Bit Bucket x'41'

Jerry Edgington, Jerry.Edgington@ibm.com
Mike Shorkend, mike@shorkend.com
Ed Jaffe, edjaffe@phoenixsoftware.com
NOTE: The role of Ed Jaffe will be played today by:
Ed Webb, sew.email@icloud.com

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And Now for Some Things Completely Different…

(Jerry Edgington)

z/OS Items of interest - A JES2 Syntax Checker & EasyIPL

- JES2 syntax checker
  - S JES2,PARM=(CHECK),SYSOUT=A,SUB=JES2
  - The output from the started task will be sent to output class A.

- Did you know you can IPL without HMC?
- Or just want to quickly recycle z/OS.

  - Vary XCF,"lpar",offline,reipl
  - The LPAR will be recycled using the last IPL parms.
  - If you have changed the IPL parms, this will not work

z/OS Items of interest – Some configuration tips

- TCPIP outbound from z/OS not connecting
  - Message and Issue:
    - Immediate connect failed for x.x.x.x EDC8116I address not available
    - Closing connection 0
  - Fix:
    - The TCPIP definition of TCPSTACKSOURCEVIPA was pointing to DDVIPA

- Java program failing to start on z/OS
  - Message:
    - JVMJ9VM015W Initialization error for library j9gc29(2): Failed to instantiate compressed references metadata. 200M requested
  - One possible fix:
    - Too large of SHRLIBRGNSIZE
    - Decrease the size, but verify
    - Too small of SHRLIBRGNSIZE will fail as well

Acknowledgements Knowing and Unknowing

- Kenneth Irwin, IBM
- Mike Fitzpatrick, IBM

Balancing Act

(Mike Shorkend)

What is the problem?

- Two-way dev/test sysplex, SYS1 and SYS2
- Most jobs are submitted and run on SYS1(from job scheduler and developers)
- Causes SYS1 to be loaded while SYS2 sleeps peacefully
- The solution: WLM initiators
- However……

Solution and its problem

- Started moving job classes from JES managed to WLM managed
- Turns out that all developers are logged on to SYS1 via TSO or IDz
- IDz and IBM® Debug for z/OS are not sysplex friendly
- When a developer wants to debug a program, if the job runs on SYS2, the debugger is not invoked

Possible Solutions

- Have the developers logon to SYS1 and SYS2 and then monitor where the debug session starts(ugh).
- Use SYSAFF. Will the developer remember to delete it when the program is not being debugged?(No)
- Use a JOBCLASS that has a QAFF of SYS1(possible)
- Use a Scheduling Environment (the winner!)

Assigning a Scheduling Environment to a debug job

- Could ask the programmer to add a SCHENV parameter but again, will the programmer remember to delete it (Still No)?
- A debug job is characterized with the CEEOPT DD card being added to it.
- It would be nice if there was a JES2 policy that scans for DD cards, but there is not.
- Shameless plug – please vote here to promote an IBM Idea for such a JES2 Policy
- We will write a JES2 exit instead of a policy

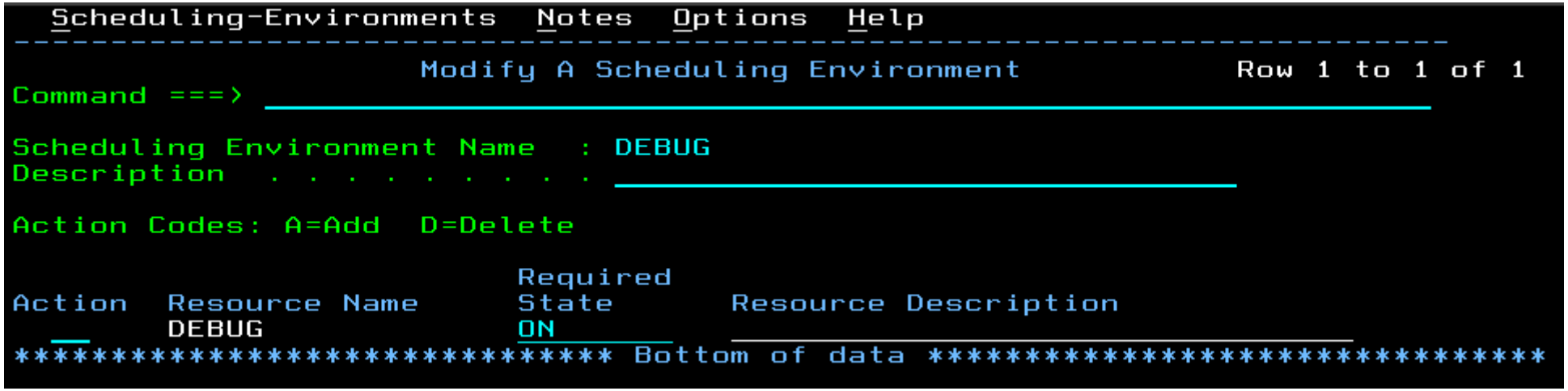
JES2 EXIT 4/54

- Quite a few of the JES2 exits come in pairs. The logic is the same, the point of interception is different
- EXIT 4/54 reads all the JCL cards submitted by a job
- EXIT 4 is called if the job comes in over *Card readers, RJE, SNA and BSC NJE, and SPOOL reload.*
- EXIT54 is called if a job come in through an internal read or TCPIP NJE.
- It is good practice to code both exits. Have Exit 4 call Exit54
- Samples are in SYS1.SHASSAMP

The Logic

```
Command ===> _____________________________________________ Scroll ===> CSR
****** ********************************* Top of Data ***********************************
000001           USING XPL,R8                 XPL ADDRESSABILITY
000002 EXIT054 $ENTRY BASE=R12,SAVE=YES       PROVIDE EXIT ROUTINE ENTRY POINT
000003           LR    R8,R0                  COPY XPL ADDRESS
000004 ***************************************************************
000005 *                                                             *
000006 *        EXIT 54 RECEIVES CONTROL FOR EVERY CARD IMAGE.       *
000007 *        DETERMINE IF THIS IS A CARD TO BE PARSED BY THE      *
000008 *        EXIT.                                                *
000009 *                                                             *
000010 ***************************************************************
000011           USING JCT,R10                    MAP THE JCT
000012           CLC   JCTJOBID(1),=CL1'J'        Q. IS THIS A JOB?
000013           JNE   RJCLRET                    NO, THEN FINISH NORMALY
000014           CLC   X054STMV(2),=CL2'DD '      Q. IS THIS A DD CARD?
000015           JNE   RJCLRET                    NO, THEN FINISH NORMALY
000016 ***************************************************************
000017 *          DD CARD FOUND, CHECK IF CEEOPTS
000018 ***************************************************************
000019           CLC   X054STML,=CL8'CEEOPTS'     Q. CARD NAME = CEEOPTS ?
000020           JNE   RJCLRET                    NO, THEN FINISH NORMALY
000021           MVC   JCTSCHEN(16),=CL16'DEBUG' MOVE IN SCHENV
000022           J     RJCLRET
000023 RJCLRET   DS    0H
000024           $RETURN ,                  RETURN TO CALLER
000025           DROP  R8,R12
000026           LTORG ,
000027          $MODEND
****** ********************************* Bottom of Data ********************************
```

Setting up the scheduling Environment



- Use automation to turn on the Resource Name when the debugger starts and off when it stops.

- F WLM, RESOURCE=DEBUG,ON
- F WLM, RESOURCE=DEBUG,OFF

Colorful Console Language

(Ed Jaffe-Webb)

3270 Console History

- The original CRT displays had only one color: green
  - Normal intensity, high intensity, and no intensity (for passwords)
- Eventually four (non-programmable) colors were shown:
  - Green (low intensity input)
  - Blue (low intensity, output)
  - Red (high intensity input)
  - White (high intensity output)
- Later, extended data streams (EDS) were supported with seven programmable colors (green, blue, red, white, turquoise, pink and yellow) and extended attributes (reverse video, underscore and blink).
- IBM loves upward compatibility, so today's MCS console attributes are largely unchanged from the four-color days.

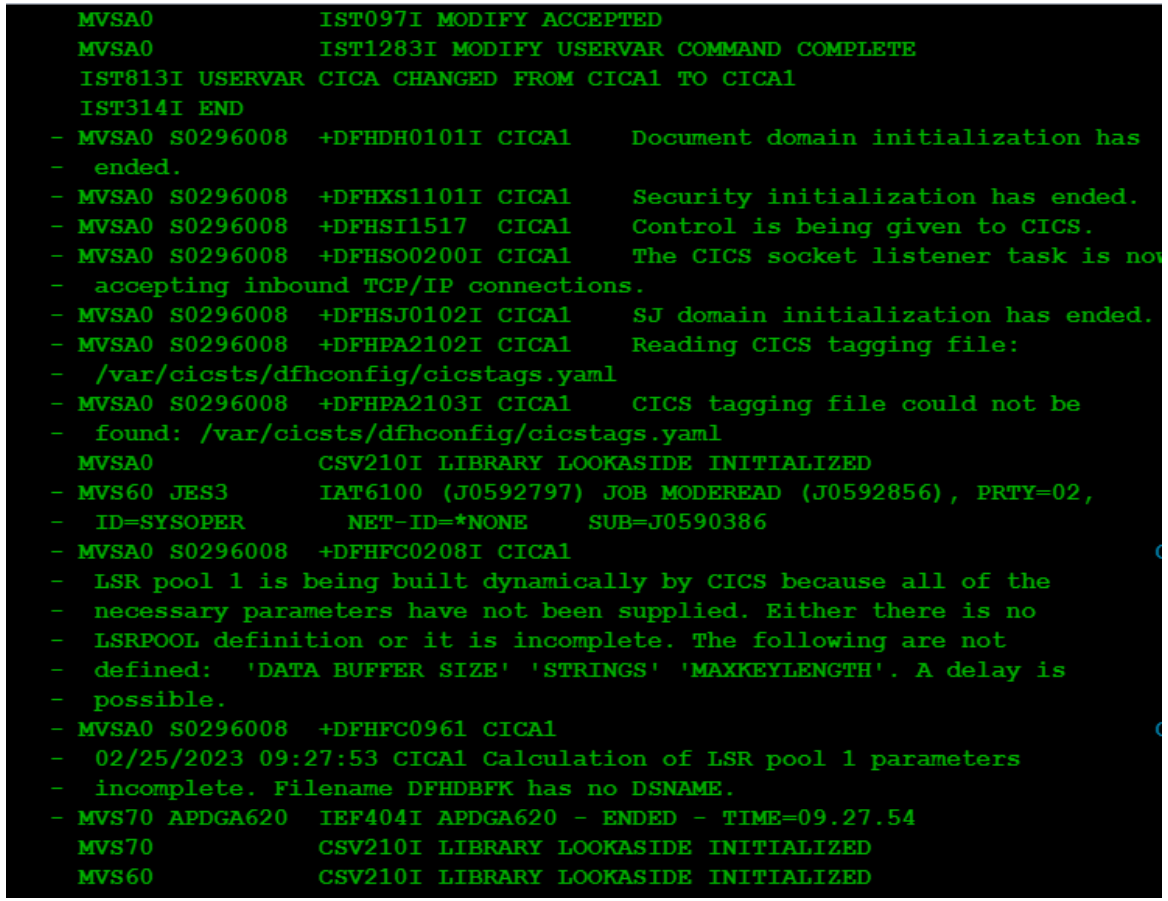
mSys for Operations Console Innovation

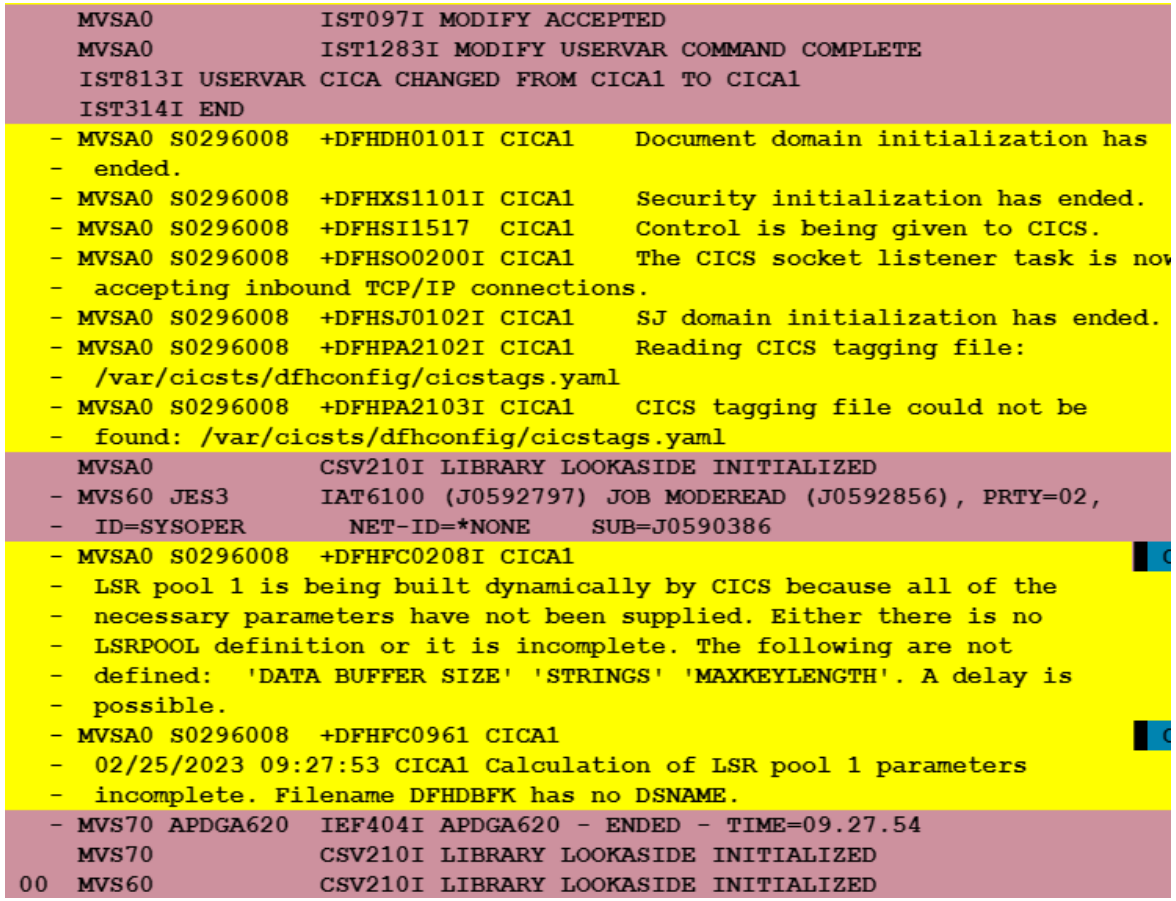
- In OS/390, two z/OSMF predecessor products were made available:
  - mSys for Setup
    mSys for Operations
- msys for Operations was a subset of System Automation for OS/390 V2 that eventually became a base element of z/OS, and came automatically on all z/OS 1.2 and later ServerPacs
- One of its most notable innovations was a new appearance for MCS consoles that provided greatly improved message heuristics by taking full advantage of EDS and programmable color attributes:

- ```
  .MSGCOLR URGATTN(R,R),IMEDACTN(B,R),EVETACTN(P,R)
  .MSGCOLR GENMSG(P,R),PPMSG(Y,R),SELPEN(B,R)
  .MSGCOLR INSTRERR(W,R),ENTRYARA(T,R),WARNLGEN(B,R)
  .MSGCOLR WARNRGEN(B,R),WARNRURG(R,R),OOLCNTL(T,R)
  .MSGCOLR OOLLABEL(T,R),OOLDATA(G,R)
  ```
  ```

mSys for Operations Console Innovation

- One tremendous advantage is the ability to easily distinguish problem program messages from authorized program messages.





mSys for Operations Console Innovation

- The Out-of-Line message area is arguably easier to read and understand (see images ➔)
  - I never saw or understood how to use the "F" and "E" selector pen fields until this theme was enabled in our shop. (<embarrassed emoji>)
- Being able to see the 3270 attribute characters is helpful too e.g., during console logon.

```
IEE112I 14.21.17 PENDING REQUESTS     FRAME  1      F       E    SYS=MVSA0
RM=2     IM=3      CEM=20     EM=2      RU=0     IR=0     AMRF
ID:R/K     T SYSNAME  JOB ID    MESSAGE TEXT
      0215 R MVS60              *0215 ISTEXC200 - DYN COMMANDS MAY BE
                                ENTERED
      0198 R MVSA0              *0198 ISTEXC200 - DYN COMMANDS MAY BE
                                ENTERED
     48012 I MVS70    S0296064 *$HASP1523 Unable to connect to z/OSMF
                                server.
     75010 I MVSA0    S0295925 *$HASP1523 Unable to connect to z/OSMF
                                server.
     69010 I MVSA0    S0295907 *IOSHM0803E HyperSwap Disabled
     68010 E MVSA0    S0295905  HZS0002E CHECK(IBMJES,JES_NJE_SECURITY
                                ):
IEE612I CN=HMCSA0    TYPE=HMCS    SYS=MVSA0    CMDSYS=MVSA0    USERID=EDJXADM

IEE163I MODE= RD
```

```
IEE112I 14.17.51 PENDING REQUESTS     FRAME  1      F       E    SYS=MVSA0
RM=2     IM=3      CEM=20     EM=2      RU=0     IR=0     AMRF
ID:R/K     T SYSNAME  JOB ID    MESSAGE TEXT
      0215 R MVS60              *0215 ISTEXC200 - DYN COMMANDS MAY BE
                                ENTERED
      0198 R MVSA0              *0198 ISTEXC200 - DYN COMMANDS MAY BE
                                ENTERED
     48012 I MVS70    S0296064 *$HASP1523 Unable to connect to z/OSMF
                                server.
     75010 I MVSA0    S0295925 *$HASP1523 Unable to connect to z/OSMF
                                server.
     69010 I MVSA0    S0295907 *IOSHM0803E HyperSwap Disabled
     68010 E MVSA0    S0295905  HZS0002E CHECK(IBMJES,JES_NJE_SECURITY
                                ):
IEE612I CN=HMCSA0    TYPE=HMCS    SYS=MVSA0    CMDSYS=MVSA0    USERID=EDJXADM

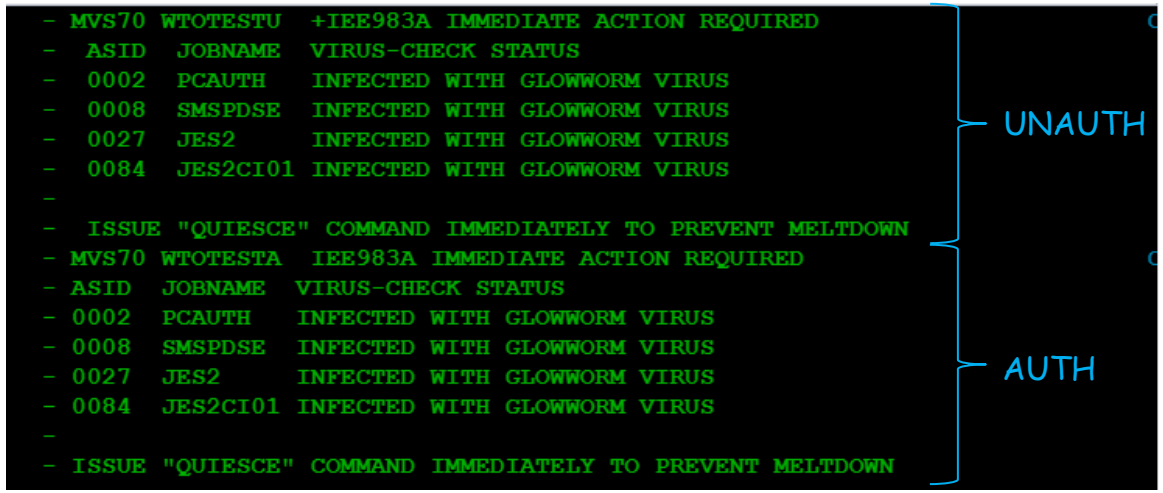
IEE163I MODE= RD
```

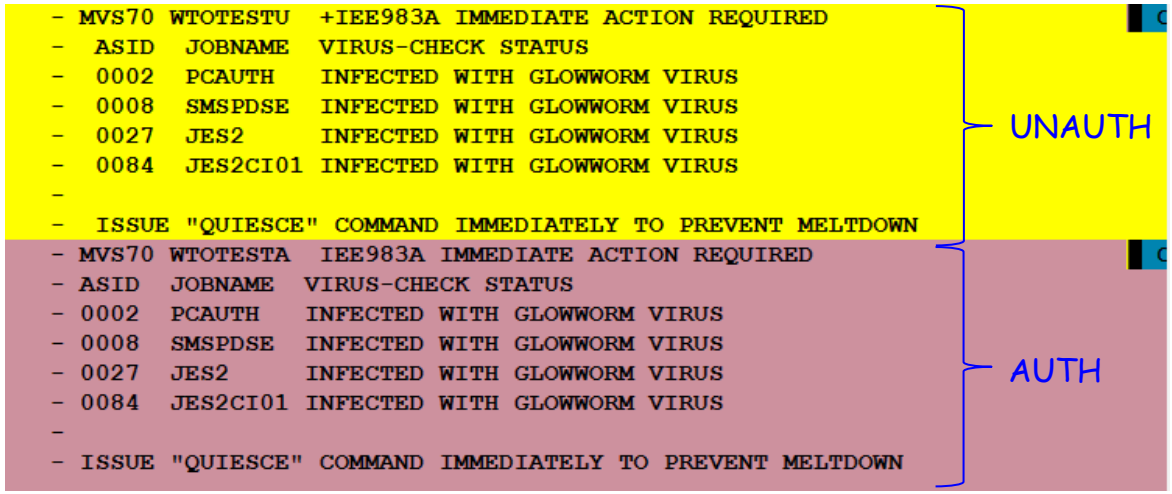
```
IEE187I ENTER LOGON PARAMETERS
LOGON                  PW
GROUP                NEWPW
SECLABEL             VERPW
```

```
IEE187I ENTER LOGON PARAMETERS
LOGON                  PW
GROUP                NEWPW
SECLABEL             VERPW
```

mSys for Operations Console Innovation

- Beyond simply better readability, colorful heuristics can also prevent a NOOB operator from being fooled by a "mischievous" programmer.
- In both images, the fake emergency messages in the top half are created by an unauthorized program. Those below are created by an authorized program. Can your operators tell the difference?





- Tip of the day: Never issue QUIESCE to prevent a z/OS meltdown.
- Use other commands instead... ☺

See You In Nawlins!