



```

SSSSSSSS  CCCCCCCC  SSSSSSSS  LL  000000  AAAAAA  DDDDDDDD  EEEEEEEEE  RRRRRRRR
SSSSSSSS  CCCCCCCC  SSSSSSSS  LL  000000  AAAAAA  DDDDDDDD  EEEEEEEEE  RRRRRRRR
SS        CC        SS        LL  00  00  AA  AA  DD  DD  EE        RR  RR
SS        CC        SS        LL  00  00  AA  AA  DD  DD  EE        RR  RR
SS        CC        SS        LL  00  00  AA  AA  DD  DD  EE        RR  RR
SSSSSS    CC        SSSSSS    LL  00  00  AA  AA  DD  DD  EEEEEEE  RRRRRRRR
SSSSSS    CC        SSSSSS    LL  00  00  AA  AA  DD  DD  EEEEEEE  RRRRRRRR
        SS        SS        LL  00  00  AAAAAAAAAA  DD  DD  EE        RR  RR
        SS        SS        LL  00  00  AAAAAA  DD  DD  EE        RR  RR
        SS        SS        LL  00  00  AA  AA  DD  DD  EE        RR  RR
        SS        SS        LL  00  00  AA  AA  DD  DD  EE        RR  RR
SSSSSSSS  CCCCCCCC  SSSSSSSS  LLLLLLLLLL  000000  AA  AA  DDDDDDDD  EEEEEEEEE  RR  RR
SSSSSSSS  CCCCCCCC  SSSSSSSS  LLLLLLLLLL  000000  AA  AA  DDDDDDDD  EEEEEEEEE  RR  RR

```

```

LL        IIIII  SSSSSSSS
LL        IIIII  SSSSSSSS
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 IIIII  SSSSSSSS
LLLLLLLLLL IIIII  SSSSSSSS

```

SCSLOADER  
Table of contents

- Loader for SCS code

J 15

16-SEP-1984 00:01:18 VAX/VMS Macro V04-00

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DECLARATIONS

```
0000 1 .TITLE SCSLOADER - Loader for SCS code
0000 2 .IDENT 'V04-000'
0000 3
0000 4
0000 5 :*****
0000 6 :*
0000 7 :* COPYRIGHT (c) 1978, 1980, 1982, 1984 BY *
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0000 24 :*
0000 25 :*
0000 26 :*****
0000 27 :
0000 28
0000 29 :++
0000 30
0000 31 : FACILITY:
0000 32
0000 33 : ABSTRACT:
0000 34
0000 35 : This module loads SCS code for driver that require it.
0000 36
0000 37 : ENVIRONMENT:
0000 38
0000 39 : VAX/VMS user and kernel mode, raises IPL.
0000 40
0000 41 :--
0000 42
0000 43 : AUTHOR: Kerbey T. Altmann, CREATION DATE: August, 1981
0000 44
0000 45 : MODIFIED BY:
0000 46
0000 47 : V03-005 KPL0001 Peter Lieberwirth 24-Feb-1984
0000 48 : Fix truncation error.
0000 49
0000 50 : V03-004 JWH0222 Jeffrey W. Horn 27-Apr-1983
0000 51 : Replace LINK_VEC with EXE$LINK_VEC.
0000 52
0000 53 : V03-003 MSH0001 Maryann Hinden 31-Jan-1983
0000 54 : Change IOGEN$GL_DPT to ACF$GL_DPT.
0000 55
0000 56 : V03-002 KDM0002 Kathleen D. Morse 28-Jun-1982
0000 57 : Added $IPLDEF, $$SDEF, and $PRDEF.
```

```
0000 58 :  
0000 59 :**  
0000 60 :  
0000 61 : .SBTTL DECLARATIONS  
0000 62 :  
0000 63 : INCLUDE FILES:  
0000 64 :  
0000 65 :  
0000 66 : $DPTDEF  
0000 67 : $IPLDEF  
0000 68 : $PRDEF  
0000 69 : $SSDEF  
0000 70 : $SLVDEF  
0000 71 : $SYSGMSGDEF  
0000 72 :  
0000 73 :**  
0000 74 :  
0000 75 : FUNCTIONAL DESCRIPTION:  
0000 76 :  
0000 77 : SCSLOADER is called to check for presence of SCS code, if  
0000 78 : not present, it loads it into non-paged pool.  
0000 79 :  
0000 80 : CALLING SEQUENCE:  
0000 81 :  
0000 82 : CALLS #0,BOO$SCSLOADER  
0000 83 :  
0000 84 : INPUT PARAMETERS:  
0000 85 : NONE  
0000 86 :  
0000 87 : IMPLICIT INPUTS:  
0000 88 :  
0000 89 : SCSSAL_LOAVEC - Address of entry point into SCS code.  
0000 90 :  
0000 91 : OUTPUT PARAMETERS:  
0000 92 : NONE  
0000 93 :  
0000 94 : IMPLICIT OUTPUTS:  
0000 95 :  
0000 96 : Non-paged pool is allocated.  
0000 97 :  
0000 98 : COMPLETION CODES:  
0000 99 :  
0000 100 : SSS_NORMAL - All errors are signaled from with this module.  
0000 101 :  
0000 102 : SIDE EFFECTS:  
0000 103 : NONE  
0000 104 :  
0000 105 :  
0000 106 : --  
0000 107 :  
0000 108 :  
0000 109 : OWN STORAGE  
0000 110 :  
0000 111 : .PSECT NONPAGED_DATA,rd,wrt,noexe,quad  
0000 112 :  
41 4F 4C 53 43 53 00' 0000 113 SCS_NAME: .ASCIC /SCSLOA/ ; Input file spec  
06 0000
```

SCSLOADER  
V04-000

- Loader for SCS code  
DECLARATIONS

M 15

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4-SEP-1984 23:05:44 [BOOTS.SRC]SCSLOADER.MAR;1

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00000000	0007	114	SCS_CHAN:
00000013	0008	115	SCS_ADDR:
	0013	116	

.LONG 0  
.BLKB 8

: Channel number  
: Return addresses

```

0013 118 :
0013 119 : BEGIN
0013 120 :
0013 121 :
0000 0000 122 .PSECT NONPAGED_CODE,rd,nowrt,exe,long
0000 123
0804 0000 124 .ENTRY BOO$SCSLOADER,*M<R2,R11>
0002 125
47 50 E9 0002 126 $CMKRNL_S W^SCS_CHECK ; See if SCS needs to be loaded
000F 127 BLBC -R0,100$ ; Branch if not necessary
0012 128 :
0012 129 : Set up inputs for reading file in
0012 130 : (Can't use RMS directly because of STASYSGEN)
0012 131 :
50 00000000'EF 9E 0012 132 MOVAB SCS_NAME,R0 ; Address of counted string
53 00000007'EF 9E 0019 133 MOVAB SCS_CHAN,R3 ; Address of channel
54 0000000B'EF 9E 0020 134 MOVAB SCS_ADDR,R4 ; Address of quadword region descriptor
0027 135
00000000'EF 16 0027 136 JSB IOGEN$READDRIV ; Read in SCS code
18 50 E9 002D 137 BLBC R0,99$ ; Branch if error!
0030 138
5B 64 00000200 8F C1 0030 139 ADDL3 #512,(R4),R11 ; Set address to load, skip image header
0038 140
0038 141 :
0038 142 : Now execute the remaining code in KERNEL mode.
0038 143 :
0038 144
0038 145 90$: $CMKRNL_S W^SCSPOOL ; Execute kernel routine
11 50 E8 0045 146 BLBS -R0,100$ ; Branch if OK
0048 147
50 DD 0048 148 99$: PUSHL R0 ; Set error
7E D4 004A 149 CLRL -(SP) ; zero longword
007C9038 8F DD 004C 150 PUSHL #SYSG$ NOSCS ; No SCS code
00000000'GF 03 FB 0052 151 CALLS #3,G^LIB$SIGNAL ; Error
0059 152
50 01 D0 0059 153 100$: MOVL #SS$ _NORMAL,R0 ; Always return success
04 005C 154 RET ; Return
005D 155
005D 156

```

```

0004 005D 158
      005D 159 SCS_CHECK: .WORD ^M<R2>
      005F 160
      005F 161 ;
      005F 162 ; Check driver to see if SCS is required
      005F 163 ;
      005F 164
52 00000000'50 D4 005F 165 CLRL R0 ; Assume 'Don't load'
      'EF D0 0061 166 MOVL ACF$GL_DPT,R2 ; Set address of DPT
      15 13 0068 167 BEQL 10$ ; Branch if none
      03 E1 006A 168 BBC #DPT$V_SCS,-
      10 0D A2 006C 169 DPT$B_FLAGS(R2),10$ ; Branch if SCS not specified
      006F 170 ;
      006F 171 ; Driver says to load SCS, now check to see if it's loaded
      006F 172 ;
00000000'8F D1 006F 173 CMPL #EXE$LOAD_ERROR,-
00000002'GF 0075 174 G^SCS$AL_COAVEC+2 ; See if vector has changed from
      007A 175 ; initial value
      03 12 007A 176 BNEQ 10$ ; Branch if loaded
      007C 177
      50 01 D0 007C 178 MOVL #SS$_NORMAL,R0 ; Set 'Load SCS'
      04 007F 179 10$: RET ; Return
      0080 180

```



```

067C 0080 182 SCSPool:
      0080 183      .WORD  ^M<R2,R3,R4,R5,R6,R9,R10>
      0082 184
      0082 185 :
      0082 186 : Grab enough non-paged pool for the code
      0082 187 :
      51 6B D0 0082 188      MOVL  (R11), R1          ; Size needed for code
00000000'GF 16 0085 189      JSB   G^EXE$ALONONPAGED ; Get the space
      06 50 E8 008B 190      BLBS  R0, 10$          ; Okay
50 0124 8F 3C 008E 191      MOVZWL #55$_INSrMEM, R0
      04 0093 192      RET          ; Error
      0094 193 10$:
6A 59 51 7D 0094 194      MOVQ  R1, R9          ; Save size and address
      6B 59 28 0097 195      MOV(C3 R9, (R11), (R10) ; Move the code to non-paged pool
      009B 196 :
      009B 197 : Fix up the vectors
      009B 198 :
      009B 199      SETIPL #IPL$_SYNCH ; Synchronize
      009E 200 :
      009E 201 :*****
      009E 202 : THE FOLLOWING IS STOLEN FROM INIT.MAR
      009E 203 :
      009E 204 : The loadable SCS code image (SCSLOA.EXE) is now allocated non-paged
      009E 205 : pool space and read into it by SYSBOOT. The address of this code
      009E 206 : is passed in B00$GL_SCSLOA. Link the resident system vectors at
      009E 207 : SCS$AL_LOAVEC. The loadable file has self-describing vector and
      009E 208 : offset information within it.
      009E 209 :
      009E 210 SCS_LOADCODE:
53 52 5A D0 009E 211      MOVL  R10,R2          ; Address of SCSLOA image in pool
      00000000'GF DE 00A1 212      MOVAL  G^SCS$AL_LOAVEC,R3 ; Address of resident vectors.
      54 52 D0 00A8 213      MOVL  R2,R4          ; Save
      FF52' 30 00AB 214      BSBW  EXE$LINK_VEC ; link vectors
      11 50 E9 00AE 215      BLBC  R0,30$ ; get out on error
50 04 A4 D0 00B1 216      MOVL  SLV$_INITRTN(R4),R0 ; Possible initialization routine
      08 13 00B5 217      BEQL  25$ ; None, leave
      50 54 C0 00B7 218      ADDL  R4,R0 ; Absolute address of init
      0A 10 00BA 219      BSBW  40$ ; Call it
      00BC 220 :
      00BC 221 : After init and releasing itself to pool, return here
      00BC 222 :
      03 50 E9 00BC 223      BLBC  R0, 30$
50 01 D0 00BF 224 25$: MOVL  #1, R0 ; Set success
      00C2 225 30$: SETIPL #0
      04 00C5 226      RET
      00C6 227 :
      00C6 228 :
      00C6 229 : Cute little routine to do an REI to code.
      00C6 230 :
      7E DC 00C6 231 40$: MOVPSL -(SP) ; Set up PSL
      50 DD 00C8 232      PUSHL R0 ; Address to start at
      02 00CA 233      REI ; Flush TB and jump to code
      00CB 234
      00CB 235      .END

```

SCSLOADER  
Symbol table

- Loader for SCS code

D 16

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4-SEP-1984 23:05:44 [BOOTS.SRC]SCSLOADER.MAR;1

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```

ACF$GL_DPT          ***** X 03
BOO$SCSLOADER      = 00000000 RG 03
DPT$B_FLAGS        = 0000000D
DPT$V_SCS          = 00000003
EXE$A[ONONPAGED   ***** X 03
EXE$L[INK_VEC     ***** X 03
EXE$L[OAD_ERROR   ***** X 03
IOGEN$READDRIV    ***** X 03
IPL$ SYNCH        = 00000008
LIB$SIGNAL        ***** X 03
PR$ IPL           = 00000012
SCS$AL_LOAVEC     ***** X 03
SCS$POOL         00000080 R 03
SCS_ADDR          0000000B R 02
SCS_CHAN          00000007 R 02
SCS_CHECK         0000005D R 03
SCS_LOADCODE     0000009E R 03
SCS_NAME         00000000 R 02
SLV$L_INITRTN    = 00000004
SS$INSFMEM       = 00000124
SS$NORMAL        = 00000001
SYS$CMKRNL       ***** GX 03
SYS$NOSCS       = 007C9038
  
```

-----  
! 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
NONPAGED_DATA	00000013 ( 19.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC QUAD
NONPAGED_CODE	000000CB ( 203.)	03 ( 3.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC LONG

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

Phase	Page faults	CPU Time	Elapsed Time
Initialization	31	00:00:00.08	00:00:00.81
Command processing	116	00:00:00.69	00:00:03.21
Pass 1	250	00:00:06.34	00:00:11.27
Symbol table sort	0	00:00:00.92	00:00:01.74
Pass 2	55	00:00:01.19	00:00:02.03
Symbol table output	4	00:00:00.04	00:00:00.04
Psect synopsis output	1	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	459	00:00:09.29	00:00:19.12

The working set limit was 1200 pages.  
33071 bytes (65 pages) of virtual memory were used to buffer the intermediate code.  
There were 40 pages of symbol table space allocated to hold 630 non-local and 8 local symbols.  
235 source lines were read in Pass 1, producing 18 object records in Pass 2.  
16 pages of virtual memory were used to define 15 macros.

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

Macro library name	Macros defined
-----	-----
-\$255\$DUA28:[BOOTS.OBJ]BOOTS.MLB;1	0
-\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	5
-\$255\$DUA28:[SYSLIB]STARLET.MLB;?	7
TOTALS (all libraries)	12

722 GETS were required to define 12 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LISS:SCSLOADER/OBJ=OBJ\$:SCSLOADER MSRC\$:SCSLOADER/UPDATE=(ENH\$:SCSLOADER)+EXECML\$/LIB+LIB\$:BOOTS.MLB/LIB

The grid contains 100 terminal window screenshots. Each window displays a command and its corresponding output. The commands and their outputs are as follows:

Command	Output
MBBTDRIV	LIS
MBTDRIV	LIS
PABTDRIV	LIS
PUBTDRIV	LIS
PUTERRR	LIS
READ.BN	LIS
READDRIV	LIS
READPRM	LIS
QUSS	LIS
RMSCONT	LIS
RBTDRIV	LIS
RTFILREAD	LIS
SCSLOADER	LIS
SHARE	LIS