J 6

```
NNN         NNN  MMM         MMM  LLL
NNN         NNN  MMM         MMM  LLL
NNN         NNN  MMM         MMM  LLL
NNN         NNN  MMMMMM   MMMMMM  LLL
NNN         NNN  MMMMMM   MMMMMM  LLL
NNN         NNN  MMMMMM   MMMMMM  LLL
NNNNNN      NNN  MMM   MMM   MMM  LLL
NNNNNN      NNN  MMM   MMM   MMM  LLL
NNNNNN      NNN  MMM   MMM   MMM  LLL
NNN   NNN   NNN  MMM         MMM  LLL
NNN   NNN   NNN  MMM         MMM  LLL
NNN   NNN   NNN  MMM         MMM  LLL
NNN      NNNNNN  MMM         MMM  LLL
NNN      NNNNNN  MMM         MMM  LLL
NNN      NNNNNN  MMM         MMM  LLL
NNN         NNN  MMM         MMM  LLL
NNN         NNN  MMM         MMM  LLL
NNN         NNN  MMM         MMM  LLL
NNN         NNN  MMM         MMM  LLLLLLLLLLLLLLL
NNN         NNN  MMM         MMM  LLLLLLLLLLLLLLL
NNN         NNN  MMM         MMM  LLLLLLLLLLLLLLL
```

```
_$
Ps
NP
NP
$G
$O
NP
PA
_L
```

```
**FILE**ID**NMAFILES                                    K 15

NN      NN  MM      MM    AAAAAA    FFFFFFFFFF    IIIIII    LL          EEEEEEEEEE    SSSSSSSS
NN      NN  MM      MM    AAAAAA    FFFFFFFFFF    IIIIII    LL          EEEEEEEEEE    SSSSSSSS
NN      NN  MMMM  MMMM  AA      AA  FF              II      LL          EE          SS
NN      NN  MMMM  MMMM  AA      AA  FF              II      LL          EE          SS
NNNN    NN  MM  MM  MM  AA      AA  FF              II      LL          EE          SS
NNNN    NN  MM  MM  MM  AA      AA  FF              II      LL          EE          SS
NN  NN  NN  MM      MM  AA      AA  FFFFFFFF        II      LL          EEEEEEEE      SSSSSS
NN  NN  NN  MM      MM  AA      AA  FFFFFFFF        II      LL          EEEEEEEE      SSSSSS
NN    NNNN  MM      MM  AAAAAAAAAA  FF              II      LL          EE                  SS
NN    NNNN  MM      MM  AAAAAAAAAA  FF              II      LL          EE                  SS
NN      NN  MM      MM  AA      AA  FF              II      LL          EE                  SS      ....
NN      NN  MM      MM  AA      AA  FF              II      LL          EE                  SS      ....
NN      NN  MM      MM  AA      AA  FF            IIIIII    LLLLLLLLLL  EEEEEEEEEE  SSSSSSSS        ....
NN      NN  MM      MM  AA      AA  FF            IIIIII    LLLLLLLLLL  EEEEEEEEEE  SSSSSSSS        ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

```
0 %TITLE  'File Routines for Network Management'
0 MODULE NMAFILES (
0                 LANGUAGE (BLISS32),
0                 ADDRESSING_MODE (NONEXTERNAL=GENERAL),
0                 ADDRESSING_MODE (EXTERNAL=GENERAL),
0                 IDENT = 'V04-000'
0                 ) =
1 BEGIN
1
1 !
1 !*****************************************************************************
1 !*                                                                           *
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1 !*                                                                           *
1 !*                                                                           *
1 !*****************************************************************************
1 !
1
1 !++
1 ! FACILITY:     DECnet Network Management Layer (NMA)
1 !
1 ! ABSTRACT:
1 !
1 !       This module contains routines which manage the files used by
1 !       network management.  These files contain permanent data about the
1 !       configuration of the network.
1 !
1 ! ENVIRONMENT:  VAX/VMS Operating System
1 !
1 ! AUTHOR:       Darrell Duffy   , CREATION DATE:  18-December-1979
1 !
1 ! MODIFIED BY:
1 !
1 !       V03-007 MKP0007         Kathy Perko             2-April-1984
1 !               If call is made to open a file and it is already open,
1 !               do a $REWIND to get back to the beginning of the file.
1 !
1 !       V03-006 MKP0006         Kathy Perko             5-Feb-1984
1 !               Fix NMA$READREC so that the correct key is returned to
1 !               the caller.
1 !
```

```
1 !             V03-005 MKP0005         Kathy Perko             6-Aug-1983
1 !                     Enhance node permanent database to use multiple ISAM keys
1 !                     so it's faster to access.  When returning permanent database
1 !                     records, don't include key in the data returned.
1 !
1 !             V03-004 MKP0004         Kathy Perko             25-April-1983
1 !                     Allow multiple NMLs to read and update the permanent database
1 !                     files at once.
1 !
1 !             V03-004 MKP0004         Kathy Perko             25-April-1983
1 !                     Add NI configurator permanent database.
1 !
1 !             V03-003 MKP0003         Kathy Perko             12-Nov-1982
1 !                     Allow multiple NMLs to update the permanent database
1 !                     files at once.
1 !
1 !             V03-002 MKP0002         Kathy Perko             18-Oct-1982
1 !                     Change the way NML opens and closes files so that it checks
1 !                     to see if the operation has already been done. This will
1 !                     improve the performance of operations which now open and close
1 !                     various files more than once.
1 !
1 !             V03-001 MKP0001         Kathy Perko             3-Aug-1982
1 !                     Split module permanent data base into two: one for X25 and
1 !                     one for X29.
1 !
1 !             V02-001 LMK0001         Len Kawell              27-Jul-1981
1 !                     Add CIRCUIT and MODULE files.
1 !--
```

```
%SBTTL  'Definitions'

!
! TABLE OF CONTENTS:
!

FORWARD ROUTINE
    NMA$OPENFILE,                       ! Open file by id
    NMA$SELECTFILE,                     ! Find filedescriptor by fileid
    NMA$OPENFAB,                        ! Open a file by descriptor
    NMA$CLOSEFILE,                      ! Close a file by id
    NMA$MATCHREC,                       ! Find record with specified field
    NMA$READREC,                        ! Get a record from a file
    NMA$WRITEREC,                       ! Put a record to a file
    NMA$DELETEREC;                      ! Delete a record from a file

!
! INCLUDE FILES:
!

LIBRARY 'LIB$:NMLLIB.L32';
LIBRARY 'SHRLIB$:NMALIBRY.L32';
LIBRARY 'SYS$LIBRARY:STARLET.L32';

!
! MACROS:
!

!
! Define fields in a file descriptor.
!

FIELD
    FDSCFLDS =
    SET
        FDSCFNS = [0,  0, 32, 0],
        FDSCFNA = [4,  0, 32, 0],
        FDSCFAB = [8,  0, 32, 0],
        FDSCRAB = [12, 0, 32, 0]
    TES;

!
! Macro to build file descriptors.
!
!       FILE            Designator of the file
!       FILENAME        Filename string for file
!

MACRO
    $NMA_BLDFILEDSC [FILE, FILENAME] =  ! Build as many as you like

    OWN                                 ! Declare the fab and rab
        %NAME ('NMA$A_', FILE, '_FAB') : $FAB_DECL,
        %NAME ('NMA$A_', FILE, '_RAB') : $RAB_DECL;

    BIND                                                ! The descriptor
        %NAME ('NMA$A_', FILE, '_DSC') =
;  145        M 0144  1          UPLIT
;  146        M 0145  1              (
;  147        M 0146  1              %CHARCOUNT (FILENAME),              ! Descriptor of filename str
;  148        M 0147  1              UPLIT BYTE (FILENAME),              ! Addr
;  149        M 0148  1              %NAME ('NMA$A_', FILE, '_FAB'),     ! Fab address
;  150        M 0149  1              %NAME ('NMA$A_', FILE, '_RAB')      ! Rab address
;  151        M 0150  1              );
;  152          0151  1 %;
;  153          0152  1
;  154          0153  1 !
;  155          0154  1 ! EQUATED SYMBOLS:
;  156          0155  1 !
;  157          0156  1
;  158          0157  1 !
;  159          0158  1 ! OWN STORAGE:
;  160          0159  1 !
;  161          0160  1
;  162          0161  1 OWN
;  163          0162  1     NMA$W_KEYBUF : WORD;                    ! Key buffer
;  164          0163  1
;  165        P 0164  1 $NMA_BLDFILEDSC
;  166        P 0165  1     (
;  167        P 0166  1     NODE,       'NETNODE',                  ! Remote node database
;  168        P 0167  1     LINE,       'NETLINE',                  ! Line database
;  169        P 0168  1     LOG,        'NETLOGING',                ! Logging database
;  170        P 0169  1     OBJ,        'NETOBJECT',                ! Object database
;  171        P 0170  1     CIR,        'NETCIRC',                  ! Circuit database
;  172        P 0171  1     X25,        'NETX25',                   ! X25 Module database
;  173        P 0172  1     X29,        'NETX29',                   ! X29 Module database
;  174        P 0173  1     CNF,        'NETCONF'                   ! Ni Configurator Module database
;  175          0174  1     );
;  176          0175  1
;  177          0176  1 !
;  178          0177  1 ! EXTERNAL REFERENCES:
;  179          0178  1 !
;  180          0179  1
;  181          0180  1 EXTERNAL ROUTINE
;  182          0181  1     NML$DEBUG_MSG,
;  183          0182  1     NML$DEBUG_TXT,
;  184          0183  1     NML$LOGFILEOP,
;  185          0184  1     NML$LOGRECORDOP;
;  186          0185  1
```

```
1 %SBTTL 'NMA$OPENFILE  Open a specified file'
1 GLOBAL ROUTINE NMA$OPENFILE (FILEID, ACCESS) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine opens a specified file for specified access.
1 !       The fileid specifies the file, or all files and the access
1 !       specifies read only or read write.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value of the fileid parameter (NMA$C_OPN_xxxxx)
1 !       ACCESS          Value of the access parameter (NMA$C_OPN_AC_Rx)
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       Failure or RMS error
1 !
1 !--
1
2 BEGIN
2
2 LOCAL
2     FAB : REF BLOCK [1,BYTE],                           ! The fab for the file
2     FILEDSC : REF BLOCK [1, BYTE]                       ! File descriptor
2                 FIELD (FDSCFLDS),
2     RAB,                                                ! The rab for the file
2     STATUS;                                             ! Status return
2
2 IF .FILEID EQL NMA$C_OPN_ALL THEN                       ! If ALL
3     BEGIN
3
3     INCRU IDX FROM NMA$C_OPN_MIN                        ! Open all the files by
3               TO NMA$C_OPN_MAX DO                       ! Calling ourselves
4         BEGIN
4         STATUS = NMA$OPENFILE (.IDX, .ACCESS);  ! Call ourself to open it
4         IF NOT .STATUS THEN
4             EXITLOOP;
4         END
3     END
2 ELSE
3     BEGIN
3     STATUS = NMA$_SUCCESS;
3     IF NMA$SELECTFILE (.FILEID, FILEDSC) THEN   ! Obtain descriptor address
4         BEGIN
4         FAB = .FILEDSC [FDSCFAB];                       ! Get address of FAB
4         IF .FAB [FAB$W_IFI] EQL 0 THEN                  ! If file isn't open, do it.
5             BEGIN
5             STATUS = NMA$OPENFAB (.FILEDSC, .ACCESS); ! Open file by descriptor
5             IF .STATUS THEN
5                 NML$LOGFILEOP (DBG$C_FILEIO,
5                                .FILEID,
5                                $ASCID ('file opened.'));
5             END
4         ELSE
```

```
;  245          0243  4                 !
;  246          0244  4                 ! The file is already open, so don't reopen it.  However,
;  247          0245  4                 ! set RMS's "next record" back to the beginning of the file.
;  248          0246  4                 !
;  249          0247  5                 BEGIN
;  250          0248  5                 RAB = .FILEDSC [FDSCRAB];                ! Point to the rab
;  251          0249  5                 $REWIND (RAB = .RAB);
;  252          0250  4                 END;
;  253          0251  4             END
;  254          0252  3         ELSE
;  255          0253  3             RETURN NMA$_BADFID;                          ! If not all, return failure
;  256          0254  2         END;
;  257          0255  2
;  258          0256  2 RETURN .STATUS
;  259          0257  1 END;


                                                                 .TITLE  NMAFILES File Routines for Network Management
                                                                 .IDENT  \V04-000\

                                                                 .PSECT  $PLIT$,NOWRT,NOEXE,2

                      45  44  4F  4E  54  45  4E  00000 P.AAB:   .ASCII  \NETNODE\                                          ;
                                                  00007          .BLKB   1
                                       00000007   00008 P.AAA:   .LONG   7                                                  ;
                  00000000' 00000000' 00000000'   0000C          .ADDRESS P.AAB, NMA$A_NODE_FAB, NMA$A_NODE_RAB             ;
                      45  4E  49  4C  54  45  4E  00018 P.AAD:   .ASCII  \NETLINE\                                          ;
                                                  0001F          .BLKB   1
                                       00000007   00020 P.AAC:   .LONG   7                                                  ;
                  00000000' 00000000' 00000000'   00024          .ADDRESS P.AAD, NMA$A_LINE_FAB, NMA$A_LINE_RAB             ;
              47  4E  49  47  4F  4C  54  45  4E  00030 P.AAF:   .ASCII  \NETLOGING\                                        ;
                                                  00039          .BLKB   3
                                       00000009   0003C P.AAE:   .LONG   9                                                  ;
                  00000000' 00000000' 00000000'   00040          .ADDRESS P.AAF, NMA$A_LOG_FAB, NMA$A_LOG_RAB               ;
              54  43  45  4A  42  4F  54  45  4E  0004C P.AAH:   .ASCII  \NETOBJECT\                                        ;
                                                  00055          .BLKB   3
                                       00000009   00058 P.AAG:   .LONG   9                                                  ;
                  00000000' 00000000' 00000000'   0005C          .ADDRESS P.AAH, NMA$A_OBJ_FAB, NMA$A_OBJ_RAB               ;
                      43  52  49  43  54  45  4E  00068 P.AAJ:   .ASCII  \NETCIRC\                                          ;
                                                  0006F          .BLKB   1
                                       00000007   00070 P.AAI:   .LONG   7                                                  ;
                  00000000' 00000000' 00000000'   00074          .ADDRESS P.AAJ, NMA$A_CIR_FAB, NMA$A_CIR_RAB               ;
                          35  32  58  54  45  4E  00080 P.AAL:   .ASCII  \NETX25\                                           ;
                                                  00086          .BLKB   2
                                       00000006   00088 P.AAK:   .LONG   6                                                  ;
                  00000000' 00000000' 00000000'   0008C          .ADDRESS P.AAL, NMA$A_X25_FAB, NMA$A_X25_RAB               ;
                          39  32  58  54  45  4E  00098 P.AAN:   .ASCII  \NETX29\                                           ;
                                                  0009E          .BLKB   2
                                       00000006   000A0 P.AAM:   .LONG   6                                                  ;
                  00000000' 00000000' 00000000'   000A4          .ADDRESS P.AAN, NMA$A_X29_FAB, NMA$A_X29_RAB               ;
                      46  4E  4F  43  54  45  4E  000B0 P.AAP:   .ASCII  \NETCONF\                                          ;
                                                  000B7          .BLKB   1
                                       00000007   000B8 P.AAO:   .LONG   7                                                  ;
                  00000000' 00000000' 00000000'   000BC          .ADDRESS P.AAP, NMA$A_CNF_FAB, NMA$A_CNF_RAB               ;
  2E  64  65  6E  65  70  6F  20  65  6C  69  66  000C8 P.AAR:   .ASCII  \file opened.\                                     ;
                                       0000000C   000D4 P.AAQ:   .LONG   12                                                 ;
                                       00000000'  000D8          .ADDRESS P.AAR                                             ;
```

```
                                                   .PSECT  $OWN$,NOEXE,2

                                     00000 NMA$W_KEYBUF:
                                                   .BLKB   2
                                     00002         .BLKB   2
                                     00004 NMA$A_NODE_FAB:
                                                   .BLKB   80
                                     00054 NMA$A_NODE_RAB:
                                                   .BLKB   68
                                     00098 NMA$A_LINE_FAB:
                                                   .BLKB   80
                                     000E8 NMA$A_LINE_RAB:
                                                   .BLKB   68
                                     0012C NMA$A_LOG_FAB:
                                                   .BLKB   80
                                     0017C NMA$A_LOG_RAB:
                                                   .BLKB   68
                                     001C0 NMA$A_OBJ_FAB:
                                                   .BLKB   80
                                     00210 NMA$A_OBJ_RAB:
                                                   .BLKB   68
                                     00254 NMA$A_CIR_FAB:
                                                   .BLKB   80
                                     002A4 NMA$A_CIR_RAB:
                                                   .BLKB   68
                                     002E8 NMA$A_X25_FAB:
                                                   .BLKB   80
                                     00338 NMA$A_X25_RAB:
                                                   .BLKB   68
                                     0037C NMA$A_X29_FAB:
                                                   .BLKB   80
                                     003CC NMA$A_X29_RAB:
                                                   .BLKB   68
                                     00410 NMA$A_CNF_FAB:
                                                   .BLKB   80
                                     00460 NMA$A_CNF_RAB:
                                                   .BLKB   68

                                           NMA$A_NODE_DSC=     P.AAA
                                           NMA$A_LINE_DSC=     P.AAC
                                           NMA$A_LOG_DSC=      P.AAE
                                           NMA$A_OBJ_DSC=      P.AAG
                                           NMA$A_CIR_DSC=      P.AAI
                                           NMA$A_X25_DSC=      P.AAK
                                           NMA$A_X29_DSC=      P.AAM
                                           NMA$A_CNF_DSC=      P.AAO
                                                   .EXTRN  NML$DEBUG_MSG, NML$DEBUG_TXT
                                                   .EXTRN  NML$LOGFILEOP, NML$LOGRECORDOP
                                                   .EXTRN  SYS$REWIND

                                                   .PSECT  $CODE$,NOWRT,2

                               000C 00000          .ENTRY  NMA$OPENFILE, Save R2,R3                              ; 0187
                  5E         04  C2 00002          SUBL2   #4, SP                                                ;
         0000007F 8F      04  AC  D1 00005          CMPL    FILEID, #127                                          ; 0217
                              1A  12 0000D          BNEQ    2$                                                    ;
```

```
                                 52  D4 0000F        CLRL    IDX                                 ; 0223
                         08      AC  DD 00011 1$:    PUSHL   ACCESS                              ;
                                 52  DD 00014        PUSHL   IDX                                 ;
              E6   AF            02  FB 00016        CALLS   #2, NMA$OPENFILE                    ;
                   53            50  D0 0001A        MOVL    R0, STATUS                          ;
                   5A            53  E9 0001D        BLBC    STATUS, 4$                          ; 0224
                                 52  D6 00020        INCL    IDX                                 ; 0220
                   07            52  D1 00022        CMPL    IDX, #7                             ;
                                 EA  1B 00025        BLEQU   1$                                  ;
                                 51  11 00027        BRB     4$                                  ; 0218
                   53            01  D0 00029 2$:    MOVL    #1, STATUS                          ; 0230
                                 5E  DD 0002C        PUSHL   SP                                  ; 0231
                         04      AC  DD 0002E        PUSHL   FILEID                              ;
        00000000V  00            02  FB 00031        CALLS   #2, NMA$SELECTFILE                  ;
                   43            50  E9 00038        BLBC    R0, 5$                              ;
                   50            6E  D0 0003B        MOVL    FILEDSC, R0                         ; 0233
                   51    08      A0  D0 0003E        MOVL    8(R0), FAB                          ;
                         02      A1  B5 00042        TSTW    2(FAB)                              ; 0234
                                 26  12 00045        BNEQ    3$                                  ;
                         08      AC  DD 00047        PUSHL   ACCESS                              ; 0236
                                 50  DD 0004A        PUSHL   R0                                  ;
        00000000V  00            02  FB 0004C        CALLS   #2, NMA$OPENFAB                     ;
                   53            50  D0 00053        MOVL    R0, STATUS                          ;
                   21            53  E9 00056        BLBC    STATUS, 4$                          ; 0237
                     00000000'   00  9F 00059        PUSHAB  P.AAQ                               ; 0240
                         04      AC  DD 0005F        PUSHL   FILEID                              ; 0239
                                 01  DD 00062        PUSHL   #1                                  ; 0238
        00000000G  00            03  FB 00064        CALLS   #3, NML$LOGFILEOP                   ;
                                 0D  11 0006B        BRB     4$                                  ; 0234
                   50    0C      A0  D0 0006D 3$:    MOVL    12(R0), RAB                         ; 0248
                                 50  DD 00071        PUSHL   RAB                                 ; 0249
        00000000G  00            01  FB 00073        CALLS   #1, SYS$REWIND                      ;
                   50            53  D0 0007A 4$:    MOVL    STATUS, R0                          ; 0256
                                     04 0007D        RET                                         ;
                                 50  D4 0007E 5$:    CLRL    R0                                  ; 0257
                                     04 00080        RET                                         ;

; Routine Size:  129 bytes,    Routine Base:  $CODE$ + 0000
```

```
1 %SBTTL 'NMA$SELECTFILE  Return a file descriptor'
1 GLOBAL ROUTINE NMA$SELECTFILE (FILEID, FILEDSC) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine returns the address of the file descriptor for a
1 !       specified file.  Failure is returned if the fileid is not
1 !       valid.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value of the fileid (NMA$C_OPN_xxxxx)
1 !       FILEDSC         Address to return address of file descriptor
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       Success or failure
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2     BEGIN
2
2     LOCAL
2         STATUS;
2
2     STATUS = NMA$_SUCCESS;
2
2     .FILEDSC =                                      ! Obtain the file descriptor
3         BEGIN                                       ! Address
3
3         CASE .FILEID FROM NMA$C_OPN_MIN TO NMA$C_OPN_MAX OF
3             SET
3
3             [NMA$C_OPN_NODE]: NMA$A_NODE_DSC;
3             [NMA$C_OPN_LINE]: NMA$A_LINE_DSC;
3             [NMA$C_OPN_LOG]:  NMA$A_LOG_DSC;
3             [NMA$C_OPN_OBJ]:  NMA$A_OBJ_DSC;
3             [NMA$C_OPN_CIR]:  NMA$A_CIR_DSC;
3             [NMA$C_OPN_X25]:  NMA$A_X25_DSC;
3             [NMA$C_OPN_X29]:  NMA$A_X29_DSC;
3             [NMA$C_OPN_CNF]:  NMA$A_CNF_DSC;
3             [INRANGE,
3              OUTRANGE]:                             ! Code not known, fail
```

```
      0315  4                    BEGIN
      0316  4
      0317  4                    STATUS = NMA$_BADFID;
      0318  4                    0                                  ! Return invalid descriptor
      0319  4
      0320  3                    END;
      0321  3
      0322  3                TES
      0323  2            END;
      0324  2
      0325  2       RETURN .STATUS
      0326  2
      0327  1       END;



                                              0004 00000          .ENTRY  NMA$SELECTFILE, Save R2                          ; 0259
                           52 00000000'    00   9E 00002          MOVAB   NMA$A_NODE_DSC, R2                               :
                           51              01   D0 00009          MOVL    #1, STATUS                                       ; 0297
                07         00        04    AC   CF 0000C          CASEL   FILEID, #0, #7                                   ; 0302
     0025       001F     0019          0014        00011 1$:      .WORD   2$-1$,-                                          :
     003F       0038     0031          002B        00019                  3$-1$,-                                          :
                                                                          4$-1$,-                                          :
                                                                          5$-1$,-                                          :
                                                                          6$-1$,-                                          :
                                                                          7$-1$,-                                          :
                                                                          8$-1$,-                                          :
                                                                          9$-1$                                            :
                                           50   7C 00021          CLRQ    R0                                               ; 0315
                                           30   11 00023          BRB     10$                                              :
                           50              62   9E 00025 2$:      MOVAB   NMA$A_NODE_DSC, R0                               ; 0302
                                           2B   11 00028          BRB     10$                                              :
                           50        18    A2   9E 0002A 3$:      MOVAB   NMA$A_LINE_DSC, R0                               :
                                           25   11 0002E          BRB     10$                                              :
                           50        34    A2   9E 00030 4$:      MOVAB   NMA$A_LOG_DSC, R0                                :
                                           1F   11 00034          BRB     10$                                              :
                           50        50    A2   9E 00036 5$:      MOVAB   NMA$A_OBJ_DSC, R0                                :
                                           19   11 0003A          BRB     10$                                              :
                           50        68    A2   9E 0003C 6$:      MOVAB   NMA$A_CIR_DSC, R0                                :
                                           13   11 00040          BRB     10$                                              :
                           50      0080    C2   9E 00042 7$:      MOVAB   NMA$A_X25_DSC, R0                                :
                                           0C   11 00047          BRB     10$                                              :
                           50      0098    C2   9E 00049 8$:      MOVAB   NMA$A_X29_DSC, R0                                :
                                           05   11 0004E          BRB     10$                                              :
                           50      00B0    C2   9E 00050 9$:      MOVAB   NMA$A_CNF_DSC, R0                                :
                      08   BC              50   D0 00055 10$:     MOVL    R0, @FILEDSC                                     ; 0300
                           50              51   D0 00059          MOVL    STATUS, R0                                       ; 0325
                                                04 0005C          RET                                                      ; 0327

; Routine Size:  93 bytes,    Routine Base:  $CODE$ + 0081
```

```
1 %SBTTL 'NMA$OPENFAB  Open or Create a File'
1 ROUTINE NMA$OPENFAB (FILEDSC, ACCESS) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine does the actual open or create of a file.
1 !       First the fab is loaded with the correct attributes and then
1 !       a create or open service is done.  Create is used if the file
1 !       is to be opened with read-write access and the FOP CIF bit is
1 !       specified so that the file is created if it does not exist.
1 !       The created file will be indexed with a two byte binary key.
1 !       A rather large bucket size is used to allow for long records.
1 !       The protection is set to be read for world and group and the
1 !       UIC is set to the system.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEDSC         Address of the filedescriptor for the file
1 !       ACCESS          Value of the access parameter
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       Success or an RMS error
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2    BEGIN
2
2    MAP                                         ! File descriptor format
2       FILEDSC : REF BLOCK [1, BYTE] FIELD (FDSCFLDS);
2
2    LOCAL
2       STATUS,                                  ! Return status
2       FAB,                                     ! Fab address
2       RAB,                                     ! Rab address
2       FNS,                                     ! Filename size
2       FNA;                                     ! Filename address
2
2    OWN
2       KEYXAB : $XABKEY_DECL,                   ! Key xab for create
2       PROXAB : $XABPRO_DECL;                   ! Protection xab for create
2
2    FNA = .FILEDSC [FDSCFNA];                   ! Obtain descriptor fields
```

```
;  389          0385  2      FNS = .FILEDSC [FDSCFNS];
;  390          0386  2      FAB = .FILEDSC [FDSCFAB];
;  391          0387  2      RAB = .FILEDSC [FDSCRAB];
;  392          0388  2
;  393          0389  2      IF .ACCESS EQL NMA$C_OPN_AC_RW       ! Check access for read write
;  394          0390  2      THEN
;  395          0391  3          BEGIN
;  396          0392  3
;  397        P 0393  3          $FAB_INIT                        ! Initialize fab for create
;  398        P 0394  3              (
;  399        P 0395  3              FAB = .FAB,                  ! Fab address
;  400        P 0396  3              BKS = 9,                     ! Bucket size
;  401        P 0397  3              DNM = 'SYS$SYSTEM:.DAT',     ! Default filename string
;  402        P 0398  3              FAC = (UPD, PUT, GET, DEL),  ! File access
;  403        P 0399  3              FNA = .FNA,                  ! Filename string address
;  404        P 0400  3              FNS = .FNS,                  ! Filename string size
;  405        P 0401  3              FOP = (CIF, MXV),            ! File open codes (create if, max ver)
;  406        P 0402  3              ORG = IDX,                   ! Organsization
;  407        P 0403  3              RFM = VAR,                   ! Record format
;  408        P 0404  3              SHR = (UPD, PUT, GET, DEL),  ! Share
;  409        P 0405  3              XAB = PROXAB                 ! Xab chain
;  410          0406  3              );
;  411          0407  3
;  412        P 0408  3          $XABKEY_INIT                     ! Initialize key xab
;  413        P 0409  3              (
;  414        P 0410  3              XAB = KEYXAB,                ! Xab address
;  415        P 0411  3              DTP = BN2,                   ! 2 byte binary
;  416        P 0412  3              POS0 = 0,                    ! Position
;  417        P 0413  3              SIZ0 = 2,                    ! Size
;  418        P 0414  3              KREF = 0                     ! Key reference (primary)
;  419          0415  3              );
;  420          0416  3
;  421        P 0417  3          $XABPRO_INIT                     ! Initialize protection xab
;  422        P 0418  3              (
;  423        P 0419  3              XAB = PROXAB,                ! Xab address
;  424        P 0420  3              UIC = (1, 4),                ! Uic of owner (system)
;  425        P 0421  3              PRO = (RWED, RWED, , ),      ! Protection (group and world no access)
;  426        P 0422  3              NXT = KEYXAB                 ! Chain
;  427          0423  3              );
;  428          0424  3
;  429          0425  3          STATUS = $CREATE (FAB = .FAB);   ! Create the file if not found
;  430          0426  3
;  431          0427  3          END
;  432          0428  3
;  433          0429  2      ELSE
;  434          0430  2
;  435          0431  3          BEGIN
;  436        P 0432  3          $FAB_INIT                        ! Initialize the fab
;  437        P 0433  3              (
;  438        P 0434  3              FAB = .FAB,                  ! Fab address
;  439        P 0435  3              FAC = (GET),                 ! File access
;  440        P 0436  3              FNA = .FNA,                  ! Filename string address
;  441        P 0437  3              FNS = .FNS,                  ! Filename string size
;  442        P 0438  3              DNM = 'SYS$SYSTEM:.DAT',     ! Default filename string
;  443        P 0439  3              SHR = (UPD, PUT, GET, DEL)   ! Share
;  444          0440  3              );
;  445          0441  3
;  446          0442  3             STATUS = $OPEN (FAB = .FAB);     ! Open the file
;  447          0443  3
;  448          0444  2             END;
;  449          0445  2
;  450          0446  2         IF NOT .STATUS                       ! Return failure status
;  451          0447  2         THEN
;  452          0448  2             RETURN .STATUS;
;  453          0449  2
;  454        P 0450  2         $RAB_INIT                            ! Initialize the rab
;  455        P 0451  2             (
;  456        P 0452  2             RAB = .RAB,                      ! Rab address
;  457        P 0453  2             FAB = .FAB,                      ! Fab address
;  458        P 0454  2             KBF = NMA$W_KEYBUF,              ! Key buffer address
;  459        P 0455  2             KRF = 0,                         ! Key of reference
;  460        P 0456  2             KSZ = 2,                         ! Key size
;  461        P 0457  2             RAC = KEY,                       ! Record access mode
;  462        P 0458  2             ROP = (UIF,KGE)                  ! Record options (put is update)
;  463          0459  2             );
;  464          0460  2
;  465          0461  2         RETURN $CONNECT (RAB = .RAB);        ! Connect record stream and return
;  466          0462  2
;  467          0463  1         END;


                                                                 .PSECT  $PLIT$,NOWRT,NOEXE,2

54  41  44  2E  3A  4D  45  54  53  59  53  24  53  59  53  000DC P.AAS:   .ASCII  \SYS$SYSTEM:.DAT\
54  41  44  2E  3A  4D  45  54  53  59  53  24  53  59  53  000EB P.AAT:   .ASCII  \SYS$SYSTEM:.DAT\                      ;

                                                                 .PSECT  $OWN$,NOEXE,2

                                                 004A4 KEYXAB: .BLKB    76
                                                 004F0 PROXAB: .BLKB    88

                                                       $RMS_PTR=                KEYXAB
                                                       $RMS_PTR=                PROXAB
                                                                 .EXTRN  SYS$CREATE, SYS$OPEN
                                                                 .EXTRN  SYS$CONNECT

                                                                 .PSECT  $CODE$,NOWRT,2

                                            07FC 00000 NMA$OPENFAB:
                                                                 .WORD   Save R2,R3,R4,R5,R6,R7,R8,R9,R10       ; 0329
                        5A 00000000'   00    9E 00002            MOVAB   PROXAB, R10                            ;
                        50       04    AC    D0 00009            MOVL    FILEDSC, R0                            ; 0384
                        58       04    A0    D0 0000D            MOVL    4(R0), FNA                             ;
                        59             60    D0 00011            MOVL    (R0), FNS                              ; 0385
                        56       08    A0    7D 00014            MOVQ    8(R0), FAB                             ; 0386
                        01       08    AC    D1 00018            CMPL    ACCESS, #1                             ; 0389
                                       03    13 0001C            BEQL    1$                                     ;
                                     0081    31 0001E            BRW     2$                                     ;
   0050  8F        00           6E     00    2C 00021 1$:        MOVC5   #0, (SP), #0, #80, (FAB)               ; 0406
                                       66       00028                                                           ;
                        66     5003    8F    B0 00029            MOVW    #20483, (FAB)                          ;
                   04   A6 02000002    8F    D0 0002E            MOVL    #33554434, 4(FAB)                      ;
                   16   A6     0F0F    8F    B0 00036            MOVW    #3855, 22(FAB)                         ;
```

```
                             1D  A6               20  90 0003C        MOVB    #32, 29(FAB)                           ;
                             1F  A6               02  90 00040        MOVB    #2, 31(FAB)                            ;
                             24  A6               6A  9E 00044        MOVAB   PROXAB, 36(FAB)                        ;
                             2C  A6               58  D0 00048        MOVL    FNA, 44(FAB)                           ;
                             30  A6 00000000'     00  9E 0004C        MOVAB   P.AAS, 48(FAB)                         ;
                             34  A6               59  90 00054        MOVB    FNS, 52(FAB)                           ;
                             35  A6               0F  90 00058        MOVB    #15, 53(FAB)                           ;
                             3E  A6               09  90 0005C        MOVB    #9, 62(FAB)                            ;
   004C   8F          00         6E               00  2C 00060        MOVC5   #0, (SP), #0, #76, $RMS_PTR            ; 0415
                                          B4      AA     00067                                                   ;
                             B4  AA     4C15      8F  B0 00069        MOVW    #19477, $RMS_PTR                       ;
                             C7  AA               02  90 0006F        MOVB    #2, $RMS_PTR+19                        ;
                             E2  AA               02  90 00073        MOVB    #2, $RMS_PTR+46                        ;
   0058   8F          00         6E               00  2C 00077        MOVC5   #0, (SP), #0, #88, $RMS_PTR            ; 0423
                                                  6A     0007E                                                   ;
                                 6A     5813      8F  B0 0007F        MOVW    #22547, $RMS_PTR                       ;
                             04  AA       B4      AA  9E 00084        MOVAB   KEYXAB, $RMS_PTR+4                     ;
                             08  AA     FF00      8F  B0 00089        MOVW    #-256, $RMS_PTR+8                      ;
                             0C  AA 00010004      8F  D0 0008F        MOVL    #65540, $RMS_PTR+12                    ;
                                                  56  DD 00097        PUSHL   FAB                                    ; 0425
                    00000000G    00               01  FB 00099        CALLS   #1, SYS$CREATE                         ;
                                                  34  11 000A0        BRB     3$                                     ; 0389
   0050   8F          00         6E               00  2C 000A2  2$:   MOVC5   #0, (SP), #0, #80, (FAB)               ; 0440
                                                  66     000A9                                                   ;
                                 66     5003      8F  B0 000AA        MOVW    #20483, (FAB)                          ;
                             16  A6     0F02      8F  B0 000AF        MOVW    #3842, 22(FAB)                         ;
                             1F  A6               02  90 000B5        MOVB    #2, 31(FAB)                            ;
                             2C  A6               58  D0 000B9        MOVL    FNA, 44(FAB)                           ;
                             30  A6 00000000'     00  9E 000BD        MOVAB   P.AAT, 48(FAB)                         ;
                             34  A6               59  90 000C5        MOVB    FNS, 52(FAB)                           ;
                             35  A6               0F  90 000C9        MOVB    #15, 53(FAB)                           ;
                                                  56  DD 000CD        PUSHL   FAB                                    ; 0442
                    00000000G    00               01  FB 000CF        CALLS   #1, SYS$OPEN                           ;
                                 30               50  E9 000D6  3$:   BLBC    STATUS, 4$                             ; 0446
   0044   8F          00         6E               00  2C 000D9        MOVC5   #0, (SP), #0, #68, (RAB)               ; 0459
                                                  67     000E0                                                   ;
                                 67     4401      8F  B0 000E1        MOVW    #17409, (RAB)                          ;
                             04  A7 00200010      8F  D0 000E6        MOVL    #2097168, 4(RAB)                       ;
                             1E  A7               01  90 000EE        MOVB    #1, 30(RAB)                            ;
                             30  A7     FB10      CA  9E 000F2        MOVAB   NMA$W_KEYBUF, 48(RAB)                  ;
                             34  A7               02  90 000F8        MOVB    #2, 52(RAB)                            ;
                             3C  A7               56  D0 000FC        MOVL    FAB, 60(RAB)                           ;
                                                  57  DD 00100        PUSHL   RAB                                    ; 0461
                    00000000G    00               01  FB 00102        CALLS   #1, SYS$CONNECT                        ;
                                                      04 00109  4$:   RET                                            ; 0463

; Routine Size:  266 bytes,    Routine Base:  $CODE$ + 00DE
```

```
1 %SBTTL 'NMA$CLOSEFILE  Close a specified file'
1 GLOBAL ROUTINE NMA$CLOSEFILE (FILEID) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine closes a specified file or all the files.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value of the fileid parameter (NMA$C_OPN_xxxxx)
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       Status of last close operation.
1 !
1 !--
1
2 BEGIN
2
2 LOCAL
2     FAB : REF BLOCK [1,BYTE],                         ! The fab for the file
2     FILEDSC : REF BLOCK [1, BYTE]                     ! File descriptor
2                 FIELD (FDSCFLDS),
2     STATUS;                                           ! Status return
2
2 STATUS = NMA$_SUCCESS;
2 IF NMA$SELECTFILE (.FILEID, FILEDSC) THEN            ! Obtain descriptor address
3     BEGIN
3     FAB = .FILEDSC [FDSCFAB];                 ! Get address of FAB
3     IF .FAB [FAB$W_IFI] NEQ 0 THEN                    ! If file isn't closed, do it.
4         BEGIN
4         STATUS =
4             $CLOSE (FAB = .FILEDSC [FDSCFAB]); ! Call RMS to close the file
4         IF .STATUS THEN
4             NMLSLOGFILEOP (DBG$C_FILEIO,
4                             .FILEID,
4                             $ASCID ('file closed.'));
3         END;
3     END
2 ELSE
2     STATUS = NMA$_BADFID;
2 RETURN .STATUS
2
1 END;


                                                                        .PSECT  $PLIT$,NOWRT,NOEXE,2

        2E  64  65  73  6F  6C  63  20  65  6C  69  66  000FA P.AAV:    .ASCII  \file closed.\                      ;
                                                        00106           .BLKB   2
                                             0000000C   00108 P.AAU:    .LONG   12                                  ;
                                             00000000'  0010C           .ADDRESS P.AAV                              ;

                                                                        .EXTRN  SYS$CLOSE
```

```
                                                          .PSECT  $CODE$,NOWRT,2

                                        0004 000C0        .ENTRY  NMA$CLOSEFILE, Save R2                         ; 0465
                      5E           04   C2 00002          SUBL2   #4, SP                                         ;
                      52           01   D0 00005          MOVL    #1, STATUS                                     ; 0491
                                   5E   DD 00008          PUSHL   SP                                             ; 0492
                           04      AC   DD 0000A          PUSHL   FILEID                                         ;
              FE87    CF           02   FB 0000D          CALLS   #2, NMA$SELECTFILE                             ;
                      30           50   E9 00012          BLBC    R0, 1$                                         ;
                      50           6E   D0 00015          MOVL    FILEDSC, R0                                    ; 0494
                      51   08      A0   D0 00018          MOVL    8(R0), FAB                                     ;
                      02           A1   B5 0001C          TSTW    2(FAB)                                         ; 0495
                                   26   13 0001F          BEQL    2$                                             ;
                           08      A0   DD 00021          PUSHL   8(R0)                                          ; 0498
         00000000G    00           01   FB 00024          CALLS   #1, SYS$CLOSE                                  ;
                      52           50   D0 0002B          MOVL    R0, STATUS                                     ;
                      16           52   E9 0002E          BLBC    STATUS, 2$                                     ; 0499
                     00000000'     00   9F 00031          PUSHAB  P.AAU                                          ; 0502
                           04      AC   DD 00037          PUSHL   FILEID                                         ; 0501
                                   01   DD 0003A          PUSHL   #1                                             ; 0500
         00000000G    00           03   FB 0003C          CALLS   #3, NML$LOGFILEOP                              ;
                                   02   11 00043          BRB     2$                                             ; 0492
                                   52   D4 00045 1$:      CLRL    STATUS                                         ; 0506
                      50           52   D0 00047 2$:      MOVL    STATUS, R0                                     ; 0507
                                        04 0004A          RET                                                    ; 0509

; Routine Size:  75 bytes,    Routine Base:  $CODE$ + 01E8
```

```
1 %SBTTL 'NMA$MATCHREC  Find a Record in a File'
1 GLOBAL ROUTINE NMA$MATCHREC (FILEID, BUFDSC, KEYADR, FIELDCODE,
1                               FIELDSIZE, FIELDADR, RTNDSC) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine searches a database for a record containing a given
1 !       field containing given data.  Degenerate cases are provided for
1 !       returning all records, or all records containing a specific field.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value of the fileid code (NMA$C_OPN_xxxxx)
1 !       BUFDSC          Address of a descriptor of a buffer to use
1 !       KEYADR          Address of a word containing the key to start reading
1 !                       Key value is returned in this word.
1 !       FIELDCODE       Value of the field code (zero for wildcard)*****
1 !       FIELDSIZE       Value of the field size (zero for wildcard)
1 !       FIELDADR        Address of the field data
1 !       RTNDSC          Address of a descriptor to return descriptor of data
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       NMA or RMS error status
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2     BEGIN
2
2     MAP
2       BUFDSC : REF VECTOR,                ! Buffer to use for record
2       RTNDSC : REF VECTOR;                ! Return data descriptor
2
2     LOCAL
2       FILEDSC : REF BLOCK [1, BYTE]       ! File descriptor
2                 FIELD (FDSCFLDS),
2       RAB     : REF BLOCK [1, BYTE],      ! The rab for the file
2       LCLDSC  : VECTOR [2],               ! A local data descriptor
2       FAB     : REF BLOCK [, BYTE],       ! The fab for the file
2       FLDADR,                             ! Field address
2       FLDSIZ,                             ! Field size
2       STATUS;                             ! Status return
2
```

```
	EXTERNAL ROUTINE
	    NMA$SEARCHFLD;                          ! Search for a field value

	STATUS = NMA$SELECTFILE (.FILEID,
	                         FILEDSC);         ! Obtain the file descriptor

	IF NOT .STATUS
	THEN
	    RETURN .STATUS;                         ! Bogus fileid

	RAB = .FILEDSC [FDSCRAB];                   ! Point to the rab
	FAB = .FILEDSC [FDSCFAB];                   ! Get address of FAB

	IF .FAB [FAB$W_IFI] EQL 0                   ! If file not open,
	THEN
	    RETURN .FAB [FAB$L_STS];                ! return open failure status

	RAB [RAB$W_USZ] = .BUFDSC [0];              ! Set the buffer to use
	RAB [RAB$L_UBF] = .BUFDSC [1];

	NMA$W_KEYBUF = ..KEYADR;                    ! And the key value to use

	WHILE 1                                     ! Try this forever
	DO
	    BEGIN

	    STATUS = $GET (RAB = .RAB);             ! Read a record

	    LCLDSC [0] = .RAB [RAB$W_RSZ];  ! Pickup the real record descriptor
	    LCLDSC [1] = .RAB [RAB$L_RBF];
	    RTNDSC [0] = .RAB [RAB$W_RSZ] - NML$K_PERM_KEYS_LEN;
	    RTNDSC [1] = .RAB [RAB$L_RBF] + NML$K_PERM_KEYS_LEN;

	    IF NOT .STATUS                          ! If no good, return
	    THEN
	        RETURN .STATUS;

	    NMA$W_KEYBUF =                          ! Set the keyvalue returned
	            .(.LCLDSC [1]) <0, 16, 0>;

	    (.KEYADR) <0, 16, 0> = .NMA$W_KEYBUF; ! Return for user to remember

	    FLDADR = 0;                             ! Start search from beginning
	    IF NMA$SEARCHFLD                        ! Look for the field
	            (
	            .RTNDSC,                        ! Here is the data
	            .FIELDCODE,                     ! Value of the code to look for
	            FLDSIZ,                         ! Return the size here
	            FLDADR                          ! Return the address here
	            )
	    THEN
	        BEGIN

	        IF .FIELDSIZE EQL 0                 ! Wildcard
	        THEN
	            BEGIN
```

```
;  630      0624  5                STATUS = NMA$_SUCCESS;  ! It always succeeds
;  631      0625  5                EXITLOOP;
;  632      0626  5
;  633      0627  4                END;
;  634      0628  4
;  635      0629  4            IF CH$EQL                   ! Look at the data
;  636      0630  4                (
;  637      0631  4                .FLDSIZ,                ! Data in record
;  638      0632  4                .FLDADR,
;  639      0633  4                .FIELDSIZE,             ! User data
;  640      0634  4                .FIELDADR,
;  641      0635  4                0
;  642      0636  4                )
;  643      0637  4            THEN
;  644      0638  5                BEGIN
;  645      0639  5
;  646      0640  5                STATUS = NMA$_SUCCESS;  ! We found such a record
;  647      0641  5                EXITLOOP;
;  648      0642  5
;  649      0643  4                END;
;  650      0644  3            END;
;  651      0645  3
;  652      0646  3        NMA$W_KEYBUF = .NMA$W_KEYBUF + 1;      ! Increment key ****
;  653      0647  3        (.KEYADR) <0, 16, 0> = .NMA$W_KEYBUF; ! Return for user to remember
;  654      0648  3
;  655      0649  2        END;
;  656      0650  2
;  657      0651  2    IF .STATUS
;  658      0652  2    THEN
;  659      0653  2        NML$LOGRECORDOP (DBG$C_FILEIO,
;  660      0654  2                         .FILEID,
;  661      0655  2                         $ASCID ('record matched'),
;  662      0656  2                         LCLDSC);
;  663      0657  2
;  664      0658  2    RETURN .STATUS
;  665      0659  2
;  666      0660  1    END;


                                                                   .PSECT  $PLIT$,NOWRT,NOEXE,2

  64  65  68  63  74  61  6D  20  64  72  6F  63  65  72  00110 P.AAX:   .ASCII  \record matched\                        ;
                                                           0011E        .BLKB   2
                                               0000000E    00120 P.AAW:  .LONG   14                                      ;
                                               00000000'   00124         .ADDRESS P.AAX                                  ;

                                                                   .EXTRN  NMA$SEARCHFLD, SYS$GET

                                                                   .PSECT  $CODE$,NOWRT,2

                                                     00FC  00000         .ENTRY  NMA$MATCHREC, Save R2,R3,R4,R5,R6,R7    ; 0511
                                   57 00000000'   00   9E  00002         MOVAB   NMA$W_KEYBUF, R7                        ;
                                   5E             14   C2  00009         SUBL2   #20, SP                                 ;
                                                  5E   DD  0000C         PUSHL   SP                                      ; 0570
                                          04      AC   DD  0000E         PUSHL   FILEID                                  ;
                              FE38    CF          02   FB  00011         CALLS   #2, NMA$SELECTFILE                      ;
```

```
                          56           50 D0 00016        MOVL    R0, STATUS                                    ;
                          4F           56 E9 00019        BLBC    STATUS, 3$                                    ; 0573
                          50           6E D0 0001C        MOVL    FILEDSC, R0                                   ; 0577
                          54     0C    A0 D0 0001F        MOVL    12(R0), RAB                                   ;
                          50     08    A0 D0 00023        MOVL    8(R0), FAB                                    ; 0578
                                 02    A0 B5 00027        TSTW    2(FAB)                                        ; 0580
                                       05 12 0002A        BNEQ    1$                                            ;
                          50     08    A0 D0 0002C        MOVL    8(FAB), R0                                    ; 0582
                                          04 00030        RET                                                   ;
                          50     08    AC D0 00031 1$:    MOVL    BUFDSC, R0                                    ; 0584
                     20   A4           60 B0 00035        MOVW    (R0), 32(RAB)                                 ;
                     24   A4     04    A0 D0 00039        MOVL    4(R0), 36(RAB)                                ; 0585
                          67     0C    BC B0 0003E        MOVW    @KEYADR, NMA$W_KEYBUF                         ; 0587
                          55     1C    AC D0 00042        MOVL    RTNDSC, R5                                    ; 0598
                                       54 DD 00046 2$:    PUSHL   RAB                                           ; 0593
            00000000G     00           01 FB 00048        CALLS   #1, SYS$GET                                   ;
                          56           50 D0 0004F        MOVL    R0, STATUS                                    ;
                     0C   AE     22    A4 3C 00052        MOVZWL  34(RAB), LCLDSC                               ; 0595
                     10   AE     28    A4 D0 00057        MOVL    40(RAB), LCLDSC+4                             ; 0596
                     1C   BC     22    A4 3C 0005C        MOVZWL  34(RAB), @RTNDSC                              ; 0597
                     1C   BC           02 C2 00061        SUBL2   #2, @RTNDSC                                   ;
          04    A5   28   A4           02 C1 00065        ADDL3   #2, 40(RAB), 4(R5)                            ; 0598
                          57           56 E9 0006B 3$:    BLBC    STATUS, 7$                                    ; 0600
                          67     10    BE B0 0006E        MOVW    @LCLDSC+4, NMA$W_KEYBUF                       ; 0605
                     0C   BC           67 B0 00072        MOVW    NMA$W_KEYBUF, @KEYADR                         ; 0607
                                 04    AE D4 00076        CLRL    FLDADR                                        ; 0609
                                 04    AE 9F 00079        PUSHAB  FLDADR                                        ; 0611
                                 0C    AE 9F 0007C        PUSHAB  FLDSIZ                                        ;
                                 10    AC DD 0007F        PUSHL   FIELDCODE                                     ; 0613
                                 1C    AC DD 00082        PUSHL   RTNDSC                                        ; 0612
            00000000G     00           04 FB 00085        CALLS   #4, NMA$SEARCHFLD                             ;
                          16           50 E9 0008C        BLBC    R0, 5$                                        ;
                                 14    AC D5 0008F        TSTL    FIELDSIZE                                     ; 0620
                                       0C 13 00092        BEQL    4$                                            ;
  14   AC          00     04   BE  08  AE 2D 00094        CMPC5   FLDSIZ, @FLDADR, #0, FIELDSIZE, @FIELDADR     ; 0630
                                   18  BC    0009C                                                              ;
                                       05 12 0009E        BNEQ    5$                                            ;
                          56           01 D0 000A0 4$:    MOVL    #1, STATUS                                    ; 0640
                                       08 11 000A3        BRB     6$                                            ; 0638
                                       67 B6 000A5 5$:    INCW    NMA$W_KEYBUF                                  ; 0646
                     0C   BC           67 B0 000A7        MOVW    NMA$W_KEYBUF, @KEYADR                         ; 0647
                                       99 11 000AB        BRB     2$                                            ; 0589
                          15           56 E9 000AD 6$:    BLBC    STATUS, 7$                                    ; 0651
                                 0C    AE 9F 000B0        PUSHAB  LCLDSC                                        ; 0653
                       00000000'       00 9F 000B3        PUSHAB  P.AAW                                         ; 0655
                                 04    AC DD 000B9        PUSHL   FILEID                                        ; 0654
                                       01 DD 000BC        PUSHL   #1                                            ; 0653
            00000000G     00           04 FB 000BE        CALLS   #4, NML$LOGRECORDOP                           ;
                          50           56 D0 000C5 7$:    MOVL    STATUS, R0                                    ; 0658
                                          04 000C8        RET                                                   ; 0660

; Routine Size:  201 bytes,    Routine Base:  $CODE$ + 0233
```

```
1 %SBTTL 'NMA$READREC  Get a record from a File'
1 GLOBAL ROUTINE NMA$READREC (FILEID, KEYADR, BUFDSC, RTNDSC) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine reads the next database record starting at the specified
1 !       key.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value of the fileid code (NMA$C_OPN_xxxxx)
1 !       KEYADR          Address of a word containing the key to start reading
1 !                       Key value is returned in this word.
1 !       BUFDSC          Address of a descriptor of a buffer to use
1 !       RTNDSC          Address of a descriptor to return descriptor of data
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       NMA or RMS error status
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2     BEGIN
2
2     MAP
2         BUFDSC : REF VECTOR,                ! Buffer to use for record
2         RTNDSC : REF VECTOR;                ! Return data descriptor
2
2     LOCAL
2         FILEDSC : REF BLOCK [1, BYTE]       ! File descriptor
2                   FIELD (FDSCFLDS),
2         FAB     : REF BLOCK [, BYTE],       ! The fab for the file
2         RAB     : REF BLOCK [1, BYTE],      ! The rab for the file
2         LCLDSC  : VECTOR [2],
2         STATUS;                             ! Status return
2
2     STATUS = NMA$SELECTFILE (.FILEID,
2                              FILEDSC);      ! Obtain the file descriptor
2
2     IF NOT .STATUS
2     THEN
2         RETURN .STATUS;                     ! Bogus fileid
2
```

```
;  725      0718  2
;  726      0719  2         RAB = .FILEDSC [FDSCRAB];              ! Point to the rab
;  727      0720  2         FAB = .FILEDSC [FDSCFAB];              ! Get address of FAB
;  728      0721  2
;  729      0722  2         IF .FAB [FAB$W_IFI] EQL 0              ! If file not open,
;  730      0723  2         THEN
;  731      0724  2             RETURN .FAB [FAB$L_STS];           ! Return open failure status
;  732      0725  2
;  733      0726  2         RAB [RAB$W_USZ] = .BUFDSC [0];         ! Set the buffer to use
;  734      0727  2         RAB [RAB$L_UBF] = .BUFDSC [1];
;  735      0728  2
;  736      0729  2         NMA$W_KEYBUF = ..KEYADR;               ! And the key value to use
;  737      0730  2
;  738      0731  2         STATUS = $GET (RAB = .RAB);            ! Read a record
;  739      0732  2
;  740      0733  2         RTNDSC [0] = .RAB [RAB$W_RSZ] - NML$K_PERM_KEYS_LEN;
;  741      0734  2         RTNDSC [1] = .RAB [RAB$L_RBF] + NML$K_PERM_KEYS_LEN;
;  742      0735  2
;  743      0736  2         IF NOT .STATUS                         ! If no good, return
;  744      0737  2         THEN
;  745      0738  2             RETURN .STATUS;
;  746      0739  2
;  747      0740  2         LCLDSC [0] = .RAB [RAB$W_RSZ];
;  748      0741  2         LCLDSC [1] = .RAB [RAB$L_RBF];
;  749      0742  2
;  750      0743  2         (.KEYADR)<0,16,0> = .(.LCLDSC [1])<0,16>; ! Return for user to remember
;  751      0744  2
;  752      0745  2         NML$LOGRECORDOP (DBG$C_FILEIO,
;  753      0746  2                          .FILEID,
;  754      0747  2                          $ASCID ('record read'),
;  755      0748  2                          LCLDSC);
;  756      0749  2
;  757      0750  2         RETURN NMA$_SUCCESS
;  758      0751  2
;  759      0752  1         END;


                                                               .PSECT  $PLIT$,NOWRT,NOEXE,2

      64  61  65  72  20  64  72  6F  63  65  72  00128 P.AAZ:  .ASCII  \record read\                          ;
                                                00133          .BLKB   1
                                     0000000B   00134 P.AAY:   .LONG   11                                     ;
                                     00000000'  00138          .ADDRESS P.AAZ                                 ;


                                                               .PSECT  $CODE$,NOWRT,2

                                         0004 00000            .ENTRY  NMA$READREC, Save R2                   ; 0662
                  5E                  0C  C2 00002             SUBL2   #12, SP                                ;
                                      5E  DD 00005             PUSHL   SP                                     ; 0711
                          04          AC  DD 00007             PUSHL   FILEID                                 ;
             FD76  CF                 02  FB 0000A             CALLS   #2, NMA$SELECTFILE                     ;
                   6A                 50  E9 0000F             BLBC    STATUS, 2$                             ; 0714
                   51                 6E  D0 00012             MOVL    FILEDSC, R1                            ; 0719
                   51     08          A1  7D 00015             MOVQ    8(R1), FAB                             ; 0720
```

```
                                 02    A1   B5 00019          TSTW     2(FAB)                                  ; 0722
                                       05   12 0001C          BNEQ     1$
                         50      08    A1   D0 0001E          MOVL     8(FAB), R0                              ; 0724
                                       04      00022          RET
                         51      0C    AC   D0 00023 1$:      MOVL     BUFDSC, R1                              ; 0726
                   20    A2            61   B0 00027          MOVW     (R1), 32(RAB)
                   24    A2      04    A1   D0 0002B          MOVL     4(R1), 36(RAB)                          ; 0727
            00000000'    00      08    BC   B0 00030          MOVW     @KEYADR, NMA$W_KEYBUF                   ; 0729
                                       52   DD 00038          PUSHL    RAB                                     ; 0731
            00000000G    00            01   FB 0003A          CALLS    #1, SYS$GET
                         51      10    AC   D0 00041          MOVL     RTNDSC, R1                              ; 0733
                         61      22    A2   3C 00045          MOVZWL   34(RAB), (R1)
                         61            02   C2 00049          SUBL2    #2, (R1)
    04    A1             28    A2            02   C1 0004C          ADDL3    #2, 40(RAB), 4(R1)                      ; 0734
                         27            50   E9 00052          BLBC     STATUS, 2$                              ; 0736
                   04    AE      22    A2   3C 00055          MOVZWL   34(RAB), LCLDSC                         ; 0740
                   08    AE      28    A2   D0 0005A          MOVL     40(RAB), LCLDSC+4                       ; 0741
                   08    BC      08    BE   B0 0005F          MOVW     @LCLDSC+4, @KEYADR                      ; 0743
                                 04    AE   9F 00064          PUSHAB   LCLDSC                                  ; 0745
                          00000000'    00   9F 00067          PUSHAB   P.AAY                                   ; 0747
                                 04    AC   DD 0006D          PUSHL    FILEID                                  ; 0746
                                       01   DD 00070          PUSHL    #1                                      ; 0745
            00000000G    00            04   FB 00072          CALLS    #4, NML$LOGRECORDOP                     ;
                         50            01   D0 00079          MOVL     #1, R0                                  ; 0750
                                       04      0007C 2$:      RET                                              ; 0752

; Routine Size:  125 bytes,    Routine Base:  $CODE$ + 02FC
```

```
1 %SBTTL 'NMA$WRITEREC  Write a Record to a File'
1 GLOBAL ROUTINE NMA$WRITEREC (FILEID, KEYADR, BUFDSC) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine puts a record to the specified file.  The key is
1 !       specified by keyadr.  The file was opened so that puts to existing
1 !       records act as updates.  The keyvalue is moved to the first two bytes
1 !       of the record before the write.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value if the fileid
1 !       KEYADR          Address of a word of keyvalue
1 !       BUFDSC          Address of descriptor of data to write
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       RMS error code
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2   BEGIN
2
2   MAP
2       BUFDSC : REF VECTOR;                ! User supplied data
2
2   LOCAL
2       RAB      : REF BLOCK [1, BYTE],    ! Address of rab
2       STATUS,                            ! Return status
2       FILEDSC : REF BLOCK [1, BYTE]      ! File descriptor address
2                 FIELD (FDSCFLDS),
2       LCLDSC  : VECTOR [2];
2
2   STATUS = NMA$SELECTFILE (.FILEID,
2                           FILEDSC);  ! Obtain file descriptor
2   IF NOT .STATUS
2   THEN
2       RETURN .STATUS;                    ! Return the status
2
2   RAB = .FILEDSC [FDSCRAB];              ! Obtain the rab address
2   LCLDSC [0] = .BUFDSC [0] + NML$K_PERM_KEYS_LEN;
2   LCLDSC [1] = .BUFDSC [1] - NML$K_PERM_KEYS_LEN;
```

```
0810  2      RAB [RAB$W_RSZ] = .LCLDSC [0];          ! User buffer to write
0811  2      RAB [RAB$L_RBF] = .LCLDSC [1];
0812  2
0813  2      NMA$W_KEYBUF = ..KEYADR;                ! Key value from user
0814  2      (.LCLDSC [1])<0,16,0> = .NMA$W_KEYBUF; ! Move key to buffer for write
0815  2
0816  2      STATUS = $PUT (RAB = .RAB);             ! Put or update the record
0817  2
0818  2      IF .STATUS
0819  2      THEN
0820  2          NML$LOGRECORDOP (DBG$C_FILEIO,
0821  2                           .FILEID,
0822  2                           $ASCID ('record written'),
0823  2                           LCLDSC);
0824  2
0825  2      RETURN .STATUS
0826  2
0827  1      END;


                                                                         .PSECT  $PLIT$,NOWRT,NOEXE,2

   6E  65  74  74  69  72  77  20  64  72  6F  63  65  72  0013C P.ABB:   .ASCII  \record written\                                  ;
                                                           0014A          .BLKB   2
                                                0000000E   0014C P.ABA:   .LONG   14                                                ;
                                                00000000'  00150          .ADDRESS P.ABB                                            ;

                                                                         .EXTRN  SYS$PUT

                                                                         .PSECT  $CODE$,NOWRT,2

                                                    000C  00000          .ENTRY  NMA$WRITEREC, Save R2,R3                          ; 0754
                             53 00000000'    00  9E   00002          MOVAB   NMA$W_KEYBUF, R3                                  ;
                             5E              0C  C2   00009          SUBL2   #12, SP                                           ;
                                             5E  DD   0000C          PUSHL   SP                                                ; 0801
                                         04  AC  DD   0000E          PUSHL   FILEID                                            ;
                      FCF2   CF              02  FB   00011          CALLS   #2, NMA$SELECTFILE                                ;
                             52              50  D0   00016          MOVL    R0, STATUS                                        ;
                             4C              52  E9   00019          BLBC    STATUS, 1$                                        ; 0803
                             50              6E  D0   0001C          MOVL    FILEDSC, R0                                       ; 0807
                             51          0C  A0  D0   0001F          MOVL    12(R0), RAB                                       ;
                             50          0C  AC  D0   00023          MOVL    BUFDSC, R0                                        ; 0808
             04    AE        60              02  C1   00027          ADDL3   #2, (R0), LCLDSC                                  ;
             08    AE    04  A0              02  C3   0002C          SUBL3   #2, 4(R0), LCLDSC+4                               ; 0809
                         22  A1          04  AE  B0   00032          MOVW    LCLDSC, 34(RAB)                                   ; 0810
                         28  A1          08  AE  D0   00037          MOVL    LCLDSC+4, 40(RAB)                                 ; 0811
                             63          08  BC  B0   0003C          MOVW    @KEYADR, NMA$W_KEYBUF                             ; 0813
                         08  BE              63  B0   00040          MOVW    NMA$W_KEYBUF, @LCLDSC+4                           ; 0814
                                             51  DD   00044          PUSHL   RAB                                               ; 0816
                  00000000G  00              01  FB   00046          CALLS   #1, SYS$PUT                                       ;
                             52              50  D0   0004D          MOVL    R0, STATUS                                        ;
                             15              52  E9   00050          BLBC    STATUS, 1$                                        ; 0818
                                         04  AE  9F   00053          PUSHAB  LCLDSC                                            ; 0820
                                  00000000'  00  9F   00056          PUSHAB  P.ABA                                             ; 0822
                                         04  AC  DD   0005C          PUSHL   FILEID                                            ; 0821
                                             01  DD   0005F          PUSHL   #1                                                ; 0820
                      0000000G  00       04  FB 00061          CALLS   #4, NML$LOGRECORDOP                         ;
                                50       52  D0 00068 1$:      MOVL    STATUS, R0                                  ; 0825
                                             04 0006B          RET                                                 ; 0827

; Routine Size:  108 bytes,    Routine Base:  $CODE$ + 0379
```

NML
V04

; R

```
1 %SBTTL 'NMA$DELETEREC  Delete a Record from the File'
1 GLOBAL ROUTINE NMA$DELETEREC (FILEID, KEYADR) =
1
1 !++
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine deletes a record from the file by specified key
1 !       number.
1 !
1 ! FORMAL PARAMETERS:
1 !
1 !       FILEID          Value if the fileid
1 !       KEYADR          Address of a word of keyvalue
1 !
1 ! IMPLICIT INPUTS:
1 !
1 !       NONE
1 !
1 ! IMPLICIT OUTPUTS:
1 !
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 ! COMPLETION CODES:
1 !
1 !       RMS error code
1 !
1 ! SIDE EFFECTS:
1 !
1 !       NONE
1 !
1 !--
1
2     BEGIN
2
2     LOCAL
2         RAB     : REF BLOCK [1, BYTE],   ! Address of rab
2         STATUS,                          ! Return status
2         FILEDSC : REF BLOCK [1, BYTE]    ! File descriptor address
2                   FIELD (FDSCFLDS);
2
2     STATUS = NMA$SELECTFILE (.FILEID,
2                              FILEDSC);   ! Obtain file descriptor
2
2     IF .STATUS
2     THEN
3         BEGIN
3
3         RAB = .FILEDSC [FDSCRAB];        ! Obtain the rab address
3
3         NMA$W_KEYBUF = ..KEYADR;         ! Key value from user
3
3         STATUS = $DELETE (RAB = .RAB);   ! Delete the record
3
3         IF .STATUS
3         THEN
3             NML$LOGRECORDOP (DBG$C_FILEIO,
;  894     0885 3                            .FILEID,
;  895     0886 3                            $ASCID ('record deleted'),
;  896     0887 3                            UPLIT (2, NMA$W_KEYBUF));
;  897     0888 3
;  898     0889 2         END;
;  899     0890 2
;  900     0891 2      RETURN .STATUS
;  901     0892 2
;  902     0893 1      END;


                                                                  .PSECT   $PLIT$,NOWRT,NOEXE,2

   64  65  74  65  6C  65  64  20  64  72  6F  63  65  72  00154 P.ABD:   .ASCII   \record deleted\                                ;
                                                         00162            .BLKB    2
                                               0000000E  00164 P.ABC:   .LONG    14                                              ;
                                               00000000' 00168            .ADDRESS P.ABD                                         ;
                                               00000002  0016C P.ABE:   .LONG    2                                               ;
                                               00000000' 00170            .ADDRESS NMA$W_KEYBUF                                  ;

                                                                  .EXTRN   SYS$DELETE

                                                                  .PSECT   $CODE$,NOWRT,2

                                                   0004  00000            .ENTRY   NMA$DELETEREC, Save R2                        ; 0829
                         5E                    04  C2  00002            SUBL2    #4, SP
                                               5E  DD  00005            PUSHL    SP                                              ; 0869
                                     04        AC  DD  00007            PUSHL    FILEID                                          ;
                   FC8D  CF                    02  FB  0000A            CALLS    #2, NMA$SELECTFILE                              ;
                         52                    50  D0  0000F            MOVL     R0, STATUS                                      ;
                         36                    52  E9  00012            BLBC     STATUS, 1$                                      ; 0872
                         50                    6E  D0  00015            MOVL     FILEDSC, R0                                     ; 0876
                         50          0C        A0  D0  00018            MOVL     12(R0), RAB                                     ;
              00000000'  00          08        BC  B0  0001C            MOVW     @KEYADR, NMA$W_KEYBUF                           ; 0878
                                               50  DD  00024            PUSHL    RAB                                             ; 0880
              00000000G  00                    01  FB  00026            CALLS    #1, SYS$DELETE                                  ;
                         52                    50  D0  0002D            MOVL     R0, STATUS                                      ;
                         18                    52  E9  00030            BLBC     STATUS, 1$                                      ; 0882
                               00000000'       00  9F  00033            PUSHAB   P.ABE                                           ; 0887
                               00000000'       00  9F  00039            PUSHAB   P.ABC                                           ; 0886
                                     04        AC  DD  0003F            PUSHL    FILEID                                          ; 0885
                                               01  DD  00042            PUSHL    #1                                              ; 0884
              00000000G  00                    04  FB  00044            CALLS    #4, NML$LOGRECORDOP                             ;
                         50                    52  D0  0004B 1$:        MOVL     STATUS, R0                                      ; 0891
                                                   04  0004E            RET                                                      ; 0893

; Routine Size:  79 bytes,    Routine Base:  $CODE$ + 03E5
;  904         0894   1 END                                      ! End of module
;  905         0895   1
;  906         0896   0 ELUDOM




;                                     PSECT SUMMARY
;
;       Name                       Bytes                          Attributes
;
;    $OWN$                                1352  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;    $PLIT$                                372  NOVEC,NOWRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;    $CODE$                               1076  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)




;                             Library Statistics
;
;                                            -------- Symbols --------       Pages       Processing
;       File                                 Total    Loaded   Percent      Mapped      Time
;
;    _$255$DUA28:[NML.OBJ]NMLLIB.L32;1          341         3         0         27      00:00.1
;    _$255$DUA28:[SHRLIB]NMALIBRY.L32;1         887        14         1         47      00:00.2
;    _$255$DUA28:[SYSLIB]STARLET.L32;1         9776       141         1        581      00:02.2




;                                      COMMAND QUALIFIERS

;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:NMAFILES/OBJ=OBJ$:NMAFILES MSRC$:NMAFILES/UPDATE=(ENH$:NMAFILES)

; Size:           1076 code + 1724 data bytes
; Run Time:          00:30.1
; Elapsed Time:      01:12.0
; Lines/CPU Min:       1784
; Lexemes/CPU-Min: 31149
; Memory Used:  196 pages
; Compilation Complete
```

0280 AH-BT13A-SE
VAX/VMS V4.0

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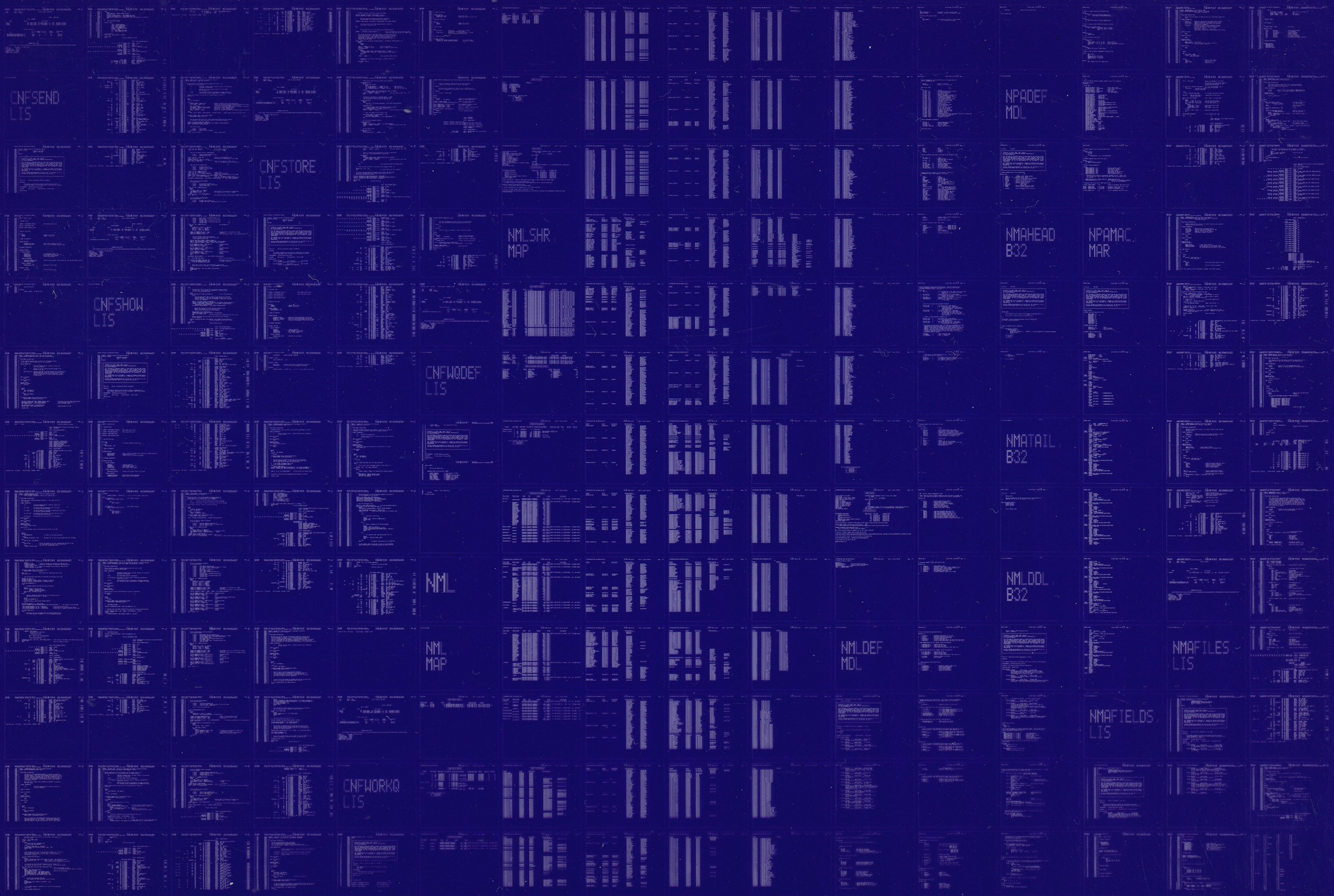
CNFSEND
LIS

NPADEF
MDL

CNFSTORE
LIS

NMLSHR
MAP

NMAHEAD
B32

NPAMAC
MAR

CNFSHOW
LIS

CNFWQDEF
LIS

NMATAIL
B32

NML

NMLDDL
B32

NML
MAP

NMLDEF
MDL

NMAFILES
LIS

NMAFIELDS
LIS

CNFWORKQ
LIS

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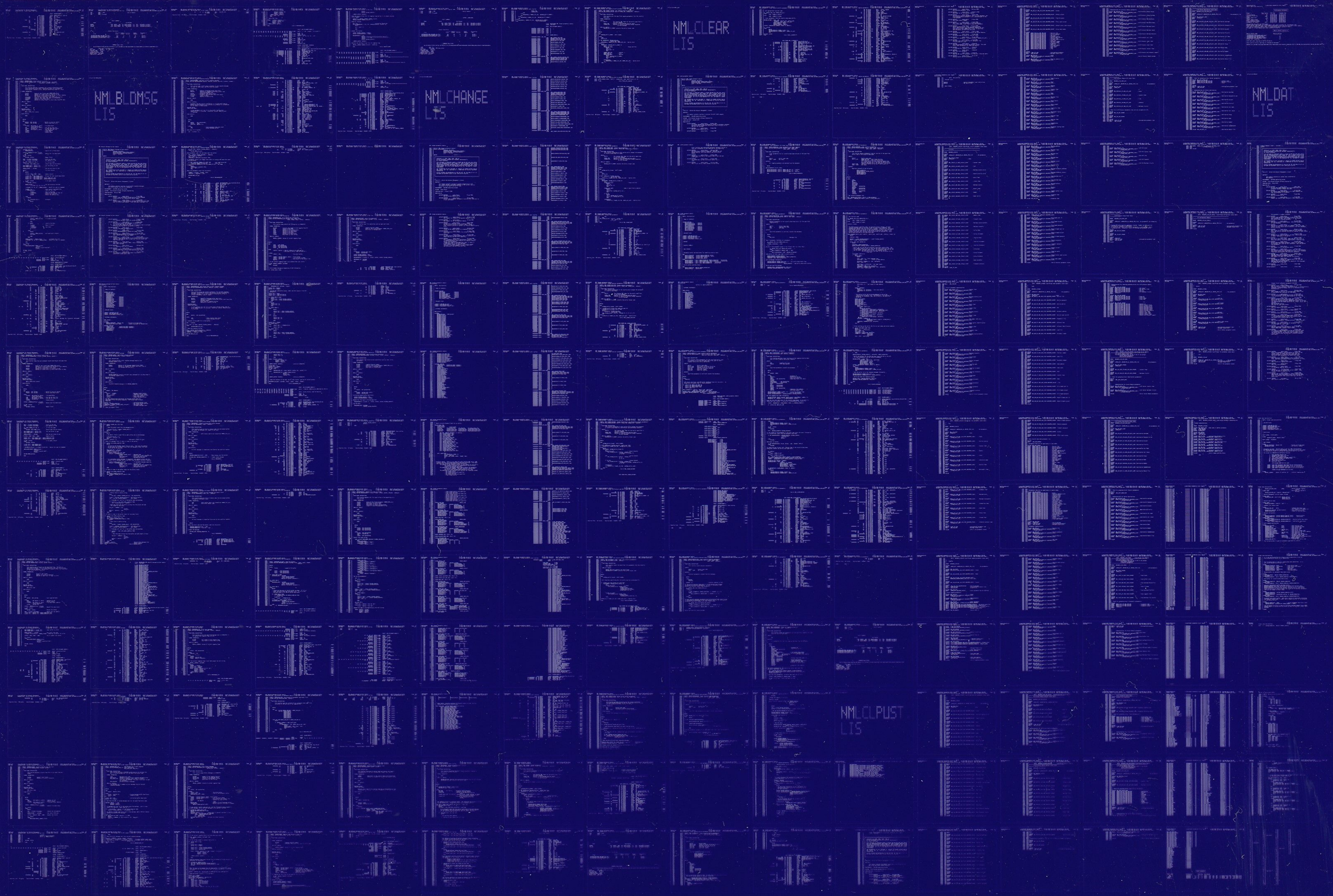

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