M 11

```
DDDDDDDDDDDD        CCCCCCCCCCCC  LLL
DDDDDDDDDDDD        CCCCCCCCCCCC  LLL
DDDDDDDDDDDD        CCCCCCCCCCCC  LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDD         DDD  CCC              LLL
DDDDDDDDDDDD        CCCCCCCCCCCC  LLLLLLLLLLLLLLL
DDDDDDDDDDDD        CCCCCCCCCCCC  LLLLLLLLLLLLLLL
DDDDDDDDDDDD        CCCCCCCCCCCC  LLLLLLLLLLLLLLL
```

```
  IIIIII    MM      MM    AAAAAA      GGGGGGGG  EEEEEEEEEE    CCCCCCCC  TTTTTTTTTT  RRRRRRRR    LL
  IIIIII    MM      MM    AAAAAA      GGGGGGGG  EEEEEEEEEE    CCCCCCCC  TTTTTTTTTT  RRRRRRRR    LL
    II      MMMM  MMMM  AA      AA  GG          EE          CC              TT      RR      RR  LL
    II      MMMM  MMMM  AA      AA  GG          EE          CC              TT      RR      RR  LL
    II      MM  MM  MM  AA      AA  GG          EE          CC              TT      RR      RR  LL
    II      MM  MM  MM  AA      AA  GG          EE          CC              TT      RR      RR  LL
    II      MM      MM  AA      AA  GG          EEEEEEEE    CC              TT      RRRRRRRR    LL
    II      MM      MM  AA      AA  GG          EEEEEEEE    CC              TT      RRRRRRRR    LL
    II      MM      MM  AAAAAAAAAA  GG  GGGGGG  EE          CC              TT      RR  RR      LL
    II      MM      MM  AAAAAAAAAA  GG  GGGGGG  EE          CC              TT      RR  RR      LL
    II      MM      MM  AA      AA  GG      GG  EE          CC              TT      RR    RR    LL              ....
    II      MM      MM  AA      AA  GG      GG  EE          CC              TT      RR    RR    LL              ....
  IIIIII    MM      MM  AA      AA    GGGGGG    EEEEEEEEEE    CCCCCCCC      TT      RR      RR  LLLLLLLLLL      ....
  IIIIII    MM      MM  AA      AA    GGGGGG    EEEEEEEEEE    CCCCCCCC      TT      RR      RR  LLLLLLLLLL      ....

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
```

Table of contents

```
0000            .TITLE  IMAGECTRL - IMAGE CONTROL
0000            .IDENT  'V04-000'
0000
0000    ;
0000    ;****************************************************************************
0000    ;*                                                                          *
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0000    ;*                                                                          *
0000    ;*                                                                          *
0000    ;****************************************************************************
0000    ;
0000    ; IMAGE CONTROL DCLS COMMAND EXECUTION
0000    ;
0000    ;       CONTINUE IMAGE EXECUTION
0000    ;       DEBUG IMAGE EXECUTION
0000    ;       STOP IMAGE EXECUTION
0000    ;
0000    ; D. N. CUTLER 4-APR-77
0000    ;
0000    ; MODIFIED BY:
0000    ;
0000    ;       V03-006 HWS0071         Harold Schultz          04-Jun-1984
0000    ;               When finished with skipping data records in the input
0000    ;               stream of an image being run down, set EOL in the input
0000    ;               buffer following the last record read.
0000    ;
0000    ;       V03-005 HWS0036         Harold Schultz          21-Mar-1984
0000    ;               Use PRC_V_IRUNDWN to indicate whether or not an image
0000    ;               has been run down by DCL
0000    ;
0000    ;       V03-004 HWS0026         Harold Schultz          09-Mar-1984
0000    ;               When shutting down an image, check if device is a
0000    ;               record-oriented device rather than a terminal.
0000    ;
0000    ;       V03-003 PCG0005         Peter George            15-Jun-1983
0000    ;               Create DCL$RMSRUNDWN.
0000    ;
0000    ;       V03-002 PCG0004         Peter George            24-Feb-1983
0000    ;               Remove SETBIT WRK_V_NOSTAT from CONTINUE and STOP.
0000    ;
0000    ;       V03-001 PCG0003         Peter George            21-Jan-1983
```

```
                               0000  ;                      Remove code that is duplicated in DCL$LOGOUT
                               0000  ;                      from DCL$STOP.
                               0000  ;---
```

```
                                    0000  ;
                                    0000  ; MACRO LIBRARY CALLS
                                    0000  ;
                                    0000
                                    0000        $PPDDEF                             ;PROCESS PERMANENT DATA AREA
                                    0000        PRCDEF                              ;DEFINE PROCESS WORK AREA
                                    0000        WRKDEF                              ;DEFINE COMMAND WORK AREA
                                    0000        PTRDEF                              ;DEFINE RESULT PARSE DESCRIPTOR FORMAT
                                    0000        $DEVDEF                             ;DEFINE DEVICE CHARACTERISTIC BITS
                                    0000        $PSLDEF                             ;DEFINE PROCESSOR STATUS FIELDS
                                    0000        $RABDEF                             ;DEFINE RAB OFFSETS
                                    0000        $SSDEF                              ;DEFINE SYSTEM STATUS VALUES
                                    0000        $CLIMSGDEF                          ;DEFINE ERROR/STATUS VALUES
                                    0000
                                    0000  ;
                                    0000  ; LOCAL DATA
                                    0000  ;
                                    0000  ; HEX CONVERSION TABLE
                                    0000  ;
                                    0000
                                00000000        .PSECT  DCL$ZCODE,BYTE,RD,NOWRT
34 35 36 37 38 39 41 42 43 44 45 46 0000  HEXTAB: .ASCII  /FEDCBA9876543210/      ;
                         30 31 32 33 000C
```

```
                           0010             .SBTTL  CONTINUE IMAGE EXECUTION
                           0010       ;+
                           0010       ; DCL$CONTINUE - CONTINUE IMAGE EXECUTION
                           0010       ;
                           0010       ; THIS ROUTINE IS CALLED AS AN INTERNAL COMMAND TO EXECUTE THE CONTINUE DCLS
                           0010       ; COMMAND.
                           0010       ;
                           0010       ; INPUTS:
                           0010       ;
                           0010       ;       R8 = ADDRESS OF SCRATCH BUFFER DESCRIPTOR.
                           0010       ;       R9 = ADDRESS OF SCRATCH STACK.
                           0010       ;       R10 = BASE ADDRESS OF COMMAND WORK AREA.
                           0010       ;       R11 = BASE ADDRESS OF PROCESS WORK AREA.
                           0010       ;
                           0010       ; OUTPUTS:
                           0010       ;
                           0010       ;       IF A PREVIOUS IMAGE WAS INTERRUPTED VIA A CONTROL Y AST, THEN THE
                           0010       ;       CURRENT COMMAND CONTEXT IS REMOVED FROM THE STACK AND CONTROL IS
                           0010       ;       RETURNED TO THE IMAGE. OTHERWISE THIS COMMAND IS A NOPERATION.
                           0010       ;-
                           0010
                           0010             .ENABL  LSB
                           0010       DCL$CONTINUE::                          ;CONTINUE IMAGE EXECUTION
               00B9   30   0010             BSBW    TESTMODE                ;TEST PREVIOUS MODE
03 00AF CB       04   E1   0013             BBC     #PRC_V_PRIV,PRC_B_FLAGS2(R11),10$  ;BR IF UNPRIVILEGED IMAGE
               00DE   30   0019             BSBW    RESTORE_PRIVS           ;RESTORE IMAGE PRIVILEGE
                      04   001C       10$:  RET                             ;
```

```
                            001D            .SBTTL  DEBUG IMAGE EXECUTION
                            001D      ;+
                            001D      ; DCL$DEBUG - DEBUG IMAGE EXECUTION
                            001D      ;
                            001D      ; THIS ROUTINE IS CALLED AS AN INTERNAL COMMAND TO EXECUTE THE DEBUG DCLS
                            001D      ; COMMAND.
                            001D      ;
                            001D      ; INPUTS:
                            001D      ;
                            001D      ;       R8 = ADDRESS OF SCRATCH BUFFER DESCRIPTOR.
                            001D      ;       R9 = ADDRESS OF SCRATCH STACK.
                            001D      ;       R10 = BASE ADDRESS OF COMMAND WORK AREA.
                            001D      ;       R11 = BASE ADDRESS OF PROCESS WORK AREA.
                            001D      ;
                            001D      ; OUTPUTS:
                            001D      ;
                            001D      ;       IF A PREVIOUS IMAGE WAS INTERRUPTED VIA A CONTROL Y AST, THEN A
                            001D      ;       DEBUG EXCEPTION IS GENERATED FOR THE IMAGE. OTHERWISE THIS COMMAND
                            001D      ;       IS A NOPERATION.
                            001D      ;-
                            001D
                            001D     DCL$DEBUG.:                                        ;DEBUG IMAGE EXECUTION
        00AC       30       001D            BSBW    TESTMODE                            ;TEST PREVIOUS MODE
10 AD   2D'AF      9E       0020            MOVAB   B^20$,16(FP)                        ;RESET AST RETURN ADDRESS
7E   CB   16       78       0025            ASHL    #PSL$V_PRVMOD,#<PSL$C_SUPER@2>! -   ;CONSTRUCT PROPER PSL
                            0029                    PSL$C_USER,-(SP)                    ;
        F0 AF      9F       0029            PUSHAB  10$                                 ;SET PC
                   02       002C            REI                                         ;
                            002D
                            002D      ;
                            002D      ; CONTROL IS REGAINED AT THIS POINT WITH:
                            002D      ;
                            002D      ;       00(SP) = NUMBER OF AST ARGUMENTS (ALWAYS 5).
                            002D      ;       04(SP) = AST PARAMETER.
                            002D      ;       08(SP) = SAVED R0.
                            002D      ;       12(SP) = SAVED R1.
                            002D      ;       16(SP) = IMAGE PC.
                            002D      ;       20(SP) = IMAGE PSL.
                            002D      ;
                            002D
   5E      08      C0       002D     20$:   ADDL    #8,SP                               ;REMOVE NUMBER OF ARGUMENTS AND PARAMETER
           03      BA       0030            POPR    #^M<R0,R1>                          ;RESTORE SAVED REGISTERS
7E    046C 8F      3C       0032            MOVZWL  #SS$_DEBUG,-(SP)                    ;SET EXCEPTION NAME
           03      DD       0037            PUSHL   #3                                  ;SET NUMBER OF EXCEPTION ARGUMENTS
  00000000'9F      17       0039            JMP     @#EXE$REFLECT                       ;REFLECT EXCEPTION
                            003F            .DSABL  LSB
```

```
                          003F          .SBTTL  STOP IMAGE EXECUTION
                          003F      ;+
                          003F      ; DCL$STOP - STOP IMAGE EXECUTION
                          003F      ;
                          003F      ; THIS ROUTINE IS CALLED AS AN INTERNAL COMMAND TO EXECUTE THE STOP DCLS
                          003F      ; COMMAND.
                          003F      ;
                          003F      ; INPUTS:
                          003F      ;
                          003F      ;       R8 = ADDRESS OF SCRATCH BUFFER DESCRIPTOR.
                          003F      ;       R9 = ADDRESS OF SCRATCH STACK.
                          003F      ;       R10 = BASE ADDRESS OF COMMAND WORK AREA.
                          003F      ;       R11 = BASE ADDRESS OF PROCESS WORK AREA.
                          003F      ;
                          003F      ; OUTPUTS:
                          003F      ;
                          003F      ;       IF A PROCESS NAME OR IDENTIFICATION IS SPECIFIED, THEN THAT PROCESS IS
                          003F      ;       DELETED.
                          003F      ;
                          003F      ;       IF THE JOB IS A NONINTERACTIVE JOB, THEN THE JOB IS LOGGED OFF THE SYSTEM
                          003F      ;       WITH A STATUS OF NORMAL COMPLETION. OTHERWISE ALL INDIRECT FILE LEVELS ARE
                          003F      ;       UNSTACKED AND A TEST IS MADE TO DETERMINE IF AN IMAGE WAS INTERRUPTED VIA
                          003F      ;       A CONTROL C/Y. IF A PREVIOUS IMAGE WAS INTERRUPTED, THEN THE CONTEXT OF THE
                          003F      ;       RUN COMMAND THAT INITIATED IMAGE EXECUTION IS REMOVED FROM THE STACK AND
                          003F      ;       RMS-32 IS CALLED TO CLOSE ALL OPEN IMAGE FILES. OTHERWISE NO OPERATION IS
                          003F      ;       PERFORMED.
                          003F      ;-
                          003F
                          003F     DCL$STOP::                                       ;STOP IMAGE EXECUTION
           FFBE'    30    003F             BSBW     DCL$GETDVAL                     ;GET DESCRIPTOR VALUES
      55    04      D1    0042             CMPL     #PTR_K_ENDLINE,R5               ;END OF LINE?
            3E      12    0045             BNEQ     40$                             ;IF NEQ NO
         5C AB      D5    0047     10$:    TSTL     PRC_L_INDEPTH(R11)              ;INDIRECT LEVEL ZERO?
            05      13    004A             BEQL     20$                             ;IF EQL YES
           FFB1'    30    004C             BSBW     DCL$UNSTACK                     ;UNSTACK INDIRECT LEVEL
            F6      11    004F             BRB      10$                             ;
            06      E1    0051     20$:    BBC      #PRC_V_MODE,-                   ;IF SET, NONINTERACTIVE JOB
      03 68 AB            0053                      PRC_Q_FLAGS(R11),25$            ;
           FFA7'    31    0056             BRW      DCL$ABORT                       ;LOG PROCESS OUT
           0070     30    0059     25$:    BSBW     TESTMODE                        ;TEST PREVIOUS MODE
      5A   FC AA    D0    005C             MOVL     WRK_L_SAVFP(R10),R10            ;RESTORE SAVED WRK ADDRESS
           0151     30    0060             BSBW     DCL$SHUTDOWN                    ;CLOSE FILES OF PREVIOUS IMAGE
   00000000'GF      D4    0063             CLRL     G^CTL$GL_CLINTOWN               ;ZERO CLINT OWN STORAGE POINTER
   00000000'GF      D4    0069             CLRL     G^CTL$GL_DCLPRSOWN              ;ZERO DCL PARSE OWN STORAGE
                          006F             $RUNDWN_S #PSL$C_USER                    ;RUN DOWN PREVIOUS IMAGE
            18      8A    0078             BICB     #<PRC_M_EXEONLY ! PRC_M_PRIV>,- ;SINCE IMAGE IS NOW GONE
       00AF CB            007A                      PRC_B_FLAGS2(R11)               ;NO NEED TO PROTECT IT
                          007D             CLRBIT   PRC_V_IRUNDWN,PRC_B_IMGFLAG(R11)  ;INDICATE THAT IMAGE IS RUNDOWN
      5D    5A      D0    0081             MOVL     R10,FP                          ;RESET FP SO YLEVEL WRK IS DEALLOCATED
                          0084                                                      ;ON RETURN TO DCL$RESTART.
                    05    0084             RSB                                      ;
                          0085
                          0085      ;
                          0085      ; DELETE PROCESS
                          0085      ;
                          0085
            79      D4    0085     40$:    CLRL     -(R9)                           ;CLEAR PROCESS IDENTIFICATION
```

```
                    57    58    D0  0087   217             MOVL    R8,R7                      ;COPY ADDRESS OF SCRATCH DESCRIPTOR
                    55    00    D1  008A   218             CMPL    #PTR_K_COMDQUAL,R5         ;COMMAND QUALIFIER SPECIFIED?
                          26    12  008D   219             BNEQ    70$                        ;IF NEQ NO
                       FF6E'    30  008F   220             BSBW    DCL$GETDVAL                ;GET VALUE PARAMETERS
                    52    51    7D  0092   221             MOVQ    R1,R2                      ;SAVE VALUE PARAMETERS
                          52    D7  0095   222 50$:        DECL    R2                         ;ANY MORE CHARACTERS TO CONVERT?
                          12    19  0097   223             BLSS    60$                        ;IF LSS NO
         FF61 CF    10    83    3A  0099   224             LOCC    (R3)+,#16,HEXTAB           ;SEARCH FOR HEX CHARACTER MATCH
                          23    13  009F   225             BEQL    80$                        ;IF EQL VALUE SYNTAX ERROR
                    69    10    C4  00A1   226             MULL    #16,(R9)                   ;SCALE ACCUMULATED RESULT
                    69    50    C0  00A4   227             ADDL    R0,(R9)                    ;ADD IN NEXT DIGIT
                          69    D7  00A7   228             DECL    (R9)                       ;SUBTRACT OUT CHARACTER COUNT
                          EA    11  00A9   229             BRB     50$                        ;
                       FF52'    30  00AB   230 60$:        BSBW    DCL$GETDVAL                ;GET DESCRIPTOR VALUES
                    55    04    D1  00AE   231             CMPL    #PTR_K_ENDLINE,R5          ;END OF LINE?
                          02    12  00B1   232             BNEQ    70$                        ;IF NEQ NO
                          57    D4  00B3   233             CLRL    R7                         ;CLEAR DESCRIPTOR ADDRESS
                    68    51    7D  00B5   234 70$:        MOVQ    R1,(R8)                    ;SAVE PROCESS NAME PARAMETERS
                                    00B8   235             $DELPRC_S (R9),(R7)                ;DELETE PROCESS
                                05  00C3   236             RSB                                ;
                                    00C4   237 80$:        STATUS  IVVALU                     ;SET INVALID VALUE SYNTAX STATUS
                                05  00CB   238             RSB                                ;
```

```
                        00CC          .SBTTL  TEST PREVIOUS MODE
                        00CC  ;
                        00CC  ; SUBROUTINE TO TEST PREVIOUS MODE AND DISABLE CONTROL Y AST
                        00CC  ;
                        00CC
                        00CC  TESTMODE:                               ;TEST PREVIOUS MODE
                        00CC          SETBIT  PRC_V_DISABL,PRC_W_FLAGS(R11) ;DISABLE CONTROL Y AST
0A 68 AB    0B      E5  00D0          BBCC    #PRC_V_YLEVEL,PRC_W_FLAGS(R11),10$ ;IF CLR, NOT AT CONTROL Y/C LEVEL
05 00 BB    18      E1  00D5          BBC     #PSL$V_CURMOD,@PRC_L_SAVAP(R11),10$ ;IF CLR, PREVIOUS MODE SUPERVISO
   6B    F8 AA      7D  00DA          MOVQ    WRK_L_SAVAP(R10),PRC_L_SAVAP(R11) ;RESTORE ARGUMENT AND FRAME POINTE
                    05  00DE          RSB                                     ;
                        00DF
                        00DF  ;
                        00DF  ; PREVIOUS MODE SUPERVISOR
                        00DF  ;
                        00DF
              8E    D5  00DF  10$:    TSTL    (SP)+                           ;REMOVE RETURN FROM STACK
                        00E1          STATUS  NORMAL                          ;SET COMPLETION STATUS
                    05  00E8          RSB                                     ;
```

```
                        00E9         .SBTTL  SAVE/RESTORE IMAGE PRIVILEGES
                        00E9   ;+
                        00E9   ; DCL$SAVE_PRIVS - SAVE PRIVILEGED IMAGE PRIVILEGES
                        00E9   ;                  SET IMAGE PRIVILEGES TO PROCESS PRIVILEGES
                        00E9   ; RESTORE_PRIVS  - RESTORE PRIVILEGED IMAGE PRIVILEGES FROM
                        00E9   ;                  SAVED COPY
                        00E9   ;
                        00E9   ; INPUTS:
                        00E9   ;
                        00E9   ;       R11 = BASE ADDRESS OF PROCESS WORK AREA.
                        00E9   ;       PRC_Q_SAVEPRIV(R11) - SAVED IMAGE PRIVILEGE TO BE USED BY
                        00E9   ;               RESTORE_PRIVS
                        00E9   ;
                        00E9   ; OUTPUTS:
                        C0E9   ;
                        00E9   ;       R0,R1,R2 DESTROYED OTHERS PRESERVED
                        00E9   ;       PRC_Q_SAVEPRIV(R11) - PREVIOUS VALUE OF IMAGE PRIVILEGES
                        00E9   ;-
                        00E9   DCL$SAVE_PRIVS::
                        00E9           $SETPRV_S PRMFLG=#1,-    ;READ PROCESS PERMANENT PRIVILEGES
                        00E9                   PRVPRV=PRC_Q_SAVEPRIV(R11)
                        00FA   RESTORE_PRIVS:
       7E    01    CE   00FA           MNEGL   #1,-(SP)         ;FORM MASK OF ALL PRIVS FOR DISABLE
       7E    01    CE   00FD           MNEGL   #1,-(SP)
       52    7E    7E   0100           MOVAQ   -(SP),R2         ;RESERVE 2ND MASK, R2 = ADR
                        0103           $SETPRV_S ENBFLG=#0,-    ;DISABLE ALL PROCESS PRIVILEGES
                        0103                   PRVADR=8(R2),-
                        0103                   PRVPRV=(R2)      ;SAVING OLD COPY
                        0113           $SETPRV_S ENBFLG=#1,-    ;ENABLE THE SAVED PRIVILEGES
                        0113                   PRVADR=PRC_Q_SAVEPRIV(R11)
  00E8 CB    62    7D   0124           MOVQ    (R2),PRC_Q_SAVEPRIV(R11) ;SAVE PREVIOUS PRIVILEGES
       5E    10    C0   0129           ADDL    #16,SP           ;CLEAN OFF 2 PRIV MASKS
                   05   012C           RSB
```

```
                    012D                .SBTTL  RUN DOWN IMAGE AND INDIRECT LEVELS
                    012D        ;+
                    012D        ; DCL$RUNDOWN - RUN DOWN IMAGE AND INDIRECT LEVELS
                    012D        ;
                    012D        ; THIS SUBROUTINE IS CALLED TO CHECK WHETHER INDIRECT LEVELS SHOULD BE RUN DOWN
                    012D        ; AND TO CLOSE RMS-32 FILES AND RUN DOWN THE PREVIOUS IMAGE.
                    012D        ;
                    012D        ; INPUTS:
                    012D        ;
                    012D        ;       NONE.
                    012D        ;
                    012D        ; OUTPUTS:
                    012D        ;
                    012D        ;       IF THE CURRENT LEVEL IS CONTROL Y/C, THEN ALL INDIRECT FILES ARE UNSTACKED.
                    012D        ;       IF THE PREVIOUS MODE WAS USER, THEN THE USER IMAGE EXIT HANDLERS ARE
                    012D        ;       EXECUTED. THE PREVIOUS IMAGE IS ALWAYS RUNDOWN.
                    012D        ;-
                    012D                .ENABL  LSB
                    012D
                    012D        DCL$RUNDWNI::                                   ;RUN DOWN BUT PRESERVE INDIRECT LEVEL
     50    A0'AF  9E 012D               MOVAB   B^20$,R0                        ;SET EXIT HANDLER RETURN ADDRESS
              04  11 0131               BRB     5$                              ;
                     0133
                     0133       DCL$RUNDOWN::                                   ;RUN DOWN IMAGE AND INDIRECT LEVELS
     50    96'AF  9E 0133               MOVAB   B^10$,R0                        ;SET EXIT HANDLER RETURN ADDRESS
                     0137       5$:     SETBIT  PRC_V_DISABL,PRC_W_FLAGS(R11) ;DISABLE CONTROL Y/C AST'S
  60 68 AB    0B  E5 013B               BBCC    #PRC_V_YLEVEL,PRC_W_FLAGS(R11),20$ ;IF CLR, NOT AT CONTROL Y/C LEVEL
              50  DD 0140               PUSHL   R0                              ;PUSH PROPER RETURN ADDRESS
        50    6B  D0 0142               MOVL    PRC_L_SAVAP(R11),R0             ;GET ADDRESS OF PREVIOUS PSL
     4D 60    18  E1 0145               BBC     #PSL$V_CURMOD,(R0),10$          ;IF CLR, PREVIOUS MODE SUPERVISOR
  03 A0    C8 8F  8A 0149               BICB    #<PSL$M_FPD!PSL$M_TP!PSL$M_CM>@-24,3(R0) ; RESET BITS IN PSL
70   00000000'9F  9E 014E               MOVAB   @#EXE$EXIT_IMAGE,-(R0)          ;RESET USER RETURN ADDRESS
 F8 A0   0980 8F  3C 0155               MOVZWL  #SS$_CLIFRCEXT,-8(R0)           ;SET EXIT CAUSE INTO SAVED R0
 F4 AA    5E  5A  C3 015B               SUBL3   R10,SP,WRK_L_SAVSP(R10)         ;SAVE RELATIVE ADDRESS OF TOP OF STACK
     58    F8 AA  7D 0160               MOVQ    WRK_L_SAVAP(R10),R8             ;RETRIEVE PREVIOUS ARGUMENT AND FRAME POINTE
        6B    58  7D 0164               MOVQ    R8,PRC_L_SAVAP(R11)             ;SAVE IN PROCESS WORK AREA
     BA AA    5A  C2 0167               SUBL    R10,WRK_L_RSLNXT(R10)           ;CONVERT PARSE POINTER TO RELATIVE ADDRESS
     B6 AA    5A  C2 016B               SUBL    R10,WRK_L_RSLEND(R10)           ;CONVERT END POINTER TO RELATIVE ADDRESS
     57    08 A0  9E 016F               MOVAB   8(R0),R7                        ;GET ADDRESS OF END OF ARGUMENT LIST + 4
        57    5D  C2 0173               SUBL    FP,R7                           ;CALCULATE LENGTH OF CALL FRAME AND ARGLIST
        5E    57  C2 0176               SUBL    R7,SP                           ;CALCULATE NEW TOP OF STACK ADDRESS
  6E    6D    57  28 0179               MOVC    R7,(FP),(SP)                    ;MOVE CALL FRAME AND ARGUMENT LIST
  57    5D    5E  C3 017D               SUBL3   SP,FP,R7                        ;CALCULATE LENGTH OF COMMAND BUFFER AND ARGL
  5D    59    57  C3 0181               SUBL3   R7,R9,FP                        ;CALCULATE NEW TOP OF STACK ADDRESS
  6D    6E    57  28 0185               MOVC    R7,(SP),(FP)                    ;COLLAPSE STACK REMOVING FIRST COMMAND CONTE
     F4 A9    59  C0 0189               ADDL    R9,WRK_L_SAVSP(R9)              ;CALCULATE NEW COMMAND STACK POINTER
     BA A9    59  C0 018D               ADDL    R9,WRK_L_RSLNXT(R9)             ;CONVERT PARSE POINTER TO REAL ADDRESS
     B6 A9    59  C0 0191               ADDL    R9,WRK_L_RSLEND(R9)             ;CONVERT END POINTER TO REAL ADDRESS
                  04 0195               RET                                     ;RETURN TO EXE$EXIT_IMAGE
                     0196                                                       ;   THEN TO 10$ OR 20$
           5C AB  D5 0196       10$:    TSTL    PRC_L_INDEPTH(R11)              ;INDIRECT LEVEL ZERO?
              05  13 0199               BEQL    20$                             ;IF EQL YES
           FE62'  30 019B               BSBW    DCL$UNSTACK                     ;UNSTACK INDIRECT LEVEL
              F6  11 019E               BRB     10$                             ;
  0E 78 AB    00  E5 01A0       20$:    BBCC    #PRC_V_IRUNDWN,PRC_B_IMGFLAG(R11),30$ ;SKIP IF IMAGE ALREADY RUNDOWN
                     01A5               $RUNDWN_S #PSL$C_USER                   ;RUN DOWN IMAGE (THE HARD WAY)
              18  8A 01AE               BICB    #<PRC_M_EXEONLY ! PRC_M_PRIV>,- ;SINCE IMAGE IS NOW GONE
```

```
                         00AF CB     01B0    351                  PRC_B_FLAGS2(R11)          ;NO NEED TO PROTECT IT
                              05     01B3    352 30$:     RSB                                ;
                                     01B4    353          .DSABL  LSB
```

```
                                01B4   355         .SBTTL  SHUT DOWN IMAGE
                                01B4   356 ;+
                                01B4   357 ; DCL$SHUTDOWN - SHUT DOWM IMAGE
                                01B4   358 ;
                                01B4   359 ; THIS ROUTINE IS CALLED TO CLOSE ALL FILES OPENED BY THE JUST EXECUTED IMAGE
                                01B4   360 ; AND TO CLOSE THE IMAGE ACTIVATION FILE.
                                01B4   361 ;
                                01B4   362 ; INPUTS:
                                01B4   363 ;
                                01B4   364 ;       R10 = BASE ADDRESS OF COMMAND WORK AREA.
                                01B4   365 ;       R11 = BASE ADDRESS OF PROCESS WORK AREA.
                                01B4   366 ;
                                01B4   367 ; OUTPUTS:
                                01B4   368 ;
                                01B4   369 ;       ALL FILES OPENED BY THE JUST EXECUTED IMAGE ARE CLOSED BY CALLING RMS-32,
                                01B4   370 ;       DATA RECORDS ARE SKIPPED IN THE INPUT STREAM, AND THE IMAGE FILE IS CLOSED.
                                01B4   371 ;       IF ANY DATA RECORDS ARE SKIPPED, THE INPUT BUFFER POINTER IS ADJUSTED
                                01B4   372 ;       AND EOL SET FOR THE LAST RECORD READ (FOR POSSIBLE FUTURE DCL$FLUSH
                                01B4   373 ;       OPERATION).
                                01B4   374 ;
                                01B4   375 ;               R4 DESTROYED
                                01B4   376 ;               R2 = NUMBER OF DATA RECORDS SKIPPED IN THE INPUT STREAM.
                                01B4   377 ;-
                                01B4   378
                                01B4   379 DCL$SHUTDOWN::                                          ;SHUT DOWN IMAGE
                  48      10    01B4   380         BSBB    DCL$RMSRUNDWN                           ;RUNDOWN RMS-32 FILES
         53    14 AB      D0    01B6   381         MOVL    PRC_L_INDINPRAB(R11),R3                 ;GET ADDRESS OF INDIRECT RAB
         7E    10 A3      7D    01BA   382         MOVQ    RAB$W_RFA(R3),-(SP)                     ;SAVE RFA OF LAST COMMAND
      36 18 A3    00      E0    01BE   383         BBS     #DEV$V_REC,RAB$L_CTX(R3),30$            ;IF SET, RECORD ORIENTED DEVICE
                  03      93    01C3   384         BITB    #PRC_M_CHAIN!PRC_M_CMD,-                ;CHAIN A/O COMMAND?
             00AF CB            01C5   385                 PRC_B_FLAGS2(R11)                       ;
                  2F      12    01C8   386         BNEQ    30$                                     ;NO SKIP IF EITHER IS PENDING
                                01CA   387         SETBIT  RAB$V_PPF_IND,RAB$W_ISI(R3)             ;CONVERT TO NONPRIVILEGED ISI
                  52      D6    01CF   388 20$:    INCL    R2                                      ;INCREMENT NUMBER OF RECORDS SKIPPED
                                01D1   389         $GET    RAB=(R3)                                ;GET NEXT RECORD FROM INDIRECT FILE
               06 50      E9    01DA   390         BLBC    R0,25$                                  ;IF LBC FINISHED
         54    22 A3      3C    01DD   391         MOVZWL  RAB$W_RSZ(R3),R4                        ;SAVE LENGTH OF RECORD
                  EC      11    01E1   392         BRB     20$
                                01E3   393
                                01E3   394 25$:    CLRBIT  RAB$V_PPF_IND,RAB$W_ISI(R3)             ;CONVERT BACK TO PRIVILEGED ISI
                  52      D7    01E8   395         DECL    R2                                      ;ADJUST FOR LAST RECORD
                  0D      13    01EA   396         BEQL    30$                                     ;SKIP IF NO RECORDS READ IN
         54    28 B344    9E    01EC   397         MOVAB   @RAB$L_RBF(R3)[R4],R4                   ;GET ADDR. OF END OF LAST RECORD
                  64      94    01F1   398         CLRB    (R4)                                    ;SET EOL IN BUFFER
    F48E CA    FF A4      9E    01F3   399         MOVAB   -1(R4),WRK_L_CHARPTR(R10)               ;ADJUST 'GET CHARACTER' POINTER
                                01F9   400
       10 A3      8E      7D    01F9   401 30$:    MOVQ    (SP)+,RAB$W_RFA(R3)                     ;RESTORE RFA OF LAST COMMAND
                          05    01FD   402         RSB                                             ;
                                01FE   403
                                01FE          .SBTTL  RMS RUNDOWN AN IMAGE
                                01FE     ;+
                                01FE     ; DCL$RMSRUNDWN - RMS RUNDOWN AN IMAGE
                                01FE     ;
                                01FE     ; THIS ROUTINE IS CALLED TO CLOSE ALL FILES OPENED BY THE JUST EXECUTED IMAGE
                                01FE     ; AND TO CLOSE THE IMAGE ACTIVATION FILE.
                                01FE     ;
                                01FE     ; INPUTS:
                                01FE     ;
                                01FE     ;       NONE
                                01FE     ;
                                01FE     ; OUTPUTS:
                                01FE     ;
                                01FE     ;       ALL FILES OPENED BY THE JUST EXECUTED IMAGE ARE CLOSED BY CALLING RMS-32,
                                01FE     ;       DATA RECORDS ARE SKIPPED IN THE INPUT STREAM, AND THE IMAGE FILE IS CLOSED.
                                01FE     ;
                                01FE     ;-
                                01FE
                                01FE     DCL$RMSRUNDWN::                                          ;RMS RUNDOWN THE IMAGE
               FDFF'   30       01FE            BSBW    DCL$ALLOCBUF                      ;ALLOCATE BUFFER AND DESCRIPTOR
       62    84 8F     9A       0201     10$:   MOVZBL  #WRK_C_MSGBUFSIZ,(R2)             ;RESET SIZE OF MESSAGE BUFFER
                  00   DD       0205            PUSHL   #0                                ;RUN DOWN ONLY IMAGE FILES
                  62   9F       0207            PUSHAB  (R2)                              ;SET ADDRESS OF MESSAGE BUFFER DESCR
   00000000'9F    02   FB       0209            CALLS   #2,@#SYS$RMSRUNDWN                ;RUNDOWN RMS-32 FILES
               EE 50   E9       0210            BLBC    R0,10$                            ;IF RUNDOWN FAILURE CONTINUE WITH NE
       5E    008C CE   9E       0213            MOVAB   WRK_C_MSGBUFSIZ+8(SP),SP          ;DEALLOCATE MESSAGE BUFFER AND DESCR
                  52   D4       0218            CLRL    R2                                ;CLEAR COUNT OF RECORDS SKIPPED
                       05       021A            RSB                                       ;RETURN
                                021B
                                021B            .END
```

```
$$.TMP1                          = 00000001
$$.TMP2                          = 00000063
CLI$_IVVALU                      = 00038088
CLI$_NORMAL                      = 00030001
CTL$GL_CLINTOWN                    ********    X    02
CTL$GL_DCLPRSOWN                   ********    X    02
DCL$ABORT                          ********    X    02
DCL$ALLOCBUF                       ********    X    02
DCL$CONTINUE                       00000010 RG      02
DCL$DEBUG                          0000001D RG      02
DCL$GETDVAL                        ********    X    02
DCL$RMSRUNDWN                      000001FE RG      02
DCL$RUNDOWN                        00000133 RG      02
DCL$RUNDWNI                        0000012D RG      02
DCL$SAVE_PRIVS                     000000E9 RG      02
DCL$SHUTDOWN                       000001B4 RG      02
DCL$STOP                           0000003F RG      02
DCL$UNSTACK                        ********    X    02
DEV$V_REC                        = 00000000
EXE$EXIT_IMAGE                     ********    X    02
EXE$REFLECT                        ********    X    02
HEXTAB                             00000000 R       02
PPD$B_NPROCS                       0000001C
PPD$C_LENGTH                       00000168
PPD$K_LENGTH                       00000168
PPD$L_INPDEV                       00000044
PPD$L_LGI                          00000014
PPD$L_LSTSTATUS                    00000018
PPD$L_OUTDEV                       00000064
PPD$L_PRC                          00000008
PPD$Q_CLIREG                       00000004
PPD$Q_CLISYMTBL                    0000000C
PPD$T_FILENAME                     00000068
PPD$T_INPDVI                       00000028
PPD$T_OUTDVI                       00000048
PPD$W_FLAGS                        00000002
PPD$W_INPCHAN                      0000001E
PPD$W_INPDID                       0000003E
PPD$W_INPFID                       00000038
PPD$W_INPIFI                       00000020
PPD$W_INPISI                       00000022
PPD$W_OUTDID                       0000005E
PPD$W_OUTFID                       00000058
PPD$W_OUTIFI                       00000024
PPD$W_OUTISI                       00000026
PPD$W_SIZE                         00000000
PRC_B_CONTINUE                     000000F3
PRC_B_DEFRADIX                     000000AE
PRC_B_EXMDEPMOD                    000000AD
PRC_B_EXMDEPWID                    000000AC
PRC_B_EXONLYL                      0000012D
PRC_B_FLAGS2                       000000AF
PRC_B_IMGFLAG                      00000078
PRC_B_OUTFLAGS                     0000012C
PRC_B_PROMPTLEN                    000000F0
PRC_C_LENGTH                       00000534
PRC_G_COMMANDS                     00000133

PRC_G_PROMPT                       000000F4
PRC_K_LENGTH                       00000534
PRC_L_CURRKEY                      00000048
PRC_L_EXMDEPADR                    000000A8
PRC_L_EXTARG                       00000094
PRC_L_EXTBLK                       0000008C
PRC_L_EXTCOD                       0000009C
PRC_L_EXTHND                       00000090
PRC_L_EXTPRM                       00000098
PRC_L_IDFLNK                       000000BC
PRC_L_IMGACTSTS                    00000080
PRC_L_INDCLOCK                     0000007C
PRC_L_INDEPTH                      0000005C
PRC_L_INDFAB                       0000001C
PRC_L_INDINPRAB                    00000014
PRC_L_INDOUTRAB                    00000018
PRC_L_INPRAB                       00000008
PRC_L_LASTKEY                      0000004C
PRC_L_LSTSTATUS                    000000B0
PRC_L_ONCTLY                       000000B8
PRC_L_ONERROR                      0000006C
PRC_L_OUTOFBAND                    000000B4
PRC_L_OUTRAB                       0000000C
PRC_L_OUTRABCTX                    00000118
PRC_L_PPFLIST                      00000070
PRC_L_RECALLPTR                    0000012F
PRC_L_RESTART                      00000058
PRC_L_SAVAP                        00000000
PRC_L_SAVFP                        00000004
PRC_L_SEVERITY                     00000050
PRC_L_SPWN                         000000C0
PRC_L_STACKLM                      000000A4
PRC_L_STACKPT                      000000A0
PRC_L_STATUS                       00000054
PRC_L_STS                          00000084
PRC_L_STV                          00000088
PRC_L_SYMBOL                       00000060
PRC_L_TMBX                         00000074
PRC_L_TRMLIST                      00000010
PRC_M_CHAIN                      = 00000002
PRC_M_CMD                        = 00000001
PRC_M_EXEONLY                    = 00000008
PRC_M_PRIV                       = 00000010
PRC_Q_ALLOCREG                     00000020
PRC_Q_COMMAND                      000000E0
PRC_Q_FLUSHTIME                    000000D0
PRC_Q_GLOBAL                       00000028
PRC_Q_IMAGENAME                    000000D8
PRC_Q_KEYPAD                       00000040
PRC_Q_LABEL                        00000030
PRC_Q_LOCAL                        00000038
PRC_Q_SAVEPRIV                     000000E8
PRC_T_OUTDVI                       0000011C
PRC_V_DISABL                     = 00000002
PRC_V_IRUNDWN                    = 00000000
PRC_V_MODE                       = 00000006
PRC_V_PRIV                       = 00000004
```

```
PRC_V_YLEVEL        = 00000008              WRK_G_BUFFER          FFFFF492
PRC_W_ASTIOSB         000000C6              WRK_G_INPBUF          FFFFF896
PRC_W_ASTRETN         000000C8              WRK_G_RESULT          FFFFF9B6
PRC_W_ASTSTATUS       000000C4              WRK_K_LENGTH          FFFFF486
PRC_W_ATTMBX          0000007A              WRK_L_CHARPTR         FFFFF48E
PRC_W_FLAGS           00000068              WRK_L_DISALLOW        FFFFFFE6
PRC_W_INPCHAN         00000064              WRK_L_ERRORRTN        FFFFF9AE
PRC_W_ONLEVEL         0000006A              WRK_L_EXPANDPTR       FFFFF486
PRC_W_OUTIFI          00000114              WRK_L_IMAGE           FFFFFFE2
PRC_W_OUTISI          00000116              WRK_L_MARKPTR         FFFFF48A
PRC_W_OUTMBXCHN       000000CA              WRK_L_PAROUT          FFFFFFD2
PRC_W_OUTMBXREF       000000CE              WRK_L_PMPTADDR        FFFFF9A2
PRC_W_OUTMBXSIZ       000000CC              WRK_L_PROMPTRTN       FFFFF9A6
PRC_W_PMPTCTRL        000000F1              WRK_L_PROPTR          FFFFFFC6
PRC_W_WAITIOSB        00000066              WRK_L_QUABLK          FFFFFFCA
PSL$C_SUPER         = 00000002              WRK_L_READRTN         FFFFF9AA
PSL$C_USER          = 00000003              WRK_L_RECALLPTR       FFFFFFEA
PSL$M_CM            = 80000000              WRK_L_RSLEND          FFFFFFB6
PSL$M_FPD           = 08000000              WRK_L_RSLNXT          FFFFFFBA
PSL$M_TP            = 40000000              WRK_L_SAVAP           FFFFFFF8
PSL$V_CURMOD        = 00000018              WRK_L_SAVFP           FFFFFFFC
PSL$V_PRVMOD        = 00000016              WRK_L_SAVSP           FFFFFFF4
PTR_B_LEVEL           00000004              WRK_L_SIGNALRTN       FFFFFFD6
PTR_B_NUMBER          00000005              WRK_L_SPECRTN         FFFFF9B2
PTR_B_PARMCNT         00000006              WRK_L_TAB_VEC         FFFFFFDE
PTR_B_VALUE           00000000              WRK_L_VERB            FFFFFFBE
PTR_C_LENGTH          0000000C              WRK_W_FLAGS           FFFFFFF0
PTR_K_COMDQUAL      = 00000000              WRK_W_FLAGS2          FFFFFFF2
PTR_K_ENDLINE       = 00000004              WRK_W_IMGCHAN         FFFFFFEE
PTR_K_LENGTH          0000000C              WRK_W_PMPTLEN         FFFFF99E
PTR_L_DESCR           00000000              _$$_                = 000000EF
PTR_L_ENTITY          00000008
RAB$L_CTX           = 00000018
RAB$L_RBF           = 00000028
RAB$V_PPF_IND       = 0000000E
RAB$W_ISI           = 00000002
RAB$W_RFA           = 00000010
RAB$W_RSZ           = 00000022
RESTORE_PRIVS         000000FA R      02
SS$_CLIFRCEXT       = 00000980
SS$_DEBUG           = 0000046C
SYS$DELPRC            ********  GX    02
SYS$GET               ********  GX    02
SYS$RMSRUNDWN         ********   X    02
SYS$RUNDWN            ********  GX    02
SYS$SETPRV            ********  GX    02
TESTMODE              000000CC R      02
WRK_B_CMDOPT          FFFFFFC3
WRK_B_MAXPARM         FFFFFFD0
WRK_B_MINPARM         FFFFFFD1
WRK_B_PARMCNT         FFFFFFCE
WRK_B_PARMSUM         FFFFFFCF
WRK_B_RECALLCNT       FFFFFFC5
WRK_B_VALLEV          FFFFFFC4
WRK_B_VERBTYP         FFFFFFC2
WRK_C_LENGTH          FFFFF486
WRK_C_MSGBUFSIZ     = 00000084
```

```
                                                +----------------+
                                                ! Psect synopsis !
                                                +----------------+

PSECT name                      Allocation          PSECT No.  Attributes
----------                      ----------          ---------  ----------
.  ABS  .                       00000000  (    0.)  00 (  0.)  NOPIC    USR   CON   ABS   LCL NOSHR NOEXE NORD  NOWRT NOVEC BYTE
$ABS$                           FFFFFFFC  (    0.)  01 (  1.)  NOPIC    USR   CON   ABS   LCL NOSHR   EXE   RD    WRT NOVEC BYTE
DCL$ZCODE                       0000021B  (  539.)  02 (  2.)  NOPIC    USR   CON   REL   LCL NOSHR   EXE   RD  NOWRT NOVEC BYTE

                                             +------------------------+
                                      -      ! Performance indicators !
                                             +------------------------+

Phase                        Page faults    CPU Time       Elapsed Time
-----                        -----------    --------       ------------
Initialization                        11    00:00:00.05    00:00:00.97
Command processing                    88    00:00:00.70    00:00:06.64
Pass 1                               318    00:00:12.28    00:00:43.86
Symbol table sort                      0    00:00:01.66    00:00:06.20
Pass 2                                85    00:00:02.20    00:00:08.02
Symbol table output                   23    00:00:00.20    00:00:00.72
Psect synopsis output                  2    00:00:00.03    00:00:00.1C
Cross-reference output                 0    00:00:00.00    00:00:00.00
Assembler run totals                 527    00:00:17.12    00:01:06.52

The working set limit was 1350 pages.
62782 bytes (123 pages) of virtual memory were used to buffer the intermediate code.
There were 60 pages of symbol table space allocated to hold 1143 non-local and 19 local symbols.
434 source lines were read in Pass 1, producing 14 object records in Pass 2.
43 pages of virtual memory were used to define 28 macros.

                                            +--------------------------+
                                            ! Macro library statistics !
                                            +--------------------------+

Macro library name                          Macros defined
------------------                          --------------
_$255$DUA28:[SYSLIB]SYSBLDMLB.MLB;1                  0
_$255$DUA28:[DCL.OBJ]DCL.MLB;1                       9
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                       0
_$255$DUA28:[SYSLIB]STARLET.MLB;2                   13
TOTALS (all libraries)                              22

1370 GETS were required to define 22 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS$:IMAGECTRL/OBJ=OBJ$:IMAGECTRL MSRC$:IMAGECTRL/UPDATE=(ENH$:IMAGECTRL)+EXECML$/LIB+LIB$:DCL/LIB+SYS$LIBRARY:SYSBLDMLB/L
```

0070 AH-BT13A-SE
VAX/VMS V4.0

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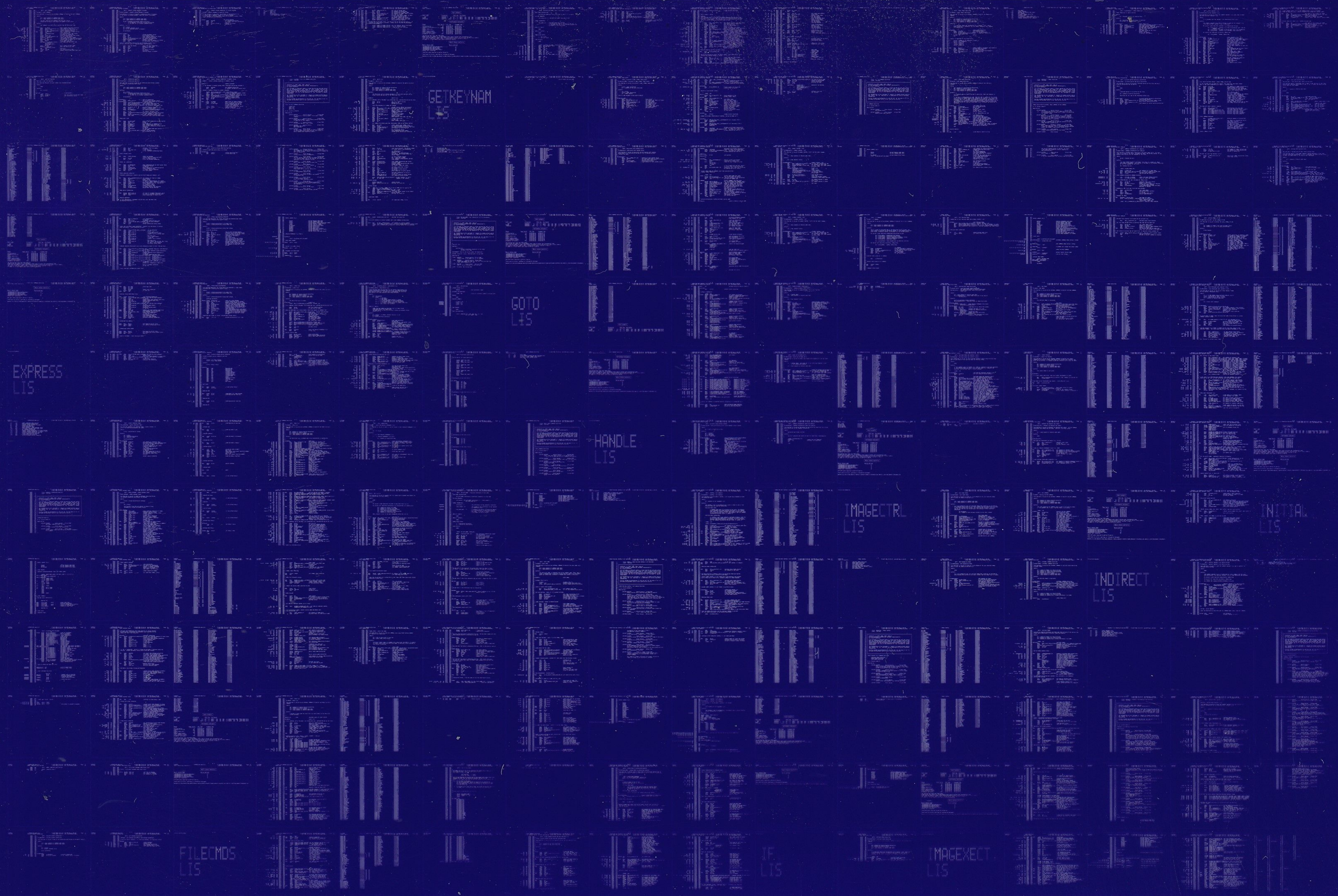

GETKEYNAM
LIS

GOTO
LIS

EXPRESS
LIS

HANDLE
LIS

IMAGECTRL
LIS

INITIAL
LIS

INDIRECT
LIS

FILECMDS
LIS

IF
LIS

IMAGEXECT
LIS