



DFSMSHsm dump analysis for quick problem resolution

## Contents

This presentation:

- reviews DFSMShsm dump options
- discusses information contained in the dump title
- summarizes DFSMShsm ABEND messages
- provides a brief dump analysis technique

This presentation reviews configuration options within DFSMShsm for dumps,. It discusses how the dump title can identify the type of dump that was captured. It summarizes information contained in DFSMShsm ABEND messages which may accompany a dump. And, it provides a short dump analysis technique to determine the owner of the code which produced the dump.

Understanding this information may help to quickly locate existing solutions for both IBM and non-IBM products, and allow routing of problems to the most appropriate support organization for further analysis. This can lead to shorter times in problem resolution.

## DFSMShsm dump options

- SETSYS SYS1DUMP | NOSYS1DUMP commands
- SDUMP
  - ▶ SETSYS SYS1DUMP
  - ▶ SYS1.DUMP data set
  - ▶ IPCS used to format dump
- SNAP
  - ▶ SETSYS NOSYS1DUMP
  - ▶ SYSABEND, SYSUDUMP or SYSMDUMP DD
  - ▶ SYSMDUMP requires IPCS
  - ▶ SYSABEND/SYSUDUMP formatted

The SETSYS SYS1DUMP and NOSYS1DUMP commands control whether DFSMShsm uses the SDUMP or SNAP system macros to request a dump when errors in the program are detected. Specifying SETSYS SYS1DUMP is highly encouraged as it produces the preferred dump output.

The SDUMP macro is used when there is an error in DFSMShsm and the SETSYS SYS1DUMP command has been specified. This will result in a dump captured to a system dump data set. Pre-allocated system dump data sets commonly begin with SYS1.DUMPxx, but dynamically allocated system dump data sets may have a different naming convention. SDUMPs are not formatted and thus require IPCS for analysis.

A SNAP macro is used when there is an error in DFSMShsm and the SETSYS NOSYS1DUMP command has been specified. This will result in a dump captured to the SYSABEND, SYSUDUMP, or SYSMDUMP DDs which are specified in DFSMShsm's startup procedure. A SYSMDUMP is unformatted and requires IPCS for analysis. A SYSABEND or SYSUDUMP is formatted.

## DFSMSHsm dump types

- Typical dump titles are:

- ▶ ABEND Dump

```
ARCBUDS TASK ABENDED CODE=840C4000 IN MODULE  
ARCDATAM AT OFFSET=34CE STORAGE LOCATION=A7E174CE
```

- ▶ ARCERP Dump

```
HSM MODULE ARCPMWE ERROR CODE=0052 TYPE=SNAP
```

- ▶ SLIP Dump

```
SLIP DUMP ID=HSM2
```

- ▶ COMM Dump

```
HSM HUNG AGAIN ON SYS3
```

The title of a dump can indicate the type of dump that has been captured.

Abend dumps are typically taken after the program's ESTAI has received control and established its title. In most cases, the titles of these dumps will closely resemble the text of message ARC0003I or ARC6035I, which is discussed in the following slide.

ARCERP Dumps are taken by DFSMSHsm error processing module ARCERP. Their titles closely resemble the text of message ARC0200I. These dumps are taken when a DFSMSHsm module detects an error serious enough to warrant taking a dump. Note that the installation can use the DFSMSHsm TRAP command to request a dump for an error condition where the default action is only to issue a message.

SLIP Dumps are created when a SLIP, typically provided by Level 2, matches a certain condition. The ID assigned in the SLIP appears in the title.

COMM Dumps are created when the System Operator issues the MVS DUMP command. The operator assigns the title to the dump.

The dump titles and types can help you to identify the reason a dump was captured and thus the corrective actions you may need to take.

## ARC0003I and ARC6035I messages

- DFMSMShsm Address Space:

```
ARC0003I taskname TASK ABENDED, CODE ffsssuuu IN MODULE  
modname AT OFFSET offset, STORAGE LOCATION location.
```

- DFMSMShsm ABARS Address Space:

```
ARC6035I taskname TASK ABENDED, CODE ffsssuuu IN MODULE  
modname AT OFFSET offset, STORAGE LOCATION location.
```

The ARC0003I and ARC6035I messages indicate that a task processing within the DFMSMShsm address space abended.

An ABEND that occurs in the DFMSMShsm Address Space will be indicated by an ARC0003I message.

An ABEND that occurs in the DFMSMShsm ABARS Address Space will be indicated by an ARC6035I message.

Searching the IBMLink knowledge base using key strings from these messages can help locate available fixes. If a matching fix is not found in the IBMLink knowledge base, review the module name that is reported in the message.

For dumps with reported module names which begin with the letters A R C, preserve the dump and contact the DFMSMShsm Level 2 organization for further analysis. Additionally, non-program interrupt type abends should also be referred to DFMSMShsm level 2 at this point. Examples of these non-program interrupt abends are ABENDB37 or ABEND138.

When the reported module name does not begin with the letters A R C, a different support organization within IBM may be better suited to analyze the dump. A search in IBMLink using only the module name may reveal the owner of the module.

If the reported module name indicates UNKNOWN, you can perform a quick analysis of the dump which may identify the owner of the abending code.

## Module unknown ABENDs

```
ARC0003I taskname TASK ABENDED, CODE ffssuuu IN MODULE  
UNKNOWN AT OFFSET offset, STORAGE LOCATION location.
```

The ABEND above occurred outside of the ARCCTL load module.

```
ARC6035I taskname TASK ABENDED, CODE ffssuuu IN MODULE  
UNKNOWN AT OFFSET offset, STORAGE LOCATION location.
```

The ABEND above occurred outside of the ARCWCTL load module.

If you receive an ARC0003I or ARC6035I message that indicates module UNKNOWN, the ABEND occurred outside of the ARCCTL or ARCWCTL load module, respectively.

Save the storage location reported in the message and then review the dump. The next slide assumes that the dump is IPCS-compatible and you are familiar with IPCS.

# DUMP analysis

ASID (X'0070')	ADDRESS (16EA70.)	STORAGE
0016EA70	00000000	00000000 47F0F026 20D4D6C4
0016EA80	D5C1D4C5	40F0F861 F0F961F0 F4C8C4E9
0016EA90	F1F1D1F0	40D6C1A7 A7A7A7A7 404090EC
0016EAA0	D00C18CF	18815890 801847F0 C0B2D5D6
0016EAB0	D5C5B8F0	F461F0F8 61F0F5B8 F1F94BF1
0016EAC0	F38BF5F6	F9F460C1 F0F140C3 D6D7E8D9
0016EAD0	C9C7C8E3	40C9C2D4 40C3D6D9 D74B40F1
0016EAE0	F9F6F1B8	40F2F0F0 F44B4040 D3C9C3C5
0016EAF0	D5E2C5C4	40D4C1E3 C5D8C9C1 D3E24080
0016EB00	40D7D9D6	D7C5D9E3 E840D6C6 40C9C2D4
0016EB10	4B4040C1	D3D340D9 C9C7C8E3 E240D9C5
0016EB20	E2C5D9E5	C5C44B40 40009102 80024780
0016EB30	C0C69101	80034710 C1349601 800395C3
0016EB40	80004780	C0DA95C4 80004780 C0DA47F0
0016EB50	C230D501	8004C850 4740C238 D2018006
0016EB60	C852D501	80088004 47B0C240 D501800A
0016EB70	C8544740	C248D501 800A8004 4740C248
0016EB80	D201800C	C8525810 801045A0 C12A47F0
0016EB90	C2505810	801445A0 C12A47F0 C25847F0
0016EBA0	C134BD1F	C828074A 47FA0004 95C38000
0016EBB0	4780C140	47F0C1E4 45A0C1BA D5019008
0016EBC0	C8564740	C15C47F0 C294D501 9008900A

```

.....00..MOD
NAME 08/09/04HDZ
11J0 0Axxxxxx ..
}....a....0{.NO
NE,04/08/05,19.1
3,5694-A01 COPYR
IGHT IBM CORP. 1
981, 2004. LICE
NSED MATERIALS -
PROPERTY OF IBM
. ALL RIGHTS RE
SERVED. .j....
    
```

Using the failing instruction address reported in the ARC0003I or ARC6035I messages, use the IPCS BROWSE function to view that location in storage. Ensure the browsed ASID is the correct DFSMSshm or DFSMSshm ABARS address space number.

Once at the storage location, page up until you find the EBCDIC module identifier. Once there you can use the failing instruction address and the address of the module identifier to compute an approximate offset. A search using the ABEND code, module name, and offset should produce information regarding existing resolutions if they exist.

The copyright statements may help identify the owner of the module. If the code does not appear to be provided by IBM, searching knowledge bases provided by the module's owner may produce additional results.

If knowledge base searches do not lead to a resolution, contact the module owner's support organization for further analysis of the dump.

## Documentation reference

For information regarding DFSMShsm dump options, see

*z/OS® DFSMS™ Storage Administration Reference (for DFSMShsm, DFSMSdss™, DFSMSdfp™)* (SC26-7402):

<http://www.ibm.com/support/docview.wss?uid=pub1sc26740201>

For more information on system dump data sets, see

*z/OS MVS System Commands* (SA22-7627)

<http://www-1.ibm.com/support/docview.wss?uid=pub1sa22762701>

For information on using IPCS, see

*z/OS V1R8.0 MVS IPCS User's Guide* (SA22-7596)

<http://www-1.ibm.com/support/docview.wss?uid=pub1sa22759601>

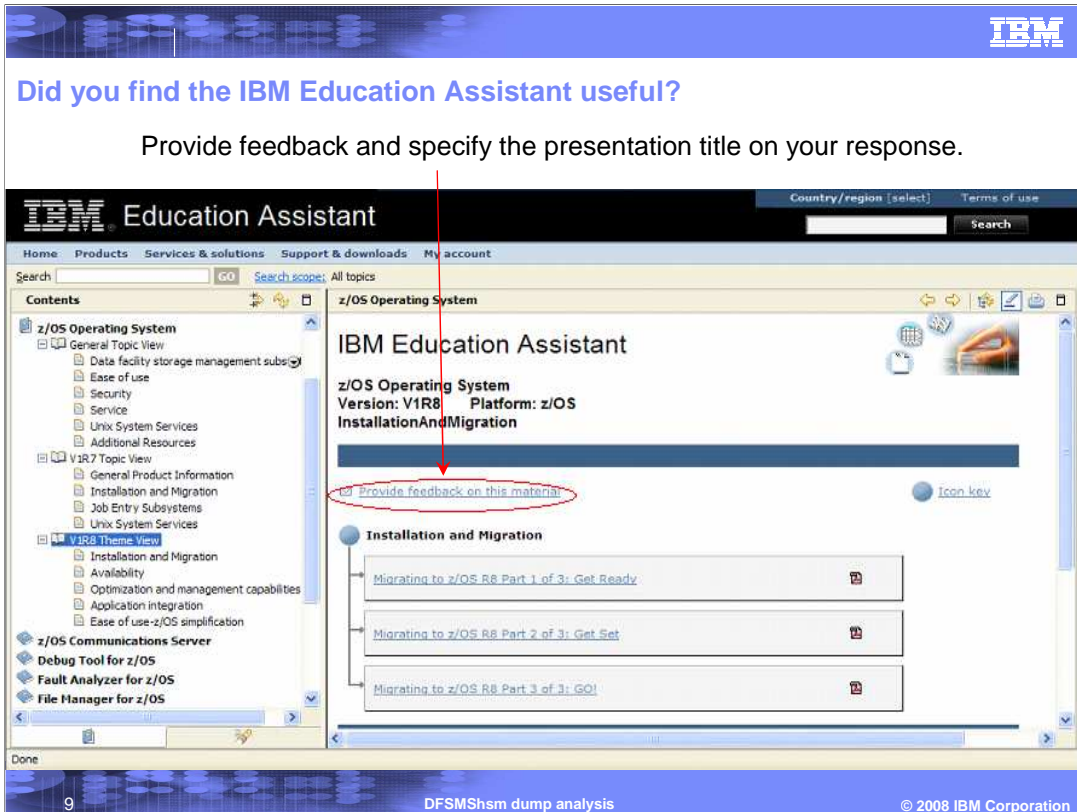
The following documentation references are provided for details on dumps and dump analysis.

*z/OS DFSMS Storage Administration Reference (for DFSMShsm, DFSMSdss, DFSMSdfp)*

*z/OS MVS System Commands*

*z/OS V1R8.0 MVS IPCS User's Guide*





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