CICS Problem Support

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AGENDA

- **Introduction**
  - Why and how did we get here?
- **CICS Level 2 Support Center**
  - What are the different code areas, and who supports them?
  - What information should be given when you report a problem?
- **The CICS Dump Process**
  - Why is the dump process the most difficult problem resolution piece?
  - What are the different dump types and how do you generate them?
  - What are domains, and how do you format them for the Support Center?
  - How do you send the documentation to the Support Center?
- **Storage Violation Process**
  - What do I look for when a storage violation happens?
  - How do I capture the culprit causing the violation?
- **CICS Software Support Web Page**
  - What is the CICS Software Support Web Page?
  - How do you get access to the CICS Software Support Web Page?

The CICS Level 2 Support Center Hints & Tips

- **Is it MVS or VSE?**
  - "Code is Code"
- **CICS Host**
  - FILE CNTRL/DATABASES(VSAM, IMS, DL/I, DB2),JOURNAL, TEMP STORAGE, MONITOR, STATS, SPOOLER, RECOVERY, DUMPS NOT PRODUCED, BACKOUT, RESTART, SHUTDOWN, TRANSIENT DATA, ANY AREA NOT COVERED ABOVE.
- **CICS TC**
  - SECURITY, MRO, AUTOINSTALL, WEB, BMS, ISC, FEPI, TERMINAL INTERFACE(BTAM,VTAM,LU62), STORAGE PROBLEMS, RESOURCE DEF'N,REPORT CONTROLLER, TABLE MANAGER, XRF, SOAP.
- **Using the most effective keywords**
  - "I have a defect" or "My system is abending"
- **Keywords you don't use**
  - "How do I?" or "How to"

CICS Level 2 Support Center Notes

- The code for CICS/TS for VSE/ESA has been ported from CICS/MVS R410, CICS/TS for MVS R130 and CICS/TS for z/OS. The code being used is dependent on which function is being utilized. However, the machine code in the storage does not know the difference between, VM, MVS or VSE as an operating system.
- The CICS Level 2 Support Center is divided into two distinct areas: CICS Host and CICS TC. This separation attempts to align the most common code areas into the two support groups.
- There is no longer a Level 1 and Level 2 support structure. The Customer Service Center fields a call and based on our customer selections, they will direct a call to the correct CICS Level 2 group.
- The CICS Level 2 Support Center also answers fee based "how to" questions on separate queues. When a call comes on the SupportLine queue an entitlement check is done. If our customer is not entitled to SupportLine help they will be told they are not supported.

CICS Dump Processing

- Transaction Dumps
- CICS/VSE R230 Dumps
- CICS/TS for VSE/ESA Dumps
- EXTEND the VSE Dump Library
- 300 cylinders is the recommended size
- The CICS Startup Job
- "I have a dump"
- Using Infoana to analyze a CICS/TS for VSE/ESA dump
- Sending the dump out to the CICS Level 2 Support Center

CICS Dump Processing Notes

- Transaction dumps are great for application use. However, the main drawback is storage areas we need to see are usually not included in the dump. One good point is the module load information.
- CICS/VSE dumps are business as usual. That is, we can receive the raw Idump, or the print of 0-end from the LISTQ output.
- There is a very large size difference between the CICS/VSE and CICS/TS dumps. Because of this it is extremely important to ensure the dump dataset is large enough to hold a complete dump.
- The information for extending the VSE dump library can be found in the VSE/ESA Hints and Tips for Release 2.6 and earlier. It is in Chapter 16 "Interactive Interface, System Files and Configuration", Page 305.
- Unlike CICS/VSE, the CICS/TS for VSE/ESA product is divided into 40 domains. Each of these domains has different formatting output options (levels). So, the domains CICS Level 2 support needs to have formatted is dependent on the type of failure you are getting. For most all of the abend errors received, the default Infoana formatting job will provide the documentation the CICS Level 2 Support people need to see as a start.

Sample CICS Startup Job

```
// JOB CICSICCF          CICS/ICCF STARTUP
// OPTION SADUMP=5       **************************************************
// OPTION SYSDUMPC       *****     KEY PARAMETERS                   *****
// OPTION SYSDUMP        **************************************************
// UPSI 11100000
// LIBDEF *,SEARCH=(PRD2.CONFIG,PRD1.BASED,PRD1.BASE,PRD2.PROD,
PRD2.SCEEBASD,PRD2.SCEEBASE,PRD2.DBASE,PRD1.MACLIBD,
PRD1.MACLIB),PERM
// LIBDEF DUMP,CATALOG=SYSDUMP.F2      ***  KEY PARAMETER    *****
// SETPARM XNCPU=''
// SETPARM XMODEF2=AUTO
// SETPARM XAPPLF2=''
// SETPARM XSPINIT=''
// SETPARM XENVNR=''
// SETPARM XSECP=''
// EXEC PROC=$COMVAR,XNCPU
// SETPARM XNCPU=1
EOP $COMVAR
// EXEC DTRSETP,PARM='CPUVAR1;;SET XSTATF2=ACTIVE'
1S54I  PHASE DTRSETP  IS TO BE FETCHED FROM IJSYSRS.SYSLIB
1S55I  LAST RETURN CODE WAS 0000
// EXEC PROC=CPUVAR1,XMODEF2,XAPPLF2,XSPINIT,XENVNR,XSECP
```

Sample CICS Startup Job Notes

- SADUMP=n | ([n],m) This option indicates the order or priority in which the partition and/or any owned data space should be dumped in a stand-alone dump. SADUMP=n controls the priority of the partition in the dump; SADUMP=([n],m) controls the priority (n) of the partition, if specified, and the priority (m) of any owned data space. Both n and m can be either 0 or 1 to 9: 0 Indicates that this partition or data space should not be dumped when a stand-alone dump is taken. This is also the default. 1 - 9 Indicates the priority of the partition or data space for inclusion in a stand-alone dump. When a stand-alone dump is taken, the partition or data space with the highest priority (starting from 9) is dumped first, then the one with the next lower priority, until all partitions or data spaces for which SADUMP=0 has not been specified have been dumped (provided enough space is available on the dump device). Example:
  - F1... SADUMP=(5,3)
  - F2 ... SADUMP=4
  - F3 ... SADUMP=(,9)
- Dumps: F3-owned data space(s), F1 partition, F2 partition, F1-owned data space(s)
- SYSDUMP=NO|YES YES indicates that dumps are to be written to the dump sublibrary which is active for the partition. The dump sublibrary must have been defined with the LIBDEF DUMP command. SYSDUMP=NO specifies that dumps are to be written to SYSLST. For compatibility reasons, the keyword may be entered as SYSDMP.
- SYSDUMPC=NO|YES NO has no effect on dump processing. YES indicates that the dump is ignored when the following two conditions are met: the dumps are to be written to the dump sublibrary and not to SYSLST (SYSDUMP=YES was specified) the dump sublibrary is full, in error or not defined. To avoid the dump being written to SYSLST, you must specify both SYSDUMP=YES and SYSDUMPC=YES. Note that if you specified SYSDUMP=NO, SYSDUMPC=YES has no effect.

InfoAna Job to Analyze a CICS/TS dump

```
* $$ JOB JNM=DMPACD1,DISP=D,PRI=8,                    C /===/
* $$ NTFY=YES,                                        C *===*
* $$ CLASS=0                                            *===*
* $$ LST DISP=H,RBS=1000                               *===*
// JOB DMPACD1  ANALYZE CICS/TS DUMP                   *===*
// EXEC PROC=DTRINFOA                                  *===*
// EXEC INFOANA,SIZE=INFOANA,OS390                     *===*
   SELECT DUMP MANAGEMENT                             *===*
     DUMP NAME SYSDUMP.BG.DBG00002                    *===*
         RETURN                                        *===*
   SELECT DUMP VIEWING                                 *===*
         CALL DFHPD410 DATA AP=0,KE=3,DS=1,TR=2,LD=3   *===*
         RETURN                                        *===*
     DUMP NAME SYSDUMP.BG.DBG00002                    *===*
         RETURN                                        *===*
   SELECT END                                          *===*
/*                                                     *===*
/&                                                     *===*
* $$ EOJ                                               *===*
```

Send the dump .... Notes

- The most common means used by the CICS Level 2 Support to receive documenatation is via FTP (File Transfer Protocol). This protocol provides for two modes of file transfer; ASCII and BINARY. The mode used depends on the type of dump output:
  - **RAW unformatted CICS/VSE dump from the dump library - BINARY**
  - **RAW unformatted CICS/VSE dump from the LISTQ - ASCII**
  - **Formatted CICS/VSE Infoana dump output - ASCII**
  - **RAW unformatted CICS/TS dump from the dump library - BINARY**
  - **RAW unformatted CICS/TS dump from the LISTQ - ASCII**
  - **Formatted CICS/TS Infoana dump output - ASCII**
- It is possible the CICS Level 2 Support person will want to receive formatted output via email. This output can be zipped using a tool like Winzip or PKZip and sent to the generic Level 2 Support address - CICSL2@US.IBM.COM. This should only be done when both Support and our customer agree to use email, and it is not the recommended procedure.
- Formatted output, or LISTQ output can be poffloaded to tape. RAW dumps can be offloaded using the IUI tape offload utility.

Sending the dump to the CICS Level 2 Support Center

- FTP
- Email
- Tape

FTP Procedures

- PLEASE SEND YOUR DOCUMENTATION USING FTP VIA THE INTERNET.
- 1. CONNECT TO OUR FTP SITE: ftp.emea.ibm.com
- (OR 192.109.81.7) USER: ANONYMOUS PASSWORD: YOUR COMPLETE
- E-MAIL ADDRESS.
- 2. IF YOU ARE SENDING A RAW DUMP CHANGE TO BINARY MODE.
- 3. IF THIS IS A FORMATTED DUMP/TRACE CHANGE TO ASCII MODE.
- 4. PLACE THE DATASET (NOT GREATER THAN 400 MB) IN THE
- /toibm/vse DIRECTORY USING THE PUT COMMAND.
- **(eg. PUT 'SYSDUMP.F4.DF500075' pmr87744.dump)**
- WHEN THE TRANSFER IS COMPLETE, THE PROBLEM RECORD WILL BE
- AUTOMATICALLY UPDATED.
- * FOR Q'S AND A'S ON TRANSFERRING DOCUMENTATION VIA FTP, SEE
- * HTTP://TECHSUPPORT.SERVICES.IBM.COM/SUPPORT/S390
- (UNDER PROB. MGT.)

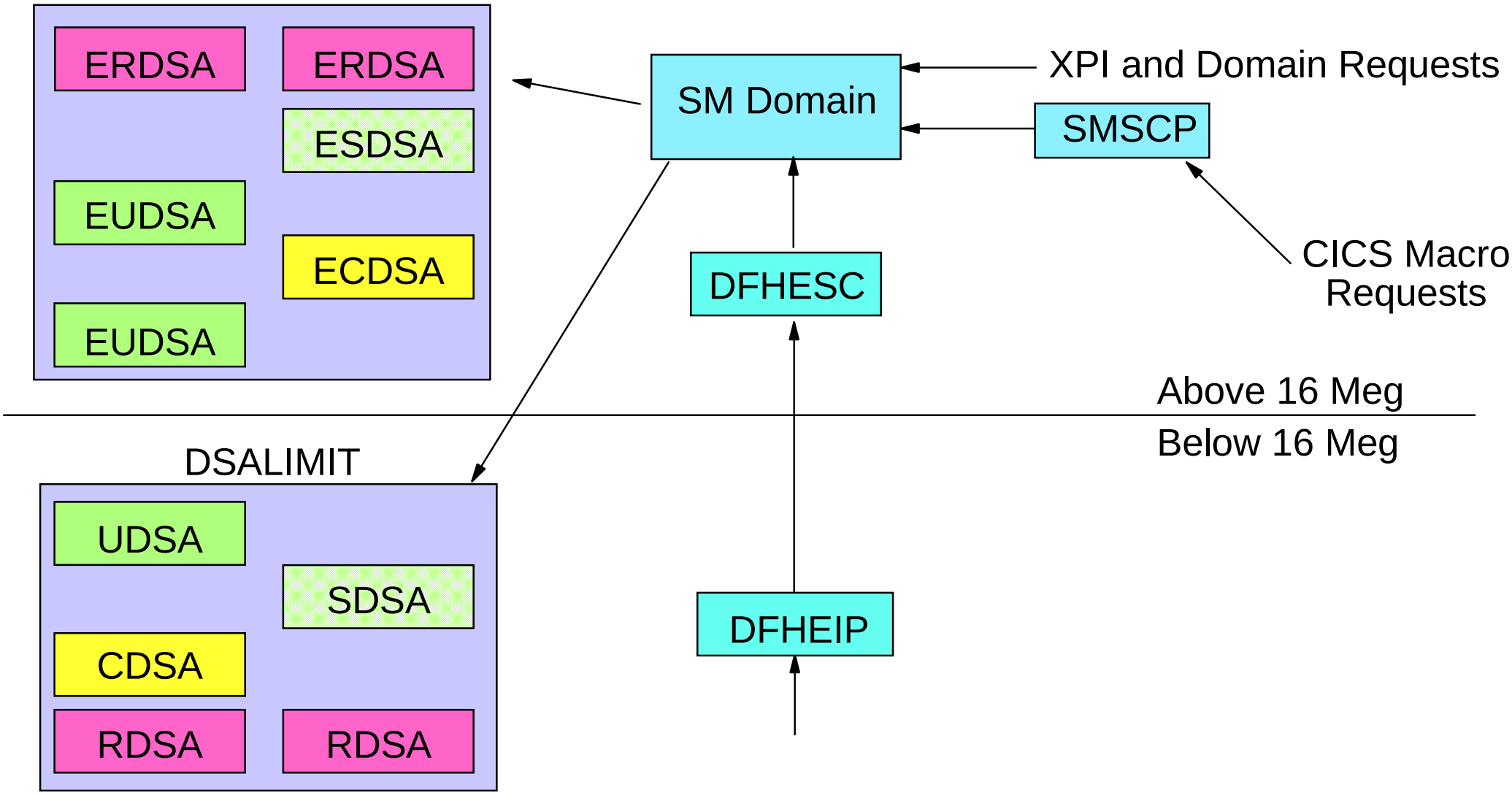
STORAGE VIOLATIONS

- Types of Storage Violations
- Basic Storage Management
- Storage Violation Detection
- Storage Violation Analysis
- Storage Violation Prevention Facilities
- Tools
- Common Culprits

Types of Storage Violations

- **Detected**
  - Task related storage
  - Detection occurs when checking is done
- **Undetected**
  - Corrupted data, programs, control blocks
- **Prevented**
  - Storage protection
  - Command protection

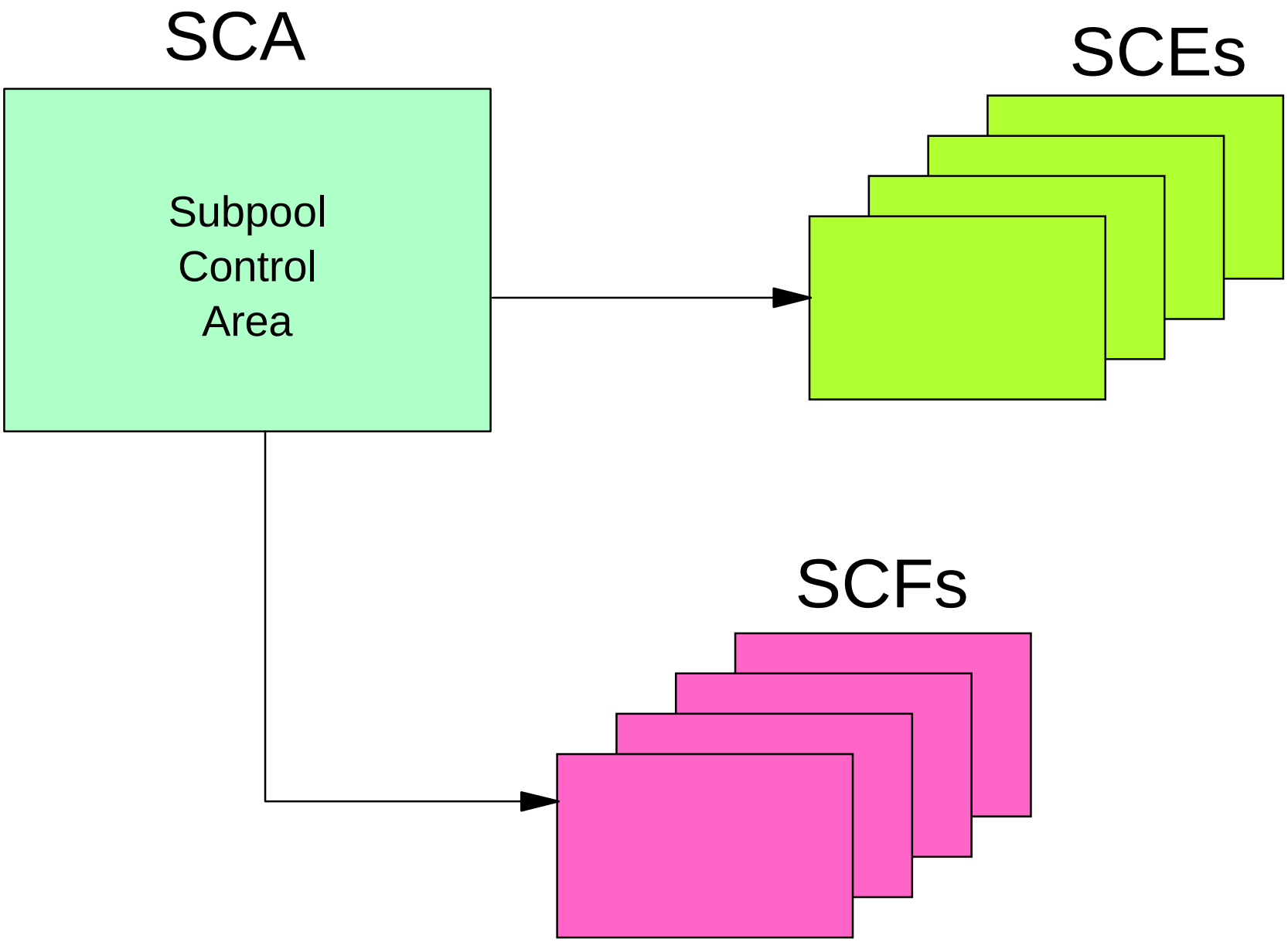
CICS/TS Storage Management



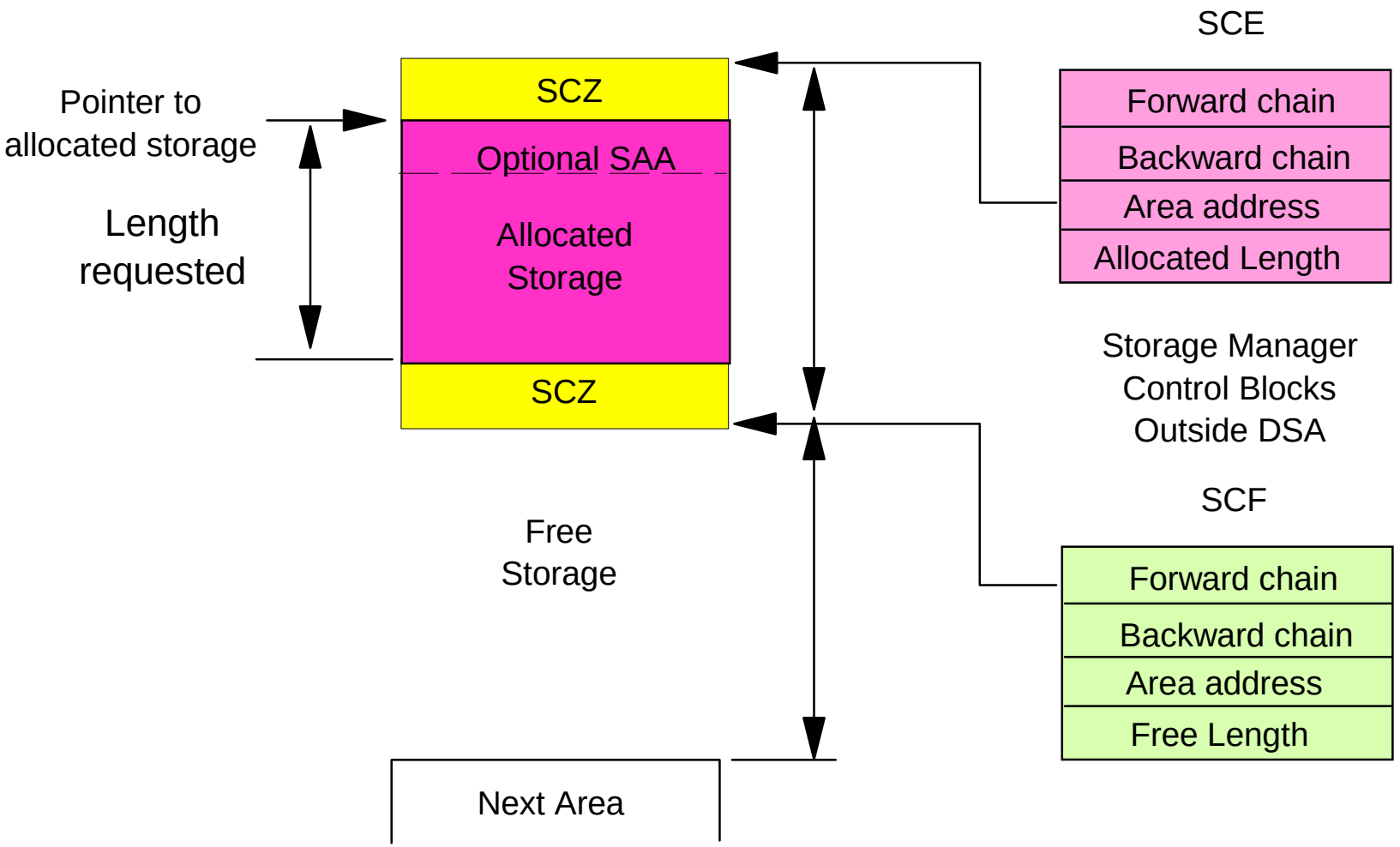
Sample Task Subpool Summary

```
==SM: Task subpool summary

   Current number of tasks:      30

   SMX Addr  Name      Id Loc Acc    Gets   Frees  Elems  Elemstg Pagestg
   173C2054 M0000004 01   B   C        0       0      0        0      0K
            C0000004 03   A   C        0       0      2     1504      4K
            B0000004 02   B   U        0       0      0        0      0K
            U0000004 04   A   U        0       0      0        0      0K
   173C2088 M0000005 01   B   C        0       0      1     1088      4K
            C0000005 03   A   C        0       0      0        0      0K
            B0000005 02   B   U        0       0      0        0      0K
            U0000005 04   A   U        0       0      0        0      0K
               .
   173C22F8 M0002984 01   B   C        0       0      0        0      0K
            C0002984 03   A   C       13       4      9      816      4K
            B0002984 02   B   U        1       0      1     1088      4K
            U0002984 04   A   U       46      42      4    15360     64K
   173C2464 M0002985 01   B   C        0       0      0        0      0K
            C0002985 03   A   C       10       3      7      688      4K
            B0002985 02   B   U        1       0      1     1088      4K
            U0002985 04   A   U       39      35      4    15360    128K
```

CICS/TS Storage Management



Storage Accounting in V3.2.1 and Beyond



Storage Violation Detection

- **Storage Accounting Areas (SAAs)**
  - Leading and trailing area added to each element
  - Elements are chained together
  - Terminal storage (TIOAs)
  - Checking done at GETMAIN/FREEMAIN and task end
- **Storage Check Zones (SCZs)**
  - Leading and trailing area added to each allocated element
  - All task subpools
    - Mnnnnnnn - CICS24 data
    - Bnnnnnnn - USER24 data
    - Cnnnnnnn - CICS31 data
    - Unnnnnnn - USER31 datal
  - Checking done at FREEMAIN and task end

Storage Violation Analysis

```
=== DUMP SUMMARY

   DUMPID:    1/0011

   DUMPCODE:  SM0102

   DATE/TIME:  4/02/05 08:13:32 (LOCAL)

   MESSAGE:   DFHSM0102 CICSM1 A STORAGE VIOLATION (CODE'0D11')
              HAS BEEN DETECTED BY MODULE DFHSMMF .

   SYMPTOMS:  PIDS/564805400 LVLS/411 MS/DFHSM0102 RIDS/DFHSMMF
              PTFS/UQ75840 PRCS/00000D11

   TITLE:     (NONE)

   CALLER:    (NONE)

   ASID:      X'0073'
```

Storage Violation Analysis ...

```
VERBX DFHPD410  'TR=1'
```

Find the exception trace entry for the storage violation

```
34720 1 AP 00FA BMS   ENTRY MAP-FROM              IN MAP MAPSET                    0003,00020505 ..=009870=
34720 1 PG 0601 PGLD  ENTRY LOAD                  MAGM010,TASK_LIFE,MAPSET,NO                    =009871=
34720 1 DD 0301 DDLO  ENTRY LOCATE                0B900FB0,0007DDF0,PPT,MAGM010                  =009872=
34720 1 DD 0302 DDLO  EXIT  LOCATE/OK             D7D7E3C5 , 0C0AA150                            =009873=
34720 1 LD 0001 LDLD  ENTRY ACQUIRE_PROGRAM       0C0AB2F0,YES                                   =009874=
34720 1 LD 0002 LDLD  EXIT  ACQUIRE_PROGRAM/OK    002EF7C0,002EF7C0,360,0,REUSABLE,CDSA,OLD_COPY =009875=
34720 1 PG 0602 PGLD  EXIT  LOAD/OK               002EF7C0,002EF7C0,360                          =009876=
34720 1 SM 0C01 SMMG  ENTRY GETMAIN               34B,0C60D228,YES,00,TERMINAL                   =009877=
34720 1 SM 0C02 SMMG  EXIT  GETMAIN/OK            0C654BF0                                       =009878=
34720 1 SM 0D01 SMMF  ENTRY FREEMAIN              0C667000,0C60D228                              =009879=
34720 1 SM 0D02 SMMF  EXIT  FREEMAIN/OK           TERMINAL STORAGE AT 0C667000                   =009880=
34720 1 AP 00FA BMS   EXIT                                                   0005,00000000 ..=009881=
34720 1 AP 00FA BMS   EXIT                                                   0005,00000000 ..=009882=
34720 1 SM 0D01 SMMF  ENTRY FREEMAIN              0C654BF0,0C60D228                              =009883=
34720 1 SM 0D02 SMMF  EXIT  FREEMAIN/OK           TERMINAL STORAGE AT 0C654BF0                   =009884=
34720 1 AP 00E1 EIP   EXIT  RECEIVE-MAP           OK                               00F4,00000000 ..=009885=
34720 1 AP 00E1 EIP   ENTRY RETURN                                               0004,0BE99A10 .Z=009886=
34720 1 AP 194A APLI  EVENT CALL-TO-COBOL2        RUNUNIT_TERMINATION MAGO010                    =009887=
34720 1 SM 0D01 SMMF  ENTRY FREEMAIN              001E7038,0C60D228                              =009888=
34720 1 XM 1001 XMIQ  ENTRY SET_TRANSACTION       INCREMENT                                      =009889=
34720 1 XM 1002 XMIQ  EXIT  SET_TRANSACTION/OK                                                   =009890=
34720 1 AP 1700 TFIQ  ENTRY SET_TERMINAL_FACILITY YES                                            =009891=
34720 1 AP 1701 TFIQ  EXIT  SET_TERMINAL_FACILITY/OK                                             =009892=
34720 1 SM 0D11 SMMF  *EXC* STORAGE_CHECK_FAILED_ON_FREEMAIN_REQUEST FREEMAIN,001E7038,0C60D228  =009893=
```

Exception Trace Entry

Storage Violation Analysis ...

VERBX DFHPD410 'TR=2'

Locate the corresponding full trace entry

```
SM 0D11 SMMF  *EXC* - STORAGE_CHECK_FAILED_ON_FREEMAIN_REQUEST - FUNCTION(FREEMAIN) ADDRESS(001E7038) TCTTE_ADDRESS(0C60D228)

  TASK-34720 KE_NUM-002B TCB-00BD6B98 RET-80082422 TIME-08:13:31.6564805783 INTERVAL-00.0000015000    =009893=
   1-0000  00780000 00000011 00000000 00000000  B5000000 00000000 04000100 0BE9998D  *.......................ZR.*
     0020  0BE9998A 001E7038 004203A0 0C60D228  0009D220 01001260 0280C5C4 D9404000  *.ZR......K...K....-.EDR  .*
     0040  017B4040 40400000 40404002 40404040  4B4bC7C9 C2C2E261 D4C1D9C4 C9C540C1  *.#   ..  .GIBBS, MARDIE A *
     0060  8C344BE6 C3C9C3E2 F0D74040 C1D7C301  00000000 0000003C                   *...MCICS0C.. .....       *
   2-0000  001E7030                                                                 *....                     *
   3-0000  D6D7E8D9 C9C7C8E3 40D4C1C7 C3D6D9D7  00104001 001E423C 001E4548 80A5C26C  *OPYRIGHT MAGCORP... ...VB%*
     0020  00000000 00000001 001E708C 80A5BD36  00045BE8 000C30E8 0BD1B950 000C319C  *.............$Y..Y.J.&....*
     0040  0BD1B954 0000003C 0BE99A10 0BD1BA78  0C2C4D14 80A5B760 001E5CF8 20404040  *.J...........(..V.-.*8.  *
     0060  40404040 40404040 40404040 40404040  40404040 40404040 40404040 40404040  *                         *
   4-0000  00000000 00000000 C2F0F0F3 F4F7F2F0                                      *........B0034720         *
```

SM 0D11 DFHSMMF EXC STORAGE ZONE CHECK FAILED

1 SMMC PARAMETER LIST

2 ADDRESS OF STORAGE ELEMENT

3 FIRST 16 BYTES OF STORAGE ELEMENT

4 LAST 16 BYTES OF STORAGE ELEMENT

Storage Violation Analysis ...

Examine the corrupted area in storage to see the damage and for clues

```
001E7030   D6D7E8D9   C9C7C8E3   40D4C1C7   C3D6D9D7   | OPYRIGHT MAGCORP |
001E7040   00104001   001E423C   001E4548   80A5C26C   | .. .........vB% |
001E7050   00000000   00000001   001E708C   80A5BD36   | ............v.. |
001E7060   00045BE8   000C30E8   0BD1B950   000C319C   | ..$Y...Y.J.&.... |
001E7070   0BD1B954   0000003C   0BE99A10   0BD1BA78   | .J.......Z...J.. |
001E7080   0C2C4D14   80A5B760   001E5CF8   20404040   | ..(..v.-..*8.    |
001E7090 TO 001E70AF (X'00000020' bytes)--All bytes contain X'40', C' '
001E70B0   40404040   40404040   00000000   00000000   |         ........ |
001E70C0 TO 001E70CF (X'00000010' bytes)--All bytes contain X'00'
001E70D0   00000000   40000000   00000000   00000000   | ....  .......... |
001E70E0 TO 001E712F (X'00000050' bytes)--All bytes contain X'00'
001E7130   00000000   00000000   C2F0F0F3   F4F7F2F0   | ........B0034720 |
```

Storage Violation Analysis ...

```
IPCS OUTPUT STREAM ------------------------------------------------------------- FOUND: LINE 4211 COL 2
 COMMAND ===> F SCA.B0034720                                                    SCROLL ===> CSR

   SCA.B0034720 0E30DEE4 SUBPOOL CONTROL AREA

      0000  C2F0F0F3 F4F7F2F0 0E3A4020 0E30DE30  08010200 00000000 00000000 00000000
      0020  00000000 00000000 00000000 00000000  00000006 00000000 00000000 00000000
      0040  00000000 00000000 00000000 00000000  0DB89998 0DB89E00 001E7030 00000000
      0060  0DB8F9C8 0DB8F9C8 7FFFFFFF 7FFFFFFF  00000000 0B6E60A0 00000000 00000000
      0080  00000000 00000000 FFFFFFF0 00100201  01020000 00000000 00004000 00003140
      00A0  00000000 00004000 0B8C373C 00000000  00000000

  SCE.B0034720 0DB89998 STORAGE ELEMENT DESCRIPTOR                 Corrupted Area

      0000  0DB89380 0E30DF34 001E7030 00000110  0B8F0180 00000000
                                                                   Length
  SCE.B0034720 0DB89380 STORAGE ELEMENT DESCRIPTOR

      0000  0DB89878 0DB89998 001E6D60 000002D0  0B8F0180 00000000
                                                 Adjacent Area 1E6D60
  SCE.B0034720 0DB89878 STORAGE ELEMENT DESCRIPTOR     + Length    2D0
                                                                 ------
       0000  0DB8CC08 0DB89380 001E4D60 00002000  0B8F0180 00000000          1E7030
             .
             .
  SCF.B0034720 0DB8F9C8 FREE STORAGE DESCRIPTOR

      0000  0E30DF44 0E30DF44 001E7140 00000EC0  0B8F0180 00000000
```

Storage Violation Analysis ...

Examine the area preceding the overwritten storage for clues and to identify ownership.

```
001E6D60   C2F0F0F3   F4F7F2F0   00000000   00000000   *B0034720.........*
001E6D70   00000000   00300040   40404040   5C40C3C8   | .......     * CH |
001E6D80   C1D9E340   E3D9C1C3   D2C9D5C7   40606040   | ART TRACKING --  |
001E6D90   E2E3C1E3   E4E240C6   E4D5C3E3   C9D6D5E2   | STATUS FUNCTIONS |
001E6DA0   405C4040   40404000   0800C3C8   C1D9D4E2   |  *     ...CHARMS |
001E6DB0   40600008   00D4C1C7   D6F4F1F2   40000000   |  -...MAGO412 ... |  001E6DC0 TO 001E6DDF
(X'00000020' bytes)--All bytes contain X'00'
001E6DE0   00001100   F0F261F0   F461F9F9   404040F0   | ....02/04/99   0 |
001E6DF0   F87AF1F3   40004F00   60606060   60606060   | 8:13 .|.-------- |
001E6E00 TO 001E6E3F (X'00000040' bytes)--All bytes contain X'60', C'-'
001E6E40   60606060   60606000   4000E3D6   40D7D9D6   | -------. .TO PRO |
001E6E50   C3C5C5C4   6B40D7D3   C1C3C540   C3E4D9E2   | CEED, PLACE CURS |
001E6E60   D6D940D6   D540C6E4   D5C3E3C9   D6D540C1   | OR ON FUNCTION A |
001E6E70   D5C440D7   D9C5E2E2   40C5D5E3   C5D94040   | ND PRESS ENTER   |
001E6E80   40404040   40404040   40404040   40000000   |               ... |
001E6E90 TO 001E6ECF (X'00000040' bytes)--All bytes contain X'00'
001E6ED0   000100F2   00000000   00000000   00000000   | ...2............ |
001E6EE0 TO 001E6F0F (X'00000030' bytes)--All bytes contain X'00'
001E6F10   00000000   0100F300   00000000   00000000   | ......3........ |
001E6F20 TO 001E6F4F (X'00000030' bytes)--All bytes contain X'00'
001E6F50   00000000   00000001   00F40000   00000000   | .........4..... |
001E6F60 TO 001E701F (X'000000C0' bytes)--All bytes contain X'00'
001E7020   00000000   4F004040   4040404D   C35D40C3   | ....|.    (C) C |
001E7030   D6D7E8D9   C9C7C8E3   40D4C1C7   C3D6D9D7   | OPYRIGHT MAGCORP |
001E7040   00104001   001E423C   001E4548   80A5C26C   | .. .........vB% |
```

Storage Violation Analysis

Locate GETMAIN for damaged area, if possible

```
34720 1 LD 0001 LDLD  ENTRY ACQUIRE_PROGRAM       0C0E4450                                                  =009858=
34720 1 LD 0002 LDLD  EXIT  ACQUIRE_PROGRAM/OK    8C343048,0C343000,4B08,0,REUSABLE,ESDSA,OLD_COPY          =009859=
34720 1 AP 1940 APLI  ENTRY START_PROGRAM         MAGO010,CEDF,FULLAPI,EXEC,NO,0C2C4D14,0BE91AE8 , 0000231F=009860=
34720 1 AP 194A APLI  EVENT CALL-TO-COBOL2        RUNUNIT_INITIALIZATION MAGO010                            =009861=
34720 1 SM 0C01 SMMG  ENTRY GETMAIN               100,YES,00,USER24                                         =009862=
34720 1 SM 0C02 SMMG  EXIT  GETMAIN/OK            001E7038                                                  =009863=
34720 1 AP 00E7 ERM   ENTRY APPLICATION-EXEC-DLI  DLI                          0004,B1C15D37 .A).,9619CD=009864=
34720 1 AP 00E7 ERM   EVENT PASSING-CONTROL-TO-RM DLI                          4004,B1C15D37 .A).,9619CD=009865=
34720 1 AP 00E7 ERM   EVENT REGAINING-CONTROL-FROM-RM DLI                      4104,B1C15D37 .A).,9619CD=009866=
34720 1 AP 00E7 ERM   EXIT  APPLICATION-EXEC-DLI  DLI                          1004,B1C15D37 .A).,9619CD=009867=
34720 1 AP 00E1 EIP   ENTRY RECEIVE-MAP                                       0004,0BE99A10 .Z..,080018=009868=
34720 1 AP 00FA BMS   ENTRY MAP-FROM              IN MAP MAPSET              0003,00020505 ....,000000=009869=
34720 1 AP 00FA BMS   ENTRY MAP-FROM              IN MAP MAPSET              0003,00020505 ....,000000=009870=
34720 1 PG 0601 PGLD  ENTRY LOAD                  MAGM010,TASK_LIFE,MAPSET,NO                               =009871=
34720 1 DD 0301 DDLO  ENTRY LOCATE                0B900FB0,0007DDF0,PPT,MAGM010                             =009872=
34720 1 DD 0302 DDLO  EXIT  LOCATE/OK             D7D7E3C5 , 0C0AA150                                       =009873=
34720 1 LD 0001 LDLD  ENTRY ACQUIRE_PROGRAM       0C0AB2F0,YES                                              =009874=
34720 1 LD 0002 LDLD  EXIT  ACQUIRE_PROGRAM/OK    002EF7C0,002EF7C0,360,0,REUSABLE,CDSA,OLD_COPY            =009875=
34720 1 PG 0602 PGLD  EXIT  LOAD/OK               002EF7C0,002EF7C0,360                                     =009876=
34720 1 SM 0C01 SMMG  ENTRY GETMAIN               34B,0C60D228,YES,00,TERMINAL                              =009877=
34720 1 SM 0C02 SMMG  EXIT  GETMAIN/OK            0C654BF0                                                  =009878=
34720 1 SM 0D01 SMMF  ENTRY FREEMAIN              0C667000,0C60D228                                         =009879=
34720 1 SM 0D02 SMMF  EXIT  FREEMAIN/OK           TERMINAL STORAGE AT 0C667000                              =009880=
34720 1 AP 00FA BMS   EXIT                                                    0005,00000000 ....,00000 =009881=
34720 1 AP 00FA BMS   EXIT                                                    0005,00000000 ....,00000 =009882=
34720 1 SM 0D01 SMMF  ENTRY FREEMAIN              0C654BF0,0C60D228                                         =009883=
34720 1 SM 0D02 SMMF  EXIT  FREEMAIN/OK           TERMINAL STORAGE AT 0C654BF0                              =009884=
34720 1 AP 00E1 EIP   EXIT  RECEIVE-MAP           OK                          00F4,00000000 ....,00001 =009885=
34720 1 AP 00E1 EIP   ENTRY RETURN                                            0004,0BE99A10 .Z..,08000 =009886=
34720 1 AP 194A APLI  EVENT CALL-TO-COBOL2        RUNUNIT_TERMINATION MAGO010                               =009887=
34720 1 SM 0D01 SMMF  ENTRY FREEMAIN              001E7038,0C60D228                                         =009888=
34720 1 XM 1001 XMIQ  ENTRY SET_TRANSACTION       INCREMENT                                                 =009889=
34720 1 XM 1002 XMIQ  EXIT  SET_TRANSACTION/OK                                                              =009890=
34720 1 AP 1700 TFIQ  ENTRY SET_TERMINAL_FACILITY YES                                                       =009891=
34720 1 AP 1701 TFIQ  EXIT  SET_TERMINAL_FACILITY/OK                                                        =009892=
34720 1 SM 0D11 SMMF  *EXC* STORAGE_CHECK_FAILED_ON_FREEMAIN_REQUEST FREEMAIN,001E7038,0C60D228             =009893=
```

Storage Violation Analysis ...

```
34720 1 PG 0700 PGHM  ENTRY SET_CONDITIONS       0BE9998D,0BE9998A,0009D220,0BE62360,COBOL,80,AMODE31      =009835=
34720 1 PG 0701 PGHM  EXIT  SET_CONDITIONS/OK    0                                                         =009836=
34720 1 AP 00E1 EIP   EXIT  HANDLE-CONDITION     OK                              00F4,00000000 ....,000004 =009837=
34720 1 AP 00E1 EIP   ENTRY GETMAIN                                             0004,0BE62360 .W.-,080002 =009838=
34720 1 SM 0C01 SMMG  ENTRY GETMAIN              2BC,YES,USER24,EXEC                                       =009839=
34720 1 SM 0C02 SMMG  EXIT  GETMAIN/OK           001E6D68                                                  =009840=
34720 1 AP 00E1 EIP   EXIT  GETMAIN              OK                              00F4,00000000 ....,000002 =009841=


AP 00E1 EIP ENTRY GETMAIN                          REQ(0004) FIELD-A(0BE62360 .W.-) FIELD-B(08000C02 ....)

  TASK-34720 KE_NUM-002B TCB-00BD6B98 RET-8C30D45A TIME-08:13:31.6561840158 INTERVAL-00.0000041093    =009838=

                                                 Address at which this command was issued -
                                                   use this to identify the program
==LD: PROGRAM STORAGE MAP

 PGM NAME ENTRY PT  CSECT   LOAD PT. REL. PTF LVL. LAST COMPILED  COPY NO. USERS     LOCN  TYP ATTRIBUTE R/A MODE

 DFHCSA   80045570 DFHKELCL 00045000 410  UN96476  10/11/96 14.44    1       1       CDSA  RPL RESIDENT   -    -
                   -NOHEDA- 00045380
                   DFHCSA   00045388 0410 UQ09240  I  17/09 16.43
                   DFHCSAOF 00045938 0410 UQ09240  I  17/09 16.43
                   DFHKELRT 00045E58 410  UN97273  10/30/96 13.33
                   .
                   .
 MAGO900  8C308048 DFHYC210 0C308000 210                            1       2       ESDSA RPL REUSABLE   -    -
 MAGO901  8C311BB8 DFHYC210 0C311B70 210                            1       1       ESDSA RPL REUSABLE   -    -
 MGMTART  8C33BF00 -NOHEDA- 0C33BE20                                1       0       ESDSA RPL REUSABLE   -    -
 MAGO010  8C343048 DFHYC210 0C343000 210                            1       1       ESDSA RPL REUSABLE   -    -
 MAGO040  8C347B58 DFHYC210 0C347B10 210                            1       0       ESDSA RPL REUSABLE   -    -

                      RET ADDRESS: C30D45A
                 MAGO900 EP Address: C308048
                                    -------
                                     005412          Offset in application where the command was issued
```

Storage Violation Analysis Checklist

- **When was the violation detected?**
  - At task end
  - Storage violation trap
- **When was the storage last known to be good?**
  - Look for GETMAIN of the area
  - Storage violation trap
- **Which task(s) were in control between?**
- **Is the data causing the overlay identifiable?**
  - Data, message, etc. from a known application
- **Is there a pattern to the overlay(s)?**
  - Overlay occurs at a certain offset each time
  - Overlay is a certain length each time
- **Overlay of the end of a piece of storage?**
  - Task owning the storage is ***USUALLY*** the overwriter
- **Overlay of the front of a piece of storage?**
  - Identify the owner of the prior storage

Quickcell Storage Violations

```
=== DUMP SUMMARY

 DUMPID:    1/0077

 DUMPCODE:  SM0002

 DATE/TIME:  2/08/05 13:38:09 (LOCAL)

 MESSAGE:   DFHSM0002 PTU1CICG A severe error (code X'030E') has occurred in module DFHSMGF .

 SYMPTOMS:  PIDS/564805400 LVLS/411 MS/DFHSM0002 RIDS/DFHSMGF PTFS/R411 PRCS/0000030E

 TITLE:     (None)

 CALLER:    (None)

 ASID:      X'0055'
```

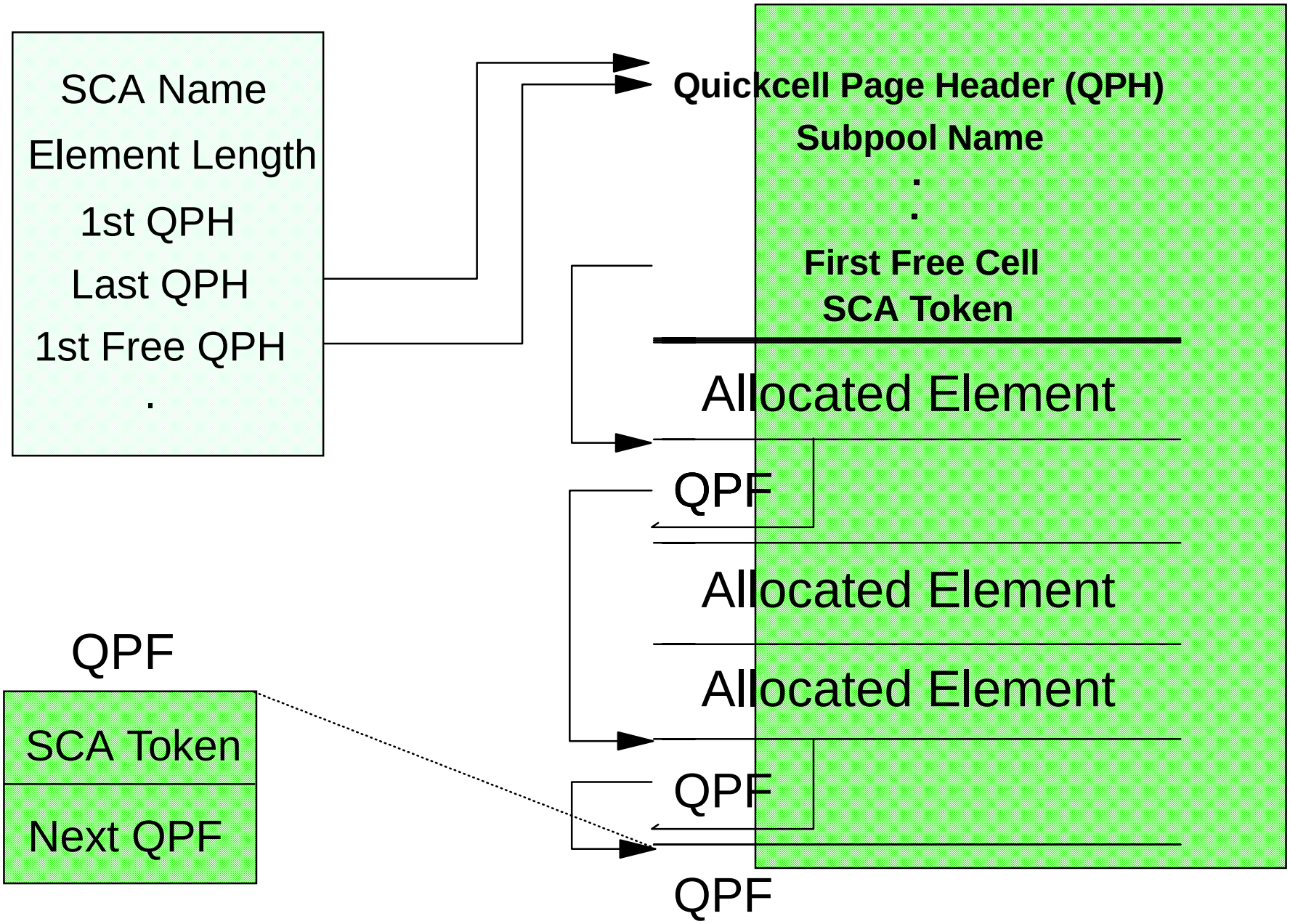
SM 030C	DFHSMGF	Exc	Invalid initial image	1 SMGF parameter list
				2 SCA name
SM 030D	DFHSMGF	Exc	Quickcell GETMAIN	l SMGF parameter list
			invalid QPF	2 SCA name
SM 030E	DFHSMGF	Exc	Quickcell FREEMAIN	1 SMGF parameter list
			invalid QPH	2 SCA name
SM 030F	DFHSMGF	Exc	Quickcell FREEMAIN	1 SMGF parameter list
			QPF already free	2 SCA name

Quickcell Subpools

```
VERBX DFHPD410 'SM'

==SM: Domain subpool summary (ECDSA)
```

Name	Id	Chn	Initf	Bndry	Fxlen	Q-c	Gets	Frees	Elems	Elemstg	Pagestg
CAS	64			8	3800		171	0	171	649800	684K
AITM_TAB	8A		4K	8	576	Y	8	0	8	4608	8K
AP_AFCTE	9E	Y	4K	16			25	0	25	992	4K
AP_TCA31	47		128K	128	1536	Y	19943	19910	33	50688	128K
AP_TXDEX	4A		4K	8	64	Y	1870	73	1797	115008	120K
APAID31	50		4K	8	152	Y	89429	89429	0	0	4K
APBMS	4C	Y		16			0	0	0	0	0K
APCOMM31	4D			16			79639	75628	4011	6429040	6888K
APICE31	4F		4K	8	152	Y	12857	12850	7	1064	4K
APURD	4E			16			0	0	0	0	0K
DDBROWSE	06			16	304	Y	0	0	0	0	0K
DDGENRAL	05			16			43	21	22	160224	184K
DDS_PPT	3C		4K	8	40	Y	1197	0	1197	47880	48K
DDS_RTXD	10		4K	8	40	Y	1544	0	1544	61760	64K
DDS_TCL	12		4K	8	40	Y	9	0	9	360	4K
DDS_TPNM	11			8	96	Y	0	0	0	0	0K
DDS_TXD	0F		4K	8	32	Y	1821	0	1821	58272	60K
DDS_USD1	33		4K	8	88	Y	15604	4744	10860	955680	1044K
DDS_USD2	34		4K	8	32	Y	15604	4744	10860	347520	392K

Quickcelled Subpools



Quickcell Storage Violation

```
VERBX DFHPD410 'TR'

46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114211
46067 1 AP 00E7 ERM   EVENT PASSING-CONTROL-TO-RM WNDTRUE             4004,B2A2E93F .sZ.,345E81F1,WNDTRUE  =114212
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114213
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114214
46067 1 AP 00E7 ERM   EVENT REGAINING-CONTROL-FROM-RM WNDTRUE         4104,B2A2E93F .sZ.,345E81F1,WNDTRUE  =114215
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114216
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114217
46067 1 AP 00E7 ERM   EVENT PASSING-CONTROL-TO-RM KOCOME00            4004,B2A2E93F .sZ.,345E81F1,KOCOME00 =114218
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114219
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114220
46067 1 AP 00E7 ERM   EVENT REGAINING-CONTROL-FROM-RM KOCOME00        4104,B2A2E93F .sZ.,345E81F1,KOCOME00 =114221
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114222
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114223
46067 1 AP 00E7 ERM   EVENT PASSING-CONTROL-TO-RM CAS                 4004,B2A2E93F .sZ.,345E81F1,CAS      =114224
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114225
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114226
46067 1 AP 00E7 ERM   EVENT REGAINING-CONTROL-FROM-RM CAS             4104,B2A2E93F .sZ.,345E81F1,CAS      =114227
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114228
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114229
46067 1 AP 00E7 ERM   EXIT  TASK-CONTROL          ........            1304,B2A2E93F .sZ.,345E81F1,........ =114230
46067 1 SM 0901 SMCK  ENTRY CHECK_STORAGE         NO,CURRENT_TERMINAL                                 =114231
46067 1 SM 0902 SMCK  EXIT  CHECK_STORAGE/OK                                                          =114232
XM    1 SM 0301 SMGF  ENTRY FREEMAIN              106B5188 , 00000045,150FE298                        =114233
XM    1 SM 030E SMGF  *EXC* Quickcell_freemain_invalid_QPH FREEMAIN,106B5188 , 00000045,150FE298        =114234


SM 030E SMGF *EXC* - Quickcell_freemain_invalid_QPH - FUNCTION(FREEMAIN) SUBPOOL_TOKEN(106B5188,00000045) ADDRESS(150FE298)

    TASK-XM    KE_NUM-0184 TCB-00AB1E88 RET-8009BF60 TIME-13:37:36.2696532463 INTERVAL-00.0000032500    =114234=
      1-0000  00400000 0000000E 00000000 00000000  BC000000 00000000 029B032D 106B5188  *....................,.*
        0020  00000045 150FE298 10E9E5B0 00000020  909A1B00 909A1B6E 10E9E930 10E9E934  *......Sq.ZV...>.ZZ..ZZ*
      2-0000  D9D46DE3 C1C2D3C5                                                        *RM_TABLE             *
```

Locate the SCA and QPH

```
VERBX DFHPD410 'SM'


SCA.RM_TABLE 106B5188 Subpool Control Area

  0000  D9D46DE3 C1C2D3C5 106B5C14 106DAE30  E0010500 00000000 00580000 1078A000  *RM_TABLE.,*.._..\.....* 106B5188
  0020  150FE000 1078A000 00000000 002D000B  001F308E 00000000 001F3063 00000000  *..\...................* 106B51A8
  0040  00000000 00000000 00000000 00000000  106B51D8 106B51D8 00000000 00000000  *................,Q...* 106B51C8
  0060  106B51E8 106B51E8 7FFFFFFF 7FFFFFFF  00000045 0F9EA2E0 1069A5C0 1069A5C0  *.,.Y.,.Y"..."....\v.v{* 106B51E8
  0080  00001000 00000000 FFFFFFF8 00084902  02010000 00000000 00002000 00000000  *...........8.........* 106B5208
  00A0  00000000 00005000 00000000 00000000  00000000                            *......&.........     * 106B5228

IFA.RM_TABLE 1069A5C0 Initial-free area descriptor

  0000  106B5200 106B5200 1078A000 1078B000  00001000 00000000                    *.,...,.........      * 1069A5C0

QPH.RM_TABLE 1078A000 Quickcell Page Header

  0000  00306EC4 C6C8E2D4 D8D7C840 40404040  D9D46DE3 C1C2D3C5 150FE000 106B518C  *..>DFHSMQPH  RM_TABLE.* 1078A000
  0020  150FE000 1078AAD8 0009C000 106B5188                                      *..\....Q..{..h       * 1078A020

QPH.RM_TABLE 150FE000 Quickcell Page Header

  0000  00306EC4 C6C8E2D4 D8D7C840 7DC66011  C3F99982 8397A5F0 F1F011C4 C69989A3  *..>DFHSMQPH 'F-.C9rbc0* 150FE000
  0020  11C4F0F8 F5F1F9F7 F1F56D6D 6D6D6D6D                                      *.D08519715_____      * 150FE020

** DFHPD0101  Pointer to QPH at offset 0018 is invalid.
```

Examine the Storage

```
150FDCE0   C1D7C3D6   D4D4F3F1   150FDCF8   01000000   | APCOMM31...8.... |
150FDCF0   00000000   0C260000   C4C5F0F1   0000F1C5   | ........DE01..1E |
150FDD00   D7F0F140   4040C3D3   D5C3F5F3   F540C1F7   | P01   CLNC535 A7 |
150FDD10   F7F3F0F5   F840F6FF   D7260000   00000000   | 73058 6.P....... |
150FDD20 TO 150FDD5F (X'00000040' bytes)--All bytes contain X'00'
150FDD60   00000F00   00000000   00000000   00000000   | ................ |
150FDD70 TO 150FDDDF (X'00000070' bytes)--All bytes contain X'00'
150FDDE0   00000000   00000000   00F0F0F1   F3F0F1F1   | .........0013011 |
150FDDF0 TO 150FDE0F (X'00000020' bytes)--All bytes contain X'00'
150FDE10   00000000   00000000   00000000   D7C1D940   | ............PAR  |
150FDE20   40400000   00000000   00000000   00000000   |   ............. |
150FDE30 TO 150FDE7F (X'00000050' bytes)--All bytes contain X'00'
150FDE80   000400C4   C5F0F100   0800F0F8   61F0F261   | ...DE01...08/02/ |
150FDE90   F9F90008   00C3D3D5   C3F5F3F5   40000800   | 99...CLNC535 ... |
               .
               .
150FDF90   40404040   40404040   40404040   40404000   |                . |
150FDFA0 TO 150FDFFF (X'00000060' bytes)--All bytes contain X'00'
150FE000   00306EC4   C6C8E2D4   D8D7C840   7DC66011   | ..>DFHSMQPH 'F-. |
150FE010   C3F99982   8397A5F0   F1F011C4   C69989A3   | C9rbcpv010.DFrit |
150FE020   11C4F0F8   F5F1F9F7   F1F56D6D   6D6D6D6D   | .D08519715______ |
150FE030   6D6D11C5   D2F0F7F1   F9F9F911   C5E78100   | __.EK071999.EXa. |
150FE040 TO 150FE0DF (X'000000A0' bytes)--All bytes contain X'00'
150FE0E0   106B5188   150FE3F8   00000000   00000000   | .,.h..T8........ |
150FE0F0 TO 150FE12F (X'00000040' bytes)--All bytes contain X'00'
150FE130   00000000   00000000   106B5188   150FE4A8   | .........,.h..Uy |
```

The Culprit?

```
VERBX DFHPD410 'SM'


SCA.APCOMM31 106B5458 Subpool Control Area

   0000  C1D7C3D6 D4D4F3F1 106B5728 106B53A4  28010500 00000000 00000000 00000000  *APCOMM31.,...,.* 106B5458
   0020  00000000 00000000 00000000 00000000  00150D37 00000000 0014FD8C 00000000  *.............* 106B5478
   0040  00000000 00000000 00000000 00000000  106B54A8 106B54A8 00000000 00000000  *.........y...* 106B5498
   0060  1C39B6B0 1C255F80 7FFFFFFF 7FFFFFFF  00000049 0F9EA2E0 106B54D0 106B54D0  *......¬."...,.}* 106B54B8
   0080  00000000 00000000 FFFFFFF0 00104D02  02020000 00000000 006BA000 00621970  *..........0,..* 106B54D8
   00A0  00000000 006DE000 00000000 00000000  00000000                            *.....\.....   * 106B54F8

SCF.APCOMM31 1C39B6B0 Free Storage Descriptor

   0000  1C2E88D8 106B54B8 114860D0 00000030  106A26B8 00000000                   *..hQ.,....-}   * 1C39B6B0
            .
            .
            .
SCF.APCOMM31 1C3D3998 Free Storage Descriptor

   0000  1C34DF08 1C383950 150F8000 00000430  1C103CD0 00000000                   *.......&....   * 1C3D3998

SCF.APCOMM31 1C34DF08 Free Storage Descriptor

   0000  1C2E7DB8 1C3D3998 150F9BC0 00000440  1C103CD0 00000000                   *..'....q...{.  * 1C34DF08

SCF.APCOMM31 1C2E7DB8 Free Storage Descriptor

   0000  1C395D28 1C34DF08 150FDCE0 00000320  1C103CD0 00000000                   *..).........\.  * 1C2E7DB8

SCF.APCOMM31 1C395D28 Free Storage Descriptor

   0000  1C285D58 1C2E7DB8 15106190 000001B0  1C0D29F8 00000000                   *..)...'.../..  * 1C395D28
```

COMMAREA Problems

- **Difference in COMMAREA size specification between sending and receiving programs can result in many different types of overlays**
  - In the same region
  - In remote regions if COMMAREA is shipped

COMMAREA Problem Notes

Let's say the Linkage Section defines a 500 byte COMMAREA, but a program passes us a 100-byte COMMAREA.

Even though the COMMAREA in the Linkage Section is defined as 500 bytes, the area which we own is the 100 byte area that we were passed. If we then move 500 bytes, we will move 400 bytes that we don't own.

The real damage, though, can occur when we move data BACK INTO the Linkage Section definition of the COMMAREA.

There are 2 potential problems. Since we only own 100 bytes there, the move of a larger area (from a COMMAREA defined as 500 bytes in Working Storage, for example), will overlay anything past our 100 bytes in the Linkage Section COMMAREA. Often, a COBOL program's working storage can be adjacent to the linkage area, so we can overlay the first 400 bytes of working storage. But depending on what is in the storage adjacent to the 100-byte Linkage Section COMMAREA, the move can cause a wide variety of problems because of the overwrite.

A second problem can occur when the area we attempt to move data FROM in the Linkage Section actually overlaps the area we are trying to move data TO. This can happen when Working Storage resides next to the Linkage Section in storage and is called an "overlapping move", which in CICS R410 is not allowed. If an overlapping move is detected, it will not be performed and the COMMAREA will contain blanks. The program expecting a valid COMMAREA may experience unexpected results.

Storage Protection

CICS exploits the ESA/390(TM) subsystem storage protection facility in a way that enables you to prevent CICS code and control blocks from being overwritten accidentally by your user application programs. It does not prevent:

Deliberate overwriting of CICS code or control blocks. CICS cannot prevent a user application obtaining the necessary access key to modify CICS storage.

Application programs and data being overwritten by another application program, although programs can be protected if they are written to reentrant (1) and AMODE(31),RMODE(ANY) standards, because CICS loads these programs into read-only storage, if requested.

If an application program executing in user key attempts to modify CICS-key storage, a protection exception occurs. The protection exception is processed by normal CICS program error handling, and the offending transaction abends with an ASRA abend. The exception condition appears to the transaction just as if it had attempted to reference any other protected storage. CICS error handling checks whether the reference is to a CICS-key dynamic storage area (DSA), and sends a message (DFHSR0622) to the console. Otherwise, CICS does not treat the failure any differently from any other ASRA abend.

Command Protection

- **If you ask, CICS will overlay storage for you**
  - *EXEC CICS READ INTO(a CICS storage area)*
    - Corrupted CICS control blocks
  - *EXEC CICS READ SET(another transaction's area)*
    - Corrupted data, program or control blocks
  - *EXEC CICS RECEIVE INTO(0)*
    - Could crash CICS
- **CMDPROT={YES | NO }**
  - *Checks first byte of referenced target fields*
  - *ABEND AEYD if incorrect area is referenced*

Storage Violation Tools

- Messages
  - DFHSM0102/DFHSM0103

DFHSM0102 *applid* **A storage violation** (**code** x'*code*') **has been detected in module** *name* *'CODE'* **is the exception trace point that identifies the type of violation**

  - DFHSR0622

DFHSR0622 *applid* **An attempt to** {*overwrite*|*access*} **the** *dsaname* **has caused the abend which follows**

  - DFHSR0618

DFHSR0618 *applid* **An illegal macro call or reference to the CSA or TCA has caused the abend which follows**

  - DFHAP0001/DFHSR0001 produced for program checks; may be an indication of storage overlays

Storage Violation Tools

- SM0102/SM0103 dumps
- Trace
  - SM 0Cxx, SM 0Dxx, SM 0Exx, SM 0Fxx
  - SM 09xx - storage checker
  - Use a BIG trace
- CSFE DEBUG
  - CHKSTSK=CURRENT|ALL
    - Validates SCZs for task storage
    - **ALL** option is gone in CICS TS 1.3
  - CHKSTRM=ALL
    - Validates SAAs
  - Produces SM0103 dump
- DFHTRAP

Storage Violation Summary

- **Use the "Preventative" facilities**
  - Reentrant Program Protection
    - WRITE protects ALL programs linked as RENT
    - Independent from other 'preventative' facilities
    - NO performance impact
  - Storage Protection
    - Minimum level of protection between CICS key storage and USER key storage only
    - No inter-transaction protection
    - No performance impact
  - Command Protection
    - Stops the overlay before it happens
    - Run in test
    - .5% overhead
- **Fix problem applications!**
  - Suppressing the SM0102 dumps doesn't make the problem disappear!

eSupport Hints and Tips

- The URL for the CICS support page has changed
  - http://www-306.ibm.com/software/support
- The CICS Support Page has a new and improved look
- Non-CICS documents/APARs are not returned when searching the CICS support page
- Searches on IBMLink do not return the same results as searches on the CICS support page


IBM Software Support - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www-306.ibm.com/software/support/
Go Links
Country/region [select] | Terms of use
Search
Home | Products | Services & solutions | Support & downloads | My account
Sign in | Register
Software >
Software
Trials and betas
Support
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Library
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• ISVs
• Developers
• Warranty info
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→ Find support downloads
Product support pages A to Z
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
Important information
New acquisition 02 May, 2005
→ Ascential becomes an IBM company. Find support.
Tools Update 11 Apr, 2005
→ Our Electronic Service Request (ESR) tool has been enhanced to provide more functionality and ease of use.
Flash 13 May, 2005
Problems with WBI-FN Administration after installing DB2 PTF UQ90772
Flash 12 May, 2005
Broker hang due to ODBC Memory leak
Flash 12 May, 2005
IBM TotalStorage Productivity Center for Data 2.2 -- Flash
My support , for fast access to your favorite features
Support essentials
→ How to buy support
→ Passport Advantage
→ Support lifecycle
→ Support Handbook
Support feedback
Help us improve online software support
Translate my page
Select a language
→ Translate
Other support sites
→ DB2 Information Management
→ Lotus
Done
Internet

IBM eSuport and Service

- Find answers to your questions by searching through FAQS and Hints & Tips
- Submit and track problems (See our online help at www.ibm.com/software/support/help.html)
- Search for known problems in the APAR database
- Post a question on a discussion forum
- Download product updates, fixes and tools
- Access product publications, technical articles, white papers and Redbooks
- Collaborate online with IBM to solve a system problem (with Electronic Onsite Support)
- Personalize Support pages to create your own MySupport site

eSupport Search Hints and Tips

- Search terms are not case sensitive
- "AND" searches for all the words and is assumed
  - Shutdown hung
- "OR" searches for any of the words
  - hang OR hung
- "*" at the end of a search string can be used as a wildcard
  - dfhap1203*
- Quotes around a phase searches for an exact match
  - "unresettable event"
- "NOT" before a word excludes any items containing the word
  - websphere NOT studio
- Multiple search terms and special keywords may help narrow your search
  - kix* 5697e9300 r200 JVM "unresettable event" NOT pinned
- The advanced search page builds your search string for you
- Special words AND, OR, and NOT must be capitalized

eSupport Search Hints and Tips

- The advanced search page allows you to combine techniques. It builds a search string using Boolean logic. You can build such a string yourself in any keyword search box or let the advanced search pagedo it for you.
- Special keywords... to narrow down your search
- 564805400 (compid for CICS/TS 1.1.1)
- 568602601 (compid for CICS/VSE 2.3)
- R14X (Release for CICS/VSE 2.3)
- R14V (Release for CICS/VSE 2.3)
- RB0P (Release for CICS/TS 1.1.1)
- RCxx (Return Code xx)
- RSNxxx (ReaSoN code xxx)
- ABENDxxxx (Abend code xxxx)
- kixinfo (CICS information items)
- cpsmpddb (items for CPSM and other CICS tools)
- kixdcf* (items related to other products)
- kixdcfzos14 (items related to migration to zos 1.4...)
- Direct links to migration information based on the component or release of a product and CICS, z/OS, VSE...etc.. will be available in the future

SUMMARY

- The CICS Level 2 Support Center is ready and willing to help all our customers with their problems
- The biggest challenge to your problem resolution is ensuring the correct documentation is received
- The next toughest challenge is getting the documentation to the CICS Level 2 Support Center
- Storage Violation Analysis
- The CICS Product Support Center