DECK, AND *COMDECK,
11/13/77 - V2.5 - FIX HEADING WHEN ONLY ONE DECK

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPLID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY

10/13/77 2-53 DECK: 07 - 2 OF 2
PROGRAM 'DEKSORT'

PURPOSE
SORT IDENT AND DECK LISTINGS FROM UPDATE OUTPUT FILE

FUNCTIONAL CATEGORIES: Q7 M1

REMARKS
NONE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND EOF MOD MOVLEV SHIFT
SYSTEM

PART OF PROGRAM
FILL - EXTRACT IDENT AND DECK NAMES
HANDLE - FIND IDENT AND DECK NAMES
SORTPRT - CALL SORT AND PRINT SORTED DATA

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
PAKLEFT - SQUEEZE LEFT AND REMOVE BLANKS
REDUCE - ADJUST FIELD LENGTH
SSORTL - FTN LOGICAL SHELL SORT
ZBLANK - CHANGE BLANKS TO 00B AND VICE VERSA

ARITHMETIC STATEMENT FUNCTIONS
L1!FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
NROWS - COMPUTE NUMBER OF ROWS IN PRINTOUT

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS
UNIT # LFN USE
------------- ----------------------
1 TAPE1 INPUT FILE (UPDATE OUTPUT LISTING FROM
          O PARAMETER)
          INPUT OPTIONAL INPUT FILE FOR 40-CHAR TITLE
          OUTPUT LISTABLE OUTPUT

EXECUTION
FROM BATCH
ATTACH,OLDPL..... (UPDATE LIBRARY TO BE LISTED)
UPDATE,P,C=0,O=ANY.
BEGIN.UTILITY,,DEKSORT,ANY.....

FROM TTY
ATTACH,OLDPL..... (UPDATE LIBRARY TO BE LISTED)
UPDATE,P,C=0,O=ANY.
BEGIN.UTILITY,,DEKSORT,ANY,OUT.....
ROUTE,OUT,DC=PR.....
EXECUTE CARD PARAMETERS
DEKSORT,INFILE,OUTPUT,OLD,PL,ID,INPUT.
INFILE - INPUT FILE (UPDATE LISTING)
OUTPUT - LISTABLE OUTPUT
OLD - IF 0, READ 40-CHARACTER TITLE FROM 'INPUT'
     IF ANYTHING ELSE, OLD AND PL ARE PFN OF
     UPDATE LIBRARY BEING LISTED (OLD AND PL ARE
     EACH 0-7 CHARACTERS)
     (DEFAULT: OLD)
PL - SECOND HALF OF PFN (IF OLD NE 0)
     (DEFAULT: PL)
ID - ID UPDATE LIBRARY IS CATALOGED UNDER
     (IF OLD NE 0)
     (IF OMITTED, ID IS NOT PUT INTO HEADING)
INPUT - IF OLD=0, THIS FILE CONTAINS UP TO 1
     CARD CONTAINING A 40-CHARACTER TITLE.

NOTE: IF LFN IS 0, THE HEADING WILL CONTAIN THE 40
     CHARACTERS READ FROM 'INPUT'.
     IF OLD, PL, ID OMITTED, HEADING WILL CONTAIN
     'OLDPL'.
     IF OLD, PL OMITTED AND ID IS CXX, HEADING WILL
     CONTAIN 'OLDPL,ID=CXX' .
     ETC.

DEFAULT EXECUTE CARD
DEKSORT,TAPE1,OUTPUT.

FL NEEDED TO LOAD: 26000B
FL NEEDED TO RUN : 16000B + TABLE SPACE (ABOUT 1 WORD PER
IDENT AND DECK NAME)
     (PROGRAM ADJUSTS CORE AS REQUIRED)

AUTHOR
S. DERRY - NSWC, DAHLGREN, VA.
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 08/12/75 - SD

DATE(S) REVISED
06/08/76 - DVS - INPUT MODIFIED TO ALLOW INFO IN EXEC CARD,
     EXPAND HEADING, STREAMLINE PRINTOUT,
     PUT LARGE ARRAY IN BLANK COMMON (TO REDUCE
     ABSOLUTE DECK SIZE AND LOADING FL) AND GET
     CORE FOR NAME TABLE DYNAMICALLY TO REDUCE
     CORE REQUIREMENT AND ELIMINATE TABLE
     OVERFLOW.

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CS\Y

OBJECT
EDITLIB USER LIBRARY: UTILITY

06/09/76 2-55 DEKSORT - 2 OF 2
PROGRAM 'DFDATIM'

PURPOSE
PUT DATE/TIME INTO DAYFILE

FUNCTIONAL CATEGORIES: QO

LANGUAGE: CDC 6000 CP COMPASS

REMARKS
NONE

EXECUTION
FROM BATCH
ATTACH,UTILITY.
LDSET,LIB=UTILITY. OR LIBRARY,UTILITY.
DFDATIM.

FROM TTY
BEGIN,UTILITY..DFDATIM.

EXECUTE CARD PARAMETERS
DFDATIM.

DEFAULT EXECUTE CARD
DFDATIM.

FL NEEDED TO LOAD: 11000B
FL NEEDED TO RUN : 100B

OUTPUT UNITS
LFN USE
-----------------------------------------------
DAYFILE DATE AND TIME MESSAGE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
NONE
OTHERS
NONE

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 06/20/74 (V2.0)

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL, ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'DMPFIL'

PURPOSE
DUMP FIRST N WORDS OF EACH LOGICAL RECORD IN M FILES

FUNCTIONAL CATEGORIES: N2

AUTHOR
DAVID V SOMMER - NSRDC CODE 1892.2

DATE WRITTEN: 12/01/74

DATE(S) REVISED

REMARKS
OUTPUT IS SUITABLE FOR TTY. EACH WORD IS LISTED ON ONE LINE
IN BOTH OCTAL AND CHARACTER AND IS PRECEDED BY THE
LOGICAL RECORD NUMBER (DECIMAL AND OCTAL). PARITY
ERRORS, IF ANY, WILL BE FLAGGED.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
BUFFER IN
LENGTH
MIND
RECOVR
REMARK
UNIT
OTHERS
EQJ - ABNORMAL TERMINATION ROUTINE
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST VARIABLE I-FORMAT DECODE

INPUT/OUTPUT UNITS
FORTRAN LOCAL
LOGICAL FILE
UNIT NAME USE
--------- --------- -------------------------------
1 TAPE1 FILE TO BE DUMPED
OUTPUT LISTABLE OUTPUT

EXECUTION
FROM BATCH
'ATTACH,UTILITY.,
'LIBRARY.,UTILITY.,
'ATTACH,TAPE1,... (FILE TO BE DUMPED)
'DMPFIL.

FROM TTY
'ATTACH,UTILITY.,
'LIBRARY.,UTILITY.,
'ATTACH,TAPE1,... (FILE TO BE DUMPED)
'CONNECT,OUTPUT.
'DMPFIL.
EXECUTE CARD PARAMETERS
DMPFIL, INFILE, OUTPUT, NWORDS, MFILES, REW.
INFILE - INPUT FILE TO BE DUMPED
OUTPUT - LISTABLE OUTPUT
NWORDS - NUMBER OF WORDS OF EACH LOGICAL RECORD TO BE DUMPED (DEFAULT: 1 WORD)
MFILES - NUMBER OF FILES OF A MULTI-FILE FILE TO BE PROCESSED (PROGRAM WILL STOP IF DOUBLE EOF IS READ FIRST) (DEFAULT: 1 FILE)
REW - REWIND OPTION
  A - REWIND INFILE AFTER USE
  B - REWIND INFILE BEFORE USE
  R - REWIND INFILE BEFORE AND AFTER USE
  OTHER - NO REWIND (DEFAULT)
  (ANY WORDS BEGINNING WITH 'A', 'B', 'R' WILL PRODUCE THE SAME RESULTS)

DEFAULT EXECUTE CARD
DMPFIL, TAPE1, OUTPUT, 1, 1, NOREW.

FL NEEDED TO LOAD: 25000B
PROGRAM 'DOC'

PURPOSE
PREPARE (SUB)PROGRAM AND CATALOGUED PROCEDURE DOCUMENTATION

FUNCTIONAL CATEGORIES: Q6

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
IF ANY QUESTION IS ANSWERED WITH A SINGLE ENTRY OF '?', A
LONGER, MORE DETAILED DESCRIPTION OF THE CURRENT ITEM
IS TYPED.

IF ANY QUESTION (EXCEPT FIRST FOUR: 41) IS ANSWERED WITH A
SINGLE ENTRY OF '&', THE CURRENT DOCUMENT IS TERMINATED.

THE GENERATED DOCUMENT HAS CARRIAGE CONTROL IN COLUMN 1:
SECTION HEADINGS BEGIN IN COLUMN 10; SUB-HEADINGS BEGIN IN
COLUMN 13; USER-SUPPLIED INFORMATION USUALLY BEGINS IN
COLUMNS 13 OR 16.

EXECUTION
FROM BATCH
NOT DESIGNED FOR BATCH USE

FROM TTY
CONNECT, OUTPUT
ATTACH, UTILITY.
LIBRARY, UTILITY.
DOC.
(CREATE DOCUMENT IN FILE 'DOCMNT')
EDITOR
EDIT, DOCMNT.S
(MODIFY, IF NECESSARY. INDICATE START OF EACH PAGE
BY PUTTING A '1' IN COLUMN 1 OF EACH LINE WHICH IS TO
BE THE FIRST LINE OF A PAGE.)
SAVE, NEWDOC.N
LINER, NEWDOC.
(WILL COUNT PAGES AND LINER PER PAGE. IF ANY PAGE HAS
MORE THAN 59 LINES, GO BACK AND RESTRUCTURE THE
DOCUMENT.)

BYE
DOCIT, NEWDOC.FILE.
'DO SOMETHING WITH 'FILE' -- PERHAPS USE PROCEDURES
'DOCADD' OR 'DOCREPL' TO PUT IT INTO A DOCUMENT FILE

EXECUTE CARD PARAMETERS
DOC, DOCMNT. OPT.
DOCMNT - CREATED DOCUMENT(S)
(MAY BE CATALOGED)
OPT - OPTION
LONG - TYPE LONG DESCRIPTION AT START OF
EXECUTION (DEFAULT)
Q - DO NOT TYPE LONG DESCRIPTION
NEW - TYPE DESCRIPTION OF NEW FEATURES
OTHER - QUICK ENTRY OF ANSWERS TO FIRST 4
QUESTIONS

08/10/77 2-59 DOC - 1 OF 13
DEFAULT EXECUTE CARD
DOC,DDCMNT,LONG.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 46000B
FL NEEDED TO RUN : 36000B

DATA ENTRIES
THE DATA REQUESTED IS SUMMARIZED BELOW AND ON PAGE 3.
EACH ITEM IS DISCUSSED IN GREATER DETAIL STARTING ON PAGE 4.

ITEMS IN THE DOCUMENT ARE ENTERED IN RESPONSE TO QUESTIONS.
THE RESPONSES ARE ONE LINE OR A VARIABLE NUMBER OF LINES.

VARIABLE LENGTH SECTIONS HAVE (:) IN THE PROMPTING MESSAGE.
EACH CONSISTS OF 0 OR MORE LINES AND IS TERMINATED BY A
SEPARATE ENTRY OF : OR =. TO ERASE THE PREVIOUS LINE,
USE A SEPARATE ENTRY OF MINUS (-).

ALL (Y/N) RESPONSES: Y (OR ANY WORD STARTING WITH Y)=YES;
ANYTHING ELSE=NO. IN THE DISCUSSIONS BELOW, 'ENTER Y' MEANS
ENTER ANY WORD BEGINNING WITH Y; 'ENTER N' MEANS ENTER ANY
WORD NOT BEGINNING WITH Y.

A SEPARATE ENTRY OF © WILL IMMEDIATELY TERMINATE THE
CURRENT DOCUMENT.

A SEPARATE ENTRY OF ? WILL PROVIDE A (LONGER) FORM OF THE
CURRENT PROMPTING MESSAGE.

A SEPARATE ENTRY OF -L WILL SWITCH TO LONG PROMPTING UNTIL
END OF PROGRAM OR -S.

A SEPARATE ENTRY OF -S WILL SWITCH TO SHORT PROMPTING
UNTIL END OF PROGRAM OR -L.

A SEPARATE ENTRY OF -ON WILL TURN REPRINT ON (PRINT WHAT
YOU JUST ENTERED) UNTIL END OF PROGRAM OR -OFF.

A SEPARATE ENTRY OF -OFF WILL TURN REPRINT OFF UNTIL END
OF PROGRAM OR -ON.

MOST MESSAGES WILL HAVE (IN PARENTHESES) THE NUMBER OF
CHARACTERS ACCEPTED PER LINE.

THE FOLLOWING ARE ASKED AT MOST ONCE PER EXECUTION:
*DECK
UNDERLINE
REPRINT - MAY BE CHANGED DYNAMICALLY
PROMPT - MAY BE CHANGED DYNAMICALLY
THESE 4 MAY BE ENTERED AS A SINGLE PARAMETER ON THE EXECUTE
CARD (DEFAULT= N2NS).

THE FOLLOWING IS ASKED ONCE PER DOCUMENT:
MAIN/SUBROUTINE/FUNCTION/PROCEDURE/END

THE REST DEPEND UPON THE RESPONSE TO M/MC/S/F/P/E AND ARE
SUMMARIZED IN THE TABLE ON PAGE 3:
<table>
<thead>
<tr>
<th>NAME</th>
<th>SUBROUTINE/FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>PURPOSE</td>
<td></td>
</tr>
<tr>
<td>FUNC CATEGORIES</td>
<td></td>
</tr>
<tr>
<td>LANGUAGE</td>
<td></td>
</tr>
<tr>
<td>PROCED LOCATION</td>
<td></td>
</tr>
<tr>
<td>REMARKS</td>
<td></td>
</tr>
<tr>
<td>USAGE</td>
<td></td>
</tr>
<tr>
<td>BEGIN STATEMENT</td>
<td></td>
</tr>
<tr>
<td># ARGS</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td>DEFAULT BEGIN</td>
<td></td>
</tr>
<tr>
<td>M4X FL</td>
<td></td>
</tr>
<tr>
<td>REMARKS</td>
<td></td>
</tr>
<tr>
<td>CM REQUIRED</td>
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<tr>
<td>BATCH CTL CDS</td>
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</tr>
<tr>
<td>TTY CTL CRDS</td>
<td></td>
</tr>
<tr>
<td>EXECUTE CARD</td>
<td></td>
</tr>
<tr>
<td>DEFAULT EXEC CD</td>
<td></td>
</tr>
<tr>
<td>DEFAULT PL</td>
<td></td>
</tr>
<tr>
<td>LOAD FL</td>
<td></td>
</tr>
<tr>
<td>RUN FL</td>
<td></td>
</tr>
<tr>
<td>REDUCTION</td>
<td></td>
</tr>
<tr>
<td># DATA CARDS</td>
<td></td>
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<tr>
<td>SUB-HEADING</td>
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<td>MORE SUB-HEAD</td>
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<tr>
<td>ERRORS</td>
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<td>I/O UNITS</td>
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</tr>
<tr>
<td>DESCRIPTION</td>
<td></td>
</tr>
<tr>
<td># EXAMPLES</td>
<td></td>
</tr>
<tr>
<td>EXAMPLE(S)</td>
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</tr>
<tr>
<td>METHOD</td>
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<tr>
<td>SUBPROGRAMS</td>
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</tr>
<tr>
<td>PART OF LANG</td>
<td></td>
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<tr>
<td>PART OF PROG</td>
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</tr>
<tr>
<td>OTHERS</td>
<td></td>
</tr>
<tr>
<td>ARITH STMT FCNS</td>
<td></td>
</tr>
<tr>
<td># AUTHORS</td>
<td></td>
</tr>
<tr>
<td>AUTHOR(S)</td>
<td></td>
</tr>
<tr>
<td>DATE WRITTEN</td>
<td></td>
</tr>
<tr>
<td>DATES REVISIRED</td>
<td></td>
</tr>
<tr>
<td>SOURCE LOCATION</td>
<td></td>
</tr>
<tr>
<td>OBJECT LOCATION</td>
<td></td>
</tr>
<tr>
<td>ANY MORE?</td>
<td></td>
</tr>
</tbody>
</table>

08/10/77  2-61  DOC - 3 OF 13
THE FOLLOWING FOUR ITEMS ARE REQUESTED AT MOST ONCE PER EXECUTION:

*DECK

A RESPONSE OF 'Y' WILL CAUSE AN UPDATE *DECK CARD TO BE
GENERATED BEFORE EACH DOCUMENT CREATED DURING THIS
EXECUTION.

ANY OTHER RESPONSE WILL NOT GENERATE *DECK CARDS.

IF THE DOCUMENTS GENERATED ARE TO BE PROCESSED BY
CATALOGUED PROCEDURES 'DOCADD' OR 'DOCREPL', RESPOND 'N'.

UNDERLINE

SOME SECTIONS WILL HAVE SUB-HEADINGS WHICH WILL BE
UNDERLINED. THERE ARE TWO POSSIBLE UNDERLINE CHARACTERS.

ENTER 1 FOR UNDERSCORE (_), WHICH WILL BE PRINTED ON THE
SAME LINE AS THE SUB-HEADING (CARRIAGE CONTROL: +).
(SEE PAGE 11 FOR A SAMPLE.)

ENTER 2 FOR HYPHEN ( - ), WHICH WILL BE PRINTED ON THE
LINE AFTER THE SUB-HEADING (CARRIAGE CONTROL: SPACE).
(SEE PAGE 8 FOR A SAMPLE.)

REPRINT

A RESPONSE OF 'Y' WILL CAUSE EACH OF THE ENTRIES TO BE
TYPED BACK. THERE IS LIMITED PROVISION FOR CORRECTION IN
MULTIPLE LINE ENTRIES.

ANY OTHER RESPONSE WILL CAUSE NO REPRINT.

TO TURN REPRINT ON AT ANY TIME DURING DOCUMENT GENERATION,
USE A SEPARATE ENTRY OF '-ON'; TO TURN REPRINT OFF, ENTER
'-OFF'.

PROMPT

THERE ARE TWO VERSIONS OF EACH PROMPTING MESSAGE.
ENTER L TO RECEIVE THE LONG FORM.
ENTER S TO RECEIVE THE SHORT FORM.

TO SWITCH TO LONG FORM AT ANY TIME DURING DOCUMENT
GENERATION, USE A SEPARATE ENTRY OF '-L'; TO SWITCH TO
SHORT FORM, ENTER '-S'.

THESE QUESTIONS MAY BE ANSWERED ON THE EXECUTE CARD TO SAVE TIME.

THE FOLLOWING ITEM IS REQUESTED ONCE PER DOCUMENT:

MAIN/Cover/SUBROUTINE/FUNCTION/PROCEDURE/END

THE RESPONSE TO THIS DETERMINES WHICH OF THE REMAINING
QUESTIONS WILL BE ASKED.

ENTER M TO DOCUMENT A MAIN PROGRAM.
ENTER MC TO CREATE A MAIN PROGRAM COVER SHEET.
ENTER S TO DOCUMENT A SUBROUTINE.
ENTER F TO DOCUMENT A FUNCTION.
ENTER SF TO DOCUMENT A SUBPROGRAM WHICH MAY BE USED AS A
SUBROUTINE OR FUNCTION. TWO HEADINGS WILL BE
GENERATED.
ENTER FS FOR THE SAME AS SF BUT WITH THE FUNCTION
HEADING FIRST.
ENTER P TO DOCUMENT A CATALOGUED PROCEDURE.
ENTER E TO END THE PROGRAM.
THE REMAINING QUESTIONS DEPEND UPON THE RESPONSE TO THE LAST QUESTION. THE FOLLOWING ABBREVIATIONS WILL BE USED:

M - MAIN PROGRAM, ANY LANGUAGE
MC - MAIN PROGRAM COVER SHEET
M(F) - MAIN PROGRAM, FORTRAN
M(C) - MAIN PROGRAM, COBOL
M(O) - MAIN PROGRAM, NOT FORTRAN OR COBOL
SF - SUBROUTINE OR FUNCTION, ANY LANGUAGE
SF(F) - SUBROUTINE OR FUNCTION, FORTRAN
SF(C) - SUBROUTINE OR FUNCTION, COBOL
SF(O) - SUBROUTINE OR FUNCTION, NOT FORTRAN OR COBOL
P - CATALOGUED PROCEDURE

NAME 1-7 CHARACTER PROGRAM OR SUBPROGRAM NAME -OR-
1-10 CHARACTER PROCEDURE NAME. *(M,MC,SF,P)*

NOTE: WHILE PROCEDURE NAMES MAY BE 10 CHARACTERS, UPDATE IS LIMITED TO 9-CHARACTER DECK NAMES AND PROCEDURES FOR MAINTAINING DOCUMENT FILES ARE LIMITED TO 7-CHARACTER DECK NAMES.

PURPOSE ANY NUMBER OF 1- TO 60-CHARACTER LINES DESCRIBING THE PURPOSE OF THE ROUTINE. END WITH A SEPARATE ENTRY OF: OR =. *(M,MC,SF,P)*

FUNCTIONAL CATEGORIES SPECIFY 1-10 2-CHARACTER FUNCTIONAL CATEGORIES TO WHICH THIS ROUTINE BELONGS. A LIST OF CATEGORIES MAY BE OBTAINED BY EXECUTING THE FOLLOWING COMMAND:

BEGIN,UTILITY,,PROGDOC,OTHER,,FUNCAT.
THE LIST IS 3 PAGES LONG.
3-CHARACTER CATEGORIES WILL BE SUPPORTED IN V2.5. *(M,MC,SF,P)*

LANGUAGE 1-50 CHARACTERS NAMING OR DESCRIBING THE LANGUAGE THE ROUTINE IS WRITTEN IN. *(M,SF)*

THE FOLLOWING ABBREVIATIONS ARE RECOGNIZED:
A - ALGOL
B - BASIC
C - COBOL *(ALSO COBI)*
C4 - COBOL 4
C5 - COBOL 5
COM - CDC 6000 CP COMPASS
F - FORTRAN
F4 - FORTRAN IV
FTN - FORTRAN IV EXTENDED
F5 - FORTRAN 77
FTN5 - FORTRAN 77 EXTENDED
MNF - MINNESOTA FORTRAN
P - PL/I *(ALSO PL1, PL1, PL/1)*
RATFOR - RATIONAL FORTRAN *(ALSO RF)*
S - SNOBOL

PROCEDURE LOCATION SPECIFY THE LOCATION OF THE CATALOGUED PROCEDURE BEING DOCUMENTED (PROGRAM AND SUBPROGRAM LOCATIONS ARE REQUESTED LATER). GIVE EITHER THE PERMANENT FILE NAME AND ID OR A SAMPLE ATTACH. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES.

08.10/77 2-63 DOC - 8 OF :3
REMARKS ENTER ANY REMARKS ABOUT THE (SUB)PROGRAM. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. (M.SF)
(REMARKS FOR MAIN PROGRAM COVER SHEET ARE GENERATED AUTOMATICALLY)
(REMARKS FOR PROCEDURES ARE REQUESTED LATER.)

USAGE ENTER CALL STATEMENT(S) OR FUNCTION USAGE WITH ALL ARGUMENTS SHOWN. GIVE ALL POSSIBLE WAYS THE SUBPROGRAM CAN BE USED. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. DO NOT DESCRIBE THE ARGUMENTS HERE. THE NEXT PROMPTING WILL BE FOR ARGUMENT DESCRIPTION. (SF)

BEGIN STATEMENT ENTER THE BEGIN STATEMENT SHOWING ALL PARAMETERS. TRY TO USE THE NAMES IN THE PROCEDURE HEADER, IF POSSIBLE. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. DO NOT DESCRIBE THE PARAMETERS HERE. THE NEXT PROMPTING WILL BE FOR PARAMETER DESCRIPTION. (SF)

NUMBER OF ARGUMENTS/PARAMETERS ENTER 0 IF THE ROUTINE HAS NO PARAMETERS.
ENTER 1 IF THE ROUTINE HAS 1 PARAMETER.
ENTER 2 IF THE ROUTINE HAS 2 OR MORE PARAMETERS.
(SF,P)

DESCRIPTION OF ARGUMENTS/PARAMETERS REQUESTED ONLY IF RESPONSE TO LAST QUESTION WAS 1 OR 2. DESCRIBE THE ARGUMENT(S) OF THE CALL OR FUNCTION USAGE OR BEGIN STATEMENT PARAMETERS. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. (SF,P)

DEFAULT BEGIN ENTER THE BEGIN STATEMENT SHOWING ALL DEFAULT VALUES. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. (P)

MAX FL FIELD LENGTH REQUIRED FOR THE LARGEST PROGRAM EXECUTED IN THE PROCEDURE. (P)
(FL FOR PROGRAMS AND SUBPROGRAMS IS REQUESTED LATER.)

REMARKS ENTER ANY REMARKS ABOUT THE PROCEDURE. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. (P)
(REMARKS FOR (SUB)PROGRAMS ARE REQUESTED EARLIER.)

CM REQUIRED ENTER THE CORE REQUIRED FOR THIS SUBPROGRAM (1-40 CHARACTERS). THIS MAY BE OBTAINED FROM THE COMPILATION LISTING. (SF)
BATCH CONTROL CARDS
LIST THE CONTROL CARDS AND SHOW THE POSITIONING OF ANY DATA CARDS. DON'T SHOW JOB OR CHARGE CARDS UNLESS THE JOB CARD HAS SOME SPECIAL REQUIRED PARAMETERS (MT, NT, PK, T, BUT NOT CM). USE ANY NUMBER OF 1- TO 57-CHARACTER LINES.

IF THE PROGRAM IS NOT DESIGNED FOR BATCH USE, THIS MESSAGE (SEE PAGE 2) CAN BE GENERATED AUTOMATICALLY WITH A SINGLE ENTRY OF 0 (ZERO).

IN EITHER CASE, END WITH A SEPARATE ENTRY OF ; OR =. (M)

TTY CONTROL CARDS
LIST THE CONTROL CARDS AND SHOW THE POSITIONING OF ANY TTY DATA ENTRIES (SEE PAGE 2). USE ANY NUMBER OF 1- TO 57-CHARACTER LINES.

IF THE PROGRAM IS NOT DESIGNED FOR TTY USE, THIS MESSAGE CAN BE GENERATED AUTOMATICALLY WITH A SINGLE ENTRY OF 0 (ZERO).

IN EITHER CASE, END WITH A SEPARATE ENTRY OF ; OR =. (M)

EXECUTE CARD GIVE THE EXECUTE CARD SHOWING ANY PARAMETERS. THEN LIST AND DESCRIBE EACH PARAMETER (SUGGEST STARTING THE DESCRIPTIONS WITH 3 SPACES (SEE PAGE 2)). USE ANY NUMBER OF 1- TO 57-CHARACTER LINES. END WITH A SEPARATE ENTRY OF ; OR =. (M,MC)

DEFAULT EXECUTE CARD GIVE THE EXECUTE CARD SHOWING ALL DEFAULT VALUES. USE ANY NUMBER OF 1- TO 57-CHARACTER LINES. END WITH A SEPARATE ENTRY OF ; OR =. (M,MC)

DEFAULT PL ENTER PRINT LIMIT (PL) AS SPECIFIED ON FTN CONTROL CARD. IF NOT SPECIFIED, ENTER SPACE. 0, ; OR =. (M,F)

LOAD FL ENTER THE FIELD LENGTH NEEDED TO LOAD THE PROGRAM (1-40 CHARACTERS). (M)

RUN FL ENTER THE FIELD LENGTH NEEDED TO RUN THE PROGRAM (1-40 CHARACTERS). (M)

REDUCTION ENTER SPACE, ; OR = IF THE PROGRAM DOES NOT SPECIFICALLY ADJUST CORE BUT USES THE CORE DETERMINED BY THE LOADER.
ENTER 0 IF THE PROGRAM SPECIFICALLY REDUCES TO THE MINIMUM NEEDED TO RUN.
ENTER 1 IF THE PROGRAM SPECIFICALLY ADJUSTS CORE UP AND/OR DOWN AS PROGRAM REQUIREMENTS CHANGE.
IF THE PROGRAM REQUESTS A SPECIFIC AMOUNT OF CORE, ENTER THAT AMOUNT. (M)

NUMBER OF DATA CARDS
ENTER 0 IF NO DATA CARDS.
Enter 1 FOR THE HEADING 'DATA CARD'.
Enter 2 FOR THE HEADING 'DATA CARDS'. (M, SF, P)
DATA CARD SUB-HEADING
ENTER 0 IF NO SUB-HEADING IS DESIRED.
ENTER 1 FOR THE SUB-HEADING 'COL CONTENTS'.
ENTER 2 FOR THE SUB-HEADING 'CARD COL CONTENTS'.
(M, SF, P)

DATA CARD DESCRIPTION
DESCRIBE THE DATA CARDS. USE ANY NUMBER OF 1- TO 60 CHARACTER LINES (IF NO SUB-HEADING) OR 1- TO 57-CHARACTER LINES (IF SUB-HEADING). END WITH A SEPARATE ENTRY OF : OR =. (M, SF, P)

DO YOU WANT ANOTHER SUB-HEADING?
ASKED ONLY IF SUB-HEADINGS WERE SPECIFIED.
ENTER Y FOR ANOTHER SUB-HEADING.
ENTER N TO CONTINUE THE DOCUMENT.

ERROR MESSAGES
LIST ERROR MESSAGES THE PROGRAM CAN PRODUCE WITH AN EXPLANATION OF EACH (SUGGEST STARTING EXPLANATION WITH 3 SPACES (SEE PAGE 10)). USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. IF NO ENTRIES ARE GIVEN, THE SECTION WILL NOT APPEAR IN THE GENERATED DOCUMENT. (M, P)

INPUT/OUTPUT UNITS
ENTER SPACE : OR = IF NO I/O UNITS.
ENTER I FOR THE HEADING 'INPUT UNITS'.
ENTER O FOR THE HEADING 'OUTPUT UNITS'.
ENTER IO FOR THE HEADING 'INPUT/OUTPUT UNITS'.
ENTER I/O FOR 2 HEADINGS: 'INPUT UNITS' AND 'OUTPUT UNITS' (EACH WILL BE PROMPTED FOR SEPARATELY.)
(M, SF)

DESCRIPTION OF I/O UNITS
REQUESTED ONLY IF THE RESPONSE TO THE LAST QUESTION WAS I, O, IO OR I/O. SUB-HEADINGS ARE TYPED TO AID IN FORMATTING DESCRIPTIONS.

FOR FORTRAN, 3 COLUMNS ARE USED: FORTRAN LOGICAL UNIT NUMBER, LOCAL FILE NAME AND USE. FOR EXAMPLE, FOR THE PROGRAM STATEMENT:

PROGRAM ANY (INPUT, TAPE7, OUTPUT, TAPE5=INPUT)
UNIT # LFN USE
--- --- --- ---
5 INPUT DATA CARD INPUT
7 TAPE7 WORK FILE
OUTPUT LISTABLE OUTPUT

LIST FILES IN ALPHABETICAL ORDER BY LFN. BE SURE TO INCLUDE ALL RECORD MANAGER FILES WHICH ARE NOT ALSO IN THE PROGRAM STATEMENT.

FOR NON-FORTRAN, ONLY THE LAST 2 COLUMNS ARE USED.
(M, SF)
NUMBER OF EXAMPLES
ENTER 0 IF NO EXAMPLES.
ENTER 1 IF 1 EXAMPLE (HEADING WILL BE 'EXAMPLE').
ENTER 2 IF 2 OR MORE EXAMPLES (HEADING WILL BE 'EXAMPLES').

EXAMPLES
GIVE THE EXAMPLE(S). USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. (M, SF, P)

METHOD
IF DESIRED, DESCRIBE THE METHOD USED. IF APPROPRIATE,
CITE REFERENCES. USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF : OR =. IF NO
DESCRIPTION IS GIVEN, THE SECTION WILL NOT APPEAR IN THE
GENERATED DOCUMENT. (M, SF)

SUBPROGRAMS REQUIRED (PART OF LANGUAGE)
LIST ALL SUBROUTINES AND FUNCTIONS USED BY THIS ROUTINE
WHICH ARE A PART OF THE LANGUAGE (SUCH AS SIN, COS, EOF,
BUFFEROUT, CONNEC, ETC.). USE ANY NUMBER OF 1- TO 57-
CHARACTER LINES. FIVE NAMES WILL FIT ON A LINE IN 10-
CHARACTER FIELDS. THEY SHOULD BE LISTED ALPHABETICALLY OR
GROUPED ACCORDING TO TYPE. EG. LOGICAL FUNCTIONS, TRIG
FUNCTIONS, NON-STANDARD I/O ROUTINES, ETC.). END WITH A
SEPARATE ENTRY OF : OR =. (M, SF)

SUBPROGRAMS REQUIRED (PART OF PROGRAM)
LIST AND DESCRIBE ALL SUBROUTINES AND FUNCTIONS WHICH WERE
WRITTEN SPECIFICALLY FOR THIS PROGRAM OR SUBPROGRAM. USE
ANY NUMBER OF 1- TO 57-CHARACTER LINES. END WITH A
SEPARATE ENTRY OF : OR =. (M, IF, M: IO, SF: IF, SF: IO)

SUBPROGRAMS REQUIRED (OTHERS)
LIST ALL SUBPROGRAMS USED (SUCH AS THOSE IN USER LIBRARIES
OR OTHER FILES) WHICH ARE NOT LISTED ABOVE. USE ANY
NUMBER OF 1- TO 57-CHARACTER LINES. END WITH A
SEPARATE ENTRY OF : OR =. (M, SF)

ARITHMETIC STATEMENT FUNCTIONS
LIST AND DESCRIBE ALL ARITHMETIC STATEMENT FUNCTIONS USED.
USE ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A
SEPARATE ENTRY OF : OR =. (M, IF, SF: IF)

NUMBER OF AUTHORS
ENTER 1 IF 1 AUTHOR (HEADING WILL BE 'AUTHOR').
ENTER 2 IF 2 OR MORE AUTHORS (HEADING WILL BE 'AUTHORS').

AUTHORS
LIST ALL AUTHORS WITH COMPANY AND/OR CODE. USE ANY NUMBER
OF 1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF
: OR =. (M, SF, P)
DATE WRITTEN ENTER THE DATE WRITTEN (1-50 CHARACTERS). (M,SF,P)

DATES REVISED
ENTER THE DATES REVISED, WITH PERHAPS A DESCRIPTION OF THE
REVISION, PROGRAM REVISION NUMBER, ETC. USE ANY NUMBER OF
1- TO 60-CHARACTER LINES. END WITH A SEPARATE ENTRY OF :
OR =. (M,SF,P)

SOURCE DECK LOCATION
LIST ALL PLACES THE SOURCE PROGRAM IS LOCATED. USE ANY
NUMBER OF 1- TO 57-CHARACTER LINES. END WITH A SEPARATE
ENTRY OF : OR =. (M,SF)

OBJECT DECK LOCATION
LIST ALL PLACES THE OBJECT PROGRAM IS LOCATED. USE ANY
NUMBER OF 1- TO 57-CHARACTER LINES. END WITH A SEPARATE
ENTRY OF : OR =. (M,SF)

DO YOU WANT TO DOCUMENT ANOTHER ROUTINE?
ENTER Y TO DOCUMENT ANOTHER ROUTINE.
ENTER N TO END THE PROGRAM.
IT IS SUGGESTED THAT ONLY ONE DOCUMENT BE GENERATED AT A
TIME. (M,SF,P)
ERROR MESSAGES
DOCUMENT TERMINATED - DOCNAME
TTY MESSAGE WHEN USER ENTERS @ TO TERMINATE THE CURRENT DOCUMENT

IGNORED - NO PREVIOUS LINE TO DELETE
USER ENTERED '-' IN MULTIPLE LINE SECTION THAT IS CURRENTLY EMPTY (REPRINT MODE ONLY)

LAST LINE DELETED
USER ENTERED '-' IN MULTIPLE LINE SECTION (REPRINT MODE ONLY)

SORRY. I MUST HAVE A PROCEDURE NAME BEFORE I CAN CONTINUE.
SELF-EXPLANATORY

SORRY. I MUST HAVE A ROUTINE NAME BEFORE I CAN CONTINUE.
SELF-EXPLANATORY.

***** THIS DOCUMENT TERMINATED EARLY *****
PUT INTO DOCUMENT WHEN USER ENTERS @ TO TERMINATE THE CURRENT DOCUMENT
... TRUNCATED
END OF A TOO-LONG ENTRY DROPPED. IF IN A MULTIPLE LINE SECTION, USER MAY ENTER '-' AND RETYPE THE LINE OR WAIT AND CORRECT IT LATER IN EDITOR.

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>DOCMNT</td>
<td>CREATED DOCUMENTS (ON PF SPACE)</td>
</tr>
<tr>
<td>5</td>
<td>OUTPUT</td>
<td>FTN ERROR MESSAGES</td>
</tr>
<tr>
<td>5</td>
<td>TTY</td>
<td>TERMINAL INPUT/OUTPUT</td>
</tr>
</tbody>
</table>

METHOD
TTY IS PROMPTED FOR EACH SECTION OF THE DOCUMENT.

THE SECTIONS REQUESTED ARE DETERMINED BY THE SOURCE LANGUAGE AND TYPE OF ROUTINE.
<table>
<thead>
<tr>
<th>SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>PART OF LANGUAGE</td>
</tr>
<tr>
<td>AND</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>PART OF PROGRAM</td>
</tr>
<tr>
<td>AACOVER - DRIVER FOR MAIN PROGRAM COVER SHEET</td>
</tr>
<tr>
<td>AAPROC - DRIVER FOR PROCEDURES</td>
</tr>
<tr>
<td>AAPROG - DRIVER FOR (SUB)PROGRAMS</td>
</tr>
<tr>
<td>ANYMOR - ASK IF ANY MORE DOCUMENTS TO BE CREATED</td>
</tr>
<tr>
<td>ARITH - ASK FOR ARITHMETIC STATEMENT FUNCTIONS</td>
</tr>
<tr>
<td>AUTHOR - ASK FOR AUTHORS</td>
</tr>
<tr>
<td>CATEGORY - ASK FOR FUNCTIONAL CATEGORY(IES)</td>
</tr>
<tr>
<td>CATPRO - GET PROCEDURE NAME</td>
</tr>
<tr>
<td>DATA  - ASK FOR DATA CARD DESCRIPTION</td>
</tr>
<tr>
<td>DECK1 - ASK IF *DECK CARDS DESIRED</td>
</tr>
<tr>
<td>DEFPPL - ASK FOR DEFAULT PL</td>
</tr>
<tr>
<td>DOCIT - EXTEND MAIN PROGRAM COVER SHEET TO 60 LINES</td>
</tr>
<tr>
<td>ECHO1 - ASK IF ECHO DESIRED</td>
</tr>
<tr>
<td>ENDIT - CLOSE PROGRAM AND PRINT SUMMARY</td>
</tr>
<tr>
<td>EOJ   - ABNORMAL TERMINATION ROUTINE</td>
</tr>
<tr>
<td>ERRORS - ASK FOR ERROR MESSAGES</td>
</tr>
<tr>
<td>E:AM  - ASK FOR PROCEDURE EXAMPLES</td>
</tr>
<tr>
<td>EXEC  - ASK FOR EXECUTION INSTRUCTIONS</td>
</tr>
<tr>
<td>EXEC1 - ASK FOR CM REQUIRED FOR SUBPROGRAM (ENTRY IN EXEC)</td>
</tr>
<tr>
<td>EXEC2 - ASK FOR PROCEDURE MAX FL (ENTRY IN EXEC)</td>
</tr>
<tr>
<td>FASTOPT - PROCESS EXECUTE CARD OPTION</td>
</tr>
<tr>
<td>GET13 - GET VARIABLE LENGTH INFO AND PRINT IN COL 13</td>
</tr>
<tr>
<td>GET16 - GET VARIABLE LENGTH INFO AND PRINT IN COL 16 (ENTRY IN GET13)</td>
</tr>
<tr>
<td>II00  - ASK FOR INPUT/OUTPUT DESCRIPTION</td>
</tr>
<tr>
<td>LANG1 - ASK FOR SOURCE LANGUAGE</td>
</tr>
<tr>
<td>LOC   - ASK FOR PROCEDURE LOCATION</td>
</tr>
<tr>
<td>METH  - ASK FOR METHOD DESCRIPTION</td>
</tr>
<tr>
<td>OBJ   - ASK FOR LOCATION OF SOURCE/OBJECT DECKS</td>
</tr>
<tr>
<td>ONSOFFSL - DYNAMIC REPRINT ON/OFF, SHORT/LONG PROMPT</td>
</tr>
<tr>
<td>PARAM - ASK FOR SUBPROGRAM PARAMETERS</td>
</tr>
<tr>
<td>PRMPT - ASK IF LONG/SHORT PROMPTING DESIRED</td>
</tr>
<tr>
<td>PRODEF - ASK FOR DEFAULT BEGIN STATEMENT</td>
</tr>
<tr>
<td>PROG  - ASK FOR ROUTINE NAME</td>
</tr>
<tr>
<td>PURP  - ASK FOR PURPOSE</td>
</tr>
<tr>
<td>REM   - ASK FOR REMARKS</td>
</tr>
<tr>
<td>SUBS  - ASK FOR SUBPROGRAMS REQUIRED</td>
</tr>
<tr>
<td>TRUNC - PRINT TRUNCATED MESSAGE</td>
</tr>
<tr>
<td>UNDER1 - ASK WHICH UNDERLINE CHARACTER DESIRED</td>
</tr>
<tr>
<td>USAGE - ASK FOR SUBPROGRAM USAGE INFO</td>
</tr>
<tr>
<td>WRIT  - ASK FOR DATES WRITTEN AND REVISED</td>
</tr>
<tr>
<td>OTHERS</td>
</tr>
<tr>
<td>ADJL - SQUEEZE LEFT (SPACE BETWEEN WORDS)</td>
</tr>
<tr>
<td>ELTIME - ELAPSED TIME COMPUTATIONS</td>
</tr>
<tr>
<td>FINDWRD - SEARCH ARRAY FOR WORD</td>
</tr>
<tr>
<td>FSETFIT - SET FTN FIT</td>
</tr>
<tr>
<td>GETLFNS - GET ACTUAL LOCAL FILE NAMES</td>
</tr>
<tr>
<td>PAKLFT - SQUEEZE LEFT AND REMOVE BLANKS AND 00B</td>
</tr>
<tr>
<td>REQUEST - REQUEST,DOCMT.*PF.</td>
</tr>
<tr>
<td>ZBLANK - CHANGE BLANKS TO 00B</td>
</tr>
</tbody>
</table>

08/10/77  2-7C  DOC  - 12 OF 13
ARITHMETIC STATEMENT FUNCTIONS

I11FMT - FAST I-FORMAT DECODE
L61FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L81FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 11/03/73

DATE(S) REVISED
11/19/73 - V1.1
03/24/75 - V1.2
12/01/75 - V1.3
03/17/76 - V1.4
03/31/76 - V1.5
05/07/76 - V1.6 - CHANGE CONTROL CHARACTER BACK SLASH TO @
08/30/76 - V2.0 - CHANGE ORDER OF DOCUMENT.
10/20/76 - V2.1 - FIX SOME PROMPTING MESSAGES. MOVE PROMPT
FOR LANGUAGE TO ITS POSITION IN THE
DOCUMENT 'AFTER FUNCTIONAL CATEGORIES'.
TO AVOID CONCLUSION WITH ECHO/NONECHO MODE
OF A TELETYPewriter, THE WORD 'ECHO' IS CHANGED
TO 'REPRINT' IN THIS PROGRAM. ALLOW
REPRINT TO BE TURNED ON/OFF DYNAMICALLY.
ALLOW LONG/SHORT PROMPTING TO BE CHANGED
DYNAMICALLY. ADD SEVERAL LANGUAGE
ABBREVIATIONS.
02/14/77 - V2.2 - ADD DEFAULT PL FOR FORTRAN MAIN PROGRAMS.
ADD SECTION OF ERROR MESSAGES FOR MAIN
PROGRAMS AND PROCEDURES.
04/20/77 - V2.3 - ADD MORE DEFAULTS FOR LANGUAGE.
REMOVE ONE OF TTY PROMPTER FILES
(PROGRAM LEAVES FILE 'TTY' CONNECTED).
CORRECT & PROCESS IN 2 PLACES.
08/09/77 - V2.4 - EXPAND EXECUTE CARD OPTION PARAMETER.
ADD MAIN PROGRAM COVER SHEET.

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS

OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'DOCDAT'

PURPOSE
LIST DOCUMENT NAMES, DATES AND PAGE NUMBERS

FUNCTIONAL CATEGORIES: Q6 SO

LANGUAGE: FORTRAN IV EXTENDED

COMPUTER
CDC 6000

REMARKS
ASSUMES THE DOCUMENTS HAVE THE FORM:
*DECK <DOCNAME>

... MM/DD/YY ... <NAME> NN OF NN

EXECUTION
FROM BATCH AND TTY
BEGIN,DOCDATE,,<LIB>,<ID>,OUTPUT,<PASSWORDS>.
-OR-
ATTACH,TAPE1,.... <:: DOCUMENTATION FILE
ATTACH,UTILITY.
LDSET,LIB=UTILITY. -OR- LIBRARY,UTILITY.
DOCDAT.

FROM TTY
BEGIN,DOCDATE,,<LIB>,<ID>,OUTPUT,<PASSWORDS>.
-OR-
ATTACH,TAPE1,.... <:: DOCUMENTATION FILE
BEGIN,ANYLIB.,UTILITY,,DOCDAT,,OUT.
ROUTE,OUT,DC=PR,....

EXECUTE CARD PARAMETERS
DOCDAT,INFILE,OUTPUT.

INFILE - INPUT DOCUMENT FILE
OUTPUT - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
DOCDAT,TAPE1,OUTPUT.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 17000B

ERROR MESSAGES
INPUT FILE EMPTY
SELF-EXPLANATORY

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAPE1</td>
<td>INPUT DOCUMENT FILE</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
<td></td>
</tr>
</tbody>
</table>

02/05/80 2-72 DOCDAT - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND CLOSEM DATE FILESQ GET
IFETCH OPENM TIME
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
MOVECM - MOVE ARRAY
MOVSTR - MOVE CHARACTER STRING

ARITHMETIC STATEMENT FUNCTIONS
L51FMT - FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2
DATE WRITTEN: 1977 OR 1978
DATE(S) REVISED
02/05/80 - REDO OUTPUT FORMAT

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'DOCIT'

PURPOSE
ADD PAGING TO ONE OR MORE DOCUMENTS

FUNCTIONAL CATEGORIES: Q6

LANGUAGE: FORTRAN IV EXTENDED

COMPUTER
CDC 6000

REMARKS
NORMALLY, PROGRAM 'DOC' (OR 'MTDOC') IS USED TO CREATE THE DOCUMENT(S). AN EDITOR IS THEN USED TO MODIFY IT/ THEM AND INDICATE THE START OF EACH PAGE. PROGRAM 'LINER' MAY BE USED TO CHECK PAGE LENGTHS. FINALLY, 'DOCIT' WILL INCREASE EACH PAGE TO 60 OR 80 LINES (FOR 6 OR 8 LINES PER INCH, RESPECTIVELY) AND ADD THE DATE, DOCUMENT NAME AND PAGE NUMBER AT THE BOTTOM OF EACH PAGE.

DOCUMENT LINES HAVE THE FOLLOWING FORMAT:

COL CONTENTS
--- -------
1  CARRIAGE CONTROL ('',',', 'O',' ','-','+', 'Q','R','S','T','V','VC')

THE FOLLOWING SPECIAL CARRIAGE CONTROL CHARACTERS ARE RECOGNIZED:

Q - LINE COPIED
R - LINE COPIED
S - LINE COPIED AND LINES PER PAGE SET TO 60
T - LINE COPIED AND LINES PER PAGE SET TO 80
V - LINE COPIED
VC - THIS LINE AND NEXT LINE COPIED

THESE CHARACTERS DO NOT ALTER THE LINE COUNT.

2-80 LINE TO BE PRINTED

THE LAST LINE OF EACH PAGE (PRODUCED BY DOCIT) WILL BE CREATED BY DOCIT IN THE FOLLOWING FORMAT:

COL CONTENTS
--- -------
1  CARRIAGE CONTROL ('', '0')
2-9  DATE (MM/DD/YY)
55-61 DOCUMENT NAME
63  '
65-66 PAGE NUMBER
68-69 'OF'
71-72 TOTAL NUMBER OF PAGES

THE DOCUMENT NAME IS TAKEN FROM LINES HAVING '1' IN COLUMN 1 AND THE FOLLOWING CHARACTER STRINGS STARTING IN COLUMN 10:

FUNCTION '<NAME>'
LIBRARY '<NAME>'
PACKAGE '<NAME>'
PROCEDURE '<NAME>'
PROGRAM '<NAME>'
SUBROUTINE '<NAME>'
TAPE '<TAPENO>'

03/21/80  2-74  DOCIT - 1 OF 5
WHERE <NAME> IS 1-7 CHARACTERS; <TAPEND> IS 1-6 CHARACTERS.

IF THE FIRST LINE OF A DOCUMENT DOES NOT HAVE ONE OF THE
ABOVE CHARACTER STRINGS, THE DOCUMENT NAME IS TAKEN FROM THE
5TH PARAMETER ON THE EXECUTE CARD.

IF THE FIRST CARD OF THE INPUT FILE HAS '*DECK' IN COL 1-6,
MULTIPLE-DOCUMENT PROCESSING IS INITIATED. IN THIS MODE,
THE DOCUMENT NAMES ARE TAKEN FROM THE *DECK CARDS AND DOCIT
WILL COUNT THE PAGES IN EACH DOCUMENT. EXECUTE CARD
PARAMETERS MAXPAGE AND NAME ARE IGNORED. NOTE THAT AN EMRY
DOCUMENT (2 *DECK CARDS TOGETHER OR A *DECK AT THE END) WILL
CAUSE UNPREDICTED RESULTS.

EACH DOCUMENT IS ASSUMED TO BE 6 LINES PER INCH. DOCUMENTS
WHICH ARE 8 LPI ARE RESET TO 6 LPI AFTER THE DOCUMENT AND
BEFORE THE NEXT DOCUMENT, IF ANY.

BOTH THE INPUT AND OUTPUT FILES ARE REWOUND BEFORE AND
AFTER USE.

EXECUTION
FROM BATCH
   NOT DESIGNED FOR BATCH USE
FROM TTY
   CONNECT, OUTPUT
   ATTACH, UTILITY.
   LIBRARY, UTILITY.
   DOC.
   (CREATE DOCUMENT ON FILE 'DOCMNT',
   EDITOR
   EDIT, DOCMNT.
   (MODIFY, IF NECESSARY, INDICATE START OF EACH PAGE BY
   PUTTING A '1' IN COLUMN 1 OF EACH LINE WHICH IS TO BE
   THE FIRST LINE OF A PAGE.)
   SAVE, NEWDOC.N
   (INSTEAD OF THE EDITOR/EDIT/.../SAVE SEQUENCE.
   ANOTHER EDITING PROGRAM MAY BE USED, SUCH AS:
   ATTACH, NETED.
   NETED, DOCMNT
   (MODIFY, ETC.)
   SAVE NEWDOC
   LINER, NEWDOC.
   (WILL COUNT PAGES AND NUMBER OF LINES PER PAGE. IF
   ANY PAGE HAS MORE THAN 59 OR 79 LINES, GO BACK AND
   RESTRUCTURE.)
   BYE
   DOCIT, NEWDOC, FILE.
   (DO SOMETHING WITH 'FILE' -- PERHAPS USE PROCEDURES
   'DOCADD' OR 'DOCREPL' TO PUT IT INTO A DOCUMENT FILE)

03/21/80 2-75 DOCIT - 2 OF 5
EXECUTE CARD PARAMETERS

DOCIT, INFILE, OUTFILE, MAXPAGE, DATE, NAME, OUTPUT.

INFILE - INPUT FILE (REWOUND BEFORE AND AFTER)
OUTFILE - OUTPUT FILE (REWOUND BEFORE AND AFTER)
MAXPAGE - MAXIMUM NUMBER OF PAGES IN DOCUMENT (1-99)
(DO NOT OBTAINED. PROGRAM WILL COUNT PAGES)
(DO NOT OBTAINED. SEE REMARKS)
DATE - DATE TO BE PUT ON BOTTOM LINE OF EACH
DOCUMENT (MMDDYY)
(NAME OF DOCUMENT)
NAME - NAME OF DOCUMENT
(WILL BE USED ONLY IF NAME CANNOT BE FOUND ON FIRST LINE OF DOCUMENT)
(IGNORED IN *DECK MODE. SEE REMARKS)
OUTPUT - LISTABLE OUTPUT (ERROR MESSAGES)

DEFAULT EXECUTE CARD

DOCIT, TAPE1, TAPE2, ....., OUTPUT.

FL NEEDED TO LOAD: 33000B
FL NEEDED TO RUN: 23000B

ERROR MESSAGES

ABEND
PROGRAM TERMINATED ABNORMALLY

***** CARD NO. <NNN> IN DECK <NAME> <CARD-IMAGE>
***** ERROR - ABOVE CARD HAS INVALID CARRIAGE CONTROL
CHARACTER <CC>
MESSAGE APPEARS ON OUTPUT FILE. CORRECT ERROR AND RE-EXECUTE PROGRAM.

<NNNN> ERRORS - JOB TERMINATED
<NNNN> IS NUMBER OF INVALID CARRIAGE CONTROL CHARACTERS ENCOUNTERED. CORRECT ERRORS AND RE-EXECUTE PROGRAM.

INPUT FILE EMPTY
INPUT FILE HAS NO INFORMATION

INVALID CC - TERMINATED
AN UNRECOGNIZED CARRIAGE CONTROL CHARACTER WAS ENCOUNTERED AND PROGRAM TERMINATED. ERROR IS LISTED ON OUTPUT FILE. CORRECT AND RE-EXECUTE PROGRAM.

NO PAGES ENCOUNTERED
NO CARRIAGE CONTROL '1' FOUND WHILE COUNTING PAGES. MAY OR MAY NOT BE A DOCUMENT.

INPUT/OUTPUT UNITS

UNIT # LFN USE
--------- -------------- ---------------
DAYFILE ERROR MESSAGES AND MESSAGES GIVING DOCUMENT NAME, DATE AND NUMBER OF PAGES
OUTPUT LISTABLE OUTPUT (ERROR MESSAGES)
TAPE1 INPUT FILE
TAPE2 OUTPUT FILE

03/21/80 2-76 DOCIT - 3 OF 5
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND CLOSEM DATE FILESQ GET
IFETCH MAXO MINO MOD MOVLEV
OR OPENM PUT RECOVR REMARK
SHIFT
PART OF PROGRAM
COUNT - COUNT PAGES (NO *DECK)
DCOUNT - COUNT PAGES (*DECK)
DFMSG - DAYFILE MESSAGES
ENDIF - TERMINATE PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
INITAPE - INITIALIZE TAPES
INITLIZ - INITIALIZE PROGRAM
NODEK - NO *DECK PROCESSING
PROCESS - DOCUMENT PROCESSOR
PROCDEK - *DECK PROCESSOR
OTHERS
ADJL - SHIFT LEFT ENGLISH WORDS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTEN - FAST I-FORMAT ENCODE
IFMTV - FAST VARIABLE I-FORMAT DECODE
MOVSTR - MOVE CHARACTER STRING
PUTCHA - INSERT CHARACTER INTO STRING
REPLAC - REPLACE ONE CHARACTER WITH ANOTHER
REQUEST - REQUEST, TAPE2, *PF.

ARITHMETIC STATEMENT FUNCTIONS
FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
A66FMT A81FMT A88FMT A810FMT
FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L11FMT L21FMT L23FMT L25FMT L51FMT
L61FMT L77FMT L81FMT L91FMT
FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R11FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/04/76 (VERSIGN 1.0)
06/02/77 - V1.5 - ALLOW FOR 6/8 LPI.
- CONVERT OUTPUT FILE TO 6RM.
- ADD DOCUMENT TYPE TO BOTTOM LINE OF DOCUMENT.

01/10/78 - V2.0 - COMPLETE REWRITE:
- CORRECT 'BLANK' PROBLEM WITH VERY SHORT NAME PARAMETER ON EXECUTE CARD.
- REMOVE DOCUMENT TYPE FROM BOTTOM LINE.
- ADD MULTIPLE-DOCUMENT CAPABILITY (SEVERAL DOCUMENTS, EACH STARTING WITH *DECK).

03/01/80 - V2.1 - ADD LIBRARY AND PACKAGE TO LIST OF DOCUMENT TYPES.

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'DOCUMNT'

PURPOSE
MAINTAIN A FILE OF DOCUMENTS

FUNCTIONAL CATEGORIES: Q6 S0 K1

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
EACH DOCUMENT IN A DOCUMENT FILE IS PRECEDED BY A
CARD WITH '*DECK ' IN COLUMNS 1-6 AND A 1-7-CHARACTER
DECK NAME IN COLUMNS 7-13.

EXECUTION
FROM BATCH AND TTY
ATTACH.UTILITY.
ATTACH.OLD..... (OLD DOCUMENT FILE)
LIBRARY.UTILITY.
DOCUMNT.....
CATALOG.NEW..... (NEW DOCUMENT FILE)

EXECUTE CARD PARAMETERS
DOCUMNT.OLD,NEW,FCN,PROG,AFTER,IN,GID1,GID2,OUTPUT.
OLD - OLD DOCUMENT FILE
NEW - NEW DOCUMENT FILE
(ALLS OUTPUT OF G FUNCTION)
FCN - FUNCTION
A - ADD A DOCUMENT
D - DELETE A DOCUMENT
G - GET A DOCUMENT
(IF NEW OMITTED, NEW=PROG)
R - REPLACE A DOCUMENT
(IF PROG NOT FOUND, FCN CHANGED TO A)
PROG - DOCUMENT NAME
AFTER - FOR ADD FUNCTION, LOCATION OF NEW
DOCUMENT IN DOCUMENT FILE
OMITTED - PROG IS ADDED ALPHABETICALLY
O - PROG IS ADDED AT START OF FILE
END - PROG IS ADDED AT END OF FILE
OTHER - PROG IS ADDED AFTER THIS DOCUMENT
IN - INPUT FILE FOR NEW DOCUMENT
REWOUND BEFORE AND AFTER USE
MUST NOT CONTAIN *DECK CARD
GID1 - RESERVED FOR FUTURE USE
GID2 - RESERVED FOR FUTURE USE
OUTPUT - FTN ERROR MESSAGES
(PROGRAM MESSAGES ARE PUT INTO THE DAILYFILE)

DEFAULT EXECUTE CARD
DOCUMNT.OLD,NEW,PROG,AFTER,IN,GID1,GID2,OUTPUT.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 22000B
EXAMPLES

Assume the old document file (on LFN OLD) has the following documents: A, B, D, F, G, H.

To add document C (on LFN CC) in alphabetical order:
DOCUMENT...A,C,CC.
The new document file will have: A, B, C, D, F, G, H.

To add document C (on LFN CC) at start of the file:
DOCUMENT...A,C,0,CC.
The new document file will have: C, A, B, D, F, G, H.

To add document C (on LFN CC) at the end of the file:
DOCUMENT...A,C,END,CC.
The new document file will have: A, B, D, F, G, H, C.

To add document C (on LFN CC) after document F:
DOCUMENT...A,C,F,CC.
The new document file will have: A, B, D, F, C, G, H.

To delete document G:
DOCUMENT...D,G.
The new document file will have: A, B, D, F, H.

To replace document F (new document on LFN FF):
DOCUMENT...R,F,FF.
The new document file will have: A, B, D, F, G, H.

To replace document E (new document on LFN EE):
DOCUMENT...R,E,EE.
The new document file will have: A, B, D, E, F, G, H.
Note that since E did not exist, replace function was changed to add (DOCUMENT...A,E,EE...). Because the after parameter was omitted, E was added alphabetically.

To get (extract) document D:
DOCUMENT...G,D. (DOCUMENT WILL BE ON LFN G)
DOCUMENT...,DD,G,D. (DOCUMENT WILL BE ON LFN DD)
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
CLOSEM  FILESQ  IFETCH  MOVLEV  OPENM
PUT  RECOVR  REMARK  SHIFT

PART OF PROGRAM
COPY - COPY DOCUMENT FILE
EOJ - ABNORMAL TERMINATION ROUTINE
NEW - READ AND ADD NEW DOCUMENT

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
REPLAC - REPLACE ONE CHARACTER WITH ANOTHER
REQUEST - REQUEST,NEW,*PF.
VFILL - FILL ARRAY WITH WORD

ARITHMETIC STATEMENT FUNCTIONS
FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
A35FMT
FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L21FMT  L41FMT  L51FMT  L61FMT  L77FMT
L81FMT
FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R41FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 01/20/76

DATE(S) REVISED
04/08/76
03/09/79 - REMOVE TRAILING BLANKS FROM DOCUMENT LINES

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY

02/23/81  2-81  DOCUMNT - 3 OF 3
PROGRAM 'EOFAD'

PURPOSE
  ADD OR DELETE EOF'S TO/FROM A FILE (THRU EOI)

FUNCTIONAL CATEGORIES: QO

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
  THIS PROGRAM WAS WRITTEN FOR USE WITH THE BR2CCL PROCEDURE WHICH CONVERTS BEGIN/REVERT PROCEDURES TO CDC CYBER CONTROL LANGUAGE. THIS PROGRAM ADDS AN EOF EVERY TIME AN EOR IS ENCOUNTERED (BETWEEN PROCEDURES). IT WILL ALSO REMOVE ANY EOF'S PUT IN BY THE CONVERSION PROGRAM, LEAVING A SINGLE FILE WITH THE PROCEDURES SEPARATED BY EOR'S.

EXECUTION
  FROM BATCH
    ATTACH,TAPE1,..... (FILE TO BE PROCESSED)
    ATTACH,UTILITY.
    EOFAD,*,..... (USER MUST SUPPLY * VALUE)
    (DO SOMETHING WITH TAPE2)

  FROM TTY
    ATTACH,TAPE1,..... (FILE TO BE PROCESSED
    BEGIN,UTILITY,.EOFAD,*,..... (USER MUST SUPPLY * VALUE)
    (DO SOMETHING WITH TAPE2)

EXECUTE CARD PARAMETERS
  EOFAD,WHICH,INFILE,OUTFILE,OUTPUT.
  WHICH - ADD/DELETE OPTION (REQUIRED):
    A OR ADD - ADD EOF'S
    D OR DEL OR DELETE - DELETE EOF'S
  INFILE - FILE TO BE PROCESSED
  OUTFILE - OUTPUT FILE
  OUTPUT - LISTABLE OUTPUT (FTN ERROR MSGS)

DEFAULT EXECUTE CARD
  EOFAD,*,TAPE1,TAPE2,OUTPUT.
  (* - USER MUST SUPPLY)

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 25000B
FL NEEDED TO RUN : 15000B

ERROR MESSAGES
  INPUT FILE EMPTY
  INPUT FILE HAS NO INFORMATION

INVALID FIRST PARAMETER
  <WHICH> PARAMETER MUST BE ONE OF: A, ADD, D, DEL, DELETE
### INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>LFN</td>
<td>LISTABLE OUTPUT (FTN ERROR MESSAGES)</td>
</tr>
<tr>
<td>TAPE1</td>
<td></td>
<td>INPUT FILE TO BE PROCESSED</td>
</tr>
<tr>
<td>TAPE2</td>
<td></td>
<td>OUTPUT FILE</td>
</tr>
</tbody>
</table>

### SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

**PART OF LANGUAGE**
- CLOSEM
- ENDFILE
- FILESQ
- GET
- IFETCH
- OPENM
- PUT
- WEOR

**OTHERS**
- GETLFNS - GET ACTUAL LOCAL FILE NAMES
- LASTC - FIND LAST NON-BLANK CHARACTER IN AN ARRAY

### AUTHOR

DAVID V SOMMER - DTNSRDC CODE 1892.2

### DATE WRITTEN:

01/18/78

### DATE(S) REVISED

- 01/18/78

### LOCATION OF DECKS

**SOURCE**
- UPDATE LIBRARY: UTILITYPL.ID=CSyS
- OBJECT LIBRARY: EDITLIB USER LIBRARY: UTILITY

---

01/18/78       2-83       EDF4D - 2 OF 2
PROGRAM 'EOI'

PURPOSE
POSITION A FILE AT END-OF-INFORMATION (EOI)

FUNCTIONAL CATEGORIES: Q3

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
NONE

EXECUTION
FROM BATCH AND TTY
BEGIN,UTILITY,,EOI,<FILE>.

EXECUTE CARD PARAMETERS
EOI,INFILE,OUTPUT.

INFILE - FILE TO BE POSITIONED
OUTPUT - FTN ERROR MESSAGES

DEFAULT EXECUTE CARD
EOI,TAPE1,OUTPUT.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN: 16000B

INPUT/OUTPUT UNITS
UNIT # LFN USE
-------- -------- -------------------------------
INFILE FILE TO BE POSITIONED
OUTPUT FTN ERROR MESSAGES

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
CLOSEM ENCODE FILESQ OPENM REMARK
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES

ARITHMETIC STATEMENT FUNCTIONS
L61FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 06/09/78
DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITIPL, ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY

06/09/78 2-64 EDI - 1 OF 1
PROGRAM 'EXECARD'

PURPOSE
EXTRACT EXECUTE CARD PARAMETER/SUBPROGRAM USAGE/PROCEDURE
USAGE INFORMATION FROM DOCUMENTATION FILES (WHICH WERE
PREPARED IN THE FORMAT GENERATED BY PROGRAM 'DOC')

FUNCTIONAL CATEGORIES: 50 96

REMARKS
DOCUMENTATION FILE IS COMPATIBLE WITH AN UPDATE 'SOURCE'
FILE OF *DECK'S ONLY.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND DATE EOF MOVLEV OR
RECOVR REMARK SHIFT TIME
PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
OTHERS
FSETFIT - SET FTN FIT VALUES
GETLNS - GET ACTUAL FILE NAMES
PAKLFT - SQUEEZE BLANKS AND ZEROS OUT OF PFN
ZPFUNC - ATTACH DOCUMENTATION FILE

ARITHMETIC STATEMENT FUNCTIONS
FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L11FMT L21FMT L51FMT L61FMT L77FMT
L71FMT L81FMT
FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R92FMT

INPUT/OUTPUT UNITS
UNIT # LFN USE
-------------- ---------------
  1 ZZDOC FILE CONTAINING DOCUMENTATION
    (ATTACHED AND RETURNED WITHIN PROGRAM)
    (IF THE USER REPLACES THE FILE NAME AT
EXECUTION TIME, THE FILE IS ASSUMED TO
BE ALREADY ATTACHED AND WILL NOT BE
RETURNED)
    OUTPUT LISTABLE OUTPUT

EXECUTION
FROM BATCH
BEGIN,UTILITY,,EXECARD,LIBRARY,1D.

FROM TTY
BEGIN,UTILITY,,EXECARD,LIBRARY,,1D,ANY,....
ROUTE,ANY,DC=PR......
EXECUTE CARD PARAMETERS

EXECARD, LIBRARY, ID, OUTPUT, LEFT, FULL, DOCFILE.

LIBRARY - NAME OF LIBRARY TO BE EXTRACTED
MAY BE ONE OF:

NSRDC
UTILITY (DEFAULT)
ANY OTHER LIBRARY NAME (1-7 CHAR)
PROGRAM WILL ATTACH AND RETURN THE
DOCUMENTATION FILE. THE PFN USED WILL BE
THE LIBRARY NAME SPECIFIED, FOLLOWED BY
'DOCUMENTATION' (DEFAULT IS 'UTILITYDOCUMENTATION')

ID - ID UNDER WHICH DOCUMENTATION IS CATALOGED
(DEFAULT IS THE SYSTEM PUBLIC ACCESS ID)

OUTPUT - LISTABLE OUTPUT

LEFT - PRINT CENTERING
OMITTED OR 'LEFT' - LEFT-JUSTIFIED ON PAGE
ANYTHING ELSE - CENTERED ON LARGE PAGE
(DEFAULT IS LEFT-JUSTIFIED)

FULL - OMITTED OR 'FULL' - PRINT ONE OF:
A) PROGRAM EXECUTE CARD, DESCRIPTION OF
PARAMETERS, DEFAULT EXECUTE CARD:
B) SUBPROGRAM USAGE AND DESCRIPTION OF
PARAMETERS:
C) PROCEDURE USAGE, DESCRIPTION OF
PARAMETERS AND DEFAULT BEGIN STATEMENT
ANYTHING ELSE - PRINT ONLY EXECUTE CARD
OR SUBPROGRAM USAGE OR PROCEDURE USAGE

DOCFILE - IF USER HAS PREVIOUSLY ATTACHED A
DOCUMENTATION FILE, PLACE LFN HERE AND OMIT
THE FIRST 2 PARAMETERS ('LIBRARY' AND 'ID')
WHEN THIS PARAMETER IS USED AND IS NOT
'ZZDOC' THE FILE IS NOT RETURNED AT END OF
EXECUTION.

DEFAULT EXECUTE CARD
EXECARD, UTILITY, *-----*, OUTPUT, LEFT, FULL, ZZDOC.

FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN : 20000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/03/76

DATE(S) REVISED
05/05/76
05/18/76

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITY\PL, ID=CSYS

OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'FRAME'

PURPOSE
  PRINT A FRAME FOR LINING UP PRINTOUTS

FUNCTIONAL CATEGORIES: 01

LANGUAGE: FORTRAN IV EXTENDED

COMPUTER
  CDC 6000

REMARKS
  NONE

EXECUTION
  FROM BATCH
    ATTACH,UTILITY.
    LDSET,LIB=UTILITY.
    FRAME,<WHICH>,...

  FROM TTY
    ATTACH,UTILITY.
    LIBRARY,UTILITY.
    FRAME,<WHICH>,<OUTPUT>,...

EXECUTE CARD PARAMETERS
  FRAME,<WHICH>,OUTFILE,COPIES.

  WHICH - WHICH FRAME IS TO BE PRINTED. THE FOLLOWING
  ARE SUPPORTED:
      1T - 60-LINE FRAME FOR 1T (NARROW PAPER).
      THE FRAME IN FROM COLUMN 2 THRU 73.

  OUTFILE - LISTABLE OUTPUT

  COPIES - NUMBER OF COPIES TO BE PRINTED

DEFAULT EXECUTE CARD
  FRAME,1T,OUTPUT,2.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 26000B
FL NEEDED TO RUN : 14000B

ERROR MESSAGES
  INVALID TYPE
  THE VALUE OF <WHICH> IS NOT SUPPORTED.

OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td></td>
<td>LISTABLE OUTPUT</td>
</tr>
</tbody>
</table>

02/18/81  2-67  FRAME - 1 OF 2
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
MAXO MINO
PART OF PROGRAM
P1T - PRINT 1T FRAME
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST I-FORMAT DECODE

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 01/16/81

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'GETOBJ'

PURPOSE
EXTRACT ONE OBJECT MODULE FROM A SEQUENTIAL OBJECT FILE
OR AN EDITLIB USER LIBRARY

FUNCTIONAL CATEGORIES: K3

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
IF THE OBJECT FILE IS SEQUENTIAL (SUCH AS THE OUTPUT OF A
COMPILER), THE FIRST OCCURRENCE OF THE SPECIFIED MODULE
IS EXTRACTED. IF THE OBJECT FILE IS AN EDITLIB USER
LIBRARY, THE LAST OCCURRENCE IS EXTRACTED.

EXECUTION
FROM BATCH AND TTY
ATTACH,TAPE1...... (INPUT FILE)
BEGIN,UTILITY..GETOBJ..ROUTINE.....

EXECUTE CARD PARAMETERS
GETOBJ,INFILE,ROUTINE,OUTFILE,LIB,OUTPUT.
INFILE - INPUT OBJECT FILE
ROUTINE - NAME OF DESIRED ROUTINE
   (1-7 CHARACTERS)
OUTFILE - WILL CONTAIN EXTRACTED ROUTINE
LIB - OMITTED - INFILE IS SEQUENTIAL
LIB - INFILE IS EDITLIB USER LIBRARY
OUTPUT - FTN ERROR MESSAGES

DEFAULT EXECUTE CARD
GETOBJ,TAPE1,RTN,TAPE2,,OUTPUT.

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN: 21000B

INPUT/OUTPUT UNITS
UNIT #      LFN                        USE
----------- ---------------------------
OUTPUT      FTN ERROR MESSAGES
TAPE1       INPUT OBJECT FILE
TAPE2       OUTPUT FILE CONTAINING EXTRACTED MODULE
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM FILESQ GET IFETCH OPENM
PUT REMARK REWND SHIFT STOREF
WEOR
PART OF PROGRAM
LOCLIB - LOCATE MODULE IN AN EDITLIB USER LIBRARY
LOCSEQ - LOCATE MODULE IN A SEQUENTIAL FILE
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES

ARITHMETIC STATEMENT FUNCTIONS
L81FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
R21FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 11/18/76

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'GETREV'

PURPOSE
  EXTRACT ALL PAGES FROM A MANUAL WHICH WERE MODIFIED AFTER
  USER-SPECIFIED DATE

FUNCTIONAL CATEGORIES: S0 D1

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
  THE FIRST LINE OF EACH PAGE MUST HAVE THE FOLLOWING FORMAT:
  COL    CONTENTS
    6-14 DATE (MON YEAR) (E.G., 'SEPT 1978')
  60-64 'PAGE'
  65-74 PAGE NUMBER (E.G., '4-6.1')

  THE TITLE PAGE AND THE 'R' PAGES ARE ALWAYS PRINTED.

EXECUTION
  FROM BATCH
    ATTACH,INFILE,.... (MANUAL TO BE PROCESSED)
    BEGIN,UTILITY..,GETREV,,MONTH,YEAR.

  FROM TTY
    ATTACH,INFILE,.... (MANUAL TO BE PROCESSED)
    BEGIN,UTILITY..,GETREV,,MONTH,YEAR.OUT.
    ROUTE,OUT,DC=PR,....

EXECUTE CARD PARAMETERS
  GETREV,INFILE,MONTH,YEAR,OUTPUT,PM.
  INFILE - INPUT FILE (MANUAL TO BE PROCESSED)
  MONTH - FIRST 3-4 CHARACTERS OF MONTH (E.G., JAN, FEB, ETC.) OR THE APPROPRIATE DIGITS (1-12)
  YEAR - 2 OR 4 DIGITS OF YEAR (E.G., 76, 1976)
  (ALL PAGES MODIFIED AFTER MONTH,YEAR WILL BE PRINTED)
  OUTPUT - LISTABLE OUTPUT
  PM - OMITTED OR 'NOPM' - DO NOT PUT 'PM' MESSAGES AT START AND END OF OUTPUT
    'C' - PRINT CENTERED ON WIDE PAGE. NO 'PM' MSGS.
  ANYTHING ELSE - PUT THE MESSAGE 'PM 1-PART NARROW UNLINED PAPER' AT START OF OUTPUT AND 'PM RESTORE PRINTER' AT THE END

USE ONLY FOR TERMINALS WHICH WILL SUPPORT 'PM' MESSAGES

DEFAULT EXECUTE CARD
  GETREV,INFILE,0.0,OUTPUT,NOPM.
  (WILL PRINT ENTIRE MANUAL BUT IS NOT EFFICIENT)

04/12/78  2-91  GETREV - 1 OF 2
FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN: 20000B

ERROR MESSAGES
ABEND
PROGRAM TERMINATED ABNORMALLY

INPUT/OUTPUT UNITS
UNIT # LFN USE
INFILE MANUAL TO BE PROCESSED
OUTPUT LISTABLE OUTPUT

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND CLOSEM FILESQ GET IFETCH
OPENM RECOVR REMARK SHIFT
PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
OTHERS
FINDWRD - SEARCH FOR WORD
GETLNS - GET ACTUAL LOCAL FILE NAMES
FMTV - FAST VARIABLE I-FORMAT DECODE

ARITHMETIC STATEMENT FUNCTIONS
FAST I-FORMAT DECODE
123FMT
FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)
L11FMT L36FMT L61FMT L81FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 04/12/78
DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'HEXDMP'

PURPOSE
DUMP 9-TRACK TAPE IN HEXADECIMAL FORMAT

FUNCTIONAL CATEGORIES: J9 K4

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
ACCEPTS VARIABLE LENGTH RECORDS UP TO 5120 CDC CHARACTERS. DUMPS SPECIFIED NUMBER OF RECORDS (PRUS IF S TAPE) UP TO ONE FILE. TAPE POSITIONING MAY BE DONE BY SKIPF CONTROL CARD. AFTER ANY PARITY ERROR, PROGRAM PRINTS "PARITY ERROR ON RECORD ..." AND CONTINUES. OUTPUT IS RECORD NUMBER AND SIZE FOLLOWED BY LINES OF 120 HEX CHARACTERS.

IN THE SPECIAL CASE WHEN TYPE=1, EACH CDC WORD CONTAINS 10 HEX DIGITS. EACH 4-BIT HEX DIGIT OCCUPIES THE FIRST 4 BITS OF EACH 6-BIT CHARACTER. HE XDMP WILL REMOVE THE EXTRA BITS AND PRINT IN GROUPS OF 10 HEX DIGITS.

EXECUTION
FROM BATCH
REQUEST, TAPE1, HD, NORDER, S, VSN=----- OR LABEL, -----.
BEGIN, UTILITY, HE XDMP, ------.

FROM TTY
NOT USABLE FROM TTY

EXECUTE CARD PARAMETERS
HE XDMP INFILE START NPRUS OUTPUT REW TYPE PL=NNNN
INFILE - INPUT FILE
START - STARTING PRU/RECORD NUMBER (DECIMAL)
0 OR OMITTED - START AT BEGINNING OF FILE
NPRUS - NUMBER (DECIMAL) OF PRUS/RECORDS TO BE DUMPED
(DEFAULT: 9999999 - ALL OF FILE)
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
TYPE - 1 - EACH HEX DIGIT IS TO BE FIRST 4 BITS OF EACH 6-BIT CHARACTER (10 HEX DIGITS PER WORD)
OTHER - NO SPECIAL HANDLING
NNNN - LINE LIMIT IF DESIRED
DEFAULT EXECUTE CARD
HEXDMP(TAPE1,1,9999999,OUTPUT,NOREW)

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN : 20000B
(PROGRAM REDUCES TO MINIMUM NEEDED TO RUN)

INPUT/OUTPUT UNITS
UNIT #   LFN USE
---------  ---------------------------
       OUTPUT LISTABLE OUTPUT
1   TAPE1  9-TRACK TAPE TO BE DUMPED

EXAMPLES
HEXDMP(TAPE9,1,10)   LIST FIRST 10 RECORDS ON TAPE9
HEXDMP(,20,5,PL=150) LIST RECORDS 20 THRU 24 ON TAPE1,
UP TO 150 LINES

METHOD
BUFFER IN, ODD PARITY

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
BUFFERIN LENGTH UNIT

PART OF PROGRAM
HEX1 - EXTRACT 4 OF EACH 6 BITS
PRT - NORMAL PRINT
PRT1 - PRINT FOR TYPE 1

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAME
IFMTV - FAST VARIABLE LENGTH I-FORMAT DECODE
SETREW - DECODE REWIND OPTION
UNLOAD - UNLOAD,INFILE.

AUTHOR
NORA TAYLOR - DTNSRDC CODE 189.1
SHARON GOOD - DTNSRDC CODE 1892.1
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: JULY 1976

DATE(S) REVISED
OCTOBER 1976
03/03/77 - DVS - ADD 'TYPE' OPTION
            ADD TYPE 1 CONVERSION
            ACTIVATE REWIND OPTION

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY:   UTILITYPL, ID = CSYS
OBJECT
EDITLIB USER LIBRARY:  UTILITY
PROGRAM 'JOBTIME'

PURPOSE
   PUT JOB CP EXECUTION TIME TO THIS POINT INTO DAYFILE

FUNCTIONAL CATEGORIES: QO

AUTHOR
   DAVID V SOMMER - NSRDC CODE 1892.2

DATE WRITTEN: 03/10/75

DATE(S) REVISED

REMARKS
   NONE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
   PART OF LANGUAGE
   REMARK
   OTHERS
   NONE

EXECUTION
   FROM BATCH AND TTY
      ATTACH,UTILITY.
      LIBRARY,UTILITY.
      JOBTIME.

DEFAULT EXECUTE CARD
   JOBTIME.

FL NEEDED TO LOAD: 21000B

LOCATION OF DECKS
   SOURCE
      TAPE LABELLED CSYSUTILITYPL; P.F. UTILITYPL.ID=CS\S
   OBJECT
      EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LINER'

PURPOSE
COUNT LINES AND PAGES OF A FILE HAVING FIRST CHARACTER
CARRIAGE CONTROL

FUNCTIONAL CATEGORIES: Q0

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
NONE

EXECUTION
FROM BATCH
ATTACH,UTILITY.
LDSET,LIB=UTILITY.
ATTACH,TAPE1, . . . FILE TO BE PROCESSED
LINER.

FROM TTY
ATTACH,UTILITY.
LIBRARY,UTILITY.
ATTACH,TAPE1, . . . FILE TO BE PROCESSED
LINER.

EXECUTE CARD PARAMETERS
LINER,TAPE1,OUTPUT,REW.
TAPE1 - FILE TO BE PROCESSED
OUTPUT - LISTABLE OUTPUT
REW - REWIND OPTION FOR TAPE1
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD USE
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)

DEFAULT EXECUTE CARD
LINER,TAPE1,OUTPUT,NOREWIND.

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN : 17000B

ERROR MESSAGES
INPUT FILE EMPTY
INPUT FILE CONTAINS NO INFORMATION

INPUT/OUTPUT UNITS
UNIT #    LFN          USE
--------  -----------  --------
TAPE1     INPUT FILE
OUTPUT    LISTABLE OUTPUT

11/20/78   2-96       LINER - 1 OF 2
METHOD
CHAR     ACTION
    1     ADD 1 TO PAGE COUNTER; RESTART LINE COUNTER
   SPACE   ADD 1 TO LINE COUNTER
     0     ADD 2 TO LINE COUNTER
        -   ADD 3 TO LINE COUNTER
OTHER     IGNORED

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
   AND     CLOSEM DATE FILESQ GET
   IFETCH OPENM RECOVR REMARK SHIFT
   TIME
PART OF PROGRAM
   EOJ     - ABNORMAL TERMINATION ROUTINE
OTHERS
   GETLFNS - GET ACTUAL LOCAL FILE NAMES
   SETREW  - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
   L11FMT  - FAST L-FORMAT DECODE 'LEFT-ADJ. ZERO-FILLED'

AUTHOR
   DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/31/73

DATE(S) REVISED
   01/10/75
   03/22/76 - CHANGE TO RECORD MANAGER; THRU EOI; NOREWIND
   03/23/76 - CORRECT EOR PROBLEM
   11/20/78 - CORRECT TOTAL LINE COUNTING

LOCATION OF DECKS
SOURCE
   UPDATE LIBRARY: UTILTYPL,ID=CLIB
OBJECT
   EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LINERL'

PURPOSE
LIST A DOCUMENT (CARRIAGE CONTROL IN COLUMN 1, ZERO BYTE TERMINATED RECORDS) WITH RECORD COUNT AND COUNT OF LINES ON EACH PAGE. LIST THRU END-OF-INFORMATION.

FUNCTIONAL CATEGORIES: 01 Q0

LANGUAGE: FORTRAN IV

REMARKS
MAY BE USED TO LIST A DOCUMENT CREATED BY PROGRAM 'DOC' TO ASSIST IN DEFINING PAGES BEFORE USING PROGRAM 'DOCIT' TO COMPLETE THE DOCUMENT.

EOR, EOF AND E01 ARE LISTED AND CAUSE LINE COUNT TO BE RESET TO 0 (ZERO).

EXECUTION
FROM BATCH
BEGIN.UTILITY.,LINERL.INFILE.

FROM TTY
ATTACH OR OTHERWISE CREATE INFILE.
BEGIN.UTILITY.,LINERL.INFILE.OUT,R.
ROUTE.OUT,DC=PR,....

EXECUTE CARD PARAMETERS
LINERL.INFILE,OUTPUT,REW,LPI,START,INCR.
INFILE - INPUT DOCUMENT FILE
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWINd AFTER USE
B - REWINd BEFORE USE
R - REWINd BEFORE AND AFTER USE
U - REWINd BEFORE, REWINd AND UNLOAD AFTER USE
OTHER - NO REWINd (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
LPI - LINES PER INCH
6 - 6 LINES PER INCH
ANYTHING ELSE - 8 LINES PER INCH (DEFAULT)
START - STARTING LINE NUMBER (DEFAULT: 1)
INCR - LINE NUMBER INCREMENT (DEFAULT: 1)

DEFAULT EXECUTE CARD
LINERL,TAPE1,OUTPUT,NOREW,8,1,1.

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN : 17000B
INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>INPUT DOCUMENT FILE</td>
<td></td>
</tr>
</tbody>
</table>

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE

AND CLOSEM DATE FILESQ GET IFETCH OPENM TIME

OTHERS

GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST VARIABLE I-FORMAT DECODE
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS

L11FMT - FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)

AUTHOR

DAVID V SOMMER - DITNSRDC 1892.2

DATE WRITTEN: 06/31/76

DATE(S) REVISED

01/08/78 - MOVE PRINTOUT 1 PLACE TO RIGHT TO ALLOW MORE THAN 9999 LINES.

LOCATION OF DECKS

SOURCE

UPDATE LIBRARY: UTILITYPL,ID=CSYS

OBJECT

EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LISTBIN'

PURPOSE
LIST BINARY MODULES AND PROCEDURES IN ONE OR MORE FILES

FUNCTIONAL CATEGORIES: Q7

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
INPUT FILE IS PROCESSED UNTIL:
A) SPECIFIED NUMBER OF FILES. OR
B) DOUBLE EOF

EXECUTION
FROM BATCH
ATTACH,TAPE1, . . . (FILE TO BE LISTED)
BEGIN,UTILITY,,LISTBIN.

FROM TTY
ATTACH,UTILITY.
LIBRARY,UTILITY.
ATTACH,TAPE1, . . . (FILE TO BE LISTED)
CONNECT,OUTPUT. OR LISTBIN,,ANY.
LISTBIN.
ROUTE,ANY,DC=PR, . . .

EXECUTE CARD PARAMETERS
LISTBIN,INFILE,OUTPUT,NFILES,REW,EXTEND,ALPHA.
INFILE - FILE TO BE LISTED
OUTPUT - PRINTER OUTPUT
NFILES - NUMBER OF FILES TO BE LISTED
(OMITTED OR INVALID = 1 FILE)
(NOTE: PROCESSING WILL STOP IF DOUBLE EOF READ BEFORE SPECIFIED NUMBER OF FILES)
REW - REWIND OPTION FOR TAPE1
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
EXTEND - OMITTED OR 'NO' - DO NOT LIST DATE, TIME, OS, ETC.
ANYTHING ELSE - LIST DATE, TIME, OS, ETC.
(OMIT FOR TTY AS OUTPUT IS MORE THAN 72 CHARACTERS)
ALPHA - ALPHABETICAL LIST OF OBJECT MODULES OPTION
OMITTED - NO ALPHABETICAL LIST
TTY - ALPHABETICAL LIST TO FIT TTY
OTHER - WIDE PAGE LIST

DEFAULT EXECUTE CARD
LISTBIN,TAPE1,OUTPUT,1,NOREWIND.
DEFAULT PL: 5000 LINES
FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN: 21000B
(PROGRAM ADJUSTS CORE UP AND DOWN AS REQUIRED)

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
</tr>
<tr>
<td>TAPE1</td>
<td>FILE TO BE LISTED</td>
</tr>
</tbody>
</table>

METHOD
1) IF REQUESTED, FILE ISREWOUN.
2) THE FIRST 200 WORDS OF EACH LOGICAL RECORD ARE READ IN.
   2A) WORD 1 IS TESTED FOR PRFX TABLE (WORD 0 OF TABLE
       STARTS 7700B). IF NOT, THIS IS NOT AN OBJECT MODULE.
       FIRST 4 WORDS ARE PRINTED (PRECEDED BY '!').
       IT IF IS AN OBJECT MODULE, THE NAME IS TAKEN FROM
       CHARACTERS 1-7 OF WORD 1 OF THE PREFIX TABLE.
   2B) TEST FOR PRESENCE OF PIDL (3400'), ASCM (5000'),
       APMC (5300) OR EAPCM (5400') TABLES AND GET OVERLAY
       NUMBER AND ROUTINE LENGTH, IF POSSIBLE.
   2C) GO BACK TO 2) UNTIL SPECIFIED NUMBER OF EOF'S OR
       DOUBLE EOF.
3) IF REQUESTED, THE FILE ISREWOUN OR UNLOADED.

REFERENCE: 60344200 - LOADER REFERENCE MANUAL - CHAPTER 6

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

<table>
<thead>
<tr>
<th>DATE</th>
<th>LENGTH</th>
<th>MOD</th>
<th>RECOVR</th>
<th>REMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>EOJ</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>ABNORMAL TERMINATION ROUTINE</td>
</tr>
<tr>
<td>PRTBL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>PRINT ONE PAGE OF ALPHABETICAL LIST</td>
</tr>
<tr>
<td>OTHERS</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ASORTMV</td>
<td>-</td>
<td>SORT 2-DIMENSIONAL ARRAY USING MOVLEV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GETFNS</td>
<td>-</td>
<td>GET ACTUAL FILE NAMES</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFINDCH</td>
<td>-</td>
<td>FIND SPECIFIED CHARACTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFMTV</td>
<td>-</td>
<td>FAST I-FORMAT DECODE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOVSTR</td>
<td>-</td>
<td>MOVE CHARACTER STRING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REDUCE</td>
<td>-</td>
<td>ADJUST CORE UP AND DOWN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SETREW</td>
<td>-</td>
<td>DECODE REWIND OPTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNLOAD</td>
<td>-</td>
<td>RETURN, TAPE1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ARITHMETIC STATEMENT FUNCTIONS
FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
A71FMT
FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L21FMT L38FMT L61FMT L71FMT
FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R13FMT R14FMT R21FMT R23FMT R35FMT
R38FMT R47FMT R51FMT R56FMT
AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 11/18/74

DATE(S) REVISED
01/14/75
03/26/75
04/30/75
03/03/76
06/23/76
12/13/76 - ADD 54-TABLE PROCESSING
03/30/77 - ADD ALPHABETICAL LIST OPTION
02/17/78 - ADD SUPPORT FOR PROCEDURES

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LISTCMP'

PURPOSE
LIST AN UPDATE COMPILE FILE, EACH DECK BEGINNING ON A NEW PAGE WITH A BANNER PAGE PRECEDING IT

FUNCTIONAL CATEGORIES: Q7 O1

REMARKS
A NEW DECK BEGINS:
  A) AFTER END-OF-SECTION OR END-OF-PARTITION:
  B) WITH CHANGE OF DECK NAME (COL 74-82) ONLY IF PREVIOUS CARD WAS FORTRAN END CARD ('END' IN COL 1-20) OR COMPASS END CARD ('END' IN COL 11-14).
THE CONDITIONS FOR B) ALLOW DECKS TO HAVE *COMDECK CALLS WITHOUT TRIGGERING A NEW DECK. (*COMDECK CALLS HAVE THE COMDECK NAME IN 74-82, WHICH IS USUALLY DIFFERENT FROM THE MAIN DECK NAME.)

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM
FILESQ
GET
IFETCH
MOD
OPENM
RECOVR
REMARK
SHIFT

PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE

OTHERS
BANR - PRINT BANNER PAGE
GETLFNS - GET ACTUAL LOCAL FILE NAMES
MFETCH - READ WORD IN USER'S FL
REDUCE - REDUCE CORE TO MINIMUM NEEDED TO RUN
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
A94FMT - FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
L11FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L41FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS
FORTRAN LOCAL
LOGICAL FILE
UNIT NAME USE
--------- ----------------
T4PE1 INPUT COMPILE FILE
OUTPUT LISTABLE OUTPUT

06/22/77
EXECUTION
FROM BATCH
ATTACH,OLDPL,...
UPDATE,P,...
ATTACH,UTILITY,
LIBRARY,UTILITY,
LISTCMP,COMPILE.

FROM TTY
ATTACH,OLDPL,...
UPDATE,P,...
ATTACH,UTILITY,
LIBRARY,UTILITY,
LISTCMP,COMPILE,OUT.
DISPOSE.OUT,PR=XY.

EXECUTE CARD PARAMETERS
LISTCMP,INF,OUTPUT,REW,LPI.

INFILE - INPUT INF
OUTPUT - LISTABLE OUTPUT
REW - REWIND OPTION FOR COMPIL FILE
    A - REWIND AFTER USE
    B - REWIND BEFORE USE
    R - REWIND BEFORE AND AFTER USE
        (DEFAULT)
    U - REWIND BEFORE, REWIND AND UNLOAD
        AFTER USE
OTHER - NO REWIND
    (ANY WORDS BEGINNING WITH THESE LETTERS WILL
    PRODUCE THE SAME RESULTS)
LPI - LINES PER INCH FOR OUTPUT LISTING
    OMITTED OR 'EIGHT' OR '8' - 8 LPI
    ANYTHING ELSE - 6 LPI

DEFAULT EXECUTE CARD
LISTCMP,TAPE,OUTPUT,REWIND,8.

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 21000B
(PROGRAM REDUCES TO MINIMUM NEEDED TO RUN)

AUTHOR
DAVID V SOMMER - NSRDC CODE 1892.2

DATE WRITTEN: 07/09/75

DATE(S) REVISED
01/07/76

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LISTEOI'

PURPOSE
  LIST A FILE INSERTING *EDR, *EOF, *EOI WHERE APPROPRIATE

FUNCTIONAL CATEGORIES: 01

REMARKS
  LISTING IS TO END-OF-INFORMATION.
  RECORD LENGTH IS UP TO 90 CHARACTERS.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
  PART OF LANGUAGE
    CLOSEM CONNEQ FILESQ GET IFETCH
    OPENM RECOVR REMARK SHIFT
  PART OF PROGRAM
    EOJ - ABNORMAL TERMINATION ROUTINE
  OTHERS
    GETLFNS - GET ACTUAL LOCAL FILE NAMES
    MSETFIT - SET FTN FIT FIELD
    SEIREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
  NONE

INPUT/OUTPUT UNITS
  UNIT #      LFN           USE
  --------    --------------  --------
      5      ZZTTY           TTY OUTPUT
            OUTPUT          PRINTER OUTPUT
            TAPE1          FILE TO BE LISTED

EXECUTION
  FROM BATCH
    ATTACH,UTILITY.
    LIBRARY,UTILITY.
    ATTACH,TAPE1,... (FILE TO BE LISTED)
    LISTEOI.
  FROM TTY
    ATTACH,UTILITY.
    LIBRARY,UTILITY.
    ATTACH,TAPE1,... (FILE TO BE LISTED)
    LISTEOI..OUT.
    ROUTE.OUT,DC=PR,...
EXECUTE CARD PARAMETERS
LISTEOI, INFILE, OUTPUT, REW, PAGING.

INFILE - INPUT FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
   A - REWIND AFTER USE
   B - REWIND BEFORE USE
   R - REWIND BEFORE AND AFTER USE
   U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
   (ANY WORDS STARTING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
PAGING - IF OMITTED OR 'NEWPAG', EACH FILE STARTS ON A NEW PAGE.
   IF ANYTHING ELSE, CONTINUE ON SAME PAGE.

DEFAULT EXECUTE CARD
LISTEOI, TAPE1, OUTPUT, NOREWIND, NEWPAG.

FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN: 20000B

AUTHOR
DAVID V SOMMER - NSRDC CODE 1892.2

DATE WRITTEN: 05/29/74

DATE(S) REVISED
05/28/75
04/06/76

LOCATION OF DECKS
SOURCE
   UPDATE LIBRARY: UTILITYP, ID=CSYS
OBJECT
   EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LISTN'

PURPOSE
NUMBERED LIST OF ONE FILE OF ZERO-BYTE TERMINATED RECORDS

FUNCTIONAL CATEGORIES: 01

LANGUAGE: PASCAL 6000 RELEASE 3

REMARKS
ONLY ONE FILE IS LISTED. END-OF-RECORD MARKS ARE IGNORED.
THE INPUT FILE IS REWOUND BEFORE AND AFTER USE.

EXECUTION
FROM BATCH
ATTACH,FILE1..... (FILE TO BE LISTED)
ATTACH,UTILITY.
LDSET,LIE=UTILITY. OR LIBRARY.UTILITY.
LISTN.

FROM TTY
ATTACH,FILE1..... (FILE TO BE LISTED)
BEGIN,UTILITY.,LISTN,,OUT.
ROUTE,OUT,DC=PR.....

EXECUTE CARD PARAMETERS
LISTN,INFILE,OUTPUT/<OPTS>.
INFILE - INPUT FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT
OPTS - 0 OR MORE OF
   D6 - DENSITY IS 6 LINES PER INCH (DEFAULT: 8 LINES PER INCH)
   LN - N IS MAXIMUM LINES TO PRINT (1 <= N <= 999999; DEFAULT: 1000)
   LIST IS COMMA-SEPARATED WITH NO EMBEDDED BLANKS

DEFAULT EXECUTE CARD
LISTN,FILE1,OUTPUT/D8,L1000.

FL NEEDED TO LOAD: 16000B
FL NEEDED TO RUN : 7700B

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILE1</td>
<td>INPUT FILE TO BE LISTED</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT (REWOUND BEFORE AND AFTER USE)</td>
</tr>
</tbody>
</table>
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

DATE WRITTEN: 11/07/78

DATE(S) REVISED:
08/02/79 - CONVERT FROM PASCAL 2 TO PASCAL 6000 RELEASE 3
- ADD OPTIONS 'D' AND 'L'
  (OPTION 'D' ELIMINATES NEED FOR PROGRAM 'LISTNB')

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL, ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LISTZ'

PURPOSE

LIST ZERO-BYTE TERMINATED RECORDS WITH RECORD NUMBER AND LENGTHS (USER MAY SPECIFY MAXIMUM NUMBER OF CHARACTERS TO READ (DEFAULT: 140) AND PRINT (DEFAULT: 110)

FUNCTIONAL CATEGORIES: 01

LANGUAGE: FORTRAN IV EXTENDED

REMARKS

NONE

EXECUTION

FROM BATCH

ATTACH, TAPE1..... FILE TO BE LISTED
BEGIN,UTILITY, LISTZ.

FROM TTY

ATTACH, TAPE1..... FILE TO BE LISTED
BEGIN,UTILITY, LISTZ, OUT.
ROUTE, OUT, DC=PR.....

EXECUTE CARD PARAMETERS

LISTZ, INFILE, OUTPUT, REW, LPI, START, INCR, MAXIN, MAXOUT, FLAG.

INFILE - INPUT FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT

COL 1 - UNIT RECORD NUMBER WITHIN FILE
COL 2 - UNIT RECORD NUMBER WITHIN LOGICAL RECORD
COL 3 - LENGTH OF UNIT RECORD (UP TO MAXIN)
    (LAST NON-BLANK CHARACTER)
    (IF MORE THAN MAXIN, AN ASTERISK (*) FOLLOWS THE NUMBER)
COL 4 - FIRST 110 CHARACTERS OF UNIT RECORD
    (NEXT 110 CHARACTER ARE PRINTED ON NEXT LINE, IF REQUESTED)

REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
    (ANY WORDS STARTING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
    (IF ABEND, INFILE IS NOT REWOUND)

LPI - LINES PER INCH
6 - 6 LINES PER INCH
ANYTHING ELSE - 8 LINES PER INCH (DEFAULT)
START - STARTING LINE NUMBER (DEFAULT: 1)
  (USE 'E' FOR STANDARD EDITOR SEQUENCING:
    START=100, INCR=10)
  (USE 'U' FOR STANDARD UPDATE SEQUENCING:
    START=2, INCR=1)
INCR - LINE NUMBER INCREMENT (DEFAULT: 1)
  (IF START=E, INCR=10;
    IF START=U, INCR=1)
MAXIN - MAXIMUM # OF CHARACTER PER RECORD TO READ
  NNN - SPECIFIC NUMBER (MAXIMUM: 220)
  ALL - 220
  OMITTED - 140
  NON-DIGIT - 140
  (20 ADDITIONAL CHARACTERS ARE READ SO THAT
    LONG RECORDS CAN BE FLAGGED)
MAXOUT - MAXIMUM # OF CHARACTERS TO PRINT
  NNN - SPECIFIC NUMBER (MAXIMUM: MAXIN)
  ALL - MAXIN
  OMITTED - 110 (1 PRINT LINE)
  NON-DIGIT - 140
FLAG - FLAG RECORDS LONGER THAN THIS WITH AN *
  NNN - SPECIFIC LINE LENGTH (MAX: MAXIN)
  MAXIN - MAXIN
  MAXOUT - MAXOUT
  OMITTED - 140
  INVALID - MAXIN

DEFAULT EXECUTE CARD
   LISTZ,TAPE1,OUTPUT,NOREW,8,1,140,110,140.

DEFAULT PL: 5000 LINES
FL NEEDED TO LOAD: 32000B
FL NEEDED TO RUN : 21000B

INPUT/OUTPUT UNITS
UNIT #  LFN  USE
--------  ------  --------
OUTPUT    LISTABLE OUTPUT
TAPE1     INPUT FILE TO BE LISTED

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
  CLOSEM  DATE  FILES Q  GET  IFETCH
  MAXO   OPENM  RECOVR  REMARK  TIME
PART OF PROGRAM
  EOJ - ABNORMAL TERMINATION ROUTINE
OTHERS
  CHFILL - CHARACTER FILL
  GETLFNS - GET ACTUAL LOCAL FILE NAMES
  IFMTV - FAST 1-FORMAT DECODE
  LASTCH - FIND LAST NON-BLANK CHARACTER IN ARRAY
  SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
  LG1FMT - FAST L-FORMAT DECODE ('LEFT-ADJ, ZERO-FILLED')
AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 04/12/76

DATE(S) REVISED
06/11/76 - ADD LINES PER INCH OPTION
07/29/76 - ADD START AND INCREMENT OPTIONS
09/30/76 - ADD RECORD LENGTH TO PRINTOUT
12/14/76 - PROCESS TO EOI
02/04/77 - ADD START=E, START=U
02/22/77 - INCREASE LINE LENGTH TO 13
05/06/77 - ADD DAYFILE MESSAGE WITH # LINES AND LONGEST LINE
02/23/78 - ADD NEW COLUMN 2 WITH RECORD NUMBER WITHIN LOGICAL RECORD
05/02/78 - INCREASE RECORD NUMBER FIELD TO 14
06/07/78 - INCREASE RECORD NUMBER FIELD TO 15
          - INCREASE MAXIMUM RECORD LENGTH LISTED TO 200
11/06/78 - FIX EOR/EOF LINES
07/23/79 - INCREASE MAXIMUM RECORD LENGTH TO 220
          - ADD 'MAXIN', 'MAXOUT', 'FLAG' PARAMETERS
          - FLAG LONG RECORDS WITH * NEXT TO RECORD LENGTH

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LIST1'

PURPOSE
LIST (CENTERED) ONE COPY OF CARDS (UP TO 90 CHARACTERS)
HAVING CARRIAGE CONTROL IN COLUMN 1. OPTIONALLY PRINT CARD,
PAGE AND LINE COUNTS AND LINE LENGTHS.

FUNCTIONAL CATEGORIES: 01

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
WHEN LINES PARAMETER OMITTED, LIST1 WILL LIST THE FORM
CENTERED ON WIDE PAPER.

WHEN LINES PARAMETER SPECIFIED, IN ADDITION TO PRINTING THE
FORM, THE CARD NUMBER, PAGE NUMBER OF THE FORM, AND LINE
NUMBER ON THE PAGE ARE PRINTED IN FRONT OF THE LINE AND THE
LINE LENGTH (POSITION OF THE LAST NON-BLANK CHARACTER) IS
PRINTED AFTER EACH LINE. LINES LONGER THAN A SPECIFIED
LENGTH MAY BE FLAGGED.

EXECUTION
FROM BATCH
BEGIN,UTILITY,,LIST1,INPUT.
  ' 7/8/9  EOR
     (CARDS TO BE LISTED)
  ' 6/7/8/9  EOF

FROM TTY
ATTACH,IN..... (FILE TO BE LISTED)
BEGIN,UTILITY,,LIST1,IN.OUT.
ROUTE,OUT,DC=PR.....

EXECUTE CARD PARAMETERS
LIST1,INFILE,OUTPUT,REW,LINES,START,INCR,FLAG.
INFILE - INPUT FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD
     AFTER USE
OTHER - NO REWIND (DEFAULT:
     (ANY WORDS BEGINNING WITH THESE LETTERS WILL
     PRODUCE THE SAME RESULTS)
LINES - OPTION TO PRINT CARD, PAGE AND LINE COUNTS
OMITTED OR 'NOLINE' - DO NOT PRINT COUNTS
ANYTHING ELSE - PRINT COUNTS
START - STARTING CARD COUNT (WHEN COUNTS PRINTED)
     (DEFAULT: 1)
INCR - CARD COUNT INCREMENT (WHEN COUNTS PRINTED)
     (DEFAULT: 1)
FLAG - FLAG LONG LINES (WHEN COUNTS PRINTED)
OMITTED - FLAG LINES LONGER THAN 72 CHAR
1-90 - FLAG LINES LONGER THAN THIS
OTHER - DO NOT FLAG LINES

11/09/77  2-112  LIST1 - 1 OF 2
DEFAULT EXECUTE CARD
LIST1,TAPE1,OUTPUT,NOREW,NOLINE,1,1,72.

FL NEEDED TO LOAD: 30000B
FL NEEDED TO RUN: 20000B

DATA CARDS

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CARRIAGE CONTROL</td>
</tr>
<tr>
<td></td>
<td>1 - NEW PAGE</td>
</tr>
<tr>
<td></td>
<td>SPACE - NEXT LINE</td>
</tr>
<tr>
<td></td>
<td>0 - LEAVE 1 BLANK LINE</td>
</tr>
<tr>
<td></td>
<td>- LEAVE 2 BLANK LINES (NOT FOR 200UT)</td>
</tr>
<tr>
<td></td>
<td>+ - PRINT ON SAME LINE</td>
</tr>
<tr>
<td>2-9C</td>
<td>LINE TO BE PRINTED</td>
</tr>
</tbody>
</table>

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
</tr>
<tr>
<td></td>
<td>TAPE1</td>
<td>INPUT FILE TO BE LISTED</td>
</tr>
<tr>
<td></td>
<td>DAYFILE</td>
<td>NUMBER OF RECORDS AND LONGEST LINE</td>
</tr>
</tbody>
</table>

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE

<table>
<thead>
<tr>
<th>AND</th>
<th>CLOSEM</th>
<th>FILESQ</th>
<th>GET</th>
<th>IFETCH</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAXO</td>
<td>OPENM</td>
<td>OR</td>
<td>RECOVR</td>
<td>REMARK</td>
</tr>
</tbody>
</table>

PART OF PROGRAM

<table>
<thead>
<tr>
<th>EDJ</th>
<th>ABNORMAL TERMINATION ROUTINE</th>
</tr>
</thead>
</table>

OTHERS

GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST I-FORMAT DECODE
LASTC - FIND LAST NON-BLANK IN ARRAY
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS

<table>
<thead>
<tr>
<th>L11FMT</th>
<th>FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R92FMT</td>
<td>FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)</td>
</tr>
</tbody>
</table>
LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LIST2'

PURPOSE
SINGLE/DOUBLE SPACE LISTING, 6 OR 8 LINES PER INCH,
WITH OPTIONAL SKIP OVER PERFORATION AT BOTTOM OF PAGE
(FIRST 120 CHARACTERS)

FUNCTIONAL CATEGORIES: 01

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
CONTROL INFORMATION IS PASSED TO PROGRAM VIA EXECUTE
STATEMENT OR FIRST CARD OF INPUT.

EXECUTION
FROM BATCH
ATTACH,UTILITY.
LDSET.LIB=UTILITY.
LIST2,,<PARAMETERS>. 7/8/9 EOD
(DECK TO BE LISTED)
6/7/8/9 EOF

FROM TTY
ATTACH,FILE.....  (FILE TO BE LISTED)
BEGIN,UTILITY,,LIST2,FILE,OUT,<PARAMETERS>. ROUTE,OUT,DC=PR.....

EXECUTE CARD PARAMETERS
LIST2,INPUT,OUTPUT,SPACING,REW,LPI,PAGING.
INPUT - FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT
SPACING - SPACING/CONTROL CARD OPTION
  0 - CONTROL INFORMATION IS ON FIRST CARD ON INPUT FILE
  2 - DOUBLE SPACING
  OTHER - SINGLE SPACING
REW - INPUT REWIND OPTION
  A - REWIND AFTER USE
  B - REWIND BEFORE USE
  R - REWIND BEFORE AND AFTER USE
  U - REWIND BEFORE AND REWIND AND UNLOAD AFTER USE
  OTHER - NO REWIND (DEFAULT)
(NOTE: IF INPUT FILE IS 'INPUT' AND/OR SPACING IS '0', 'NO REWIND' IS FORCED.)
LPI - LINES PER INCH
  8 - 8 LINES PER INCH
  OTHER - 6 LINES PER INCH (DEFAULT)
PAGING - PAGING OPTION
  R - SKIP OVER PERFORATION AT BOTTOM OF PAGE
  OTHER - DO NOT SKIP (DEFAULT)

DEFAULT EXECUTE CARD
LIST2,INPUT,OUTPUT,SINGLE,NOREW,6,6,SINGLE,NOSKIP.
FL NEEDED TO LOAD: 36000B
FL NEEDED TO RUN: 26000B

DEFAULT PL: 5000 LINES

DATA CARD (IF SPACING=0)

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SPACING OPTION</td>
</tr>
<tr>
<td>2</td>
<td>1 - DOUBLE SPACING</td>
</tr>
<tr>
<td></td>
<td>OTHER - SINGLE SPACING</td>
</tr>
<tr>
<td>2</td>
<td>LINES PER INCH</td>
</tr>
<tr>
<td>8</td>
<td>8 LINES PER INCH</td>
</tr>
<tr>
<td></td>
<td>OTHER - 6 LINES PER INCH</td>
</tr>
<tr>
<td>3</td>
<td>PAGING OPTION</td>
</tr>
<tr>
<td>R</td>
<td>SKIP OVER PERFORATION AT BOTTOM OF PAGE</td>
</tr>
<tr>
<td></td>
<td>OTHER - DO NOT SKIP</td>
</tr>
</tbody>
</table>

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>INPUT FILE TO BE LISTED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OUTPUT LISTABLE OUTPUT</td>
</tr>
</tbody>
</table>

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
CLOSEM FILESQ GET IFETCH OPENM
RECOVR REMARK SHIFT

PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
LASTC - FIND LAST NON-BLANK
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
FAST L-FORMAT DECODES (LEFT-ADJ. ZERO-FILLED)
L11FMT L12FMT L13FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 08/15/75

DATE(S) REVISED
08/18/75
03/21/77 - GENERAL IMPROVEMENTS

LOCATION OF DECKS

SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS

OBJECT
EDITLIB USER LIBRARY: UTILITY

03'21/77 2-116 LIST2 - 2 OF 2
PROGRAM 'LIST3'

PURPOSE
LIST FIRST (UP TO 90-CHARACTER, ZERO BYTE TERMINATED) RECORD
IN EACH LOGICAL RECORD THROUGH EOI

FUNCTIONAL CATEGORIES: 01

REMARKS
NONE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
CLOSEM DATE FILESQ GET IFETCH
OPENM RECOVR SHIFT TIME

PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
NONE

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS

UNIT # LFN USE
-------- ------- ---------------
OUTPUT LISTABLE OUTPUT
TAPE1 INPUT FILE TO BE LISTED

EXECUTION
FROM BATCH
ATTACH,UTILITY.
ATTACH,TAPE1,... (FILE TO BE LISTED)
LDSET,LIB=UTILITY.
LIST3.

FROM TTY
ATTACH,UTILITY.
ATTACH,TAPE1,... (FILE TO BE LISTED)
LIBRARY,UTILITY.
LIST3.OUT.
ROUTE,OUT,DC=PR,...
EXECUTE CARD PARAMETERS
LIST3,INFILE,OUTPUT,REW,EOR.
INFILE - INPUT FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
L - REWIND AFTER USE
E - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
(DEFUALT)
U - REWIND BEFORE, REWIND AND UNLOAD
   AFTER USE (IF JOB ABENDS, U IS
   CHANGED TO R)
OTHER - NO REWIND
   (ANY WORDS BEGINNING WITH THESE LETTERS WILL
   PRODUCE THE SAME RESULTS)
EOR - ONE OF THE FOLLOWING:
OMITTED OR EOR - PRINT EOR/LEVEL NUMBER
   AND EOF ON SEPARATE LINE
EOF - PRINT EOR (WITHOUT LEVEL NUMBER) ON
   DATA LINE, EOF ON SEPARATE LINE
N OR NO - DO NOT PRINT EOR/EOF INFORMATION
ANYTHING ELSE - PRINT EOR/EOF ON DATA LINE
   (NO EOR LEVEL NUMBER)

DEFAULT EXECUTE CARD
LIST3,TAPE1,OUTPUT,REWIND.
FL NEEDED TO LOAD: 26000B
FL NEEDED TO RUN : 17000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 11/24/75

DATE(S) REVISED
12/22/75
03/22/76
05/13/76 - INCREASE TO 90 CHARACTERS

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITY\PL.ID=CLIB
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'LIST4'

PURPOSE
LIST UNIT RECORDS, THRU EOI, WHICH HAVE '1' IN COLUMN 1

FUNCTIONAL CATEGORIES: 01

REMARKS
NONE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM DATE FILESQ GET IFETCH
OPENM RECOVER SHIFT TIME
PART OF PROGRAM
EOU - ABNORMAL TERMINATION ROUTINE
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IOPEN - TEST FOR RM FILE OPEN
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
L11FMT - FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS
UNIT # LFN USE
--------- --------------
OUTPUT LISTABLE OUTPUT
TAPE1 INPUT FILE TO BE LISTED

EXECUTION
FROM BATCH
ATTACH,UTILITY.
ATTACH,TAPE1,... (FILE TO BE LISTED)
LDSET,LIB=UTILITY.
LIST4.

FROM TTY
ATTACH,UTILITY.
ATTACH,TAPE1,... (FILE TO BE LISTED)
LIBRARY,UTILITY.
LIST4,OUT.
ROUTE,OUT,DC=PR,....
EXECUTE CARD PARAMETERS
LIST4,INFILE,OUTPUT,REW.

INFILE - INPUT FILE TO BE LISTED
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE ('DEFAULT')
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)

DEFAULT EXECUTE CARD
LIST4,TAPE1,OUTPUT,REWIND.

FL NEEDED TO LOAD: 26000B
FL NEEDED TO RUN: 17000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 12/22/75
DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITY,PL,LD=CLIB

OBJECT
EDITLIB USER LIBRARY: UTILITY
Program 'Manual'

Purpose
Extract revision pages from a manual (CCRM or CCBRM)

Functional categories: SO 01

Language: FORTRAN IV extended

Computer
CDC 6000

Remarks
The revision number must be in column 22 of the top-of-page line.

Pages with no revision number (blank in 22), such as the title page, are always printed.

Specifying REVNO=0 will print the entire manual, but is not efficient. The fastest way is to use CopyExe.

Execution
From Batch
ATTACH.IN,... (Manual to be processed)
ATTACH.UTILITY.
LDSET.LIB=UTILITY. -OR- LIBRARY.UTILITY.
MANUAL,.*

From TTY
BEGIN.MANUAL.,<MANUAL-NAME>,<REVNO>,OUT.
ROUTE.OUT,DC=PR,TID=011,FID=* 
-OR-
BEGIN.IN,... (Manual to be processed)
BEGIN.UTILITY.,MANUAL,.*,OUT. * IS REVISION NUMBER
ROUTE.OUT,DC=PR,..... (TO NARROW PAPER)

Execute Card Parameters
MANUAL.INFILE,REVNO,OUTPUT.
INFILE - Input file containing the manual
REVNO - Desired revision number (1 digit)
(All revisions higher than this number are also extracted)
OUTPUT - Listable output

Default execute card
MANUAL.IN.O,OUTPUT. (Entire manual, not efficient. See Remarks.)

Default fl: 20000 lines

Fl needed to load: 30000B
Fl needed to run : 16000B
ERROR MESSAGES

INPUT FILE EMPTY
THE INPUT FILE CONTAINS NO INFORMATION.

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>INPUT FILE CONTAINING THE MANUAL LISTABLE OUTPUT</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>GET IFETCH</td>
<td></td>
</tr>
</tbody>
</table>

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
AND CLOSEM FILESQ GET IFETCH
OPENM PUT
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES

ARITHMETIC STATEMENT FUNCTIONS

FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)
L11FMT
FAST R-FORMAT DECODE (RIGHT-ADJ. ZERO-FILLED)
R11FMT R12FMT
OTHERS
DIGIT - TEST FOR DIGIT
TOPAGE - TEST FOR TOP-OF-PAGE

AUTHOR

DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 08/22/79

DATE(S) REVISED
09/28/79 - PUT TOTAL NUMBER OF PAGES PRINTED INTO DAYFILE

LOCATION OF DECKS

SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'MANYDOC'

PURPOSE
   EXTRACT (PRINT) TWO OR MORE DOCUMENTS FROM A DOCUMENT FILE

FUNCTIONAL CATEGORIES: 50 Q6

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
   DOCUMENTS MAY BE REQUESTED IN ANY ORDER BUT WILL BE PRINTED
   IN THE ORDER IN WHICH THEY OCCUR IN THE FILE.
   DOCUMENTATION FILE IS COMPATIBLE WITH AN UPDATE 'SOURCE'
   FILE OF *DECK'S ONLY.
   TO EXTRACT ONLY ONE DOCUMENT, USE PROGRAM 'PROGDOC'.

EXECUTION
   FROM BATCH
       ATTACH,UTILITY.
       LIBRARY,UTILITY.
       MANYDOC,LIBRARY,ID,,OUTPUT.
       ' 7/8/9 EOR
       (DATA CARDS)
       ' 6/7/8/9 EOF
   FROM TTY
       CONNECT,TTY
       BEGIN,UTILITY,,MANYDOC,LIBRARY,ID,,TTY,OUT,,OUT.
       (ENTER DATA CARDS - THERE IS NO PROMPTING;
       (END WITH PERCENT EOF)
       ROUTE,OUT,DC=PR,...

EXECUTE CARD PARAMETERS
   MANYDOC,LIBRARY,ID,INPUT,OUTFILE,LEFT,OUTPUT,DOCFILE.
   DECK. (MUST FIT ON ONE CARD):
       LIBRARY - FIRST PART OF DOCUMENTATION FILE PFN.
       FULL PFN IS LIBRARY DOCUMENTATION.
       ID - ID UNDER WHICH DOCUMENTATION IS CATALOGUED
       (DEFAULT: SYSTEM PUBLIC ACCESS ID)
       INPUT - INPUT DATA CARDS
       OUTFILE - OUTPUT FILE OF SELECTED DOCUMENTS
       (NOT REWOUND)
       LEFT - PRINT CENTERING
       OMITTED OR 'LEFT' - LEFT-JUSTIFIED ON PAGE
       OTHER - CENTERED ON LARGE PAGE
       (DEFAULT: LEFT-JUSTIFIED)
       OUTPUT - SUMMARY OF REQUESTS
       (MAY BE SAME AS OUTFILE)
       DOCFILE - IF THE USER HAS PREVIOUSLY ATTACHED A
       DOCUMENTATION FILE, PLACE LFN HERE AND OMIT
       THE FIRST 2 PARAMETERS (LIBRARY AND ID). WHEN
       THIS PARAMETER IS USED AND IS NOT
       'ZZDOC', THE FILE IS NOT RETURNED AT END OF
       EXECUTION.
       DECK - OMITTED OR NO - NO *DECK CARDS
       OTHER - *DECK CARDS COPIED
DEFAULT EXECUTE CARD
MANYDOC.*,...*,INPUT,TAPE1,LEFT,OUTPUT,ZZDOC,NO.

DEFAULT PL: 15000 LINES

FL NEEDED TO LOAD: 36000B
FL NEEDED TO RUN: 26000B MINIMUM
(PROGRAM ADJUSTS CORE AS REQUIRED)

DATA CARDS

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-7 NAME OF DESIRED DOCUMENT</td>
</tr>
</tbody>
</table>

ERROR MESSAGES

DOCUMENT FILE EMPTY
FILE WAS FOUND BUT CONTAINED NO INFORMATION

DOCUMENT FILE NOT FOUND
REQUESTED DOCUMENTATION FILE IS NOT IN THE SYSTEM

NO DOCUMENTS FOUND
NONE OF THE REQUESTED DOCUMENTS WAS IN THE FILE

NO DOCUMENTS REQUESTED
NO DATA CARDS WERE ENCOUNTERED

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT</td>
<td>DATA CARD INPUT FILE</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT (SUMMARY OF REQUESTS)</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>OUTPUT FILE OF SELECTED DOCUMENTS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(NOTE: OUTPUT AND TAPE1 MAY BE THE SAME FILE)</td>
<td></td>
</tr>
<tr>
<td>ZRECORD</td>
<td>PERMANENT RECORD OF REQUEST</td>
<td></td>
</tr>
<tr>
<td>ZZDOC</td>
<td>FILE CONTAINING DOCUMENTATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ATTACHED AND RETURNED WITHIN PROGRAM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(ATTACHED AND RETURNED WITHIN PROGRAM)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IF USER REPLACES THE FILE NAME AT EXECUTION TIME, THE FILE IS ASSUMED TO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BE ATTACHED AND WILL NOT BE RETURNED)</td>
<td></td>
</tr>
</tbody>
</table>

EXAMPLE

PRINT DOCUMENTATION FOR PROGRAMS 'MANYDOC' AND 'PROGDOC':
ATTACH,UTILITY.
LIBRARY,UTILITY.
MANYDOC,UTILITY...OUTPUT.
' 7/8/9 EOR
MANYDOC
PROGDOC
" 6/7/8/9 EOF

0:130:81  2:24  MANYDOC - 2 OF 3
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
AND   CLOSEM   DATE   EOF   FILESQ
GET   IFETCH   MOVLEV   OPENM   PUT
RECOVR REMARK   SHIFT   TIME

PART OF PROGRAM
CLOSFL - CLOSE FILES
COPYDEK - COPY ONE DOCUMENT
EOJ - ABNORMAL TERMINATION ROUTINE
FINDECK - LOCATE NEXT *DECK CARD
GETFIL - ATTACH.DOCUMENTATION FILE
GETIN - READ INPUT DATA CARDS
RECORD - MAKE PERMANENT RECORD OF REQUESTS

OTHERS
CPU467 - GET CPU PROGRAM IS RUNNING ON
DVSORTA - SORT ARRAY
FINDWRD - SEARCH ARRAY FOR WORD
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IDID - GET USER ID
IPAKLF - SQUEEZE LEFT AND REMOVE BLANKS
ISUMIT - SUM INTEGER ARRAY
LASTC - FIND LAST NON-BLANK
MOVSTR - MOVE CHARACTER STRING
PUTCHA - INSERT CHARACTER
REDUCE - ADJUST CORE UP AND DOWN
REQUEST - CALLABLE REQUEST
VFILL - FILL ARRAY WITH WORD
ZPFUNC - CALLABLE PF FUNCTIONS

ARITHMETIC STATEMENT FUNCTIONS
FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)
L11FMT L61FMT L71FMT
FAST R-FORMAT DECODE (RIGHT-ADJ. ZERO-FILLED)
R51FMT R56FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 04/28/77

DATE(S) REVISED
05/05/77 - ADD CPU TO PERMANENT RECORD
02/02/78 - ADD DECK OPTION

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'MTDOC'

PURPOSE
CREATE DOCUMENTATION TO DESCRIBE THE CONTENTS OF A MAGNETIC TAPE

FUNCTIONAL CATEGORIES: Q6

REMARKS
IF ANY QUESTION IS ANSWERED WITH A SINGLE ENTRY OF '?', A LONGER, MORE DETAILED DESCRIPTION OF THE CURRENT ITEM IS TYPED.

IF ANY QUESTION (EXCEPT FOR *DECK CARDS AND UNDERLINE CHARACTER) IS ANSWERED WITH A SINGLE ENTRY OF 'C', THE CURRENT DOCUMENT IS TERMINATED.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND
CONNEC
RECOVR
REMARK
SHIFT

PART OF PROGRAM
ANYMOR - ASK IF ANY MORE DOCUMENTS TO BE CREATED
CONTACT - ASK FOR PERSON TO CONTACT ABOUT THIS TAPE
DECK1 - ASK IF *DECK CARDS DESIRED
DENS - ASK FOR TAPE DENSITY INFORMATION
ECHO1 - ASK IF ECHO DESIRED
ENDIT - CLOSE PROGRAM AND PRINT SUMMARY
EDJ - ABNORMAL TERMINATION ROUTINE
GET13 - GET VARIABLE LENGTH INFO AND PRINT IN COL 13
LABL - ASK FOR TAPE LABEL
PRMPT - ASK IF LONG/SHORT PROMPTING DESIRED
REM - ASK FOR ANY REMARKS
RETENT - ASK FOR RETENTION PERIOD
TAPLOC - ASK FOR TAPE LOCATION (6700 ROOM, ETC)
TAPNO - ASK FOR TAPE NUMBER (CA9999, ETC)
TCREATE - ASK FOR CREATION DATE
TDESCR - ASK FOR DESCRIPTION OF TAPE CONTENTS
TRUNC - PRINT TRUNCATED MESSAGE
UNDER1 - ASK WHICH UNDERLINE CHARACTER DESIRED

OTHERS
ELTIME - TIMING ROUTINE
FSETFIT - SET FTN FIT VALUES
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST VARIABLE LENGTH I-FORMAT DECODE
JULIAN - GREGORIAN/JULIAN DATE CONVERTER (SINGLE-DEAR)
PKLFT - SQUEEZE LEFT AND REMOVE BLANKS AND 00B
REQUEST - REQUEST, DOCMNT,*PF.
TRAILBZ - CHANGE TRAILING BLANKS TO 00B
ARITHMETIC STATEMENT FUNCTIONS

FAST I-FORMAT DECODE
  I11FMT
FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
  L11FMT  L14FMT  L22FMT  L25FMT  L61FMT
FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
  R13FMT  R56FMT

LANGUAGE: FORTRAN IV

METHOD
TTY IS PROMPTED FOR EACH SECTION OF THE DOCUMENT.

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ZZTTYI</td>
<td>TTY INPUT</td>
</tr>
<tr>
<td>4</td>
<td>DOCMNT</td>
<td>CREATED DOCUMENTS (ON PF SPACE)</td>
</tr>
<tr>
<td>5</td>
<td>ZZTTYO</td>
<td>TTY PROMPTER</td>
</tr>
</tbody>
</table>

EXECUTION
FROM BATCH
NOT DESIGNED FOR BATCH USE

FROM TTY
BEGIN,UTILITY,,MTDOC.
TTY IS PROMPTED FOR ALL INPUT
CATALOG,DOCMNT,... AND/OR MODIFY USING EDITOR

EXECUTE CARD PARAMETERS
MTDOC,DOCMNT,QUICK.
DOCMNT - CREATED DOCUMENT(S)
  (MAY BE CATALOGED)
QUICK - 'Q'  - DO NOT PRINT INITIAL DESCRIPTION:
  GIVE SHORT PROMPT FOR FIRST QUESTIONS
OTHER - PRINT INITIAL DESCRIPTION AND LONG PROMPTING FOR FIRST QUESTIONS
NOTE: OMIT UNTIL YOU ARE USED TO THE PROGRAM, THEN USE Q.

DEFAULT EXECUTE CARD
MTDOC,DOCMNT.

FL NEEDED TO LOAD: 35000B
FL NEEDED TO RUN : 25000B

06/21/76  2-127  MTDOC - 2 OF 3
DATA

THE FOLLOWING INFORMATION IS REQUESTED ONCE PER EXECUTION:

1 - DO YOU WANT UPDATE *DECK CARDS GENERATED BEFORE EACH DOCUMENT? ENTER Y FOR YES, N FOR NO.

2 - WHICH UNDERLINE CHARACTER DO YOU WANT?
   ENTER 1 FOR UNDERSCORE ( _ ) OR 2 FOR HYPHEN (-).

THE FOLLOWING INFORMATION IS REQUESTED FOR EACH DOCUMENT:

3 - DO YOU WANT ALL ENTRIES ECHOED? ENTER Y FOR YES, N FOR NO.

4 - DO YOU WANT THE LONG OR SHORT FORM OF THE PROMPTING MESSAGES? ENTER L FOR LONG, S FOR SHORT.

5 - TAPE NUMBER (1-6 CHARACTERS) (E.G., C'99999)

6 - TAPE LABEL (4-7 CHARACTERS; BLANK FOR UNLABELLED)

7 - DENSITY INFORMATION (6 CHARACTERS. AS FOLLOWS)
   1 - 7 (FOR 7-TRACK) OR 9 (FOR 9-TRACK)
   2-3 - DENSITY (LO, HI, HY, HD)
   4 - S/L/BLANK (FOR STRANGER/LONG/SCOPE)
   5-6 - EB/BLANK :EB ON 9-TRACK ONLY
   (DEFAULT: '7HY ')

8 - LOCATION OF TAPE
   4/6/7 FOR 6400/6600/6700 ROOM OR
   DESCRIBE THE LOCATION (1-53 CHARACTERS)

9 - CREATION DATE (WHEN LABEL WAS WRITTEN): MAY BE YYDDD
   OR MM.DD/YY

10 - RETENTION PERIOD AS SPECIFIED ON LABEL CARD: (1-999 DAYS OR BLANK (7 DAYS) (LEFT-JUSTIFIED))

11 - NAME OF PERSON RESPONSIBLE FOR CONTENTS OF TAPE
     ANY NUMBER OF 1- TO 60-CHARACTER LINES. END WITH A
     SINGLE ENTRY OF SEMI-COLON (:).

12 - REMARKS. USE THIS SECTION FOR ANY REMARKS ABOUT THE
     TAPE OR ITS CONTENTS. YOU MAY WANT TO GIVE THE TAPE
     HISTORY. NOTE: TAPE CONTENTS IS ENTERED IN RESPONSE
     TO THE NEXT QUESTION. ANY NUMBER OF 1- TO
     60-CHARACTER LINES. END WITH A SINGLE ENTRY OF
     SEMI-COLON (:).

13 - TAPE CONTENTS. ANY NUMBER OF 1- TO 60-CHARACTER
     LINES. END WITH A SINGLE ENTRY OF SEMI-COLON (*.).
     HEADINGS ARE PROVIDED FOR FILE NUMBER, RECORD NUMBER
     AND CONTENTS OF THE RECORD.

14 - END OF DOCUMENT. DO YOU WANT TO DO ANOTHER?
     ENTER Y FOR YES, N FOR NO.

AUTHOR
   DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 06/18/76

DATE(S) REVISED

LOCATION OF DECKS

SOURCE
   UPDATE LIBRARY: UTILITYPL-ID=CSYS

OBJECT
   EDITLIB USER LIBRARY: UTILITY

06/30/76  2-128  MTDOC - 3 OF 3
PROGRAM 'NEWNAME'

PURPOSE
RENAME A SIMPLE ABSOLUTE MODULE

FUNCTIONAL CATEGORIES: K3

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
AT PRESENT, THIS PROGRAM WILL HANDLE ONLY THE FOLLOWING TYPES OF OBJECT MODULES:
1) SIMPLE (NON-OVERLAY, NON-SEGLOAD) ABSOLUTE (CREATED BY NOGO, ABSLFN)

ONLY THE FIRST LOGICAL RECORD IS PROCESSED.

RESULTS ARE NOT PREDICTED WHEN USED ON RELOCATABLE MODULES OR OTHER TYPES OF ABSOLUTES.

EXECUTION
FROM BATCH AND TTY
ATTACH TAPE1,.... (ABSOLUTE MODULE TO BE RENAMED
BEGIN,UTILIT),NEWNAME,...*.* IS NEW NAME
(TAPE2 HAS THE RENAMED MODULE)

EXECUTE CARD PARAMETERS
NEWNAME,INFILE,OUTFILE,NAME,OUTPUT.
INFILE - INPUT FILE CONTAINING MODULE TO BE RENAMED
OUTFILE - OUTPUT FILE CONTAINING RENAMED MODULE
NAME - NEW NAME (ANYTHING EXCEPT 'ZYXWVU')
OUTPUT - LISTABLE OUTPUT (FTN ERROR MESSAGES)

DEFAULT EXECUTE CARD
NEWNAME,TAPE1,TAPE2.*,OUTPUT.
*: USER MUST SUPPLY)

DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 21000B

DAYFILE MESSAGES
INPUT FILE EMPTY
INPUT FILE CONTAINS NO INFORMATION

INPUT NOT BINARY MODULE
INPUT DOES NOT BEGIN WITH 7700 TABLE. PROBABLY A SOURCE OR DATA FILE.

PARAM 3 (NEW NAME) OMITTED
USER DID NOT SPECIFY A NEW NAME
EXPECTED EOI ENCOUNTERED
EOI ENCOUNTERED BEFORE EOR - SHOULD NEVER OCCUR

XXXXXXXX CHANGED TO ZZZZZZZ
NNNNN PRU(S) COPIED

SUMMARY OF PROCESSING

<table>
<thead>
<tr>
<th>INPUT/OUTPUT UNITS</th>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAPE1</td>
<td>INPUT</td>
<td>FILE CONTAINING MODULE TO BE RENAMED (REWOUND BEFORE AND AFTER USE)</td>
<td></td>
</tr>
<tr>
<td>TAPE2</td>
<td>OUTPUT</td>
<td>FILE CONTAINING RENAMED MODULE (REWOUND BEFORE AND AFTER USE)</td>
<td></td>
</tr>
<tr>
<td>DAYFILE</td>
<td>MESSAGES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

METHOD
Word Table+1 of the Prefix Table (7700) is changed.
If there is a 54 Table, the first entry name is changed in Word Table+6.
If no 7700 Table, not an object module.
If not absolute module, results are unpredictable.
Only first logical record is processed.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND CLOSEM FILES Q GET IFETCH
OPENM PUT RECOVR REMARK WEOR
PART OF PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
REPLAC - REPLACE ONE CHARACTER WITH ANOTHER

ARITHMETIC STATEMENT FUNCTIONS
FAST L-FORMAT DECODE (LEFT-ADJ. ZERO-FILLED)
L31FMT L71FMT LB1FMT
FAST R-FORMAT DECODE (RIGHT-ADJ. ZERO FILLED)
R21FMT R38FMT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/10/77

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'PAGEPRT'

PURPOSE
PRINT SELECTED PAGE(S) FROM A DOCUMENT

FUNCTIONAL CATEGORIES: 50 01

REMARKS
IF MORE THAN ONE PAGE REQUESTED, THEY MUST BE IN ORDER, AS THE DOCUMENT FILE IS SEARCHED ONLY ONCE.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
CLOSEM  EOF  FILESQ  GET  IFETCH
OPENM  RECOVR  REMARK  SHIFT

PART OF PROGRAM
EOJ  - ABNORMAL TERMINATION ROUTINE

OTHERS
GETLFSN - GET ACTUAL LOCAL FILE NAMES
IOPEN - TEST FOR RM FILE OPEN
REPLAC - REPLACE ONE CHARACTER WITH ANOTHER
SETREW - DECODE REIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
A10SFT  - FAST A-FORMAT DECODE
L11SFT  - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L71SFT  - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)

LANGUAGE: FORTRAN IV

METHOD
HEADER LINES ('1' IN COLUMN ONE) ARE SEARCHED FOR '
PAGE' IN COLUMNS 60-63. THE PAGE NUMBER MUST BE IN
COLUMNS 65-74. LINES ARE COPIED UNTIL A NEW HEADER
LINE IS ENCOUNTERED.

END-OF-RECORD IS IGNORED; END-OF-FILE OR END-OF-INFORMATION
WILL END THE PROGRAM.

INPUT/OUTPUT UNITS

UNIT  #  LFN  USE
-------------  ---------  --------------
5  INPUT  OPTIONAL DATA CARDS
    CCRM  INPUT DOCUMENT FILE
    OUTPUT LISTABLE OUTPUT

EXECUTION
FROM BATCH
ATTACH,UTILITY.
ATTACH,TAPE1..... (DOCUMENT FILE)
LDSET,LIB=UTILITY.
PAGEPRT.....
7/8/9
(DLTA CARDS. IF NONE, NO 7/8/9 IS REQUIRED)
6/7/8/9

06/22/77  2-131  PAGEPRT - 1 OF 3
FROM TTY
ATTACH,TAPE1,... (DOCUMENT FILE)
ATTACH,UTILITY.
LIBRARY,UTILITY.
PAGEPRT,TAPE1,0,OUT,R,S1-14S. (PRINT PAGE 1-14)
ROUTE,OUT,DC=PR.....

--OR--

ATTACH,TAPE1,... (DOCUMENT FILE)
ATTACH,UTILITY.
LIBRARY,UTILITY.
CONNECT,INPUT.
PAGEPRT,TAPE1,0,OUT.
(ENTER PAGE NUMBERS, ONE AT A TIME, END WITH PERCENT EOF)
ROUTE,OUT,DC=PR.....

EXECUTE CARD PARAMETERS
PAGEPRT,INFILE,ID,OUTPUT,REW,PAGE,INPUT.

INFILE - INPUT DOCUMENT FILE
ONE OF:
.1-7 CHARACTER PFN OF DOCUMENT FILE TO BE ATTACHED BY PROGRAM:
.1-7 CHARACTER LFN OF ALREADY ATTACHED FILE:
OMITTED FOR COMPUTER CENTER REFERENCE MANUAL.

ID - ONE OF:
.ID OF DOCUMENT FILE TO BE ATTACHED BY PROGRAM:
.0, IF DOCUMENT FILE ALREADY ATTACHED:
OMITTED FOR COMPUTER CENTER REFERENCE MANUAL, OR ANY OTHER FILE WITH SYSTEM PUBLIC ACCESS ID.

OUTPUT - LISTABLE OUTPUT

REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE (DEFAULT)
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE (FORCED IF BOTH INFILE AND ID OMITTED)
OTHER - NO REWIND
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)

PAGE - IF OMITTED, PAGE NUMBERS READ FROM FILE INPUT.
IF SPECIFIED, THIS IS A 1-7 CHARACTER PAGE NUMBER (ENCLOSE IN $ IF ANY SPECIAL CHARACTERS).

INPUT - DATA CARD INPUT FILE. USED ONLY IF PAGE PARAMETER OMITTED.
DEFAULT EXECUTE CARD
PAGEPRT.*,**.OUTPUT.REWIND.,INPUT.
* - COMPUTER CENTER REFERENCE MANUAL
** - SYSTEM PUBLIC ACCESS ID

FL NEEDED TO LOAD: 32000B
FL NEEDED TO RUN : 23000B

DATA CARDS (ONLY IF PAGE PARAMETER OMITTED)

COL CONTENTS
---- ----
1-10 PAGE NUMBER

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 02/09/76

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'PFDOC'

PURPOSE
CREATE PERMANENT FILE DOCUMENTATION

FUNCTIONAL CATEGORIES: Q6

REMARKS
IF ANY QUESTION IS ANSWERED WITH A SINGLE ENTRY OF ? , A
LONGER, MORE DETAILED DESCRIPTION OF THE CURRENT ITEM
IS TYPED.

IF ANY QUESTION (EXCEPT FOR *DECK CARDS AND UNDERLINE
CHARACTER) IS ANSWERED WITH A SINGLE ENTRY OF = , THE
CURRENT DOCUMENT IS TERMINATED.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE
AND CONNEC DATE EOF MINO
MOVLEV OR RECOVR REMARK SHIFT

PART OF PROGRAM
AC - ASK FOR ACCOUNT NUMBER (4C)
ANYMOR - ASK IF ANY MORE DOCUMENTS TO BE CREATED
BACKUP - ASK WHERE BACKUPS ARE
CY - ASK FOR CYCLE
DATES - ASK FOR DATE CREATED, BY WHOM AND WHEN REVISED
DECK1 - ASK IF *DECK CARDS DESIRED
DESCR - ASK FOR DESCRIPTION OF THE PERMANENT FILE
ECHO1 - ASK IF ECHO DESIRED
ENDIT - CLOSE PROGRAM AND PRINT SUMMARY
EOJ - ABNORMAL TERMINATION ROUTINE
FMT - ASK FOR FILE FORMAT
GETPFN - ASK FOR PERMANENT FILE NAME
GET14 - GET VARIABLE LENGTH INFO AND PRINT IN COL 14
GET18 - GET VARIABLE LENGTH INFO AND PRINT IN COL 18
       (ENTRY IN GET14)
GET29 - GET VARIABLE LENGTH INFO AND PRINT IN COL 29
       (ENTRY IN GET14)
ID - ASK FOR ID FILE IS CATALOGED UNDER
PASS - ASK FOR PASSWORDS
PRMPT - ASK IF LONG/SHORT PROMPTING DESIRED
TRUNC - PRINT TRUNCATED MESSAGE
UNDER1 - ASK WHICH UNDERLINE CHARACTER DESIRED
WHERE - ASK WHERE WRITEUP AND LISTING ARE

OTHERS
ELTIME - TIMING ROUTINE
FINDWRD - SEE IF WORD IN IN ARRAY
FSETFIT - SET FTN FIT VALUES
GETLFNS - GET ACTUAL LOCAL FILE NAMES
REPLAC - REPLACE ONE CHARACTER WITH ANOTHER
UNLOAD - RETURN FILES
ZBLANK - CHANGE BLANKS TO OOB AND VICE VERSA

ARITHMETIC STATEMENT FUNCTIONS
R110FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

LANGUAGE: FORTRAN IV
METHOD
TTY IS PROMPTED FOR EACH SECTION OF THE DOCUMENT.

ALL SECTIONS ARE ALWAYS ASKED FOR EXCEPT THAT WHEN AN XR PASSWORD IS GIVEN, THE CN, EX, MD PASSWORDS ARE NOT REQUESTED.

<table>
<thead>
<tr>
<th>INPUT/OUTPUT UNITS</th>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ZZTTYI</td>
<td>1</td>
<td>ZZTTYI</td>
<td>TTY INPUT</td>
</tr>
<tr>
<td>4 DOCMNT</td>
<td>4</td>
<td>DOCMNT</td>
<td>CREATED DOCUMENTS (ON PF SPACE)</td>
</tr>
<tr>
<td>5 ZZTTYO</td>
<td>5</td>
<td>ZZTTYO</td>
<td>TTY PROMPTER</td>
</tr>
<tr>
<td>OUTPUT</td>
<td></td>
<td>OUTPUT</td>
<td>FTN ERROR MESSAGES</td>
</tr>
</tbody>
</table>

EXECUTION
FROM BATCH
NOT DESIGNED FOR BATCH USE

FROM TTY
BEGIN,UTILITY,,PFDOC.
TTY IS PROMPTED FOR ALL INPUT
CATALOG,DOCMNT..... AND/OR MODIFY USING EDITOR

EXECUTE CARD PARAMETERS
PFDOC,DOCMNT.QUICK.
DOCMNT - CREATED DOCUMENT(S)
(MAY BE CATALOGED)
QUICK - 'Q' - DO NOT PRINT INITIAL DESCRIPTION:
GIVE SHORT PROMPT FOR FIRST QUESTIONS
OTHER - PRINT INITIAL DESCRIPTION AND LONG PROMPTING FOR FIRST QUESTIONS
NOTE: OMIT UNTIL YOU ARE USED TO THE PROGRAM, THEN USE Q.

DEFAULT EXECUTE CARD
PFDOC,DOCMNT.

FL NEEDED TO LOAD: 37000B
FL NEEDED TO RUN : 30000B
DATA

THE FOLLOWING INFORMATION IS REQUESTED ONCE PER EXECUTION:
1 - DO YOU WANT UPDATE *DECK CARDS GENERATED BEFORE EACH DOCUMENT? ENTER Y FOR YES, N FOR NO.
   (THE DECK NAME WILL BE THE FIRST 7 CHARACTERS OF THE PFN)
2 - WHICH UNDERLINE CHARACTER DO YOU WANT?
   ENTER 1 FOR UNDERSCORE (_), OR 2 FOR HYPHEN (-).

THE FOLLOWING INFORMATION IS REQUESTED FOR EACH DOCUMENT:
3 - DO YOU WANT ALL ENTRIES ECHOED? Y FOR YES, N FOR NO.
4 - DO YOU WANT THE LONG OR SHORT FORM OF THE PROMPTING MESSAGES? ENTER L FOR LONG, S FOR SHORT.
5 - PFN (1-40 CHARACTERS)
6 - ID (1-9 CHARACTERS)
7 - AC (10 CHARACTERS)
8 - CY (1-3 DIGITS)
9 - TURNKEY PASSWORD (TK) (1-9 CHARACTERS)
10 - READ PASSWORD (RD) (1-9 CHARACTERS)
11 - READ ONLY (XR) PASSWORD (1-9 CHARACTERS)
    IF XR IS BLANK, ASK FOR THE NEXT 3 PASSWORDS
12 - CONTROL PASSWORD (CN) (1-9 CHARACTERS)
13 - EXTEND PASSWORD (EX) (1-9 CHARACTERS)
14 - MODIFY PASSWORD (MD) (1-9 CHARACTERS)
15 - SPECIAL PASSWORD (1-9 CHARACTERS)
    (REQUESTED ONLY IF ID IS PUBLIC ACCESS ID)
16 - FILE FORMAT. THERE ARE 12 RECOGNIZED ABBREVIATIONS AND PROVISION FOR USER-SPECIFIED DESCRIPTION.
    TO FIND CURRENT LIST, ANSWER ? TO THIS QUESTION.
17 - DATE FILE CREATED. ENTER MM/DD/YY OR ENTER SEMI-COLON (:).
18 - NAME OF PERSON WHO CREATED THE FILE (1-30 CHARACTERS)
19 - DATES THE FILE WAS REVISED (EXTENDED OR MODIFIED).
    ANY NUMBER OF 1-55 CHARACTER LINES. END WITH A SINGLE ENTRY OF SEMI-COLON (:).
20 - WHERE IS THE WRITEUP LOCATED?
    ANY NUMBER OF 1-44 CHARACTER LINES. END WITH A SINGLE ENTRY OF SEMI-COLON (:).
21 - WHERE IS THE LISTING LOCATED?
    ANY NUMBER OF 1-44 CHARACTER LINES. END WITH A SINGLE ENTRY OF SEMI-COLON (:).
22 - WHAT BACKUP IS THERE FOR THE FILE AND WHERE IS IT?
    ANY NUMBER OF 1-59 CHARACTER LINES. END WITH A SINGLE ENTRY OF SEMI-COLON (:).
23 - GIVE A DESCRIPTION OF THE FILE.
    ANY NUMBER OF 1-59 CHARACTER LINES. END WITH A SINGLE ENTRY OF SEMI-COLON (:).
24 - END OF DOCUMENT. DO YOU WANT TO DO ANOTHER?
    Y FOR YES, N FOR NO.
AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATA WRITTEN: 12/04/73 (ORIGINALLY CALLED 'SDOC')

DATE(S) REVISED
12/12/73
01/09/74
01/15/76 (NAME CHANGED TO 'PFDOC')
07/07/76 - 1) CHANGE TERMINATE CHARACTER TO @.
2) ADD QUICK OPTION.
3) REMOVE CENTERED LISTABLE OUTPUT.
4) ADD 'D' (DOCUMENTATION FILE) TO TYPES OF FILE FORMATS.
5) REMOVE ABILITY TO LIST FINAL DOCUMENT(S) AT TTY.
6) ADD RESPONSE LENGTHS TO PROMPTING MESSAGES.

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS

OBJECT
EDITLIB USER LIBRARY: UTILITY

07/07/76  2-137  PFDOC - 4 OF 4
PROGRAM 'PROGDOC'

PURPOSE
   EXTRACT (PRINT) ONE OR ALL DOCUMENTATION FROM A DOCUMENT FILE

FUNCTIONAL CATEGORIES: Q6 S0

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
   DOCUMENT FILE IS COMPATIBLE WITH AN UPDATE 'SOURCE' FILE
   OF *DECK'S ONLY.

EXECUTION
   FROM BATCH
       ATTACH.UTILITY.
       LDSET.LIB=UTILITY.
       PROGDOC,LIBRARY,ID,PROGNAME.

   FROM TTY
       BEGIN.UTILITY.,PROGDOC,LIBRARY,ID,PROGNAME,OUT.
       DISPOSE.OUT,PR=XXX.

EXECUTE CARD PARAMETERS
   PROGDOC,LIBRARY,ID,Routine,OUTPUT,LEFT,DOCFILE,DECK.
   LIBRARY - NAME OF LIBRARY CONTAINING ROUTINE FOR WHICH
           DOCUMENTATION IS DESIRED
           MAY BE ONE OF:
           NSRDC
           UTILITY (DEFAULT)
           ANY OTHER LIBRARY NAME 1-7 CHAR
           PROGRAM WILL ATTACH AND RETURN THE
           DOCUMENTATION FILE. THE PFN USED WILL BE
           THE LIBRARY NAME SPECIFIED, FOLLOWED BY
           'DOCUMENTATION' (DEFAULT IS
           'UTILITYDOCUMENTATION')
   ID - ID UNDER WHICH DOCUMENTATION IS CATALOGED
           'DEFAULT IS THE SYSTEM PUBLIC ACCESS ID'
   ROUTINE - NAME OF ROUTINE FOR WHICH DOCUMENTATION
              IS DESIRED
              ('ALL' TO PRINT ALL DOCUMENTATION)
              (DEFAULT IS 'NONE')
   OUTPUT - LISTABLE OUTPUT
   LEFT - PRINT CENTERING
          MISSING OR 'LEFT' - LEFT-justified on page
          OTHER - CENTERED ON LARGE PAGE
          (DEFAULT IS LEFT-justified)
   DOCFILE - IF USER HAS PREVIOUSLY ATTACHED A
               DOCUMENTATION FILE, PLACE LFN HERE AND OMIT
               THE FIRST 2 PARAMETERS ('LIBRARY' AND 'ID').
               WHEN THIS PARAMETER IS USED AND IS NOT
               'ZZDOC', THE FILE IS NOT RETURNED AT END OF
               EXECUTION.
   DECK - OMITTED OR NO - NO *DECK CARDS
          OTHER - OUTPUT *DECK CARDS
DEFAULT EXECUTE CARD
PROGDOC,UTILITY.*,NONE,OUTPUT,LEFT,TAPE1,ZZDOC.

DEFAULT PL: 50000 LINES

FL NEEDED TO LOAD: 32000B
FL NEEDED TO RUN: 22000B

FORMAT OF THE DOCUMENTATION FILE
THE FIRST RECORD OF EACH DOCUMENT IDENTIFIES IT

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-5</td>
<td>*DECK</td>
</tr>
<tr>
<td>6</td>
<td>BLANK</td>
</tr>
</tbody>
</table>
| 7-13| DOCUMENT NAME
     | (1-7 CHARACTERS,      |
     | NO EMBEDDED BLANKS OR SPECIAL CHARACTERS) |

EACH DOCUMENT IS COMPOSED OF RECORDS OF THE FOLLOWING FORM:

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CARRIAGE CONTROL</td>
</tr>
<tr>
<td>2-80</td>
<td>LINE OF DOCUMENT</td>
</tr>
</tbody>
</table>

ERROR MESSAGES

ABEND
JOB ABORTED

DOCUMENT FILE NOT FOUND
REQUESTED FILE <LIB>_DOCUMENTATION.ID=<ID> NOT IN SYSTEM

<Document> NOT FOUND
REQUESTED DOCUMENT IS NOT IN THE FILE

ERROR TRYING TO ATTACH
DOCUMENT FILE - RETURN CODE IS <RC>B
CONTACT USER SERVICES

FILE ALREADY ATTACHED
REQUESTED DOCUMENT FILE IS ALREADY ATTACHED

FILE UNAVAILABLE
CANNOT ATTACH REQUESTED DOCUMENT FILE

LFN ALREADY IN USE
RETURN,ZZDOC. AND TRY AGAIN

NO DOCUMENT REQUESTED
THIRD EXECUTE CARD PARAMETER WAS NOT SPECIFIED
INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUTPUT</td>
<td>L1</td>
<td>LISTABLE OUTPUT</td>
</tr>
<tr>
<td>ZRECORD</td>
<td>ZR</td>
<td>PERMANENT RECORD OF REQUEST</td>
</tr>
<tr>
<td>ZZDOC</td>
<td>ZD</td>
<td>FILE CONTAINING DOCUMENTATION</td>
</tr>
</tbody>
</table>

(ATTACHED AND RETURNED WITHIN PROGRAM)

(ATTACHED AND RETURNED WITHIN PROGRAM)

(IF THE USER REPLACES THE FILE NAME AT EXECUTION TIME, THE FILE IS ASSUMED TO BE ATTACHED AND WILL NOT BE RETURNED)

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE

AND

CLOSEM

IFETCH

OPENM

REMARK

REMARK

DATE

FILESQ

GET

OPENM

OR

PUT

RECOVR

STOKEF

TIME

PART OF PROGRAM

EDJ

- ABNORMAL TERMINATION ROUTINE

RECORD

- WRITE PERMANENT RECORD OF REQUEST

OTHERS

GETLFNS

- GET ACTUAL LOCAL FILE NAMES

IDID

- GET USER ID

IPAKLFT

- SQUEEZE BLANKS AND ZEROS OUT OF PFN

LASTC

- FIND LAST NON-BLANK/NON-0OB CHARACTER

MFX

- GET MACHINE PROGRAM IS RUNNING ON

MOVSTR

- MOVE CHARACTER STRING

REPLACE

- REPLACE ONE CHARACTER WITH ANOTHER

REQUEST

- REQUEST,ZRECORD,*PF.

UNLOAD

- RETURN,TAPE1.

ZPFUNC

- ATTACH DOCUMENTATION FILE

ARITHMETIC STATEMENT FUNCTIONS

FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)

L11FMT

L61FMT

L77FMT

FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

R92FMT

AUTHOR

DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 01/27/75

DATE(S) REVISED

03/26/75

02/07/77 - CHANGE TO RECORD MANAGER: IMPROVE ERROR MESSAGE

03/31/77 - ADD AND SET PERMANENT RECORD FLAG

05/05/77 - ADD CPU TO PERMANENT RECORD

02/03/78 - ADD DECK OPTION

05/18/79 - INCREASE DEFAULT PL TO 50000

LOCATION OF DECKS

SOURCE

UPDATE LIBRARY: UTILITY, ID=CSYS

OBJECT

EDITLIB USER LIBRARY: UTILITY
PROGRAM 'PROMNT'

PURPOSE
MAINTAIN AN ALPHABETICAL, SEQUENTIAL PROCEDURE FILE. EACH
PROCEDURE BEING ONE NOS/BE LOGICAL RECORD. BOTH CCL AND B/R
PROCEDURES ARE SUPPORTED.

FUNCTIONAL CATEGORIES: Q4 S0 K1

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
EACH PROCEDURE MUST BE ONE AND ONLY ONE LOGICAL RECORD.
EMPTY RECORDS WILL BE FLAGGED IN THE LISTINGS (FCN= H, L, N,
Q) AND REMOVED (WITH COUNT IN DAYFILE) IN MAINTENANCE (FCN=
A, D, R).

EXECUTION
FROM BATCH
ATTACH.TAPE1...... (INPUT PROCEDURE FILE)
BEGIN.UTILITY..PROMNT.....

FROM TTY
ATTACH.TAPE1...... (INPUT PROCEDURE FILE)
BEGIN.UTILITY..PROMNT.....OUT.
ROUTE.OUT,DC=PR.....

EXECUTE CARD PARAMETERS
PROMNT.INFILE.OUTFILE.FCN.NAME,ID,OUTPUT.
INFILE - INPUT PROCEDURE FILE
OUTFILE - OUTPUT PROCEDURE FILE
( FOR FCN: A, D, G, R)
FCN - FUNCTION. ONE OF:
A OR ADD - ADD PROCEDURE 'NAME'
D OR DELETE - DELETE PROCEDURE 'NAME'
G OR GET - EXTRACT PROCEDURE 'NAME'
AND PUT ON 'OUTFILE'
H OR HEADERS - LIST PROCEDURE HEADERS
L OR LIST - LIST ALL PROCEDURES 'OR
PROCEDURE 'NAME' ) EACH
STARTING ON A NEW PAGE
N OR NAMES - LIST PROCEDURE NAMES
Q - QUICK LIST OF PROCEDURE NAMES
( NO HEADINGS, SINGLE COLUMN
R OR REPLACE - REPLACE PROCEDURE 'NAME'
NAME - ONE OF:
PROCEDURE NAME
( FOR FCN: G, L: IF OMITTED, ALL)
FILE CONTAINING NEW PROCEDURE
( FOR FCN: A, D, R)
ID - OPTIONAL ID FOR FCN: H, L, N,
IF SPECIFIED - HEADING HAS ID = XXXX.
IF OMITTED - HEADING HAS LF.I: INFILE.
OUTPUT - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
PROMNT.TAPE1.TAPE2.*.ALL..OUTPUT.
* - USER MUST SPECIFY

02/23/81 2:41 PROMNT - 1 OF 3
FL NEEDED TO LOAD: 36000B
FL NEEDED TO RUN: 26000B
(PROGRAM ADJUSTS CORE AS REQUIRED)

INPUT/OUTPUT UNITS
UNIT #  LFN USE
--------  -------  ---------------
  4 ALL      NEW PROCEDURE INPUT FILE
          OUTPUT LISTABLE OUTPUT
  1 TAPE1   INPUT PROCEDURE FILE
          DAYFILE MESSAGE(S) ON WHAT WAS DONE
  2 TAPE2   OUTPUT PROCEDURE FILE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
  AND BUFFERIN BUFFEROUT CLOSEM DATE
  FILESQ GET IFETCH LENGTH MOD
  MOVLEV OPENM OR RECOVR REMARK
  TIME UNIT

PART OF PROGRAM
  ADD - ADD A PROCEDURE
  COPY - COPY PROCEDURES
  DELETE - DELETE A PROCEDURE
  EQU - ABNORMAL TERMINATION ROUTINE
  GETNAME - EXTRACT PROCEDURE NAME FROM HEADER STATEMENT
  GETNEW - GET PROCEDURE NAME FROM NEW PROCEDURE
  GETNEW1 - GET NEW PROCEDURE (ENTRY POINT IN GETNEW)
  GETPRO - BUFFER IN ONE PROCEDURE
  GETPRO2 - BUFFER IN FIRST TWO WORDS OF A PROCEDURE
  GETT - EXTRACT ONE PROCEDURE
  HEADERS - LIST PROCEDURE HEADERS
  LIST - LIST ONE OR ALL PROCEDURES
  NAMES - LIST PROCEDURE NAMES
  PRDEL - PUT NUMBER OF EMPTY RECORDS DELETED IN DAYFILE
  PUTPRO - BUFFER OUT ONE PROCEDURE
  QUICK - QUICK LIST OF PROCEDURE NAMES (NO HEADINGS)
  REPL - REPLACE A PROCEDURE

OTHERS
  EXTPRM - EXTRACT NEXT PARAMETER FROM STRING
  GETLFNS - GET ACTUAL LOCAL FILE NAMES
  PUTCHA - INSERT CHARACTER INTO ARRAY
  REDUCE - ADJUST CORE AS REQUIRED
  REQUEST - GET PF SPACE FOR OUTPUT FILE
  UNLOAD - RETURN FILES
ARITHMETIC STATEMENT FUNCTIONS

FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L41FMT  L51FMT  L61FMT  L71FMT  L77FMT
L81FMT  L91FMT

FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R47FMT

OTHERS
NROWS  - COMPUTE NUMBER OF ROWS IN PRINTOUT

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/28/76

DATE(S) REVISED
02/03/77  -  PROCESS EMPTY RECORDS
01/17/78  -  MODIFY FOR CCL AND B/R

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY:  UTILIYPL,ID=CSYS
OBJECT
EDITLIE USER LIBRARY:  UTILITY
PROGRAM 'PRUDMP'

PURPOSE
OCTAL AND CHARACTER DUMP OF DISK FILE BY RELATIVE PRU NUMBER

FUNCTIONAL CATEGORIES: J9 K3

REMARKS
NONE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM FILESQ GETP IFETCH MAXO
MOD MOVLEV OPENM SHIFT SKIP
STOREF
PART OF PROGRAM
DMP - DO ACTUAL PRINTING OF THE PRU
EDJ - ABNORMAL TERMINATION ROUTINE
GETFMTS - DEFINE FORMATS FOR 'DMP'

OTHERS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
IFMTV - FAST VARIABLE LENGTH I-FORMAT DECODE
MFETCH - READ SPECIFIED WORD IN USER'S FL
REPLACM - REPLACE MULTIPLE CHARACTERS IN AN ARRAY
SETREW - DECODE REWIND OPTION

ARITHMETIC STATEMENT FUNCTIONS
NONE

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS
UNIT # LFN USE
-------- --------- -----------------------------------
OUTPUT LISTABLE OUTPUT
TAPE1   FILE TO BE DUMPED

EXECUTION
FROM BATCH
ATTACH.TAPE1..... DISK FILE TO BE DUMPED
BEGIN.UTILITY.,PRUDMP,.....

FROM TTY
ATTACH.TAPE1..... DISK FILE TO BE DUMPED
BEGIN.UTILITY.,PRUDMP,...OUT.....
ROUTE.OUT,DC=PR,.....
EXECUTE CARD PARAMETERS
PRUDMP, INFILE, START, NPRUS, OUTPUT, REW, SUP, CC, PRUS, WRDS.

INFILE - INPUT FILE TO BE DUMPED
START - STARTING PRU NUMBER (DECIMAL)
0 OF OMITTED - START AT BEGINNING OF FILE
NPRUS - NUMBER (DECIMAL) OF PRUS TO BE DUMPED
(DEFAULT: 9999999 (ALL OF FILE))
OUTPUT - LISTABLE OUTPUT
REW - INFILE REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE (DEFAULT)
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD
OTHER - NO REWIND
(ANY WORDS BEGINNING WITH THESE LETTERS WILL PRODUCE THE SAME RESULTS)
SUP - CHARACTER PRINTING SUPPRESS OPTION
OMITTED OR SUP - SUPPRESS CHARACTERS WITH
DISPLAY CODE 606 OR HIGHER (DEFAULT)
ANYTHING ELSE - PRINT ALL CHARACTERS
CC - CARRIAGE CONTROL OPTION
OMITTED OR 'CC' - PRINT DUMP ON NEW PAGE
ANYTHING ELSE - PRINT DUMP ON SAME PAGE
PRUS - OMITTED OR 'OPRU' - PRINT OCTAL PRU COUNT
ANYTHING ELSE - PRINT DECIMAL PRU COUNT
WRDS - OMITTED OR 'OWRD' - PRINT OCTAL WORD COUNT
ANYTHING ELSE - PRINT DECIMAL WORD COUNT
NOTE: WORD COUNT WITHIN PRU IS ALWAYS OCTAL.

DEFAULT EXECUTE CARD
PRUDMP, TAPE1, 1, 9999999, OUTPUT, BEFORE, SUP.

FL NEEDED TO LOAD: 32000B
FL NEEDED TO RUN: 23000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 05/24/76 - TOTAL REWRITE DUPLICATING AND EXPANDING THE CAPABILITIES OF THE SCOPE 3.3 PROGRAM WRITTEN BY ME!
HAAS - DTNSRDC CODE 1843

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'PR2UP'

PURPOSE
THIS PROGRAM IS INTENDED TO REFORMAT A SINGLE-COLUMN TEXT FILE COMPOSED OF 60-CHARACTER LINES INTO A 2-UP (DOUBLE-COLUMN) FORMAT HAVING MAXIMUM TOTAL LINE LENGTH OF 132 PRINTABLE CHARACTERS (PLUS 1 POS FOR CARRIAGE CONTROL). THE OUTPUT WILL BE SUITABLE FOR PRINTING EITHER ON A LINE PRINTER OR ON XEROX-1200 8-1/2 X 11 PAPER.

THE ORIGINAL MOTIVATION FOR WRITING PR2UP WAS TO ALLOW THE COMPUTER CENTER NOTES (DISTRIBUTED TO ALL USERS BY USER SERVICES) TO BE PRINTED ON THE XEROX-1200, 2-UP.

FUNCTIONAL CATEGORIES: M6 01

LANGUAGE: COBOL 5

REMARKS
INPUT FILE (ONEUP) CONSTRAINTS -
1. REPORT LINES MUST NOT EXCEED 61 CHARACTERS INCLUDING CARRIAGE CONTROL CHARACTER.
2. CHARACTER POSITION 1 OF EACH LINE MUST CONTAIN ONE OF THE FOLLOWING VALID CARRIAGE CONTROLS -
   "1" - PAGE EJECT AND PRINT
   "0" - SPACE 2 AND PRINT
   "-" - SPACE 3 AND PRINT
3. EACH PAGE IN THE ONEUP FILE BECOMES A 60-CHARACTER-WIDE COLUMN (LEFT OR RIGHT) IN THE TWOUP FILE. ONEUP PAGE SIZE (I.E., VERTICAL LENGTH) CAN BE SPECIFIED BY SETTING CARRIAGE CONTROL = "1" (CHARACTER POSITION 1) ON EACH LINE WHICH BEGINS A NEW ONEUP PAGE. EACH OF THESE LINES WILL THEN BE FORCED TO LINE 1 OF THE NEXT TWOUP COLUMN (EITHER THE RIGHT COLUMN OF THE CURRENT PAGE OR THE LEFT COLUMN OF THE NEXT PAGE).

A MAXIMUM OF 60 LINES (INCLUDING SKIPPED LINES) WILL BE PRINTED IN EACH TWOUP COLUMN. IF THE TWOUP LINE COUNT EXCEEDS 60 (DUE TO MISSING OR MISPLACED PAGE EJECT CHARACTER), THE "61ST" LINE WILL BE TREATED AS THOUGH IT CONTAINED A CARRIAGE-CONTROL = "1", AND IT WILL BE PRINTED AT THE TOP OF THE NEXT COLUMN.
EXECUTION
FROM BATCH
ATTACH,UTILITY.
ATTACH,CBL5,461COBOL5,ID=CSYS.
LIBRARY,UTILITY,CBL5.

-- IF 1-UP FILE CREATED IN PREVIOUS JOB--
ATTACH,ONEUP,...
-- IF 1-UP FILE (PRNT) CREATED EARLIER THIS JOB--
FILE,ONEUP,LFN=PRNT.

PR2UP.
ROUTE,TW0UP,DC=PR,... TO PRINTER OR XEROX-1200
7/8/9 EOR
XX COLS 1-2 = NUMBER OF PAGES PER REPEATING SET.
6/7/8/9 EOF

FROM TTY
CONNECT,INPUT,OUTPUT
ATTACH,UTILITY.
ATTACH,CBL5,461COBOL5.ID=CSYS.
LIBRARY,UTILITY,CBL5.

-- IF 1-UP FILE CREATED IN PREVIOUS JOB--
ATTACH,ONEUP,...
OR-- IF 1-UP FILE (PRNT) CREATED EARLIER THIS JOB--
FILE,ONEUP,LFN=PRNT

PR2UP
XX (ENTER NUMBER PAGES PER SET AFTER "?" PROMPT)
ROUTE,TW0UP,DC=PR,...

EXECUTE CARD PARAMETERS
PR2UP.

DEFAULT EXECUTE CARD
PR2UP.

FL NEEDED TO LOAD: 350000 WORDS
FL NEEDED TO RUN: 570000 WORDS

DATA CARD

<table>
<thead>
<tr>
<th>COL</th>
<th>CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>2-DIGIT NUMBER OF PAGES (01-99) IN EACH REPEATING OUTPUT SET (E.G., CENTER NOTES ARE USUALLY 1-3 PAGES PER ADDRESSEE SET). IF ONEUP FILE IS ONE CONTINUOUS SET, SPECIFY EITHER EXACT PAGE COUNT ON ONEUP FILE OR ANY EVEN NUMBER TO ENSURE THAT BOTH COLUMNS OF EACH 2-UP PAGE ARE USED.</td>
</tr>
</tbody>
</table>

ERROR MESSAGES
LINE DROPPED - IMAGE OF DROPPED LINE
MESSAGE ISSUED WHEN AN INPUT LINE HAS AN INVALID CARRIAGE CONTROL CHARACTER IN COLUMN 1. THE LINE IS DROPPED.

01/30/81 2-147 PR2UP - 2 OF 2
INPUT UNITS
  LFN USE
  INPUT      DATA CARD INPUT.
  ONEUP     DISK FILE INPUT CONTAINING REPORT TO BE
            REFORMATTED.

OUTPUT UNITS
  LFN USE
  OUTPUT     STANDARD OUTPUT FILE CONTAINING ERROR MESSAGES.
  TWOUP     DISK FILE OUTPUT CONTAINING TWO 60-CHARACTER
            COLUMNS PER PAGE.

EXAMPLE (BATCH)
  REFORMAT (2-UP) A TEXT FILE HAVING REPEATING
  SETS OF 3 PAGES EACH. PRINT ON XEROX-1200.
  ATTACH,UTILITY.
  ATTACH,CBL5,461COBOL5,ID=CS\SYS.
  LIBRARY,UTILITY,CBL5.
  REWIND,PRINT.
  FILE,ONEUP,LFN=FRNT.
  PR2UP.
  ROUTE,TWOUP,TID=C,DC=PR,FC=HH.
    7/8/9       EDR
    03            << DATA CARD - PAGES PER SET
    6/7/8/9       EOF

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
  NONE
OTHERS
  NONE

AUTHOR
  CHARLES L. ORR - DTNSRDC CODE 1892.1

DATE WRITTEN: 02/02/79

DATE(S) REVISED
  07/29/80 - CLO- CONVERT FROM COBOL4 TO COBOL5.
  09/15/80 - CLO- ESTABLISH DEFAULT PAGE SIZE = 60.
  10/23/80 - ATS- CHANGE PROGRAM-ID TO 'PR2UP'.

LOCATION OF DECKS
SOURCE
  UPDATE LIBRARY: UTILITYPL,ID=CSYS

OBJECT
  EDITLIB USER LIBRARY:  UTILITY
PROGRAM 'PTIM'

PURPOSE
PRINT CPA, CPB, CPA+CPB, 10 AND PP TIMES SINCE START OF JOB
OR INTERCOM SESSION

FUNCTIONAL CATEGORIES: Q0

REMARKS
OUTPUT FILE WILL BE CONNECTED.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CONNEC
OTHERS
ALTIME - OBTAIN TIMES

LANGUAGE: FORTRAN IV

OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

EXECUTION
FROM BATCH
ATTACH.UTILITY.
LDSET.LIB=UTILITY.
PTIM.

FROM TTY
ATTACH.UTILITY.
LIBRARY.UTILITY.
PTIM.

EXECUTE CARD PARAMETERS
PTIM.OUTPUT.
OUTPUT - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
PTIM.OUTPUT.

FL NEEDED TO LOAD: 22000B
FL NEEDED TO RUN : 13000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 01/08/76

DATE(S) REVISED

LOCATION OF DECKS

SOURCE
UPDATE LIBRARY: UTILITY
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'PURPOSE'

PURPOSE

EXTRACT PURPOSE INFORMATION FROM DOCUMENTATION FILES
(WHICH WERE PREPARED IN THE FORMAT GENERATED BY PROGRAM
'DOC')

FUNCTIONAL CATEGORIES: 50 96

REMARKS

DOCUMENTATION FILE IS COMPATIBLE WITH AN UPDATE 'SOURCE'
FILE OF *DECK'S ONLY.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE

AND DATE EOF OR RECOVR

REMARK SHIFT TIME

PART OF PROGRAM

EOJ - ABNORMAL TERMINATION ROUTINE

OTHERS

GETLFNS - GET ACTUAL FILE NAMES
PAKLFT - SQUEEZE BLANKS AND ZEROS OUT OF PFN
UNLOAD - RETURN TAPE
ZPFUNC - ATTACH DOCUMENTATION FILE

ARITHMETIC STATEMENT FUNCTIONS

L11FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L61FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L77FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
R92FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

INPUT/OUTPUT UNITS

UNIT # LFN USE

1 ZZDOC FILE CONTAINING DOCUMENTATION

(ATTACHED AND RETURNED WITHIN PROGRAM)

(IF THE USER REPLACES THE FILE NAME AT
EXECUTION TIME, THE FILE IS ASSUMED TO
BE ALREADY ATTACHED AND WILL NOT BE
RETURNED)

OUTPUT LISTABLE OUTPUT

EXECUTION FROM BATCH

BEGIN,UTILITY,,PURPOSE,LIBRARY,ID.

FROM TTY

BEGIN,UTILITY,,PURPOSE,LIBRARY,ID,ANY.....
ROUTE,ANY,DC=PR.....
EXECUTE CARD PARAMETERS
PURPOSE,LIBRARY,ID,OUTPUT,LEFT,DOCFILE.
LIBRARY - NAME OF LIBRARY TO BE EXTRACTED
MAY BE ONE OF:
  NSRDC
  UTILITY (DEFAULT)
  ANY OTHER LIBRARY NAME (1-7 CHAR)
PROGRAM WILL ATTACH AND RETURN THE
DOCUMENTATION FILE. THE FFN USED WILL BE
THE LIBRARY NAME SPECIFIED, FOLLOWED BY
'DOCUMENTATION' (DEFAULT IS
'UTILITYDOCUMENTATION')
ID - ID UNDER WHICH DOCUMENTATION IS CATALOGED
  (DEFAULT IS THE SYSTEM PUBLIC ACCESS ID)
OUTPUT - LISTABLE OUTPUT
LEFT - PRINT CENTERING
  OMITTED OR 'LEFT' - LEFT-JUSTIFIED ON PAGE
  ANYTHING ELSE - CENTERED ON LARGE PAGE
  (DEFAULT IS LEFT-JUSTIFIED)
DOCFILE - IF USER HAS PREVIOUSLY ATTACHED A
  DOCUMENTATION FILE, PLACE FFN HERE AND OMIT
  THE FIRST 2 PARAMETERS ('LIBRARY' AND 'ID').
  WHEN THIS PARAMETER IS USED AND IS NOT
  'ZZDOC', THE FILE IS NOT RETURNED AT END OF
  EXECUTION.

DEFAULT EXECUTE CARD
PURPOSE,UTILITY,*-----*,OUTPUT,LEFT,ZZDOC.

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN: 21000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 08/04/75
DATE(S) REVISED
  05/05/76
  05/18/76

LOCATION OF DECKS
SOURCE
  UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
  EDITLIB USER LIBRARY: UTILITY
PROGRAM 'REDECK'

PURPOSE
CHANGE AN UPDATE COMPILe FILE BACK INTO A SOURCE FILE

FUNCTIONAL CATEGORIES: Q7

REMARKS
*DECK CARDS ARE ADDED BEFORE EACH DECK.
UPDATE SEQUENCING IS REMOVED.

A NEW DECK BEGINS:
A) AFTER END-OF-SECTION OR END-OF-PARTITION:
B) WITH CHANGE OF DECK (COL 74-82) ONLY IF PREVIOUS
CARD WAS FORTRAN END CARD ('END' IN COL 1-20) OR COMPASS END CARD ('END' IN COL 11-14).
THE CONDITIONS FOR B) ALLOW DECKS TO HAVE *COMDECK CALLS
WITHOUT TRIGGERING A NEW DECK. (*COMDECK CALLS HAVE THE
COMDECK NAME IN 74-82, WHICH IS USUALLY DIFFERENT FROM THE
MAIN DECK NAME.)

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
CLOSEM
FILESQ
GET
IFETCH
OPENM
PUT
RECOVR
REMARK
SHIFT
STOREF

OTHERS
EOJ - ABNORMAL TERMINATION ROUTINE
GETLFNS - GET ACTUAL LOCAL FILE NAMES
REDUCE - REDUCE CORE TO MINIMUM NEEDED TO RUN
RESULT - REQUEST,TAPE2,*PF.

ARITHMETIC STATEMENT FUNCTIONS
A21FMT - FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
A55FMT - FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
A94FMT - FAST A-FORMAT DECODE (LEFT-ADJ, BLANK-FILLED)
L11FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L41FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
LB1FMT - FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
R41FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

LANGUAGE: FORTRAN IV

INPUT/OUTPUT UNITS
FORTRAN LOCAL
LOGICAL FILE
UNIT NAME USE
TAPE1 INPUT COMPILE FILE
TAPE2 OUTPUT SOURCE FILE
OUTPUT LISTABLE OUTPUT (DECK NAMES)
DLYFILE TOTAL NUMBER OF DECKS

09/22/77
REDECK - 1 OF 2
EXECUTION
FROM BATCH AND TTY
ATTACH,OLDPL,...
UPDATE,P.....
ATTACH,UTILITY.
LIBRARY.UTILITY.
REDECK,MAKE
(CATALOG.TAPE2....)

EXECUTE CARD PARAMETERS
REDECK,INFILE,OUTFILE,REW,OUTPUT.
INFILE - INPUT COMPIL FILE
OUTFILE - OUTPUT SOURCE FILE
REW - TAPE1 REWIND OPTION
A - REWIND AFTER USE
B - REWIND BEFORE USE
R - REWIND BEFORE AND AFTER USE
U - REWIND BEFORE, REWIND AND UNLOAD AFTER USE
OTHER - NO REWIND (DEFAULT)
(Any words beginning with these letters will produce the same results)
OUTPUT - LISTABLE OUTPUT (DECK NAMES)

DEFAULT EXECUTE CARD
REDECK,TAPE1,TAPE2,NOREW,OUTPUT.

FL NEEDED TO LOAD: 27000B
(PROGRAM REDUCES TO MINIMUM NEEDED TO RUN)

AUTHOR
DAVID V SOMMER - NSRDC CODE 1892.2

DATE WRITTEN: 06/30/75

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'SORTUP'

PURPOSE
GENERATE UPDATE DIRECTIVES TO SORT OLDPL

FUNCTIONAL CATEGORIES: Q7

REMARKS
THIS UTILITY ALLOWS A USER TO SORT THE DECKS IN HIS UPDATE
LIBRARY TO BE IN ALPHABETICAL ORDER. THE PRODUCT IS THE
NECESSARY UPDATE '*MOVE' DIRECTIVES. A SORTED LIST OF EACH
PARTITION IS ALSO PROVIDED.

'SOURCE' AND 'TAPE7' ARE NOT REWOUND.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND EOF OR REMARK SHIFT
OTHERS
PAKLFT - SQUEEZE LEFT AND REMOVE BLANKS
SSORTL - SORT DECK NAMES

ARITHMETIC STATEMENT FUNCTIONS
NROWS - COMPUTE # OF ROWS IN PRINTOUT OF SORTED DECK NAMED

METHOD
THE SOURCE FILE (FROM 'UPDATE,P,F,S.') IS READ AND ALL *DECK
AND *COMDECK CARDS ARE DETECTED. THE DECK NAMES ARE CHECKED
FOR SPECIAL CHARACTERS. IF THE DECK NAME HAS SPECIAL
CHARACTERS, IT IS CONSIDERED A DELIMITER DIVIDING THE
LIBRARY INTO LOGICAL PARTITIONS; OTHERWISE, THE NAME IS
ADDED TO THE LIST OF NAMES IN THAT PARTITION. UPON
ENCOUNTERING THE END OF THE PARTITION, '*MOVE' CARDS ARE
WRITTEN ON 'TAPE7' TO SORT THE DECKS IN THAT PARTITION.

UPDATING THE OLDPL WITH THESE DIRECTIVES WILL CAUSE THE
OLDPL TO BECOME SORTED ALPHABETICALLY.

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SOURCE</td>
<td>SOURCE FILE FROM 'UPDATE,P,F,S.'</td>
</tr>
<tr>
<td>7</td>
<td>TAPE7</td>
<td>WILL CONTAIN '*MOVE' DIRECTIVES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(TO BE USED AS INPUT TO 'UPDATE')</td>
</tr>
<tr>
<td></td>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT CONTAINING STATISTICS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OF RUN AND SORTED LIST'S</td>
</tr>
</tbody>
</table>

08/22/77  2-154  SORTUP - 1 OF 2
EXECUTION FROM BATCH
ATTACH,OLDPL,....
UPDATE,P,F,S.
ATTACH,UTILITY.
LIBRARY,UTILITY.
SORTUP.
REQUEST,NEWPL,*PF.
REWIND,TAPE7.
UPDATE,P,N,I=TAPE7.
CATALOG,NEWPL,....

FROM TTY
ATTACH,OLDPL,....
UPDATE,P,F,S,O=OUT.
ATTACH,UTILITY.
LIBRARY,UTILITY.
SORTUP...OUT.
REQUEST,NEWPL,*PF.
REWIND,TAPE7.
UPDATE,P,N,I=TAPE7,O=OUT.
CATALOG,NEWPL,....
DISPOSE,OUT,PR=XYY.

EXECUTE CARD PARAMETERS
SORTUP,INFILE,Movedir,OUTPUT.
INFILE - INPUT FILE (UPDATE SOURCE FILE)
MOVEDIR - OUTPUT FILE OF *MOVE DIRECTIVES
OUTPUT - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
SORTUP,SOURCE,TAPE7,OUTPUT.

FL NEEDED TO LOAD: 27000B
FL NEEDED TO RUN : 17000B

AUTHOR
C FLINK - KPS NWL

DATE WRITTEN: 09/26/73

DATE(S) REVISED
11/29/73 - V1.1 - DAVID V SOMMER - NSRDC CODE 1892.2
03/17/75

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
EDILIB USER LIBRARY: UTILITY
PROGRAM 'S2KRNM'

PURPOSE
RENAME ACCOUNT NUMBER ON CATALOGED S2000 DATA BASE FILES

FUNCTIONAL CATEGORIES: QO

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
PROGRAM ATTACHES AND DOES A RENAME ON EACH OF THE SIX FILES FOR A GIVEN DATA BASE. ONLY THE ACCOUNT FIELD IS CHANGED.
USER DOES NOT HAVE TO KNOW THE S2000 PASSWORDS.
PROGRAM USES 'TAPE77' AS A WORK FILE.

EXECUTION
FROM BATCH
ATTACH,UTILITY.
LIBRARY,UTILITY.
S2KRNM.
' 7/8/9 EOR
DATA-BASE-NAME> (1-20 CHARACTERS)
USER-ID> (1-7 CHARACTERS)
NEW-ACCOUNT-NUMBER> (10 CHARACTERS)
" 6/7/8/9 EOF

FROM TTY
CONNECT,INPUT,OUTPUT
BEGIN,UTILITY.,S2KRNM
(PROGRAM WILL PROMPT FOR DATA BASE NAME, USER ID, AND ACCOUNT NUMBER)

FL NEEDED TO LOAD: 31000B
FL NEEDED TO RUN : 20000B

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
REMARK
OTHERS
IPAKLFT - SQUEEZE LEFT AND REMOVE BLANKS
MOVSTR - MOVE CHARACTER STRING
UNLOAD - RETURN FILE
ZPFUNC - ATTACH AND RENAME FUNCTIONS
AUTHOR
BRUCE D BLACK - DTNSRDC CODE 1892.1 (CDC)
SHARON GOOD - DTNSRDC CODE 1892.1

DATE WRITTEN: 12/15/77

DATE(S) REVISED
03/15/79 - CORRECT AC, PW PLACEMENT (SG)

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: SPECIALPL.ID=*----*,PW=*---*

OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'TAPDMP'

PURPOSE
DUMP SELECTED PORTIONS OF A 7-TRACK MAGNETIC TAPE WRITTEN IN
AN UNKNOWN DENSITY AND/OR MODE. IT IS CONTROLLED BY A
SERIES OF FREE-FIELD CONTROL CARDS CONTAINING ORDERS FOR THE
DUMPING, SKIPPING OR BACKspacing OF RECORDS OR FILES.

FUNCTIONAL CATEGORIES:  J9  K4

EXAMPLE
DUMP THE FIRST 2 AND LAST 2 RECORDS OF A FILE:

CXXX,MT1.  NAME/ CODE
CHARGE CARD
VSN,DTAPE=SLOTXX=EXTID.
REQUEST,DTAPE, HY, NOSWIND.
ATTACH, UTILITY.
LDS, LIB=UTILITY.
TAPDMP.
' 7/8/9  EOR
DUMP 2 RECORDS. SKIP 1 FILE.
BACKSPACE 2 RECORDS. DUMP 2 RECORDS.
" 6/7/8/9  EOF

NOTE: THE DATA CARD COULD HAVE BEEN ABBREVIATED AS:
D 2 R, S 1 F, B 2 R, D 2 R.

NOTE: OUTPUT WILL BE UP TO 4096 LINES. TO CHANGE THIS, USE
TAPDMP, LC=NNNNNNN WHERE NNNNNNN IS THE NEW LINE
COUNT LIMIT (1-9999999).

DATA CARDS
DATA CARDS ARE PUNCHED IN FREE FORM WITH THE FIELDS
SEPARATED BY BLANKS AND THE COMMANDS SEPARATED BY PERIODS.
ANY NUMBER OF COMMANDS MAY APPEAR ON A CARD, BUT COMMANDS
MAY NOT BE SPLIT ACROSS CARDS. THE FULL COMMAND, OR ITS
ABBREVIATION, IS OBEYED UNTIL ONE OF THE FOLLOWING
CONDITIONS:
1) THE END OF THE COMMAND STRING;
2) AN END-OF-TAPE CONDITION IS DETECTED;
3) AN INVALID COMMAND IS ENCOUNTERED.

COMANDS
COMMANDS CONTAIN 1, 2 OR 3 FIELDS AND ARE SUMMARIZED WITH
ABBREVIATIONS, IN THE TABLE BELOW:

<table>
<thead>
<tr>
<th>FIELD 1</th>
<th>ABBR.</th>
<th>FIELD 2</th>
<th>FIELD 3</th>
<th>ABBR.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DUMP</td>
<td>D</td>
<td>N</td>
<td>RECORD(S)/FILE(S)</td>
<td>R/F</td>
</tr>
<tr>
<td>PRINT</td>
<td>P</td>
<td>N</td>
<td>DITTO</td>
<td></td>
</tr>
<tr>
<td>INTERPRET</td>
<td>I</td>
<td>N</td>
<td>DITTO</td>
<td></td>
</tr>
<tr>
<td>SKIP</td>
<td>S</td>
<td>N</td>
<td>DITTO</td>
<td></td>
</tr>
<tr>
<td>BACKSPACE</td>
<td>B</td>
<td>N</td>
<td>DITTO</td>
<td></td>
</tr>
<tr>
<td>EXPECT</td>
<td>E</td>
<td>200/556/800</td>
<td>BINARY/CODED</td>
<td>B/C</td>
</tr>
<tr>
<td>NAME=</td>
<td>N=</td>
<td>FILENAME</td>
<td>NOREWIND</td>
<td>.N</td>
</tr>
<tr>
<td>ALL</td>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REWIND</td>
<td>R</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

02/24/81  2-156  TAPDMP - 1 OF 4
**COMMAND ACTION**

**DUMP** - CODED READ: TAPE CONTENTS PRINTED AS A HOLLERITH STRING WITH EACH POSITION COUNT SHOWN.
BINARY READ: TAPE CONTENTS PRINTED AS OCTAL WORDS.

EACH RECORD HAS A HEADER SHOWING ITS RECORD AND FILE NUMBER ON THE TAPE.

**PRINT** - CODED READ: SAME AS DUMP.
BINARY READ: CONTENTS PRINTED IN HOLLERITH.
TO PREVENT PROBLEMS WITH EMBEDDED BINARY ZEROS, THESE ARE CHANGED TO BLANKS BEFORE PRINTING.

**INTERPRET** - CODED READ: SAME AS DUMP.
BINARY READ: PRINTED IN OCTAL AND HOLLERITH, AS IN THE PRINT COMMAND.

**SKIP** - SKIP DESIGNATED NUMBER OF RECORDS OR FILES. ALL RECORDS READ ARE FULLY CHECKED FOR READABILITY AND ARE TALLIED IN THE RECORD AND FILE COUNT, BUT WILL NOT BE PRINTED UNDER ANY CONDITION.

**BACKSPACE** - BACKSPACE SPECIFIED NUMBER OF RECORDS OR FILES.
IF A FILE MARK OR BEGINNING OF TAPE IS ENCOUNTERED WHILE BACKSPACING, TAPE MOTION STOPS WITH THE TAPE POSITIONED AHEAD OF THE FILE MARK.

**EXPECT** - IF THE USER KNOWS THE MODE AND/OR DENSITY USED TO WRITE THE TAPE, THE FIRST READ CONDITIONS USED BY "TAPDMP" CAN BE SET WITH THE EXPECT COMMAND. THIS WILL ALSO DETERMINE THE MODE AND DENSITY USED TO PRINT A RECORD IN CASE AN UNRECOVERABLE PARITY ERROR IS ENCOUNTERED.

**NAME** - THIS COMMAND ALLOWS THE USER TO OVERRIDE THE DEFAULT FILENAME (DTAPE). THUS, MANY TAPES CAN BE DUMPED IN ONE EXECUTION OF THE PROGRAM.

THE THIRD FIELD (NOREWIND) IS USED TO INHIBIT THE INITIAL REWIND ON THE TAPE BEING DUMPED. IN THIS CASE, REVERSE MOTION OF THE TAPE WILL CAUSE THE FIRST RECORD AND FILE TO HAVE ORDINALS OF -1 ASSIGNED, SINCE THE STARTING NUMBERS MUST BE RELATIVE TO THE STARTING POSITION OF THE TAPE.

**ALL** - NORMALLY, "TAPDMP" WILL IGNORE SYSTEM NOISE RECORDS INTRODUCED AS A RESULT OF RECOVERED WRITE ERRORS. THIS WILL GIVE THE USER A TRUE COUNT OF HIS DATA RECORDS. IF IT IS DESIRED TO CHECK FOR THE POSSIBLE PRESENCE OF THESE NOISE RECORDS, THE "ALL" COMMAND MAY BE ISSUED TO TALLY EACH PRU OF THE TAPE REGARDLESS OF ITS CONTENT. ONCE ISSUED, THIS COMMAND MAY NOT BE TURNED OFF.

**REWIND** - REWIND THE TAPE BEING DUMPED.
DEFAULT SETTINGS
1) NAME=DTAPE.
2) ALL FILES BEING DUMPED ARE INITIALLY REWOUND UNLESS "NOREWIND" IS SPECIFIED ON THE "NAME=" COMMAND.
3) IF NO CONTROL CARDS, "DUMP 5 RECORDS." IS ASSUMED.
4) IF A PROBABLE SYSTEM LABEL IS FOUND, THE USER IS INFORMED AND THE LABEL FILE IS INCLUDED IN THE RECORD AND FILE COUNTS.
5) THE USER MAY NOT SPECIFY THE KIND OF FILE MARK USED TO DELIMIT FILES. "TAPDMP" WILL INFORM THE USER WHETHER IT HAS FOUND A SCOPE EOF (LEVEL 17 8-CHARACTER PRU) OR A TAPE MARK.

LIMITATIONS
1) ONLY THE FIRST 50 COMMANDS WILL BE PROCESSED.
2) ONLY 50 FILES PER TAPE CAN BE HANDLED PROPERLY. IF MORE ARE PRESENT, RECORD COUNTS WITHIN THESE FILES CANNOT BE HELD.
3) WILL NOT OBEY A COMMAND REQUIRING FORWARD MOTION IF IT HAS FOUND AN EOT REFLECTIVE MARKER AS A RESULT OF COMPLETING THE PREVIOUS COMMAND. SUCH FORWARD POSITIONING WILL ABORT THE RUN.
4) THERE IS NO EFFECTIVE LIMITATION ON THE SIZE OF BLOCK WHICH MAY BE DUMPED. "TAPDMP" WILL OBTAIN MORE STORAGE AS NEEDED FOR BUFFER SPACE.
5) DENSITY DETERMINATION CANNOT BE DONE WITH CONFIDENCE BETWEEN 556 AND 800 BPI, AS A READ SETTING OF 800 WILL ALSO READ MOST TAPES WRITTEN AT 556 BPI. TO REDUCE THIS PROBLEM AS MUCH AS POSSIBLE, "TAPDMP" TRIES 556 BPI FIRST BEFORE SWITCHING TO ANOTHER DENSITY.
6) SUPPORTS ONLY MODEL 657 TAPE DRIVES. NOT USABLE ON THE CYBER 74 WHICH HAS MODEL 677 TAPE DRIVES.

REMARKS
1) IF A NEW TAPE IS DUMPED, IT MAY RUN OFF THE END OF THE REEL.

LANGUAGE: RUN FORTRAN AND CDC 6000 CP AND PP COMPASS

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT #</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>99</td>
<td>INPUT</td>
<td>INPUT FILE OF COMMANDS</td>
</tr>
<tr>
<td></td>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT</td>
</tr>
</tbody>
</table>

02/24/81  2-160  TAPDMP - 3 OF 4
EXECUTION
FROM BATCH
...CARDS TO MOUNT TAPE
BEGIN,UTILITY,,TAPDMP.
'     7/8/9  EOR
  (COMMANDS)
  "  6/7/8/9  EOF

FROM TTY
CANNOT BE RUN FROM TTY

EXECUTE CARD PARAMETERS
TAPDMP,INPUT,OUTPUT.
  INPUT    - INPUT FILE OF COMMANDS
  OUTPUT   - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
TAPDMP,INPUT,OUTPUT.

FL NEEDED TO LOAD: 25000B
FL NEEDED TO RUN : 15000B
  PROGRAM ADJUSTS CORE UP AND DOWN AS REQUIRED.

AUTHOR
R. S. SMITH

DATE WRITTEN: APRIL, 1972

DATERED REVISED

LOCATION OF DECKS
SOURCE
  UPDATE LIBRARY: UTILITYPL.ID=CSYS

OBJECT
  EDITLIB USER LIBRARY: UTILITY
PROGRAM 'TAPLIST'

PURPOSE
PREPARE TWO LISTS FROM MAGTAPEDOCUMENTATION FILE:
1) LIST OF TAPE NUMBER, LABEL, DENSITY, REMARKS AND
DESCRIPTION FOR EACH TAPE DOCUMENTED IN FILE
2) LIST OF TAPE NUMBERS AND LABELS

FUNCTIONAL CATEGORIES: S0 Q6

LANGUAGE: FORTRAN IV

REMARKS
INFORMATION IS EXTRACTED FROM A FILE OF DOCUMENTS WHICH
ARE IN THE FORMAT GENERATED BY PROGRAM 'MTDOC' AND CATALOGED
AS 'MAGTAPEDOCUMENTATION, 1D=CXXX'. WHERE CXXX IS
SUPPLIED TO THE PROGRAM.

EXECUTION
FROM BATCH
BEGIN,UTILITY..TAPLIST,CXXX.

FROM TTY
BEGIN,UTILITY..TAPLIST,CXXX,OUT.
ROUTE,OUT,DC=PR....

EXECUTE CARD PARAMETERS
TAPLIST.ID,OUTPUT,LEFT.

ID - ID UNDER WHICH PFN MAGTAPEDOCUMENTATION
IS CATALOGED
OUTPUT - LISTABLE OUTPUT
LEFT - CENTERING OPTION
OMITTED OR LEFT - PRINT LEFT-JUSTIFIED
ANYTHING ELSE - PRINT CENTERED ON WIDE

DEFAULT EXECUTE CARD
TAPLIST.*,OUTPUT,LEFT.
* - USER MUST SUPPLY

FL NEEDED TO LOAD: 32000B
FL NEEDED TO RUN: 22000B
(PROGRAM ADJUSTS CORE AS REQUIRED)

INPUT/OUTPUT UNITS
UNIT # LFN USE
-------- ---- ------
OUTPUT    ZZDOC LISTABLE OUTPUT
          ZZDOC DOCUMENTATION FILE (ATTACHED AND
RETURNED BY PROGRAM)
SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

<table>
<thead>
<tr>
<th>PART OF LANGUAGE</th>
<th>DATE</th>
<th>EOF</th>
<th>MINO</th>
<th>MCD</th>
<th>RECOVR</th>
<th>REMARK</th>
<th>SHIFT</th>
<th>TIME</th>
</tr>
</thead>
</table>

PART OF PROGRAM

| EOJ | - ABNORMAL TERMINATION ROUTINE |
| PRT | - PRINT REMARKS AND DESCRIPTION SECTIONS |

OTHERS

| EQU60 | - COMPARE 2 ARRAYS |
| GETLFNS | - GET ACTUAL LOCAL FILE NAMES |
| REDUCE | - ADJUST CORE UP AND DOWN AS REQUIRED |
| UNLOAD | - RETURN.ZZDOC. |
| VFILL | - FILL ARRAY WITH WORD |
| ZPFUNC | - ATTACH.ZZDOC.MAGTAPEDOCUMENTATION,ID=CXXX. |

ARITHMETIC STATEMENT FUNCTIONS

NONE

AUTHOR

DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 10/06/76

DATE(S) REVISED

LOCATION OF DECKS

SOURCE

UPDATE LIBRARY: UTILITYPL,ID=CSYS

OBJECT

EDITLIB USER LIBRARY: UTILITY
PROGRAM 'UNDOCIT'

PURPOSE
REMOVE THE PAGING WHICH WAS ADDED TO DOCUMENT(S) BY PROGRAM 'DOCIT'

FUNCTIONAL CATEGORIES: Q6

LANGUAGE: FORTRAN IV EXTENDED

REMARKS
A SINGLE DOCUMENT MAY BE PRECEDED BY A *DECK CARD.
MULTIPLE DOCUMENTS SHOULD EACH BE PRECEDED BY A *DECK CARD.

EXECUTION
FROM BATCH
NOT DESIGNED FOR BATCH USE
FROM TTY
CONNECT, OUTPUT
ATTACH, UTILITY,
LIBRARY, UTILITY,
PROGDOC, MYLIB.XXXX, PROG.OLD,
'GET EXISTING DOCUMENT 'PROG' FROM DOCUMENT FILE HAVING PFN=MYLIBDOCUMENTATION, ID=XXXX, AND PUT INTO FILE 'OLD'.
UNDOCIT, OLD, OLD1.
'REMOVE OLD PAGING'
EDITOR
EDIT, OLD1, SAVE
'MAKE CHANGES DESIRED, INCLUDING RESTRUCTURING OF PAGES. INDICATE START OF EACH PAGE BY PUTTING A '1' IN COLUMN 1 OF EACH LINE WHICH IS TO BE THE FIRST LINE OF A PAGE.'
SAVE, NEWDOC, NOSEQ
'NETED.OLD1 COULD ALSO BE USED INSTEAD OF EDIT/EDIT/ SAVE/BYE)
LINER, NEWDOC.
'WILL COUNT PAGES AND NUMBER OF LINES PER PAGE. IF ANY PAGE HAS MORE THAN 59 LINES, GO BACK AND RESTRUCTURE.'
BYE
DOCIT, NEWDOC, FILE.
'PUT PAGING BACK ON)
BEGIN, DCREPL, MYLIB.XXXX, PROG, FILE, AC, PW1, PW2, PW3, PW4.
PW5.
'REPLACE DOCUMENT 'PROG' ON FILE HAVING PFN=MYLIBDOCUMENTATION, ID=XXXX. SUPPLY AC, PW1, PW2, PW3, PW4, PW5, IF REQUIRED.)

EXECUTE CARD PARAMETERS
UNDOCIT, INFILE, OUTFILE, OUTPUT.
INFILE - INPUT DOCUMENT
OUTFILE - OUTPUT DOCUMENT
OUTPUT - LISTABLE OUTPUT (FIN ERROR MESSAGES)

DEFAULT EXECUTE CARD
UNDOCIT, TAPE1, TAPE2, OUTPUT.

04/28/78 2-164 UNDOCIT - 1 OF 3
DEFAULT PL: 5000 LINES

FL NEEDED TO LOAD: 34000B
FL NEEDED TO RUN: 24000B
(PROGRAM ADJUSTS CORE AS REQUIRED)

INPUT/OUTPUT UNITS

<table>
<thead>
<tr>
<th>UNIT</th>
<th>LFN</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAYFILE</td>
<td>FOR EACH DOCUMENT (AND TOTAL), NUMBER OF CARDS IN AND OUT</td>
<td></td>
</tr>
<tr>
<td>OUTPUT</td>
<td>LISTABLE OUTPUT (FTN ERROR MESSAGES)</td>
<td></td>
</tr>
<tr>
<td>TAPE1</td>
<td>INPUT DOCUMENT</td>
<td></td>
</tr>
<tr>
<td>TAPE2</td>
<td>OUTPUT DOCUMENT</td>
<td></td>
</tr>
</tbody>
</table>

METHOD

THE DOCUMENT IS READ ONE PAGE AT A TIME. IF THE LAST LINE HAS '/ ' IN COLUMN 4, IT IS REMOVED, AS ARE ANY LINES IMMEDIATELY PRECEDING IT WHICH CONTAIN A ' 0 ' IN COLUMN 1 AND BLANKS IN THE REST OF THE LINE.

A COUNT OF THE RECORDS IN AND OUT IS PUT INTO THE DAYFILE.

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED

PART OF LANGUAGE

AND MOVLEV REMARK
CLOSEM OPENM REMARK
FILESQ GET REWEND
GET IFETCH SHIFT

PART OF PROGRAM

DFMSG - DAYFILE MESSAGE WRITER
ENDIT - CLOSE PROGRAM
EOJ - ABNORMAL TERMINATION ROUTINE
INITAPE - INITIALIZE FILES
INITLIZ - INITIALIZE PROGRAM
PROCESS - MAIN PROCESSING ROUTINE
UNDO - REMOVE BOTTOM OF PAGE AND OUTPUT THE PAGE

OTHERS

EQU60 - COMPARE TWO ARRAYS
GETLFNS - GET ACTUAL LOCAL FILE NAMES
REQUEST - REQUEST.TAPE2.*PF.

ARITHMETIC STATEMENT FUNCTIONS

FAST L-FORMAT DECODE (LEFT-ADJ, ZERO-FILLED)
L61FMT L71FMT L75FMT L77FMT

FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)
R14FMT
AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 10/28/76

DATE(S) REVISED
12/06/77 - FIX PROGRAM NAME IN MESSAGES
04/28/78 - ALLOW *DECK CARDS AND MULTIPLE DOCUMENTS

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL,ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'WHATLIB'

PURPOSE
LIST LIBRARIES SPECIFIED ON LAST LIBRARY CARD

FUNCTIONAL CATEGORIES: Q0

REMARKS
NONE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
AND DATE TIME
OTHERS
RCPA - READ CONTROL POINT AREA

ARITHMETIC STATEMENT FUNCTIONS
R1FMT - FAST R-FORMAT DECODE (RIGHT-ADJ, ZERO-FILLED)

LANGUAGE: FORTRAN IV

OUTPUT UNIT
UNIT # LFN USE
OUTPUT LISTABLE OUTPUT

EXECUTION
FROM BATCH
OF LIMITED USE IN BATCH
BEGIN,UTILITY,,WHATLIB.

FROM TTY
CONNECT,OUTPUT
BEGIN,UTILITY,,WHATLIB.

EXECUTE CARD PARAMETERS
WHATLIB,OUTPUT.
OUTPUT - LISTABLE OUTPUT

DEFAULT EXECUTE CARD
WHATLIB,OUTPUT.

FL NEEDED TO LOAD: 23000B
FL NEEDED TO RUN: 13000B

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 1975

DATE(S) REVISED

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY

08/22/77 2-167 WHATLIB - 1 OF 1
PROGRAM 'WHICHMF'

PURPOSE
TELL INTERACTIVE USER OR BATCH JOB WHICH MAINFRAME IS BEING USED

FUNCTIONAL CATEGORIES: QO

LANGUAGE: CDC 6000 CP COMPASS

COMPUTERS
CDC 6000

REMARKS
NONE

EXECUTION
FROM BATCH AND TTY
BEGIN.UTILITY..WHICHMF.

DEFAULT EXECUTE CARD
WHICHMF.

FL NEEDED TO LOAD: 11000B
FL NEEDED TO RUN : 300B

OUTPUT UNIT

UNIT # LFN USE
-------- ---- ----------------
DAYFILE OUTPUT MESSAGE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
PART OF LANGUAGE
NONE

OTHERS
MACHINE - GET BATCH USER DAYFILE HEADING

AUTHOR
DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 04/18/75

DATE(S) REVISED
08/24/77 - CHANGE NAME FROM WHICHCP TO WHICHMF
ADD MFA/MFB/MFC TO MESSAGE
08/18/80 - ADD CY74/MFD

LOCATION OF DECKS
SOURCE
UPDATE LIBRARY: UTILITYPL.ID=CSYS
OBJECT
EDITLIB USER LIBRARY: UTILITY
PROGRAM 'WHICHOS'

PURPOSE
    TELL INTERACTIVE USER OR BATCH JOB WHICH OPERATING SYSTEM IS
    BEING USED

FUNCTIONAL CATEGORIES: Q0

LANGUAGE: CDC 6000 CP COMPASS

COMPUTERS
    CDC 6000

REMARKS
    NONE

EXECUTION
    FROM BATCH AND TTY
    BEGIN,UTILITY,.WHICHOS.

DEFAULT EXECUTE CARD
    WHICHOS.

FL NEEDED TO LOAD: 11000B
FL NEEDED TO RUN : 300B

OUTPUT UNIT
   UNIT #    LFN               USE
   --------- --------- ---------
   DAYFILE   OUTPUT MESSAGE

SUBROUTINE AND FUNCTION SUBPROGRAMS REQUIRED
   PART OF LANGUAGE
   NONE
   OTHERS
      MACHINE - GET BATCH USER DAYFILE HEADING

AUTHOR
    DAVID V SOMMER - DTNSRDC CODE 1892.2

DATE WRITTEN: 04/18/75

DATE(S) REVISED

LOCATION OF DECKS

SOURCE
    UPDATE LIBRARY: UTILITVPL, ID=CSYS

OBJECT
    EDITLIB USER LIBRARY: UTILITY
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2. DEPARTMENTAL REPORTS, A SEMIFORMAL SERIES, CONTAIN INFORMATION OF A PRELIMINARY, TEMPORARY, OR PROPRIETARY NATURE OR OF LIMITED INTEREST OR SIGNIFICANCE. THEY CARRY A DEPARTMENTAL ALPHANUMERICAL IDENTIFICATION.

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