

IPCS COMMANDS AND DISPLAYS

REMEMBER DFHPDnnn must be in the LINKLIST

To check in SDSF Enter :

/D PROG,LNKLST

Look for the HLQ.SDFHLINK dataset

DFHPD660 - CICS/TS 4.1

DFHPD670 - CICS/TS 4.2

DFHPD680 - CICS/TS 5.1

DFHPD690 - CICS/TS 5.2

DFHPD700 - CICS/TS 5.3

Select IPCS from the Main ISPF screen

Option 0 to change the Dump dataset name

- 0 DEFAULTS - Specify default dump and options
- 1 BROWSE - Browse dump data set
- 2 ANALYSIS - Analyze dump contents
- 3 UTILITY - Perform utility functions
- 4 INVENTORY - Inventory of problem data
- 5 SUBMIT - Submit problem analysis job to batch
- 6 COMMAND - Enter subcommand, CLIST or REXX exec
- T TUTORIAL - Learn how to use the IPCS dialog
- X EXIT - Terminate using log and list defaults

Option 1 from main menu

CURRENT DEFAULTS:

Source ==> DSNAME('SYS1.RSMA.DMP00036')

Address space ==> ASID(X'005C')

OVERRIDE DEFAULTS:

Source ==> DSNAME('SYS1.RSMA.DMP00036')

Hit Enter

On the POINTERS Menu

(in order to ensure its a CICS dump)

Enter S under PTR heading and 7000 under Address

DSNAME('SYS1.RSMA.DMP00036') POINTERS -----

Command ===>

ASID(X'005C') is the default address space

PTR	Address	Address space	Data type
00001	7000.	ASID(X'005C')	AREA

Remarks: Kernel Anchor Block

If this is a CICS Dump, then this should display the Kernel Anchor Block

ASID(X'005C') ADDRESS(7000.) STORAGE -----

Command ===>

00007000	05006EC4	C6C8D2C5	D2C3C240	40404040	..>DFHKEKCB	
00007010	00000000	1F000401	00000000	9F000A00	
00007020	00000000	9F001500	00000000	1F000800	
00007030	00000000	9F001700	00000000	9F001B00	

00007040 7F5F5F38 9F001500 00000000 1F002401 | ^^..... |

Either in IPCS option 6 or from any IPCS screen :

IP VERBX DFHPD680 'KE=1'

* * * * * CICS 6.8.0 - IPCS EXIT * * * * *

CICS680 OPERANDS:

KE=1

=== SUMMARY OF ACTIVE ADDRESS SPACES

ASID(hex):	JOBNAME:
005C	CICSTS51

-- DFHPD0121I FORMATTING CONTROL BLOCKS FOR JOB CICSTS51

ADDRESS SPACE ASID NUMBER (HEX) = 005C

=== DUMP SUMMARY

DUMPID: 1/0021

DUMPCODE: SM0102

DATE/TIME: 30/01/18 16:48:22 (LOCAL)

MESSAGE: DFHSM0102 CICSTS51 A storage violation (code X'0F0C') has been detected by module DFHSMAR.

SYMPTOMS: PIDS/5655Y0400 LVLS/680 MS/DFHSM0102 RIDS/DFHSMAR PTFS/GM01 PRCS/00000F0C

TITLE: (None)

CALLER: (None)

ASID: X'005C'

Code x'0F0C' indicates that the Storage Violation occurred at the end of the Transaction. The CICS Region name is : CICSTS51

First to the Kernale Domain Summary Table

===KE: Kernel Domain KE_TASK Summary

KE_NUM	KE_TASK	STATUS	TCA_ADDR	TRAN_#	TRANSID	DS_TASK	KE_KTCB	ERROR	TCB	CURRENT_PSW
0001	1F1F2000	KTCB Step	00000000			00000000	1F236038		008F8588 078D1000	80000000 00000000 1F06F2FC
0002	1F1F2680	KTCB QR	00000000			1F23AE00	1F239200		008FC240 070C0000	80000000 00000000 016947E6
0003	1F201000	KTCB RO	00000000			1F23AF00	1F238168		008FC470 078D1000	80000000 00000000 1F018578
0004	1F201680	KTCB FO	00000000			1F27EF00	1F2370D0		008FC6A0 078D1000	80000000 00000000 1F018578
0005	1F210000	Not Running	00000000			1F32D080	1F238168			
0006	1F210680	Not Running	1F488100	00032	CISR	1F3A0200	1F239200			
0007	1F21F000	KTCB L8000	00000000			1F364700	1F36CF68		008C2188 078D1000	80000000 00000000 1F018578
0008	1F21F680	Not Running	00000000			1F32D500	1F239200			

0009	1F22E000	***Running**	00000000			1F32D680	1F338F68		008BDE88	078D1000	80000000	00000000	1FCF31BA
000A	20482800	Not Running	1F489700	00034	CISM	1F3A0500	1F239200						
000B	1F41E800	KTCB SO	00000000			1F364900	1F371F68		008CD3E0	078D1400	80000000	00000000	1F018578
000C	2043C100	Not Running	1F489100	00035	CISP	1F3A0680	1F239200						
000D	2043C800	Not Running	1F48A700	00732	CSSY	1F3A0800	1F239200						
000E	203F7100	Not Running	1F485700	00004	CSOL	1F32D980	1F36FF68						
000F	20837100	Not Running	1F48D100	00987	CONL	1F3A0C80	1F239200						
0010	2041A100	Not Running	1F487100	00007	CSSY	1F32DE00	1F239200						
.													
.													
.													
0038	203AE800	Unused											
0039	203BD100	Unused											
003A	203BD800	Unused											
003B	203CC100	***Running**	00000000			1F3EC080	1F239200		008FC240	070C0000	80000000	00000000	016947E6
003C	203CC800	Unused											
0040	20482100	Not Running	1F488700	00024	CSNC	2BC39500	1F239200						

The KE_NUM is the TASENTRY and this is the representation of the Task to the KERNEL Domain

Scroll down to

KE_NUM	@STACK	LEN	TYPE	ADDRESS	LINK	REG	OFFSET	ERR	NAME
003B	203CD040	01E0	Bot	1F003C00	9F004230	000630			DFHKETA
003B	203CD220	03E0	Dom	1F0203C8	9F02060C	000244			DFHDSKE
003B	203CD600	1130	Dom	1F0541E0	9F0562DA	0020FA			DFHXMTA
003B	203CE730	04B0	Dom	1F040148	1F042D01	002BB9			DFHSMAR
			Int	+000B0A	1F040336	0001EE			RELEASE_TRANSACTION_STG
			Int	+000E26	1F040DD8	000C90			DELETE_SUBPOOL
			Int	+000EBA	1F040F7C	000E34			DELETE_SUBPOOL_ELEMS
			Int	+0024C8	1F0410CA	000F82			STORAGE_CHECK_FAILURE
003B	203CEBE0	1290	Dom	1F0A9558	1F0ADFA5	004A4D			DFHMEME
			Int	+003D82	1F0A9842	0002EA			SEND
			Int	+001840	1F0AD3C2	003E6A			CONTINUE_SEND
003B	203CFE70	06F0	Dom	1F168EA0	9F16A9C8	001B28			DFHDUDU
			Int	+000C6C	9F1690B2	000212			SYSTEM_DUMP
			Int	+001AE6	9F169F26	001086			TAKE_SYSTEM_DUMP

So 003B is the TASENTRY of the offending Task

Next :

IP VERBX DFHPD680 'TR=3'

Search for : *EXC (remember this *EXC entry will be placed into the Trace Table even if the Trace is turned off)

XM QR SM 0F0C SMAR *EXC* Storage_check_failed_at_address 2053D170 RELEASE_TRANSACTION_STG
=003216=

Failed Storage Address : 2053D170 (note this down)

Now take the Trace Link number : =003216= and find this in the Extended trace

```
TASK-XM KE_NUM-003B TCB-QR /008FC240 RET-9F0562DA TIME-16:48:21.4564115161 INTERVAL-00.0000040625 =003216=  
1-0000 00280000 000000D1 00000000 00000000 B0000000 00000000 02000100 00000000 *.....J.....*  
0020 00000000 00000000 *.....*  
2-0000 2053D170 *..J.*  
3-0000 00000060 *...-*  
4-0000 E4F0F0F0 F2F8F4F9 00000000 00000000 00000000 00000000 00000000 *U0002849.....*  
0020 00000000 00000000 00000000 00000000 *.....*
```

```
5-0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
0020 00000000 00000000 FFFFFFFF F2F8F4F9 *.....2849 *
```

Make sure that you confirm the Tasentry number 003B and the Failed Storage Address at number : 2

Now we know the Task number of the transaction : 0002849

Recall that the first letter indicates the DSA that the Storage Areas was Getmain from :

- M = CDSA = below the Line
- B = UDSA = below the Line
- C = ECDSA = Above the Line
- U = EUDSA = Above the Line

(check the CICS/TS TRACE ENTRIES manual for SM 0F0C layout)

Now to the STORAGE MANAGER Domain

IP VERBX DFHPD680 'SM=3'

issue F DFHSMANC (check you can find the Storage Manager Anchor Block - DFHSMANCHOR

0000 05006EC4 C6C8E2D4 C1D5C3C8 D6D94040 1F336400 1F210F00 1F21FD00 1F23AB00 *..>DFHSMANCHOR*

Now find the Storage areas associated with this Task

F SCA.U0002849

SCA.U0002849 1F357CE0 Subpool Control Area

0000 E4F0F0F0 F2F8F4F9 1F23A504 1F35774C 28010A00 00000000 00000000 00000000 *U0002849..v....<.....*

0020 00000000 00000000 00000000 00000000 00000003 00000000 00000000 00000000 *.....*

0040 00000000 00000000 00000000 00000000 00000000 1F357D30 00000000 1F357D30 *.....'.....'..*

0060 00000050 40708770 00000050 407060B0 00000000 00000000 00000050 40708800 *...& .g....& .-.....& .h.*

0080 00000050 40708800 7FFFFFFF 7FFFFFFF 00000000 1F22EE80 00000000 00000000 *...& .h."...".....*

00A0 FFFFFFFF0 000F0001 01020004 00000000 00010000 0000D1D0 00000000 00010000 *...0.....J}.....*

00C0 1F3E94A4 00000000 00000000*.mu.....*

SCE.U0002849 00000050_40708770 Storage Element Descriptor

```

0000 00000050 40707BF0 00000000 1F357D40 2053D170 00000060 1F336F80 00000000 *...& .#0.....' ..J....-..?.....*
0020 D3D116A1 FF384642 0002849C E5C9D6D3 *LJ.....d.VIOL *
```

The Storage Control Element (SCE) manages each task's Getmain

Our Violation address : 2053D170 Length of Storage returned 00000060 (decimal 96 (80 requested and 16 for the two 8 byte Storage Check Zones))

Now back to our Browse menu :

Specify R on 00001 to create another entry

DSNAME('SYS1.RSMA.DMP00036') POINTERS -----

Command ==>

ASID(X'005C') is the default address space

PTR	Address	Address space	Data type
00001	7000.	ASID(X'005C')	AREA
Remarks: Kernel Anchor Block			
S0002	2053D170.	ASID(X'005C')	AREA

Remarks: Storage Violation error

Select this Storage Address

ASID(X'005C') ADDRESS(2053D170.) STORAGE -----

Command ==>

2053D170 E4F0F0F0 F2F8F4F9 00000000 00000000 | U0002849..... |

2053D180.:2053D1BF. LENGTH(X'40')--All bytes contain X'00'

2053D1C0 00000000 00000000 FFFFFFFF F2F8F4F9 |2849 |

The above storage lists our storage address for X'60' bytes

Now let us find the Transaction name :

The Transaction Manager Domain is the entry and exit for Terminal Attached Transactions

IP VERBX DFHPD680 'XM=1'

==XM: TRANSACTION SUMMARY

The TxdAddr is the representation of the Task to the Transaction Manager Domain

Tran id	Tran num	TxnAddr TxdAddr	Start code	Sys Tran	Status	DS token	Facility type	Facility token	AP token	PG token	XS token	US token	RM token	SM token	MN token
CSOL	00004	1F409500	C	Yes	ACT	000C0003	None		1F485700	00000000	00000000	00000000	2040A030	1F3E9064	FF51E600
		1F49FDB0							00000000	1F4FB150	00000000	00000000	2040A158	00000000	00000000
CEPM	00005	1F409700	C	Yes	ACT	008C0003	None		1F486100	00000000	00000000	00000000	2040A698	1F3E90A8	FF51EB00
		1F49FED0							00000000	1F4FB1E0	00000000	00000000	2040A7C0	00000000	00000000
CSSY	00006	1F409900	C	Yes	ACT	00040003	None		1F486700	00000000	00000000	00000000	2042F030	1F3E90EC	FF51F100
		1F49F030							01050000	1F4FB270	00000000	00000000	2042F158	00000000	00000000
CSSY	00007	1F409B00	C	Yes	ACT	00120003	None		1F487100	00000000	00000000	00000000	2042F698	1F3E9130	FF51F600
		1F49F030							01050000	1F4FB300	00000000	00000000	2042F7C0	00000000	00000000

```
CSTP 00009 1F409D00 C    Yes  ACT      00840003 None          1F484700 00000000 00000000 00000000 1F40E698 1F31F020 FF51FB00
      1F49F270          01000000 1F4FB030 00000000 00000000 1F40E7C0 00000000 00000000
```

```
.
.
.
VIOL 02849 20481700 T    No   ACT      03000409 None          00000000 00000000 00000000 00000000 00000000 1F3E94A4 FF526600
      20784270          008C0000 00000000 00000000 00000000 00000000 00000000 00000000
```

We know the Task number from the Trace : 0002849, so the offending Transaction Id is VIOL

Now let us find the Program name that this Transaction is invoking :

So to the PCT

IP VERBX DFHPD680 'PCT=2'

F VIOL

TXDINST.VIOL 20784270 TXD current instance

```

Definetime 2018/01/24 21:31:24   Definesource COLIN
Changetime 2018/01/24 21:31:24   Changeusrid CICSUSER   Changeagent CSDAPI       Changeagrel 0680
Installtime 2018/01/24 21:32:02   Installusrid CICSUSER   Installagent CSDAPI

0000 01206EC4 C6C8E7D4 E3E7C4C9 D5E2E340 E5C9D6D3 20791500 00000000 20784270 *..>DFHXMTXDINST VIOL.....*
0020 0000010C 00000002 80020000 00000000 00000000 2078CA08 0000010D 00000000 *.....*
0040 00000000 00000001 2044CAC0 00000000 00000000 00000000 00000000 00000000 *.....{.....*
0060 C3C9C3E2 E5C9D6D3 C4C6C8C3 C9C3E2E3 00000000 02010101 00000000 00000000 *CICSVIOLDFHCICST.....*
0080 01010101 00000000 00000000 02020202 00000000 00000000 00000000 00000000 *.....*
00A0 00000000 00000000 02020202 00000000 00000000 02020201 01020100 40404040 *.....*
00C0 40404040 02000000 00000000 C3D6D3C9 D5404040 D3C9CAB5 7B9C1141 D3C9CAB5 * .....COLIN LI..#...LI..*
00E0 7B9C1141 C3C9C3E2 E4E2C5D9 0001F0F6 F8F0D3C9 CADA33D6 6643C3C9 C3E2E4E2 *#...CICSUSER..0680LI...O..CICSUS*
0100 C5D90001 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *ER.....*

```

So the Program is CICSVIOL (of course we could logon to this CICS region and issue CEMT INQ TRAN(VIOL))

Lets find the statement in the Program from where the Getmain was issued.

The LOADER Domain has all the Programs and their storage addresses

IP VERBX DFHPD680 'LD=1'

PROGRAM STORAGE MAP

PGM NAME	ENTRY PT	CSECT	LOAD PT.	REL
----------	----------	-------	----------	-----

CICSVIOL	A1810E70	-noheda-	21810E70	
----------	----------	----------	----------	--

So now we know the Program's Load and Entry point addresses

So back to the Trace :

IP VERBX DFHPD680 'TR=3'

F *EXC

So this is again where CICS found the Storage Violation. Recall this entry :

XM	QR	SM 0F0C SMAR	*EXC*	Storage_check_failed_at_address	2053D170	RELEASE_TRANSACTION_STG
----	----	--------------	-------	---------------------------------	----------	-------------------------

So recall that the Getmain in the program asked for 80 bytes, so we must ignore the first 8 bytes and concentrate on the address

2053D178

So when the GETMAIN was passed to the EXEC INTERFACE, this was the address returned before the two 8 byte SCZs were attached

So F 2053D178 Prev

02849 QR SM 0C02 SMMG EXIT GETMAIN/OK 2053D178
=003076=

Make sure you have the correct task number

Now find the associated Trace Link number =003076= in the Extended trace

TASK-02849 KE_NUM-003B TCB-QR /008FC240 RET-200561A3 TIME-16:48:21.4557486411 INTERVAL-00.0000043125 =003076=

31A

So now to the COBOL Compile Listing, ensure it has been compiled with OFFSET in the Compile JCL Parm

LINEID	HEXLOC	VERBCODE	LINEID	HEXLOC	VERBCODE	LINEID	HEXLOC	VERBCODE
000152	0001A4	CALL	000161	0001D2	MOVE	000162	0001D8	CALL
000175	0002CC	MOVE	000176	0002D2	CALL	000186	00031E	MOVE
000187	000324	MOVE	000188	000330	CALL	000192	00036E	MOVE
000193	000376	MOVE	000197	000394	MOVE	000198	00039C	CALL
000207	00042C	MOVE	000208	000438	CALL	000218	00048A	MOVE
000219	000490	MOVE	000220	00049C	CALL	000225	0004DA	CALL
000228	000500	GOBACK						

The OFFSET listing is read Left to Right, Top to Bottom

Now look for a HEXLOC that is just lower the 31A

and we find LINEID : 000176

```
000171      *EXEC CICS GETMAIN SET(ADDRESS OF LS-STORAGE-AREA)
000172      *      INITIMG(LOWVALUES)
000173      *      FLENGTH(80)
000174      *END-EXEC.
000175      Move 80 to dfhb0040                                00880000
000176      Call 'DFHEI1' using by content x'0c02b000070000cc00f0f0f0f5f1
```

Here is the full COBOL source of CICSVIOL

IDENTIFICATION DIVISION.

*

PROGRAM-ID. CICSVIOL

*

* PROGRAM CICSVIOL

* FUNCTION TO GENERATE A STORAGE VIOLATION

*

*

ENVIRONMENT DIVISION.

*

DATA DIVISION.

*

WORKING-STORAGE SECTION.

*

01 CC-CONSTANTS.

05 CC-VIOL PIC X(4) VALUE 'VIOL'.

05 CC-ABOUT-TO-CORRUPT-MSG PIC X(35) VALUE
'ABOUT TO CORRUPT STORAGE CHECK ZONE'.

05 CC-COMPLETE-MSG PIC X(32) VALUE

'STORAGE CORRUPTION HAS BEEN DONE'.

*

01 WS-NUMERICS.

05 WS-RAWTIME PIC S9(15) COMP-3.

05 WS-INDEX PIC S9(4) COMP.

05 LOWVALUES PIC S9(4) COMP.

01 WS-STORAGE-AREA.

05 WS-OUTPUT-TIME PIC X(8).

*

LINKAGE SECTION.

*

01 DFHCOMMAREA.

05 FILLER PIC X.

01 LS-STORAGE-AREA.

05 LS-STORAGE-AREA-ITEM PIC X(4) OCCURS 22 TIMES.

*

PROCEDURE DIVISION.

*

EXEC CICS ASKTIME

ABSTIME(WS-RAWTIME)

END-EXEC.

*

EXEC CICS FORMATTIME

ABSTIME(WS-RAWTIME)

TIMESEP(' : ')

TIME(WS-OUTPUT-TIME)

END-EXEC.

*

EXEC CICS GETMAIN SET(ADDRESS OF LS-STORAGE-AREA)

INITIMG(LOWVALUES)

FLENGTH(80)

END-EXEC.

*

EXEC CICS WRITEQ TD

 QUEUE('CSML')

 FROM(CC-ABOUT-TO-CORRUPT-MSG)

 NOHANDLE

END-EXEC.

*

MOVE 21 TO WS-INDEX.

MOVE HIGH-VALUES TO LS-STORAGE-AREA-ITEM(WS-INDEX).

 MOVE HIGH-VALUES TO LS-STORAGE-AREA-ITEM(WS-INDEX).

*

EXEC CICS SEND CONTROL CURSOR(160)

END-EXEC.

EXEC CICS SEND

 FROM(CC-COMPLETE-MSG)

END-EXEC.

*

EXEC CICS WRITEQ TD

 QUEUE('CSML')

 FROM(CC-COMPLETE-MSG)

NOHANDLE

END-EXEC.

*

EXEC CICS RETURN END-EXEC

GOBACK.