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```
0000 1 :  
0000 2 : MEMORY MANAGEMENT SERVICES TEST #1  
0000 3 :  
0000 4 :  
0000 5 : .TITLE MMGCRDLSP - TEST OF $CRETVA/$DELTVA/$SETPRT SYSTEM SERVICES  
0000 6 : .IDENT 'V04-000'  
0000 7 :  
0000 8 : *****  
0000 9 : *  
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0000 27 : *  
0000 28 : *  
0000 29 : *****  
0000 30 :  
0000 31 : ++  
0000 32 : FACILITY: USER MODE MEMORY MANAGEMENT SERVICES TEST  
0000 33 :  
0000 34 : ABSTRACT: THIS SET OF ROUTINES TESTS THE MEMORY MANAGEMENT SERVICES  
0000 35 :  
0000 36 : ENVIRONMENT: USER MODE DIAGNOSTIC  
0000 37 :  
0000 38 : AUTHOR: PETER H. LIPMAN , CREATION DATE: 6-JAN-77  
0000 39 :  
0000 40 : MODIFIED BY:  
0000 41 :  
0000 42 : V02-012 SHZ0009 Stephen Zalewski 20-Aug-1980  
0000 43 : Added further tests to system services tested in this  
0000 44 : program. Also incorporated program into MMG test  
0000 45 : package.  
0000 46 :
```

```

0000 48      .SBTTL  DECLARATIONS
0000 49      :
0000 50      : INCLUDE FILES:
0000 51      :
0000 52      : .SBTTL  MACROS
0000 53      :
0000 54      : MACROS:
0000 55      :
0000 56      .MACRO  LIST
0000 57      .LIST  MEB
0000 58      .ENDM  LIST
0000 59
0000 60      .MACRO  NLIST
0000 61      .NLIST MEB
0000 62      .ENDM  NLIST
0000 63
0000 64      .MACRO  READ  SIZ=#1,ADR=(R2),?L1,?L2
0000 65      IFNORD  <SIZ>,<ADR>,L1
0000 66      BRB     L2
0000 67 L1:    MOVAL  W^READERR,R1
0000 68      BSBW   PROBERR
0000 69 L2:
0000 70      .ENDM  READ
0000 71
0000 72      .MACRO  WRITE SIZ=#1,ADR=(R2),?L1,?L2
0000 73      IFNOWRT <SIZ>,<ADR>,L1
0000 74      BRB     L2
0000 75 L1:    MOVAL  W^WRITERR,R1
0000 76      BSBW   PROBERR
0000 77 L2:
0000 78      .ENDM  WRITE
0000 79
0000 80      .MACRO  NOREAD SIZ=#1,ADR=(R2),?L1
0000 81      IFNORD  <SIZ>,<ADR>,L1
0000 82      MOVAL  W^NOREADERR,R1
0000 83      BSBW   PROBERR
0000 84 L1:
0000 85      .ENDM  NOREAD
0000 86
0000 87      .MACRO  NOWRITE SIZ=#1,ADR=(R2),?L1
0000 88      IFNOWRT <SIZ>,<ADR>,L1
0000 89      MOVAL  W^NOWRITERR,R1
0000 90      BSBW   PROBERR
0000 91 L1:
0000 92      .ENDM  NOWRITE
0000 93
0000 94      .MACRO  CRETVA STARTVA,ENDVA,STATUS=S^#SS$ NORMAL,-
0000 95      INADR=W^INRANGE,RETADR=W^RETRANGE
0000 96      LIST
0000 97      .IF     NB,STARTVA
0000 98      MOVL   STARTVA,W^INRANGE
0000 99      .ENDC
0000 100     .IF     NB,ENDVA
0000 101     MOVL   ENDVA,W^INRANGE+4
0000 102     .ENDC
0000 103     MOVZWL STATUS,R3
0000 104     MOVAL  INADR,R0

```

```

0000 105          MOVAL  RETADR,R1
0000 106          BSBW   CRETVA$SUBR
0000 107          NLIST
0000 108          .ENDM  CRETVA
0000 109
0000 110          :*****
0000 111          : THIS MACRO DELETES THE CURRENT VA ADDRESSES.  ALSO HIDDEN IN THIS
0000 112          : MACRO IS A TEST TO SEE IF A DELETE GLOBAL SECTION MUST ALSO BE
0000 113          : INVOKED.  THIS OCCURS DURING THE SECOND AND THIRD RUNS OF THE TEST
0000 114          : PROGRAM WHEN GLOBAL SECTION MAPPING AND PFN MAPPING ARE USED.
0000 115          :*****
0000 116          :
0000 117          .MACRO DELTVA STARTVA,ENDVA,STATUS=S^#SS$ NORMAL,-
0000 118          INADR=W^INRANGE,RETADR=W^RETRANGE,?L1
0000 119          LIST
0000 120          CMPW   W^WHICHRUN,#RUN1          ;IF USING MAPPED SECTIONS FOR TESTS,
0000 121          BLEQ  L1                          ;DELETE SECTION AND THEN DO A DELTVA
0000 122          $DGBLSC-S                          -
0000 123          L1:                               -GSDNAM=<W^GBLSECNAM>
0000 124          .IF  NB,STARTVA
0000 125          MOVL  STARTVA,W^INRANGE
0000 126          .ENDC
0000 127          .IF  NB,ENDVA
0000 128          MOVL  ENDVA,W^INRANGE+4
0000 129          .ENDC
0000 130          MOVZWL STATUS,R3
0000 131          MOVAL  INADR,R0
0000 132          MOVAL  RETADR,R1
0000 133          BSBW   DELTVA$SUBR
0000 134
0000 135          NLIST
0000 136          .ENDM  DELTVA
0000 137
0000 138          .MACRO EXPREG PAGCNT,REGION=#0,STATUS=S^#SS$ NORMAL,-
0000 139          RETADR=W^RETRANGE
0000 140          LIST
0000 141          MOVZWL STATUS,R3
0000 142          MOVL  PAGCNT,R4
0000 143          MOVAL  RETADR,R1
0000 144          .IF  IDN,<REGION>,<#0>
0000 145          CLRL  R5
0000 146          .IFF
0000 147          MOVL  REGION,R5
0000 148          .ENDC
0000 149          BSBW   EXPREG$SUBR
0000 150
0000 151          NLIST
0000 152          .ENDM  EXPREG
0000 153
0000 154          .MACRO SETPRT ACC,STARTVA,ENDVA,STATUS=S^#SS$ NORMAL,-
0000 155          INADR=W^INRANGE,RETADR=W^RETRANGE,-
0000 156          PRVPRT=NONE,PRVPRTADR
0000 157          LIST
0000 158          .IF  NB,STARTVA
0000 159          MOVL  STARTVA,W^INRANGE
0000 160          .ENDC
0000 161          .IF  NB,ENDVA
  
```

```

0000 162      MOVL      ENDVA,W^INRANGE+4
0000 163      .ENDC
0000 164      MOVZWL   STATUS,R3
0000 165      MOVAL     INADR,R0
0000 166      MOVAL     RETADR,R1
0000 167      MOVZBL   S^#PRT$C,'ACC,R4
0000 168      MOVZBL   S^#PRT$C-'PRVPRT,R5
0000 169      .IF      B,PRVPRTADR
0000 170      .IF      DIF,<PRVPRT>,<NONE>
0000 171      MOVAL     W^PREVPROT,R6
0000 172      .IFF
0000 173      CLRRL     R6
0000 174      .ENDC
0000 175      .IFF
0000 176      MOVAL     PRVPRTADR,R6
0000 177      .ENDC
0000 178      BSBW      SETPRTSUBR
0000 179      NLIST
0000 180      .ENDM   SETPRT
0000 181
0000 182      :*****
0000 183      : THIS MACRO USED TO CREATE PERMANENT GLOBAL SECTIONS.  THE FILE NAME
0000 184      : AND GBL SECTION DEVICE NAME ARE DECLARED INDEPENDANTLY OF THIS MACRO
0000 185      : AND ARE PUSHED ONTO THE STACK MANUALLY BEFORE THE $CRMPSC SERVICE IS
0000 186      : CALLED.
0000 187      :
0000 188      : ALSO NOTE THE TEMPORARY FIX LOCATED AT THE BOTTOM OF THE MACRO.  THE
0000 189      : FIX IS NEEDED BECAUSE THE LAST GLOBAL SECTION MAY NOT HAVE BEEN DELETED
0000 190      : BY THE TIME THE NEXT MAPPED SECTION IS CREATED.  IN THIS CASE THE
0000 191      : RETURNED ERROR IS TRAPPED AND THE SECTION IS REMAPPED UNTIL THE
0000 192      : SUCCESS CODE IS RETURNED.  THIS BUG IS SLATED TO BE FIXED.  WHEN THAT
0000 193      : IS ACCOMPLISHED REFER TO THE COMMENTS ABOVE THE FIX TO DETERMINE WHAT
0000 194      : LINES SHOULD BE REMOVED TO DELETE THE PATCH.
0000 195      :*****
0000 196      :
0000 197      .MACRO  CREMAPSEC -
0000 198      STARTVA      :-
0000 199      ENDVA        :-
0000 200      STATUS      :-
0000 201      INADR=<W^INRANGE>,-      ; INPUT RANGE
0000 202      RETADR=<W^RETRANGE>,-    ; RETURN RANGE
0000 203      FLAGS=#0      :-      ; SECTION FLAGS
0000 204      GSDNAM=<W^GBLSECNAM>,-  ; GLOBAL SECTION NAME
0000 205      RELPAG=#0      :-      ; RELATIVE PAGE
0000 206      FILNAM=<W^FILENAME>,-   ; FILE NAME
0000 207      PAGCNT=#0      :-      ; MAX SIZE OF SECTION
0000 208      VBN=#0        :-      ; STARTING WIRT BLK NO. IN FILE
0000 209      ?L1
0000 210      LIST
0000 211      .IF      NB,STARTVA
0000 212      MOVL     STARTVA,W^INRANGE
0000 213      .ENDC
0000 214      .IF      NB,ENDVA
0000 215      MOVL     ENDVA,W^INRANGE+4
0000 216      .ENDC
0000 217      MOVZWL   STATUS,R3
0000 218      L1:

```

```

0000 219          PUSHL  VBN
0000 220          PUSHL  PAGCNT
0000 221          $PUSHADR FILNAM
0000 222          PUSHL  RELPAG
0000 223          $PUSHADR GSDNAM
0000 224          PUSHL  FLAGS
0000 225          $PUSHADR RETADR
0000 226          $PUSHADR INADR
0000 227          CALLS  #8,LIB$_CREMAPSEC
0000 228          :*****
0000 229          :IN ORDER TO DELTE THE PATCH MENTIONED ABOVE SIMPLY REMOVE THE LINES FROM
0000 230          :HERE TO THE NEXT SET OF ASTERISCS.
0000 231          :
0000 232          Cmpl  #^X1828A,R0          ;IF PREVIOUS GBL SECTION HASN'T
0000 233          BEQL  L1                    ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000 234          :*****
0000 235          MOVAL  W^CRMPSCERR,R1
0000 236          BSBW  CHECK1
0000 237          NLIST
0000 238          .ENDM  CREMAPSEC
0000 239
0000 240          :*****
0000 241          : THIS MACRO IS USED TO DETERMINE WHETHER THE MAKEVA SHOULD BE
0000 242          : TRANSLATED INTO A $CRETVA, A $CRMPSC USING GLOBAL SECTIONS,
0000 243          : OR A $CRMPSC USING PFN MAPPING. THE DECISION IS BASED UPON WHICH
0000 244          : RUN THE PROGRAM IS CURRENTLY IN.
0000 245          :
0000 246          : ALSO NOTE THAT THE FIX THAT WAS APPLIED TO $CRMPSC MACRO LOCATED
0000 247          : ABOVE, WAS ALSO APPLIED TO THE $CRMPSC CALL LOCATED IN THE THIRD
0000 248          : PART OF THIS MACRO. UPON THE FIX OF THIS BUG REFER TO THE
0000 249          : FIXED AREA TO FIND OUT WHAT MUST BE DELETED IN ORDER TO GET RID
0000 250          : OF THE TEMPORARY PATCH.
0000 251          :*****
0000 252          :
0000 253          .MACRO MAKEVA  STARTVA,ENDVA,STAT=S^#SS$_NORMAL,?L1,?L2,?L10,?L20,-
0000 254          ?L30,?L40
0000 255          LIST
0000 256          CASEL  W^WHICHRUN,#1,#RUNMAX
0000 257          L1:
0000 258          .WORD  L10-L1          ;IF FIRST RUN USE CRETVA.
0000 259          .WORD  L20-L1          ;IF SECOND USE GBL CREMAPSEC
0000 260          .WORD  L30-L1          ;IF THIRD USE PFN MAPPING
0000 261          L10:
0000 262          CRETVA STARTVA,ENDVA,STATUS=STAT
0000 263          LIST
0000 264          BRW  L40
0000 265          L20:
0000 266          CREMAPSEC STARTVA,ENDVA,STATUS=STAT,-
0000 267          FLAGS=#<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>,-
0000 268          PAGCNT=#25
0000 269          LIST
0000 270          BRW  L40
0000 271          L30:
0000 272          .IF  NB,STARTVA
0000 273          MOVL  STARTVA,W^INRANGE
0000 274          .ENDC
0000 275          .IF  NB,ENDVA

```



```

0000 276          MOVL   ENDVA,W^INRANGE+4
0000 277          .ENDC
0000 278          MOVZWL STAT,R3
0000 279 L2:
0000 280          $CRMPSC_S
0000 281          INADR=<W^INRANGE>,-
0000 282          RETADR=<W^RETRANGE>,-
0000 283          GSDNAM=<W^GBLSECNAM>,-
0000 284          VBN=#0,-
0000 285          FLAGS=#<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>,-
0000 286          PAGCNT=#25
0000 287          :*****
0000 288          :IN ORDER TO REMOVE THE TEMPORARY FIX EXPLAINED ABOVE REMOVE THE LINES
0000 289          :STARTING FROM HERE AND EXTENDING THE THE NEXT SET OF ASTERICS.
0000 290          :
0000 291          Cmpl   #^X1828A,R0          ;IF PREVIOUS GBL SECTION HASN'T
0000 292          BEQL   L2                  ;BEEN DELETED TRY CREMAPSEC AGAIN.
0000 293          :*****
0000 294          MOVAL  W^CRMPSCERR,R1
0000 295          BSBW   CHECK1
0000 296 L40:
0000 297          NLIST
0000 298          .ENDM  MAKEVA
0000 299
0000 300          .MACRO RANGECHK ONOROFF
0000 301          LIST
0000 302          .IF   IDN <ONOROFF>,<OFF>
0000 303          BICL   #CTLSM_RNGCHK,W^CTLFLG
0000 304          .IFF
0000 305          BISL   #CTLSM_RNGCHK,W^CTLFLG
0000 306          .ENDC
0000 307          NLIST
0000 308          .ENDM  RANGECHK
0000 309
0000 310          :
0000 311          : EQUATED SYMBOLS:
0000 312          :
0000 313          $SSDEF                      ;DEFINE SYSTEM SERVICE CODES
0000 314          $SECDEF                    ;DEFINE SECTION CODES
0000 315          $PRTDEF
0000 316          $GBLINI
0000 317          $VIELD CTL,0,<-
0000 318          <MEMLOOP,,MASK>,-
0000 319          <TSTLOOP,,MASK>,-
0000 320          <PIDMSG,,MASK>,-
0000 321          <RNGCHK,,MASK>-
0000 322          >
00000001 0000 323          RUN1=1
00000002 0000 324          RUN2=2
00000003 0000 325          RUNMAX=3
00000010 0000 326          PRTSC_NONE=124
0000 327          :
0000 328          : OWN STORAGE:
0000 329          :

```

```
0000 331 .SBTTL DATA STORAGE AND MESSAGE STRINGS
00000000 332 .PSECT DATA0,PAGE,WRT,NOEXE
0000 333 INRANGE:
00000008 0000 334 .BLKL 2
0000 335 RETRANGE:
00000010 0008 336 .BLKL 2
00000006 0010 337 CTLFLG: .LONG CTL$M_TSTLOOP!CTL$M_PIDMSG
00000018 0014 338 SAVEND: .BLKL 1
0000001C 0018 339 PID: .BLKL 1 ;PROCESS ID
001C 340 MAXPASSCNT:
00000003 001C 341 .LONG 3 ;NUMBER OF PASSES TO RUN
0020 342 PASSCNT:
00000024 0020 343 .BLKL 1 ;PASS COUNTER
0024 344 MAXWHICHRUN:
00000003 0024 345 .LONG 3 ;NUMBER OF RUNS
0028 346 WHICHRUN:
0000002C 0028 347 .BLKL 1 ;WHICH RUN COUNTER
002C 348 PREVPROT:
002C 349 FAB: $FAB FAC=PUT, FNA=OUTNAMADR, FNS=OUTNAMSIZ ;FAB FOR OUTPUT
007C 350 RAB: $RAB FAB=FAB ;RECORD ACCESS BLOCK FOR OUTPUT
000000C4 00C0 351 MSGLEN: .BLKL 1 ;RETURN LENGTH FROM FAO
000000E2'000000A0' 00C4 352 MSGBUFD: .LONG MSGBUFSIZ,MSGBUF ;MESSAGE BUFFER DESCRIPTOR
00CC 353 PIDMSGD:
000000DE'00000004' 00CC 354 .LONG MSGBUF-PIDMSG,PIDMSG
00D4 355 :
00D4 356 : ***** DO NOT SEPARATE OR REORDER THE FOLLOWING LINES
00D4 357 :
00D4 358 MSGBUFID:
20 53 53 45 43 4F 52 50 00D4 359 CRLF: .BYTE ^015,^012
20 20 20 20 00DE 360 .ASCII $PROCESS $
00000182 00E2 361 PIDMSG: .ASCII $ $
000000A0 0182 362 MSGBUF: .BLKB 160 ;MESSAGE BUFFER USED BY FAO
0182 363 MSGBUFSIZ=-MSGBUF
0182 364 :
0182 365 : ***** DO NOT SEPARATE OR REORDER THE PRECEDING LINES
0182 366 :
00000000 367 :
0000 368 .PSECT DATA1,PAGE,WRT,NOEXE
0000 369 :
00000800 0000 370 WRTPAGES:
0800 371 .BLKL 128*4
00000000 372 :
0000 373 .PSECT DATA2,PAGE,NOWRT,NOEXE
00000800 0000 374 RDPAGES:
0800 375 .BLKL 128*4
376
```

```
00000000
0000
0000
0000
0000
54 55 50 54 55 4F 24 53 59 53 0000
0000000A
000A
000A
52 52 45 20 41 56 54 45 52 43 2F 21 000A
58 21 20 3D 20 43 50 20 2D 20 52 4F 0016
41 57 20 53 55 54 41 54 53 20 2C 4C 0022
4C 55 4F 48 53 20 2C 4C 58 21 20 53 002E
4C 58 21 20 45 42 20 44 003A
21 20 3D 20 52 44 41 4E 49 09 2F 21 0042
52 20 20 2C 4C 58 21 20 2D 20 4C 58 004E
20 4C 58 21 20 3D 20 52 44 41 54 45 005A
2F 21 4C 58 21 20 2D 0066
00000063 006D
006D
006D
52 52 45 20 41 56 54 4C 45 44 2F 21 006D
58 21 20 3D 20 43 50 20 2D 20 52 4F 0079
41 57 20 53 55 54 41 54 53 20 2C 4C 0085
4C 55 4F 48 53 20 2C 4C 58 21 20 53 0091
4C 58 21 20 45 42 20 44 009D
21 20 3D 20 52 44 41 4E 49 09 2F 21 00A5
52 20 20 2C 4C 58 21 20 2D 2C 4C 58 00B1
20 4C 58 21 20 3D 20 52 44 41 54 45 00BD
2F 21 4C 58 21 20 2D 00C9
00000063 00D0
00D0
00D0
52 52 45 20 43 53 50 4D 52 43 2F 21 00D0
58 21 20 3D 20 43 50 20 2D 20 52 4F 00DC
41 57 20 53 55 54 41 54 53 20 2C 4C 00E8
4C 55 4F 48 53 20 2C 4C 58 21 20 53 00F4
4C 58 21 20 45 42 20 44 0100
21 20 3D 20 52 44 41 4E 49 09 2F 21 0108
52 20 20 2C 4C 58 21 20 2D 20 4C 58 011;
20 4C 58 21 20 3D 20 52 44 41 54 45 0120
2F 21 4C 58 21 20 2D 012C
00000063 0133
0133
0133
52 52 45 20 47 45 52 50 58 45 2F 21 0133
58 21 20 3D 20 43 50 20 2D 20 52 4F 013F
41 57 20 53 55 54 41 54 53 20 2C 4C 014B
4C 55 4F 48 53 20 2C 4C 58 21 20 53 0157
4C 58 21 20 45 42 20 44 0163
20 3D 20 54 4E 43 47 41 50 09 2F 21 016B
20 4E 4F 49 47 45 52 20 2C 4C 53 21 0177
45 45 41 50 53 20 42 55 21 50 20 3D 0183
20 2C 018F
4C 58 21 20 3D 20 52 44 41 54 45 52 0191
2F 21 4C 58 21 20 2D 20 019D
00000072 01A5
```

```
378 .PSECT CODE,PAGE,NOWRT,EXE
379
380 CODEPAGES:
381
382 OUTNAMADR:
383 .ASCII /SYSS$OUTPUT/
384 OUTNAMSIZ=-OUTNAMADR
385
386 CRETVAERRADR:
387 .ASCII $!/CRETVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
388
388 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
389
389 CRETVAERRSIZ=-CRETVAERRADR
390
391 DELTVAERRADR:
392 .ASCII $!/DELTVA ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
393
393 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
394
394 DELTVAERRSIZ=-DELTVAERRADR
395
396 CRMPSCERRADR:
397 .ASCII $!/CRMPSC ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
398
398 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
399
399 CRMPSCERRSIZ=-CRMPSCERRADR
400
401 EXPREGERRADR:
402 .ASCII $!/EXPREG ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
403
403 .ASCII $!/ PAGCNT = !SL, REGION = P!UB SPACE, $
404
404 .ASCII $RETADR = !XL - !XL!/$
405
405 EXPREGERRSIZ=-EXPREGERRADR
```

```

01A5 406
01A5 407 SETPRTEERRADR:
01A5 408 .ASCII $!/SETPRT ERROR - PC = !XL, STATUS WAS !XL, SHOULD BE !XL$
01B1
01BD
01C9
01D5
01DD 409 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL$
01E9
01F5
0201
0206 410 .ASCII $!/ PREVIOUS PROTECTION WAS !1XB, SHOULD BE !1XB!/$
0212
021E
022A
0236
00000092 0237 411 SETPRTEERRSIZ=-.SETPRTEERRADR
0237 412
0237 413 READERRADR:
0237 414 .ASCII $!/ READ ERROR - LOCATION = !XL !/$
0243
024F
00000021 0258 415 READERRSIZ=-.READERRADR
0258 416
0258 417 NOREADERRADR:
0258 418 .ASCII $!/ NO-READ ERROR - LOCATION = !XL !/$
0264
0270
00000024 027C 419 NOREADERRSIZ=-.NOREADERRADR
027C 420
027C 421 WRITERRADR:
027C 422 .ASCII $!/ WRITE ERROR - LOCATION = !XL !/$
0288
0294
00000022 029E 423 WRITERRSIZ=-.WRITERRADR
029E 424
029E 425 NOWRITERRADR:
029E 426 .ASCII $!/ NO-WRITE ERROR - LOCATION = !XL !/$
02AA
02B6
02C2
00000025 02C3 427 NOWRITERRSIZ=-.NOWRITERRADR
02C3 428
02C3 429 RANGERRADR:
02C3 430 .ASCII $!/RETURN RANGE ERROR - LOCATION = !XL$
02CF
02DB
02E7
02E8 431 .ASCII $!/ INADR = !XL - !XL, RETADR = !XL - !XL!/$
02F4
0300
030C
0000004F 0312 432 RANGERRSIZ=-.RANGERRADR
0312 433
0312 434 IDMSGADR:
0312 435 .ASCII $!/MEMORY MANAGEMENT SERVICES TEST #1 (CRDLSP), PASS !UL!/$
031E

```

```

31 23 20 54 53 45 54 20 53 45 43 49 032A
50 20 2C 29 50 53 4C 44 52 43 28 20 0336
    2F 21 4C 55 21 20 53 53 41 0342
    00000039 0348 436
    0348 437
    0348 438
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 034B 439
4E 20 4C 4C 49 57 20 54 53 45 54 20 0357
53 55 20 4E 55 52 20 45 42 20 57 4F 0363
20 52 41 4C 55 47 45 52 20 47 4E 49 036F
2A 20 20 20 45 43 41 50 53 20 41 56 037B
    2A 2A 2A 2A 0387
    20 2F 21 038B 440
    00000043 038E 441
    038E 442
    038E 443
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 038E 444
4E 20 4C 4C 49 57 20 54 53 45 54 20 039A
53 55 20 4E 55 52 20 45 42 20 57 4F 03A6
4C 42 47 20 4D 52 45 50 20 47 4E 49 03B2
20 20 20 53 4E 4F 49 54 43 45 53 20 03BE
    2A 2A 2A 2A 2A 03CA
    20 2F 21 03CF 445
    00000044 03D2 446
    03D2 447
    03D2 448
20 20 2A 2A 2A 2A 2A 20 20 20 2F 21 03D2 449
4E 20 4C 4C 49 57 20 54 53 45 54 20 03DE
53 55 20 4E 55 52 20 45 42 20 57 4F 03EA
50 50 41 4D 20 4E 46 50 20 47 4E 49 03F6
    2A 2A 2A 2A 2A 20 20 20 47 4E 49 0402
    20 2F 21 040D 450
    0000003E 0410 451
    0410 452
    0410 453
    4C 55 21 0410 454
    00000003 0413 455
    0413 456
    0413 457
    54 53 54 47 4D 4D 0413 458
    00000006 0419 459
    0419 460
    0419 461
    54 41 44 2E 54 53 54 47 4D 4D 0419 462
    0000000A 0423 463
    0423 464

```

```

IDMSGsiz=-IDMSGADR
RUN1_MSGADR:
.ASCII $!/ ***** TEST WILL NOW BE RUN USING REGULAR VA SPACE *****$

.ASCII $!/$
RUN1_MSGsiz=-RUN1_MSGADR
RUN2_MSGADR:
.ASCII $!/ ***** TEST WILL NOW BE RUN USING PERM GBL SECTIONS *****$

.ASCII $!/$
RUN2_MSGsiz=-RUN2_MSGADR
RUN3_MSGADR:
.ASCII $!/ ***** TEST WILL NOW BE RUN USING PFN MAPPING *****$

.ASCII $!/$
RUN3_MSGsiz=-RUN3_MSGADR
PIDCTLADR:
.ASCII $!UL$
PIDCTLSiz=-PIDCTLADR
GBLSECNAMADR:
.ASCII $MMGTST$
GBLSECNAMsiz=-GBLSECNAMADR
FILENAMEADR:
.ASCII $MMGTST.DAT$
FILENAMESiz=-FILENAMEADR

```

	0423	466	:	
	0423	467	:	STRING DESCRIPTORS
	0423	468	:	
	0423	469	:	.ALIGN LONG
	0424	470	:	
	0424	471	:	CRETVAERR:
0000000A'00000063	0424	472	:	.LONG CRETVAERRSIZ,CRETVAERRADR
	042C	473	:	DELTAERR:
0000006D'00000063	042C	474	:	.LONG DELTAERRSIZ,DELTAERRADR
	0434	475	:	EXPREGERR:
00000133'00000072	0434	476	:	.LONG EXPREGERRSIZ,EXPREGERRADR
	043C	477	:	CRMPSCERR:
000000D0'00000063	043C	478	:	.LONG CRMPSCERRSIZ,CRMPSCERRADR
	0444	479	:	SETPRTERR:
000001A5'00000092	0444	480	:	.LONG SETPRTERRSIZ,SETPRTERRADR
	044C	481	:	READERR:
00000237'00000021	044C	482	:	.LONG READERRSIZ,READERRADR
	0454	483	:	NOREADERR:
00000258'00000024	0454	484	:	.LONG NOREADERRSIZ,NOREADERRADR
	045C	485	:	WRITERR:
0000027C'00000022	045C	486	:	.LONG WRITERRSIZ,WRITERRADR
	0464	487	:	NOWRITERR:
0000029E'00000025	0464	488	:	.LONG NOWRITERRSIZ,NOWRITERRADR
	046C	489	:	RANGERR:
000002C3'0000004F	046C	490	:	.LONG RANGERRSIZ,RANGERRADR
	0474	491	:	IDMSG:
00000312'00000039	0474	492	:	.LONG IDMSGSIZ,IDMSGADR
	047C	493	:	RUN1_MSG:
0000034B'00000043	047C	494	:	.LONG RUN1_MSGSIZ,RUN1_MSGADR
	0484	495	:	RUN2_MSG:
0000038E'00000044	0484	496	:	.LONG RUN2_MSGSIZ,RUN2_MSGADR
	048C	497	:	RUN3_MSG:
000003D2'0000003E	048C	498	:	.LONG RUN3_MSGSIZ,RUN3_MSGADR
	0494	499	:	PIDCTL:
00000410'00000003	0494	500	:	.LONG PIDCTLSIZ,PIDCTLADR
	049C	501	:	GBLSECNAM:
00000413'00000006	049C	502	:	.LONG GBLSECNAMSIZ,GBLSECNAMADR
	04A4	503	:	FILENAME:
00000419'0000000A	04A4	504	:	.LONG FILENAMESIZ,FILENAMEADR
	04AC	505	:	

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04AC 507 .SBTTL INITIALIZATION
04AC 508 :*****
04AC 509 :PROGRAM DESCRIPTION:
04AC 510 :
04AC 511 : THIS PROGRAM TESTS THE FOLLOWING SYSTEM SERVICES:
04AC 512 :     $CRETVA,$DELTV,$SETPRT
04AC 513 :
04AC 514 : THE SYSTEM SERVICES ARE TESTED IN THE FOLLOWING MANNER. THE PROGRAM
04AC 515 : IS DESIGNED TO MAKE THREE RUNS. EACH RUN MAKES THREE PASSES. ON
04AC 516 : THE FIRST RUN WHEN A MAKEVA IS ENCOUNTERED IT IS REPLACED WITH A
04AC 517 : CRETVA. IT THEN MAKES THREE PASSES THROUGH THE PROGRAM DOING
04AC 518 : ALL THE POSSIBLE TESTS. ON THE SECOND RUN THE MAKEVA IS ENCOUNTERED
04AC 519 : AND IS REPLACED WITH A $CRMPSC THAT MAPS A PERMANENT GLOBAL SECTION.
04AC 520 : FOR THE THIRD RUN, THE MAKEVA IS REPLACED WITH A $CRMPSC THAT MAPS
04AC 521 : A PFN GLOBAL SECTION. USING THIS APPROACH THE $CRMPSC SYSTEM SERVICE
04AC 522 : WAS ALSO ABLE TO BE TESTED AS ALL ERROR PATHS FOLLOWED WHEN USING
04AC 523 : NORMAL VA ARE ALSO APPLICABLE WHEN USING GBL SECTION MAPPING.
04AC 524 :
04AC 525 : FOR EACH OF THESE RUNS A MESSAGE IS SENT TO T4c TERMINAL
04AC 526 : INFORMING THE OPERATOR AS TO WHICH OF THESE SUBSTITUTE MAKEVA'S WILL
04AC 527 : BE USED FOR THAT SET OF PASSES.
04AC 528 :
04AC 529 : REFER TO MASDS:[MMGTST.COM]MMGTST.RAP FOR FURTHER INFORMATION
04AC 530 : REGARDING JUST HOW COMPLETELY THE ABOVE MENTIONED SYSTEM SERVICES
04AC 531 : ARE TESTED BY THIS PROGRAM.
04AC 532 :
04AC 533 : *NOTE:
04AC 534 : THERE IS A BUG IN $CRMPSC THAT WILL BE FIXED IN THE FUTURE. UNTIL
04AC 535 : THIS FIX TAKES PLACE THERE AREA TEMPORARY PATCH'S LOCATED AT THE END
04AC 536 : OF THE CREMAPSEC MACRO AND MAKVA MACRO WHICH CIRCUMVENT THIS
04AC 537 : PROBLEM. UPON CORRECTION OF THIS BUG REFER TO THESE ABOVE MENTIONED
04AC 538 : MACROS TO FIND OUT HOW TO REMOVE THESE TEMPORARY PATCHES.
04AC 539 :
04AC 540 : ALSO, THE FILE MMGTST.DAT, WHICH IS CREATED BY RUNNING MMGCRTFIL.MAR,
04AC 541 : IS NECESSARY TO RUN THIS PROGRAM AS IT IS REFERENCED BY CREMAPSEC.
04AC 542 :
04AC 543 : *PRIVILEGES:
04AC 544 : IN ORDER TO RUN THIS PROGRAM YOU MUST HAVE IN YOUR POSSESSION
04AC 545 : THE PRIVILEGES PRMGBL AND PFNMAP.
04AC 546 : *****
04AC 547 :
04AC 548 : START HERE
04AC 549 :
0000 04AC 550 START: .WORD 0 ;ENTRY MASK
OE 50 E9 04AE 551 $OPEN W^FAB ;OPEN THE FILE '$OUTPUT'
04BC 552 BLBC RO,10$ ;BRANCH IF ERROR
09 50 E8 04BC 553 $CONNECT W^RAB ;CONNECT THE RECORD ACCESS BLOCK
04CA 554 BLBS RO,20$
04D3 555 10$: $EXIT S RO ;EXIT WITH STATUS IN RO
04E2 556 20$: $RESUME S PID ;SET UP PROCESS ID
50 0000018'EF 3C 04E2 557 MOVZWL PID,RO
04E9 558 $FAO_S PIDCTL,MSGLEN,PIDMSGD,RO ;INIT THE PROCESS ID STRING
0501 559 CLRL WHICHRUN ;INIT THE RUN COUNT TO ZERO
0507 560
0507 561
0507 562 MAIN PROGRAM:
0507 563 :*****

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0507 564 : THIS COUNTER IS USED TO DETERMINE WHICH CRMPSC IS TO BE
0507 565 : REFERENCED, OR IF THE CRETVA IS TO BE USED, WHEN A MAKEVA
0507 566 : IS ENCOUNTERED.
0507 567 :*****
0507 568
OC 0020'CF 01 D0 0507 569          MOVL   #1,W^PASSCNT          ;INITIALIZE THE PASS COUNT
0028'CF 0024'CF F3 050C 570          AOBLEQ  W^MAXWHICHRUN,W^WHICHRUN,PRESTART
0514 571
0514 572 END:
0514 573          MOVZBL #SS$_NORMAL,R0
0517 574          $EXIT_S R0
0520 575
03 01 0028'CF CF 0520 576 PRESTART:
0520 577          CASEL   W^WHICHRUN,#1,#RUNMAX
0526 578 L50:
0006' 0526 579          .WORD   CRETVA_MESSAGE-L50          ;FOR EACH RUN PRINT MESSAGE
0022' 0528 580          .WORD   GBL_SEC_MESSAGE-L50          ;DESCRIBING WHICH VA SPACE
0044' 052A 581          .WORD   PFNMAP_MESSAGE-L50          ;IS BEING USED.
052C 582
052C 583 CRETVA_MESSAGE:
052C 584          $FAC_S   RUN1_MSG,MSGLEN,MSGBUFD
ODCA 30 0543 585          BSBW-   TYPE$MSGBUF
44 11 0546 586          BRB     INIT_START
0548 587
0548 588 GBL_SEC_MESSAGE:
0010'CF 04 CB 0548 589          BISL   #CTL$M_PIDMSG,W^CTLFLG          ;ALLOW PROCESS ID TO PRINT
054D 590          $FAO_S   RUN2_MSG,MSGLEN,MSGBUFD
ODA9 30 0564 591          BSBW-   TYPE$MSGBUF
OOE6 31 0567 592          BRW     RSTART
056A 593
056A 594 PFNMAP_MESSAGE:
0010'CF 04 CB 056A 595          BISL   #CTL$M_PIDMSG,W^CTLFLG          ;ALLOW PROCESS ID TO PRINT
056F 596          $FAO_S   RUN3_MSG,MSGLEN,MSGBUFD
OD87 30 0586 597          BSBW-   TYPE$MSGBUF
OOC4 31 0589 598          BRW     RSTART
058C 599
058C 600 INIT_START:
0010'CF 04 CA 058C 601          BICL   #CTL$M_PIDMSG,W^CTLFLG          ;STOP PROCESS ID FROM PRINTING
0591 602          EXPREG  #1
53 01 3C 0591          MOVZWL  S^#SS$_NORMAL,R3
54 01 D0 0594          MOVL   #1,R4
51 0008'CF DE 0597          MOVAL  W^RETRANGE,R1
55 04 059C          CLRL  R5
OC1C 30 059E          BSBW   EXPREGSUBR
52 0008'CF 7D 05A1 603          MOVQ   W^RETRANGE,R2
0000'CF 52 7D 05A6 604          MOVQ   R2,W^INRANGE          ;FIND END OF REGION'S VA SPACE
0014'CF 52 D0 05AB 605          MOVL   R2,W^SAVEND          ;AND SAVE FOR FUTURE TESTS.
05B0 606
05B0 607          READ   #1,RDPAGES          ;CHECK READABILITY AND WRITABILITY
05C4 608          READ   #1,CODEPAGES          ;OF PAGES CREATED AT LINK TIME.
05D6 609          WRITE  #1,WRT$PAGES
05EA 610          WRITE  #1,(R2)
05FA 611          NOREAD #2,<^X1FF(R2)>          ;1ST READABLE, 2ND NOT
060A 612          READ   #1,<^X1FF(R2)>          ;TEST 1 BYTE AT EDGE
061C 613
01 0028'CF B1 061C          CMPW   W^WHICHRUN,#RUN1
OF 15 0621          BLEQ   30011$          ;IF USING MAPPED SECTIONS FOR TESTS,
;DELETE SECTION AND THEN DO A DELTVA

```



```

00 DD 0623
FE73 CF 7F 0625
00 DD 0629
00000000'GF 03 FB 062B
0632
50 53 01 3C 0632
0000'CF DE 0635
51 0008'CF DE 063A
0B08 30 063F
0642 614
0650 615
0650 616 RSTART:
0650 617
0010'CF 08 C8 0650
0010'CF 04 CA 0655 618
065A 619
0C96 30 0677 620
067A 621
53 01 3C 067A
54 01 D0 067D
51 0008'CF DE 0680
55 D4 0685
0B33 30 0687
52 0008'CF 7D 068A 622
0000'CF 52 7D 068F 623
0014'CF 52 D0 0694 624
0699 625
01 0028'CF B1 0699
OF 15 069E
00 DD 06A0
FDF6 CF 7F 06A2
00 DD 06A6
00000000'GF 03 FB 06A8
06AF 30013$:
50 53 01 3C 06AF
0000'CF DE 06B2
51 0008'CF DE 06B7
0A8B 30 06BC
06BF 626 MAKEVA
03 01 0028'CF CF 06BF
06C5 30014$:
0006' 06C5
0019' 06C7
0053' 06C9
06CB 30016$:
50 53 01 3C 06CB
0000'CF DE 06CE
51 0008'CF DE 06D3
0A5B 30 06D8
0076 31 06DB
06DE 30017$:
53 01 3C 06DE
06E1 30020$:
00 DD 06E1
19 DD 06E3
FDBB CF DF 06E5
00 DD 06E9

```

```

30011$:
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYS$DGBLSC
MOVZWL S^#SS$ NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR
NOREAD
RANGECHK ON
BISL #CTLSM RNGCHK,W^CTLFLG
BICL #CTLSM PIDMSG,W^CTLFLG
$FAO_S IDMSG,MSGLEN,MSGBUFD,PASSCNT
BSBW TYPMSGBUF
EXPREG #1
MOVZWL S^#SS$_NORMAL,R3
MOVL #1,R4
MOVAL W^RETRANGE,R1
CLRL R5
BSBW EXPREGSUBR
W^RETRANGE,R2
MOVQ R2,W^INRANGE
MOVL R2,W^SAVEND
DELTVA

```

```

;STOP PROCESS ID FROM PRINTING
;IF USING MAPPED SECTIONS FOR TESTS,
;DELETE SECTION AND THEN DO A DELTVA
30013$:
CMPL W^WHICHRUN,#RUN1
BLEQ 30013$
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYS$DGBLSC
MOVZWL S^#SS$ NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR
CASEL W^WHICHRUN,#1,#RUNMAX
30014$:
.WORD 30016$-30014$
.WORD 30017$-30014$
.WORD 30018$-30014$
;IF FIRST RUN USE CRETVA.
;IF SECOND USE GBL CREMAPSEC
;IF THIRD USE PFN MAPPING
MOVZWL S^#SS$_NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW CRETVASUBR
BRW 30019$
30017$:
MOVZWL S^#SS$_NORMAL,R3
30020$:
PUSHL #0
PUSHL #25
PUSHAL W^FILENAME
PUSHL #0

```

```

      FDAD CF DF 06EB          PUSHAL W^GBLSECNAM
0000400D 8F DD 06EF          PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
      0008'CF DF 06F5          PUSHAL W^RETRANGE
      0000'CF DF 06F9          PUSHAL W^INRANGE
00000000'EF 08 FB 06FD          CALLS #8,LIB$ CREMAPSEC
50 0001828A 8F D1 0704          CMPL #^X1828A,R0          ;IF PREVIOUS GBL SECTION HASN'T
      D4 13 070B          BEQL 30020$          ;BEEN DELETED TRY CREMAPSEC AGAIN.
51 FD2B CF DE 070D          MOVAL W^CRMPSCERR,R1
      0A47 30 0712          BSBW CHECK1
      003C 31 0715          BRW 30019$
      53 01 3C 0718          30018$:
      7E 7C 071B          MOVZWL S^#SS$ _NORMAL,R3
      00 DD 071D          30015$:
      19 DD 071F          CLRQ -(SP)
      7E 00 3C 0721          PUSHL #0
      00 DD 0724          PUSHL #25
      00 DD 0726          MOVZWL #0,-(SP)
      FD70 CF 7F 0728          PUSHL #0
00014009 8F DD 072C          PUSHAQ W^GBLSECNAM
      00 DD 0732          PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
      0008'CF 7F 0734          PUSHL #0
      0000'CF 7F 0738          PUSHAQ W^RETRANGE
00000000'GF 0C FB 073C          PUSHAQ W^INRANGE
50 0001828A 8F D1 0743          CALLS #12,G^SYS$CRMPSC
      CF 13 074A          CMPL #^X1828A,R0          ;IF PREVIOUS GBL SECTION HASN'T
51 FCEC CF DE 074C          BEQL 30015$          ;BEEN DELETED TRY CREMAPSEC AGAIN.
      0A08 30 0751          MOVAL W^CRMPSCERR,R1
      0754          BSBW CHECK1
      62 62 90 0764          30019$:
01 0028'CF B1 0767          627 WRITE
      OF 15 076C          628 MOVB (R2),(R2)
      00 DD 076E          629 DELTVA
      FD28 CF 7F 0770          CMPW W^WHICHRUN,#RUN1
00000000'GF 03 FB 0776          BLEQ 30023$          ;IF USING MAPPED SECTIONS FOR TESTS,
      00 DD 0774          PUSHL #0          ;DELETE SECTION AND THEN DO A DELTVA
      53 01 3C 077D          PUSHAQ W^GBLSECNAM
50 0000'CF DE 0780          PUSHL #0
51 0008'CF DE 0785          CALLS #3,G^SYS$DGBLSC
      09BD 30 078A          MOVZWL S^#SS$ NORMAL,R3
      078D          MOVAL W^INRANGE,R0
      079B          NOREAD          MOVAL W^RETRANGE,R1
      079B          630          BSBW DELTVASUBR
      079B          631
      079B          632 *****
      079B          633 : ALL THE SET PROTECTION TESTS ARE BYPASSED FOR THE SECOND AND THIRD
      079B          634 : RUNS, WHEN GLOBAL SECTIONS ARE USED, AS IT IS NOT POSSIBLE TO CHANGE
      079B          635 : THE PROTECTION OF PAGES CREATED IN THIS MANNER.
      079B          636 *****
      079B          637 :
02 0028'CF B1 079B          638 CMPW W^WHICHRUN,#RUN2
      03 19 07A0          639 BLSS 10$
      045A 31 07A2          640 BRW BYPASS_SETPRT_TESTS
      07A5          641 10$:
      07A5          642

```

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03 01 0028'CF  CF 07A5 643 MAKEVA CASEL W^WHICHRUN,#1,#RUNMAX
                                07A5 30025$:
                                07AB
0006' 07AB .WORD 30027$-30025$ ;IF FIRST RUN USE CRETVA.
0019' 07AD .WORD 30028$-30025$ ;IF SECOND USE GBL CREMAPSEC
0053' 07AF .WORD 30029$-30025$ ;IF THIRD USE PFN MAPPING
                                07B1 30027$:
50 53 01 3C 07B1 MOVZWL S^#SS$ NORMAL,R3
0000'CF DE 07B4 MOVAL W^INRANGE,R0
51 0008'CF DE 07B9 MOVAL W^RETRANGE,R1
0975 30 07BE BSBW CRETVASUBR
0076 31 07C1 BRW 30030$
                                07C4 30028$:
53 01 3C 07C4 MOVZWL S^#SS$_NORMAL,R3
                                07C7 30031$:
00 DD 07C7 PUSHL #0
19 DD 07C9 PUSHL #25
FC05 CF DF 07CB PUSHAL W^FILENAME
00 DD 07CF PUSHL #0
FCC7 CF DF 07D1 PUSHAL W^GBLSECNAM
0000400D 8F DD 07D5 PUSHL #<SEC$M_GBL!SEC$M_PERM!SEC$M_DZRO!SEC$M_WRT>
0008'CF DF 07DB PUSHAL W^RETRANGE
0000'CF DF 07DF PUSHAL W^INRANGE
00000000'EF 08 FB 07E3 CALLS #8,LIB$ CREMAPSEC
50 0001828A 8F D1 07EA Cmpl #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
                                D4 13 07F1 BEQL 30031$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
51 FC45 CF DE 07F3 MOVAL W^CRMPSCERR,R1
0961 30 07F8 BSBW CHECK1
003C 31 07FB BRW 30030$
                                07FE 30029$:
53 01 3C 07FE MOVZWL S^#SS$_NORMAL,R3
                                0801 30026$:
7E 7C 0801 CLRQ -(SP)
00 DD 0803 PUSHL #0
19 DD 0805 PUSHL #25
7E 00 3C 0807 MOVZWL #0,-(SP)
00 DD 080A PUSHL #0
00 DD 080C PUSHL #0
FC8A CF 7F 080E PUSHAQ W^GBLSECNAM
00014009 8F DD 0812 PUSHL #<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>
00 DD 0818 PUSHL #0
0008'CF 7F 081A PUSHAQ W^RETRANGE
0000'CF 7F 081E PUSHAQ W^INRANGE
00000000'GF 0C FB 0822 CALLS #12,G^SYSS$CRMPSC
50 0001828A 8F D1 0829 Cmpl #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
                                CF 13 0830 BEQL 30026$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
51 FC06 CF DE 0832 MOVAL W^CRMPSCERR,R1
0922 30 0837 BSBW CHECK1
                                083A 30030$:
644 SETPRT UR,PRVPRT=UW
53 01 3C 083A MOVZWL S^#SS$ NORMAL,R3
50 0000'CF DE 083D MOVAL W^INRANGE,R0
51 0008'CF DE 0842 MOVAL W^RETRANGE,R1
54 0F 9A 0847 MOVZBL S^#PRT$C UR,R4
55 04 9A 084A MOVZBL S^#PRT$C-UW,R5
56 002C'CF DE 084D MOVAL W^PREVPR0T,R6
09D1 30 0852 BSBW SETPRTSUBR

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			0855	645	NOWRITE	
			0863	646	READ	
			0873	647		
			0873	648	SETPRT	NA,PRVPRT=UR
50	53 01	3C	0873		MOVZWL	S^#SS\$ NORMAL,R3
	0000'CF	DE	0876		MOVAL	W^INRANGE,R0
51	0008'CF	DE	087B		MOVAL	W^RETRANGE,R1
	54 00	9A	0880		MOVZBL	S^#PRT\$C-NA,R4
	55 0F	9A	0883		MOVZBL	S^#PRT\$C-UR,R5
56	002C'CF	DE	0886		MOVAL	W^PREVPR0T,R6
	0998	30	088B		BSBW	SETPRTSUBR
			088E	649	NOREAD	
			089C	650		
			089C	651	SETPRT	UW,PRVPRT=KR
50	53 01	3C	089C		MOVZWL	S^#SS\$ NORMAL,R3
	0000'CF	DE	089F		MOVAL	W^INRANGE,R0
51	0008'CF	DE	08A4		MOVAL	W^RETRANGE,R1
	54 04	9A	08A9		MOVZBL	S^#PRT\$C-UW,R4
	55 03	9A	08AC		MOVZBL	S^#PRT\$C-KR,R5
56	002C'CF	DE	08AF		MOVAL	W^PREVPR0T,R6
	096F	30	08B4		BSBW	SETPRTSUBR
			08B7	652	WRITE	
			08C7	653		
	62 62	90	08C7	654	MOV B	(R2),(R2)
			08CA	655	SETPRT	UR,PRVPRT=UW ;MAKE READ ONLY
50	53 01	3C	08CA		MOVZWL	S^#SS\$ NORMAL,R3
	0000'CF	DE	08CD		MOVAL	W^INRANGE,R0
51	0008'CF	DE	08D2		MOVAL	W^RETRANGE,R1
	54 0F	9A	08D7		MOVZBL	S^#PRT\$C-UR,R4
	55 04	9A	08DA		MOVZBL	S^#PRT\$C-UW,R5
56	002C'CF	DE	08DD		MOVAL	W^PREVPR0T,R6
	0941	30	08E2		BSBW	SETPRTSUBR
			08E5	656	NOWRITE	
			08F3	657		
			08F3	658	SETPRT	NA,PRVPRT=UR
50	53 01	3C	08F3		MOVZWL	S^#SS\$ NORMAL,R3
	0000'CF	DE	08F6		MOVAL	W^INRANGE,R0
51	0008'CF	DE	08FB		MOVAL	W^RETRANGE,R1
	54 00	9A	0900		MOVZBL	S^#PRT\$C-NA,R4
	55 0F	9A	0903		MOVZBL	S^#PRT\$C-UR,R5
56	002C'CF	DE	0906		MOVAL	W^PREVPR0T,R6
	0918	30	090B		BSBW	SETPRTSUBR
			090E	659	NOREAD	
			091C	660		
			091C	661	SETPRT	UW,PRVPRT=KR
50	53 01	3C	091C		MOVZWL	S^#SS\$ NORMAL,R3
	0000'CF	DE	091F		MOVAL	W^INRANGE,R0
51	0008'CF	DE	0924		MOVAL	W^RETRANGE,R1
	54 04	9A	0929		MOVZBL	S^#PRT\$C-UW,R4
	55 03	9A	092C		MOVZBL	S^#PRT\$C-KR,R5
56	002C'CF	DE	092F		MOVAL	W^PREVPR0T,R6
	08EF	30	0934		BSBW	SETPRTSUBR
			0937	662	WRITE	
			0947	663		
			0947	664		MAKE A READ ONLY DEMAND ZERO PAGE AND READ REFERENCE IT
			0947	665		
			0947	666	DELTVA	



```

51 FA3E CF DE 09FA MOVAL W^CRMPSCERR,R1
   075A 30 09FF BSBW CHECK1
   0A02 30048$:
   0A02 668 SETPRT UR,PRVPRT=UW
50 53 01 3C 0A02 MOVZWL S^#SS$ NORMAL,R3
   0000'CF DE 0A05 MOVAL W^INRANGE,R0
51 0008'CF DE 0A0A MOVAL W^RETRANGE,R1
   54 0F 9A 0A0F MOVZBL S^#PRT$C_UR,R4
   55 04 9A 0A12 MOVZBL S^#PRT$C_UW,R5
56 002C'CF DE 0A15 MOVAL W^PREVPR0T,R6
   0809 30 0A1A BSBW SETPRTSUBR
   50 62 90 0A1D 669 MOVB (R2),R0
   0A20 670 NOWRITE
   0A2E 671 READ
   0A3E 672 DELTV

01 0028'CF B1 0A3E CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
   0F 15 0A43 BLEQ 30053$ ;DELETE SECTION AND THEN DO A DELTV
   00 DD 0A45 PUSHL #0
   FA51 CF 7F 0A47 PUSHAQ W^GBLSECNAM
   00 DD 0A4B PUSHL #0
00000000'GF 03 FB 0A4D CALLS #3,G^SYSS$DGBLSC
   0A54 30053$:
50 53 01 3C 0A54 MOVZWL S^#SS$ NORMAL,R3
   0000'CF DE 0A57 MOVAL W^INRANGE,R0
51 0008'CF DE 0A5C MOVAL W^RETRANGE,R1
   06E6 30 0A61 BSBW DELTVASUBR
   0A64 673 :
   0A64 674 :*****
   0A64 675 : THE FOLLOWING THREE SECTIONS ARE DONE ONLY ON THE FIRST PASS,
   0A64 676 : AS THE SECTIONS TEST THE READABILITY AND WRITEABILITY
   0A64 677 : OF PAGES CREATED AT LINK TIME (DEFINED WITH PSECT
   0A64 678 : DIRECTIVES). THESE PAGES ARE NOT AFFECTED BY CURRENT VA POINTERS
   0A64 679 : AND THUS NEED ONLY BE DONE ONCE. PICKING THE FIRST PASS AS THE
   0A64 680 : RECIPIENT OF THIS HONOR WAS AN ARBITRARY DECISION.
   0A64 681 :*****
   0A64 682 :
   0A64 683 : PSTX PAGE WRITABLE, CRF, NOT YET REFERENCED
   0A64 684 :
52 0000'CF DE 0A64 685 MOVAL W^WRTPAGES,R2
   0000'CF 52 DO 0A69 686 MOVL R2,W^INRANGE
   0004'CF 52 DO 0A6E 687 MOVL R2,W^INRANGE+4
   0A73 688
   0A73 689 WRITE
   0A83 690 SETPRT UR,PRVPRT=UW
50 53 01 3C 0A83 MOVZWL S^#SS$ NORMAL,R3
   0000'CF DE 0A86 MOVAL W^INRANGE,R0
51 0008'CF DE 0A8B MOVAL W^RETRANGE,R1
   54 0F 9A 0A90 MOVZBL S^#PRT$C_UR,R4
   55 04 9A 0A93 MOVZBL S^#PRT$C_UW,R5
56 002C'CF DE 0A96 MOVAL W^PREVPR0T,R6
   0788 30 0A9B BSBW SETPRTSUBR
   0A9E 691 NOWRITE
   0AAC 692 READ
   0ABC 693 SETPRT NA,PRVPRT=UR
50 53 01 3C 0ABC MOVZWL S^#SS$ NORMAL,R3
   0000'CF DE 0ABF MOVAL W^INRANGE,R0
51 0008'CF DE 0AC4 MOVAL W^RETRANGE,R1

```







```

0000'CF 7FFFFFFC00 8F D0 0C7C
0004'CF 7FFFFFFF00 8F D0 0C85
      53 01 3C 0C8E
      7E 7C 0C91
      00 DD 0C93
      19 DD 0C95
      7E 00 3C 0C97
      00 DD 0C9A
      00 DD 0C9C
      F7FA CF 7F 0C9E
00014009 8F DD 0CA2
      00 DD 0CAB
      0008'CF 7F 0CAA
      0000'CF 7F 0CAE
00000000'GF 0C FB 0CB2
50 0001828A 8F D1 0CB9
      CF 13 0CC0
      51 F776 CF DE 0CC2
      0492 30 0CC7
      OCCA
      OCCA
01 0028'CF B1 OCCA
      OF 15 OCCF
      00 DD 0CD1
      F7C5 CF 7F 0CD3
      00 DD 0CD7
00000000'GF 03 FB 0CD9
      OCE0
      53 01 3C 0CE0
50 0000'CF DE 0CE3
51 0008'CF DE 0CE8
      045A 30 0CED
50 0000'CF 7D 0CF0
      0CF5
03 01 0028'CF CF 0CF5
      0CFB
      0006' 0CFB
      0023' 0CFD
      0067' 0CFE
      OD01
0000'CF 51 D0 OD01
0004'CF 50 D0 OD06
      53 01 3C OD0B
50 0000'CF DE OD0E
51 0008'CF DE OD13
      041B 30 OD18
      008A 31 OD1B
      OD1E
0000'CF 51 D0 OD1E
0004'CF 50 D0 OD23
      53 01 3C OD28
      OD2B
      00 DD OD2B
      19 DD OD2D
      F771 CF DF OD2F

```

```

30076$:
30073$:
737 30077$: DELTVA
738 30079$:
739 30080$:
30082$:
30083$:
30086$:

```

```

MOVL #<^X7FFFFFFC00>,W^INRANGE
MOVL #<^X7FFFFFFF00>,W^INRANGE+4
MOVZWL S^#SS$ _NORMAL,R3

CLRQ -(SP)
PUSHL #0
PUSHL #25
MOVZWL #0,-(SP)
PUSHL #0
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
PUSHL #0
PUSHAQ W^RETRANGE
PUSHAQ W^INRANGE
CALLS #12,G^SYSS$CRMPSC
CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
BEQL 30073$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
MOVAL W^CRMPSCERR,R1
BSBW CHECK1

CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
BLEQ 30079$ ;DELETE SECTION AND THEN DO A DELTVA
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYSS$DGBLSC

MOVZWL S^#SS$ _NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR
W^INRANGE,R0 ;REVERSE THE RANGE AND TRY AGAIN
R1,R0
CASEL W^WHICHRUN,#1,#RUNMAX

.WORD 30082$-30080$ ;IF FIRST RUN USE CRETVA.
.WORD 30083$-30080$ ;IF SECOND USE GBL CREMAPSEC
.WORD 30084$-30080$ ;IF THIRD USE PFN MAPPING

MOVL R1,W^INRANGE
MOVL R0,W^INRANGE+4
MOVZWL S^#SS$ _NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW CRETVASUBR
BRW 30085$

MOVL R1,W^INRANGE
MOVL R0,W^INRANGE+4
MOVZWL S^#SS$ _NORMAL,R3

PUSHL #0
PUSHL #25
PUSHAL W^FILENAME

```

MMG  
Pse  
  
PSE  
---  
\$AB  
DAT  
DAT  
DAT  
COD  
  
Pha  
---  
Ini  
Com  
Pas  
Sym  
Pas  
Sym  
Pse  
Cro  
Ass  
  
The  
149  
The  
956  
59  
  
Mac  
---  
\$2  
- \$2  
TOT  
  
117  
  
The  
  
MAC

```
00 DD 0D33
F763 CF DF 0D35
0000400D BF DD 0D39
0008' CF DF 0D3F
0000' CF DF 0D43
00000000' EF 08 FB 0D47
50 0001828A 8F D1 0D4E
D4 13 0D55
51 F6E1 CF DE 0D57
03FD 30 0D5C
0046 31 0D5F
30084$: 0D62
0000' CF 51 D0 0D62
0004' CF 50 D0 0D67
53 01 3C 0D6C
30081$: 0D6F
7E 7C 0D6F
00 DD 0D71
19 DD 0D73
7E 00 3C 0D75
00 DD 0D78
00 DD 0D7A
F71C CF 7F 0D7C
00014009 8F DD 0D80
00 DD 0D86
0008' CF 7F 0D88
0000' CF 7F 0D8C
00000000' GF 0C FB 0D90
50 0001828A 8F D1 0D97
CF 13 0D9E
51 F698 CF DE 0DA0
03B4 30 0DA5
0DA8
0DA8 740 30085$: DELTVA
01 0028' CF B1 0DA8
0F 15 0DAD
00 DD 0DAF
F6E7 CF 7F 0DB1
00 DD 0DB5
00000000' GF 03 FB 0DB7
0DBE
30087$: 53 01 3C 0DBE
50 0000' CF DE 0DC1
51 0008' CF DE 0DC6
037C 30 0DCB
0DCE
0DCE 741 :
0DCE 742 : CHECK RETURN RANGE LOGIC. IF RANGE IS FORWARD, THEN RETURN RANGE IS
0DCE 743 : FROM THE FIRST THROUGH THE LAST BYTE OF THE RANGE. IF BACKWARD, THEN
0DCE 744 : RETURN RANGE IS FROM LAST THROUGH THE FIRST BYTE IN THE RANGE. IF
0DCE 745 : THE RANGE IS ONE PAGE AND THE INPUT RANGE IS SPECIFIED AS 2 IDENTICAL
0DCE 746 : ADDRESSES, THEN THE RETURN RANGE IS FORWARDS FOR P0 SPACE, BACKWARDS FOR P1.
0DCE 747 :
50 0014' CF 04 C1 0DCE 748
03 01 0028' CF CF 0DD4 749
0006' 0DDA 30088$:
0DDA .WORD 30090$-30088$
; IF FIRST RUN USE CRETVA.
```

```
PUSHL #0
PUSHAL W^GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
PUSHAL W^RETRANGE
PUSHAL W^INRANGE
CALLS #8,LIBS_CREMAPSEC
CPL #X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
BEQL 30086$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
MOVAL W^CRMPSCERR,R1
BSBW CHECK1
BRW 30085$
MOVL R1,W^INRANGE
MOVL R0,W^INRANGE+4
MOVZWL S^#SS$_NORMAL,R3
CLRQ -(SP)
PUSHL #0
PUSHL #25
MOVZWL #0, -(SP)
PUSHL #0
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
PUSHL #0
PUSHAQ W^RETRANGE
PUSHAQ W^INRANGE
CALLS #12,G^SYSS$CRMPSC
CPL #X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
BEQL 30081$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
MOVAL W^CRMPSCERR,R1
BSBW CHECK1
CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
BLEQ 30087$ ;DELETE SECTION AND THEN DO A DELTVA
PUSHL #0
PUSHAQ W^GBLSECNAM
PUSHL #0
CALLS #3,G^SYSS$DGBLSC
MOVZWL S^#SS$_NORMAL,R3
MOVAL W^INRANGE,R0
MOVAL W^RETRANGE,R1
BSBW DELTVASUBR
```

0023'	ODDC				.WORD 30091\$-30088\$		
0067'	ODDE				.WORD 30092\$-30088\$		;IF SECOND USE GBL CREMAPSEC
	ODE0			30090\$:			;IF THIRD USE PFN MAPPING
0000'CF	50	DO	ODE0		MOVL	RO,W^INRANGE	
0004'CF	50	DO	ODES		MOVL	RO,W^INRANGE+4	
	53	01	3C	ODEA	MOVZWL	S^#SS\$ NORMAL,R3	
50	0000'CF	DE	ODED		MOVAL	W^INRANGE,RO	
51	0008'CF	DE	ODF2		MOVAL	W^RETRANGE,R1	
	033C	30	ODF7		BSBW	CRETVASUBR	
	008A	31	ODFA		BRW	30093\$	
			ODFD	30091\$:	MOVL	RO,W^INRANGE	
0000'CF	50	DO	ODFD		MOVL	RO,W^INRANGE+4	
0004'CF	50	DO	OE02		MOVZWL	S^#SS\$ NORMAL,R3	
	53	01	3C	OE07			
			OE0A	30094\$:	PUSHL	#0	
	00	DD	OE0A		PUSHL	#25	
	19	DD	OE0C		PUSHAL	W^FILENAME	
F692	CF	DF	OE0E		PUSHL	#0	
	00	DD	OE12		PUSHAL	W^GBLSECNAM	
F684	CF	DF	OE14		PUSHL	#<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>	
0000400D	8F	DD	OE18		PUSHAL	W^RETRANGE	
	0008'CF	DF	OE1E		PUSHAL	W^INRANGE	
	0000'CF	DF	OE22		CALLS	#8,LIB\$ CREMAPSEC	
00000000'EF	08	FB	OE26		CPL	#^X1828A,RO	
50	0001828A	8F	D1	OE2D	BEQL	30094\$	;IF PREVIOUS GBL SECTION HASN'T
			D4	OE34	MOVAL	W^CRMPSCERR,R1	;BEEN DELETED TRY CREMAPSEC AGAIN.
51	F602	CF	DE	OE36	BSBW	CHECK1	
	031E	30	OE3B		BRW	30093\$	
	0046	31	OE3E				
			OE41	30092\$:	MOVL	RO,W^INRANGE	
0000'CF	50	DO	OE41		MOVL	RO,W^INRANGE+4	
0004'CF	50	DO	OE46		MOVZWL	S^#SS\$ NORMAL,R3	
	53	01	3C	OE4B			
			OE4E	30089\$:	CLRQ	-(SP)	
	7E	7C	OE4E		PUSHL	#0	
	00	DD	OE50		PUSHL	#25	
	19	DD	OE52		MOVZWL	#0,-(SP)	
7E	00	3C	OE54		PUSHL	#0	
	00	DD	OE57		PUSHL	#0	
	00	DD	OE59		PUSHL	#0	
F63D	CF	7F	OE5B		PUSHAQ	W^GBLSECNAM	
00014009	8F	DD	OE5F		PUSHL	#<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>	
	00	DD	OE65		PUSHL	#0	
	0008'CF	7F	OE67		PUSHAQ	W^RETRANGE	
	0000'CF	7F	OE6B		PUSHAQ	W^INRANGE	
00000000'GF	0C	FB	OE6F		CALLS	#12,G^SYS\$CRMPSC	
50	0001828A	8F	D1	OE76	CPL	#^X1828A,RO	
			13	OE7D	BEQL	30089\$	;IF PREVIOUS GBL SECTION HASN'T
51	F5B9	CF	DE	OE7F	MOVAL	W^CRMPSCERR,R1	;BEEN DELETED TRY CREMAPSEC AGAIN.
	02D5	30	OE84		BSBW	CHECK1	
			OE87	30093\$:			
			OE87	750			
01	0028'CF	B1	OE87	DELTV	CMPW	W^WHICHRUN,#RUN1	;DELETE SAME ADDRESS PO SPACE
	0F	15	OE8C		BLEQ	30095\$	;IF USING MAPPED SECTIONS FOR TESTS,
	00	DD	OE8E		PUSH	#0	;DELETE SECTION AND THEN DO A DELTVA
F608	CF	7F	OE90		PUSHAQ	W^GBLSECNAM	
	00	DD	OE94		PUSHL	#0	

```

00000000'GF 03 FB OE96          CALLS #3,G^SYSS$DGBLSC
                    OE9D          30095$:
50 53 01 3C OE9D          MOVZWL S^#SS$ NORMAL,R3
51 0000'CF DE OEAO          MOVAL W^INRANGE,R0
                    DE OEAS          MOVAL W^RETRANGE,R1
                    029D 30 OEAA          BSBW DELTVASUBR
                    0004'CF D6 OOAD          W^INRANGE+4
03 01 0028'CF CF OEB1          751 INCL
                    OEB7          752 MAKEVA
                    0006' OEB7          30096$:
                    0019' OEB9          .WORD 30098$-30096$
                    0053' OEBB          .WORD 30099$-30096$
                    OEBD          30098$:
50 53 01 3C OEBD          MOVZWL S^#SS$ NORMAL,R3
51 0000'CF DE OEEO          MOVAL W^INRANGE,R0
                    0008'CF DE OECS          MOVAL W^RETRANGE,R1
                    0269 30 OECA          BSBW CRETVASUBR
                    0076 31 OECD          BRW 30101$
                    OEDO          30099$:
                    53 01 3C OEDO          MOVZWL S^#SS$ NORMAL,R3
                    OED3          30102$:
                    00 DD OED3          PUSHL #0
                    19 DD OED5          PUSHL #25
                    F5C9 CF DF OED7          PUSHAL W^FILENAME
                    00 DD OEDB          PUSHL #0
                    F5BB CF DF OEDD          PUSHAL W^GBLSECNAM
                    0000400D 8F DD OEE1          PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
                    0008'CF DF OEE7          PUSHAL W^RETRANGE
                    0000'CF DF OEEB          PUSHAL W^INRANGE
00000000'EF 08 FB OEEF          CALLS #8,LIB$ CREMAPSEC
50 0001828A 8F D1 OEF6          Cmpl #^X1828A,R0
                    D4 13 OEFD          BEQL 30102$
                    51 F539 CF DE OEFF          MOVAL W^CRMPSCERR,R1
                    0255 30 OF04          BSBW CHECK1
                    003C 31 OF07          BRW 30101$
                    OF0A          30100$:
                    53 01 3C OF0A          MOVZWL S^#SS$ NORMAL,R3
                    OF0D          30097$:
                    7E 7C OF0D          CLRQ -(SP)
                    00 DD OF0F          PUSHL #0
                    19 DD OF11          PUSHL #25
                    7E 00 3C OF13          MOVZWL #0,-(SP)
                    00 DD OF16          PUSHL #0
                    00 DD OF18          PUSHL #0
                    F57E CF 7F OF1A          PUSHAQ W^GBLSECNAM
                    00014009 8F DD OF1E          PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
                    00 DD OF24          PUSHL #0
                    0008'CF 7F OF26          PUSHAQ W^RETRANGE
                    0000'CF 7F OF2A          PUSHAQ W^INRANGE
00000000'GF 0C FB OF2E          CALLS #12,G^SYSS$CRMPSC
50 0001828A 8F D1 OF35          Cmpl #^X1828A,R0
                    CF 13 OF3C          BEQL 30097$
                    51 F4FA CF DE OF3E          MOVAL W^CRMPSCERR,R1
                    0216 30 OF43          BSBW CHECK1
                    OF46          30101$:
                    OF46          753 DELTV

```

;DIFFERENT ADDRESSES FORWARD  
;PO SPACE 1 PAGE FORWARD

;IF FIRST RUN USE CRETVA.  
;IF SECOND USE GBL CREMAPSEC  
;IF THIRD USE PFN MAPPING

;IF PREVIOUS GBL SECTION HASN'T  
;BEEN DELETED TRY CREMAPSEC AGAIN.

;IF PREVIOUS GBL SECTION HASN'T  
;BEEN DELETED TRY CREMAPSEC AGAIN.

;PO SPACE 1 PAGE FORWARD

```

01 0028'CF B1 OF46 CMPW W^WHICHRUN,#RUN1 ;IF USING MAPPED SECTIONS FOR TESTS,
      OF 15 OF4B BLEQ 30103$ ;DELETE SECTION AND THEN DO A DELTVA
      00 DD OF4D
      F549 CF 7F OF4F
      00 DD OF53
00000000'GF 03 FB OF55
      OF5C 30103$:
      53 01 3C OF5C MOVZWL S^#SS$ NORMAL,R3
50 0000'CF DE OF5F MOVAL W^INRANGE,R0
51 0008'CF DE OF64 MOVAL W^RETRANGE,R1
      01DE 30 OF69 BSBW DELTVASUBR
50 0000'CF 7D OF6C 754 MOVQ W^INRANGE,R0 ;REVERSE THE RANGE
      OF71 755 MAKEVA R1,R0 ;1 PAGE BACKWARDS, PO SPACE
03 01 0028'CF CF OF71 CASEL W^WHICHRUN,#1,#RUNMAX
      OF77 30104$:
      0006' OF77 .WORD 30106$-30104$ ;IF FIRST RUN USE CRETVA.
      0023' OF79 .WORD 30107$-30104$ ;IF SECOND USE GBL CREMAPSEC
      0067' OF7B .WORD 30108$-30104$ ;IF THIRD USE PFN MAPPING
      OF7D 30106$:
0000'CF 51 DO OF7D MOVL R1,W^INRANGE
0004'CF 50 DO OF82 MOVL R0,W^INRANGE+4
      53 01 3C OF87 MOVZWL S^#SS$ NORMAL,R3
50 0000'CF DE OF8A MOVAL W^INRANGE,R0
51 0008'CF DE OF8F MOVAL W^RETRANGE,R1
      019F 30 OF94 BSBW CRETVASUBR
      008A 31 OF97 BRW 30109$
      OF9A 30107$:
0000'CF 51 DO OF9A MOVL R1,W^INRANGE
0004'CF 50 DO OF9F MOVL R0,W^INRANGE+4
      53 01 3C OFA4 MOVZWL S^#SS$_NORMAL,R3
      OFA7 30110$:
      00 DD OFA7 PUSHL #0
      19 DD OFA9 PUSHL #25
      F4F5 CF DF OFAB PUSHAL W^FILENAME
      00 DD OFAF PUSHL #0
      F4E7 CF DF OFB1 PUSHAL W^GBLSECNAM
0000400D 8F DD OFB5 PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
      0008'CF DF OFBB PUSHAL W^RETRANGE
      0000'CF DF OFBF PUSHAL W^INRANGE
00000000'EF 08 FB OFC3 CALLS #8,LIB$ CREMAPSEC
50 0001828A 8F D1 OFCA CMPL #^X1828A,R0 ;IF PREVIOUS GBL SECTION HASN'T
      D4 13 OFD1 BEQL 30110$ ;BEEN DELETED TRY CREMAPSEC AGAIN.
51 F465 CF DE OFD3 MOVAL W^CRMPSCERR,R1
      0181 30 OFD8 BSBW CHECK1
      0046 31 OFDB BRW 30109$
      OFDE 30108$:
0000'CF 51 DO OFDE MOVL R1,W^INRANGE
0004'CF 50 DO OFE3 MOVL R0,W^INRANGE+4
      53 01 3C OFE8 MOVZWL S^#SS$_NORMAL,R3
      OFEB 30105$:
      7E 7C OFEB CLRQ -(SP)
      00 DD OFED PUSHL #0
      19 DD OFEF PUSHL #25
      7E 00 3C OFF1 MOVZWL #0,-(SP)
      00 DD OFF4 PUSHL #0
      00 DD OFF6 PUSHL #0
      F4A0 CF 7F OFF8 PUSHAQ W^GBLSECNAM

```

```

00014009 8F DD OFFC          PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_PFNMAP!SECSM_WRT>
          00 DD 1002          PUSHL #0
          0008'CF 7F 1004      PUSHAQ W^RETRANGE
          0000'CF 7F 1008      PUSHAQ W^INRANGE
00000000'GF 0C FB 100C      CALLS #12,G^SYSS$CRMPSC
50 0001828A 8F D1 1013      Cmpl #^X1828A,R0
          CF 13 101A          BEQL 30105$
          51 F41C CF DE 101C    MOVAL W^CRMPSCERR,R1
          0138 30 1021        BSBW CHECK1
                                1024
                                1024 30109$: DELTVA
          01 0028'CF B1 1024    CMPW W^WHICHRUN,#RUN1
          OF 15 1029          BLEQ 30111$
          00 DD 102B          PUSHL #0
          F46B CF 7F 102D      PUSHAQ W^GBLSECNAM
          00 DD 1031          PUSHL #0
00000000'GF 03 FB 1033      CALLS #3,G^SYSS$DGBLSC
          53 01 3C 103A
          50 0000'CF DE 103D    MOVZWL S^#SS$ NORMAL,R3
          51 0008'CF DE 1042    MOVAL W^INRANGE,R0
          0100 30 1047        MOVAL W^RETRANGE,R1
          50 000C'CF DO 104A    BSBW DELTVASUBR
          757 758 104F        W^RETRANGE+4,R0
03 01 0028'CF CF 104F      RO,R0
          1055 30112$:        CASEL W^WHICHRUN,#1,#RUNMAX
          0006' 1055          .WORD 30114$-30112$
          0023' 1057          .WORD 30115$-30112$
          0067' 1059          .WORD 30116$-30112$
          105B 30114$:
          0000'CF 50 DO 105B    MOVL RO,W^INRANGE
          0004'CF 50 DO 1060    MOVL RO,W^INRANGE+4
          53 01 3C 1065        MOVZWL S^#SS$ NORMAL,R3
          50 0000'CF DE 1068    MOVAL W^INRANGE,R0
          51 0008'CF DE 106D    MOVAL W^RETRANGE,R1
          00C1 30 1072        BSBW CRETVASUBR
          008A 31 1075        BRW 30117$
          1078 30115$:
          0000'CF 50 DO 1078    MOVL RO,W^INRANGE
          0004'CF 50 DO 107D    MOVL RO,W^INRANGE+4
          53 01 3C 1082        MOVZWL S^#SS$_NORMAL,R3
          1085 30118$:
          00 DD 1085          PUSHL #0
          19 DD 1087          PUSHL #25
          F417 CF DF 1089      PUSHAL W^FILENAME
          00 DD 108D          PUSHL #0
          F409 CF DF 108F      PUSHAL W^GBLSECNAM
          0000400D 8F DD 1093    PUSHL #<SECSM_GBL!SECSM_PERM!SECSM_DZRO!SECSM_WRT>
          0008'CF DF 1099      PUSHAL W^RETRANGE
          0000'CF DF 109D      PUSHAL W^INRANGE
00000000'EF 08 FB 10A1      CALLS #8,LIB$ CREMAPSEC
50 0001828A 8F D1 10A8      Cmpl #^X1828A,R0
          D4 13 10AF          BEQL 30118$
          51 F387 CF DE 10B1    MOVAL W^CRMPSCERR,R1
          00A3 30 10B6        BSBW CHECK1
          0046 31 10B9        BRW 30117$
          10BC 30116$:

```

;IF PREVIOUS GBL SECTION HASN'T  
;BEEN DELETED TRY CREMAPSEC AGAIN.

;1 PAGE BACKWARDS, PO SPACE  
;IF USING MAPPED SECTIONS FOR TESTS,  
;DELETE SECTION AND THEN DO A DELTVA

;CREATE 1 PAGE P1 SPACE

;IF FIRST RUN USE CRETVA.  
;IF SECOND USE GBL CREMAPSEC  
;IF THIRD USE PFN MAPPING

;IF PREVIOUS GBL SECTION HASN'T  
;BEEN DELETED TRY CREMAPSEC AGAIN.

```

0000'CF 50 DO 10BC          MOVL  RO,W^INRANGE
0004'CF 50 DO 10C1          MOVL  RO,W^INRANGE+4
53 01 3C 10C6          MOVZWL S^#SS$ _NORMAL,R3
                                30113$:
                                CLRQ  -(SP)
                                PUSHL #0
                                PUSHL #25
                                MOVZWL #0,-(SP)
                                PUSHL #0
                                PUSHL #0
                                PUSHAQ W^GBLSECNAM
                                PUSHL #<SEC$M_GBL!SEC$M_PERM!SEC$M_PFNMAP!SEC$M_WRT>
                                PUSHL #0
                                PUSHAQ W^RETRANGE
                                PUSHAQ W^INRANGE
                                CALLS #12,G^SYSS$CRMPSC
                                Cmpl #^X1828A,R0
                                BEQL 30113$
                                MOVAL W^CRMPSCERR,R1
                                BSBW  CHECK1
                                ;IF PREVIOUS GBL SECTION HASN'T
                                ;BEEN DELETED TRY CREMAPSEC AGAIN.

01 0028'CF B1 1102          759 30117$: DELTVA
0F 15 1107
00 DD 1109
F38D CF 7F 110B
00 DD 110F
00000000'GF 03 FB 1111
                                30119$:
                                MOVZWL S^#SS$ _NORMAL,R3
                                MOVAL W^INRANGE,R0
                                MOVAL W^RETRANGE,R1
                                BSBW  DELTVASUBR

50 53 01 3C 1118
51 0000'CF DE 111B
0008'CF DE 1120
0022 30 1125
                                760
                                761 ;
                                762 ;END OF LOOP
                                763 ;
03 0020'CF 001C'CF F3 1128          AOBLEQ W^MAXPASSCNT,W^PASSCNT,160$
F3D4 31 1130          764 150$: BRW MAIN_PROGRAM
F51A 31 1133          765
                                766
                                767 160$: BRW RSTART
                                768

```

```
1136 770 .SBTTL SUBROUTINES TO CALL THE SERVICES
1136 771 :
1136 772 : INPUT:
1136 773 :
1136 774 : R0 = INADR
1136 775 : R1 = RETADR
1136 776 : R3 = DESIRE'D STATUS
1136 777 :
1136 778 : OUTPUT:
1136 779 :
1136 780 : R2 PRESERVED
1136 781 :
1136 782 CRETVASUBR:
1136 783 $CRETVA_S (R0),(R1)
51 F2DD CF DE 1143 784 MOVAL W^CRETVAERR,R1 ;ERROR CONTROL STRING
1148 785 BRB CHECK1
114A 786 :
114A 787 : INPUT:
114A 788 :
114A 789 : R0 = INADR
114A 790 : R1 = RETADR
114A 791 : R3 = DESIRED STATUS
114A 792 :
114A 793 : OUTPUT:
114A 794 :
114A 795 : R2 PRESERVED
114A 796 :
114A 797 DELTVASUBR:
51 F2D1 CF DE 114A 798 $DELTVA_S (R0),(R1)
1157 799 MOVAL W^DELTVAERR,R1 ;ERROR CONTROL STRING
115C 800 CHECK1:
53 50 D1 115C 801 CMLP R0,R3 ;STATUS AS DESIRED
115F 802 BEQL 10$ ;BRANCH IF YES
53 0244 8F B1 1161 803 CMPW #SS$_VASFULL,R3 ;IF EXPECTING VIRTUAL ADDRESS
1166 804 BNEQ 15$ ;SPACE FULL THEN EXCEEDS
50 1C B1 1168 805 CMPW #SS$_EXQUOTA,R0 ;QUOTA MAY ALSO BE RETURNED
116B 806 BEQL 10$
116D 807 BRB 5$
116F 808 15$:
53 01 B1 116F 809 CMPW #SS$_NORMAL,R3 ;IF EXPECTING NORMAL
1172 810 BNEQ 5$ ;COMPLETION FOR CRMPSC
50 0619 8F B1 1174 811 CMPW #SS$_CREATED,R0 ;THEN GLOBAL SECTION CREATED
1179 812 BEQL 10$ ;MAY BE RETURNED
54 04 AE DD 117B 813 5$:
117D 814 MOVL 4(SP),R4 ;ADDRESS OF ERROR
1181 815 $FAO_S (R1),MSGLEN,MSGBUFD,R4,R0,R3,-
1181 816 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
10 BA 1184 817 POPR #^M<R4>
0157 30 1186 818 BSBW TYPEMSGBUF
05 1189 819 RSB
118A 820 10$:
00D9 31 118A 821 BRW RANGECHK ;GO CHECK THE RETURN RANGE
118D 822 :
118D 823 : INPUT:
118D 824 :
118D 825 :
118D 826 : R1 = RETADR
R3 = DESIRED STATUS
```

MMG  
V04  
52  
58  
41  
4C  
21  
52  
20  
52  
58  
41  
4C  
21  
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20  
52  
58  
41  
4C  
20  
20  
45  
4C  
4E  
4C  
58  
21  
45  
20  
4E



```

11BD 827 : R4 = PAGCNT
11BD 828 : R5 = REGION
11BD 829 :
11BD 830 : OUTPUT:
11BD 831 :
11BD 832 : R2 PRESERVED
11BD 833 :
11BD 834 EXPREGSUBR:
11BD 835 $EXPREG_S R4,(R1),R5
51 F264 CF DE 11CC 836 MOVAL W^EXPREGERR,R1 ;ERROR CONTROL STRING
11D1 837 CHECK2:
53 50 D1 11D1 838 CML R0,R3 ;STATUS AS DESIRED?
39 13 11D4 839 BEQL 10$ ;BRANCH IF YES
56 04 AE DD 11D6 840 PUSHL R6
11D8 841 MOVL 4(SP),R6 ;ADDRESS OF ERROR
11DC 842 $FAO_S (R1),MSGLEN,MSGBUFD,R6,R0,R3,R4,R5,-
11DC 843 RETRANGE,RETRANGE+4
0040 8F BA 1207 844 POPR #^M<R6>
0102 30 120B 845 BSBW TYPEMSGBUF
05 120E 846 RSB
0000'CF 0008'CF DD 120F 847 10$: MOVL W^RETRANGE,W^INRANGE ;MAKE INPUT RANGE LOOK
54 54 09 78 1216 848 DECL R4 ;LIKE CRETVA/DELTV
0004'CF 0000'CF 54 C1 121C 849 ASHL #9,R4,R4
54 70 11 1224 850 ADDL3 R4,W^INRANGE,W^INRANGE+4
1226 851 BRB RANGECHK ;AND CHECK THE RETURN RANGE
1226 852 :
1226 853 : INPUT:
1226 854 :
1226 855 : R0 = INADR
1226 856 : R1 = RETADR
1226 857 : R3 = DESIRED STATUS
1226 858 : R4 = PROTECTION TO BE SET
1226 859 : R5 = DESIRED PREVIOUS PROTECTION (104 MEANS NOT SPECIFIED)
1226 860 : R6 = ADDRESS TO RETURN PREVIOUS PROTECTION
1226 861 :
1226 862 : OUTPUT:
1226 863 :
1226 864 : R2 PRESERVED
1226 865 :
1226 866 SETPRTSUBR:
1226 867 $SETPRT_S (R0),(R1),R4,(R6)
1237 868 IFNOWRT #1,(R6),10$ ;SKIP PREVIOUS PROTECTION CHECK
123D 869 ;IF IT WASN'T RETURNED
55 10 91 123D 870 CMPB #104,R5 ;OR IF IT WASN'T SPECIFIED
66 05 13 1240 871 BEQL 10$
66 55 91 1242 872 CMPB R5,(R6) ;OTHERWISE CHECK IT
05 12 1245 873 BNEQ 20$ ;AND BRANCH IF IT'S WRONG
53 50 D1 1247 874 10$: CML R0,R3 ;STATUS = DESIRED STATUS?
4A 13 124A 876 BEQL 30$ ;BRANCH IF YES
57 04 AE DD 124C 877 20$: PUSHL R7
124E 878 MOVL 4(SP),R7 ;ADDRESS OF ERROR
57 8ED0 1252 880 $FAO_S SETPRTERR,MSGLEN,MSGBUFD,R7,R0,R3,-
1252 881 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4,-
1252 882 PREVPROT,R5
57 8ED0 128F 883 POPL R7

```

MMG  
V04  
56  
33  
50  
20  
4E  
53  
20  
2A

```

007B 30 1292 884 BSBW TYPMSGBUF
      05 1295 885 RSB
      1296 886 30$:
      1296 887 RANGECHK:
73 0010'CF 03 E1 1296 888 BBC #CTL$V_RNGCHK,W^CTLFLG,40$ :BRANCH IF RANGE CHECK DISABLED
      70 50 E9 129C 889 BLBC R0,40$ :IF ERROR IN SERVICE, SKIP RANGE CHK
50 0000'CF 7D 129F 890 MOVQ W^INRANGE,R0 :R0 = STARVA, R1 = ENDVA
      51 50 D1 12A4 891 CMPL R0,R1 :WHICH DIRECTION?
      12 1A 12A7 892 BGTRU 10$ :BRANCH IF BACKWARDS
      04 1F 12A9 893 BLSSU 5$ :BRANCH IF FORWARDS
      OC 50 1E E0 12AB 894 BBS #30,R0,10$ :FOR EQUAL, P0 SPACE FORWARDS, P1 BA
      12AF 895 :
      12AF 896 : REQUESTED RANGE IS FORWARDS
      12AF 897 :
50 01FF 8F AA 12AF 898 5$: BICW #^X1FF,R0 :FROM BYTE 0 OF STARTVA
51 01FF 8F A8 12B4 899 BISW #^X1FF,R1 :THROUGH LAST BYTE OF ENDVA
      OA 11 12B9 900 BRB 20$ :
      12BB 901 :
      12BB 902 : GOING BACKWARDS IN VIRTUAL ADDRESS SPACE
      12BB 903 :
50 01FF 8F A8 12BB 904 10$: BISW #^X1FF,R0 :LAST BYTE OF STARTVA
51 01FF 8F AA 12C0 905 BICW #^X1FF,R1 :THROUGH FIRST BYTE OF ENDVA
0008'CF 50 D1 12C5 906 20$: CMPL R0,W^RETRANGE :IS THIS WHAT WAS RETURNED?
      07 12 12CA 907 BNEQ 30$ :BRANCH IF NOT, ERROR
000C'CF 51 D1 12CC 908 CMPL R1,W^RETRANGE+4 :THIS ONE OK TOO?
      3C 13 12D1 909 BEQL 40$ :BRANCH IF YES, RANGE OK
      53 DD 12D3 910 30$: PUSHL R3 :SAVE REGISTER
53 04 AE DO 12D5 911 MOVL 4(SP),R3 :TO USE FOR ERROR PC
      12D9 912 $FAO_S <W^RANGERR>,MSGLEN,MSGBUFD,R3,- :FORMAT THE ERROR MESSAGE
      12D9 913 INRANGE,INRANGE+4,RETRANGE,RETRANGE+4
      08 BA 130A 914 POPR #^M<R3> :RESTORE SAVE REGISTER
      0001 30 130C 915 BSBW TYPMSGBUF :OUTPUT THE ERROR MESSAGE
      05 130F 916 40$: RSB :AND RETURN

```

```

1310 918 .SBTTL MISCELLANEOUS SUBROUTINES
1310 919 :
1310 920 : TYPE A MESSAGE
1310 921 : MSGBUF IS THE ADDRESS OF THE BEGINNING OF THE STRING
1310 922 : MSGLEN CONTAINS THE SIZE (IN BYTES) OF THE STRING
1310 923 :
1310 924 TYPEMSGBUF:
1310 925 MOVL W^MSGLEN,R0 ;SIZE TO R0
1315 926 MOVAL W^MSGBUF,R1 ;ADDRESS TO R1
08 0010'CF 02 E1 131A 927 BBC #CTLSV PIDMSG,W^CTLFLG,5$ ;BRANCH IF NO PROCESS ID REQUIRED
1320 928 MOVAL W^MSGBUFID,R1 ;ADDRESS INCLUDING PID MSG
1325 929 ADDL S^#<MSGBUF-MSGBUFID>,R0 ;INCLUDE EXTRA BYTES IN COUNT
1328 930 5$:
1328 931 MOVL R1,W^RAB+RAB$L_RBF ;SET BUFFER ADDRESS
132D 932 MOVW R0,W^RAB+RAB$W_RSZ ;AND SIZE
1332 933 $PUT W^RAB ;OUTPUT THE MESSAGE
01 50 E9 133D 934 BLBC R0,20$
05 1340 935 RSB
1341 936 20$: $EXIT_S R0 ;EXIT WITH ERROR STATUS
134A 937 :
134A 938 : INPUTS:
134A 939 :
134A 940 : 0(SP) = ADDRESS OF ERROR
134A 941 : R1 = ADDRESS OF FORMAT CONTROL STRING
134A 942 :
134A 943 : OUTPUTS:
134A 944 :
134A 945 : R2 PRESERVED
134A 946 :
134A 947 PROBERR:
134A 948 PUSHL R5
55 04 AE DD 134A 949 MOVL 4(SP),R5
1350 950 $FAO_S (R1),MSGLEN,MSGBUFD,R5
20 FFA4 BA 1367 951 POPR_ #^M<R5>
30 1369 952 BSBW TYPEMSGBUF
05 136C 953 RSB
136D 954
136D 955
136D 956 .END START

```

MMGCRDLSP  
Symbol table

\$\$TAB	= 0000007C	R	02	GBLSECNAMSIZ	= 00000006		
\$\$TABEND	= 000000C0	R	02	GBL_SEC_MESSAGE	= 00000548	R	05
\$\$TMP	= 00000000			IDMSG	= 00000474	R	05
\$\$TMP1	= 00000001			IDMSGADR	= 00000312	R	05
\$\$TMP2	= 000000CF			IDMSGISZ	= 00000039		
\$\$T1	= 00000000			INIT START	= 0000058C	R	05
\$\$T2	= 00000004			!NRANGE	= 00000000	R	02
BIT...	= 00000004			L50	= 00000526	R	05
BYPASS_PSECT_TESTS	00000BFF	R	05	LIB\$_CREMAPSEC	*****	X	05
BYPASS_SETPRT_TESTS	00000BFF	R	05	MAIN_PROGRAM	= 00000507	R	05
CHECK1	0000115C	R	05	MAXPASSCNT	= 0000001C	R	02
CHECK2	000011D1	R	05	MAXWHICHRUN	= 00000024	R	02
CODEPAGES	00000000	R	05	MSGBUF	= 000000E2	R	02
CRETVAERR	00000424	R	05	MSGBUFID	= 000000C4	R	02
CRETVAERRADR	0000000A	R	05	MSGBUFISZ	= 000000D4	R	02
CRETVAERRSIZ	= 00000063			MSGLEN	= 000000A0		
CRETVASUBR	00001136	R	05	NOREADERR	= 000000C0	R	02
CRETVA_MESSAGE	0000052C	R	05	NOREADERRADR	= 00000454	R	05
CRLF	000000D4	R	02	NOREADERRSIZ	= 00000258	R	05
CRMPSCERR	0000043C	R	05	NOWRITERR	= 00000024		
CRMPSCERRADR	000000D0	R	05	NOWRITERRADR	= 00000464	R	05
CRMPSCERRSIZ	= 00000063			NOWRITERRSIZ	= 0000029E	R	05
CTLSM_MEMLOOP	= 00000001			OUTNAMADR	= 00000000	R	05
CTLSM_PIDMSG	= 00000004			OUTNAMSIZ	= 0000000A		
CTLSM_RNGCHK	= 00000008			PASSCNT	= 00000020	R	02
CTLSM_TSTLOOP	= 00000002			PFNMAP_MESSAGE	= 0000056A	R	05
CTLSV_MEMLOOP	= 00000000			PID	= 00000018	R	02
CTLSV_PIDMSG	= 00000002			PIDCTL	= 00000494	R	05
CTLSV_RNGCHK	= 00000003			PIDCTLADR	= 00000410	R	05
CTLSV_TSTLOOP	= 00000001			PIDCTLSIZ	= 00000003		
CTLFLG	00000010	R	02	PIDMSG	= 000000DE	R	02
DELTAERR	0000042C	R	05	PIDMSGD	= 000000CC	R	02
DELTAERRADR	0000006D	R	05	PRESTART	= 00000520	R	05
DELTAERRSIZ	= 00000063			PREVPROT	= 0000002C	R	02
DELTVASUBR	0000114A	R	05	PROBERR	= 0000134A	R	05
END	00000514	R	05	PRT\$C_KR	= 00000003		
EXPREGERR	00000434	R	05	PRT\$C_NA	= 00000000		
EXPREGERRADR	00000133	R	05	PRT\$C_NONE	= 00000010		
EXPREGERRSIZ	= 00000072			PRT\$C_UR	= 0000000F		
EXPREGSUBR	000011BD	R	05	PRT\$C_UW	= 00000004		
FAB	0000002C	R	02	RAB	= 0000007C	R	02
FAB\$C_BID	= 00000003			RAB\$B_RAC	= 0000001E		
FAB\$C_BLN	= 00000050			RAB\$C_BID	= 00000001		
FAB\$C_SEQ	= 00000000			RAB\$C_BLN	= 00000044		
FAB\$C_VAR	= 00000002			RAB\$C_SEQ	= 00000000		
FAB\$L_ALQ	= 00000010			RAB\$L_CTX	= 00000018		
FAB\$L_FOP	= 00000004			RAB\$L_RBF	= 00000028		
FAB\$V_CHAN_MODE	= 00000002			RAB\$L_ROP	= 00000004		
FAB\$V_FILE_MODE	= 00000004			RAB\$W_RSZ	= 00000022		
FAB\$V_LNM_MODE	= 00000000			RANGECHK	= 00001296	R	05
FAB\$V_PUT	= 00000000			RANGERR	= 0000046C	R	05
FAB\$W_GBC	= 00000048			RANGERRADR	= 000002C3	R	05
FILENAME	000004A4	R	05	RANGERRSIZ	= 0000004F		
FILENAMEADR	00000419	R	05	RDPAGES	= 00000000	R	04
FILENAMEISZ	= 0000000A			READERR	= 0000044C	R	05
GBLSECNAM	0000049C	R	05	READERRADR	= 00000237	R	05
GBLSECNAMADR	00000413	R	05				

MMGCRDLSP  
Symbol table

READERSIZ	=	00000021		
RETRANGE		00000008	R	02
RSTART		00000650	R	05
RUN1	=	00000001		
RUN1_MSG		0000047C	R	05
RUN1_MSGADR		0000034B	R	05
RUN1_MSGSIZ	=	00000043		
RUN2	=	00000002		
RUN2_MSG		00000484	R	05
RUN2_MSGADR		0000038E	R	05
RUN2_MSGSIZ	=	00000044		
RUN3_MSG		0000048C	R	05
RUN3_MSGADR		000003D2	R	05
RUN3_MSGSIZ	=	0000003E		
RUNMAX	=	00000003		
SAVEND		00000014	R	02
SECSM_DZRO	=	00000004		
SECSM_GBL	=	00000001		
SECSM_PERM	=	00004000		
SECSM_PFNMAP	=	00010000		
SECSM_WRT	=	00000008		
SETPRTERR		00000444	R	05
SETPRTERRADR		000001A5	R	05
SETPRTERRSIZ	=	00000092		
SETPRTSUBR		00001226	R	05
SIZ...	=	00000001		
SS\$_CREATED	=	00000619		
SS\$_EXQUOTA	=	0000001C		
SS\$_NORMAL	=	00000001		
SS\$_VASFULL	=	00000244		
START		000004AC	R	05
SYSSCONNECT		*****	GX	05
SYSSCRETVA		*****	GX	05
SYSSCRMPSC		*****	GX	05
SYSSDELTVA		*****	GX	05
SYSSDGBLSC		*****	GX	05
SYSSEXIT		*****	GX	05
SYSSEXPREG		*****	GX	05
SYSSFAO		*****	X	05
SYSSOPEN		*****	GX	05
SYSSPUT		*****	GX	05
SYSSRESUME		*****	GX	05
SYSSSETPRT		*****	GX	05
TYPMSGBUF		00001310	R	05
WHICHRUN		00000028	R	02
WRITERR		0000045C	R	05
WRITERRADR		0000027C	R	05
WRITERRSIZ	=	00000022		
WRTPAGES		00000000	R	03

-----  
! 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
DATA0	00000182 ( 386.)	02 ( 2.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
DATA1	00000800 ( 2048.)	03 ( 3.)	NOPIC USR CON REL LCL NOSHR NOEXE RD WRT NOVEC PAGE
DATA2	00000800 ( 2048.)	04 ( 4.)	NOPIC USR CON REL LCL NOSHR NOEXE RD NOWRT NOVEC PAGE
CODE	0000136D ( 4973.)	05 ( 5.)	NOPIC USR CON REL LCL NOSHR EXE RD NOWRT NOVEC PAGE

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

Phase	Page faults	CPU Time	Elapsed Time
Initialization	16	00:00:00.09	00:00:00.72
Command processing	122	00:00:00.91	00:00:06.54
Pass 1	522	00:00:18.13	00:00:51.20
Symbol table sort	0	00:00:01.45	00:00:03.52
Pass 2	284	00:00:05.01	00:00:21.81
Symbol table output	20	00:00:00.17	00:00:00.73
Psect synopsis output	3	00:00:00.04	00:00:00.24
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	969	00:00:25.82	00:01:24.78

The working set limit was 1950 pages.  
149717 bytes (293 pages) of virtual memory were used to buffer the intermediate code.  
There were 50 pages of symbol table space allocated to hold 908 non-local and 139 local symbols.  
956 source lines were read in Pass 1, producing 33 object records in Pass 2.  
59 pages of virtual memory were used to define 47 macros.

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

Macro library name	Macros defined
_\$255\$DUA28:[SYS.OBJ]LIB.MLB;1	2
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2	29
TOTALS (all libraries)	31

1170 GETS were required to define 31 macros.

There were no errors, warnings or information messages.

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

0236 AH-BT13A-SE  
VAX/VMS V4.0

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The image displays a grid of 144 small terminal window screenshots, arranged in 12 rows and 12 columns. Each screenshot appears to be a preview of a different system utility or report. Several titles are clearly legible across the grid:

- MMGEXPCNT LIS (top row, 3rd column)
- MMGNSFWSL LIS (top row, 6th column)
- MMGRTDEL LIS (2nd row, 4th column)
- MMGRTFIL LIS (7th row, 6th column)
- MMGLKWLLW LIS (7th row, 8th column)
- MMGXQUOTA LIS (8th row, 11th column)
- MMGSETPRT LIS (11th row, 6th column)
- MOM (top right, 1st row, 14th column)
- MOM (bottom right, 12th row, 14th column)

The individual screenshots are mostly illegible due to their small size and low contrast, but they generally show text-based data structures and command-line interfaces.