

# z/OS SMF Logstream Mode: Update and User Experience

J.O.Skip Robinson  
Southern California Edison Co.

15 August 2013  
Session 13844



# An Unmetered Ode to SMF

- **System **Management** Facility**
- **A powerful function unique to z/OS**
- **Framework for collecting and manipulating structured data produced by system or user components**
- **Header data (type, date/time) prescribed for all types**
- **Remainder documented for each IBM record type**
- **User records defined at will by owner/installation**
- **No action required by applications or subsystems**
- **No allocations, no opening/closing of log/trace**
- **All we have to do is collect, massage, and archive**

# Managing Logger Data

- **Management of logger data similar to old MANx style**
- **But you get logger speed and flexibility**
- **I recommend...**
- **One day retention (minimum allowed) in log stream definition**
- **Multiple ARCHIVE jobs per day (at least two)**
- **Full report processing done only once a day**
- **\*\*\*Management of MANx data sets is driven by data**
- **\*\*\*Management of Logger data is driven by time**
- **Current implementation similar to old IFASMFDP**

# Managing the Data

- **We run two dump jobs daily: noon and midnight**
- **Midday job just archives for next midnight job**
  - **Make sure data is not deleted after extended outage**
- **Midnight job performs traditional SMF data processing**
- **Combines data from multiple systems, creates multiple outputs**
- **Produces reports for various subsystems, stakeholders**
- **Data marked ‘archived’ by SMF dump job**
- **Data retained/deleted by system logger**

## D SMF Old School Style

- **IEE974I 15.22.16 SMF DATA SETS**
- **P-SYS1.MAN1.\$SYSX0 SMFX01 67500 84**  
**ACTIVE**
- **S-SYS1.MAN2.\$SYSX0 SMFX02 67500 0**  
**ALTERNATE**
- **Similar lines for each MANx data set**
- **Status changes as each one fills up or gets emptied**

# SMF Logstream Status

- **IFA714I 15.22.48 SMF STATUS**
- **LOGSTREAM NAME            BUFFERS            STATUS**
- **A-IFASMF.DEFAULT            21524            CONNECTED**
  
- **ISPF 3.4 for LOGR.IFASMF shows all offload data sets**
- **LOGR.IFASMF.DEFAULT.A0096197            \*VSAM\***
- **LOGR.IFASMF.DEFAULT.A0096197.DATA            XSMF01+**
  
- **Each data set is 2,745 tracks (183 cylinders)**
- **Size determined by logstream definitions**
- **Data set count rises and falls throughout the day**

# Set Recording Mode in PARMLIB

- **PARMLIB SMFPRMxx**
- **ACTIVE**
- **DSNAME(SYS1.MAN1.\$SYS&SYSCLONE,**
- **SYS1.MAN2.\$SYS&SYSCLONE,**
- **SYS1.MAN3.\$SYS&SYSCLONE)**
- **RECORDING(LOGSTREAM)**
- **/\* RECORDING(DATASET) /\***
- **DEFAULTLSNAME(IFASMF.DEFAULT)**
  
- **Note: SMFPRMxx members cannot be concatenated**

# Defining SMF Logger Structure

- **//LOGRSMF EXEC PGM=IXCMIAPU**
- **//SYSPRINT DD SYSOUT=\***
- **//SYSIN DD \***
- **DATA TYPE(LOGR)**
- **DEFINE STRUCTURE**
- **NAME(IFASMF\_DEFAULT)**
- **LOGSNUM(5)**
- **AVGBUFSIZE(32767)**
- **MAXBUFSIZE(65532)**
  
- **Our SMS puts all log streams in a pool with volumes XSMFnn**
- **Effectively limits maximum space that can be used**



# Defining SMF Logstream

- **DEFINE LOGSTREAM**
- **NAME(IFASMF.DEFAULT)**
- **HLQ(LOGR)**
- **STRUCTNAME(IFASMF\_DEFAULT)**
- **LS\_SIZE(32768)** ← Determines size of offload data set
- **LS\_DATACLAS(SMFLOG)**
- **STG\_DATACLAS(SMFLOG)**
- **STG\_DUPLEX(YES)**
- **DUPLEXMODE(UNCOND)**
- **AUTODELETE(YES)**
- **RETPD(1)** ← Determines number of offload data sets

# Logstream Archive Job

- **//ARCHLOGR EXEC PGM=IFASMFDL**
- **//OUTSMF DD DSN=LOGR.SMFDATA(+1),**
- **// DISP=(CATLG,DELETE),UNIT=TAPE,**
- **// LRECL=32760,RECFM=VBS,BLKSIZE=4096,**
- **//SYSPRINT DD SYSOUT=\***
- **//SYSIN DD \***
- **LSNAME(IFASMF.DEFAULT,OPTIONS(ARCHIVE))**
- **OUTDD(OUTSMF,TYPE(0:255))**
- **SMARTENDPOINT /\* R13 AND UP \*/**
- **SMARTEPOVER(0100) /\* TWICE THE VALUE OF MAXDORM \*/**
- **//PROCSMF EXEC ... Process LOGR.SMFDATA() as before**

# Whither Offload Data Sets?

- Location of offload data sets determined by SMS rules
- Some options you might choose from
  - 1. Restricted: go only to defined pool (set of specific volumes)
  - 2. Contained: go to defined pool but allow overflow elsewhere
  - 3. Free range: go to any available volume, i.e. SYSALLDA
- With (1), you risk losing data (see below)
- With (3), you risk flooding the whole DASD farm
  - Runaway record production is still possible
- I recommend option (2) unless space problems occur
- When you're all done, you get back most of the old MANx space
- Keep a few smallish MANx guys for emergency fallback to DS

# What Could Possibly Go Wrong?

- IFASMFDL can choke on 'bad data'
- This very seldom happens these days
- If offload fails for any reason, Logger chugs on
- SMF data continues to accumulate in offload data sets
- Eventually DASD fills up, causing buffering
- Finally SMF disconnects from log stream ;-(
- IFA714I 15.22.48 SMF STATUS
- LOGSTREAM NAME                      BUFFERS                      STATUS
- A-IFASMF.DEFAULT                      9999999                      **DISCONNECTED**
- Try switching to MANx, then back to logstream
- **SMF Logstream has been very reliable for some time**

# Questions?

