SMF 101
Everything You Should Know and More

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Agenda

- What is SMF?
- SMF Data Sets
- SMF Logger
- SMFPRMxx
- MVS Commands
- SMF Exits
- Extracting SMF Records
- Records, records, records!
- Things to Know
- References

"I never met an SMF record I didn't like!"

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What is SMF?

- System Management Facilities (SMF) – One of the strongest assets of MVS – Measurement Data!!!!
- Most common receptacle for recording z/OS activity
- SMF provides macros for applications to record information
- There is a standard heading format
- Each record is identified by a one-byte record number (ranging from 0 to 255) – 0-127 is reserved for IBM use
- Some records have subtypes
  - A record might be identified as a type 30, subtype 4; or a 30(4); or a 30.4 (most recent)
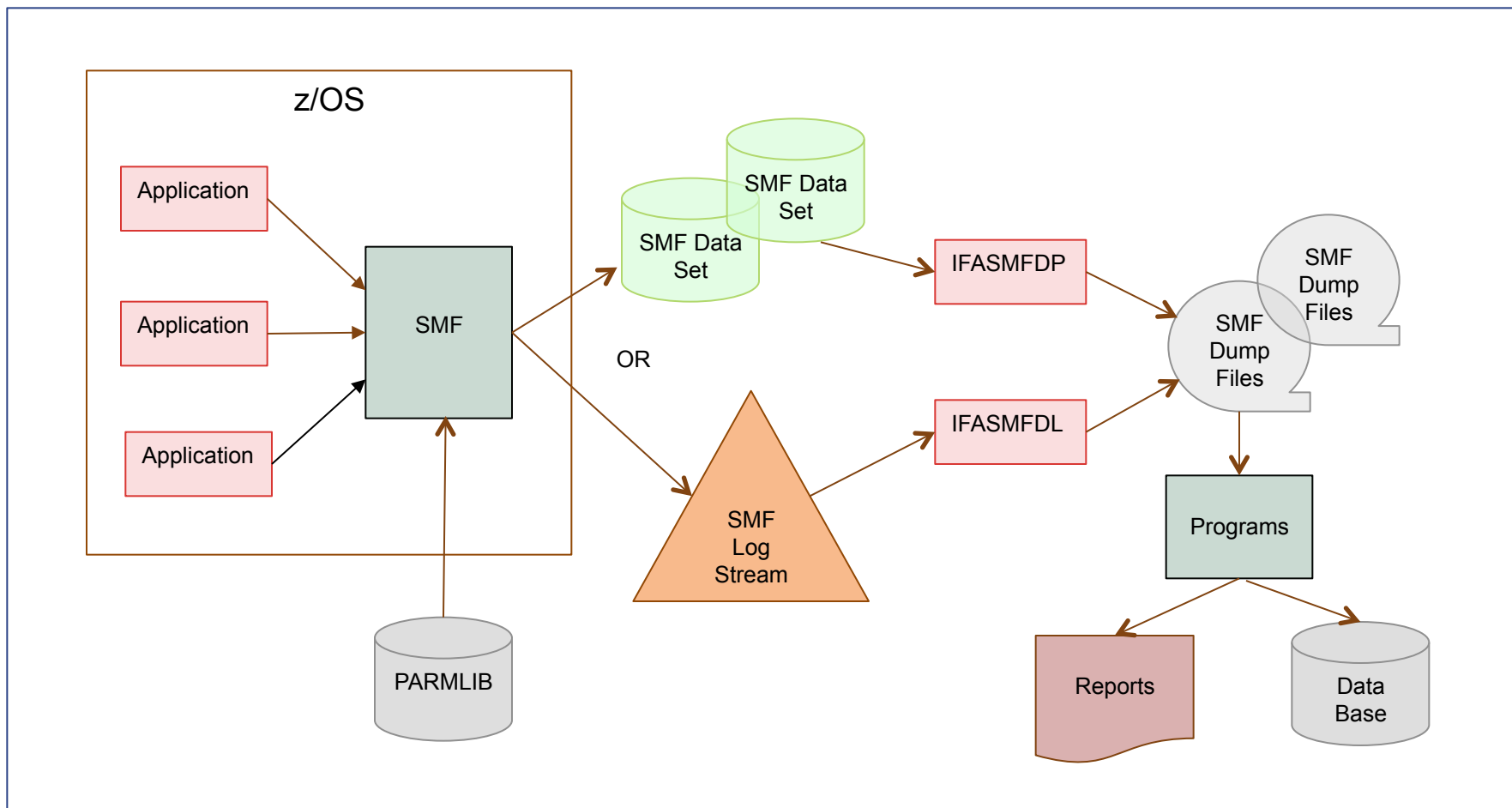
What is SMF?

- Primary manual is z/OS MVS System Management Facilities – SA22-7630-24 (z/OS 1.13)
- Major elements:
  - Parameters specified in PARMLIB member SMFPRMxx
  - Macros – used by applications to pass data to SMF and to interrogate parameters
  - Exits – User-written exits to interrogate, change, or delete records as they are passed to SMF
  - MVS commands – used to control the execution of SMF and to dynamically modify parameters

What is SMF?
Major Uses

- Accounting and Chargeback
  - Internally or to external customers (such as outsourcers)
- Performance and Resource Management
  - Tuning devices, jobs, network, data sets, WLM
  - Managing and reporting resources – CPU, external storage, memory, connections
  - Configuration analysis
  - Management reporting
  - Problem identification
  - Security issues
- Capacity Planning
  - Collection of resource data for planning purposes

What is SMF?
Logic Flow

What is SMF?
SMF Logic Flow

- Applications use macros to pass records to the SMF writer
- The SMF writer uses parameters to determine which records to keep, and which exits to call, and then stores the records in a buffer
- Records are written from the buffer to either VSAM data sets formatted especially for SMF or to a logstream (but not both)
- The installation runs a program to extract the records from the data sets or logstream to create sequential files
- SMF files are used as input to reports and are often stored on data bases (MXG, SAS ITRM, and TDS are the most common)

SMF VSAM Data Sets

- Traditional recording method
- VSAM data sets that are pre-formatted
- SMF writes records to one of the VSAM data sets
- When the data set fills up, it calls an exit and switches to another formatted VSAM data set
- The exit usually issues a message to the operator and submits a job (usually IFASMFDP) to dump the records to a sequential data set and clear the VSAM data set
- The VSAM data set names are specified in SMFPRMxx

SMF VSAM Data Sets

- There are several problems with SMF VSAM data sets:
  - Data sets fill up and aren't cleared, so data is lost
  - The data sets can be easily overlaid
  - Large volumes can overflow the buffers and/or the data sets
  - Many sites have turned off records in order to reduce the volume
  - A runaway or looping application can produce hundreds of thousands of records in a short amount of time that can cause overflows despite a robust configuration
  - Lost data often translates to lost revenue

SMF Logger

- SMF Logger introduced in z/OS 1.9
- SMF records to its buffer and also to a 'logstream' that resides in a coupling facility structure or a DASDONLY logstream
- Multiple LPARs can record to same structure or logstream
- You can record different record types to different logstreams
  - This allows a higher write rate
  - Can reduce the post-processing time
- Initially there were some problems with managing the records, but I believe those are all resolved

SMF Logger

- SMF Logger can avoid the problems indicated before
  - Buffers are in 2 GB dataspaces (as many as needed), so that buffers don't overflow
  - Each dataspace is managed by its own task, so that the write rate is increased
  - Logstreams are offloaded to DASD files as needed, so that you can't run out of space
  - The ability to separate record types onto different structures and logstreams can increase the write rate, as well as reducing post-processing time. This also reduces the problem of one runaway application causing other applications to lose data

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SMFPRMxx

- PARMLIB member to specify SMF options
- Can change dynamically with 'SET SMF' or 'SETSMF' commands
- General parameters (for z/OS 1.13):

ACTIVE/NOACTIVE
>   Activate record collection

DUMPABND(RETRY/NORETRY)
>   Action to take if SMF abends

INTVAL(mm/30)
>   Default interval for any application that does interval recording

JWT(hhmm/0010)
>   Maximum time that job (or TSO user) can be in a wait

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SMFPRMxx

- ## General parameters (cont.):

  MEMLIMIT(xxM/xxG/xxT/xxP/2G)/NOMEMLIMIT
  >   Defines maximum amount of storage above 2GB that can be used by an address space if MEMLIMIT was not specified on the JCL

  PROMPT(IPLR/LIST/ALL)/NOPROMPT
  >   Operator options when SMF starts; allows operator modification

  SID(xxxx)/(xxxx,SYSNAME(sysname))/(xxxx,ser#,ser#)/
  >   (xxxx,COMBIN(ser#,ser#))
  >   Indicates the system id that will be placed in every record

  SUBPARM(name(parm))
  >   Provides parameters to applications

  SYNCVAL(mm/00)
  >   Defines the synchronization for the start of an interval

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SMFPRMxx

- File-related parameters (VSAM data sets):

  RECORDING(DATASET/LOGSTREAM)

      Indicates whether SMF writes records to VSAM data sets or logstreams

  DSNAME(xxx,. .,xxx/SYS1.MANX,SYS1.MANY)

      Specifies names of VSAM data sets; try to use &SYSNAME or &SID

  LASTDS(MSG/HALT)

      Action if no more data sets are available

  LISTDSN/NOLISTDSN

      Determines whether SMF data sets and status are listed on console at startup and SET SMF time

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SMFPRMxx

- ## File-related parameters (SMF Logger):

  RECORDING(LOGSTREAM)

  > Indicates whether SMF writes records to VSAM data sets or logstreams

  DEFAULTLSNAME(logstreamname),NOBUFS(MSG/HALT),
  > BUFUSEWARN(pct/25),DSPSIZMAX(nnnnM/nG))

  > Defines the default logstream name

  LASTDS(MSG/HALT)

  > Action if no more data sets are available

  LISTDSN/NOLISTDSN

  > Lists SMF data sets and status on log at startup & SET SMF

  LSNAME(logstreamname,NOTYPE/TYPE(xx,xx),NOBUFS(MSG/HALT),
  > BUFUSEWARN(pct/25),DSPSIZMAX(nnnnM/nG))

  > Indicates record types and options for each logstream

SMFPRMxx

- Buffer-related parameters:

BUFSIZMAX(xxxM/1G/128M)

> Specifies the maximum amount of buffer space to be used in the SMF address space when recording to VSAM data sets

BUFUSEWARN(pct/25)

> Produces operator message if buffer is 25% full

MAXDORM(mmss/3000)/NOMAXDORM

> Maximum amount of time that records may sit in buffer before being written

NOBUFFS(MSG/HALT)

> Action to be taken when buffers are full

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SMFPRMxx

- ## Record-specific parameters:

DDCONS(YES/NO)

> Consolidate type 30 EXCP sections before writing record; YES creates smaller records, but takes more CPU time at interval/step/job termination

EMPTYEXCPSEC(NOSUPPRESS/SUPPRESS)

> Indicates whether empty EXCP sections in the type 30 record are recorded

MULCFUNC/NOMULCFUNC

> Determines whether subsystems, such as CICS and DB2, can record resource usage in the type 89 (Measured Usage License Charge) records

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SMFPRMxx

- Record-specific parameters

REC(ALL/PERM)

      Used for type 17 records (delete of a data set) to determine whether

        temporary data set deletions are recorded

STATUS(hhmmss/010000/SMF,SYNC/NOSYNC)/NOSTATUS

      Defines frequency to create type 23 (SMF status) records

MAXEVENTRECS(00/nn)

      Indicates the maximum number of processor change event driven type
      30 and type 89 records to be written each interval

SMFPRMxx

- Record-specific parameters

  SYS(TYPE/NOTYPE(xx,xx:xx,xx(xx),0:255),

  > Defines which records to be written for all types of work (if not overridden)

  INTERVAL(hhmmss/SMF/SMF,SYNC/NOSYNC)/NOINTERVAL,

  > Defines the interval for all types of work (if not overridden) for the type 30 (job-related) and type 32 (TSO) records

  EXITS(. . .)/NOEXITS,

  > Defines whether (or which) exits are to be called for all types of work (if not overridden on SUBSYS)

  DETAIL/NODETAIL)

  > For type 30 records, defines whether the EXCP sections are created for started tasks. For type 32 records, indicates whether resource usage (CPU, EXCP, etc.) are recorded for each TSO command (if no SUBSYS override)

SMFPRMxx

- ## Record-specific parameters

  SUBSYS(subsys,TYPE/NOTYPE(xx,xx:xx,xx(xx),0:255),
  >   Defines overrides to the SYS parameter for a specific subsystem. The
  >   subsystems are TSO, STC, JESx, ASCH, and OMVS

  INTERVAL(hhmmss/SMF/SMF,SYNC/NOSYNC)/NOINTERVAL,
  >   Overrides the interval specified in SYS for this subsystem

  EXITS(. . .)/NOEXITS,
  >   Overrides the exits specified in SYS for this subsystem

  DETAIL/NODETAIL)
  >   Overrides the DETAIL option specified in SYS for this subsystem

SMFPRMxx

- SMF Flood Control parameters:

FLOOD(OFF/ON)

    Indicated whether SMF should activate SMF flooding control

FLOODPOL(TYPE(nn),RECTHRESH(nnnnn),

    INTVLTIME(tenths-of-seconds),

    MAXHIGHINTS(nnnn),

    ENDINTVL(tenths-of-seconds),

    ACTION(MSG/DROP))

        Defines a flood policy for specific types of records, their allowable rates, and actions when they exceed their rates

SMFPRMxx

- My personal recommendation:
  - Use defaults when available; only define overrides
  - Recommended SMFPRMxx with SMF Logger:
    ```
    DDCONS(NO)
    EMPTYEXCPSEC(SUPPRESS)
    RECORDING(LOGSTREAM)
    DEFAULTLSNAME(IFASMF.&SYSNAME..PRIMARY)
    LSNAME(IFASMF.&SYSNAME..LARGE,TYPE(92,99:111))  /* WLM, DB2, CICS */
    LSNAME(IFASMF.&SYSNAME..REST,NOTYPE(92,99:111))  /* ALL THE REST */
    JWT(0030)
    NOPROMPT
    SID(&SID)
    STATUS(SMF,SYNC)
    SYS(NOTYPE(4,5,20,34,35,40,92),
        INTERVAL(SMF,SYNC),NODETAIL)
    ```

SMFPRMxx

- My personal recommendation:
  - Recommended SMFPRMxx if using VSAM data sets:

    BUFSIZMAX(1G) – if PTFs for OA28499/OA28359 are applied to z/OS 1.10/1.11
    DDCONS(NO)
    DSNAME(SYS1.&SID..MAN1,SYS1.&SID..MAN2,SYS1.&SID..MAN3)
    EMPTYEXCPSEC(SUPPRESS)
    JWT(0030)
    NOPROMPT
    MAXEVENTRECS(60)
    SID(&SID)
    STATUS(001000,SYNC)
    SYS(NOTYPE(4,5,20,34,35,40,92),
       INTERVAL(SMF,SYNC),NODETAIL
    If using VSAM data sets, use CISIZE of half-track (26,624 for 3390)

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MVS Commands

- Display SMF
  - 'd smf,s,o'
    - s – displays status and datasets
    - o – displays the parameters in effect
  - SET SMF
    - Replaces SMFPRMxx or can be used to restart SMF
    - Format is 't smf=xx', where 'xx' is the suffix for SMFPRMxx
  - SETSMF parameter(value)
    - If NOPROMPT is NOT used at IPL, this can be used to override any parameter of SMFPRMxx except ACTIVE, PROMPT, SID, and EXITS
    - Example: 'ss jwt(0030)'

SMF Exits

- IEFACTRT – accounting exit called after step end and job end
- IEFU29 – called prior to dumping SMF from disk
- IEFU29L – called prior to dumping SMF from a logstream
- IEFU83 – called prior to writing an SMF record
- IEFU84 – called prior to writing an SMF record when branch-entered and not in cross-memory mode
- IEFU85 – called prior to writing an SMF record when branch-entered and in cross-memory mode
- IEFUJI – called at job initiation for validation
- IEFUJP – called before the type 26 record is written before job is purged from spool

SMF Exits

- **IEFUJV/IEFUAV** – called to validate JCL and APPC/MVS and can modify the JCL

- **IEFUSI** – called before step initiation

- **IEFUSO** – called when the job exceeds the spool output specified by the job class

- **IEFUTL** – called when the job exceeds the CPU time limit specified for the job class

- All exits are written in Assembler. Two products that produce exits without Assembler knowledge – OS/EM from Trident Services (www.triserv.com) and Easy/Exit from DTS Software (www.dtssoftware.com)

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Extracting SMF Records

- IFASMFDP extracts SMF records from SMF VSAM data sets or sequential VBS files

- Can optionally clear (i.e. format) the SMF VSAM data sets

```
//DUMP     EXEC PGM=IFASMFDP
//SMFIN     DD DSN=SYS1.MANx,DISP=SHR
//SMFOUT    DD DSN=smf.vbs(+1),DISP=(,CATLG),
//             SPACE=…,UNIT=…
//             DCB(defaults to RECFM=VBS,
                  BLKSIZE=0,LERCL=32767)
//SYSPRINT DD SYSOUT=*
//SYSIN     DD *
... control statements
/*
```

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Extracting SMF Records

- IFASMFDP Control Statements

```
INDD(SMFIN,OPTIONS(xxx))

        Options can be DUMP, CLEAR, ALL

OUTDD(SMFOUT,NOTYPE/TYPE(aaa:zzz(st)))

DATE(yyyyjjj,yyyyjjj)

START(hhmm)

END(hhmm)

SID(xxxx)

ABEND(RETRY/NORETRY)

USER1/USER2/USER3(name)

FLDSTATS(xxx)
```

Extracting SMF Records

- IFASMFDL extracts SMF records from the SMF logstream
- Can optionally delete records from the SMF logstream

```
//DUMP     EXEC PGM=IFASMFDL
//SMFOUT    DD DSN=smf.vbs(+1),DISP=(,CATLG),
//             SPACE=…,UNIT=…
//             DCB(defaults to RECFM=VBS,
//                 BLKSIZE=0,LERCL=32767)
//SYSPRINT DD SYSOUT=*
//SYSIN     DD *
... control statements
/*
```

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Extracting SMF Records

- IFASMFDL Control Statements

```
LSNAME(lsname,OPTIONS(xxx))
        Options can be ARCHIVE, DELETE, DUMP
OUTDD(SMFOUT,NOTYPE/TYPE(aaa:zzz(st)),
        DATE(yyyyjjj,yyyyjjj),
        START(hhmm),END(hhmm))
DATE(yyyyjjj,yyyyjjj)
START(hhmm)
END(hhmm)
SID(xxxx)
ABEND(RETRY/NORETRY)
USER1/USER2/USER3(name)
```

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Extracting SMF Records

- IFASMFDL Control Statements

```
RELATIVEDATE(unit,n,x)

    Unit=BYDAY, BYWEEK, BYMONTH

    n = units to go back for beginning

    n = units to go forward for end period

WEEKSTART(SUN/MON) /* only if unit=BYWEEK */

SMARTENDPOINT

SMARTEPOVER(hhmm)

FLDSTATS(xxx)
```

IFASMFDP Report

- **IFASMFDP report from Redbook SC24-7919-00**


```
                                 SUMMARY ACTIVITY REPORT
START DATE-TIME 07/29/2010-15:04:18                    END DATE-TIME 07/29/2010-17:22:42
RECORD         RECORDS          PERCENT      AVG. RECORD    MIN. RECORD    MAX. RECORD       RECORDS
  TYPE            READ          OF TOTAL        LENGTH         LENGTH         LENGTH          WRITTEN
     2               0                                                                             1
     3               0                                                                             1
    14              35            .15 %         354.40           344            608               35
    15              37            .16 %         344.75           344            372               37
    17               1            .00 %         100.00           100            100                1
    23              13            .06 %         258.00           258            258               13
    30             448           1.93 %       1,300.87           400          3,925              448
    32               3            .01 %         232.00           224            248                3
    41               9            .04 %         412.00           412            412                9
    42             323           1.39 %         493.06           176          7,948              323
    60           1,724           7.44 %         546.71           338            547            1,724
```

IFASMFDP Report

- **IFASMFDP report with exits from Redbook SC24-7919-00**

```
DETAILED ACTIVITY REPORT FOR OUTPUT DDNAME:  SMFOUT
RECORD   RECORD  SYSTEM  RECORDS      BYTES   RECORD  RECORD   START    START              END     END
TYPE     SUBTYP      ID  WRITTEN    WRITTEN   MINLEN  MAXLEN   DATE     TIME               DATE    TIME
   2      N/A     #@$A        1         18       18      18   10.210   17:23:43.50        10.210  17:23:43.50
   3      N/A     #@$A        1         18       18      18   10.210   17:23:51.17        10.210  17:23:51.17
  14      N/A     #@$A       35      12404      344     608   10.210   15:04:18.55        10.210  17:21:49.04
  15      N/A     #@$A       37      12756      344     372   10.210   15:05:29.28        10.210  17:22:09.05
  17      N/A     #@$A        1        100      100     100   10.210   15:28:10.01        10.210  15:28:10.01
  23      N/A     #@$A       13       3354      258     258   10.210   15:13:24.32        10.210  17:13:24.32
  30        1     #@$A        3       1221      400     413   10.210   15:04:18.51        10.210  17:19:23.27
  30        2     #@$A      331     450861     1119    3925   10.210   15:15:00.00        10.210  17:21:39.20
  30        3     #@$A        5       6361     1209    1435   10.210   15:06:17.14        10.210  16:35:31.19
  30        4     #@$A        5       8341     1119    2109   10.210   15:06:17.14        10.210  16:35:31.20
  30        5     #@$A        5       8393     1119    2122   10.210   15:06:17.14        10.210  16:35:31.20
  30        6     #@$A       99     107613     1087    1087   10.210   15:15:00.00        10.210  17:15:00.00
  32        1     #@$A        3        696      224     248   10.210   15:15:11.51        10.210  17:21:39.20
  41        3     #@$A        9       3708      412     412   10.210   15:13:46.31        10.210  17:13:46.33
  42        1     #@$A        6       1056      176     176   10.210   15:13:25.58        10.210  17:13:26.39
  42        2     #@$A      126      32040      212     436   10.210   15:15:00.00        10.210  17:15:00.03
  42        5     #@$A        9      57708     5980    7948   10.210   15:15:00.00        10.210  17:15:00.00
  42        6     #@$A      158      61976      308    1604   10.210   15:04:18.42        10.210  17:22:09.05
  42       24     #@$A       24       6480      270     270   10.210   15:10:52.23        10.210  17:22:09.05
  60      N/A     #@$A     1724     942538      338     547   10.210   15:04:18.41        10.210  17:22:40.48
```

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Records, Records, Records

- Address Space
  - 4, 5, 20, 34, 35, 50 - obsolete

  - **6 – Print spool**
    - 6.0 – External writer
    - 6.2 – JES2 output writer
    - 6.5 – JES3 output writer
    - 6.7 – Print Services Facility (PSF)
    - 6.9 – IP Printway output
  - 24 – JES2 spool offload
  - **26 – Job purge**

- Address Space (more)
  - **30 – Job processing**
    - 30.1 – Job initiation
    - 30.2 – Step interval ends
    - 30.3 – Last step interval ends
    - 30.4 – Step ends
    - 30.5 – Job ends
    - 30.6 – System STC ends
  - 32 - TSO/E commands
  - 33 – APPC/MVS activity
  - 43-49, 52-58 – JES activity
  - 97 – Foreign Enclaves

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Records, Records, Records

- Volume Configuration
  - 8 – Configuration
  - 9 – Vary device online
  - 10 – Allocation recovery
  - 11 – Vary device offline
  - 19 – Direct access volume
  - 21 – Error statistics by (tape) volume
  - 22 - Configuration

- Volume Activity
  - **74 – RMF Device Activity**
    - 74.1 – Device activity
    - 74.5 – Cache subsystem activity
    - 74.7 – FICON director statistics
    - 74.8 – Enterprise disk system statistics
  - 78.3 – RMF I/O Queuing
  - 79 – RMF Monitor II Activity
    - 79.7 – Enqueue contention
    - 79.9 – Device activity
    - 79.12 – Channel path activity
    - 79.14 0 I/O queuing
  - 94 – IBM Tape Library Dataserver Statistics

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Records, Records, Records

- VSAM Activity
  - 36 – ICF catalog export
  - 41 – DIV object & VLF statistics
  - 60 – VSAM Volume Data Set updated
  - 61 – Data set added or updated in ICF catalog
  - 62 – VSAM component or cluster opened

- VSAM Activity (cont.)
  - **64 – VSAM component or cluster closed**
  - 65 – Data set deleted from ICF catalog
  - 66 – IDCAMS ALTER request is made

- Operator & Events
  - **90 – Almost 35 subtypes**
  - **113 – Hardware measurements**

Records, Records, Records

- **Specialty Data Sets (HFS, zFS, OAM)**
  - 42 – DFSMS Statistics
    - 42.1 / 42.5 – Storage class
    - 42.2 – Cache control unit
    - 42.3 – SMS configuration change
    - 42.4 – System Data Mover
    - **42.6 – Data set I/O statistics**
    - 42.7 / 42.8 – NFS file activity
    - 42.9 – Out of space ABEND (Sx37)
    - 42.10 – Allocation volume selection failure

- 42.11 – XRC interval statistics
- 42.14 – ADSM accounting
- 42.15 – 42.19 – VSAM RLS
- 42.20, 42.21, 42.24, 42.25 – PDS/PDSE activity
- 42.22 / 42.23 – DFSMSrmm

- 74.6 – RMF HFS
- 77 – RMF Enqueues
- 85 – OAM Transaction Performance
- 92 – File System Activity for UNIX files
  - Turn on only for special studies
  - 92.5, 92.6, 92.7 – File mounts
  - 92.11 – File close

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Records, Records, Records

- Non-VSAM Data Set Activity
  - **14 – I/P data set closed**
  - **15 – O/P data set close**
  - 17 – Data set deleted
  - 18 – Data set renamed

- Workload Manager
  - 99 – WLM activity
    - 99.6 – Service class period summary (most useful)
    - 99.10 – Processor changes

- Security Records
  - 80 – Security product processing – identifies unauthorized attempts
  - 81 – RACF initialization
  - 82 – Crypto
    - 82.2 – Cryptographic Unit Support Program (CUSP)
    - 82.1/3-29 – Integrated Cryptographic Service Facility (ICSF)
    - 82.1 – PCF
  - 83 – RACF audit record for data sets

Records, Records, Records

- RMF Records
  - **70.1 – CPU Activity**
  - 70.2 – Crypto Activity
  - 71 – Paging Activity
  - **72.3 – Workloads (Service classes)**
  - 72.4 – Storage
  - 72.5 – Serialization Delay
  - 73 – Channel Path Activity
  - 74.1 – Device Activity
  - 74.2 – XCF Activity
  - 74.3 – OMVS Kernel Activity

- 74.5 – Cache Subsystem
- 74.6 – HFS Statistics
- 74.7 – FICON Director Stats
- 74.8 – Enterprise Disk System Stats
- 75 – Page Data Sets
- 76 – RMF Trace Activity
- 77 – Enqueue
- 78.2 – Virtual Storage
- 78.3 - I/O Queuing
- 79 – RMF Monitor II records (12 subtypes)

Records, Records, Records

- ## Subsystems
  - 110 – CICS
  - 111 – CICS Transaction Gateway
  - 100 – DB2 Statistics
  - 101 – DB2 Accounting – can account for 75% of all SMF
  - 102 – DB2
  - 108 – Domino Server
  - 109 – TCP/IP
  - 118 / 119 - FTP

- ## WebSphere, MQ, MB
  - 103 – HTTP Server
  - 115 – MQSeries Stats
  - 116 – MQ Accounting
  - 117 – Message Broker
  - 120 - WAS

Records, Records, Records

- What you should learn first

    - 6, 26, 30 – Address spaces
    - 14, 15, 42.6, 64 – Data sets
    - 70 – CPU activity
    - 72 – Service class activity
    - 90 – Operator events
    - 113 – Hardware Measurements
    - Subsystems that represent critical applications (e.g. CICS, DB2)

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Things to Know

- There are many sources for similar information because each data source measures different things.

- Example of I/O rate from a 10-minute analysis:
  - Type 70 - I/O interrupts - 39.26 interrupts/second
  - Type 72 - SSCHRT (Start Subchannel Rate) for all service classes - 35.8 SSCHs/sec
  - Type 72 - I/O service units for all service classes - 34.2 I/Os /sec
  - Type 74 - I/Os for all DASD devices - 42.99 SSCHs /sec
  - RMF Summary Report (DASD Rate) - 41.6 I/Os /sec

- For CPU alternatives, see my Anaheim SHARE session 11309, *The Many CPU Fields of SMF*

Things to Know

- Dates and times for IFASMFDP/DL can be problematic (it's hard to extract from Monday at 8 am to Friday at 6 pm)

- You should learn and understand the legal requirements for keeping SMF data

- Application owners should learn about their applications through reports produced by data center

- SMF Logger should be on everybody's To-Do list

- Install the exits from SMF Redbook to get subtype reports

References

- ***z/OS MVS System Management Facilities*** – SA22-7630-24 (z/OS 1.13) – Contains most record layouts; dump programs; exits; macros

- ***z/OS MVS Initialization and Tuning Reference*** – SA22-07592-23 (z/OS 1.13) – SMFPRMxx parameters

- SG24-7919-00 – ***SMF Logstream Mode: Optimizing the New Paradigm*** (10Feb2011) – See appendix for sample IFASMFDP exits to show subtypes; program to eliminate dupes; sample IEFU29L exit

- GG24-4453-00 – ***Enhanced Auditing Using the RACF SMF Data Unload Utility*** (26Oct1994)

Complete your sessions evaluation online at SHARE.org/SFEval

References

- 2012 SHARE Anaheim Sessions
  - 11604 – *Introduction to SMF & RMF Data Collection,* Mary Astley
  - 11309 - *The Many CPU Fields of SMF,* Cheryl Watson
  - 11608 - *RMF: The Latest & Greatest*, Peter Muench (This is given every SHARE)

- 2010 SHARE Boston Sessions
  - 7535 – *Utilizing System Logger Support for SMF*, Glenn Anderson

References

- 2013 SHARE San Francisco Sessions
  - 12916 – *Introduction to SMF Performance Data,* Mary Astley, Mon 11 am
  - 13034 – *z/OS SMF Logstream Mode: Update and User Experience,* Glenn Anderson and Skip Robinson, Thu 11 am
  - 13089 - *RMF: The Latest & Greatest*, Brad Snyder, Thu 8 am
  - 12434 – *WMQ – Introduction to Dump Reading and SMF Analysis,* Lyn Elkins, Ralph Bateman and David Coles, Wed 11 am
  - 12610 – *The Dark Side of Monitoring MQ – SMF 115 and 116,* Neil Johnston, Thu 1:30 pm
  - 12792 – *Remote RMF Report Access – Hands-on Lab,* Juergen Baumann, Mon 3 pm

Complete your sessions evaluation online at SHARE.org/SFEval

References

- 2013 SHARE San Francisco Sessions
  - 12916 – *Introduction to SMF Performance Data,* Mary Astley, Mon 11 am
  - 12693 – *DB2 Performance Tuning Using Omegamon DB2 Performance Expert,* Akiko Hoshikawa, Tue 4:30 pm
  - 12912 – *Performance Analysis of WebSphere (WAS) and J2EE Transactions on z/OS,* Peter Enrico, Wed 4:30 pm
  - 12184 – *WebSphere SysAdmin and SysProg Hands-On Lab,* David Follis, Michael Stephen, Kenneth Irwin, and Mike Loos, Tue 12:15 pm

References

- WSC Techdocs
  - WP101271 – *Migrating SMF from Data Set Recording to Log Stream Logging* (29Jul2008)
  - TD102183 – *New SMF Support for zAAPs and SMF Accounting* (8Jun2005)
  - WP101130 – *z/OS SMF Recording with MVS Logger* (12Nov2007)

References

- Cheryl Watson's Tuning Letters
  - 2008 No 2 – SMF Update – Part 1 (buffers, intervals, logger)
  - *2008 No 3 – z/OS 101 – SMF Intro, MVS commands, SMFPRMxx*
  - 2008 No 3 – SMF Update – Part 2 (SMFPRMxx, logger)
  - *2008 No 4 – z/OS 101 – SMF exits, life of an address space*
  - 2008 No 5 – SMF – Part 3 (address space records)
  - *2008 No 6 – z/OS 101 – Volume & file-related records*
  - 2008 No 6 – SMF – Part 4 (user survey results, volume and data set records)
  - 2009 No. 2 – Type 19 SMF Records

References

- Cheryl Watson's Tuning Letters
  - 2009 No 3 – SMF Update – Part 5 (BUFSIZMAX, dumping, logger recommendations)
  - 2009 No 4 – SMF Update – Part 6 (security, WLM, CICS, DB2 records)
  - 2011 No 3 – SMFPRMxx update, SMF Type 113s

- *Note: All z/OS 101 articles are available to the public at our website under 'Articles'*

See You in Boston!

Cheryl Watson Walker with partner,
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