Cheryl Watson's
SMF Reference Summary

The MVS operating system by any name (MVS, OS/390, z/OS) provides the most comprehensive metrics about its actions of any platform we are aware of. Most of this information is written to a tool called the System Management Facility or SMF. The resulting SMF records can then be used for accounting and chargeback, capacity planning, tuning and performance management, data center reporting, troubleshooting, and activity logs. In addition to IBM products, dozens of vendor products provide data via SMF.

This Reference Summary is the only one we know of that combines all the records available from both IBM and other vendors into a single publication. It's a joint effort that started during the spring 2014 SHARE Conference, and has been updated and enhanced along the way by many z/OS developers, ISV developers, and the helpful subscribers of IBM-Main. We owe our many thanks to all who have so generously contributed.

This Summary contains information about 219 record types and many more hundreds of subtypes. If you know of records not included here, please send us an email. We expect to update this periodically, so please check back for future updates at http://www.watsonwalker.com/publications/. We've never met an SMF record we didn't like!

Frank Kyne, Editor / Cheryl Watson, Publisher

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SMF Reference Summary Contents

In our last Reference Summary, we indicated changes with change bars. We're using a different technique from this point on. All changes will be listed at the back of this document. Here's some information that will help you get the most out of this Reference.

1. Most of the information here comes from two IBM manuals:
   SA38-0667-40 (2020-10-26) - z/OS 2.4 MVS System Management Facilities (SMF)
   SA23-1380-40 (2020-10-26) – z/OS 2.4 MVS Initialization and Tuning Reference
2. Columns 1-2: The two columns on the left for Type(Dec) and Type(Hex) provide the SMF record type. Record types 0 to 127 are reserved for IBM's use, although a few vendors create similar records to IBM's (such as the Type 6 for printing). Most non-IBM vendors provide a default record type. Some allow the customer to change the number; those are marked in the chart with an asterisk (*) to the right of the decimal record type. Some vendors don't provide any default but require the customer to specify one. Those are listed as having record type of 128-255. Someday we will be adding a record type of 128-2047.
3. Column 3: Some SMF record types support subtypes, and others don't. Subtypes are listed in the third column. These subtypes may or may not be in the standard subtype field. In some cases, the subtype is located elsewhere, and another field identifies the position of the subtype (often by just the vendor id). This is especially true of the SMF type 6 record.
4. Column 4: Short description.
5. Column 5: Exit. The SYS and SUBSYS keywords of the SMFPRMxx Parmlib member (see page 26) define which SMF user exits, if any, will be called during the life of an address space. The default is that all exits are called. Just before an SMF record is written to the VSAM data set or logstream, user exit IEFU86 is optionally called, as well as a call to one of three user exits: IEFU83, IEFU84, or IEFU85. Users can choose to delete the record before it's written. The selection as to which of the three exits is called is determined by how the record was originally passed to SMF. If the SMFWTM macro was used to pass the record or the SMFEWTM macro with BRANCH=NO was used, then exit IEFU83 is called. If the SMFEWTM macro was used with BRANCH=YES and MODE=XMEM, then exit IEFU85 is called. If the SMFEWTM macro was used with BRANCH=YES and not in cross memory mode, then exit IEFU84 is called. The new extended SMF record header can be handled by IEFU86 and *not* the others, so we recommend that all customers move the code from U83/U84/U85 exits into U86 and call the one IEFU86 exit. As you will see in our tables, many of the SMF writers have not documented how the record is passed. Over time, we hope to fill in those gaps. If you are a software vendor or IBM developer who can help us expand this reference to include your products, please send an email to us at technical@watsonwalker.com.
6. Column 6: Vendor name.
7. Column 7: Additional reference or manual number. When viewed as a PDF, these are all hot links that will open when clicked. When a URL is included, we use the most current manual available at the time of publication.

For a more thorough explanation of SMF or Parmlib member SMFPRMxx, please see *Cheryl Watson's Tuning Letter* (by subscription only at www.watsonwalker.com) or view one of our free presentations at watsonwalker.com/publications/presentations/. Our *Tuning Letter* has provided system programming recommendations since 1991, and each subscriber has access to all 30 years of newsletters. Do you want to know which are the most important SMF records, and how to use them? Or do you want to know WHY, for instance, we recommend you specify DDCONS(NO) in SMFPRMxx? Just check out our *Tuning Letter*!

You might also be interested in Cheryl and Frank's SMF series of articles in the free Enterprise Systems Media Tech Journal. We started with the August/September 2014 issue. Check them out here:

- August/September 2014 – SMF: An Important Component of z/OS
- Oct-Nov 2014 – SMF: Exits and the Life of a Job
- Winter 2014/2015 – SMF: SMFPRMxx Intervals and Synchronization
- March/April 2015 – SMF: SMFPRMxx VSAM Data Sets
- June/July 2015 – SMF: Why SMF Logstream?
- August/September 2015 – SMF: Implementing SMF Logstream
- Winter 2015/2016 – SMF: SMF Overlooked Parameters
- 2016: Issue 1 – SMF: Recent SMF Parameters
- 2016: Issue 2 – SMF Records – Preparing for the New Frontier

Index of SMF Record Types and Subtypes

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
0	00		IPL	IEFU84	IBM	
2	02	none	SMF Dump Header		IBM	
		1	Signature Group			
		2	Signature Interval			
3	03		SMF Dump Trailer		IBM	
4	04		Step Termination (use type 30 instead)	IEFU84	IBM	
5	05		Job Termination (use type 30 instead)	IEFU84	IBM	
6	06		Printer Output	--	IBM	
		0	External Writer			
		2	JES2 Output Writer	IEFU83		
		5	JES3 Output Writer	IEFU83		
		7	PSF (Print Services Facility) Output	IEFU83		
		9	IP PrintWay Output	IEFU83		SA38-0693-40 (2019-07-02) - *z/OS 2.4 Infoprint Server Operation and Administration*
6 *	06		CA View		Broadcom	Broadcom Tech Docs Portal
6	06		CA Dispatch		Broadcom	Broadcom Tech Docs Portal
6 *	06		CA Deliver		Broadcom	Broadcom Tech Docs Portal
6	06		CA BUNDL		Broadcom	Broadcom Tech Docs Portal
6 *	06		Columbus Z		Macro 4	www.macro4.com/en/product/columbus-z/
6	06	2	JES Queue for Printers		MacKinney	www.mackinney.com/products/mainframe-printing/jes-queue-printers.html
6	06		VPS	IEFU83	Levi, Ray & Shoup, Inc.	http://www.lrs.com
6	06		Xerox XPAF		Xerox	http://www.xerox.com/digital-printing/workflow/printing-software/xpaf/enus.html
7	07		SMF Data Lost	IEFU84	IBM	
8	08		I/O Configuration	IEFU84	IBM	
9	09		Vary Device Online	IEFU83	IBM	
10	0A		Allocation Recovery	IEFU83	IBM	
11	0B		Vary Device Offline	IEFU83	IBM	
14	0E		Input Data Set Activity		IBM	
		1	Compressed Format Data Set			
		2	SMS Class Information			
		3	Step Information			
		4	ISO/ANSI Version 4 CCSID			
		5	Additional Data Set Characteristics			
		6	PDSE Data Set Caching Statistics			
		7	Tape Encryption Data			
		8	RAS			
		9	DASD Data Set Encrypted			
15	0F		Output Data Set Activity		IBM	
		1-9	Same as type 14			
16	10		DFSORT Statistics	--	IBM	SC23-6881-40 (2020-06-23) - *z/OS 2.4 DFSORT Installation and Customization*

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		1	Short Record, Successful Execution			
		2	Full Record, Successful Execution			
		3	Short Record, Unsuccessful Execution			
17	11		Scratch Data Set Status		IBM	
18	12		Rename (Non-VSAM) Data Set Status		IBM	
19	13		Direct Access Volume		IBM	
20	14		Job Initiation	IEFU84	IBM	Use type 30 instead.
21	15		Tape Error Statistics by Volume		IBM	
22	16		Configuration	--	IBM	
		1	IPL	IEFU84		
		2	Vary Online	IEFU84		
		3	Vary Offline	IEFU84		
		7	Vary Channel Path Online/Offline	IEFU84		
		8	3990 State Change	IEFU84		
		9	Activate	IEFU84		
		99	Continuation Record	IEFU84		
23	17		SMF Statistics	IEFU84	IBM	
24	18		JES2 Spool Offload	--	IBM	
		1	Job Transmitted	IEFU83		
		2	Job Received	IEFU83		
		3	SYSOUT Transmitted	IEFU83		
		4	SYSOUT Received	IEFU83		
25	19		JES3 Device Allocation	IEFU83		
26	1A		Job Purge	--	IBM	
		2	Job Purge: JES2	IEFU83		
		5	Job Purge: JES3	IEFU83		
26	1A		CA BUNDL		Broadcom	Broadcom Tech Docs Portal
28	1C		NPM (NetView) Statistics - Too many subtypes to include - 136.		IBM	[SH19-6965-06](SH19-6965-06) - *NetView Performance Monitor V2R7*; product replaced by IBM Tivoli OMEGAMON XE for Mainframe Networks V5.1
30	1E		Common Address Space Work	--	IBM	
		1	Job or Task Initiation	IEFU84		
		2	Interval Termination	IEFU84		
		3	Last Interval Termination	IEFU84		
		4	Step Termination	IEFU84		
		5	Job or Task Termination	IEFU84		
		6	System Address Space Interval Termination	IEFU84		
31	1F		TIOC Initialization (obsolete)		IBM	
32	20		TSO/E User Work Accounting	--	IBM	
		1	Interval Termination	IEFU84		
		2	Session Termination	IEFU84		
		3	Detailed Interval Termination	IEFU84		
		4	Detailed Session Termination	IEFU84		
33	21		APPC/MVS TP Accounting	--	IBM	
		1	Transaction Record	IEFU84		

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		2	Conversation Record	IEFU85		
34	22		TSO Step Termination (use type 30 instead)	IEFU84	IBM	
35	23		TSO Logoff (use type 30 instead)	IEFU84	IBM	
36	24		ICF Catalog Export		IBM	
37	25		IBM Z NetView	--	IBM	SC27-2870-03 (2020-03-06) – *IBM Z NetView for z/OS 6.30 - Application Programmer's Guide*
		4	NetView Hardware Monitor			
		22	VPD (Vital Product Data)			
38	26		NetView Health Check and User Authorization Monitor	--	IBM	SC27-2870-03 (2020-03-06) – *IBM Z NetView for z/OS 6.30 - Application Programmer's Guide*
		1	Command Authorization Table			
		2	Task Resource Utilization Data			
		3	Span Authorization Table			
		4	Command Statistics Data			
39	27		NetView (NLDM) Response Time	--	IBM	SC27-2870-03 (2020-03-06) – *IBM Z NetView for z/OS 6.30 - Application Programmer's Guide*
		1	RTM Collection			
		2	Session End			
		3	Session Start			
		4	Accounting and Availability			
		5	Combined Session Start-End			
		6	Bind Failure			
		7	Init Failure			
		8	Storage and Event Counter			
39 *	27		CA NetMaster Network Management for SNA/Network Tracking System		Broadcom	Broadcom Tech Docs Portal; subtypes same as NLDM
40	28		Dynamic DD	IEFU83	IBM	Use type 30 instead.
41	29		DIV Objects and VLF Statistics	--	IBM	
		1	DIV Object Accessed (Opened)	IEFU84		
		2	DIV Object Unaccessed (Closed)	IEFU84		
		3	VLF Statistics	IEFU83		
42	2A		DFSMS Statistics and Configuration	--	IBM	
		1	Storage Class Summary & Buffer Management	IEFU84		
		2	Cache Control Unit (3990-3) Statistics	IEFU84		
		3	SMS Configuration Change	IEFU84		
		4	System Data Mover Statistics	IEFU84		
		5	Storage Class VTOC/VVDS I/O Stats	IEFU84		
		6	Data Set I/O Statistics	IEFU84		
		7	NFS File Timeout Usage Statistics	IEFU84		SC23-6883-40 (2020-06-23) - *z/OS 2.4 Network File System Guide and Reference*
		8	NFS User Logout Session Statistics	IEFU84		SC23-6883-40 (2020-06-23) - *z/OS 2.4 Network File System Guide and Reference*

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		9	Out of Space ABEND (Sx37)	IEFU84		
		10	Allocation Volume Selection Failure	IEFU84		
		11	XRC Interval Statistics	IEFU84		
		14	ADSM Accounting	IEFU84		
		15	VSAM RLS Storage Class Statistics	IEFU84		
		16	VSAM RLS Data Set Statistics	IEFU84		
		17	VSAM RLS CF Lock Statistics	IEFU84		
		18	VSAM RLS CF Usage Statistics	IEFU84		
		19	VSAM RLS Buffer LRU Statistics	IEFU84		
		20	All PDSE Members Deleted	IEFU84		
		21	PDS/PDSE Member Deleted	IEFU84		
		22	DFSMSrmm for Audit Records	IEFU84		
		23	DFSMSrmm for Security Records	IEFU84		
		24	PDS/PDSE Member Added or Changed	IEFU84		
		25	PDS/PDSE Member Renamed	IEFU84		
		26	NFS File Creation, Removal & Rename	IEFU84		SC23-6883-40 (2020-06-23) - *z/OS 2.4 Network File System Guide and Reference*
		27	VTOC DSCB Audit Record	IEFU84		
43	2B		JES Started	--	IBM	
		2	JES2 Started	IEFU83		
		5	JES3 Started	IEFU83		
45	2D		JES Stopped	--	IBM	
		2	JES2 Stopped	IEFU83		
		5	JES3 Stopped	IEFU83		
47	2F		JES Signon / Line Started	--	IBM	
		2	JES2 Line Started	IEFU83		
		5	JES3 Line Started	IEFU83		
48	30		JES Signoff / Line Stopped	--	IBM	
		2	JES2 Line Stopped	IEFU83		
		5	JES3 Line Stopped	IEFU83		
49	31		JES Integrity	--	IBM	
		2	JES2 Integrity	IEFU83		
		5	JES3 Integrity	IEFU83		
50	32		VTAM Tuning Statistics		IBM	SC27-3672-40 (2020-08-23) - *z/OS 2.4 Communications Server: SNA Network Implementation Guide*
52	34		JES2 Line Started (SNA)	IEFU83	IBM	
53	35		JES2 Line Stopped (SNA)	IEFU83	IBM	
54	36		JES2 Integrity (SNA)	IEFU83	IBM	
55	37		JES2 Network Started	IEFU83	IBM	
56	38		JES2 Network Integrity	IEFU83	IBM	
57	39		JES Network Transmission	--	IBM	
		2	JES2 SYSOUT Transmission	IEFU83		
		5	JES3 Networking Transmission	IEFU83		
58	3A		JES2 Network Signoff	IEFU83	IBM	
59	3B		BDT File-to-File Transmission	IEFU84	IBM	
60	3C		VSAM Volume Data Set Updated		IBM	
61	3D		ICF Catalog Define Activity		IBM	

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
62	3E		VSAM Component or Cluster Opened	IEFU83	IBM	
63	3F		VSAM Catalog Entry Defined		IBM	Obsolete.
64	40		VSAM Component or Cluster Status	IEFU83	IBM	
65	41		ICF Catalog Delete Activity		IBM	
66	42		ICF Catalog Alter Activity		IBM	
67	43		VSAM Catalog Entry Deleted		IBM	Obsolete.
68	44		VSAM Catalog Entry Renamed		IBM	Obsolete.
69	45		VSAM Data Space Modified		IBM	Obsolete.
70	46		RMF/CMF Processor Activity	--	IBM/BMC	
		1	CPU, PR/SM and ICF Activity	IEFU83		
		2	Cryptographic Hardware Activity	IEFU83		
71	47	1	RMF/CMF Paging Activity	IEFU83	IBM/BMC	
72	48		RMF/CMF Workload Activity, Storage Data, and Serialization Delay	--	IBM/BMC	
		3	Workload Activity	IEFU83		
		4	Storage Data	IEFU83		
		5	Serialization Delay	IEFU83		
73	49	1	RMF/CMF Channel Path Activity	IEFU83	IBM/BMC	
74	4A		RMF/CMF Resource Activity	--	IBM/BMC	
		1	Device Activity	IEFU83		
		2	XCF Activity	IEFU83		
		3	OMVS Kernel Activity	IEFU83		
		4	Coupling Facility Activity	IEFU83		
		5	Cache Subsystem Device Activity	IEFU83		
		6	HFS Statistics	IEFU83		
		7	FICON Director Statistics	IEFU83		
		8	Enterprise Disk System Statistics	IEFU83		
		9	PCI Express Based Function Activity	IEFU83		
		10	Storage Class Memory (SCM) Statistics	IEFU83		
75	4B	1	RMF/CMF Page Data Set Activity	IEFU83	IBM/BMC	
76	4C	1	RMF/CMF Trace Activity	IEFU83	IBM/BMC	
77	4D	1	RMF/CMF Enqueue Activity	IEFU83	IBM/BMC	
78	4E		RMF/CMF Virtual Storage & I/O Activity	--	IBM/BMC	
		2	Virtual Storage Activity	IEFU83		
		3	I/O Queuing & HyperPAV Activity	IEFU83		
79	4F		RMF Monitor II Activity	--	IBM/BMC	
		1	Address Space State Data	IEFU83		
		2	Address Space Resource Data	IEFU83		
		3	Central Storage/Processor/SRM Data	IEFU83		
		4	Paging Activity	IEFU83		
		5	Address Space SRM Data	IEFU83		
		6	Reserve Data	IEFU83		
		7	Enqueue Contention Data	IEFU83		

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		9	Device Activity	IEFU83		
		11	Page Data Set Activity	IEFU83		
		12	Channel Path Activity	IEFU83		
		14	I/O Queuing Activity	IEFU83		
		15	IRLM Long Lock Detection	IEFU83		
80	50		RACF and PKI Processing		IBM	SA23-2288-40 - *z/OS 2.4 Security Server RACF Macros & Interfaces*
80	50		ETF/R - Emergency Firecall Access for RACF		EKC, Inc.	https://www.ekcinc.com/products/Firecall/CurrentRelease/Firecall.htm
80	50		ETF/R - Emergency Firecall Access for CA-ACF2		EKC, Inc.	https://www.ekcinc.com/products/Firecall/CurrentRelease/Firecall.htm
80 *	50		CA Top Secret (non-USS-based events)		Broadcom	Broadcom Tech Docs Portal
81	51		RACF Initialization		IBM	SA23-2288-40 (2020-10-06) - *z/OS 2.4 Security Server RACF Macros & Interfaces*
82	52	0001	Programmed Cryptographic Facility (PCF)	IEFU83	IBM	
82	52	0002	Cryptographic Unit Support Program (CUSP)		IBM	
82	52		Cryptography Services	--	IBM	SC14-7507-00 - *z/OS Cryptographic Services ICSF System Programmer's Guide*
		1	ICSF Started			
		3	Change in Number of Processors	IEFU85		
		4	ICSF Error Condition	IEFU85		
		5	Security Mode Change	IEFU85		
		6	Key Part Entered via Key Entry Unit (KEU)	IEFU85		
		7	Key Part Entered via Key Entry Unit (KEU)	IEFU85		
		8	In-Storage CKDS Refreshed	IEFU85		
		9	Dynamic CKDS Update			
		10	PKA Master Clear Key Part Entered			
		11	DES Master Clear Key Part Entered			
		12	CSFSPKSC Request/Reply			
		13	PKDS Dynamic Update			
		14	PCI Master Key Clear Key Part Entered			
		15	PCI Retain Key Created or Deleted			
		16	CSIPCI Request/Reply			
		17	PCI Usage Statistics			
		18	Cryptographic Processor Online/Offline			
		19	PCI X Operation			
		20	PCIXCC/CEX2C Processing Times			
		21	ICSF Join/Leave Sysplex			
		22	Trusted Block Create			
		23	TKDS Updated			
		24	Duplicate Tokens			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		25	Key Store Policy Invoked			
		26	Public Kay Data Set Refreshed			
		27	PKA Key Mgmt Extensions			
		28	High Performance Encrypted Key			
		28	TKE Workstation Audit			
83	53		RACF Audit Record for Data Sets	--	IBM	[SA23-2288-00](#) - *z/OS 2.1 Security Server RACF Macros & Interfaces*
		1	Change of Security Label			
		2 +	User Defined			
84	54		JES2 Monitoring Facility Data	--	IBM	
		21	Resource Limit and Usage Information	IEFU83		
84	54		JES3 Monitoring Facility (JMF)	--	IBM	[GA32-1002-40](#) - *z/OS 2.4 JES3 Diagnosis*
		1	FCT Analysis	IEFU83		
		2	FCT Summary and Highlight	IEFU83		
		3	Spool Data Management	IEFU83		
		4	Resqueue Cellpool, JCT, and Control Block Utilization	IEFU83		
		5	Job Analysis	IEFU83		
		6	Hot Spot Analysis	IEFU83		
		7	Internal Reader DSP Analysis	IEFU83		
		8	SSI Response Time Analysis	IEFU83		
		9	SSI Destination Queue Analysis	IEFU83		
		10	Workload Manager Analysis	IEFU83		
85	55		OAM Transaction Performance	--	IBM	[SC23-6866-40](#) - *z/OS 2.4 DFSMS OAM Planning, Installation, and Storage Administration Guide for Object Support*
		1-103	See Manual			Subtypes 100-103 in APAR [OA55700](#)
86	56		CIM Server Audit	--	IBM	[SC34-2671-00](#) - *z/OS 2.1 Common Information Model User's Guide*
		1	Authentication			
		2	Configuration			
		3	Provider Status			
		4	CIM Operations			
87	57		GRS Monitoring		IBM	[SA23-1389-40](#) - *z/OS 2.4 MVS Planning: Global Resource Serialization*
		1	Global Generic Queue Scan (QSCAN)	IEFU84		Also see APAR [OA42221](#)
		2	ENQ/DEQ/ISGENQ/RESERVE	IEFU84		
88	58		System Logger Data	--	IBM	
		1	Log Stream Activity			
		11	Coupling Facility Structure Altered			
89	59		Licensed Product Usage Data	--	IBM	
		1	Usage Data Interval	IEFU84		
		2	State Data Interval	IEFU84		
89	59		CA Repository for z/OS		Broadcom	[Broadcom Tech Docs Portal](#)
89	59		SYSB-II		H&W Computer Services	[www.hwcs.com](#)

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
90	5A		System Status Change	--	IBM	
		1	SET TIME			
		2	SET DATE			
		3	SETDMN			
		5	SET SMF	IEFU84		
		6	SWITCH SMF	IEFU84		
		7	HALT EOD	IEFU83		
		8	IPL PROMPT	IEFU84		
		9	IPL SMF	IEFU84		
		10	IPL SRM			
		11	SET OPT			
		13	SETSMF	IEFU84		
		14	SET MPF			
		15	SET SMF (restart SMF)	IEFU84		
		16	SET DAE			
		17	SET PFK			
		18	SET GRSRNL			
		19	SET APPC			
		20	SET ASCH			
		21	SET SCH			
		22	SET CNGRP			
		23	IPL WLM			
		24	VARY WLM			
		25	MODIFY WLM			
		26	IPL LOGREC			
		27	SETXCF START (restart management)			
		28	SETXCF STOP (restart management)			
		29	SET PROG (LNKLST activation)			
		30	RESET			
		31	SET PROG (LPALST activation)			
		32	WLM Policy Change			
		33	SET AUTOR			
		34	Processor Capacity Change			
		35	SETLOAD xx,IASYM			
		36	SET CON			
		37	Dynamic APF			
		38	SET IEFOPZ Plus Changes			
		40	System Recovery Boost Start & End			
91	5B		BatchPipes/MVS Statistics	--	IBM	SA22-7458-00 - IBM BatchPipes OS/390 V2R1 Users Guide and Reference
		1	Subsystem Started			
		2	Subsystem Interval Statistics			
		3	Subsystem Stopped			
		11	Pipe Opened			
		12	Pipe Interval Statistics			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		13	Pipe Closed			
		14	Pipe Created			
		15	Pipe Deleted			
92	5C		z/OS UNIX File System Activity	--	IBM	GA32-0884-00 (2013) - *z/OS 2.1 UNIX System Services Planning*
		1	File System Mounted	IEFU85		
		2	File System Suspended/Quiesced	IEFU85		
		4	File System Resumed/Unquiesced	IEFU85		
		5	File System Unmounted	IEFU85		
		6	File System Remounted	IEFU85		
		7	File System Moved	IEFU85		
		8	File System Migrated			
		10	File Opened	IEFU85		
		11	File Closed	IEFU85		
		12	Memory Map Started (MMAP)	IEFU85		
		13	Memory Map Ended (MUNMAP)	IEFU85		
		14	File/Directory Deleted or Renamed	IEFU85		
		15	File Security Changed	IEFU85		
		16	Socket/Character Special File, Pipe, or FIFO is closed	IEFU85		
		17	Times File is Accessed	IEFU85		
		50	File System Event			
		51	Counts and Response Times			
		52	Statistics for zFS User File Cache			
		53	Statistics for zFS Metadata Cache			
		54	ZFS Locking and Sleeps Statistics			
		55	General zFS Disk I/O Statistics			
		56	Token Manager Information			
		57	zFS Memory Usages			
		58	Transmit/Receives and Response			
		59	Per-File System Usage			
94	5E		Tape Library Dataserver Statistics		IBM	
		1	Composite Statistics			
		2	Volume Pool Statistics			
96	60		Cross Memory Service Provider Charge Back	--	IBM	
		1	Detail Statistics			
		2	Summary Statistics			
97	61	1	Foreign Enclave Resource Data		IBM	
98	62		Workload Interaction Correlator and High-Frequency Throughput Statistics	--	IBM	
		1	Supervisor Performance Data	IEFU84		
		1024	IBM CICS			
		1025	IBM IMS			
99	63		System Resource Manager Decisions	--	IBM	SC34-2663-40 (2019-09-11) - *z/OS 2.4 MVS Programming: Workload Management Services*

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		1	System Level Data			
		2	Service Class Activity			
		3	Service Class Period Plot Data			
		4	Device Cluster			
		5	Monitored Address Spaces			
		6	Service Class Period Summary			
		7	ESS/PAV Statistics			
		8	LPAR/CPU Management Statistics			
		9	Dynamic Channel Path Summary			
		10	Dynamic Processor Speed Change			
		11	Group Capacity Limits			
		12	HiperDispatch Interval			
		13	HiperDispatch Internal			
		14	HiperDispatch Topology			
100	64		DB2 Statistics		IBM	SC27-8844-02 (2020-10-29) - *IBM DB2 Administration Guide*
101	65		DB2 Accounting		IBM	SC27-8844-02 (2020-10-29) - *IBM DB2 Administration Guide*
102	66		DB2 Performance		IBM	SC27-8844-02 (2020-10-29) - *IBM DB2 Administration Guide*
103	67		HTTP Server Statistics	--	IBM	SC34-4826-10 - *z/OS 2.1 HTTP Server Planning, Installing, and Using*
		1	Configuration Statistics			
		2	Performance Statistics			
		13	Operational Statistics			www-01.ibm.com/support/knowledgecenter/_-!/SSD28V_8.5.5/com.ibm.websphere.ihs.doc/ihs/tihs_smfconfig.html
		14	HTTP Apache Requests			publib.boulder.ibm.com/httpserv/manual70/mod/mod_smf.html
104	68		RMF Distributed Platform Performance Data		IBM	SC34-2667-40 (2019-10-30) - *z/OS 2.4 RMF Programmer's Guide*
		1-12	AIX on System P			
		20-31	Linux on System x			
		40-53	Linux on System z			
		60-64	Windows on System x			
105	6A		GDPS/Global Mirror	--	IBM	
		1	Global Mirror Session Data	IEFU84		
		2	DiskSubsystem Data	IEFU84		
106	6B		BCPii Activity	--	IBM	SA23-1377-40 - *z/OS 2.4 MVS Programming: Callable Services for High-Level Languages*
		1	HWISET API Calls	IEFU85		
		2	HWICMD API Calls	IEFU85		
108	6C		Domino Server Statistics	--	IBM	
		1	Server Load	IEFU83		
		2	User Activity	IEFU83		
		3	Monitoring and Tuning	IEFU83		
		6	Data Base Activity	IEFU83		
109	6D		TCP/IP syslogd Messages		IBM	SC27-3659-40 - *z/OS 2.4 Communications Server: IP Programmer's Guide and Reference*
110	6E		CICS/TS Statistics	--	IBM	Web-PDF (2020-10-19) - *CICS Transaction Server for z/OS V5.6: Data Areas*

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		0	Journaling Data			
		1	Monitoring Data			
		2	Statistics Data			
		3	TS Data Sharing			
		4	CF Data Table (CFDT)			
		5	DFHNC Named Counter			
110	6E		MainView for CICS		BMC Software	Optional
		1	CICS Performance			MVCICS will optionally append additional data to the SMF records if requested by the user via the CICS MCT (Monitoring Control Table)
		2	CICS Statistics			MVCICS provides the capabilities to write various records at MVCICS controlled intervals defined in the SOPT
		0B02	MVCICS Generated Statistics			These are MVCICS defined records that can be written to the SMF file at user defined intervals
110	6E	1	ASG-TMON for CICS TS for z/OS		ASG	www.asg.com/Smart-Catalog/ASG-TMON-for-CICS-TS-for-z-OS.aspx
111	6F	0	CICS Transaction Gateway (CTG)		IBM	Statistics KC - *CICS Transaction Gateway V9.3 z/OS Administration*
113	71		z/OS Hardware Monitor		IBM	
		1	Event Counter Deltas			
		2	Event Counters (stabilized)			
114	72	0	Tivoli System Automation		IBM	SC34-2716-02 (KC) - *IBM Z System Automation for z/OS V4R2 Customizing and Programming*
115	73		MQSeries Statistics		IBM	Monitoring Performance and Resource Usage in IBM MQ V9.2 (KC)
		1	System Information			
		2	Message, Buffer, Paging Activity			
		3	Storage Usage			
		215	Bufferpool Information			
		231	Channel Initiator Stats			
116	74		MQSeries Accounting		IBM	Monitoring Performance and Resource Usage in IBM MQ V9.2 (KC)
		0	Message Manager			
		1	Thread/Queue Level			
		2	More Queue Level Data			
		10	Channel			
117	75		WebSphere Message Broker and IBM Integration Bus		IBM	z/OS SMF Records for Message Flow Accounting and Statistics Data for IIB 10.0.0.22 (KC)
		1	Message Flow or Threads Data			
		2	Node Data			
118	76		TCP/IP Statistics (stabilized)		IBM	SC27-3659-40 - *z/OS 2.4 Communications Server: IP Programmer's Guide and Reference.* User should migrate to SMF type 119.
		1	TCP API Initialization			
		2	TCP API Termination			
		3	FTP Client			
		4	TN3270 Client			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		5	TCP/IP Statistics			
		20	TN3270 Server Initialization			
		21	TN3270 Server Termination			
		70	FTP Server Append Subcommand			
		71	FTP Server Delete Subcommand			
		72	FTP Server Logon Failures			
		73	FTP Server Rename			
		74	FTP Server Retrieve			
		75	FTP Server Store			
119	77		TCP/IP Statistics		IBM	SC27-3659-40 - *z/OS 2.4 Communications Server: IP Programmer's Guide and Reference*
		1	TCP Connection Started			
		2	TCP Connection Ended			
		3	FTP Client Transfer Completion			
		4	TCP/IP Profile Event			
		5	TCP/IP Statistics			
		6	Interface Statistics			
		7	Server Port Statistics			
		8	TCP/IP Stack Start/Stop			
		10	UDP Socket Close			
		11	zERT Connection Detail			
		12	zERT Summary			
		20	TN3270 Server SNA Session Initiation			
		21	TN3270 Server SNA Session Termination			
		22	TSO Telnet Client Connection Initiation			
		23	TSO Telnet Client Connection Ends			
		32	DVIPA Status Change			
		33	DVIPA Removed			
		34	DVIPA Target Added			
		35	DVIPA Target Removed			
		36	DVIPA Target Server Started			
		37	DVIPA Target Server Ended			
		38	SMC-D Link Statistics			
		39	SMC-D Link State Start			
		40	SMC-D Link State End			
		41	SMC-R Link Groups			
		42	SMC-R Link Started			
		43	SMC-R Link State End			
		44	RDMA Network Interface Card Statistics			
		45	Internal Shared Memory (ISM) Interface Statistics			
		48	CSSMTP Configuration			
		49	CSSMTP Connection			
		50	CSSMTP Mail			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		51	CSSMPT Spool File			
		52	CSSMPT Statistics			
		70	FTP Server Transfer Completion			
		71	FTP Daemon Configuration			
		72	FTP Server Login Failure			
		73	IPSec IKE Tunnel Activation			
		74	IPSec IKE Tunnel Deactivation			
		75	IPSec Dynamic Tunnel Activation			
		76	IPSec Dynamic Tunnel Deactivation			
		77	IPSec Dynamic Tunnel Added			
		78	IPSec Dyn. Tunnel Removed			
		79	IPSec Manual Tunnel Activation			
		80	IPSec Manual Tunnel Deactivation			
		81	VTAM 3270 Intrusion Detection Event			
		94	OpenSSH Client Connection Started			[SC27-6806-00 - z/OS OpenSSH User's Guide V2.2](#)
		95	OpenSSH Server Connection Started			same
		96	OpenSSH Server Transfer Completion	IEFU83/ IEFU84		same
		97	OpenSSH Client Transfer Completion	IEFU83/ IEFU84		same
		98	OpenSSH Login Failure	IEFU83/ IEFU84		same
		100	FTP Server Transfer Initialization (NMI)			
		101	FTP Client Transfer Initialization (NMI)			
		102	FTP Client Login Failure (NMI)			
		103	FTP Client Session (NMI)			
		104	FTP Server Session (NMI)			
119	77		Co:Z SFTP	--	Dovetail Technologies	https://dovetail.com/docs/sftp/smf-support.html
		3	FTP Client Transfer Completion			Compatible with IBM FTP records
		70	FTP Server Transfer Completion			Compatible with IBM FTP records
		100	FTP Server Transfer Initialization (NMI)			Compatible with IBM FTP records
		101	FTP Client Transfer Initialization (NMI)			Compatible with IBM FTP records
		192	Co:Z SFTP Server Log Messages			https://dovetail.com/docs/sftp/smf-support.html
		193	Co:Z SFTP Client Log Messages			https://dovetail.com/docs/sftp/smf-support.html
		194	Co:Z SFTP Server Interim Transfer (NMI)			https://dovetail.com/docs/sftp/smf-support.html
		195	Co:Z SFTP Client Interim Transfer (NMI)			https://dovetail.com/docs/sftp/smf-support.html
119 *	77	3	MacKinney JES Report Broker		MacKinney	http://www.mackinney.com/products/mainframe-printing/jes-report-broker.html

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
120	78		WebSphere Performance Statistics	--	IBM	
		1	Server Activity	IEFU83		https://www.ibm.com/support/knowledgecenter/SS7K4U_8.5.5/com.ibm.websphere.zseries.doc/ae/rtrb_SMFrt12078env.html IBM strongly recommends that you do not collect subtypes 1-8 due to the overhead.
		3	Server Interval	IEFU83		Same as subtype 1.
		5	J2EE Container Activity	IEFU83		Same as subtype 1.
		6	J2EE Container Interval	IEFU83		Same as subtype 1.
		7	WebContainer Activity	IEFU83		Same as subtype 1.
		8	WebContainer Interval	IEFU83		Same as subtype 1.
		9	Request Activity	IEFU83		Same as subtype 1.
		10	Outbound Request	IEFU83		Same as subtype 1.
		11	Liberty Request Activity	IEFU83		https://www.ibm.com/support/knowledgecenter/SS7K4U_liberty/com.ibm.websphere.wlp.zseries.doc/ae/rwlp_zosrequestlogging.html
		12	Java Batch			https://www.ibm.com/support/knowledgecenter/en/SS7K4U_liberty/com.ibm.websphere.wlp.zseries.doc/ae/rwlp_batchSMFlogging.html
		20	Compute Grid (Obsolete)	IEFU83		Moved to 120.9.
121	79		Java Runtime Performance Statistics			
122	7A		IBM Explorer for z/OS & Dependent Products	--	IBM	
		1	IBM Developer for z Systems			IBM Developer for z/OS V14.2 Documentation
122	7A		Tivoli Automated Tape Allocation Manager		IBM Tivoli	IBM Tivoli Automated Tape Allocation Manager for z/OS V3.3 See Appendix I of Users Guide
		0	ATAM Initialization			
		1	Successful Allocation			
		2	WAIT-NOHOLD Initiated			
		3	Failed Allocation			
		4	ATAM Termination			
		5	Forced WAIT-NOHOLD Initiated			
		6	Unexpected Vary-Online Failures			
		7	Unsupported Dynamic Allocation			
		8	Vary Online Requests			
123	7B		z/OS Connect EE	--	IBM	z/OS Connect EE Using SMF Records
		1v1	Basic Information About Requests			https://www.ibm.com/support/knowledgecenter/SS4SVW_3.0.0/monitoring/smf_v1.html
		1v2	Enhanced Data for API Requests			https://www.ibm.com/support/knowledgecenter/SS4SVW_3.0.0/monitoring/smf_provider_v2.html
124	7C		I/O (IOS) Supervisor Information	--	IBM	
		1	Link Diagnostic Information	IEFU83		
		2	Endpoint Security Information	IEFU83		
		3	Endpoint Security Authentication Key Update	IEFU83		

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		4	Endpoint Security Encryption Key Update	IEFU83		
		5	External Key Manager Event Record	IEFU83		
125	7D		Generic Tracker Data Persistence	--	IBM	
		1	Persisted TRACKDATA Information			
128 *	80		CA PDSMAN PDS Library Management		Broadcom	Broadcom Tech Docs Portal
		1	OPS/MVS Termination Summary			
		2	OSF Server Termination			
		3	AOF Rule-Disablement			
		4	Global Variable Subtask Termination			
		5	RDF Statistics			
		6	IMSBMP Statistics			
		7	OSF Transaction			
		8	EPI Stats Record			
128 *	80		SAS		SAS	https://support.sas.com/documentation/installcenter/en/ikfdtnmvscg/66194/PDF/default/config.pdf
128-255	80-FF		MainView Batch Optimizer		BMC Software	https://www.bmc.com/it-solutions/products.html
		1	Data Optimizer			Data Optimizer Reference Appendix E
		2	Job Optimizer			Job Optimizer Reference Appendix D
128-255	80-FF		MainView Batch Optimizer		BMC Software	https://www.bmc.com/it-solutions/products.html
		1	Job Optimizer Pipes Termination			Job Optimizer Reference Appendix D
		2	Job Optimizer Pipe Participant Close			Job Optimizer Reference Appendix D
128-255	80-FF		MainView SRM Allocation		BMC Software	https://www.bmc.com/it-solutions/products.html
128-255	80-FF		StopX37/II		BMC Software	https://www.bmc.com/it-solutions/products.html
128-255	80-FF		ULTRAOPT		BMC Software	https://www.bmc.com/it-solutions/products.html
		0	Optimization Stats			
		1	Response Time Stats			
		2	Data Stream Error			
		3	CICS Stats			
		4	IMS Stats			
128-255	80-FF		Control-D Printing		BMC Software	www.bmc.com/it-solutions/product-listing/control-d-zos.html
128-255	80-FF		Control-D Decollation Process		BMC Software	www.bmc.com/it-solutions/product-listing/control-d-zos.html
128-255	80-FF		Control-D On-line Viewing		BMC Software	www.bmc.com/it-solutions/product-listing/control-d-zos.html
128-255	80-FF		Control-D WA Viewing		BMC Software	www.bmc.com/it-solutions/product-listing/control-d-zos.html
128-255	80-FF		Control-D IOA Archive Server Usage		BMC Software	www.bmc.com/it-solutions/product-listing/control-d-zos.html
128-255	80-FF		CA SOLVE: Operations Automation/Audit		Broadcom	Broadcom Tech Docs Portal
128-255	80-FF		CA Roscoe		Broadcom	Broadcom Tech Docs Portal
128-255	80-FF		CA TPX		Broadcom	Broadcom Tech Docs Portal
128-255	80-FF		CA Dispatch		Broadcom	Broadcom Tech Docs Portal

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
128-255	80-FF		CA OPS/MVS Event Management and Automation		Broadcom	[Broadcom Tech Docs Portal](#)
		1	OPS/MVS Termination Summary			
		2	OSF Server Termination			
		3	AOF Rule-Disablement			
		4	Global Variable Subtask Termination			
		5	SQL (RDF) Data at Termination			
		6	IMSBMP Data at IMSBMP Termination			
		7	OSF Transaction Completion			
		8	EPI Data at EPI Subtask Termination			
128-255	80-FF		CA Allocate DASD Space & Placement (RTF)		Broadcom	[Broadcom Tech Docs Portal](#)
128-255	80-FF		CA Allocate DASD Space & Placement (EOV)		Broadcom	[Broadcom Tech Docs Portal](#)
128-255	80-FF		TICTOC for z/OS Time Services		Can Do Systems	[www.candosys.com](#)
128-255	80-FF		File-AID for IMS		Compuware	[https://www.compuware.com/file-aid-data-management/](#)
128-255	80-FF		License Management Component		Compuware	
128-255	80-FF		License Management Component		Compuware	
128-255	80-FF		Space Recovery System		DTS Software	[www.dtssoftware.com/login.php?return_url=/scc/dnlscc61_doc.htm](#) (for registered users)
128-255	80-FF		User-Defined SMF Records		DTS Software	[www.dtssoftware.com/scc/rlsr61.pdf](#) (for registered users); identified by 'SRH' at offset X'6C'
128-255	80-FF		IBM Tivoli Output Manager for z/OS V3.1		IBM	[SC27-4071-06](#) (2019-02) – IBM Tivoli Output Manager for z/OS Installation and Customization Guide V3.1
128-255	80-FF		InfoSphere Change Data Capture		IBM	[https://www.ibm.com/support/knowledgecenter/SSTRGZ_11.4.0/com.ibm.cdcdoc.classiccdcforzos.doc/topics/iiyfccfpsmf.html](#)
128-255	80-FF		Data Virtualization Manager for z/OS		IBM	[https://www.ibm.com/support/knowledgecenter/SS4NKG_1.1.0/havada10/topics/dvs_sg_con_smf.html](#)
		01	Client System			
		02	Internal Summary			
		03	SEF Rule Disablement			
		04	Global Variable			
		05	Services (Non-SOAP requests)			
		06	Per Transaction SMF Records			
		09	Storage Interval Summary			
		10	APPC/MVS Internal Summary			
		11	APPC/MVS Conversation Summary			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		13	DB2 SQL Errors			
		14	Client Response Time			
		17	ADABAS Command by DBID Records			
		18	Services Records			
		19	Streams			
128-255	80-FF		VMCF/VTAM – VTAM stats	IEFU83	Levi, Ray & Shoup, Inc.	www.lrs.com
128-255	80-FF		VTAM/Switch	--	MacKinney	www.mackinney.com/products/session-management/vtam-switch.html
		01	User Sign-on Event			
		02	User Sign-off Event			
		03	Session Start Event			
		04	Session Stop Event			
128-255	80-FF		DumpMaster	--	Macro 4	www.macro4.com/en/product/dumpmaster/
		101	Viewer Usage			
		102	Source Listings Access			
		103	Dump Capture			
		104	Dump Suppressed			
		105	Dump Printed Via IPRINT			
128-255	80-FF		Macro 4 Products	--	Macro 4	www.macro4.com/en/product/
		1	Hourly Use Counts			These include DumpMaster, TraceMaster, InSync, CodeTrack, AUTOMON,
		2	Daily Use Counts			VSAMTune, Columbus Z, Reflect,
		3	Product Start			Tubes, WORDS Online
		4	Product End			
128-255	80-FF		(E)JES	IEFU84	Phoenix Software	www.phoenixsoftware.com/ejes.htm
128-255	80-FF		Systemware Content Server Statistics		Systemware	www.systemware.com
128-255	80-FF		Syzygy Automation Suite		Syzygy	www.syzygyInc.com
		1	SyzAUTUO/z			
		2	SyzCMD/z			
		3	SyzMPF/z			
		4	SysMAIL/z			
		5	SyzMON/z			
		6	SyzSPOOL/z			
129 *	81		InSync		Macro 4	www.macro4.com/en/product/insync/
132 *	84		IBM Sterling Connect:Direct for z/OS Statistics Exit		IBM/Altran	https://www.ibm.com/support/pages/node/627761
133 *	85		IBM Sterling Connect:Direct for z/OS		IBM/Altran	https://www.ibm.com/support/pages/node/627761
		2	Simultaneous Session Reporting and Asset Tracking			
144	90		CA Dispatch		Broadcom	Broadcom Tech Docs Portal
145	91		CA Dispatch		Broadcom	Broadcom Tech Docs Portal

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
146	92		CA Dispatch		Broadcom	[Broadcom Tech Docs Portal](#)
150 *	96		CA Scheduler/Smart Console		Broadcom	[Broadcom Tech Docs Portal](#)
150 *	96		CA 7/Smart Console Option		Broadcom	[Broadcom Tech Docs Portal](#)
150 *	96		CA Opera		Broadcom	[Broadcom Tech Docs Portal](#)
157 *	9D		BMC Control-M for z/OS		BMC Software	[www.bmc.com/it-solutions/control-m.html](#)
170 *	AA		File-AID/MVS		Compuware	[https://www.compuware.com/file-aid-data-management/](#)
170 *	AA		File-AID/Data Solutions		Compuware	[https://www.compuware.com/file-aid-data-management/](#)
180	B4		WebSphere MQ Crypto Audit			
188 *	BC		athene		Metron	[www.metron-athene.com](#)
		1	DASD Space by Volume			
		2	DASD Space by SMS Storage Group			
		3	DASD Space by Dataset HLQ			
189 *	BD		CA MIM		Broadcom	[Broadcom Tech Docs Portal](#)
		0001	Control File Performance			
		0002	Virtual Control File Performance			
		0003	File I/O Count Data			
		0005	Cell Pool/Storage Util.			
		00FF	MIM Lost Events			
		0101	GDIF ENQ/RESERVE			
		0103	ECMF Job Requeue			
		0201	GTAF Statistics			
		0301	GCMF Command Audit			
		0401	EDIF Statistics			
		0402	EDIF			
191 *	BF		Hitachi Mainframe Analytic Recorder (MAR)		Hitachi	
		1	Lost Record			
		2	LDEV			
		3	MPB			
		4	Parity Group			
		5	Port			
		6	MPRANK20			
192 *	C0		CA XCOM Data Transport		Broadcom	[Broadcom Tech Docs Portal](#)
198 *	C6		CA MICS VCC Space Collector		Broadcom	[Broadcom Tech Docs Portal](#)
199 *	C7		CA MICS VCC Space Collector		Broadcom	[Broadcom Tech Docs Portal](#)
200 *	C8		CA SPOOL		Broadcom	[Broadcom Tech Docs Portal](#)
200 *	C8		CA LPD		Broadcom	[Broadcom Tech Docs Portal](#)
200 *	C8		SF-Sherlock		Enterprise-IT-Security.com	[www.enterprise-it-security.com](#)
200 *	C8		MacKinney JES Report Broker		MacKinney	[www.mackinney.com/products/mainframe-printing/jes-report-broker.html](#)
201 *	C9		IAM File Activity Statistics		Compuware	[https://www.compuware.com/storage-performance/](#)
201 *	C9		MacKinney JES Report Broker	--	MacKinney	[www.mackinney.com/products/mainframe-printing/jes-report-broker.html](#)
		1	Document Viewed			
		2	Document Downloaded			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		3	Document Purged			
		4	Document Restored to JES			
		5	Document Restored From Backup			
202 *	CA	1	IND$FIILE Auditing	IEFU83	BMC	
202	CA		IBM Z Batch Resiliency (IZBR)		IBM	APAR https://www.ibm.com/support/pages/apar/PH25988
208 *	D0		Syncsort MFX Statistics	IEFU83	Precisely	Syncsort MFX
210 *	D2		Voltage SecureData for z/OS		Micro Focus	https://www.microfocus.com/en-us/products/voltage-data-encryption-security/overview
222 *	DE		zOSEM (Operating System Environment Manager)		Trident Services	www.triserv.com
225 *	E1		CA Teleview		Broadcom	Broadcom Tech Docs Portal
225 *	E1		ZETALY Automated Capacity		ZETALY	ZETALY
		1	ASC CPC Activity (Perf, Billing)			
		2	ASC LPAR Activity (Perf, Billing, WLM)			
		3	ASC SYSPLEX/CPC Activity			
		4	ASC Parameter (Parmlib)			
230 *	E6		CA ACF2		Broadcom	Broadcom Tech Docs Portal
		A	Environment			
		D	Dataset / Program			
		E	Information Storage Update			
		G	Environment			
		J	Restricted Logonid Job			
		L	Logonid Modification			
		O	UNIX System Services			
		P	Invalid Password/Authority			
		R	Rule-ID Modification			
		S	SAF Trace			
		T	TSO Command Statistics			
		U	MLS Dirauth Event			
		V	Resource Event			
		W	CA Statistics			
		Z	DDB Transmission Report			
230 *	E6		CA IDMS		Broadcom	Broadcom Tech Docs Portal
231 *	E7		CA Top Secret (USS-based events)		Broadcom	Broadcom Tech Docs Portal
235 *	EB		ITMetrics Software		ITMetrics	www.itmetrics.com
		0-95	Monitor for SAS (ALS)			
		96-111	Dynamic Switching Utility (DSU)			
		112-127	Execute Tasklib Program (XTP)			
		128-143	Connect Session Manager (CSM)			
		144-159	WPS Interface to GRS (GRS)			
		160-175	Monitor for WPS (ALW)			
		176-192	Monitor for Python (ALP)			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
238 *	EE		MXG TMNT Monitor	--	MXG	www.mxg.com
		1	Tape Device SWAP	IEFU84		
		2	Tape Mount Event	IEFU84		
		3	Disk Mount Event	IEFU84		
		4	Tape Deallocation Event	IEFU84		
		5	Interval Tape Allocation	IEFU84		
		6	TMNT Interval Stats	IEFU84		
		7	Allocation Recovery	IEFU84		
		8	SYSLOG Monitor - Tape Event	IEFU84		
		9	SYSLOG Monitor - Any MSGID	IEFU84		
		10	Local Page Dataset Usage Monitor	IEFU84		
240 *	F0		CMF MONITOR		BMC	CMF MONITOR User Guide and Reference
		00	SRM Constants, Performance Specs, Extractor Information			
		01	CPU Data			
		02	ASM Data			
		03	Paging Data			
		05	Device Data			
		06	Extractor Summary Data			
		09	ASM Data			
		11	Global Bit Map			
		16	LPA Mapping Data			
		18	CMF Trace Record Data			
		20	TSO Command Summary			
		21	TSO User Summary			
		24	Disabled Time Sampling			
		29	Common Storage by Jobs			
		50	Output Writer Statistics			
		98	Invalid Records			
		99	Invalid Records			
240 *	F0		Tubes	--	Macro 4	www.macro4.com/en/product/tubes/
		1	User Session Start			
		2	User Terminal Input			
		3	User Session End			
240 *	F0		CA JARS DSA Resource Management		Broadcom	Broadcom Tech Docs Portal
240 *	F0		DFSMShsm	--	IBM	GC14-7504-40 - z/OS 2.4 DFSMShsm Data Areas
			Daily Statistics Record (DSR)	IEFU83		
			Volume Statistics Record (VSR)	IEFU83		
241 *	F1		DFSMShsm			GC14-7504-40 - z/OS 2.4 DFSMShsm Data Areas
			WWFSR (ABACKUP/ARECOVER Function Statistics Record)	IEFU83		
			Function Statistics Record (FSR)	IEFU83		
250 *	FA		SecureZIP for z/OS Activity Audit Trail	--	PKWARE	www.pkware.com/software
		1	Archive Session Start			
		2	Archive Session Settings			
		3	File Process Tracking			

Type (Dec)	Type (Hex)	Sub type	Description	Exit	Company	Additional References
		99	Archive Session End			
253 *	FD		File-AID for DB2		Compuware	https://www.compuware.com/file-aid-data-management/
253 *	FD		VPS - WLM Enclave Stats	IEFU83	Levi, Ray & Shoup, Inc.	www.lrs.com
254 *	FD		PageCenter – Stat Extract	IEFU83	Levi, Ray & Shoup, Inc.	www.lrs.com
255 *	FF		VPS – Printer Stats	IEFU83	Levi, Ray & Shoup, Inc.	www.lrs.com
255 *	FF		CA SYSVIEW	--	Broadcom	Broadcom Tech Docs Portal
		01	Audit			
		02	Hourly Pilot Metric			
		03	Threshold Exceptions			
		04	State Exceptions			
		24	CICS Exceptions			
		25	CICS Trans Summary			
		27	CICS Trans Detail			
		28	CICS System Interval			
		34	IMS Trans Detail			
		35	IMS Region Accounting			
		38	Application Request Monitoring			
255 *	FF		I/O Booster		4bears Technologies	http://www.4bears.com.br/

SMF Control Parameters
SYS1.PARMLIB(SMFPRMxx)

Parameter	Description
ACTIVE / NOACTIVE	Record data to SMF file
AUTHSETSMF / NOAUTHSETSMF	SETSMF allowed despite PROMPT value
BUFSIZMAX(nnnnM / 1G / 128M)	Memory limit for in-storage buffers
BUFUSEWARN(nn / 25)	Buffer warning message percent
DDCONS(YES / NO)	Consolidate EXCP sections in type 30 records. Should always be NO.

DEFAULTLSNAME(logstreamname,
    NOBUFFS(HALT / MSG),
    BUFUSEWARN(nn),
    DSPSIZMAX(nnnnM / nG / 2G),
    NOCOMPRESS / COMPRESS(PERMFIX(nnnnM) / NOPERMFIX),
    NORECSIGN / RECSIGN(HASH(SHA1 / SHA256 / SHA384 /
      SHA512),SIGNATURE(RSA / ECDSA), TOKENNAME(name)),
    NOARECSIGN / ARECSIGN(HASH(SHA512, SIGNATURE(LI2),
      TOKENNAME(name))
	Default name and characteristics of a default SMF logstream

DSNAME(SYS1.MAX,SYS1.MANY / name1, name2, …)	Define names of VSAM SMF data sets
DSPSIZMAX(nnnnM / nG / 2G)	Size of logstream buffers
DUMPABND(RETRY / NORETRY)	Action on SMF ABEND
EMPTYEXCPSEC(NOSUPPRESS / SUPPRESS)	Suppression of empty EXCP sections on Type 30 records
FLOOD(ON / OFF)	SMF record flood support is active

FLOODPOL(TYPE(aa,bb / aa,bb:zz,…),
    RECTHRESH(nnnn),
    INTVLTIME(nnnn),
    MAXHIGHINTS(nnnn),
    ACTION(MSG / DROP),
    ENDINTVL(ssss))
	Determines thresholds for stopping records if flooding occurs

HFTSINTVL(ss) / NOHFTSINTVL	High Frequency Throughput Statistics. IBM suggests ss=5.

INMEM(rname,
    RESSIZMAX(nnnnM / nG / 2G).
    TYPE / NOTYPE(aa,bb / aa,bb:zz)	

INTVAL(mm / 30)	Global interval length
JWT(hhmm / 0010)	Job/TSO maximum wait before S522
LASTDS(MSG /HALT)	Action when all data sets are full
LISTDSN / NOLISTDSN	List data set names

LSNAME(logstreamname,
    TYPE(00:255 / aa,bb / aa,bb:zz,…),
    NOBUFFS(HALT / MSG),
    BUFUSEWARN(nn),
    DSPSIZMAX(nnnnM / nG / 2G),
    NOCOMPRESS / COMPRESS(PERMFIX(nnnnM) / NOPERMFIX),
    NORECSIGN / RECSIGN(HASH(SHA1 / SHA256 / SHA384 /
      SHA512),SIGNATURE(RSA / ECDSA), TOKENNAME(name))
	Name and characteristics of a specific SMF logstream; there may be multiples

Parameter	Description
NOARECSIGN / ARECSIGN(HASH(SHA512),SIGNATURE(LI2), TOKENNAME(name))	
MAXDORM(mmss / 3000) / NOMAXDORM	Wait time before SMF buffer flushed
MAXEVENTINTRECS(nn / 0)	Max number of type 30 and 89 records per interval if event driven
MEMLIMIT(2G / nnnnM / nnnnG / nnnnT / nnnnP) / NOMEMLIMIT	Default task memory limit
MULCFUNC / NOMULCFUNC	IFAUSAGE service option requirements
NOBUFFS(MSG / HALT)	Action when SMF buffers are full
PERMFIX(nnnnM) / NOPERMFIX	Amount of storage to fix for buffers
PROMPT(ALL / IPLR / LIST) / NOPROMPT	Specify operator prompting options
REC(ALL / PERM)	Deleted data set monitoring options
RECORDING(DATASET / LOGSTREAM)	Write to VSAM data set or logstream
NORECSIGN / RECSIGN(HASH(SHA1 / SHA256 / SHA384 / SHA512),SIGNATURE(RSA / ECDSA),TOKENNAME(name))	
NOARECSIGN / ARECSIGN(HASH(SHA512),SIGNATURE(LI2),TOKENNAME(name))	
SID(xxxx)	Defines SMF System ID (SID) unconditionally
SID(xxxx,ser#,ser#) -or- SID(xxxx,COMBIN(ser#,ser#))	Defines SID based on processor ID
SID(xxxx,SYSNAME(sssssss))	Defines SID based on system name
SMFDLEXIT(USER1(exitname,exitname,…) / NOUSER1, USER2(IRRADU00,exitname,…) / NOUSER2, USER3(IRRADU86,exitname,…) / NOUSER3, USER4(IRRADU00,exitname,…) / NOUSER4, USER5(IRRADU86,exitname,…) / NOUSER5)	Exits called by IFASMFDL (dump logstreams)
SMFDPEXIT(USER1(exitname,existname,…) / NOUSER1, USER2(IRRADU00,exitname,…) / NOUSER2, USER3(IRRADU86,exitname,…) / NOUSER3, USER4(IRRADU00,exitname,…) / NOUSER4, USER5(IRRADU86,exitname,…) / NOUSER5)	Exits called by IFASMFDP (dump VSAM data sets)
STATUS(hhmmss / 010000 / SMF,SYNC / NOSYNC) / NOSTATUS	SMF buffer statistics interval option
SMF30COUNT / NOSMF30COUNT	Count number of instructions executed
SUBPARM(subsys(options))	Pass options to a subsystem
SUBSYS(JES2 / JES3 / STC / ASCH / TSO, TYPE [can override SYS], INTERVAL [can override SYS] / NOINTERVAL, EXITS [can override SYS], DETAIL [can override SYS])	Same as SYS but for subsystems
SWT(hhmm) [default is JWT]	STC maximum wait before S522
SYNCVAL(mm / 00)	Global synchronization value
SYS(TYPE(aa,bb.. / 0:255) / NOTYPE, NOINTERVAL / INTERVAL(hhmmss / SMF,SYNC / NOSYNC), EXITS (exitname,exitname,… / all), / NOEXITS, NODETAIL / DETAIL)	SMF record to keep Interval length Exits to invoke Detail option for TSO and STC tasks
TWT (hhmm) [default is JWT]	TSO maximum wait before S522

Parameter	Description
WIC / <u>NOWIC</u>	Enable z/OS Workload Interaction Correlator (WIC) feature

SMF Exits

Exit Name	Description
IEFACTRT	Accounting Routine
IEFUAV	User Account Validation (APPC/MVS and z/OS UNIX)
IEFUJI	Job Initiation
IEFUJP	Job Purge
IEFUJV	Job Validation
IEFUSI	Step Initiation
IEFUSO	SYSOUT Limit Exceeded
IEFUTL	Time Limit Exceeded (CPU or wait)
IEFU29	SMF Dump of VSAM data sets
IEFU29L	SMF Dump of Logstreams
IEFU83	SMF Record Written
IEFU84	SMF Record Written (Branch Entry, no cross memory)
IEFU85	SMF Record Written (Branch Entry, cross memory)
IEFU86	SMF Record Written (called with IEFU83, IEFU84, IEFU85)

SMF Reference Summary
Change Log

November 7, 2020

z/OS corrections:

    Added 14/15 Section subtypes 1-8.
    Added 37, subtype 22 (Network Asset Management)
    Added 38, subtype 4 – NetView Command Statistics Data
    Change product name on 37, 38, 39 from 'IBM Tivoli NetView' to 'IBM Z NetView'
    Added 90, subtype 38 - Capture entire IEFOPZ configuration
    Changed product name on 114 from 'IBM Tivoli System Automation for z/OS V3R4 Customizing and Programming' to 'IBM System Automation V4.2'.
    Added 120 IBM recommendation to not collect subtypes 1-8 due to overhead.
    Changed name of 124 from FICON Diagnostic to I/O Supervisor (IOS) Information.
    Changed owner of 202 from 'CorreLog' to 'BMC'.
    Changed owner on 208 from 'Syncsort' to 'Precisely'.
    Changed owner on 210 from 'Voltage' to 'Micro Focus'.
    Changed owner on 225 from 'zCost Management' to 'ZETALY'.
    Updated most references.
    Added FLOOD parameter of ENDINTVL.

Added z/OS 2.3 changes:

    Added 14, section subtype 9 - DASD Data Set Encryption
    Added 84, subtype 21 - JES2 Monitor Data. IBM changed the name of type 84 and added a subtype. We created two entries, one for JES2 and one for JES3.
    Added 92, subtypes 8, 50-59 - zFS File System Activity
    Changed 117 from Generic Tracker to WebSphere Message Broker and IBM Integration Bus. See new 125 for Generic Tracker.
    Added 119, subtype 11, 12 - zERT.
    Added 119, subtypes 38, 39, 40 - SMC-D links.
    Added 119, subtype 45 - Internal Shared Memory (ISM).
    Added 119, subtype 81 - VTAM 3270 Intrusion Detections Services.
    Added 119, subtypes 100-104 - TFP Network Monitor Interface (NMI); never written to SMF data sets.
    Added 120, subtype 12 – Java Batch.
    Added 122 - IBM Explorer for z/OS and dependent products. Note that this causes a conflict with the existing 122 for Tivoli Automated Tape Allocation
        Management, and we haven't found the resolution for that yet.
    Added 123 - IBM z/OS Connect EE
    Added 124, subtypes 2, 3, 4, 5 - Security information for the I/O Supervisor (see APAR OA56924).
    Added 125 to replace type 117 for the Generic Tracker (GTZ) Data Persistence.
    Added SMF Exit IEFU86.

Added z/OS 2.4 changes:

    Changed name of 74, subtype 10 from 'Storage Class Memory (SCM) Statistics' to 'Extended Asynchronous Data Mover (EADM) Statistics'.
    Added 90, subtype 40 - System Recovery Boost.
    Changed name of 98 from 'High-Frequency Throughput Statistics' to 'Workload Interaction Correlator and High-Frequency Throughput Statistics'.
    Added 98, additional subtypes for Workload Interaction Correlator.
    Added ARECSIGN (alternate signature) to LSNAME, DEFAULTLSNAME, and defaults in SMFPRMxx.
    Added USER4 and USER5 to SMFDLEXIT and SMFDPEXIT in SMFPRMxx.
    Added WIC/ NOWIC to SMFPRMxx.

SMF Reference Summary
Change Log

November 7, 2020 (cont.)

Changed all Company names from CA to Broadcom.
Updated CA OPS/MVS by changing SMF type, adding SMF subtypes, and updating link. Broadcom.
Updated CA MICS VCC Space Collector link and name. Broadcom.
Added SMF 235 from ITMetrics Software. Thanks to Steve Bagshaw from ITMetrics.
Added record types (253, 254, 255, 128-255) for LRS products; updated type 6 for LRS; added Exits. Thanks to Rebecca O'Connell from Levi, Ray & Shoup, Inc.
Added SMF 128-255 for CA Allocate. Thanks to Paul Schuster from Broadcom.
Updated references for File-AID records 170, 253, and 128-255. Thanks to Bob Yee from Compuware.
Added SMF 201 for IAM File Activity Statistics. Thanks to Bob Yee from Compuware.
Added SMF 128-255 for License Management Component. Thanks to Bob Yee from Compuware.
Updated reference for type 192 for CA XCOM Data Transport. Broadcom.
Added SMF record 128 for SAS. SAS Institute.
Added SMF 128-255 records for Syzygy products. Syzygy Incorporated.
Added SMF 132 and 133 for IBM Sterling Connect:Direct for z/OS. Thanks to Ed Peters from Altran.
Added SMF 230 for CA IDMS. Broadcom.
Added SMF 128-255 for TICTOC (was IBM ATF (Automatic Time Facility)). Can Do Systems.
Thanks to Graham Harris, IBM-Main listener, who sent us several updates.

September 12, 2015

Added z/OS 2.2 changes:
    Added 2, subtype 1 - Signature Group
    Added 2, subtype 2 - Signature Interval
    Corrected 41.3 to specify the IEFU83 exit
    Added 42, subtype 27 - VTOC audit log
    Added 74, subtype 10 - Storage Class Memory (SCM) Statistics
    Added 87, subtype 2 - ENQ/DEQ/ISGENQ/RESERVE
    Added 90, subtype 37 - Dynamic APF
    Added 92, subtype 16 - Socket or character special file closed
    Added 105 - GDPS/Global Mirror
    Added 106 - BCPii activity
    Added 117 - Data Persistence
    Added 119, subtype 94 - OpenSSH Client Connection Started
    Added 119, subtype 95 - OpenSSH Server Connection Started
    Added 121 - Java runtime performance statistics
    Added RECSIGN and NOCOMPRESS to SMFPRMxx parameters

Added 6 for VPS from LRS, and from Xerox's XPAF. Thanks to **Tim Hare** of Hare Systems Support.
Added 87, subtype 1 - Global Generic Queue Scan (QSCAN) due to doc that was previously missing.
Added 90, subtype 35 - SETLOAD xx,IEASYM, was missing.
Added 90, subtype 36 - SET CON, was missing.
Added 191 - Hitachi Mainframe Analytic Recorder. Thanks to **Ron Hawkins** of Hitachi Data Systems.
Added 202 - IND$FILE Auditing from CorreLog. Thanks to **Charles Mills** of CorreLog.
Added 225, subtype 4 - zCOST AutoSoftCapping. Thanks to **Jacky Hofbauer** from zCost Management.
Added 15 subtypes to type 230 (CA - ACF2). Thanks to **Raymond Pascoe** from Highmark Health Solutions.

SMF Reference Summary
Change Log

February 25, 2015

    Added subtypes to 230 (CA - ACF2 External Security System)
    Corrected a typo of NOBUFS to NOBUFFS in the DEFAULTLSNAME and LSNAME parameters (the manual was incorrect)

October 15, 2014

    Changed page 2, item 3, regarding sub-types. Thanks to **Bruce Bordonaro** from BNY Mellon for pointing this out.
    Added 80 - CA Top Secret
    Added 119 - Dovetailed Technologies Co:Z SFTP
    Updated 208 - Syncsort MFX for z/OS
    Changed 230 to 231 - CA Top Secret
    Added 255 - 4bears Technologies I/O Booster
    Added 128-255 - Compuware License Management Component
    Corrected 'Mackinney' to 'MacKinney' throughout

August 21, 2014

    Added type 6 and 26 - CA BUNDL
    Updated type 110 - BMC MainView for CICS
    Marked type 120.20 as obsolete - IBM WebSphere Compute Grid
    Added type 200 - CA LPD
    Corrected errors in 240 and 241 - IBM DFSMShsm
    Added 128-255 - DTS Space Recovery System
    Added 128-255 - DTS User-Defined SMF Records
    Added 128-255 - BMC MainView Batch Optimizer
    Added 128-255 - BMC MainView Batch Optimizer
    Added 128-255 - BMC MainView SRM Allocation
    Added 128-255 - BMC StopX37/II
    Added 128-255 - BMC ULTRAOPT

August 3, 2014

    First release; printed and distributed this as hardcopy at SHARE in Pittsburgh.