


```

RRRRRRRR      MM      MM      11      PPPPPPPP      UU      UU      TTTTTTTTTT      SSSSSSSS      EEEEEEEEEE      TTTTTTTTTT
RRRRRRRR      MM      MM      11      PPPPPPPP      UU      UU      TTTTTTTTTT      SSSSSSSS      EEEEEEEEEE      TTTTTTTTTT
RR      RR      MMMM      MMMM      1111      PP      PP      UU      UU      TT      SS      EE      TT
RR      RR      MMMM      MMMM      1111      PP      PP      UU      UU      TT      SS      EE      TT
RR      RR      MM      MM      11      PP      PP      UU      UU      TT      SS      EE      TT
RR      RR      MM      MM      11      PP      PP      UU      UU      TT      SS      EE      TT
RRRRRRRR      MM      MM      11      PPPPPPPP      UU      UU      TT      SSSSSS      EEEEEEEE      TT
RRRRRRRR      MM      MM      11      PPPPPPPP      UU      UU      TT      SSSSSS      EEEEEEEE      TT
RR      RR      MM      MM      11      PP      UU      UU      TT      SS      EE      TT
RR      RR      MM      MM      11      PP      UU      UU      TT      SS      EE      TT
RR      RR      MM      MM      11      PP      UU      UU      TT      SS      EE      TT
RR      RR      MM      MM      11      PP      UU      UU      TT      SS      EE      TT
RR      RR      MM      MM      111111      PP      UUUUUUUUUU      TT      SSSSSSSS      EEEEEEEEEE      TT
RR      RR      MM      MM      111111      PP      UUUUUUUUUU      TT      SSSSSSSS      EEEEEEEEEE      TT

```

```

LL      IIIIII      SSSSSSSS
LL      IIIIII      SSSSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SS
LL      II      SSSSSS
LL      II      SSSSSS
LL      II      SS
LL      II      SS
LL      II      SS
LL      IIIIII      SSSSSSSS
LLLLLLLLLL      IIIIII      SSSSSSSS
LLLLLLLLLL      IIIIII      SSSSSSSS

```

RM
VA

PH
Tr
Co
Pa
Sy
Pa
Sy
Ps
Cr
As

TH
52
TH
36
24

Ma
-
-
-
TC
11
TH
MA

(3) 85
(4) 111
(6) 298

DECLARATIONS
RM\$PUTSETUP1
RM\$PROBEREAD - PROBE BUFFER READABILITY

```
0000 1          $BEGIA RM1PUTSET,000,RMSRMS1,<SETUP FOR $PUT/$UPDATE SEQUENTIAL>
0000 2
0000 3
0000 4 :*****
0000 5 :*
0000 6 :*  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
0000 7 :*  DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS.
0000 8 :*  ALL RIGHTS RESERVED.
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0000 16 :*
0000 17 :*  THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE
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0000 19 :*  CORPORATION.
0000 20 :*
0000 21 :*  DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
0000 22 :*  SOFTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
0000 23 :*
0000 24 :*
0000 25 :*****
0000 26 :
```

```
0000 28 :++
0000 29 : Facility: rms32
0000 30 :
0000 31 :
0000 32 : Abstract:   this module performs various setups for
0000 33 :              $put and $update on the sequential file organization.
0000 34 :
0000 35 : Environment:
0000 36 :              star processor running starlet exec.
0000 37 :
0000 38 : Author:      L F Laverdure,   creation date: 17-FEB-1977
0000 39 :
0000 40 : Modified By:
0000 41 :
0000 42 :              V03-005 DAS0001      David Solomon      08-Feb-1984
0000 43 :              Performance enhancement for variable length records.
0000 44 :
0000 45 :              V03-004 RAS0115      Ron Schaefer      10-Jan-1983
0000 46 :              Check for total record size negative (i.e. size > 32767).
0000 47 :
0000 48 :              V03-003 KBT0416      Keith B. Thompson 30-Nov-1982
0000 49 :              Change ifb$l_devbufsiz to ifb$l_devbufsiz
0000 50 :
0000 51 :              V03-002 KBT0146      Keith B. Thompson 20-Aug-1982
0000 52 :              Reorganize psects
0000 53 :
0000 54 :              V03-001 KBT0087      Keith B. Thompson 13-Jul-1982
0000 55 :              Clean up psects
0000 56 :
0000 57 :              V02-011 RAS0049      Ron Schaefer      15-Dec-1981
0000 58 :              Fix stm terminator check.
0000 59 :
0000 60 :              V02-010 RAS0028      Ron Schaefer      20-AUG-1981
0000 61 :              Change FAB$l_STM11 to iAB$l_STM.
0000 62 :
0000 63 :              V02-009 RAS0016      Ron Schaefer      31-Jul-1981
0000 64 :              Add support for stream format.
0000 65 :
0000 66 :              V02-008 MCN0003      Maria del C. Nasr 11-Nov-1980
0000 67 :              Check that variable length records written to an ANSI tape
0000 68 :              are not longer than to 9999 bytes, since this is the biggest
0000 69 :              number that fits in the record control word.
0000 70 :
0000 71 :              V02-007 REFORMAT      Maria del C. Nasr 24-Jul-1980
0000 72 :
0000 73 :              V0006  CDS0001      C D Saether      11-MAR-1980
0000 74 :              don't calculate record overhead for unit record devices
0000 75 :
0000 76 : Revision History:
0000 77 :
0000 78 :              L F Laverdure,      14-AUG-1978 15:39
0000 79 :              long probe fix
0000 80 :
0000 81 : --
0000 82 :
0000 83 :
```

```
0000 85 .SBTTL DECLARATIONS
0000 86
0000 87 :
0000 88 : Include Files:
0000 89 :
0000 90 :
0000 91 :
0000 92 : Macros:
0000 93 :
0000 94 :
0000 95 $DEVDEF
0000 96 $IFBDEF
0000 97 $IRBDEF
0000 98 $FABDEF
0000 99 $RABDEF
0000 100 $RMSDEF
0000 101
0000 102 :
0000 103 : Equated Symbols:
0000 104 :
0000 105 :
0000 106 :
0000 107 : Own Storage:
0000 108 :
0000 109
```

```

0000 111      .SBTTL  RM$PUTSETUP1
0000 112
0000 113      :++
0000 114      : RM$PUTSETUP1 - This module makes user input and operation
0000 115      : valid checks and calculates record overhead size.
0000 116      :
0000 117      : Calling sequence:
0000 118      :
0000 119      :     bsbw  rm$putsetup1
0000 120      :
0000 121      : Input Parameters:
0000 122      :
0000 123      :     r10   ifab addr
0000 124      :     r9    irab addr
0000 125      :     r8    rab addr
0000 126      :
0000 127      : Implicit Inputs:
0000 128      :
0000 129      :     the contents of the rab and related irab and ifab.
0000 130      :
0000 131      :
0000 132      : Output Parameters:
0000 133      :
0000 134      :     r6    record data length in bytes
0000 135      :     r5    record address
0000 136      :     r1    total record length including overhead bytes
0000 137      :     r0    status code
0000 138      :
0000 139      : Implicit Outputs:
0000 140      :
0000 141      :     sequential file org temp.
0000 142      :     irb$w_rovhdsz: record overhead size in bytes
0000 143      :     irb$w_rtotlsz: total record length including overhead bytes
0000 144      :
0000 145      : Completion Codes:
0000 146      :
0000 147      :     standard rms, in particular, either suc, rbf, or rsz.
0000 148      :
0000 149      : Side Effects:
0000 150      :
0000 151      :     none
0000 152      :--
0000 153
0000 154
0000 155  RM$PUTSETUP1::
0000 156      $STPT  PUTSET1
0006 157
0006 158      :
0006 159      : get the user record address & size and validate
0006 160      :
0006 161
0006 162      MOVL  RAB$L_RBF(R8),R5      ; get record address
0006 163      CVT$W  RAB$W_RSZ(R8),R6    ; get record length
0006 164      BLSS  ERRRSZ                ; negative size invalid
0006 165      BEQL  CHKSIZ                ; no need to probe a null rec
0006 166      CMPW  R6,#512              ; long probe needed?
0006 167      BGTRU LONG_PROBE            ; branch if yes

```

```

55 28 A8 D0
56 22 A8 32
      2F 19
0200 BF 0D 13
      56 B1
      52 1A

```

```
0019 168          IFNORD R6,(R5),ERRRBF          ; probe buffer
001F 169
001F 170
001F 171      ; make record size checks and compute overhead based on
001F 172      ; record format type
001F 173
001F 174
51  D4 001F 175 CHKSIZ: CLRL R1          ; compute record overhead in r1
02  91 0021 176          CMPB #FAB$C VAR,-          ; is it var record format?
50 AA 0023 177          IFB$B RFMORG(R10)
24  12 0025 178          BNEQ NOTVAR          ; no, go handle others
0027 179
0027 180
0027 181      ; variable length - add in size of record length bytes
0027 182
0027 183
0027 184 VARLEN: ASSUME DEV$V_REC EQ 0
OA 6A E8 0027 185          BLBS IFB$L_PRIM_DEV(R10), -
51  C2 A0 002A 186          ADDW2 #2,R1          ; no size for unit record devices
03 6A 26 C1 U02D 188          BBC #IFB$V_ANSI_D,(R10), - ; normally 2 bytes
51  02 A0 0031 189          LENCHK          ; all set unless ansi d
60 AA B5 0034 191 LENCHK: TSTW IFB$W_MRS(R10) ; in which case it's 4
6E  13 0037 192          BEQL CHKBLR          ; omit check if limit is 0
60 AA 56 B1 0039 193          CMPW R6,IFB$W_MRS(R10) ; check record length
68  18 003D 194          BLEQU CHKBLK          ; and branch if le max. allowed
003F 195
003F 196
003F 197      ; record size too big
003F 198
003F 199
003F 200 ERRRSZ:
003F 201          RMSERR RS^
05 0044 202          RSB
0045 203
0045 204 ERRRBF:
0045 205          RMSERR RSr          ; bad user buffer
05 004A 206          RSB
004B 207
004B 208
004B 209      ; Dispatch for other record formats.
004B 210
004B 211
004B 212 NOTVAR: CASE LIMIT=#FAB$C UDF,-          ; based on record format
004B 213          SRC=IFB$B_RFMORG(R10),-
004B 214          TYPE=B,DISPLIST=-
004B 215          <UDFLEN,-          ; FAB$C_UDF
004B 216          FIXEDLEN,-          ; FAB$C_FIX
004B 217          10$,-          ; FAB$C_VAR
004B 218          VFLEN,-          ; FAB$C_VFC
004B 219          STMLN,-          ; FAB$C_STM
004B 220          STMLN,-          ; FAB$C_STMLF
004B 221          STMLN>          ; FAB$C_STMCR
005E 222
005E 223 10$: RMSTBUG -99          ; bugcheck if we fall through
0065 224
```


RM1PUTSET
V04-000

SETUP FOR \$PUT/\$UPDATE SEQUENTIAL L 8
RM\$PUTSETUP1

16-SEP-1984 00:55:00 VAX/VMS Macro V04-00
5-SEP-1984 16:23:42 [RMS.SRC]RM1PUTSET.MAR;1

Page 6
(4)

51 5F AA 90 0065 225 VFLEN: MOVB IFB\$B FSZ(R10),R1 ; get fixed header size for vfc
BC 11 0069 226 BRB VARLEN ; pick up in VAR code

```

006B 228 :
006B 229 : long probe needed subroutine
006B 230 :
006B 231 :
006B 232 LONG_PROBE:
AF 50 6A 10 006B 233 BSBB RMSPROBEREAD ; check readability
E8 006D 234 BLBS RO,CHKSIZ ; all is ok continue
05 0070 235 RSB ; else exit
0071 236 :
0071 237 :
0071 238 : stream format record - check whether a DFT must be added
0071 239 :
0071 240 $TMLEN:
0071 241 ASSUME DEV$V_REC EQ 0
24 6A E8 0071 242 BLBS IFB$L_PRIM_DEV(R10),10$ ; no additional chars for unit-record
56 B5 0074 243 TSTW R6 ; zero len record
16 13 0076 244 BEQL 5$ ; needs a terminator
22 BB 0078 245 PUSHR #*M<R1,R5> ; save size and record addr
51 FF A546 9E 007A 246 MOVAB -1(R5)[R6],R1 ; setup for term check
50 50 01 D0 007F 247 MOVL #1,R0 ; check only last char
54 50 AA 9A 0082 248 MOVZBL IFB$B_RFMORG(R10),R4 ; get format type
FF77 30 0086 249 BSBW RMS$TM_TERM ; check for terminator
22 BA 0089 250 POPR #*M<R1,R5> ; restore regs
0A 50 E8 008B 251 BLBS R0,10$ ; already have a terminator
51 B6 008F 252 5$: INCW R1 ; add in the DFT size
50 AA 91 0090 253 CMPB IFB$B_RFMORG(R10),- ; STM format?
04 0J93 254 #FAB$C_STM
02 12 J094 255 BNEQ 10$ ; nope
51 B6 0096 256 INCW R1 ; STM's DFT is 2 bytes long
03 6A 26 E1 0098 257 10$: BBC #IFB$V_ANSI_D,(R10),20$ ; need count field for ANSI
51 50 04 A0 009C 258 ADDW2 #4,R1
93 11 009F 259 20$: BRB LENCHK
00A1 260 :
00A1 261 :
00A1 262 : fixed length record - check its size
00A1 263 :
00A1 264 :
52 AA 56 B1 00A1 265 FIXEDLEN:
98 12 00A5 266 CMPW R6,IFB$W_LRL(R10) ; compare against fixed size
00A7 267 BNEQ ERRRSZ ; branch if not equal
00A7 268 :
00A7 269 :
00A7 270 : if blk bit set (records can't cross block boundaries) check
00A7 271 : that total record size is less than a block
00A7 272 :
00A7 273 UDFLEN:
64 A9 51 B0 00A7 274 CHKBLK: MOVW R1,IFB$W_ROVHDSZ(R9) ; save overhead size
51 56 A0 00AB 275 ADDW2 R6,R1 ; compute total record size
8F 19 00AE 276 BLSS ERRRSZ ; bad if neg (=> size>32767)
1A 51 AA 03 E1 00B0 277 EBC #FAB$V_BLK,IFB$B_RAT(R10),10$ ; branch if no boundary
00B5 278 ; restriction
48 AA 51 B1 00B5 279 CMPW R1,IFB$L_DEVBUFSIZ(R10) ; compare against block size
84 1A 00B9 280 BGTRU ERRRSZ ; and branch if too big
00BB 281 :
00BB 282 :
00BB 283 : If ANSI_D record (variable length in ANSI magtape) make sure that
00BE 284 : record is not bigger than 9999 bytes.

```

			00BB	285	:				
			00BB	286					
10	6A	26	E1	00BB	287		BBC	#IFBSV ANSI D,(R10),10\$: branch, if not ANSI_D
01	50	AA	91	00BF	288		CMPB	IFBSB_RFMORG(R10),#FABSC_FIX	: branch, if fixed length
		0A	13	00C3	289		BEQL	10\$	
270F	8F	51	B1	00C5	290		CMPW	R1,#9999	: within maximum size?
		03	1B	00CA	291		BLEQU	10\$: yes
		FF70	31	00CC	292		BRW	ERRRSZ	: error if not
66	A9	51	B0	00CF	293	10\$:	MOVW	R1,IRBSW_RTOTLSZ(R9)	: save total record size
				00D3	294		RMSSUC		
			05	00D6	295		RSB		
				00D7	296				

```

00D7 298      .SBTTL RMS$PROBEREAD - PROBE BUFFER READABILITY
00D7 299
00D7 300      :++
00D7 301      : RMS$PROBEREAD - This routine probes the caller's buffer
00D7 302      :           for readability.
00D7 303
00D7 304      : Calling sequence:
00D7 305
00D7 306      :     bsbw   rm$proberead
00D7 307
00D7 308      : Input Parameters:
00D7 309
00D7 310      :     r10   ifab addr
00D7 311      :     r9    irab addr
00D7 312      :     r6    size of buffer
00D7 313      :     r5    addr of buffer
00D7 314
00D7 315      : Implicit Inputs:
00D7 316
00D7 317      :     irb$b_mode
00D7 318
00D7 319      : outputs:
00D7 320
00D7 321      :     r0     status code
00D7 322
00D7 323      : Implicit Outputs:
00D7 324
00D7 325      :     none
00D7 326
00D7 327      : condition codes:
00D7 328
00D7 329      :     standard rms, in particular, rbf or suc.
00D7 330
00D7 331      : Side Effects:
00D7 332
00D7 333      :     none
00D7 334
00D7 335      :--
00D7 336
00D7 337
00D7 338      RMS$PROBEREAD::
00D7 339      MOVQ   R5, -(SP)           ; save r5,r6
00D7 340      PUSHL  #1                 ; anticipate success
00D7 341      TSTL   R6                 ; zero buffer size?
00D7 342      BEQL   EXIT1            ; omit probe if so
00E0 343
00E0 344      :
00E0 345      : probe all pages
00E0 346      :
00E0 347
00E0 348      CVTWL  #-512,R0           ; get address calc constant
00E5 349      10$: IFNORD R6,(R5),ERMRBF1,- ; branch if not readable
00E5 350      IRB$b_MODE(R9)
00EC 351      SUBL2  R0,R5           ; get address of next page
00EF 352      MOVAW  (R6)[R0],R6    ; calculate new length
00F3 353      BGTR   10$             ; continue probing if positive
00F5 354      SUBL2  R0,R6           ; need to handle last page?
  
```

```
0061 EB 14 00F8 355          BGTR 10$          ; branch if yes
      BF BA 00FA 356 EXIT1: POPR #^M<R0,R5,R6> ; restore buffer desc. & status
      05 00FE 357          RSB
          00FF 358
          00FF 359
          00FF 360 ; probe failure - set error code
          00FF 361
          00FF 362
          00FF 363 ERRRBF1:
      F4 11 00FF 364          RMSERR RBF,(SP)
          0104 365          BRB EXIF1
          0106 366
          0106 367          .END
```

```

$$PSECT EP           = 00000000
$$RMS1TEST          = 0000001A
$$RMS_PBUGCHK       = 00000010
$$RMS_TBUGCHK       = 00000008
$$RMS_UMODE         = 00000004
CHKBLK              = 000000A7 R    01
CHKSIZ              = 0000001F R    01
DEV$V_REC           = 00000000
ERRRBF              = 00000045 R    01
ERRRBF1             = 000000FF R    01
ERRRSZ              = 0000003F R    01
EXIT1               = 000000FA R    01
FAB$C_FIX           = 00000001
FAB$C_STM           = 00000004
FAB$C_UDF           = 00000000
FAB$C_VAR           = 00000002
FAB$V_BLK           = 00000003
FIXEDLEN            = 000000A1 R    01
IFB$B_FSZ           = 0000005F
IFB$B_RAT           = 00000051
IFB$B_RFMORG        = 00000050
IFB$L_DEVBUFSIZ     = 00000048
IFB$L_PRIM_DEV      = 00000000
IFB$V_ANSI_D        = 00000026
IFB$W_LRL           = 00000052
IFB$W_MRS           = 00000060
IRB$B_MODE          = 0000000A
IRB$W_ROVHDSZ       = 00000064
IRB$W_RTOTLSZ       = 00000066
LENCHR              = 00000034 R    01
LONG PROBE          = 00000068 R    01
NOTVAR              = 0000004B R    01
PIOSA_TRACE         = ***** X    01
RAB$L_RBF           = 00000028
RAB$W_RSZ           = 00000022
RMSBUG              = ***** X    01
RMSPROBEREAD        = 000000D7 RG   01
RMSPUTSETUP1        = 00000000 RG   01
RMSSTM_TERM         = ***** X    01
RMS$RBF             = 00018654
RMS$RSZ             = 000186A4
STMLN               = 00000071 R    01
TPT$L_PUTSET1       = ***** X    01
UDFLEN              = 000000A7 R    01
VARLEN              = 00000027 R    01
VFLEN               = 00000065 R    01
    
```

! Psect synopsis !

PSECT name	Allocation	PSECT No.	Attributes
ABS	00000000 (0.)	00 (0.)	NOPIC USR CON ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
RMSRMS1	00000106 (262.)	01 (1.)	PIC USR CON REL GBL NOSHR EXE RD NOWRT NOVEC BYTE
SAB\$S	00000000 (0.)	02 (2.)	NOPIC USR CON ABS LCL NOSHR EXE RD WRT NOVEC BYTE

! Performance indicators !

Phase	Page faults	CPU Time	Elapsed Time
Initialization	40	00:00:00.11	00:00:00.97
Command processing	140	00:00:00.75	00:00:03.80
Pass 1	304	00:00:09.48	00:00:28.63
Symbol table sort	0	00:00:01.22	00:00:01.80
Pass 2	74	00:00:01.92	00:00:04.37
Symbol table output	6	00:00:00.09	00:00:00.22
Psect synopsis output	2	00:00:00.03	00:00:00.08
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	568	00:00:13.60	00:00:39.96

The working set limit was 1500 pages.
52606 bytes (103 pages) of virtual memory were used to buffer the intermediate code.
There were 50 pages of symbol table space allocated to hold 1022 non-local and 8 local symbols.
367 source lines were read in Pass 1, producing 13 object records in Pass 2.
24 pages of virtual memory were used to define 23 macros.

! Macro library statistics !

Macro library name	Macros defined
_\$255\$DUA28:[RMS.OBJ]RMS.MLB;1	12
_\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	2
_\$255\$DUA28:[SYSLIB]STARLET.MLB;2	5
TOTALS (all libraries)	19

1152 GETS were required to define 19 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LIS\$:RM1PUTSET/OBJ=OBJ\$:RM1PUTSET MSRC\$:RM1PUTSET/UPDATE=(ENH\$:RM1PUTSET)+EXECMLS/LIB+LIBS:RMS/LIB

RM1PUTREC
LIS

RM1PUTSET
LIS

RM1UPDATE
LIS

RM1NXTBLK
LIS

RM1PUTBLD
LIS

RM1RELBLK
LIS

RM1SEQXFR
LIS

RM1PUT
LIS

RM2CONN
LIS

RM1OPEN
LIS

RM1WTLSL
LIS

RM1STMFMT
LIS