```
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
```

```
NN       NN  MM       MM  LL          LL            IIIIII      SSSSSSSS  TTTTTTTTTT
NN       NN  MM       MM  LL          LL            IIIIII      SSSSSSSS  TTTTTTTTTT
NN       NN  MMMM   MMMM  LL          LL              II      SS              TT
NN       NN  MMMM   MMMM  LL          LL              II      SS              TT
NNNN     NN  MM  MM  MM  LL          LL              II      SS              TT
NNNN     NN  MM  MM  MM  LL          LL              II      SS              TT
NN  NN   NN  MM      MM  LL          LL              II        SSSSSS        TT
NN  NN   NN  MM      MM  LL          LL              II        SSSSSS        TT
NN    NNNN  MM      MM  LL          LL              II              SS      TT
NN    NNNN  MM      MM  LL          LL              II              SS      TT
NN      NN  MM      MM  LL          LL              II              SS      TT          ....
NN      NN  MM      MM  LL          LL              II              SS      TT          ....
NN      NN  MM      MM  LLLLLLLLLL  LLLLLLLLLL    IIIIII    SSSSSSSS      TT          ....
NN      NN  MM      MM  LLLLLLLLLL  LLLLLLLLLL    IIIIII    SSSSSSSS      TT          ....

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
```

```
;  1          0001  0 %TITLE 'NML LIST permanent parameter module'
;  2          0002  0 MODULE NML$LIST (
;  3          0003  0                 LANGUAGE (BLISS32),
;  4          0004  0                 ADDRESSING_MODE (NONEXTERNAL=GENERAL),
;  5          0005  0                 ADDRESSING_MODE (EXTERNAL=GENERAL),
;  6          0006  0                 IDENT = 'V04-000'
;  7          0007  0                 ) =
;  8          0008  1 BEGIN
;  9          0009  1 !
; 10          0010  1 !*****************************************************************************
; 11          0011  1 !*                                                                           *
; 12          0012  1 !*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY                                  *
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; 26          0026  1 !*                                                                           *
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; 29          0029  1 !*                                                                           *
; 30          0030  1 !*                                                                           *
; 31          0031  1 !*****************************************************************************
; 32          0032  1 !
; 33          0033  1
; 34          0034  1 !++
; 35          0035  1 ! FACILITY:  DECnet-VAX Network Management Listener
; 36          0036  1 !
; 37          0037  1 ! ABSTRACT:
; 38          0038  1 !
; 39          0039  1 !       This module contains routines for processing the NCP LIST command.
; 40          0040  1 !
; 41          0041  1 ! ENVIRONMENT:  VAX/VMS Operating System
; 42          0042  1 !
; 43          0043  1 ! AUTHOR:  Distributed Systems Software Engineering
; 44          0044  1 !
; 45          0045  1 ! CREATION DATE:  30-DEC-1979
; 46          0046  1 !
; 47          0047  1 ! MODIFIED BY:
; 48          0048  1 !
; 49          0049  1 !       V03-004 MKP0005         Kathy Perko     4-Aug-1983
; 50          0050  1 !               Enhance access time to the node permanent database by using
; 51          0051  1 !               multiple ISAM keys to speed up access.
; 52          0052  1 !
; 53          0053  1 !       V03-003 MKP0004         Kathy Perko     26-April-1983
; 54          0054  1 !               Make GETTABLE a global routine for SET MODULE CONFIGURATOR
; 55          0055  1 !               ALL command processing.
; 56          0056  1 !
; 57          0057  1 !       V03-002 MKP0003         Kathy Perko     5-July-1982
```

```
;    58          0058  1 !                 Add support to list X25-Protocol Group entity (a single
;    59          0059  1 !                 entity show is essentially a multiple show command because
;    60          0060  1 !                 there can be more than one DTE per group.)
;    61          0061  1 !                 Add X29 Server and Trace Modules.
;    62          0062  1 !
;    63          0063  1 !         V03-001 MKP0002         Kathy Perko     16-June-1982
;    64          0064  1 !                 Add handling for entity qualifiers.
;    65          0065  1 !
;    66          0066  1 !         V02-001 MKP0001         Kathy Perko     23-July-1981
;    67          0067  1 !                 Add circuit entity and multidrop lines.
;    68          0068  1 !--
;    69          0069  1
```

```
;    71          0070  1 %SBTTL 'Declarations'
;    72          0071  1
;    73          0072  1 !
;    74          0073  1 ! TABLE OF CONTENTS:
;    75          0074  1 !
;    76          0075  1
;    77          0076  1 FORWARD ROUTINE
;    78          0077  1     NML$LISTKNOWN       : NOVALUE,
;    79          0078  1     NML$LIST_KNOWN_NODES: NOVALUE,
;    80          0079  1     NML$LISTENTITY      : NOVALUE,
;    81          0080  1     NML_LISTENTITY,
;    82          0081  1     NML$LIST_TYPE_NODES: NOVALUE,
;    83          0082  1     NML$GETTABLE        : NOVALUE;
;    84          0083  1
;    85          0084  1 !
;    86          0085  1 ! INCLUDE FILES:
;    87          0086  1 !
;    88          0087  1
;    89          0088  1 LIBRARY 'LIB$:NMLLIB.L32';
;    90          0089  1 LIBRARY 'SHRLIB$:NMALIBRY.L32';
;    91          0090  1 LIBRARY 'SYS$LIBRARY:STARLET.L32';
;    92          0091  1
;    93          0092  1 !
;    94          0093  1 ! EQUATED SYMBOLS:
;    95          0094  1 !
;    96          0095  1
;    97          0096  1 !
;    98          0097  1 ! OWN STORAGE:
;    99          0098  1 !
;   100          0099  1
;   101          0100  1 !
;   102          0101  1 ! Entity buffer and descriptor.
;   103          0102  1 !
;   104          0103  1 OWN
;   105          0104  1     NML$T_ENTITYBUF : BBLOCK [NML$K_ENTBUFLEN],
;   106          0105  1     NML$Q_ENTITYDSC : DESCRIPTOR;
;   107          0106  1
;   108          0107  1 !
;   109          0108  1 ! EXTERNAL REFERENCES:
;   110          0109  1 !
;   111          0110  1
;   112          0111  1 $NML_EXTDEF;
;   113          0112  1
;   114          0113  1 EXTERNAL ROUTINE
;   115          0114  1     NML$OPENFILE,
;   116          0115  1     NML$BLD_REPLY,
;   117          0116  1     NML$ERROR_1,
;   118          0117  1     NML$ERROR_2,
;   119          0118  1     NML$GETRECOWNER,
;   120          0119  1     NML$MATCHRECORD,
;   121          0120  1     NML$READPARLIST,
;   122          0121  1     NML$READRECORD,
;   123          0122  1     NML$READ_KNOWN_NODE_REC,
;   124          0123  1     NML$SEND;
;   125          0124  1
```

```
;  127          0125  1 %SBTTL 'NML$LISTKNOWN  List known entity parameters'
;  128          0126  1 GLOBAL ROUTINE NML$LISTKNOWN (ENTITY, INF, ENTITY_LEN, ENTITY_ADR) : NOVALUE =
;  129          0127  1
;  130          0128  1 !++
;  131          0129  1 ! FUNCTIONAL DESCRIPTION:
;  132          0130  1 !
;  133          0131  1 !       This routine lists entries for all entities of the specified type
;  134          0132  1 !       in the permanent data base.
;  135          0133  1 !
;  136          0134  1 ! FORMAL PARAMETERS:
;  137          0135  1 !
;  138          0136  1 !       ENTITY          Entity type code.
;  139          0137  1 !       INF             Information type code.
;  140          0138  1 !       ENTITY_LEN      Byte count of entity id string (used only if there
;  141          0139  1 !                       is a qualifier in the command, in which case it is
;  142          0140  1 !                       essentially a multiple LIST command.)
;  143          0141  1 !       ENTITY_ADR      Address of entity id string (used only if there is
;  144          0142  1 !                       a qualifier in the command, in which case it is
;  145          0143  1 !                       essentially a multiple LIST command.)
;  146          0144  1 !
;  147          0145  1 !--
;  148          0146  1
;  149          0147  2     BEGIN
;  150          0148  2
;  151          0149  2     LOCAL
;  152          0150  2         FID,                            ! File id code
;  153          0151  2         KEY,                            ! Temporary record key buffer
;  154          0152  2         OWNER,                          ! Data base search key
;  155          0153  2         RECDSC : DESCRIPTOR,            ! Record descriptor
;  156          0154  2         TABDSC : REF DESCRIPTOR;
;  157          0155  2
;  158          0156  2 !
;  159          0157  2 ! Set up entity-specific information.
;  160          0158  2 !
;  161          0159  2     SELECTONEU .ENTITY OF
;  162          0160  2         SET
;  163          0161  2
;  164          0162  2         [NML$C_CIRCUIT]:
;  165          0163  3             BEGIN
;  166          0164  3 !
;  167          0165  3 ! Open node file to get loop node name.
;  168          0166  3 ! (If open fails, return other information anyway.)
;  169          0167  3 !
;  170          0168  3             NML$OPENFILE (NMA$C_OPN_NODE, NMA$C_OPN_AC_RO);
;  171          0169  3
;  172          0170  2             END;
;  173          0171  2
;  174          0172  2         TES;
;  175          0173  2 !
;  176          0174  2 ! Get entity information.
;  177          0175  2 !
;  178          0176  2     FID = .NML$AB_ENTITYDATA [.ENTITY, EIT$B_FILEID]; ! Get file id
;  179          0177  2     OWNER = .NML$AB_ENTITYDATA [.ENTITY, EIT$W_KEY];  ! Get search key
;  180          0178  2 !
;  181          0179  2 ! Get table.
;  182          0180  2 !
;  183          0181  2     NML$GETTABLE (.ENTITY, .INF, TABDSC);
```

```
;  184          0182  2 !
;  185          0183  2 ! Try to match record in file.
;  186          0184  2 !
;  187          0185  2     KEY = 0;                                ! Initialize record key
;  188          0186  2     WHILE NML$MATCHRECORD (.FID, NML$GQ_RECBFDSC, KEY, .OWNER,
;  189          0187  2                                .ENTITY_LEN, .ENTITY_ADR,
;  190          0188  2                               0, 0, 0, RECDSC) DO
;  191          0189  3         BEGIN
;  192          0190  3         NML_LISTENTITY (.ENTITY, RECDSC, .TABDSC);
;  193          0191  3         KEY = .KEY + 1;
;  194          0192  2         END;
;  195          0193  2
;  196          0194  1     END;                                    ! End of NML$LISTKNOWN


                                                        .TITLE  NML$LIST NML LIST permanent parameter module
                                                        .IDENT  \V04-000\

                                                        .PSECT  $OWN$,NOEXE,2

                                                00000 NML$T_ENTITYBUF:
                                                        .BLKB   64
                                                00040 NML$Q_ENTITYDSC:
                                                        .BLKB   8

                                                        .EXTRN  NML$GB_EVTSRCTYP
                                                        .EXTRN  NML$GQ_EVTSRCDSC
                                                        .EXTRN  NML$GW_EVTCLASS
                                                        .EXTRN  NML$GB_EVTMSKTYP
                                                        .EXTRN  NML$GQ_EVTMSKDSC
                                                        .EXTRN  NML$GW_EVTSNKADR
                                                        .EXTRN  NML$GW_ACP_CHAN
                                                        .EXTRN  NML$GL_LOGMASK, NML$GQ_ENTSTRDSC
                                                        .EXTRN  NML$AB_QIOBUFFER
                                                        .EXTRN  NML$GQ_QIOBFDSC
                                                        .EXTRN  NML$AB_EXEBUFFER
                                                        .EXTRN  NML$GL_EXEDATPTR
                                                        .EXTRN  NML$GQ_EXEDATDSC
                                                        .EXTRN  NML$GQ_EXEBFDSC
                                                        .EXTRN  NML$AB_RCVBUFFER
                                                        .EXTRN  NML$GQ_RCVBFDSC
                                                        .EXTRN  NML$AB_SNDBUFFER
                                                        .EXTRN  NML$GQ_SNDBFDSC
                                                        .EXTRN  NML$GL_RCVDATLEN
                                                        .EXTRN  NML$AB_CPTABLE, NML$AB_MSGBLOCK
                                                        .EXTRN  NML$AB_ENTITY_ID
                                                        .EXTRN  NML$AB_QUALIFIER_ID
                                                        .EXTRN  NML$AB_ENTITYDATA
                                                        .EXTRN  NML$AB_NML_NMV, NML$AB_PRMSEM
                                                        .EXTRN  NML$AB_RECBUF, NML$AL_ENTINFTAB
                                                        .EXTRN  NML$AL_PERMINFTAB
                                                        .EXTRN  NML$AW_PRM_DES, NML$GB_CMD_VER
                                                        .EXTRN  NML$GB_ENTITY_CODE
                                                        .EXTRN  NML$GB_ENTITY_FORMAT
                                                        .EXTRN  NML$GL_QUALIFIER_PST
                                                        .EXTRN  NML$GB_QUALIFIER_FORMAT
                                                        .EXTRN  NML$GB_FUNCTION
```

```
                                                .EXTRN  NML$GB_INFO, NML$GB_OPTIONS
                                                .EXTRN  NML$GL_PRMCODE, NML$GL_PRS_FLGS
                                                .EXTRN  NML$GL_NML_ENTITY
                                                .EXTRN  NML$GQ_NETNAMDSC
                                                .EXTRN  NML$GQ_RECBFDSC
                                                .EXTRN  NML$GW_PRMDESCNT
                                                .EXTRN  NML$OPENFILE, NML$BLD_REPLY
                                                .EXTRN  NML$ERROR_1, NML$ERROR_2
                                                .EXTRN  NML$GETRECOWNER
                                                .EXTRN  NML$MATCHRECORD
                                                .EXTRN  NML$READPARLIST
                                                .EXTRN  NML$READRECORD, NML$READ_KNOWN_NODE_REC
                                                .EXTRN  NML$SEND

                                                .PSECT  $CODE$,NOWRT,2

                                  001C 00000    .ENTRY  NML$LISTKNOWN, Save R2,R3,R4                    ; 0126
                              5E    10  C2 00002      SUBL2   #16, SP                                 ;
                              52  04    AC  D0 00005      MOVL    ENTITY, R2                            ; 0159
                              09        52  D1 00009      CMPL    R2, #9                                ; 0162
                                        09  12 0000C      BNEQ    1$                                    ;
                                        7E  7C 0000E      CLRQ    -(SP)                                 ; 0168
                 00000000G    00         02  FB 00010      CALLS   #2, NML$OPENFILE                      ;
                          50    52        2C  C5 00017 1$:  MULL3   #44, R2, R0                           ; 0176
                              54 00000000G0040  9A 0001B      MOVZBL  NML$AB_ENTITYDATA[R0], FID            ;
                                 00000000G0040  9F 00023      PUSHAB  NML$AB_ENTITYDATA+3[R0]               ; 0177
                              53        9E  3C 0002A      MOVZWL  @(SP)+, OWNER                         ;
                                        5E  DD 0002D      PUSHL   SP                                    ; 0181
                                    08  AC  DD 0002F      PUSHL   INF                                   ;
                                        52  DD 00032      PUSHL   R2                                    ;
                 00000000V    00         03  FB 00034      CALLS   #3, NML$GETTABLE                      ;
                                    04  AE  D4 0003B      CLRL    KEY                                   ; 0185
                                    08  AE  9F 0003E 2$:  PUSHAB  RECDSC                                ; 0186
                                        7E  7C 00041      CLRQ    -(SP)                                 ;
                                        7E  D4 00043      CLRL    -(SP)                                 ;
                              7E        0C  AC  7D 00045      MOVQ    ENTITY_LEN, -(SP)                 ; 0187
                                        53  DD 00049      PUSHL   OWNER                                 ; 0186
                                    20  AE  9F 0004B      PUSHAB  KEY                                   ;
                                 00000000G  00  9F 0004E      PUSHAB  NML$GQ_RECBFDSC                   ;
                                        54  DD 00054      PUSHL   FID                                   ;
                 00000000G    00         0A  FB 00056      CALLS   #10, NML$MATCHRECORD                  ;
                              13        50  E9 0005D      BLBC    R0, 3$                                ;
                                        6E  DD 00060      PUSHL   TABDSC                                ; 0190
                                    0C  AE  9F 00062      PUSHAB  RECDSC                                ;
                                        52  DD 00065      PUSHL   R2                                    ;
                 00000000V    00         03  FB 00067      CALLS   #3, NML_LISTENTITY                    ;
                                    04  AE  D6 0006E      INCL    KEY                                   ; 0191
                                        CB  11 00071      BRB     2$                                    ; 0186
                                            04 00073 3$:  RET                                           ; 0194

; Routine Size:  116 bytes,    Routine Base:  $CODE$ + 0000

;  197          0195  1
```

```
;  199     0196  1 %SBTTL 'NML$LIST_KNOWN_NODES  List known nodes'
;  200     0197  1 GLOBAL ROUTINE NML$LIST_KNOWN_NODES (ENTITY, INF, DUM1, DUM2) : NOVALUE =
;  201     0198  1
;  202     0199  1 !++
;  203     0200  1 ! FUNCTIONAL DESCRIPTION:
;  204     0201  1 !
;  205     0202  1 !       This routine lists all entries for nodes that are in the permanent
;  206     0203  1 !       data base.  The executor node is listed first.  Remote nodes are
;  207     0204  1 !       then listed.  Loop nodes are listed last.
;  208     0205  1 !
;  209     0206  1 ! FORMAL PARAMETERS:
;  210     0207  1 !
;  211     0208  1 !       ENTITY          Entity type code.
;  212     0209  1 !       INF             Information type code.
;  213     0210  1 !       DUM1            Not used.
;  214     0211  1 !       DUM2            Not used.
;  215     0212  1 !
;  216     0213  1 ! IMPLICIT INPUTS:
;  217     0214  1 !
;  218     0215  1 !       NONE
;  219     0216  1 !
;  220     0217  1 ! IMPLICIT OUTPUTS:
;  221     0218  1 !
;  222     0219  1 !       NONE
;  223     0220  1 !
;  224     0221  1 ! ROUTINE VALUE:
;  225     0222  1 ! COMPLETION CODES:
;  226     0223  1 !
;  227     0224  1 !       NONE
;  228     0225  1 !
;  229     0226  1 ! SIDE EFFECTS:
;  230     0227  1 !
;  231     0228  1 !       NONE
;  232     0229  1 !
;  233     0230  1 !--
;  234     0231  1
;  235     0232  2 BEGIN
;  236     0233  2 !
;  237     0234  2 ! Return executor node.
;  238     0235  2 !
;  239     0236  2 nml$list_type_nodes (nml$c_executor, .inf, 0, 0);
;  240     0237  2 !
;  241     0238  2 ! Return remote nodes.
;  242     0239  2 !
;  243     0240  2 nml$list_type_nodes (nml$c_node, .inf, 0, 0);
;  244     0241  2 !
;  245     0242  2 ! Return loop nodes.
;  246     0243  2 !
;  247     0244  2 nml$list_type_nodes (nml$c_loopnode, .inf, 0, 0);
;  248     0245  2
;  249     0246  1 END;                                    ! End of NML$LIST_KNOWN_NODES


                0004 00000          .ENTRY  NML$LIST_KNOWN_NODES, Save R2                   ; 0197
```

```
                                52 00000000V  00  9E 00002         MOVAB   NML$LIST_TYPE_NODES, R2                  ;
                                              7E  7C 00009         CLRQ    -(SP)                                   ; 0236
                                      08      AC  DD 0000B         PUSHL   INF                                     ;
                                              07  DD 0000E         PUSHL   #7                                      ;
                                62            04  FB 00010         CALLS   #4, NML$LIST_TYPE_NODES                 ;
                                              7E  7C 00013         CLRQ    -(SP)                                   ; 0240
                                      08      AC  DD 00015         PUSHL   INF                                     ;
                                              03  DD 00018         PUSHL   #3                                      ;
                                62            04  FB 0001A         CALLS   #4, NML$LIST_TYPE_NODES                 ;
                                              7E  7C 0001D         CLRQ    -(SP)                                   ; 0244
                                      08      AC  DD 0001F         PUSHL   INF                                     ;
                                              05  DD 00022         PUSHL   #5                                      ;
                                62            04  FB 00024         CALLS   #4, NML$LIST_TYPE_NODES                 ;
                                              04  00027         RET                                             ; 0246

; Routine Size:  40 bytes,    Routine Base:  $CODE$ + 0074

;  250          0247  1
```

```
;  252          0248  1 %SBTTL 'NML$LISTENTITY  List entity parameters'
;  253          0249  1 GLOBAL ROUTINE NML$LISTENTITY (ENTITY, INF, ENTITY_LEN, ENTITY_ADR) : NOVALUE =
;  254          0250  1
;  255          0251  1 !++
;  256          0252  1 ! FUNCTIONAL DESCRIPTION:
;  257          0253  1 !
;  258          0254  1 !       This routine lists permanent data base information for the specified
;  259          0255  1 !       entity.
;  260          0256  1 !
;  261          0257  1 ! FORMAL PARAMETERS:
;  262          0258  1 !
;  263          0259  1 !       ENTITY          Entity type code.
;  264          0260  1 !       INF             Information type code.
;  265          0261  1 !       ENTITY_LEN      Byte count of entity id string.
;  266          0262  1 !       ENTITY_ADR      Address of entity id string.
;  267          0263  1 !
;  268          0264  1 !--
;  269          0265  1
;  270          0266  2 BEGIN
;  271          0267  2
;  272          0268  2 LOCAL
;  273          0269  2     fid,                                ! File id code
;  274          0270  2     key,                                ! Temporary record key buffer
;  275          0271  2     key_value_dsc: VECTOR [2],
;  276          0272  2     detail,                             ! Error detail
;  277          0273  2     owner,                              ! Data base search key
;  278          0274  2     recdsc : DESCRIPTOR,                ! Record descriptor
;  279          0275  2     tabdsc : REF DESCRIPTOR,
;  280          0276  2     status,
;  281          0277  2     node_type;
;  282          0278  2
;  283          0279  2 !
;  284          0280  2 ! If LISTing a circuit, open node file in case there's a loop node set up
;  285          0281  2 ! on the circuit.  In that case I must get loop node name to add to the
;  286          0282  2 ! NCP response message.  (If open fails, return other information anyway.)
;  287          0283  2 !
;  288          0284  2 !
;  289          0285  2 IF .entity EQL nml$c_circuit THEN
;  290          0286  2     nml$openfile (nma$c_opn_node, nma$c_opn_ac_ro);
;  291          0287  2 !
;  292          0288  2 ! Get entity information.
;  293          0289  2 !
;  294          0290  2 fid = .nml$ab_entitydata [.entity, eit$b_fileid];     ! Get file id
;  295          0291  2 owner = .nml$ab_entitydata [.entity, eit$w_key];      ! Search key
;  296          0292  2 detail = .nml$ab_entitydata [.entity, eit$w_detail]; ! Error detail
;  297          0293  2 !
;  298          0294  2 ! Try to get the entity's record from the permanent database file.
;  299          0295  2 ! The node database organization is different from the others (it uses
;  300          0296  2 ! 3 ISAM keys instead of one) to make it more efficient.  This is
;  301          0297  2 ! necessary because of it's size.
;  302          0298  2 !
;  303          0299  2 node_type = 0;
;  304          0300  2 IF .fid EQL nma$c_opn_node THEN
;  305          0301  3     BEGIN
;  306          0302  3     IF .entity EQL nml$c_executor THEN
;  307          0303  4         BEGIN
;  308          0304  4         key_value_dsc [0] = nmn$c_typ_key_len;
```

```
;  309          0305  4          key_value_dsc [1] = UPLIT (nml$c_executor);
;  310          0306  4          END
;  311          0307  3      ELSE
;  312          0308  4          BEGIN
;  313          0309  4          key_value_dsc [0] = .entity_len;
;  314          0310  4          key_value_dsc [1] = .entity_adr;
;  315          0311  3          END;
;  316          0312  3      status = nml$readrecord (.fid,                ! Node DB file ID
;  317          0313  3                              owner,               ! ISAM key type to use.
;  318          0314  3                              key_value_dsc,       ! Entity ID descriptor address
;  319          0315  3                              nml$gq_recbfdsc,     ! Read buffer.
;  320          0316  3                              recdsc,              ! Return data descriptor.
;  321          0317  3                              node_type);          ! Not used for list.
;  322          0318  3      END
;  323          0319  2  ELSE
;  324          0320  3      BEGIN
;  325          0321  3      key = 0;                                  ! Initialize record key
;  326          0322  3      status = nml$matchrecord (.fid, nml$gq_recbfdsc, key, .owner,
;  327          0323  3                              .entity_len, .entity_adr,
;  328          0324  3                              0, 0, 0, recdsc);
;  329          0325  2      END;
;  330          0326  2  IF .status THEN
;  331          0327  3      BEGIN
;  332          0328  3      !
;  333          0329  3      ! If the entity read was a node that turned out to be the executor,
;  334          0330  3      ! make sure the LIST information returned to NCP is for the executor.
;  335          0331  3      !
;  336          0332  3      IF .node_type EQL nml$c_executor THEN
;  337          0333  3          entity = nml$c_executor;
;  338          0334  3      !
;  339          0335  3      ! Get table of parameters to include in LIST type (STATUS, SUMMARY, or CHAR).
;  340          0336  3      !
;  341          0337  3      nml$gettable (.entity, .inf, tabdsc);
;  342          0338  3      nml_listentity (.entity, recdsc, .tabdsc);
;  343          0339  3      END
;  344          0340  2  ELSE
;  345          0341  2      nml$error_2 (nma$c_sts_cmp, .detail); ! Signal error message
;  346          0342  2
;  347          0343  1  END;                                 ! End of NML$LISTENTITY


                                                .PSECT  $PLIT$,NOWRT,NOEXE,2

                              00000007  00000 P.AAA:  .LONG   7                                          ;


                                                .PSECT  $CODE$,NOWRT,2

                                 001C 00000          .ENTRY  NML$LISTENTITY, Save R2,R3,R4               ; 0249
                    54 00000000G  00   9E 00002      MOVAB   NML$GQ_RECBFDSC, R4                        ;
                    53 00000000G  00   9E 00009      MOVAB   NML$AB_ENTITYDATA, R3                      ;
                    5E            20   C2 00010      SUBL2   #32, SP                                    ;
                    09        04  AC   D1 00013      CMPL    ENTITY, #9                                 ; 0285
                                  09   12 00017      BNEQ    1$                                         ;
                                  7E   7C 00019      CLRQ    -(SP)                                      ; 0286
```

```
                00000000G  00              02  FB  0001B                CALLS   #2, NML$OPENFILE                        ;
              50        04  AC              2C  C5  00022  1$:          MULL3   #44, ENTITY, R0                         ; 0290
                            51          6340  9A  00027                MOVZBL  NML$AB_ENTITYDATA[R0], FID              ;
                          03 A340           9F  0002B                PUSHAB  NML$AB_ENTITYDATA+3[R0]                 ; 0291
                        04  AE              9E  3C  0002F                MOVZWL  @(SP)+, OWNER                           ;
                          01 A340           9F  00033                PUSHAB  NML$AB_ENTITYDATA+1[R0]                 ; 0292
                            52              9E  3C  00037                MOVZWL  @(SP)+, DETAIL                          ;
                                            6E  D4  0003A                CLRL    NODE_TYPE                               ; 0299
                                            51  D5  0003C                TSTL    FID                                     ; 0300
                                            31  12  0003E                BNEQ    4$                                      ;
                            07          04  AC  D1  00040                CMPL    ENTITY, #7                              ; 0302
                                            0E  12  00044                BNEQ    2$                                      ;
                        18  AE              02  D0  00046                MOVL    #2, KEY_VALUE_DSC                       ; 0304
                        1C  AE  00000000'   00  9E  0004A                MOVAB   P.AAA, KEY_VALUE_DSC+4                  ; 0305
                                            05  11  00052                BRB     3$                                      ; 0302
                        18  AE          0C  AC  7D  00054  2$:          MOVQ    ENTITY_LEN, KEY_VALUE_DSC               ; 0309
                                            5E  DD  00059  3$:          PUSHL   SP                                      ; 0312
                                        14  AE  9F  00C5B                PUSHAB  RECDSC                                  ;
                                            54  DD  0005E                PUSHL   R4                                      ;
                                        24  AE  9F  00060                PUSHAB  KEY_VALUE_DSC                           ;
                                        14  AE  9F  00063                PUSHAB  OWNER                                   ;
                                            51  DD  00066                PUSHL   FID                                     ;
                00000000G  00               06  FB  00068                CALLS   #6, NML$READRECORD                      ;
                                            1D  11  0006F                BRB     5$                                      ; 0300
                                        08  AE  D4  00071  4$:          CLRL    KEY                                     ; 0321
                                        10  AE  9F  00074                PUSHAB  RECDSC                                  ; 0322
                                            7E  7C  00077                CLRQ    -(SP)                                   ;
                                            7E  D4  00079                CLRL    -(SP)                                   ;
                            7E          0C  AC  7D  0007B                MOVQ    ENTITY_LEN, -(SP)                       ; 0323
                                        1C  AE  DD  0007F                PUSHL   OWNER                                   ; 0322
                                        24  AE  9F  00082                PUSHAB  KEY                                     ;
                                            12  BB  00085                PUSHR   #^M<R1,R4>                              ;
                00000000G  00               0A  FB  00087                CALLS   #10, NML$MATCHRECORD                    ;
                            28              50  E9  0008E  5$:          BLBC    STATUS, 7$                              ; 0326
                            07              6E  D1  00091                CMPL    NODE_TYPE, #7                           ; 0332
                                            04  12  00094                BNEQ    6$                                      ;
                        04  AC              07  D0  00096                MOVL    #7, ENTITY                              ; 0333
                                        0C  AE  9F  0009A  6$:          PUSHAB  TABDSC                                  ; 0337
                            7E          04  AC  7D  0009D                MOVQ    ENTITY, -(SP)                           ;
                00000000V  00               03  FB  000A1                CALLS   #3, NML$GETTABLE                        ;
                                        0C  AE  DD  000A8                PUSHL   TABDSC                                  ; 0338
                                        14  AE  9F  000AB                PUSHAB  RECDSC                                  ;
                                        04  AC  DD  000AE                PUSHL   ENTITY                                  ;
                00000000V  00               03  FB  000B1                CALLS   #3, NML_LISTENTITY                      ;
                                            04  000B8                    RET                                             ; 0326
                                            52  DD  000B9  7$:          PUSHL   DETAIL                                  ; 0341
                            7E              08  CE  000BB                MNEGL   #8, -(SP)                               ;
                00000000G  00               02  FB  000BE                CALLS   #2, NML$ERROR_2                         ;
                                            04  000C5                    RET                                             ; 0343

; Routine Size:  198 bytes,    Routine Base:  $CODE$ + 009C
```

```
;  349          0344  1 %SBTTL 'NML_LISTENTITY  List known entity parameters'
;  350          0345  1 ROUTINE NML_LISTENTITY (ENTITY, RECDSC, TABDSC) =
;  351          0346  1
;  352          0347  1 !++
;  353          0348  1 ! FUNCTIONAL DESCRIPTION:
;  354          0349  1 !
;  355          0350  1 !       This routine performs common list function for both singular and
;  356          0351  1 !       plural entity operations.
;  357          0352  1 !
;  358          0353  1 ! FORMAL PARAMETERS:
;  359          0354  1 !
;  360          0355  1 !       ENTITY          Entity type code.
;  361          0356  1 !       RECDSC          Address of permanent data base record descriptor.
;  362          0357  1 !       TABDSC          Address of parameter list table descriptor.
;  363          0358  1 !
;  364          0359  1 ! IMPLICIT INPUTS:
;  365          0360  1 !
;  366          0361  1 !       NONE
;  367          0362  1 !
;  368          0363  1 ! IMPLICIT OUTPUTS:
;  369          0364  1 !
;  370          0365  1 !       NONE
;  371          0366  1 !
;  372          0367  1 ! ROUTINE VALUE:
;  373          0368  1 ! COMPLETION CODES:
;  374          0369  1 !
;  375          0370  1 !       Always returns success.
;  376          0371  1 !
;  377          0372  1 ! SIDE EFFECTS:
;  378          0373  1 !
;  379          0374  1 !       NONE
;  380          0375  1 !
;  381          0376  1 !--
;  382          0377  1
;  383          0378  2     BEGIN
;  384          0379  2
;  385          0380  2     LOCAL
;  386          0381  2         MSG_SIZE;                       ! Message size
;  387          0382  2
;  388          0383  2 !
;  389          0384  2 ! Get the record owner.
;  390          0385  2 !
;  391          0386  2     NML$AB_MSGBLOCK [MSB$B_CODE] = NMA$C_STS_SUC;
;  392          0387  2     NML$Q_ENTITYDSC [DSC$W_LENGTH] = NML$K_ENTBUFLEN; ! Initialize entity descriptor
;  393          0388  2     NML$Q_ENTITYDSC [DSC$A_POINTER] = NML$T_ENTITYBUF;
;  394          0389  2
;  395          0390  2     IF NML$GETRECOWNER (.RECDSC,
;  396          0391  2                         .ENTITY,
;  397          0392  2                         NML$Q_ENTITYDSC,
;  398          0393  2                         NML$Q_ENTITYDSC [DSC$W_LENGTH])
;  399          0394  2     THEN
;  400          0395  3         BEGIN
;  401          0396  3         NML$AB_MSGBLOCK [MSB$L_FLAGS] = MSB$M_ENTD_FLD; ! Set entity descriptor flag
;  402          0397  3         NML$AB_MSGBLOCK [MSB$A_ENTITY] = NML$Q_ENTITYDSC; ! Add entity descriptor pointer
;  403          0398  2         END;
;  404          0399  2
;  405          0400  2     NML$BLD_REPLY (NML$AB_MSGBLOCK, MSG_SIZE); ! Build message
```

```
;  406          0401  2
;  407          0402  2      NML$READPARLIST (NML$GQ_SNDBFDSC, MSG_SIZE, .TABDSC, .RECDSC);
;  408          0403  2
;  409          0404  2      NML$SEND (NML$AB_SNDBUFFER, .MSG_SIZE); ! Send message
;  410          0405  2
;  411          0406  2      RETURN NML$_STS_SUC
;  412          0407  2
;  413          0408  1      END;                                    ! End of NML_LISTENTITY


                                        000C 00000 NML_LISTENTITY:
                                                           .WORD   Save R2,R3                                          ; 0345
                          53 00000000G   00  9E 00002      MOVAB   NML$AB_MSGBLOCK, R3                                 ;
                          52 00000000'   00  9E 00009      MOVAB   NML$Q_ENTITYDSC, R2                                 ;
                          5E             04  C2 00010      SUBL2   #4, SP                                              ;
                    04    A3             01  90 00013      MOVB    #1, NML$AB_MSGBLOCK+4                               ; 0386
                          62       40    8F  9B 00017      MOVZBW  #64, NML$Q_ENTITYDSC                                ; 0387
                    04    A2       C0    A2  9E 0001B      MOVAB   NML$T_ENTITYBUF, NML$Q_ENTITYDSC+4                  ; 0388
                                         52  DD 00020      PUSHL   R2                                                  ; 0393
                                         52  DD 00022      PUSHL   R2                                                  ; 0390
                                   04    AC  DD 00024      PUSHL   ENTITY                                              ; 0393
                                   08    AC  DD 00027      PUSHL   RECDSC                                              ;
                 00000000G         00      04  FB 0002A      CALLS   #4, NML$GETRECOWNER                                 ;
                                   07      50  E9 00031      BLBC    R0, 1$                                              ;
                                   63      10  D0 00034      MOVL    #16, NML$AB_MSGBLOCK                                ; 0396
                          14       A3      62  9E 00037      MOVAB   NML$Q_ENTITYDSC, NML$AB_MSGBLOCK+20                 ; 0397
                                     4008  8F  BB 0003B 1$:   PUSHR   #^M<R3,SP>                                         ; 0400
                 00000000G         00      02  FB 0003F      CALLS   #2, NML$BLD_REPLY                                   ;
                                   08      AC  DD 00046      PUSHL   RECDSC                                              ; 0402
                                   0C      AC  DD 00049      PUSHL   TABDSC                                              ;
                                   08      AE  9F 0004C      PUSHAB  MSG_SIZE                                            ;
                             00000000G     00  9F 0004F      PUSHAB  NML$GQ_SNDBFDSC                                     ;
                 00000000G         00      04  FB 00055      CALLS   #4, NML$READPARLIST                                 ;
                                         6E  DD 0005C      PUSHL   MSG_SIZE                                            ; 0404
                             00000000G     00  9F 0005E      PUSHAB  NML$AB_SNDBUFFER                                    ;
                 00000000G         00      02  FB 00064      CALLS   #2, NML$SEND                                        ;
                                   50      01  D0 0006B      MOVL    #1, R0                                              ; 0406
                                           04  0006E      RET                                                         ; 0408

; Routine Size:  111 bytes,    Routine Base:  $CODE$ + 0162
```

```
;  415          0409  1 %SBTTL 'NML$LIST_TYPE_NODES  List known node parameters'
;  416          0410  1 GLOBAL ROUTINE NML$LIST_TYPE_NODES (ENTITY, INF, DUM1, DUM2) : NOVALUE =
;  417          0411  1
;  418          0412  1 !++
;  419          0413  1 ! FUNCTIONAL DESCRIPTION:
;  420          0414  1 !       This routine lists permanent data base information for known remote
;  421          0415  1 !       nodes or loopnodes.
;  422          0416  1 !
;  423          0417  1 ! FORMAL PARAMETERS:
;  424          0418  1 !
;  425          0419  1 !       ENTITY          Entity type code (always NML$C_NODE).
;  426          0420  1 !       INF             Information type code.
;  427          0421  1 !       DUM1            Not used.
;  428          0422  1 !       DUM2            Not used.
;  429          0423  1 !
;  430          0424  1 !--
;  431          0425  1
;  432          0426  2 BEGIN                                                                   ;
;  433          0427  2
;  434          0428  2 LOCAL
;  435          0429  2     recdsc : DESCRIPTOR,                ! Record descriptor
;  436          0430  2     tabdsc : REF DESCRIPTOR,            ! Table descriptor
;  437          0431  2     rewind_flag;
;  438          0432  2
;  439          0433  2 !
;  440          0434  2 ! Get entity information.
;  441          0435  2 !
;  442          0436  2 nml$gettable (.entity, .inf, tabdsc);   ! Get information table
;  443          0437  2 !
;  444          0438  2 ! Read all records that have a node type key (remote or loopnode) that
;  445          0439  2 ! matches the entity type parameter.
;  446          0440  2 !
;  447          0441  2 rewind_flag = true;
;  448          0442  2 WHILE nml$read_known_node_rec (.entity,
;  449          0443  2                               nml$gq_recbfdsc,
;  450          0444  2                               recdsc,
;  451          0445  2                               .rewind_flag) DO
;  452          0446  3     BEGIN
;  453          0447  3     rewind_flag = false;
;  454          0448  3     nml_listentity (.entity, recdsc, .tabdsc);
;  455          0449  2     END;
;  456          0450  1 END;                                ! End of nml$list_type_nodes


                                    0004 00000          .ENTRY  NML$LIST_TYPE_NODES, Save R2                    ; 0410
                          5E        0C   C2 00002          SUBL2   #12, SP                                         ;
                                    5E   DD 00005          PUSHL   SP                                              ; 0436
                          7E  04    AC   7D 00007          MOVQ    ENTITY, -(SP)                                   ;
              00000000V   00        03   FB 0000B          CALLS   #3, NML$GETTABLE                                ;
                          52        01   D0 00012          MOVL    #1, REWIND_FLAG                                 ; 0441
                                    52   DD 00015 1$:       PUSHL   REWIND_FLAG                                     ; 0445
                              08    AE   9F 00017          PUSHAB  RECDSC                                          ; 0442
                 00000000G    00    9F   0001A          PUSHAB  NML$GQ_RECBFDSC                                 ;
                              04    AC   DD 00020          PUSHL   ENTITY                                          ;
```

```
                00000000G  00          04  FB  00023          CALLS   #4, NML$READ_KNOWN_NODE_REC                ;
                           11          50  E9  0002A          BLBC    R0, 2$                                    ;
                                       52  D4  0002D          CLRL    REWIND_FLAG                               ; 0447
                                       6E  DD  0002F          PUSHL   TABDSC                                    ; 0448
                                   08  AE  9F  00031          PUSHAB  RECDSC                                    ;
                                   04  AC  DD  00034          PUSHL   ENTITY                                    ;
                      FF55     CF         03  FB  00037          CALLS   #3, NML_LISTENTITY                        ;
                                          D7  11  0003C          BRB     1$                                        ; 0442
                                              04  0003E  2$:      RET                                               ; 0450

; Routine Size:  63 bytes,    Routine Base:  $CODE$ + 01D1
```

```
;  458          0451  1 %SBTTL 'NML$GETTABLE  Get table descriptor'
;  459          0452  1 GLOBAL ROUTINE NML$GETTABLE (ENTITY, INF, TABDSC) : NOVALUE =
;  460          0453  1
;  461          0454  1 !++
;  462          0455  1 ! FUNCTIONAL DESCRIPTION:
;  463          0456  1 !
;  464          0457  1 !       This routine selects the parameter table for processing permanent
;  465          0458  1 !       data base information based on the entity type and the information
;  466          0459  1 !       type.
;  467          0460  1 !
;  468          0461  1 ! FORMAL PARAMETERS:
;  469          0462  1 !
;  470          0463  1 !       ENTITY          Entity id code.
;  471          0464  1 !       INF             Information type code.
;  472          0465  1 !       TABDSC          Address of table descriptor.
;  473          0466  1 !
;  474          0467  1 ! IMPLICIT INPUTS:
;  475          0468  1 !
;  476          0469  1 !       NONE
;  477          0470  1 !
;  478          0471  1 ! IMPLICIT OUTPUTS:
;  479          0472  1 !
;  480          0473  1 !       NONE
;  481          0474  1 !
;  482          0475  1 ! ROUTINE VALUE:
;  483          0476  1 ! COMPLETION CODES:
;  484          0477  1 !
;  485          0478  1 !       NONE
;  486          0479  1 !
;  487          0480  1 ! SIDE EFFECTS:
;  488          0481  1 !
;  489          0482  1 !       NONE
;  490          0483  1 !
;  491          0484  1 !--
;  492          0485  1
;  493          0486  2     BEGIN
;  494          0487  2
;  495          0488  2     LOCAL
;  496          0489  2         ENTTAB : REF VECTOR;
;  497          0490  2
;  498          0491  2 !
;  499          0492  2 ! Get the address of this entity's vector of information tables.
;  500          0493  2 !
;  501          0494  2     ENTTAB = .NML$AL_PERMINFTAB [.ENTITY];
;  502          0495  2 !
;  503          0496  2 ! Select the table according to the information type.
;  504          0497  2 !
;  505          0498  2     .TABDSC = .ENTTAB [.INF];
;  506          0499  2 !
;  507          0500  2 ! If the table descriptor address is equal to zero then the requested
;  508          0501  2 ! information type is not supported for this entity.  Signal an error
;  509          0502  2 ! indicating invalid function or option.
;  510          0503  2 !
;  511          0504  2     IF ..TABDSC EQLA 0
;  512          0505  2     THEN
;  513          0506  2         NML$ERROR_1 (NMA$C_STS_FUN);
;  514          0507  2
```

```
;  515          0508  2      RETURN NML$_STS_SUC
;  516          0509  2
;  517          0510  1      END;                                    ! End of NML$GETTABLE


                                                0000 00000          .ENTRY  NML$GETTABLE, Save nothing                  ; 0452
                                      50    04    AC  D0 00002      MOVL    ENTITY, R0                                  ; 0494
                                      51 00000000G0040  D0 00006      MOVL    NML$AL_PERMINFTAB[R0], ENTTAB
                                      50    08    AC  D0 0000E      MOVL    INF, R0                                     ; 0498
                                  0C  BC        6140  D0 00012      MOVL    (ENTTAB)[R0], @TABDSC
                                                0A  12 00017      BNEQ    1$                                          ; 0504
                                      7E        01  CE 00019      MNEGL   #1, -(SP)                                   ; 0506
                                00000000G   00  01  FB 0001C      CALLS   #1, NML$ERROR_1
                                                04  00023 1$:     RET                                                 ; 0510

; Routine Size:  36 bytes,    Routine Base:  $CODE$ + 0210

;  518          0511  1
```

```
;  520          0512  1 END                                   ! End of module
;  521          0513  1
;  522          0514  0 ELUDOM
```

```
;                                   PSECT SUMMARY

;       Name                    Bytes                           Attributes

;  $OWN$                          72  NOVEC,  WRT,  RD ,NOEXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;  $CODE$                        564  NOVEC,NOWRT,  RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)
;  $PLIT$                          4  NOVEC,NOWRT,  RD ,NOEXE,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        32         9          27        00:00.1
;  _$255$DUA28:[SHRLIB]NMALIBRY.L32;1     887         5         0          47        00:00.2
;  _$255$DUA28:[SYSLIB]STARLET.L32;1     9776         2         0         581        00:02.2
```

```
;                                   COMMAND QUALIFIERS

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

; Size:          564 code + 76 data bytes
; Run Time:          00:12.7
; Elapsed Time:      00:39.8
; Lines/CPU Min:      2430
; Lexemes/CPU-Min:    9243
; Memory Used:   100 pages
; Compilation Complete
```

NMLMSG
LIS

NMLLOGOPS
LIS

NMLMAIN
LIS

NMLNETIO
LIS

NMLLISPRM
LIS

NMLLIST
LIS