

```

BBBBBBBBBBBB      00000000      00000000      TTTTTTTTTTTTTT      SSSSSSSSSSSS
BBBBBBB9BBBB      00000000      00000000      TTTTTTTTTTTTTT      SSSSSSSSSSSS
BBBBBBBBBBBB      00000000      00000000      TTTTTTTTTTTTTT      SSSSSSSSSSSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBBBBBBBBBBB      000      000      000      000      000      TTT      SSSSSSSSSS
BBBBBBBBBBBB      000      000      000      000      000      TTT      SSSSSSSSSS
BBBBBBBBBBBB      000      000      000      000      000      TTT      SSSSSSSSSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBB      BBB      000      000      000      000      000      TTT      SSS
BBBBBBBBBBBB      00000000      00000000      TTT      SSSSSSSSSSSS
BBBBBBBBBBBB      00000000      00000000      TTT      SSSSSSSSSSSS
BBBBBBBBBBBB      00000000      00000000      TTT      SSSSSSSSSSSS

```

```

RRRRRRR      EEEEEEEEE  AAAAAA  DDDDDDD  DDDDDDD  RRRRRRR  IIIIII  VV      VV
RRRRRRR      EEEEEEEEE  AAAAAA  DDDDDDD  DDDDDDD  RRRRRRR  IIIIII  VV      VV
RR      RR    EE          AA      AA  DD      DD  DD      DD  RR      RR  II      II
RR      RR    EE          AA      AA  DD      DD  DD      DD  RR      RR  II      II
RR      RR    EE          AA      AA  DD      DD  DD      DD  RR      RR  II      II
RR      RR    EE          AA      AA  DD      DD  DD      DD  RR      RR  II      II
RRRRRRR      EEEEEEEEE  AA      AA  DD      DD  DD      DD  RRRRRRR  II      II
RRRRRRR      EEEEEEEEE  AA      AA  DD      DD  DD      DD  RRRRRRR  II      II
RR      RR    EE          AAAAAAAAAA DD      DD  DD      DD  RR      RR  II      II
RR      RR    EE          AAAAAAAAAA DD      DD  DD      DD  RR      RR  II      II
RR      RR    EE          AA      AA  DD      DD  DD      DD  RR      RR  II      II
RR      RR    EE          AA      AA  DD      DD  DD      DD  RR      RR  II      II
RR      RR    EEEEEEEEE  AA      AA  DDDDDDD  DDDDDDD  RR      RR  IIIIII
RR      RR    EEEEEEEEE  AA      AA  DDDDDDD  DDDDDDD  RR      RR  IIIIII

```

```

LL      IIIIII  SSSSSSS
LL      IIIIII  SSSSSSS
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  SSSSSSS
LLLLLLLLLL IIIIII  SSSSSSS

```

READDRIV
Table of contents

- READ DRIVER INTO MEMORY

L 8

15-SEP-1984 23:58:37 VAX/VMS Macro V04-00

Page 0

(2) 58
(3) 98

DECLARATIONS
READ DRIVER

```
0000 1 .TITLE READDRIV - READ DRIVER INTO MEMORY
0000 2 .IDENT 'V04-000'
0000 3
0000 4
0000 5 :*****
0000 6 :*
0000 7 :* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
0000 8 :* DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.
0000 9 :* ALL RIGHTS RESERVED.
0000 10 :*
0000 11 :* THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED
0000 12 :* ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE AND WITH THE
0000 13 :* INCLUSION OF THE ABOVE COPYRIGHT NOTICE. THIS SOFTWARE OR ANY OTHER
0000 14 :* COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY
0000 15 :* OTHER PERSON. NO TITLE TO AND OWNERSHIP OF THE SOFTWARE IS HEREBY
0000 16 :* TRANSFERRED.
0000 17 :*
0000 18 :* THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE
0000 19 :* AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT
0000 20 :* CORPORATION.
0000 21 :*
0000 22 :* DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
0000 23 :* SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28 :
0000 29 :++
0000 30 : FACILITY: SYSGEN
0000 31 :
0000 32 : ABSTRACT:
0000 33 : THIS ROUTINE READS A DRIVER INTO MEMORY BY MAPPING IT ($CRMPSC)
0000 34 :
0000 35 : ENVIRONMENT: USER MODE
0000 36 :
0000 37 : AUTHOR: STEVE BECKHARDT, CREATION DATE: 21-SEP-1979
0000 38 : (ORIGINAL AUTHOR - LEN KAWELL)
0000 39 :
0000 40 : MODIFICATION HISTORY:
0000 41 :
0000 42 : V02-005 JLV0038 Jake VanNoy 13-Jul-1981
0000 43 : Add G^ to LIBS routines. Return default file name
0000 44 : to SYSSYSTEM:.EXE.
0000 45 :
0000 46 : V04 JLV0013 Jake VanNoy 7-May-1981
0000 47 : Suppress error messages from unsupported device drivers.
0000 48 :
0000 49 : V03 JLV0002 Jake VanNoy 9-Feb-1981
0000 50 : Changed psects to allow paged and non-paged segments
0000 51 : is SYSGEN image. Add SHOW/CONFIGURATION and
0000 52 : CONFIGURE.
0000 53 :
0000 54 : V02 IMK0001 LEN KAWELL
0000 55 : CHANGE TO READ IMAGE HEADER AS WELL.
0000 56 :--
```

```
0000 58      .SBTTL  DECLARATIONS
0000 59      :
0000 60      : INCLUDE FILES:
0000 61      :
0000 62      :
0000 63      :
0000 64      : MACROS:
0000 65      :
0000 66      :
0000 67      :
0000 68      : EQUATED SYMBOLS:
0000 69      :
0000 70      :
0000 71      $ACFDEF
0000 72      $SECDEF                ; DEFINE $CRMPSC FLAGS
0000 73      :
0000 74      : OWN STORAGE:
0000 75      :
0000 76      :
00000000 77      .PSECT  PAGED_DATA      rd,wrt,noexe,quad
0000 78      :
0000 79  IN_FAB:      $FAB      FOP = UFO,-      : INPUT FILE FAB
0000 80      :                      : RMS WILL JUST OPEN IT
0000 81      :                      : NAME BLOCK ADDRESS
0000 82      :                      : DNM = <SYS$SYSTEM:.EXE> ; DEFAULT FILE NAME
0050 83      :
0050 84  IN_NAM:      $NAM      ESA = NAME,-      : INPUT FILE NAME BLOCK
0050 85      :                      : EXPANDED STRING BUFFER ADDRESS
0050 86      :                      : ESS = NAM$C_MAXRSS ; EXPANDED STRING BUFFER SIZE
0080 87      :
000001AF 0080 88  NAME:      .BLKB  NAM$C_MAXRSS ; EXPANDED STRING BUFFER
01AF 89      :
01AF 90      :
00000000 01AF 91  MAP_RANGE:      : MAP RANGE ARRAY
00000000 01B3 92      .LONG  0      : JUST USED TO INDICATE PO SPACE
01B7 93      .LONG  0
01B7 94      :
01B7 95      :
00000000 96      .PSECT  PAGED_CODE      rd,nowrt,exe,long
```

```

0000 98 .SBTTL READ DRIVER
0000 99 :++
0000 100 : FUNCTIONAL DESCRIPTION:
0000 101 :
0000 102 : This routine maps a driver into memory by doing a create and
0000 103 : map section.
0000 104 :
0000 105 : CALLING SEQUENCE:
0000 106 :
0000 107 : BSBW IOGEN$READDRIV
0000 108 :
0000 109 : INPUT PARAMETERS:
0000 110 :
0000 111 : R0 Address of filename counted string
0000 112 : R3 Address of location to store channel number
0000 113 : R4 Address of two longword array to return address range
0000 114 : created by $CRMPSC
0000 115 : AP Address of ACF block
0000 116 :
0000 117 : IMPLICIT INPUTS:
0000 118 :
0000 119 : NONE
0000 120 :
0000 121 : OUTPUT PARAMETERS:
0000 122 :
0000 123 : R0 Completion code
0000 124 :
0000 125 : IMPLICIT OUTPUTS:
0000 126 :
0000 127 : NONE
0000 128 :
0000 129 : COMPLETION CODES:
0000 130 :
0000 131 : Those returned by $OPEN and $CRMPSC
0000 132 :
0000 133 : SIDE EFFECTS:
0000 134 :
0000 135 : R0 - R2 are used as scratch registers
0000 136 :
0000 137 :--
0000 138 :
0000 139 IOGEN$READDRIV::
52 0000'CF DE 0000 140 MOVAL W^IN_FAB,R2 ; Get address of input FAB
34 A2 80 90 0005 141 MOVB (R0)+,FAB$B_FNS(R2) ; Store filename size in FAB
2C A2 60 9E 0009 142 MOVAB (R0),FAB$L_FNA(R2) ; Store filename address in FAB
0000 143 :
0000 144 : Open the image file
0000 145 :
0000 146 $OPEN (R2) ; Open the file
32 50 E8 0016 147 BLBS R0,20$ ; Br. if success
0019 148
51 00000000'EF DE 0019 149 moval Boo$a1_acf,R1 ; Set address of acf block (not in AP)
25 0B A1 03 E0 0020 150 bbs #acf$v_noload_db,acf$b_aflag(R1),10$ ; Branch if Load driver call
20 0B A1 04 E0 0025 151 bbs #acf$v_support,acf$b_aflag(R1),10$ ; Branch if NOSUPPORT
002A 152
00B0'CF 9F 002A 153 PUSHAB W^NAME ; Create expanded name string
7E 005B'CF 9A 002E 154 MOVZBL W^NAME$B_ESL+IN_NAM,-(SP); descriptor

```

```

51 SE D0 0033 155      MOVL   SP,R1          ; Save address of descriptor
51 DD 0036 156      PUSHL  R1            ; Push addr. of file name desc.
01 DD 0038 157      PUSHL  #1              ; Push FAO count
007C0000'8F DD 003A 158      PUSHL  #SHR$ OPENIN!<124@16> ; Push error status
00000000'GF 03 FB 0040 159      CALLS  #3,G^[IB$SIGNAL ; Signal the error
SE 08 CO 0047 160      ADDL   #8,SP          ; Pop descriptor off stack
05 004A 161 10$:    RSB
004B 162
004B 163 : Map the file
004B 164
63 OC A2 B0 004B 165 20$: MOVW   FAB$L STV(R2),(R3) ; Store channel number
004F 166      $CRMPSC_ S CHAN = (R3),- ; Channel
004F 167      INADR = W^MAP RANGE,- ; Map in P0 space
004F 168      FLAGS = #SEC$M EXPREG,- ; Expand region
004F 169      RETADR = (R4),- ; Return address array
004F 170      VBN = #1 ; Map entire image file
05 0073 171      RSB
0074 172      ; Status in R0
0074 173
0074 174
0074 175      .END

```

READDRIV
Symbol table

- READ DRIVER INTO MEMORY

D 9

15-SEP-1984 23:58:37 VAX/VMS Macro V04-00
4-SEP-1984 23:05:17 [BOOTS.SRC]READDRIV.MAR;1

Page 5
(3)

| | | | |
|-----------------|------------|----|----|
| \$\$TAB | = 00000050 | R | 02 |
| \$\$TABEND | = 00000080 | R | 02 |
| \$\$TMP | = 00000000 | | |
| \$\$TMP1 | = 00000001 | | |
| \$\$TMP2 | = 00000062 | | |
| \$\$TMPX | = 00000000 | R | 03 |
| \$\$TMPX1 | = 0000000F | | |
| \$\$T1 | = 00000000 | | |
| ACFSB_AFLAG | = 00000008 | | |
| ACFSV_NOLOAD_DB | = 00000003 | | |
| ACFSV_SUPPORT | = 00000004 | | |
| BOOSAC_ACF | ***** | X | 04 |
| FABSB_DNS | = 00000035 | | |
| FABSB_FNS | = 00000034 | | |
| FABSC_BID | = 00000003 | | |
| FABSC_BLN | = 00000050 | | |
| FABSC_SEQ | = 00000000 | | |
| FABSC_VAR | = 00000002 | | |
| FABSL_ALQ | = 00000010 | | |
| FABSL_DNA | = 00000030 | | |
| FABSL_FNA | = 0000002C | | |
| FABSL_FOP | = 00000004 | | |
| FABSL_STV | = 0000000C | | |
| FABSV_CHAN_MODE | = 00000002 | | |
| FABSV_FILE_MODE | = 00000004 | | |
| FABSV_LNM_MODE | = 00000000 | | |
| FABSV_UFO | = 00000011 | | |
| FABSW_GBC | = 00000048 | | |
| IN_FAB | 00000000 | R | 02 |
| IN_NAM | 00000050 | R | 02 |
| IOGEN\$READDRIV | 00000000 | RG | 04 |
| LIB\$SIGNAL | ***** | X | 04 |
| MAP_RANGE | 000001AF | R | 02 |
| NAM\$B_ESL | = 00000008 | | |
| NAM\$B_ESS | = 0000000A | | |
| NAM\$B_NOP | = 00000008 | | |
| NAM\$B_RSS | = 00000002 | | |
| NAM\$C_BID | = 00000002 | | |
| NAM\$C_BLN | = 00000060 | | |
| NAM\$C_MAXRSS | = 000000FF | | |
| NAM\$E_ESA | = 0000000C | | |
| NAM\$E_RSA | = 00000004 | | |
| NAME | 00000080 | R | 02 |
| SEC\$M_EXPREG | = 00020000 | | |
| SHR\$OPENIN | ***** | X | 04 |
| SYSS\$RMPSC | ***** | GX | 04 |
| SYSS\$OPEN | ***** | GX | 04 |

! Psect synopsis !

| PSECT name | Allocation | PSECT No. | Attributes |
|------------|------------------|-----------|---|
| . ABS . | 00000000 (0.) | 00 (0.) | NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE |
| \$AB\$\$ | 00000000 (0.) | 01 (1.) | NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE |
| PAGED_DATA | 000001B7 (439.) | 02 (2.) | NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC QUAD |
| \$RMSNAM | 0000000F (15.) | 03 (3.) | NOPIC USR CON REL LCL NOSHR EXE RD WRT NOVEC BYTE |
| PAGED_CODE | 00000074 (116.) | 04 (4.) | NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC LONG |

! Performance indicators !

| Phase | Page faults | CPU Time | Elapsed Time |
|------------------------|-------------|-------------|--------------|
| Initialization | 29 | 00:00:00.07 | 00:00:00.34 |
| Command processing | 107 | 00:00:00.65 | 00:00:02.38 |
| Pass 1 | 219 | 00:00:05.06 | 00:00:12.91 |
| Symbol table sort | 0 | 00:00:00.53 | 00:00:00.65 |
| Pass 2 | 48 | 00:00:00.89 | 00:00:01.72 |
| Symbol table output | 7 | 00:00:00.06 | 00:00:00.06 |
| Psect synopsis output | 3 | 00:00:00.04 | 00:00:00.06 |
| Cross-reference output | 0 | 00:00:00.00 | 00:00:00.00 |
| Assembler run totals | 415 | 00:00:07.30 | 00:00:18.13 |

The working set limit was 1200 pages.
24045 bytes (47 pages) of virtual memory were used to buffer the intermediate code.
There were 30 pages of symbol table space allocated to hold 440 non-local and 2 local symbols.
175 source lines were read in Pass 1, producing 17 object records in Pass 2.
25 pages of virtual memory were used to define 20 macros.

! Macro library statistics !

| Macro library name | Macros defined |
|--------------------------------------|----------------|
| -\$255\$DUA28:[BOOTS.OBJ]BOOTS.MLB;1 | 0 |
| -\$255\$DUA28:[SYS.OBJ]LIB.MLB;1 | 1 |
| -\$255\$DUA28:[SYSLIB]STARLET.MLB;2 | 16 |
| TOTALS (all libraries) | 17 |

702 GETS were required to define 17 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:READDRIV/OBJ=OBJ\$:READDRIV MSRC\$:READDRIV/UPDATE=(ENH\$:READDRIV)+EXECMLS/LIB+LIB\$:BOOTS.MLB/LIB

The image displays a grid of 100 small terminal window screenshots, arranged in a 10x10 grid. Each window shows a different VAX/VMS command and its output. The windows are arranged in a grid, with some windows being more prominent than others. The following table lists the commands visible in the screenshots:

| Row | Column | Command |
|-----|--------|---------------|
| 1 | 1 | MBBTDRTUR LIS |
| 1 | 2 | MBBTDRTUR LIS |
| 1 | 3 | MBBTDRTUR LIS |
| 1 | 4 | MBBTDRTUR LIS |
| 1 | 5 | MBBTDRTUR LIS |
| 1 | 6 | MBBTDRTUR LIS |
| 1 | 7 | MBBTDRTUR LIS |
| 1 | 8 | MBBTDRTUR LIS |
| 1 | 9 | MBBTDRTUR LIS |
| 1 | 10 | MBBTDRTUR LIS |
| 2 | 1 | MBBTDRTUR LIS |
| 2 | 2 | MBBTDRTUR LIS |
| 2 | 3 | MBBTDRTUR LIS |
| 2 | 4 | MBBTDRTUR LIS |
| 2 | 5 | MBBTDRTUR LIS |
| 2 | 6 | MBBTDRTUR LIS |
| 2 | 7 | MBBTDRTUR LIS |
| 2 | 8 | MBBTDRTUR LIS |
| 2 | 9 | MBBTDRTUR LIS |
| 2 | 10 | MBBTDRTUR LIS |
| 3 | 1 | MBBTDRTUR LIS |
| 3 | 2 | MBBTDRTUR LIS |
| 3 | 3 | MBBTDRTUR LIS |
| 3 | 4 | MBBTDRTUR LIS |
| 3 | 5 | MBBTDRTUR LIS |
| 3 | 6 | MBBTDRTUR LIS |
| 3 | 7 | MBBTDRTUR LIS |
| 3 | 8 | MBBTDRTUR LIS |
| 3 | 9 | MBBTDRTUR LIS |
| 3 | 10 | MBBTDRTUR LIS |
| 4 | 1 | MBBTDRTUR LIS |
| 4 | 2 | MBBTDRTUR LIS |
| 4 | 3 | MBBTDRTUR LIS |
| 4 | 4 | MBBTDRTUR LIS |
| 4 | 5 | MBBTDRTUR LIS |
| 4 | 6 | MBBTDRTUR LIS |
| 4 | 7 | MBBTDRTUR LIS |
| 4 | 8 | MBBTDRTUR LIS |
| 4 | 9 | MBBTDRTUR LIS |
| 4 | 10 | MBBTDRTUR LIS |
| 5 | 1 | MBBTDRTUR LIS |
| 5 | 2 | MBBTDRTUR LIS |
| 5 | 3 | MBBTDRTUR LIS |
| 5 | 4 | MBBTDRTUR LIS |
| 5 | 5 | MBBTDRTUR LIS |
| 5 | 6 | MBBTDRTUR LIS |
| 5 | 7 | MBBTDRTUR LIS |
| 5 | 8 | MBBTDRTUR LIS |
| 5 | 9 | MBBTDRTUR LIS |
| 5 | 10 | MBBTDRTUR LIS |
| 6 | 1 | MBBTDRTUR LIS |
| 6 | 2 | MBBTDRTUR LIS |
| 6 | 3 | MBBTDRTUR LIS |
| 6 | 4 | MBBTDRTUR LIS |
| 6 | 5 | MBBTDRTUR LIS |
| 6 | 6 | MBBTDRTUR LIS |
| 6 | 7 | MBBTDRTUR LIS |
| 6 | 8 | MBBTDRTUR LIS |
| 6 | 9 | MBBTDRTUR LIS |
| 6 | 10 | MBBTDRTUR LIS |
| 7 | 1 | MBBTDRTUR LIS |
| 7 | 2 | MBBTDRTUR LIS |
| 7 | 3 | MBBTDRTUR LIS |
| 7 | 4 | MBBTDRTUR LIS |
| 7 | 5 | MBBTDRTUR LIS |
| 7 | 6 | MBBTDRTUR LIS |
| 7 | 7 | MBBTDRTUR LIS |
| 7 | 8 | MBBTDRTUR LIS |
| 7 | 9 | MBBTDRTUR LIS |
| 7 | 10 | MBBTDRTUR LIS |
| 8 | 1 | MBBTDRTUR LIS |
| 8 | 2 | MBBTDRTUR LIS |
| 8 | 3 | MBBTDRTUR LIS |
| 8 | 4 | MBBTDRTUR LIS |
| 8 | 5 | MBBTDRTUR LIS |
| 8 | 6 | MBBTDRTUR LIS |
| 8 | 7 | MBBTDRTUR LIS |
| 8 | 8 | MBBTDRTUR LIS |
| 8 | 9 | MBBTDRTUR LIS |
| 8 | 10 | MBBTDRTUR LIS |
| 9 | 1 | MBBTDRTUR LIS |
| 9 | 2 | MBBTDRTUR LIS |
| 9 | 3 | MBBTDRTUR LIS |
| 9 | 4 | MBBTDRTUR LIS |
| 9 | 5 | MBBTDRTUR LIS |
| 9 | 6 | MBBTDRTUR LIS |
| 9 | 7 | MBBTDRTUR LIS |
| 9 | 8 | MBBTDRTUR LIS |
| 9 | 9 | MBBTDRTUR LIS |
| 9 | 10 | MBBTDRTUR LIS |
| 10 | 1 | MBBTDRTUR LIS |
| 10 | 2 | MBBTDRTUR LIS |
| 10 | 3 | MBBTDRTUR LIS |
| 10 | 4 | MBBTDRTUR LIS |
| 10 | 5 | MBBTDRTUR LIS |
| 10 | 6 | MBBTDRTUR LIS |
| 10 | 7 | MBBTDRTUR LIS |
| 10 | 8 | MBBTDRTUR LIS |
| 10 | 9 | MBBTDRTUR LIS |
| 10 | 10 | MBBTDRTUR LIS |