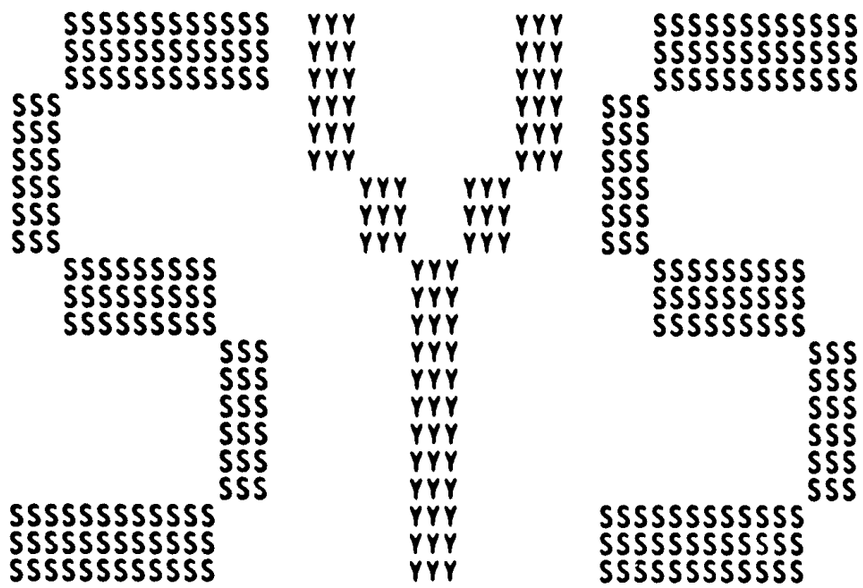

FILEID**FILINIWCB

FOR
V04

```
FFFFFFFFFF    IIIIII    LL            IIIIII    NN      NN    IIIIII    WW      WW    CCCCCCCC  BBBBBBBB
FFFFFFFFFF    IIIIII    LL            IIIIII    NN      NN    IIIIII    WW      WW    CCCCCCCC  BBBBBBBB
FF              II      LL              II      NN      NN      II      WW      WW  CC          BB      BB
FF              II      LL              II      NN      NN      II      WW      WW  CC          BB      BB
FF              II      LL              II      NNNN    NN      II      WW      WW  CC          BB      BB
FF              II      LL              II      NNNN    NN      II      WW      WW  CC          BB      BB
FFFFFFFF        II      LL              II      NN  NN  NN      II      WW      WW  CC          BBBBBBBB
FFFFFFFF        II      LL              II      NN  NN  NN      II      WW      WW  CC          BBBBBBBB
FF              II      LL              II      NN    NNNN      II      WW  WW  WW  CC          BB      BB
FF              II      LL              II      NN    NNNN      II      WW  WW  WW  CC          BB      BB
FF              II      LL              II      NN      NN      II      WWWW  WWWW  CC          BB      BB      ....
FF              II      LL              II      NN      NN      II      WWWW  WWWW  CC          BB      BB      ....
FF            IIIIII    LLLLLLLLLL    IIIIII    NN      NN    IIIIII    WW      WW    CCCCCCCC  BBBBBBBB      ....
FF            IIIIII    LLLLLLLLLL    IIIIII    NN      NN    IIIIII    WW      WW    CCCCCCCC  BBBBBBBB      ....

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     1          .TITLE  FIL$INIWCB - Initialize Window Control Block
0000     2          .IDENT  'V04-000'
0000     3 ;
0000     4 ;*****************************************************************************
0000     5 ;*                                                                           *
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0000    23 ;*                                                                           *
0000    24 ;*                                                                           *
0000    25 ;*****************************************************************************
0000    26
0000    27 ;++
0000    28 ; Facility:
0000    29 ;
0000    30 ;       Executive, bootstrap support subroutines
0000    31 ;
0000    32 ; Abstract:
0000    33 ;
0000    34 ;       This subroutine is called after a file has been opened by the
0000    35 ;       FILEREAD routines to allocate and load a window control block
0000    36 ;       that describes the file.
0000    37 ;
0000    38 ; Environment:
0000    39 ;
0000    40 ;       This routine executes in kernel mode
0000    41 ;
0000    42          .SBTTL  Modification History
0000    43 ;
0000    44 ; Author:
0000    45 ;
0000    46 ;       Peter H. Lipman
0000    47 ;
0000    48 ; Creation Date:
0000    49 ;
0000    50 ;       23 September 1976
0000    51 ;
0000    52 ; Modified By:
0000    53 ;
0000    54 ;       V01-001 LJK0209         Lawrence J. Kenah       21-Jun-1983
0000    55 ;               The routine called MMG$INIWCB was removed from the original
0000    56 ;               image activator system service, renamed to FIL$INIWCB, and
0000    57 ;               placed into its own module.
```

```
                                                                H 1
FIL$INIWCB                - Initialize Window Control Block      16-SEP-1984 00:12:39  VAX/VMS Macro V04-00          Page   2
V04-000                   Modification History                    5-SEP-1984 03:42:13  [SYS.SRC]FILINIWCB.MAR;1       (1)

                0000     58 ;--
```

```
0000     60          .SUBTITLE       Declarations
0000     61
0000     62 ; Include Files:
0000     63
0000     64          $DYNDEF                         ; Dynamic structure type definitions
0000     65          $WCBDEF                         ; Window control block definitions
0000     66
0000     67 ; External Symbols:
0000     68
0000     69          .DISABLE        GLOBAL
0000     70
0000     71 ; External Routine
0000     72
0000     73          .EXTERNAL       EXE$ALONONPAGED
0000     74
0000     75 ; External Global Data Cell
0000     76
0000     77          .EXTERNAL       EXE$GL_SYSWCBFL
0000     78
0000     79 ; External Status Code
0000     80
0000     81          .EXTERNAL       SS$_NORMAL      ; Success status code
```

```
                                                        .SUBTITLE       FIL$INIWCB - Allocate and Load WCB
                                                ;+
                                                ; Functional Description:
                                                ;
                                                ;       When a file is opened by FILEREAD before the full file system is
                                                ;       functional, this routine is called to allocate and load a window
                                                ;       control block to describe the virtual to logical block mapping of that
                                                ;       file.
                                                ;
                                                ; Calling Sequence:
                                                ;
                                                ;       JSB     FIL$INIWCB
                                                ;
                                                ; Input Parameters:
                                                ;
                                                ;       R1 = Number of bytes in retrieval pointer buffer
                                                ;
                                                ;       R2 = Address of retrieval pointer buffer
                                                ;
                                                ;               Entries are each 8 bytes consisting of a 4-byte block count
                                                ;               and a 4-byte logical block number
                                                ;
                                                ;       R3 = UCB address
                                                ;
                                                ; Output Parameters:
                                                ;
                                                ;       R2 = Window Control Block address if the routine returns successfully
                                                ;
                                                ; Implicit Output:
                                                ;
                                                ;       The WCB is added to the linked list of system WCBs
                                                ;
                                                ; Completion Codes:
                                                ;
                                                ;       R0 = SS$_NORMAL => WCB successfully allocated
                                                ;
                                                ;       R0 low bit clear indicates a failure return from EXE$ALONONPAGED
                                                ;
                                                ; Side Effects:
                                                ;
                                                ;       The contents of R1 are destroyed.
                                                ;-
                                                        .PSECT  YFILEREAD BYTE,EXE

                                                FIL$INIWCB::
                51    08    C6                          DIVL    #8,R1                   ; Count of 8-byte retrieval pointers
                      3E    BB                          PUSHR   #^M<R1,R2,R3,R4,R5>     ; Save input and working registers
                      54    D4                          CLRL    R4                      ; Initialize count of 6-byte retrieval
                                                                                        ;  pointers
50    62    0000FFFE  8F    C1                  10$:    ADDL3   #^XFFFE,(R2),R0         ; Get rounded block count
      50    0000FFFF  8F    C6                          DIVL    #^XFFFF,R0              ; Number of required 6-byte pointers
                54    50    C0                          ADDL    R0,R4                   ; Accumulate the count
                52    08    C0                          ADDL    #8,R2                   ; Address of next 8-byte retrieval pointer
                  E8  51    F5                          SOBGTR  R1,10$                  ; Loop through them all

            51    54    06    C5                        MULL3   #6,R4,R1                ; Byte count for 6-byte pointers
```

```
                                                K 1
                     51    30   C0  0023   140          ADDL    #WCB$K_LENGTH,R1        ; Desired block size to allocate
           00000000'GF     16   26  0026   141          JSB     G^EXE$ALONONPAGED       ; Allocate nonpaged dynamic memory
                     5E    50   E9  002C   142          BLBC    R0,100$                 ; Branch if failed to allocate
                                    002F   143
                                    002F   144 ; R1 = Allocated size
                                    002F   145 ; R2 = Address of allocated area
                                    002F   146
                  53 51    08   C7  002F   147          DIVL3   #8,R1,R3                ; Get truncated number of quadwords
                                    0033   148                                          ;  to fill with zeros
                        50   52   D0  0033   149          MOVL    R2,R0                   ; Make a copy of the WCB address
                             80   7C  0036   150 20$:     CLRQ    (R0)+                   ; Clear the WCB
                           FB 53   F5  0038   151          SOBGTR  R3,20$                  ;  (eight bytes at a time)
                                    003B   152
                     08 A2 51   B0  003B   153          MOVW    R1,WCB$W_SIZE(R2)       ; Save allocated WCB size
                             12   90  003F   154          MOVB    S^#DYN$C_WCB,-
                              0A A2       0041   155                  WCB$B_TYPE(R2)          ; Set type field
                                  90  0043   156          MOVB    #<WCB$M_READ ! -        ; File accessed for reading
                                    0044   157                  WCB$M_NOTFCP>,-         ;  but not by FCP
                        0B A2 05         0044   158                  WCB$B_ACCESS(R2)
                        16 A2 54   B0  0047   159          MOVW    R4,WCB$W_NMAP(R2)       ; Retrieval pointer count
                           2C A2   D6  004B   160          INCL    WCB$L_STVBN(R2)         ; Starting VBN is 1
                00000000'GF    62   0E  004E   161          INSQUE  (R2),G^EXE$GL_SYSWCBFL  ; Maintain a list of these WCBs
                           54   8E   7D  0055   162          MOVQ    (SP)+,R4
                                    0058   163
                                    0058   164 ; R4 = Number of 8-byte retrieval pointers
                                    0058   165 ; R5 = Addr of first 8-byte retrieval pointer
                                    0058   166
                              52    DD  0058   167          PUSHL   R2                      ; Save WCB address
                        52    30   C0  005A   168          ADDL    #WCB$W_P1_COUNT,R2      ; Starting addr in WCB to store
                                    005D   169                                          ;  retrieval pointers
                                    005D   170
                                    005D   171 ; The following double loop consists of an outer loop that iterates through
                                    005D   172 ; the 8-byte retrieval pointers and an inner loop that makes as many 6-byte
                                    005D   173 ; format retrieval pointers as necessary.  Note that the 6-byte format is
                                    005D   174 ; 2-bytes of block count and 4-bytes of logical block number. The block count
                                    005D   175 ; holds 2**16-1 blocks because 0 really means 0.
                                    005D   176
                  53    FFFF 8F   3C  005D   177 30$:     MOVZWL  #^XFFFF,R3              ; Maximum block count for 6-byte
                                    0062   178                                          ;  retrieval pointers
                        50    85   7D  0062   179          MOVQ    (R5)+,R0
                                    0065   180
                                    0065   181 ; R0 = 4-byte block count
                                    0065   182 ; R1 = Logical block number
                                    0065   183
                        50    53   D1  0065   184 40$:     CMPL    R3,R0                   ; Use the minimum block count
                              03   1B  0068   185          BLEQU   50$                     ; Branch if maximum is the smaller
                        53    50   D0  006A   186          MOVL    R0,R3                   ; Maximum too big, use what's left
                        82    53   B0  006D   187 50$:     MOVW    R3,(R2)+                ; Store block count
                        82    51   D0  0070   188          MOVL    R1,(R2)+                ; And starting LBN
                        51    53   C0  0073   189          ADDL    R3,R1                   ; Form next LBN
                        50    53   C2  0076   190          SUBL    R3,R0                   ;  and remaining block count
                              EA   12  0079   191          BNEQ    40$                     ; Branch if more blocks to map
                           DF 54   F5  007B   192          SOBGTR  R4,30$                  ; Branch if more 8-byte retrieval pointers
                                    007E   193
                              3C    BA  007E   194          POPR    #^M<R2,R3,R4,R5>        ; Restore saved registers
                                    0080   195
                                    0080   196 ; R2 = WCB address
```

```
                                0080   197 ; R3 = UCB address
                                0080   198
                             88 0080   199         BISB2   #<WCB$M_COMPLETE ! -     ; File is completely mapped
                                0081   200                   WCB$M_CATHEDRAL>,-     ;  and should remain completely mapped,
                 0B A2    60 8F 0081   201                   WCB$B_ACCESS(R2)       ;  even if the file is extended
                    10 A2    53  D0 0085   202         MOVL    R3,WCB$L_ORGUCB(R2)    ; Set UCB address in window
                       50    00' 3C 0089   203         MOVZWL  S^#SS$_NORMAL,R0       ; Indicate successful completion
                                05 008C   204         RSB                            ;  and return
                                   008D   205
                                   008D   206 ; Error exit with R0 containing failure status code
                                   008D   207
                             3E    BA 008D   208 100$:   POPR    #^M<R1,R2,R3,R4,R5>    ; Restore saved registers
                                05 008F   209         RSB                            ;  and return
                                   0090   210
                                   0090   211         .END
```

```
DYN$C_WCB                       = 00000012
EXE$ACONONPAGED                   ********   X   00
EXE$GL_SYSWCBFL                   ********   X   00
FIL$INIWCB                        00000000 RG    02
SS$_NORMAL                        ********   X   00
WCB$B_ACCESS                    = 0000000B
WCB$B_TYPE                      = 0000000A
WCB$K_LENGTH                    = 00000030
WCB$L_ORGUCB                    = 00000010
WCB$L_STVBN                     = 0000002C
WCB$M_CATHEDRAL                 = 00000040
WCB$M_COMPLETE                  = 00000020
WCB$M_NOTFCP                    = 00000004
WCB$M_READ                      = 00000001
WCB$W_NMAP                      = 00000016
WCB$W_P1_COUNT                  = 00000030
WCB$W_SIZE                      = 00000008
```

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	00000000 (0.)	01 (1.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE
YFILEREAD	00000090 (144.)	02 (2.)	NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE

Performance indicators

Phase	Page faults	CPU Time	Elapsed Time
Initialization	32	00:00:00.06	00:00:00.63
Command processing	107	00:00:00.57	00:00:03.23
Pass 1	160	00:00:02.51	00:00:11.53
Symbol table sort	0	00:00:00.24	00:00:00.28
Pass 2	53	00:00:00.65	00:00:02.80
Symbol table output	4	00:00:00.03	00:00:00.03
Psect synopsis output	1	00:00:00.01	00:00:00.54
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	359	00:00:04.08	00:00:19.04

The working set limit was 1200 pages.
13551 bytes (27 pages) of virtual memory were used to buffer the intermediate code.
There were 20 pages of symbol table space allocated to hold 230 non-local and 6 local symbols.
211 source lines were read in Pass 1, producing 13 object records in Pass 2.
9 pages of virtual memory were used to define 8 macros.

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

Macro library name                 Macros defined
------------------                 --------------
_$255$DUA28:[SYS.OBJ]LIB.MLB;1                2
_$255$DUA28:[SYSLIB]STARLET.MLB;2             3
TOTALS (all libraries)                        5

289 GETS were required to define 5 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS$:FILINIWCB/OBJ=OBJ$:FILINIWCB MSRC$:FILINIWCB/UPDATE=(ENH$:FILINIWCB)+EXECML$/LIB
```

GLO
Sym

DYN

FORKCNTRL
LIS

FILINIWCB
LIS

IMGDECODE
LIS

INIT
LIS

IOLOCK
LIS

IODEF
LIS

IOCIOPOST
LIS

GLOBALS
LIS

IMGMAPISD
LIS