z/OS

Documentation Updates for APAR OA48570 and OA48571: High-frequency throughput statistics (HFTS)

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About this information

This document provides specific updates for certain publications in the z/OS® product library, as required by APARs OA48570 and OA48571. Each part of this document pertains to a different publication affected by the APARs. The information in each part consists of pages excerpted from the upcoming editions of the respective publications.

Technical updates are indicated by a vertical bar to the left of the change. (You might also notice revision bars for other unrelated technical updates that occur in the vicinity of the updates for these APARs.)

Currency of this information: These updates appear in the next editions of the official publications, which are scheduled to be published in September 2016. Thereafter, the information in the official publications supersedes the information in this APAR document. If you are reading this APAR document after September 2016, refer instead to the official publications for the most recent information. You can find the official publications in the z/OS Internet Library (http://www.ibm.com/systems/z/os/zos/library/bkserv/).

The following publications are updated for the APARs:

- Part 1, "Updates for z/OS MVS Initialization and Tuning Reference," on page 1
- Part 2, "Updates for z/OS MVS System Management Facilities (SMF)," on page 3
- Part 3, "Updates for z/OS MVS System Messages, Vol 8 (IEF-IGD)," on page 5
- Part 4, "Updates for z/OS MVS System Codes," on page 7
- Part 5, "Updates for z/OS MVS Diagnosis: Reference," on page 9

Part 1. Updates for z/OS MVS Initialization and Tuning Reference

This part contains updates to the information in *z/OS MVS Initialization and Tuning Reference* (SA23-1380).

The HFTSINTVL parameter has been added to the SMFPRM*xx* member of parmlib.

Chapter 81. SMFPRMxx (system management facilities (SMF) parameters)

The SMFPRMxx member allows you to control how system management facilities (SMF) works at your installation. You can use SMFPRMxx parameters to accomplish the following tasks:

- Identify the system on which SMF is active.
- Specify global values for interval recording and synchronization that SMF, RMF, and other requesters can use to schedule the execution of their interval functions.
- Specify the data sets or log streams to be used for SMF recording.
- Allow compression of SMF data before recording to log streams.
- Specify the system identifier to be used in all SMF records.
- Select the SMF record types and subtypes SMF is to generate.
- Allow the operator to change the SMF parameters that are established at IPL.
- Specify the job wait time limit.
- Specify whether SMF is to invoke installation-supplied SMF exit routines.
- Specify whether the SMF dump program is to attempt to recover from abends.
- Specify the system response when SMF has used all of the buffered storage in its address space and is recording on data sets.
- Specify the system response when the last SMF data set is filled and no other data sets are available for use.
- Specify the amount of real time that SMF allows data to remain in an SMF buffer before it is written to a recording data set or a log stream.
- Specify the installation default MEMLIMIT.
- Specify whether only registration data and not usage data is to be recorded when using the IFAUSAGE macro.
- Specify valid user exists for the IFASMFDP and IFASMFDL programs.
- Specify whether to suppress empty execute channel program (EXCP) using the EMPTYEXCPSEC parameter.
- Specify whether SMF record flood support is active and the filter for the SMF record flood.
- Specify whether SMF is to generate digital signatures for records recorded to log streams.
- Specify whether SMF is to record records to in-memory resources for real-time analysis.
- Specify whether SMF is to record high-frequency throughput statistics.

Note: If you specify that SMF is to record on data sets, the SMF data sets must be cataloged on DASD. If there are no data sets for SMF to use, SMF buffers data until you specify a data set for SMF to use. If SMF runs out of buffers, there might be a loss of data.

You can specify SMF parameters in several ways:

- Before the first IPL of a newly generated system by creating an SMFPRMxx parmlib member.
- At each initialization of SMF by entering the parameters at the console.

Syntax format of SMFPRMxx

```
INTVAL(mm)

SYNCVAL(mm)

ACTIVE | NOACTIVE

RECORDING(DATASET|LOGSTREAM)

DEFAULTLSNAME(logstreamname
              [,NOBUFFS(HALT|MSG)]
              [,BUFUSEWARN(nn)]
              [,DSPSIZMAX(nnnnM|nG)]
              [,NOCOMPRESS|COMPRESS[(PERMFIX(nnnnM))]]
              [,NORECSIGN|RECSIGN(HASH(SHA1|SHA256|SHA384|SHA512),
                                  SIGNATURE(RSA|ECDSA),
                                  TOKENNAME(tokenname))])
LSNAME(logstreamname,TYPE{(aa,bb)|(aa,bb:zz)|(aa,bb:zz,...)}
       [,NOBUFFS(HALT|MSG)]
       [,BUFUSEWARN(nn)]
       [,DSPSIZMAX(nnnnM|nG)]
       [,NOCOMPRESS|COMPRESS[(PERMFIX(nnnnM))]]
       [,NORECSIGN|RECSIGN(HASH(SHA1|SHA256|SHA384|SHA512),
                           SIGNATURE(RSA|ECDSA),
                           TOKENNAME(tokenname))])

INMEM(rname,RESSIZMAX({nnnnM|nG}),{TYPE({aa,bb|aa,bb:zz|aa,bb:zz,...})|
                                   NOTYPE({aa,bb|aa,bb:zz|aa,bb:zz,...})}

DSNAME(dataset)

LISTDSN | NOLISTDSN

SID {(xxxx)                       }
    {(xxxx,SYSNAME(sysname))      }
    {(xxxx,ser#[,ser#...])        }
    {(xxxx,COMBIN(ser#[,ser#...]))}

REC(PERM|ALL)

NORECSIGN | RECSIGN(HASH(SHA1|SHA256|SHA384|SHA512),
                    SIGNATURE(RSA|ECDSA),
                    TOKENNAME(tokenname))

MAXDORM(mmss) | NOMAXDORM

MEMLIMIT({NOLIMIT})
         {nnnnnM }
         {nnnnnG }
         {nnnnnT }
         {nnnnnP }

EMPTYEXCPSEC(NOSUPPRESS|SUPPRESS)

HFTSINTVL(ss)|NOHFTSINTVL
```

The second filter for record type 102 is a two-part filter. The first part that issues the warning message, IFA780A, is triggered when 5000 records are generated in less than 1 second, and records continue to be generated at that rate for more than 15 consecutive 1-second intervals. The flood state ends when fewer than 5000 records are generated in at least 10 seconds. Message IFA781I is issued when the flood ends. If the flood state persists, the DROP filter becomes active so that if 5000 type-102 records are generated within 1 second over more than 15 consecutive 1-second intervals, message IFA782A is issued and records are dropped. Records stop being dropped once fewer than 5000 type 102 records are generated in at least 5 seconds. Message IEFA7831 is issued when the flood state for dropping records ends.

HFTSINTVL(*ss*)|NOHFTSINTVL
The HFTSINTVL parameter specifies the time interval, in seconds, for writing SMF type 98 records, which record high-frequency throughput statistics (HFTS).

The supported values are 5, 10, 15, 20, 30, and 60 seconds. For instance, HFTSINTVL(20) indicates that SMF type 98 records are to be written every 20 seconds. IBM suggests a HFTSINTVL value of 20 seconds.

When you specify a HFTSINTVL value, SMF type 98 records are collected every five seconds for one minute each hour, at 0, 15, 30, and 45 minutes past the hour.

The NOHFTSINTVL parameter disables the HFTS interval and prevents the collection of type SMF type 98 records. This is the default value.

SMF collects type 98 records only when both the HFTSINTVL parameter and TYPE(98) parameter are specified. Specifying NOHFTSINTVL along with TYPE(98) allows you to disable the collection of type 98 records without changing the TYPE setting.

SMF type 98 records can produce a large volume of data because they are written more frequently. Instead of writing type 98 records to the same data set or logstream as other SMF records, consider writing the type 98 records to a separate logstream to avoid SMF data set or logstream full conditions.

Default: NOHFTSINTVL

Value range: 5, 10, 15, 20, 30, and 60 seconds

INMEM
Defines an in-memory resource to record SMF records in memory for real-time processing.

Note: The system supports a maximum of 32 in-memory resources at any time.

The syntax for the INMEM parameter is:

```
INMEM(rname,RESSIZMAX({nnnnM|nG}),{TYPE({aa,bb|aa,bb:zz|aa,bb:zz,...})|
                                   NOTYPE({aa,bb|aa,bb:zz|aa,bb:zz,...})}
```

You must specify the following subparameters for INMEM:

rname
Name of the in-memory resource. The resource name must begin with

Part 2. Updates for z/OS MVS System Management Facilities (SMF)

This part contains updates to the information in *z/OS MVS System Management Facilities (SMF)* (SA38-0667).

The following changes have been made:

- Information about the new HFTSINTVL parameter in SMFPRM*xx* has been added.
- SMF record type 98, including subtype 1, has been added.

This affects only USER1. The USER2 you previously specified remains in effect.

For additional details, see SMFPRMxx in *z/OS MVS Initialization and Tuning Reference*.

RECSIGN — Digitally signing SMF records

You can use the RECSIGN parameter to specify that SMF records are to be digitally signed for later validation. You can specify the RECSIGN parameter globally or on a per-logstream basis. The default is not to sign SMF records (NORECSIGN).

When you specify RECSIGN to digitally sign SMF records, you must also specify options for the hash type, signature type, and token name. These parameters are described under the SMFPRM*xx* member in *z/OS MVS Initialization and Tuning Reference*.

For more information, see Chapter 13, “Signing and validating SMF records,” on page 157.

INMEM — Defining SMF in-memory resources

You can use the INMEM parameter to define one or more SMF in-memory resources to enable real-time access to SMF data.

When you specify the INMEM parameter, you must also specify options for the resource name, resource buffer size, and record types to be recorded to this in-memory resource. These parameters are described under the SMFPRM*xx* member in *z/OS MVS Initialization and Tuning Reference*.

For more information, see Chapter 14, “SMF real-time interface,” on page 163.

HFTSINTVL — Specifying the high-frequency throughput statistics interval

The HFTSINTVL parameter specifies the time interval, in seconds, for writing SMF type 98 records, which record high-frequency throughput statistics (HFTS).

The supported values are 5, 10, 15, 20, 30, and 60 seconds. For instance, HFTSINTVL(20) indicates that SMF type 98 records are to be written every 20 seconds. IBM suggests a HFTSINTVL value of 20 seconds.

When you specify a HFTSINTVL value, SMF type 98 records are collected every five seconds for one minute each hour, at 0, 15, 30, and 45 minutes past the hour.

The NOHFTSINTVL parameter disables the HFTS interval and prevents the collection of type SMF type 98 records. This is the default value.

SMF collects type 98 records only when both the HFTSINTVL parameter and TYPE(98) parameter are specified. Specifying NOHFTSINTVL along with TYPE(98) allows you to disable the collection of type 98 records without changing the TYPE setting.

SMF type 98 records can produce a large volume of data because they are written more frequently. Instead of writing type 98 records to the same data set or logstream as other SMF records, consider writing the type 98 records to a separate logstream to avoid SMF data set or logstream full conditions.

Record Type 98 (62) — High-frequency throughput statistics

SMF type 98 records contain high-frequency throughput statistics (HFTS) data. Unlike most SMF records, which are recorded minutes apart on the global SMF interval, HFTS records are written seconds apart as specified by the HFTSINTVL parameter in the SMFPRMxx member of parmlib. HFTS data aids in diagnosing transient problems that are often concealed in multi-minute intervals.

SMF type 98 records can produce a large volume of data because they are written more frequently. Instead of writing type 98 records to the same data set or logstream as other SMF records, consider writing the type 98 records to a separate logstream to avoid SMF data set or logstream full conditions.

Record type 98 has the following subtype:

Subtype
Description

1 Supervisor performance data

Type 98 subtype 1 records contain performance information for the z/OS supervisor component about the workload and its significant jobs. It includes metrics such as utilization, concurrency, efficiency, contention, and queuing.

- The environment section contains key system configuration information.
- The utilization section contains general information about CPU utilization.
- The spin lock sections contain a summary of system spin lock contention and the spin locks with the most contention.
- The suspend lock sections contain a summary of contention on the system suspend locks, including LOCAL, CML, and CMS suspend locks. The suspend lock detail sections identify the address spaces that are experiencing the most contention.
- The work unit priority bucket sections summarize the workload's CPU delay by CPU type and dispatch priority group (high, medium, low, and discretionary).
- The consumption sections contain CPU utilization data that is organized by work unit type, execution efficiency data by thread density, and spin lock contention data. A consumption section is divided into subsections by CPU type (except for spin lock data), by dispatch priority group, and by relative CPU utilization. Each consumption subsection contains both summary data from all contributing address spaces and data from the most significant address space.

Record environment

The following conditions exist for the generation of SMF type 98 records:

Subtype 1

Macro SMFEWTM, BRANCH=YES (record exit: IEFU84)

Storage residency
31-bit

Record mapping

Record header

This section contains the common SMF record type 98 header fields.

Offsets		Name	Length	Format	Description
0	0	SMF98LEN	2	binary	Record length. This field along with the next form the record descriptor word (RDW). For a details, see "Standard SMF record header" on page 168.
2	2	SMF98SEG	2	binary	Segment descriptor. (See SMF98LEN field.)
4	4	SMF98FLG	1	binary	Header flags: **Bit** **Meaning when set** **0** Subsystem identification follows system identification. **1** Subtypes are used. **2-7** Reserved.
5	5	SMF98RTY	1	binary	Record type 98 (`X'62'`)
6	6	SMF98TME	4	binary	Time since midnight, in hundredths of a second, that the record was moved into the SMF buffer.
10	A	SMF98DTE	4	packed	Date that the record was moved into the SMF buffer, in the form `0`*`cyydddF`*. For a details, see "Standard SMF record header" on page 168.
14	E	SMF98SID	4	EBCDIC	System identification (from the SID parameter in the SMFPRMxx member of parmlib.
18	12	SMF98SSI	4	EBCDIC	Subsystem identifier for the SMF address space (`'STC'` for started task).
22	16	SMF98STY	2	binary	Record subtype: **Subtype** **Description** **1** Supervisor performance
24	18	SMF98IND	1	binary	Additional record flags: **Bit** **Meaning when set** **0** This SMF record has multiple parts. There are more parts to come. • For a single part record, this bit is OFF. • On the first part of a multiple-part record, bit 0 is ON and bit 1 is OFF. • On subsequent parts for the same record, both bit 0 and bit 1 are ON. • On the last record part, bit 0 is OFF and bit 1 is ON. **1** This record is the continuation of the multiple-part record. This bit must be OFF on the first part of the multiple-part record. **2** Error: Storage was not available to generate more data in this SMF record. **3-7** Reserved.
25	19	SMF98PartSeqNo	1	binary	Record part sequence number, which identifies the order of the record part in a multiple-part SMF type 98 record. This value is meaningful only when a record has multiple parts (that is, SMF98IND bit 0 is ON for the first part of the record). The value is 0 for the first part, 1 for the next part, and so on.
26	1A	SMF98SDSLen	2	binary	Length of the self-defining section.
28	1C	SMF98SDSTripletsNum	2	binary	Number of triplets in the self-defining section.
30	1E	*	18	binary	Reserved.

Self-defining section

This section contains the triplet fields (offset, length, and number) that locate the other sections on the record. This triplet information should be checked prior to accessing a section of the record. The number triplet field is the primary indication of the existence of the field. This section is an extension of the header and physically follows it in the record. The offsets listed are from the start of the SMF record. The length of the self-defining section is described by SMF98SDSLen and the number of triplets is described by SMF98SDSTripletsNum.

Offsets		Name	Length	Format	Description
0	0	SMF98IOF	4	binary	Offset to the identification section
4	4	SMF98ILN	2	binary	Length of the identification section
6	6	SMF98ION	2	binary	Number of identification sections
8	8	SMF98CSOF	4	binary	Offset to the context summary section
12	C	SMF98CSLN	2	binary	Length of the context summary section
14	E	SMF98CSON	2	binary	Number of context summary sections
16	10	SMF98DOF	4	binary	Offset to the subtype data section
20	14	SMF98DLN	2	binary	Length of the subtype data section
22	16	SMF98DON	2	binary	Number of subtype data sections

Identification section

This section provides information to identify the source of the SMF type 98 records, including job name, step name, and start and stop times in SMF and TOD formats.

Triplet information:

You can locate this section in the record by using the following triplet fields which are found in the self-defining section:

Offset SMF98IOF

Length
SMF98ILN

Number
SMF98ION

Offsets		Name	Length	Format	Description
0	0	SMF98JBN	8	EBCDIC	Job name.
8	8	SMF98RST	4	binary	Reporting interval start time (local time in hundredths of a second from midnight).
12	C	SMF98RSD	4	packed	Reporting interval start date, in the form `0cyydddF`.
16	10	SMF98STP	8	EBCDIC	Step name.
24	18	SMF98IntervalStart	8	TOD	Interval start time (local time in TOD format). You can convert to GMT by subtracting the value in the SMF98_CVTLDTO field.
32	20	SMF98IntervalEnd	8	TOD	Interval end time (local time in TOD format). You can convert to GMT by subtracting the value in the SMF98_CVTLDTO field.
40	28	*	8	binary	Reserved.

Context summary section

This section contains fields that describe the source of the subtype data records, including the level of the subtype exit and when the exit was run.

Use the ReleaseIndex, WithinReleaseIndex, and PrototypeIndex fields to determine the level of the macro you are using when traversing SMF type 98 records. Although the record is updated in a compatible manner, the WithinReleaseIndex value may be updated in a subtype for small changes to a record, and the ReleaseIndex field may be incremented for large changes. The PrototypeIndex value is normally 0 for GA releases, but it may be incremented for test versions, such as those that might be supplied in a temporary APAR fix (++APAR).

Triplet information:

You can locate this section in the record by using the following triplet fields which are found in the self-defining section:

Offset SMF98CSOF

Length
SMF98CSLN

Number
SMF98CSON

Offsets		Name	Length	Format	Description
0	0	SMF98_HftsInfo	8	binary	For IBM use only.
8	8	SMF98_ReleaseIndex	2	binary	Release index, incremented when a subtype record in a product is significantly changed (such as adding new sections and fields for a new release of z/OS). When this value is incremented, the value in SMF98_WithinReleaseIndex is reset to 1.
10	A	SMF98_WithinReleaseIndex	2	binary	Within-release index, incremented when small changes are made to a subtype (such as adding a new field via an APAR).
12	C	SMF98_PrototypeIndex	2	binary	Prototype index, incremented for any temporary changes for a given ReleaseIndex and WithinReleaseIndex (such as to denote changes to the SMF record for different versions of a ++APAR fix). The value is set to 0 for GA-level code.
14	E	*	2	binary	Reserved.
16	10	SMF98_Prodlevel	16	EBCDIC	Product level information. (z/OS components use CVTPROD.)
32	20	SMF98_ExitSerialTOD	8	binary	Time, in TOD units, used by the exit routine holding serialization. May be 0 if information is not available. This is the CPU time that serialization is held. It is obtained by calculating the TimeUsed delta before obtaining and after releasing the serialization.
40	28	SMF98_ExitTimeUsed	8	binary	Time, in TOD units, used by the exit routine up to the point when the SMF record is written. This is the CPU time for the exit (including the time spent holding serialization). It is obtained by calculating the TimeUsed delta from when the exit is entered until the exit writes the record. For continuation records, the last record will have the total time used by the exit.
48	30	SMF98_CVTLDTO	8	TOD	Offset value needed to adjust the TOD value to the local date and time of day. Add this offset to a GMT value to get the local date/time value. Subtract this value from a local TOD value to get the GMT value.

Offsets		Name	Length	Format	Description
56	38	SMF98_CVTLSO	8	TOD	Leap second offset value needed to adjust TOD values to and from a system clock time. Times in the SMF98 record are already incremented with leap seconds; however, other system times might not be adjusted. Add or subtract this offset to allow for time comparisons with TOD values that are not adjusted for leap seconds.

Subtype data section

This section provides the data for each subtype and is mapped according by subtype. (Refer to the mappings for each subtype.)

Triplet information:

You can locate this section in the record by using the following triplet fields which are found in the self-defining section:

Offset SMF98DOF

Length
SMF98DLN

Number
SMF98DON

Subtype 1

SMF record type 98 subtype 1 records contain performance information for the z/OS supervisor component about the workload and its significant jobs, including metrics such as utilization, concurrency, efficiency, contention, and queuing.

Data section

The SMF type 98 subtype 1 data section begins with a number of triplets (SMF98_1_DataTripletsNum) for a length of SMF98_1_DataTripletsNum. Check this triplet information prior to accessing a section of the record. The "number" triplet field is the primary indication of the existence of a section.

All offsets are listed as from the start of the record.

Offsets		Name	Length	Format	Description
0	0	SMF98_1_DataTripletsNum	4	binary	Number of data triplets that follow
4	4	SMF98_1_DataTripletsLen	4	binary	Length of data triplets that follow
8	8	SMF98_1_EnvOF	4	binary	Offset to environmental section, mapped by SMF98_1_EnvInfo
12	C	SMF98_1_EnvLN	2	binary	Length of environmental section
14	E	SMF98_1_EnvON	2	binary	Number of environmental sections
16	10	SMF98_1_SIGPGRPOF	4	binary	For IBM use only
20	14	SMF98_1_SIGPGRPLN	2	binary	For IBM use only
22	16	SMF98_1_SIGPGRPON	2	binary	For IBM use only
24	18	SMF98_1_SIGPOF	4	binary	For IBM use only
28	1C	SMF98_1_SIGPLN	2	binary	For IBM use only
30	1E	SMF98_1_SIGPON	2	binary	For IBM use only
32	20	SMF98_1_OTHOF	4	binary	For IBM use only
36	24	SMF98_1_OTHLN	2	binary	For IBM use only

Offsets		Name	Length	Format	Description
38	26	SMF98_1_OTHON	2	binary	For IBM use only
40	28	SMF98_1_TXOF	4	binary	For IBM use only
44	2C	SMF98_1_TXLN	2	binary	For IBM use only
46	2E	SMF98_1_TXON	2	binary	For IBM use only
48	30	SMF98_1_ECCCOF	4	binary	Offset to ECCC counter sections, mapped by macro IHAECCC structure ECCC_Data
52	34	SMF98_1_ECCCLN	2	binary	Length of ECCC counter section
54	36	SMF98_1_ECCCON	2	binary	Number of ECCC counter sections
56	38	SMF98_1_MISCOF	4	binary	For IBM use only
60	3C	SMF98_1_MISCLN	2	binary	For IBM use only
62	3E	SMF98_1_MISCON	2	binary	For IBM use only
64	40	SMF98_1_UTOF	4	binary	Offset to utilization section, mapped by SMF98_1_UT
68	44	SMF98_1_UTLN	2	binary	Length of utilization section
70	46	SMF98_1_UTON	2	binary	Number of utilization sections
72	48	SMF98_1_LockSpinSumOF	4	binary	Offset to spin lock summary sections, mapped by SMF98_1_SpinLock_Sum
76	4C	SMF98_1_LockSpinSumLN	2	binary	Length of spin lock summary section
78	4E	SMF98_1_LockSpinSumON	2	binary	Number of spin lock summary sections
80	50	SMF98_1_LockSpinDetOF	4	binary	Offset to spin lock detail sections, mapped by SMF98_1_SpinLock_Det
84	54	SMF98_1_LockSpinDetLN	2	binary	Length of spin lock detail section
86	56	SMF98_1_LockSpinDetON	2	binary	Number of spin lock detail sections
88	58	SMF98_1_LockSuspendSumOF	4	binary	Offset to suspend lock summary sections, mapped by SMF98_1_SuspLock_Sum
92	5C	SMF98_1_LockSuspendSumLN	2	binary	Length of suspend lock summary section
94	5E	SMF98_1_LockSuspendSumON	2	binary	Number of suspend lock summary sections
96	60	SMF98_1_LockSuspendDetOF	4	binary	Offset to suspend lock detail sections, mapped by SMF98_1_SuspLock_Det
100	64	SMF98_1_LockSuspendDetLN	2	binary	Length of suspend lock detail section
102	66	SMF98_1_LockSuspendDetON	2	binary	Number of suspend lock detail sections
104	68	SMF98_1_LockLocalCMLDetOF	4	binary	Offset to local or CML lock detail sections, mapped by SMF98_1_LockLocalCml_Det
108	6C	SMF98_1_LockLocalCMLDetLN	2	binary	Length of local or CML lock detail section
110	6E	SMF98_1_LockLocalCMLDetON	2	binary	Number of local or CML lock detail sections
112	70	SMF98_1_PriorityBucketOF	4	binary	Offset to work unit priority bucket sections, mapped by SMF98_1_PB_Data
116	74	SMF98_1_PriorityBucketLN	2	binary	Length of work unit priority bucket section
118	76	SMF98_1_PriorityBucketON	2	binary	Number of work unit priority bucket sections
120	78	SMF98_1_ConsumeOF	4	binary	Offset to consumption sections, mapped by SMF98_1_Consume
124	7C	SMF98_1_ConsumeLN	2	binary	Length of consumption section
126	7E	SMF98_1_ConsumeON	2	binary	Number of consumption sections

Environmental section

The SMF type 98 subtype 1 environmental section contains environmental and configuration information about the system and is mapped by SMF98_1_EnvInfo. Most of the environmental fields are expected to remain unchanged across data

collection intervals. Special attention might be needed, if these fields change, when comparing other data across collection intervals. Small differences in the following fields can be considered normal:

SMF98_1_ENV_QDepthAnalysisDelta
SMF98_1_ENV_Num_VL_Unparked_cores_CP
SMF98_1_ENV_Num_VL_Unparked_cores_zAAP
SMF98_1_ENV_Num_VL_Parked_cores_zIIP
SMF98_1_ENV_Num_VL_Unparked_cores_CP
SMF98_1_ENV_Num_VL_Parked_cores_zAAP
SMF98_1_ENV_Num_VL_Parked_cores_zIIP
SMF98_1_ENV_SVT_Priority_Ranges_Area
SMF98_1_ENV_SVT_Priority_Ranges

Fields that are related to LPAR weight are only valid when HIPERDISPATCH=YES is specified in the IEAOPTxx member of parmlib. When bit 0 of SMF98_1_ENV_Flags is OFF, the SMF98_1_ENV_Num_VH*, SMF98_1_ENV_Num_VM*, and SMF98_1_ENV_Num_VL* fields have no meaning and contain zeros.

Triplet information:

You can locate this section in the record by using the following triplet fields which are found in the self-defining section:

Offset SMF98_1_EnvOF

Length
SMF98_1_EnvLN

Number
SMF98_1_EnvON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_ENV_Flags	3	binary	Configuration flags: **Bit** **Meaning when set** **0** HiperDispatch=YES is specified. (Bit 0 OFF means HiperDispatch=NO is specified) **1-2** For IBM use only. **3-4** MT flags. **3** A processor resource is viewed as a CPU core. **4** When bit 3 is ON, indicates there are multiple CPUs defined within a CPU core (on MT hardware). **5** One or more CP cores is in mixed mode state. **6** One ore more zAAP cores is in mixed mode state. **7** One or more zIIP cores is in mixed mode state. **8** An uncorrectable error was detected and z/OS supervisor forced the system to run with a thread density of 1. **9-23** Reserved.
3	3	SMF98_1_ENV_SVTCR	1	binary	For IBM use only.
4	4	SMF98_1_ENV_SvtCoreMode_Max	2	binary	Maximum MT mode. When SMF98_1_ENV_Flags bit 3 is ON, this value is the maximum number of CPUs that can be used on a core. When SMF98_1_ENV_Flags bit 3 is OFF, this value is set to 1.
6	6	SMF98_1_ENV_SvtCoreMode_CP	2	binary	Number of CPUs that are active on a CP core.

Offsets		Name	Length	Format	Description
8	8	SMF98_1_ENV_SvtCoreMode_zAAP	2	binary	Number of CPUs that are active on a zAAP core.
10	A	SMF98_1_ENV_SvtCoreMode_zIIP	2	binary	Number of CPUs that are active on a zIIP core.
12	C	SMF98_1_ENV_AWMT_CP	4	binary	Operational value of the CP alternate wait management time. See the CCCAWMT parameter in the IEAOPTxx member of parmlib for more information.
16	10	SMF98_1_ENV_AWMT_ZAAP	4	binary	Operational value of the zAAP alternate wait management time. See the ZAAPAWMT parameter in the IEAOPTxx member of parmlib for more information.
20	14	SMF98_1_ENV_AWMT_ZIIP	4	binary	Operational value of the zIIP alternate wait management time. See the ZIIPAWMT parameter in the IEAOPTxx member of parmlib for more information.
24	18	SMF98_1_ENV_SVTMAXQL	2	binary	The maximum number of work units that one CP can dispatch in a timely manner.
26	1A	SMF98_1_ENV_SVT_zAAPMAXQL	2	binary	The maximum number of work units that one zAAP can dispatch in a timely manner.
28	1C	SMF98_1_ENV_SVT_zIIPMAXQL	2	binary	The maximum number of work units that one zIIP can dispatch in a timely manner.
30	1E	SMF98_1_ENV_SVTMINHL	2	binary	When a CP chooses another CPU for help, the minimum number of dispatches that will be done for help.
32	20	SMF98_1_ENV_SVT_zAAPMINHL	2	binary	When a zAAP chooses another CPU for help, the minimum number of dispatches that will be done for help.
34	22	SMF98_1_ENV_SVT_zIIPMINHL	2	binary	When a zIIP chooses another CPU for help, the minimum number of dispatches that will be done for help.
36	24	SMF98_1_ENV_OptDebVal1	4	binary	For IBM use only.
40	28	SMF98_1_ENV_OptDebVal2	4	binary	For IBM use only.
44	2C	SMF98_1_ENV_OptDebVal3	4	binary	For IBM use only.
48	30	SMF98_1_ENV_OptDebVal4	4	binary	For IBM use only.
52	34	SMF98_1_ENV_Superval1	4	binary	For IBM use only.
56	38	SMF98_1_ENV_Superval2	4	binary	For IBM use only.
60	3C	SMF98_1_ENV_Superval3	4	binary	For IBM use only.
64	40	SMF98_1_ENV_Superval4	4	binary	For IBM use only.
68	44	SMF98_1_ENV_OnlineCores_CPs	4	binary	Number of online cores for CPs.
72	48	SMF98_1_ENV_OnlineCores_zAAPs	4	binary	Number of online cores for zAAPs.
76	4C	SMF98_1_ENV_OnlineCores_zIIPs	4	binary	Number of online cores for zIIPs.
80	50	SMF98_1_ENV_Num_VH_cores_CP	4	binary	Number of vertical high online CP cores.
84	54	SMF98_1_ENV_Num_VH_cores_zAAP	4	binary	Number of vertical high online zAAP cores.
88	58	SMF98_1_ENV_Num_VH_cores_zIIP	4	binary	Number of vertical high online zIIP cores.
92	5C	SMF98_1_ENV_Num_VM_cores_CP	4	binary	Number of vertical medium online CP cores.
96	60	SMF98_1_ENV_Num_VM_cores_zAAP	4	binary	Number of vertical medium online zAAP cores.
100	64	SMF98_1_ENV_Num_VM_cores_zIIP	4	binary	Number of vertical medium online zIIP cores.
104	68	SMF98_1_ENV_Num_VL_Unparked_cores_CP	4	binary	Number of vertical low unparked CP cores.
108	6C	SMF98_1_ENV_Num_VL_Unparked_cores_zAAP	4	binary	Number of vertical low unparked zAAP cores.
112	70	SMF98_1_ENV_Num_VL_Unparked_cores_zIIP	4	binary	Number of vertical low unparked zIIP cores.
116	74	SMF98_1_ENV_Num_VL_Parked_cores_CP	4	binary	Number of vertical low parked CP cores.
120	78	SMF98_1_ENV_Num_VL_Parked_cores_zAAP	4	binary	Number of vertical low parked zAAP cores.
124	7C	SMF98_1_ENV_Num_VL_Parked_cores_zIIP	4	binary	Number of vertical low parked zIIP cores.
128	80	SMF98_1_ENV_Num_Excluded_CP	4	binary	Number of CP CPUs excluded in delta calculations because of online TOD mismatch.
132	84	SMF98_1_ENV_Num_Excluded_zAAP	4	binary	Number of zAAP CPUs excluded in delta calculations because of online TOD mismatch.

Offsets		Name	Length	Format	Description
136	88	SMF98_1_ENV_Num_Excluded_zIIP	4	binary	Number of zIIP CPUs excluded in delta calculations because of online TOD mismatch.
140	8C	SMF98_1_ENV_SVT_CPEngineSpeed	4	binary	Standard CP engine speed, in cycles per microsecond. A value of 0 means the speed is unavailable.
144	90	SMF98_1_ENV_SVT_SpecialtyEngineSpeed	4	binary	Specialty engine (zAAP and zIIP) speed, in cycles per microsecond. A value of 0 means the speed is unavailable.
148	94	SMF98_1_ENV_SVT_Priority_Ranges_Area SMF98_1_ENV_SVT_Priority_Ranges	3	binary	Array of priority range end (inclusive) for high, medium, and low priorities, 1 byte each.
151	97	SMF98_1_ENV_VcmCPsPerNode	1	binary	VCM option.
152	98	SMF98_1_ENV_QDepthAnalysisDelta	4	binary	Number of times that work unit queue depth analysis was done in this HFTS interval.
156	9C	SMF98_1_ENV_Num_Core_Excluded_CP	4	binary	Number of CP cores excluded in delta calculations because of online TOD mismatch.
160	A0	SMF98_1_ENV_Num_Core_Excluded_zAAP	4	binary	Number of zAAP cores excluded in delta calculations because of online TOD mismatch.
164	A4	SMF98_1_ENV_Num_Core_Excluded_zIIP	4	binary	Number of zIIP cores excluded in delta calculations because of online TOD mismatch.
168	A8	SMF98_1_ENV_SVT_SubBucket_Ranges_Area SMF98_1_ENV_SVT_SubBucket_Ranges	3	binary	Ranges of CPU consumption percentages used to subdivide HFTS priority bucket output into sub-buckets. Values represent units of 0.5 percent CPU utilization and range from 1 (0.5%) to 199 (99.5%), 1 byte each. For example, 1 = 0.5%, 2 = 1.0%, 3 = 1.5%, and so on.
171	AB	*	5	binary	Reserved.

Utilization section

The SMF type 98 subtype 1 utilization section contains utilization data, including the parked time and wait time delta on a per-CPU basis, and the average CP, zAAP, and zIIP CPU and core busy percentage statistics. This section is mapped by SMF98_1_UT.

Triplet information:

You can locate this section in the record by using the following triplet fields which are found in the self-defining section:

Offset SMF98_1_UTOF

Length
SMF98_1_UTLN

Number
SMF98_1_UTON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_UT_CPUs_Unparked_CP	4	binary	Number of CP CPUs that are unparked
4	4	SMF98_1_UT_CPUs_Unparked_zAAP	4	binary	Number of zAAP CPUs that are unparked
8	8	SMF98_1_UT_CPUs_Unparked_zIIP	4	binary	Number of zIIP CPUs that are unparked
12	C	SMF98_1_UT_Avg_Num_UnparkedVLs_CP	4	binary	Average number of CP vertical low processors that are unparked
16	10	SMF98_1_UT_Avg_Num_UnparkedVLs_zAAP	4	binary	Average number of zAAP vertical low processors that are unparked
20	14	SMF98_1_UT_Avg_Num_UnparkedVLs_zIIP	4	binary	Average number of zIIP vertical low processors that are unparked
24	18	SMF98_1_UT_Avg_CpuBusy_CP	4	binary	Average CPU busy percentage for overall CP
28	1C	SMF98_1_UT_Avg_CpuBusy_zAAP	4	binary	Average CPU busy percentage for overall zAAP
32	20	SMF98_1_UT_Avg_CpuBusy_zIIP	4	binary	Average CPU busy percentage for overall zIIP

Offsets		Name	Length	Format	Description
36	24	SMF98_1_UT_Avg_CpuBusy_VH_CP	4	binary	Average CPU busy percentage for vertical high CPs
40	28	SMF98_1_UT_Avg_CpuBusy_VH_zAAP	4	binary	Average CPU busy percentage for vertical high zAAPs
44	2C	SMF98_1_UT_Avg_CpuBusy_VH_zIIP	4	binary	Average CPU busy percentage for vertical high zIIPs
48	30	SMF98_1_UT_Avg_CpuBusy_VM_CP	4	binary	Average CPU busy percentage for vertical medium CPs
52	34	SMF98_1_UT_Avg_CpuBusy_VM_zAAP	4	binary	Average CPU busy percentage for vertical medium zAAPs
56	38	SMF98_1_UT_Avg_CpuBusy_VM_zIIP	4	binary	Average CPU busy percentage for vertical medium zIIPs
60	3C	SMF98_1_UT_Avg_CpuBusy_VL_CP	4	binary	Average CPU busy percentage for vertical low CPs
64	40	SMF98_1_UT_Avg_CpuBusy_VL_zAAP	4	binary	Average CPU busy percentage for vertical low zAAPs
68	44	SMF98_1_UT_Avg_CpuBusy_VL_zIIP	4	binary	Average CPU busy percentage for vertical low zIIPs
72	48	SMF98_1_UT_AvgCoreBusyArea	48	binary	Average core busy percentage area. These fields are only populated when SMF98_1_ENV_Flags3 bit 3 is ON; otherwise, they are set to 0.
72	48	SMF98_1_UT_Avg_CoreBusy_CP	4	binary	Average core busy percentage for overall CP
76	4C	SMF98_1_UT_Avg_CoreBusy_zAAP	4	binary	Average core busy percentage for overall zAAP
80	50	SMF98_1_UT_Avg_CoreBusy_zIIP	4	binary	Average core busy percentage for overall zIIP
84	54	SMF98_1_UT_Avg_CoreBusy_VH_CP	4	binary	Average core busy percentage for vertical high CPs
88	58	SMF98_1_UT_Avg_CoreBusy_VH_zAAP	4	binary	Average core busy percentage for vertical high zAAPs
92	5C	SMF98_1_UT_Avg_CoreBusy_VH_zIIP	4	binary	Average core busy percentage for vertical high zIIPs
96	60	SMF98_1_UT_Avg_CoreBusy_VM_CP	4	binary	Average core busy percentage for vertical medium CPs
100	64	SMF98_1_UT_Avg_CoreBusy_VM_zAAP	4	binary	Average core busy percentage for vertical medium zAAPs
104	68	SMF98_1_UT_Avg_CoreBusy_VM_zIIP	4	binary	Average core busy percentage for vertical medium zIIPs
108	6C	SMF98_1_UT_Avg_CoreBusy_VL_CP	4	binary	Average core busy percentage for vertical low CPs
112	70	SMF98_1_UT_Avg_CoreBusy_VL_zAAP	4	binary	Average core busy percentage for vertical low zAAPs
116	74	SMF98_1_UT_Avg_CoreBusy_VL_zIIP	4	binary	Average core busy percentage for vertical low zIIPs
120	78	SMF98_1_UT_Avg_MTTW_CP_TimeTOD	8	binary	Average mean time to wait for CP cores, in TOD format; 0 when no CPU enters a wait.
128	80	SMF98_1_UT_Avg_MTTW_zAAP_TimeTOD	8	binary	Average mean time to wait for zAAP cores, in TOD format; 0 when no CPU enters a wait.
136	88	SMF98_1_UT_Avg_MTTW_zIIP_TimeTOD	8	binary	Average mean time to wait for zIIP cores, in TOD format; 0 when no CPU enters a wait.
144	90	SMF98_1_UT_Avg_TasksPerWakeUp_CP	4	binary	Average TCB dispatches per wait for CP CPUs; 0 when no CPU enters a wait.
148	94	SMF98_1_UT_Avg_TasksPerWakeUp_zAAP	4	binary	Average TCB dispatches per wait for zAAP CPUs; 0 when no CPU enters a wait.
152	98	SMF98_1_UT_Avg_TasksPerWakeUp_zIIP	4	binary	Average TCB dispatches per wait for zIIP CPUs; 0 when no CPU enters a wait.
156	9C	SMF98_1_UT_Avg_SrbsPerWakeUp_CP	4	binary	Average SRB dispatches per wait for CP CPUs; 0 when no CPU enters a wait.
160	A0	SMF98_1_UT_Avg_SrbsPerWakeUp_zAAP	4	binary	Average SRB dispatches per wait for zAAP CPUs; 0 when no CPU enters a wait.
164	A4	SMF98_1_UT_Avg_SrbsPerWakeUp_zIIP	4	binary	Average SRB dispatches per wait for zIIP CPUs; 0 when no CPU enters a wait.
168	A8	SMF98_1_UT_Avg_HelpsPerWakeUp_CP	4	binary	Average help requests per 16 waits for CP CPUs; 0 when no CPU enters a wait.
172	AC	SMF98_1_UT_Avg_HelpsPerWakeUp_zAAP	4	binary	Average help requests per 16 waits for zAAP CPUs; 0 when no CPU enters a wait.
176	B0	SMF98_1_UT_Avg_HelpsPerWakeUp_zIIP	4	binary	Average help requests per 16 waits for zIIP CPUs; 0 when no CPU enters a wait.
180	B4	SMF98_1_UT_Sig_NumCPUs_CP	4	binary	Number of CP CPUs that had a significantly higher than average MTTW value
184	B8	SMF98_1_UT_Sig_NumCPUs_zAAP	4	binary	Number of zAAP CPUs that had a significantly higher than average MTTW value

Offsets		Name	Length	Format	Description
188	BC	SMF98_1_UT_Sig_NumCPUs_zIIP	4	binary	Number of zIIP CPUs that had a significantly higher than average MTTW value
192	C0	SMF98_1_UT_Sig_Avg_MTTW_CP_TimeTOD	8	binary	Average mean time to wait for CP Cores that had significantly higher than average MTTW values, in TOD units
200	C8	SMF98_1_UT_Sig_Avg_MTTW_zAAP_TimeTOD	8	binary	Average mean time to wait for zAAP Cores that had significantly higher than average MTTW values, in TOD units
208	D0	SMF98_1_UT_Sig_Avg_MTTW_zIIP_TimeTOD	8	binary	Average mean time to wait for zIIP Cores that had significantly higher than average MTTW values, in TOD units
216	D8	SMF98_1_UT_Sig_Avg_TasksPerWakeUp_CP	4	binary	Average TCB dispatches per wait for CP CPUs that had significantly higher than average MTTW values
220	DC	SMF98_1_UT_Sig_Avg_TasksPerWakeUp_zAAP	4	binary	Average TCB dispatches per wait for zAAP CPUs that had significantly higher than average MTTW values
224	E0	SMF98_1_UT_Sig_Avg_TasksPerWakeUp_zIIP	4	binary	Average TCB dispatches per wait for zIIP CPUs that had significantly higher than average MTTW values
228	E4	SMF98_1_UT_Sig_Avg_SrbsPerWakeUp_CP	4	binary	Average SRB dispatches per wait for CP CPUs that had significantly higher than average MTTW values
232	E8	SMF98_1_UT_Sig_Avg_SrbsPerWakeUp_zAAP	4	binary	Average SRB dispatches per wait for zAAP CPUs that had significantly higher than average MTTW values
236	EC	SMF98_1_UT_Sig_Avg_SrbsPerWakeUp_zIIP	4	binary	Average SRB dispatches per wait for zIIP CPUs that had significantly higher than average MTTW values
240	F0	SMF98_1_UT_Sig_Avg_HelpsPerWakeUp_CP	4	binary	Average help requests per 16 waits for CP CPUs that had significantly higher than average MTTW values
244	F4	SMF98_1_UT_Sig_Avg_HelpsPerWakeUp_zAAP	4	binary	Average help requests per 16 waits for zAAP CPUs that had significantly higher than average MTTW values
248	F8	SMF98_1_UT_Sig_Avg_HelpsPerWakeUp_zIIP	4	binary	Average help requests per 16 waits for zIIP CPUs that had significantly higher than average MTTW values
252	FC	*	4	binary	Reserved

ECCC sections

The SMF type 98 subtype 1 external CPU configuration counters (ECCC) sections contain CPU configuration-related data and are mapped by module IHAECCC structure ECCC_Data. ECCC data in the SMF type 98 subtype 1 record is the sum of ECCC data for all CPUs on the system.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_ECCCOF

Length
SMF98_1_ECCCLN

Number
SMF98_1_ECCCON

Spin lock sections

There are two types of spin lock sections:

- A summary section that contains spin lock data for all spin locks during the interval
- Detail sections that contain spin lock data for the spin locks that spent the most time spinning during the interval

Spin lock summary section

The SMF type 98 subtype 1 spin lock summary section contains the sum of all spin lock contention data for the system and is mapped by SMF98_1_SpinLock_Sum.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_LockSpinSumOF

Length
SMF98_1_LockSpinSumLN

Number
SMF98_1_LockSpinSumON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_SpinLockSum_Count	4	binary	Number of times that a CPU spun for the lock
4	4	*	4	binary	Reserved
8	8	SMF98_1_SpinLockSum_TimeTOD	8	binary	Time spend spinning, in TOD units
16	10	SMF98_1_SpinLockSum_AvgTimeTOD	8	binary	Average spin time, in TOD units

Spin lock detail section

The SMF type 98 subtype 1 spin lock detail section contains the spin lock contention data for the top spin locks, identified by SMF98_1_SpinLockDet_ID, that spent the most time spinning. These appear in descending order of time spent spinning.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_LockSpinDetOF

Length
SMF98_1_LockSpinDetLN

Number
SMF98_1_LockSpinDetON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_SpinLockDet_ID	4	binary	Lock ID of the spin lock. See SMF98_1_SpinLockID_*xxxx* for the spin lock name for this lock ID.
4	4	SMF98_1_SpinLockDet_Count	4	binary	Number of times a CPU requested a spin lock and resulted in spinning for the lock
8	8	SMF98_1_SpinLockDet_TimeTOD	8	binary	Time spent spinning, in TOD units
16	10	SMF98_1_SpinLockDet_AvgTimeTOD	8	binary	Average spin time, in TOD units

Suspend lock sections

There are three types of suspend lock sections:

- A summary section that contains suspend lock data from all activity during the interval
- Two types of suspend lock detail sections that contain suspend lock data for the suspend locks that spent the most time suspended during the interval

Each suspend lock section contains one or more suspend lock information sections (SMF98_1_SuspLock_Info), mapped as follows:

Offsets		Name	Length	Format	Description
0	0	SMF98_1_SuspLock_Info_Count	8	binary	Number of times suspended on the lock
8	8	SMF98_1_SuspLock_Info_Already_Susp	8	binary	Number of times suspended when another work unit was already suspended.
16	10	SMF98_1_SuspLock_Info_Cont_TimeTOD	8	binary	Time suspended, in TOD units
24	18	SMF98_1_SuspLock_Info_AvgTimeTOD	8	binary	Average time suspended, in TOD units

Suspend lock summary section

The SMF type 98 subtype 1 suspend lock summary section contains the sum of all contention for a given lock type (SMF98_1_SuspLock_Sum_Type), mapped by SMF98_1_SuspLock_Sum.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_LockSuspendSumOF

Length
SMF98_1_LockSuspendSumLN

Number
SMF98_1_LockSuspendSumON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_SuspLock_Sum_Count	2	binary	Type of suspend lock: **Value** **Meaning** **1** SMF **2** ENQDEQ **3** LATCH **4** CMS **5** LOCAL **6** CML **7** LOCAL + CML
2	2	SMF98_1_SuspLock_Sum_Stats	32	binary	Suspend lock contention statistics mapped by SMF_1_SuspLock_Info

Suspend lock detail sections

The SMF type 98 subtype 1 suspend lock detail sections contain the suspend lock data for the top address spaces that spend the most time suspended during the interval. There are two types of suspend lock detail sections:

- SMF98_1_SuspLock_Det sections contain suspend lock data details about CMS suspend locks (SMF, ENQDEQ, LATCH, and CMS).
- SMF98_1_LockLocalCml_Det sections contain the same data about LOCAL or CML locks, as well as data about the associated lock (LOCAL for CML, CML for LOCAL) and a summary section that adds LOCAL and CML data. The associated and summary section contains zeroes if there is no associated count.

Address space information section

Each suspend lock detail section contains identifying information about each address space, mapped by SMF98_1_AsidInfo. Address space information also appears in consumption sections.

Offsets		Name	Length	Format	Description
0	0	SMF98_1_AsidInfo_ASID	2	binary	ASID of the address space
2	2	SMF98_1_AsidInfo_DP	1	binary	Dispatching priority of the work unit
3	3	SMF98_1_AsidInfo_Flags	1	binary	Address space flags: **Bit** **Meaning when set** **0** Address space was broken up. **1-7** Reserved.
4	4	SMF98_1_AsidInfo_Seqnum	4	binary	Address space sequence / instance number
8	8	SMF98_1_AsidInfo_JobName	8	EBCDIC	Job name
16	10	SMF98_1_AsidInfo_CP_AllTaskSRB_TimeTOD	8	binary	Total CP CPU time used by this address space, in TOD units
24	16	SMF98_1_AsidInfo_zIIP_AllTaskSRB_TimeTOD	8	binary	Total zIIP CPU time used by this address space, in TOD units
32	20	SMF98_1_AsidInfo_CP_All_TD1EQ_CPI	4	binary	Thread density 1 equivalent (includes sum of TD=1 and TD=2) cycles per 4096 instructions executed in the CP processor class. Divide by SMF98_1_kIPC_Factor to get cycles per 1 instruction.
36	24	SMF98_1_AsidInfo_zIIP_All_TD1EQ_CPI	4	binary	Thread density 1 equivalent (includes sum of TD=1 and TD=2) cycles per 4096 instructions executed in the zIIP processor class. Divide by SMF98_1_kIPC_Factor to get cycles per 1 instruction.
40	28	*	16	binary	Reserved

Suspend lock detail section

The SMF type 98 subtype 1 suspend lock detail section contains the suspend lock data details about CMS suspend locks (SMF, ENQDEQ, LATCH, and CMS). These are mapped by SMF98_1_SuspLock_Det.

It is also part of the SMF98_1_LockLocalCml_Det section that maps LOCAL or CML lock data.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_LockSuspendDetOF

Length
SMF98_1_LockSuspendDetLN

Number
SMF98_1_LockSuspendDetON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_SuspLock_Det_Type	2	binary	Type of suspend lock: **Value** **Meaning** **1** SMF **2** ENQDEQ **3** LATCH **4** CMS **5** LOCAL **6** CML
2	4	SMF98_1_SuspLock_Det_Pos	2	binary	Position of this address space as a top address space for the lock type. For instance, 1 = first, 2 = second, and so on.
8	8	SMF98_1_SuspLock_Det_AsidInfo	56	binary	ASID information, including ASID, DP, and job name, mapped by SMF98_1_AsidInfo

Offsets		Name	Length	Format	Description
64	10	SMF98_1_SuspLock_Det_Stats	32	binary	Suspend lock contention statistics, mapped by SMF_1_SuspLock_Info

Local or CML lock detail section

LOCAL and CML lock data is mapped by SMF98_1_LockLocalCml_Det. The SMF98_1_LockLocalCml_Det_AssocStat and SMF98_1_LockLocalCml_Det_All fields contain zeros if there is no associated count.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_LockLocalCMLDetOF

Length
SMF98_1_LockLocalCMLDetLN

Number
SMF98_1_LockLocalCMLDetON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_LockLocalCML_SuspLockCommon	96	binary	Common lock detail section, mapped by SMF98_1_SuspLock_Det
96	60	*	24	binary	Reserved
120	78	SMF98_1_LockLocalCML_Det_AssocStat	32	binary	Associated entry from the address space with the top LOCAL or CML lock contention. Contains CML lock statistics, for an address space with a top LOCAL lock hold time. Likewise, it holds LOCAL lock statistics for a top CML lock hold time. Mapped by SMF98_1_SuspLock_Info.
152	98	*	24	binary	Reserved
176	B0	SMF98_1_LockLocalCML_Det_All	32	binary	Sum of LOCAL and CML lock contention statistics for this top address space, mapped by SMF98_1_SuspLock_Info

Work unit priority bucket section

The SMF type 98 subtype 1 work unit priority bucket section contains data about work unit priority buckets.

A priority bucket is a collection of work aggregated across a range of dispatch priorities that is defined in SMF98_1_ENV_SVT_Priority_Ranges. The following table lists the priority buckets and their associated ranges:

Priority bucket	Dispatch priority range
High	X'FF' to SMF98_1_ENV_SVT_Priority_Ranges(1)
Medium	(SMF98_1_ENV_SVT_Priority_Ranges(1) – 1) to SMF98_1_ENV_SVT_Priority_Ranges(2)
Low	(SMF98_1_ENV_SVT_Priority_Ranges(2) – 1) to SMF98_1_ENV_SVT_Priority_Ranges(3)
Discretionary	(SMF98_1_ENV_SVT_Priority_Ranges(3) – 1) to X'C0'

For sampling related fields, SMF98_1_ENV_QDepthAnalysisDelta contains the number of samples.

Work unit priority bucket instrumentation data is reported for queue depth, dispatch delay, and work unit preemption counts on a major time slice and minor time slice.

This section is mapped by SMF98_1_PB_Data.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_PriorityBucketOF

Length
SMF98_1_PriorityBucketLN

Number
SMF98_1_PriorityBucketON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_PB_ProcClass	2	binary	Processor class of the grouped work unit statistics: **Value** **Meaning** **0** PSAProcClass_CP **2** PSAProcClass_zAAP **4** PSAProcClass_zIIP
2	2	SMF98_1_PB_ContributingWUQs	2	binary	Number of the work unit queues that contributed a non-zero delta (or a maximum) to the sum. Meaningful only for HD=Y affinity work unit queue.
4	4	SMF98_1_PB_SigDelayWUQs	2	binary	Number of contributing WUQs that encountered significant dispatch delays.
6	6	*	2	binary	Reserved
8	8	SMF98_1_PB_Stats	*	binary	Priority bucket statistics. **Note:** The following fields consist of arrays of four values (each of the stated length), indexed by priority bucket (1=High, 2=Med, 3=Low, 4=Discretionary).
8	8	SMF98_1_PB_MaxQDepth	4	binary	Maximum number of work units queued during a single sample from a single work unit queue.
24	18	SMF98_1_PB_QDepthDelta	4	binary	Total number of work units queued from all work unit queues from all samples. See SMF 98_1_ENV_QDepthAnalysisDelta for number of samples.
40	28	SMF98_1_PB_AvgQDepthPerSample	4	binary	Average queue depth per sample
56	38	SMF98_1_PB_AvgQDepthPerSamplePerWuq	4	binary	Average queue depth per sample per work unit queue
72	48	SMF98_1_PB_MaxDispDelay	8	binary	Maximum dispatch delay a work unit experienced across all dispatches, in TOD units
104	68	SMF98_1_PB_TotDispDelayDelta	8	binary	Sum of dispatch delays from all work units, in TOD units
136	88	SMF98_1_PB_WorkUnitDispDelta	4	binary	Number of work units dispatched from all work unit queues
152	98	SMF98_1_PB_AvgDispDelay	8	binary	Average dispatch delay per work unit, in TOD units
184	B8	SMF98_1_PB_MajorTimeSliceDelta	4	binary	Number of work units preempted on a major time slice
200	C8	SMF98_1_PB_MinorTimeSliceDelta	4	binary	Number of work units preempted on a minor time slice
216	D8	SMF98_1_PB_SD_MaxDispDelay	8	binary	Max dispatch delay a work unit experienced across all dispatches from WUQs with significant dispatch delays, in TOD units
248	F8	SMF98_1_PB_SD_TotDispDelayDelta	8	binary	Sum of dispatch delays from work units on WUQs with significant dispatch delays, in TOD units
280	118	SMF98_1_PB_SD_WorkUnitDispDelta	4	binary	Number of work units dispatched from work unit queues with significant dispatch delays

Offsets		Name	Length	Format	Description
296	128	SMF98_1_PB_SD_AvgDispDelay	8	binary	Average dispatch delay per work unit from WUQs with significant dispatch delays, in TOD units
328	148	SMF98_1_PB_SD_MajorTimeSliceDelta	4	binary	Number of work units preempted on a major time slice from WUQs with significant dispatch delays
344	158	SMF98_1_PB_SD_MinorTimeSliceDelta	4	binary	Number of work units preempted on a minor time slice from WUQs with significant dispatch delays

Address space consumption section

The SMF type 98 subtype 1 address space consumption section contains address space information about work unit dispatch times, dispatch counts, execution efficiency, and spin lock data for a given priority bucket and sub-bucket. It also provides "top ASID" information for the user of the most system resource (such as dispatch time, spin lock, instruction execution, and so on).

A priority bucket is a collection of work aggregated across a range of dispatch priorities that is defined in SMF98_1_ENV_SVT_Priority_Ranges. The following table lists the priority buckets and their associated ranges:

Priority bucket	Dispatch priority range
High	X'FF' to SMF98_1_ENV_SVT_Priority_Ranges(1)
Medium	(SMF98_1_ENV_SVT_Priority_Ranges(1) – 1) to SMF98_1_ENV_SVT_Priority_Ranges(2)
Low	(SMF98_1_ENV_SVT_Priority_Ranges(2) – 1) to SMF98_1_ENV_SVT_Priority_Ranges(3)
Discretionary	(SMF98_1_ENV_SVT_Priority_Ranges(3) – 1) to X'C0'

A sub-bucket is a collection of address spaces that consume similar CPU times relative to the total CPU time from the processor class. Table 16 lists the sub-bucket values.

Table 16. Address space sub-bucket values, constants, and percent CPU time ranges

Address space sub-bucket value	Constant	Percent ProcClass CPU time
FFFF	SMF98_1_kConsume_SubBucket_ALL	0 to 100
1	SMF98_1_kConsume_SubBucket_1	SVT_SubBucket_Ranges(1) to 100
2	SMF98_1_kConsume_SubBucket_2	SVT_SubBucket_Ranges(2) to SVT_SubBucket_Ranges(1)
3	SMF98_1_kConsume_SubBucket_3	SVT_SubBucket_Ranges(3) to SVT_SubBucket_Ranges(2)
4	SMF98_1_kConsume_SubBucket_4	0 to SVT_SubBucket_Ranges(3)

Example: Suppose there are 8 address spaces spread across all priority buckets with CPU time deltas of 100, 70, 13, 7, 6, 1.5, 1, and 0.5 seconds (200 seconds total). If the SVT_SubBucket_Ranges are 8 (4.0%), 4 (2.0%) and 1 (0.5%), then the CPU time of the address space determines its sub-bucket, as follows:

- Sub-bucket 1 (4.0-100.0%) contains address spaces from 8 to 200 seconds: 100, 70, 13
- Sub-bucket 2 (2.0-4.0%) contains address spaces from 4 to under 8 seconds: 7, 6
- Sub-bucket 3 (0.5-2.0%) contains address spaces from 1 to under 4 seconds: 1.5, 1
- Sub-bucket 4 (0.0-0.5%) contains address spaces from 0 to under 1 second: 0.5

This section is mapped by SMF98_1_PB_Consume.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_ConsumeOF

Length
SMF98_1_ConsumeLN

Number
SMF98_1_ConsumeON

Offsets		Name	Length	Format	Description
0	0	SMF98_1_Consume_ProcClass	2	binary	Processor class of this output: **Value** **Meaning** **0** PSAProcClass_CP **2** PSAProcClass_zAAP **4** PSAProcClass_zIIP
2	2	SMF98_1_Consume_PriorityBucket	2	binary	Priority bucket of this output: **Value** **Meaning** **FFFF** kSMF98_1_PriorityBucket_All **1** SVT_kHiPriorityBucketIndex **2** SVT_kMedPriorityBucketIndex **3** SVT_kLowPriorityBucketIndex **4** SVT_kDiscPriorityBucketIndex
4	4	SMF98_1_Consume_SubBucket	2	binary	Consumption sub-buckets are segregated by the aggregate dispatch time of this processor class and priority bucket. Address space data is grouped by percentage of time used versus the aggregate. See Table 16 on page 855 for the values.
6	6	*	2	binary	Reserved
8	8	SMF98_1_Consume_ExEffOff	4	binary	Offset to related execution efficiency (ExEff) sections from beginning of the record, mapped by SMF98_1_ExEff
12	C	SMF98_1_Consume_ExEffLen	2	binary	Length of a related execution efficiency (ExEff) section
14	E	SMF98_1_Consume_ExEffNum	2	binary	Number of related execution efficiency (ExEff) sections
16	10	SMF98_1_Consume_WorkUnitOff	4	binary	Offset to related work unit sections from beginning of the record, mapped by SMF98_1_WorkUnit
20	14	SMF98_1_Consume_WorkUnitLen	2	binary	Length of a related work unit section
22	16	SMF98_1_Consume_WorkUnitNum	2	binary	Number of related work unit sections
24	18	SMF98_1_Consume_SpinLockOff	4	binary	Offset to related spin lock sections from beginning of the record, mapped by SMF98_1_AS_SpinLock
28	1C	SMF98_1_Consume_SpinLockLen	2	binary	Length of a related spin lock section
30	1E	SMF98_1_Consume_SpinLockNum	2	binary	Number of related spin lock sections

Execution efficiency sections

Each SMF type 98 subtype 1 execution efficiency section contains statistics about cycles and instructions executed for the given processor class, priority bucket, and sub-bucket. SMF98_1_ExEff_Total_ExEffInfo contains data about all the contributing address spaces, and SMF98_1_ExEff_Top_ExEffInfo contains

information about the top contributing address space.
SMF98_1_ExEff_Top_AsidInfo describes the top contributing address space.

The top contributing address space is chosen according to the following logic:

1. The address space last chosen as top contributing, if both of the following conditions are true:
   - The CPI is significantly larger than the previous interval.
   - The address space consumes a significant portion of processor class total CPU time. (SMF98_1_ExEff_Top_As_SigWorse is ON.)
2. An address space that was found to have both the following conditions true:
   - The CPI is significantly larger than the processor class average.
   - The address space consumes a significant portion of processor class total CPU time. (SMF98_1_ExEff_Top_As_SigCpuHighCpi is ON.)
3. Otherwise, the address space that consumed the most cycles during the interval

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_Consume_ExEffOff

Length
SMF98_1_Consume_ExEffLen

Number
SMF98_1_ConsumeExEffNum

Offsets		Name	Length	Format	Description
0	0	SMF98_1_ExEff_ThreadDensity	2	binary	Thread density of this output: **Value** **Meaning** **0** All ExEff data (sum of TD = 1 and TD = 2) **1** TD = 1 **2** TD = 2
2	2	SMF98_1_ExEff_NumAS_Contribute	2	binary	Number of address spaces that contributed to total section for this output
4	4	SMF98_1_ExEff_NumAS_BrokenUp	2	binary	Number of address spaces in this analysis that were broken up.
6	6	SMF98_1_ExEff_Flags	1	binary	Execution efficiency flags: **Bit** **Meaning when set** **0** SMF98_1_ExEff_Top_AsidInfo and SMF98_1_ExEff_Top_ExEffInfo fields are from the address space last chosen as most significant, has a CPI that is significantly larger than the previous interval, and consumes a significant portion of the processor classes total CPU time. **1** SMF98_1_ExEff_Top_AsidInfo and SMF98_1_ExEff_Top_ExEffInfo fields are from the address space that has a CPI that is significantly larger than the processor class average and consumes a significant portion of the processor class total CPU time. **2-7** Reserved.
7	7	*	1	binary	Reserved

Offsets		Name	Length	Format	Description
8	8	SMF98_1_ExEff_Total_ExEffInfo	24	binary	Total instructions and cycles for all address spaces in this analysis, mapped by SMF98_1_ExEffInfo
32	20	SMF98_1_ExEff_Top_AsidInfo	56	binary	Identification information about the address space that had the highest CPI or executed the most cycles, mapped by SMF98_1_AsidInfo (See “Address space information section” on page 851.)
88	58	SMF98_1_ExEff_Top_ExEffInfo	24	binary	Instructions and cycles executed by the address space identified by SMF98_1_ExEff_Top_AsidInfo, mapped by SMF98_1_ExEffInfo

Execution efficiency details sections

The SMF type 98 subtype 1 execution efficiency details section maps the information attached to execution efficiency pointed to by SMF98_1_ExEff_Total_ExEffInfo and SMF98_1_ExEff_Top_ExEffInfo.

Cycles from thread density 2 (TD=2) are converted to thread density 1 (TD=1) equivalent cycles.

Offsets		Name	Length	Format	Description
0	0	SMF98_1_ExEffInfo_Instr	8	binary	Number of instructions executed
8	8	SMF98_1_ExEffInfo_TD1EQ_Cycle	8	binary	Number of TD=1 equivalent cycles executed
16	10	SMF98_1_ExEffInfo_TD1EQ_IPC	4	binary	Instructions per 4096 TD=1 equivalent cycles executed. Divide by 4096 to get instructions per 1 cycle.
20	14	SMF98_1_ExEffInfo_TD1EQ_CPI	4	binary	TD=1 equivalent cycles per 4096 instructions executed. Divide by 4096 to get cycles per 1 instruction.

Work unit sections

The SMF type 98 subtype 1 work unit sections contain data about time dispatched and number of dispatches for various types of work on the system. SMF98_1_WorkUnit_Total_DispInfo contains these statistics for all contributing address spaces in the processor class, priority bucket, and sub-bucket. SMF98_1_WorkUnit_Top_DispInfo contains these statistics for the address space that spent the most time dispatched for the given work unit type. SMF98_1_WorkUnit_Top_AsidInfo describes the top contributing address space.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_Consume_WorkUnitOff

Length
SMF98_1_Consume_WorkUnitLen

Number
SMF98_1_Consume_WorkUnitNum

Offsets		Name	Length	Format	Description
0	0	SMF98_1_WorkUnit_Type	2	binary	Work unit type: **Value** **Meaning** **1** All tasks and SRBs **2** Non-enclave task **3** Enclave task and SRB **4** Non-enclave, pre-emptible SRB **5** Non-pre-emptible SRB (CP only)
2	2	SMF98_1_WorkUnit_NumAS_Contribute	2	binary	Number of address spaces that contributed to total section for this output.
4	4	SMF98_1_WorkUnit_NumAS_BrokenUp	2	binary	Number of address spaces in this analysis that were broken up.
6	6	*	2	binary	Reserved
8	8	SMF98_1_WorkUnit_Total_DispInfo	24	binary	Total time and dispatch count of all address spaces in this analysis, mapped by SMF98_1_DispInfo
32	20	SMF98_1_WorkUnit_Top_AsidInfo	56	binary	Identification info about the address space that used the most CPU time in this analysis, mapped by SMF98_1_AsidInfo (See "Address space information section" on page 851.)
88	58	SMF98_1_WorkUnit_Top_DispInfo	24	binary	Time and dispatch count of the address space identified by SMF98_1_WorkUnit_Top_AsidInfo, mapped by SMF98_1_DispInfo

Work unit dispatch sections

The SMF type 98 subtype 1 work unit dispatch section maps information for SMF98_1_WorkUnit_Total_DispInfo and SMF98_1_WorkUnit_Top_DispInfo.

Offsets		Name	Length	Format	Description
0	0	SMF98_1_DispInfo_TimeTOD	8	binary	Total CPU time dispatched
8	8	SMF98_1_DispInfo_Disps	4	binary	Number of dispatches
12	C	*	4	binary	Reserved
16	10	SMF98_1_DispInfo_AvgTimeTOD	7	binary	Average time per dispatch

Address space spin lock sections

The SMF type 98 subtype 1 address space spin lock sections contain information about the time spun and count of spins for all spin locks in an address space. SMF98_1_AS_SpinLock_Total_SpinInfo contains this data for all address spaces in the priority bucket and sub-bucket. SMF98_1_AS_SpinLock_Top_SpinInfo contains this data for the address space that spent the most time spinning and is described in SMF98_1_AS_SpinLock_Top_AsidInfo.

Although spin lock sections are listed in the CP processor class, spin lock data is not segregated by processor class and the data is for all processor classes.

Address space spin lock data and global spin lock data (pointed to by SMF98_1_LockSpinSumOF) might differ even though they were collected during the same interval. The global spin lock data and address space spin lock data are pulled from different control blocks in the supervisor HFTS exit. Also, for consistency, the exit might exclude from analysis address spaces that have recently started or stopped during the interval. Because of this, total data can differ slightly in both summaries.

Triplet information:

You can locate this section in the record by using the following triplet fields which are located in the self-defining section:

Offset SMF98_1_Consume_SpinLockOff

Length
SMF98_1_Consume_SpinLockLen

Number
SMF98_1_Consume_SpinLockNum

Offsets		Name	Length	Format	Description
0	0	SMF98_1_AS_SpinLock_NumAS_Contribute	2	binary	Number of address spaces in this analysis
2	2	SMF98_1_AS_SpinLock_NumAS_BrokenUp	2	binary	Number of address spaces in this analysis that were broken up
4	4	*	4	binary	Reserved
8	8	SMF98_1_AS_SpinLock_Total_SpinInfo	24	binary	Spin lock summary data. It is the sum of all spin lock data from all address spaces in this analysis, mapped by SMF98_1_SpinLock_Sum (See "Spin lock summary section" on page 850.)
32	20	*	24	binary	Reserved
56	38	SMF98_1_AS_SpinLock_Top_AsidInfo	56	binary	Identification information about the address space that spent the most time spinning for this analysis, mapped by SMF98_1_AsidInfo (See "Address space information section" on page 851.)
112	70	SMF98_1_AS_SpinLock_Top_SpinInfo	24	binary	Spin lock summary data across all spin locks for the address space identified by SMF98_1_AS_SpinLock_Top_AsidInfo, mapped by SMF98_1_SpinLock_Sum (See "Spin lock summary section" on page 850.)

Record Type 99 (63) — System Resource Manager Decisions

This record type is written by the SRM component. The records contain:

- Performance data for each service class period
- Trace codes representing the SRM actions
- The data which SRM used to decide which actions to take
- The controls SRM is using to manage work.

In addition, subtypes 1 and 9 will be written by the SRM component when running in compatibility mode.

The mapping macro, IRASMF99, for this record is supplied in SYS1.AMODGEN.

Record 99 has the following subtypes:

Subtype 1
Contains system level data, the trace of SRM actions, and data about resource groups. The SRM actions are recorded in trace codes. All trace codes are described in *z/OS MVS Programming: Workload Management Services*. A subtype 1 record is written every policy interval.

Subtype 2
Contains data for service classes. A subtype 2 record is written every policy interval for each service class if any period in the service class had recent activity.

Subtype 3
Contains service class period plot data. A subtype 3 record is written every policy interval for each service class if any period in the service class had recent activity and plot data.

Subtype 4
Contains information about a device cluster. A device cluster is a set of

Part 3. Updates for z/OS MVS System Messages, Vol 8 (IEF-IGD)

This part contains updates to the information in *z/OS MVS System Messages, Vol 8 (IEF-IGD)* (SA38-0675).

The following messages have been added:

IFA750I

IFA751I

Routing code: 2, 10

Descriptor code: 3

IFA747I IFASMFDP DOES NOT SUPPORT SIGNATURE RECORD VALIDATION FOR MULTIPLE SIDS

Explanation: SIGVALIDATE(YES) was included in the parameters for IFASMFDP and the data set being validated contains data with more than one system ID (SID). In this case, the parameters for IFASMFDP do not specify a single SID to be validated.

System action: IFASMFDP fails with return code of 8.

Operator response: Notify the system programmer.

System programmer response: Change the IFASMFDP parameters to specify a single SID.

Source: System Management Facilities (SMF)

Module: IFASMFDP

Routing code: N/A

Descriptor code: N/A

IFA750I UNABLE TO ATTACH IFAHFTSK

Explanation: An error was encountered when the high frequency throughput statistics (HFTS) task IFAHFTSK was attached by the SMF main task. IFAHFTSK is not attached.

System action: The HFTS task cannot be attached. Any SMF HFTS recording, if requested, cannot be initiated.

Operator response: Notify the system programmer.

System programmer response: Search the problem reporting data bases for a fix for the problem. If no fix exists, contact the IBM Support Center.

Source: System Management Facilities (SMF)

Module: IFASMF

Routing code: 2, 10

Descriptor code: 4

IFA751I SMF *function* **ERROR. SERVICE** *service* **REQUEST** *request* **FAILED WITH RC=***retcode* **RSN=***rsncode*

Explanation: An SMF function has encountered an error.

In the message text:

function The SMF function that encountered an error.

service The service associated with the function that failed.

request The request of the service that encountered the error.

retcode The return code from the service.

rsncode The reason code from the service.

System action: For a function of HFTS (High Frequency Throughput Statistics), and a service of CSVDYNEX:

If the request was ADD, the exit routine will not get control.

If the request was QUERY, the states of the exit routines associated with this exit are the same as they were before the QUERY failure.

For all other requests, the exit routines associated with this exit no longer get control.

Operator response: Notify the system programmer.

System programmer response: Search the problem reporting data bases for a fix for the problem. If no fix exists, contact the IBM Support Center.

Source: System Management Facilities (SMF)

Module: IFAHFTSK

Routing code: 2, 10

Descriptor code: 4

IFA760I OPTION '*xxxxxx*' CANNOT BE CHANGED DYNAMICALLY

Explanation: A SET SMF=*xx* or SETSMF command was issued to change an option that cannot be changed dynamically after SMF initialization. In the message text:

xxxxxx
The option that cannot be changed dynamically.

System action: The system continues processing the SETSMF or SET SMF=*xx* command without updating the referenced suboption.

Operator response: None.

System programmer response: If this option needs to be changed, then SMF needs to be restarted with the update made to the SMFPRMxx parmlib member that SMF will be restarted with.

Source: System Management Facilities (SMF)

Module: IEEMB821

Routing code: 2, 10

Descriptor code: 4, 5

IFA761I SUBOPTION '*xxxxxx*' CANNOT BE CHANGED DYNAMICALLY

Explanation: A SET SMF=*xx* or SETSMF command was issued to change a suboption that cannot be changed dynamically after SMF initialization. In the message text:

xxxxxx
The suboption that cannot be changed.

System action: The system continues processing the SETSMF or SET SMF=*xx* command without updating the referenced suboption.

Operator response: None.

System programmer response: If this option needs to be changed, then SMF needs to be restarted with the update made to the SMFPRMxx parmlib member that SMF will be restarted with.

Source: System Management Facilities (SMF)

Module: IFALSMOD

Routing code: 2, 10

Descriptor code: 4, 5

IFA762A Error Expanding Data Space for logstream *xxxxxx*, **RC=***xx*, **RSN=***xxxxxxxx*

Explanation: A SET command was issued to change a DSPSIZMAX value; however, an error occurred when calling DSPSERV EXTEND for the dataspace. In the message text:

xxxxxx
The logstream associated with the dataspace.

System action: The system continues processing using the previous value for DSPSIZMAX.

Operator response: None.

System programmer response: See the return code and reason code for DSPSERV EXTEND in *z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN* .

Source: System Management Facilities (SMF)

Part 4. Updates for z/OS MVS System Codes

This part contains updates to the information in *z/OS MVS System Codes* (SA38-0665).

The following changes have been made:

- System completion code 753 has been added.
- System completion code AC7 has been updated with new reason codes 00470001 and 00470003.

753

Explanation: System management facilities (SMF) detected an error during high-frequency throughput statistics (HFTS) processing in the IFAHFTSK task.

System action: A dump may be taken, and SMF attempts to retry processing. After a number of retries, SMF may stop using the IFAHFTSK task. SMF processing continues.

Operator response: Notify the system programmer.

System programmer response: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

Source: System management facilities (SMF)

75F

Explanation: The system resources manager (SRM) detected that the system timer queue element (TQE) exceeded the expected interval.

System action: SRM performs normal TQE expiration processing and requeues the TQE. The system abnormally ends the current task. The system writes messages and a logrec data set error record.

System programmer response: Search problem reporting data bases for a fix for the problem. If no fix exists, contact the IBM Support Center. Provide the logrec data set error record.

Source: System resources manager (SRM)

76D

Explanation: The system found an error while processing an OUTADD or OUTDEL macro.

System action: The system does the following:

- The system writes a logrec data set error record.
- The system writes an SVC dump.
- The system abnormally ends the program that issued the macro, or returns to the macro caller with a return code of X'10'.

System programmer response: If the problem persists, search problem reporting data bases for a fix for the problem. If no fix exists, contact the IBM Support Center.

Programmer response: Check for incorrect input parameters passed to the OUTADD or OUTDEL macro. Submit the job again.

Source: Dynamic output

778

Explanation: A system error, uncorrectable machine error, or error that cannot be determined occurred under one of the following conditions:

- While the system was attempting to satisfy a request made through the STORAGE macro
- While the system was trying to process an RC, RU, VRC, or VRU form GETMAIN macro
- While the system was trying to process an RC or RU form FREEMAIN macro

A reason code in the SDWACRC field of the system diagnostic work area (SDWA) explains the error:

Note: Some VSM return codes may be a half-word in length. In these cases, the high-order byte is the module id of the issuing module, and the low-order byte is the return code.

Module ID	Module Name
1	IGGVVSMRT
3	IGVVSM24

A8 The input IATYCNDB (CNDB parameter) address passed to the IATXCNDB EXTRACTCART service was zero.

AC The input IATYCNDB (CNDB parameter) passed to the IATXCNDB EXTRACTCART service did not have 'CNDB' as its eyecatcher.

B0 The OUTROUT address passed to the IATXCNDB EXTRACTCART service was zero.

System action: The IATXCNDB request processing is ended.

System programmer response: To determine the error, perform the following:

1. If called from the JES3 main task, locate the ACALL and RETURN trace entry for the IATXCNDB macro.
2. Register 1 of the ACALL trace entry contains the address of the parameter list used by the IATXCNDB macro. The parameter list is mapped by a DSECT generated from an IATXCNDB MF=L call.
3. Use the trace table to locate the module that issued the IATXCNDB macro. Register 14 of the ACALL entry in the trace table contains the return address and register 10 contains the base register.
4. When IATXCNDB is invoked from a user's address space, the caller issued a BASSM R14,R15 from the IATXCNDB macro. The registers are then saved on the linkage stack by IATCNDB via 'BAKR R14,R0'.
5. Use the abend reason code to identify the cause of the error.
6. Correct the parameter list in the module that issued the IATXCNDB macro.

Source: JES3

AC5

Explanation: For information about this system completion code, see RACF abend codes in *z/OS Security Server RACF Messages and Codes*.

AC6

Explanation: IMS uses this code when forcibly terminating one MVS task from another MVS task. There are two situations where this occurs:

1. An ESTAE routine has gained control due to an abend in the system. The abended task (ESTAE) attempts to purge the log buffers and signals the physical log task of its intention. If the ESTAE task does not receive a response within one second, the physical log task is terminated with this abend code and log buffers are purged.
2. The DBRC instance required for this instance of ILS has terminated. All remaining ILS instances dependent upon the abended DBRC will wait for that DBRC and abend with reason code X'01'.

System action: IMS continues termination.

System programmer response: Determine primary cause of failure and take appropriate action.

AC7

Explanation: A supervisor service was issued in an incorrect environment. Register 15 contains a hexadecimal reason code.

System action: The system ends the current unit of work.

Programmer response: Respond according to the reason code:

Code Explanation and programmer response

00000000

Explanation: The caller of the enqueue timer queue element (TQE) service did not hold the dispatcher lock.

Action: Correct the program to obtain the dispatcher lock before calling the enqueue TQE service.

00000001

Explanation: The caller of the dequeue TQE service did not hold the dispatcher lock.

Action: Correct the program to obtain the dispatcher lock before calling the dequeue TQE service.

00000002

Explanation: The STIMER/STIMERM service detected an error when processing an STIMER/STIMERM WAIT request.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00000003

Explanation: An enqueue request for a TQE failed because the TQE to be added is already on the real TQE queue. The original STIMER or SETDIE request represented by this TQE will not occur. For this reason code, register 2 contains the address of the caller of Timer services.

Action: Correct the program to not schedule the same TQE twice.

00000004

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00000005

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00010000

Explanation: The IEAMCPUF macro was issued by an enabled caller.

Action: Correct the program so that IEAMCPUF is issued while running disabled.

00020000

Explanation: The affinity service, IEAAFFN, was invoked by a caller in access register (AR) mode.

Action Correct the program so that IEAAFFN is invoked in primary ASC mode.

00020001

Explanation: The affinity service, IEAAFFN, could not access the storage containing the caller's parameter list.

Action: Correct the program so that the storage containing the caller's parameter list is accessible.

00030000

Explanation: A name/token callable service, IEANTCRS or IEANTDLS, could not access the storage containing the caller's parameter list or parameter storage.

Action: Correct the program so that the storage containing the caller's parameter list or parameter storage is accessible.

00030001

Explanation: A name/token callable service, IEANTCRS or IEANTDLS, could not access the caller's home address space.

Action: Retry the request.

00030002

Explanation: A name/token pair callable service, IEANTCRS or IEANTDLS, detected an internal error.

Action: Retry the request.

00040000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00040001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00040002

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00040003

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00040004

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00040005

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00050000

Explanation: The caller of the SCHEDIRB macro did not hold the local lock.

Action: Correct the program so that it holds the local lock before invoking the SCHEDIRB macro.

00050001

Explanation: A program invoked the SCHEDIRB macro with one of the following errors:

- The caller's cross memory mode was not HASN=PASN, which is required.
- The caller's ASC mode of AR was correct, but AR1 does not contain the primary ALET.

Action: Correct the program so that the cross memory mode is HASN=PASN or PASN=HASN.

00050002

Explanation: The caller of the SCHEDIRB macro specified the RBPTR keyword to schedule a directed interrupt request block (IRB) while in SRB mode. The calling program cannot schedule directed IRBs while in SRB mode.

Action: Correct the program so that it is not in SRB mode if you want to specify the RBPTR keyword on the SCHEDIRB macro to schedule a directed IRB.

00050003

Explanation: The caller of the SCHEDIRB macro specified an incorrect task control block (TCB) address on the TCBPTR keyword.

Action: Correct the program so that it specifies a valid TCB address in the TCBPTR keyword on the SCHEDIRB macro.

00050004

Explanation: The caller of the SCHEDIRB macro specified an incorrect interrupt queue element (IQE) address on the IQEPTR keyword.

Action: Correct the program so that it specifies a valid IQE address on the IQEPTR keyword on the SCHEDIRB macro.

00050005

Explanation: The caller of the SCHEDIRB macro scheduled a directed IRB to the current task. However, the current task is an error task and the error IRB is active.

Action: Correct the program so that it does not specify the RBPTR keyword on the SCHEDIRB if the current task is the error task and the error IRB is active.

00050006

Explanation: The caller of the SCHEDIRB macro specified and IQE whose IQETCB field pointed to a TCB which is not valid.

Action: Correct the program so that it specifies a valid TCB address in the IQE field IQETCB.

00060000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00070000

Explanation: The request block (RB) chain is circular or there are a very large number or RBs on the RB chain.

Action: This may be caused by a loop which caused many RBs to be created. If the source of the problem cannot be determined, search problem reporting data bases for a fix of the problem. If no fix exits, contact the IBM support center.

00080001

Explanation: The space token specified via the TARGETSTOKEN keyword on IEAMSCHD is not valid.

Action: Retry the request specifying a valid address space token.

00080002

Explanation: The enclave token specified on IEAMSCHD was not a valid token.

Action: Retry the request specifying a valid enclave token.

00080003

Explanation: CRYPTO was specified on the FEATURE keyword of IEAMSCHD, but there are no processors with the Integrated Cryptographic Feature online.

Action: Remove CRYPTO from the FEATURE keyword.

00080004

Explanation: A DIE routine issued IEAMSCHD to attempt to schedule an SRB with PRIORITY=CURRENT.

Action: Correct the program so that the routine does not specify PRIORITY=CURRENT on IEAMSCHD.

00080005

Explanation: The space token specified via the PURGESTOKEN keyword on IEAMSCHD is not valid.

Action: Retry the request specifying a valid PURGESTOKEN token.

00080006

Explanation: The space token specified via the CLIENTSTOKEN keyword on IEAMSCHD is not valid.

Action: Retry the request specifying a valid CLIENTSTOKEN.

00080007

Explanation: The parameter list for IEAMSCHD is not in the user's primary address space.

Action: Correct the program so that the parameter list is addressable.

00080009

Explanation: The caller of IEAMSCHD specified SYNCH=YES but held a lock.

Action: Ensure that no locks are held when SYNCH=YES is specified on IEAMSCHD.

00090000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00090001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00090002

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00090003

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000A0000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000B0000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000C0000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000C0001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000D0000

Explanation The SCHEDULE macro detected a circular SRB chain. The reason may be that the SCHEDULE macro was issued more than once for an SRB.

Action: Ensure that the program does not issue SCHEDULE for the SRB again before the SRB is dispatched. General purpose register 3 points to the SRB.

000D0001

Explanation The PURGEDQ macro detected a circular SRB chain. The reason may be that the SCHEDULE macro was issued more than once for an SRB.

Action: Ensure that the program does not issue SCHEDULE for the SRB again before the SRB is dispatched. General purpose register 3 points to the SRB.

000D0002

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000D0003

Explanation: The SCHEDULE macro detected an SRB which is not valid. The reason may be that the SCHEDULE macro was issued more than once for an SRB.

Action: Ensure that the program does not issue SCHEDULE for the SRB again before the SRB is dispatched. The SRB and the associated WEB are recorded in LOGREC.

000E0000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000E0001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000E0002

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

000F0000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00100000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00100001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00110000

Explanation: For a call to the Begin_Context service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00110001

Explanation: For a call to the Begin_Context service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00120000

Explanation: For a call to the Delete_Context_Interest service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00120001

Explanation: For a call to the Delete_Context_Interest service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00130000

Explanation: For a call to the Express_Context_Interest service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00130001

Explanation: For a call to the Express_Context_Interest service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00140000

Explanation: For a call to the End_Context service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00140001

Explanation: For a call to the End_Context service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00150000

Explanation: For a call to the Switch_Context service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00150001

Explanation: For a call to the Switch_Context service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00160000

Explanation: For a call to the Retrieve_Context_Interest_Data service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00160001

Explanation: For a call to the Retrieve_Context_Interest_Data service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00170000

Explanation: For a call to the Set_Context_Interest_Data service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00170001

Explanation: For a call to the Set_Context_Interest_Data service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00180000

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00180001

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190001

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190002

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190003

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190004

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190005

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190006

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190007

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190008

Explanation: Internal Error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00190009

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

0019000A

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

0019000B

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

001B0000

Explanation: This completion code and reason code are used to permit MVS to take a system dump the first time MVS issues message IEA059E for the current IPL.

Action: This reason code should not be treated as an error. Refer to message IEA059E for additional information.

00200000

Explanation: For a call to the Set_Context_Data service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the problem and rerun it.

00200001

Explanation: For a call to the Set_Context_Data service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the problem and rerun it.

00210000

Explanation: For a call to the Retrieve_Context_Data service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the problem and rerun it.

00210001

Explanation: For a call to the Retrieve_Context_Data service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the problem and rerun it.

00220000

Explanation: For a call to the Retrieve_Current_Context_Token service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the problem and rerun it.

00220001

Explanation: For a call to the Retrieve_Current_Context_Token service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the problem and rerun it.

00310000

Explanation: For a call to the Unregister_Resource_Manager service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00310001

Explanation: For a call to the Unregister_Resource_Manager service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00330000

Explanation: For a call to the Register_Resource_Manager service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00330001

Explanation: For a call to the Register_Resource_Manager service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00350000

Explanation: For a call to the Retrieve_Resource_Manager_Data service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00350001

Explanation: For a call to the Retrieve_Resource_Manager_Data service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00360000

Explanation: For a call to the Set_Exit_Information service, the parameters are not in the primary address space. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00360001

Explanation: For a call to the Set_Exit_Information service, the parameters are not addressable. The system rejects the service call. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00360002

Explanation: For a call to the Set_Exit_Information service, the parameters are not addressable. However, the call successfully set exit routines with the exit manager. The system abnormally ends the calling program.

Action: Check the calling program for a probable coding error. Correct the program and rerun it.

00400000

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00400001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00400002

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00450001

Explanation: A program invoked the Linkage Stack LSS Cleanup Routine with one of the following errors:

1. The caller was in SRB mode where Task mode is required
2. The caller's cross memory mode was not PASN=HASN, which is required.

Action: Correct the program so that the environment is Task mode and PASN=HASN.

00470001

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00470003

Explanation: Internal error.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

00500001

Explanation: Internal control block overlay detected and repaired.

Action: Search problem reporting databases for a fix for the problem. If no fix exists, contact the IBM Support Center.

Source: Timer supervision, supervisor control, context services, or registration services

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AC8

Explanation: Unicode Services detected an error in processing.

Code	Explanation
04	Unicode detected an unexpected return code from the IEANTRT service and register 3 contains the return code.
08	Unicode detected critical overlay information.

System action: The system abnormally ends the task.

System programmer response: Search problem reporting data bases for a fix for the problem. If no fix exists, contact the IBM Support Center.

Source: Unicode Services

AFB

Explanation: While JES3 dynamic support program (DSP) for systems network architecture (SNA) remote job processing (RJP) was executing as a JES3 subtask or under an SRB, a JES3 module IATSNDA, IATSNDE, IATSNDM, IATSNDR, IATSNDT, IATSNDU, or IATSNDV attempted to reuse a still-active request parameter list (RPL).

System action: The system cancels the session associated with the RPL and writes a dump. The system continues processing all other sessions, including those associated with the same work station.

Part 5. Updates for z/OS MVS Diagnosis: Reference

This part contains updates to the information in *z/OS MVS Diagnosis: Reference* (GA32-0904).

The table, "Relating a module prefix to component and product," has been updated.

Table 1. Relating a module prefix to component and product (continued)

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IBM	PL/I Library, VA PL/I Library	5650-ZOS	568819803, 568819806	Language Environment
ICA	Firewall Technologies	5650-ZOS	5655A2800	Security Server
ICH	Resource Access Control Facility (RACF)	5650-ZOS	5752XXH00	RACF
ICK	Device Support Facilities	5655-257	565899201	ICKDSF
ICP	Input/output configuration program (IOCP)	5650-ZOS	566529101 566529102	MVS
ICQ	TSO/E Information Center Facility (ICF)	5650-ZOS	566528506	TSO/E
ICV	Common volume table of contents (VTOC) access facility (CVAF)	5650-ZOS	5695DF133	DFSMSdfp
ICV	Data Management Support (CVAF)	5650-ZOS	5695DF133	DFSMSdfp
ICY	Media manager	5650-ZOS	5695DF133	DFSMSdfp
ICY	VSAM/Media manager	5650-ZOS	5695DF106	DFSMSdfp
IDA	ICF catalog	5650-ZOS	5695DF105	DFSMSdfp
IDA	VSAM/Media manager (VSAM) and VIO	5650-ZOS	5695DF106	DFSMS
IDD	Basic Access Methods (VIO)	5650-ZOS	5695DF102	DFSMS
IDD	Virtual I/O (VIO)	5650-ZOS	5695DF133	DFSMSdfp
IEAALxxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAASxxx - IEACSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEACVxxx	Mapping macros	5650-ZOS	5752SC101	MVS
IEAExxxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAHxxxx	Supervisor Control	5650-ZOS	5752SC1C5	MVS
IEAFIxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAFTxxx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAIHxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAIPL08, IEAIPL18, IEAIPL88	Allocation/unallocation	5650-ZOS	5752SC1B4	MVS
IEAIPxxx	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IEAIPCSP	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEALCxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEALIxxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEALSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAMLxxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IEAMSDxx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAMSWxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAMTLxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IEAPAxxx	Mapping macros	5650-ZOS	5752SC101	MVS
IEAPSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEARxxxx	Task manager	5650-ZOS	5752SC1CL	MVS
IEASCFxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEASCVxx	Mapping macros	5650-ZOS	5752SC101	MVS
IEASMxxx	System management facilities (SMF)	5650-ZOS	5752SC102	MVS
IEASRxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEASSAxx	Task manager	5650-ZOS	5752SC1CL	MVS

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