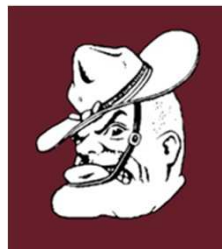# z/OS 1.11 Extended Status and SPOOL Browse: User Experience

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March 4, 2011
Session Number 8663

Acknowledgements

Thanks to **Richard Peurifoy** (TAMU), **David Jones** (IBM JES3) and **Tom Wasik** (IBM JES2) for their valuable contributions to this presentation.

About the Speaker

- Texas A&M University '87 - Computer Science
- 20+ years working with MVS technology
- 15+ years at SHARE
- 10 years volunteering in the JES3/EPS Project

- JES3 Committee Lead under MVS Core Technologies Project

About the Company

- **Texas A&M University** formed in 1876 as Texas' first public institution of higher learning
- 46,000 undergraduate and 8,500 graduate students
- 250 degree programs
- 10 colleges – 6th largest enrollment in nation.

- Two branch campuses (Galveston, Tx and Doha, Qatar) and overseas centers (Mexico, Costa Rica, and Italy)
- George Bush (Sr.) Presidential Library/School of Government
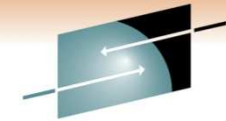
Our Environment

- IBM z10 BC
- z/OS V1.11, JES3 V1.11
- Who are our customers?
  - Budget/Payroll System (BPP)
  - System-wide Financials (FAMIS) – 20+ universities and state agencies

The Condition

A concurrent move to a new z/OS and JES is difficult!

- 13 JES local mods
- 22 site-developed macros
- 4 local DSP programs
- 1 local FCT program
  - MUSAS functionality (Wylbur) - TSO too expensive at the time
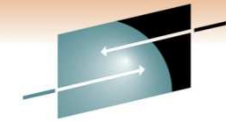- JES3 USERMOD required to implement - IATGRPT

- **We must clean this up! Let's start with DSPs!**

Local FCT

```
*----------------------------------------------------------------*
*          DEFINE LOCAL FCTS                                     *
*----------------------------------------------------------------*
TIJPFCT    IATYFCD ECFMASK=FF,ECFADD=IATGRJR,R14=IATGRJR,
               R15=IATGRJR,COND=80,DRVR=IATUMIJ,INISH=YES,
               PRTY=6,SUCC=FSFCT,NAME=TAMUIJP,PREV=GRSRFCT
```
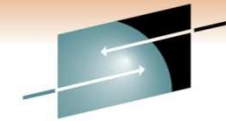
Local DSPs

```
*-------------------------------------------------------------*
*          DEFINE LOCAL DSP ENTRIES                           *
*-------------------------------------------------------------*
OPERDSP   IATYDSD PRTY=1,XABLE=YES,MUCC=NO,DRVR=TAMDS77,NOREQ=1,
                  REQ=(CNS3277),MAXCT=2
IOSCREEN  IATYDSD PRTY=1,XABLE=YES,MUCC=NO,DRVR=TAMIOSC,NOREQ=1,
                  REQ=(CNS3277),MAXCT=2
JOBCARD   IATYDSD PRTY=1,XABLE=YES,MUCC=NO,DRVR=TAMUTJC
WTJ       IATYDSD PRTY=1,XABLE=YES,MUCC=NO,DRVR=TAMWTJB
* SPOOLCHK IATYDSD PRTY=5,XABLE=YES,MAXCT=1,REENT=NO,DRVR=MSPOL
* JES3ARTS IATYDSD PRTY=5,REENT=YES,XABLE=YES,NOREQ=1,
*                  REQ=(JS3ARTS),DRVR=U110DJ
* SAG ENTIRE SYSTEM SERVER
UQJ3      IATYDSD PRTY=10,XABLE=YES,DRVR=IATUQJ3
DMYDSP01  IATYDSD
DMYDSP02  IATYDSD
DMYDSP03  IATYDSD
```

Step One: Out with the Old… DSPs

- Two DSPs awaiting requirements to be fulfilled

- **Output Status** DSP for print operators
- **Job Status** DSP for NOC operators
- Programs written pre OS/390 2.4 (ie. JES consoles, etc.)
- Handful of user code handed down throughout the years
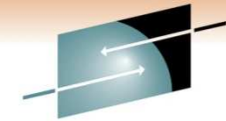- Susceptible to IBM's changing whims (of control blocks)!

The Old… TAMIOSC Screen


```
DEVICE      JOB   STATUS LIMIT FORMS      CARRIAGE  UCS
XEROX1            NO WTR <30K D100        8           PN
XEROX2            NO WTR <30K 1100        8           PN




FORMS      CARRIAGE  UCS  DEST       LINES
D1DR       8           PN   XEROX        72
```

The Old…   TAMDS77 Screen

Extended Status (SSI 80)

- _z/OS V1.11 MVS Using the Subsystem Interface   (SA22-7642-09)_

- Detailed status information about jobs and SYSOUT in the JES queue

- The call is made in Problem State

- *Relatively* JES neutral

- Six Request Types (STATTYPE)
  - STATTERS   STATVRBO
  - STATOUTT   STATOUTV
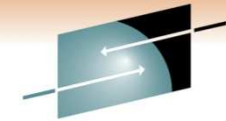 - STATDLST
  - STATMEM

Extended Status (SSI 80)

- Numerous combinations of filters
- Returned info from multiple calls will chain together without intermediate STATMEM
- Four types of Data Elements returned
  - SJQE - Job Queue Element (chained from IAZSSST)
  - SJVE - Job Queue Verbose Element (chained from SJQE)
  - SOUT - SYSOUT Element (chained from SJQE)
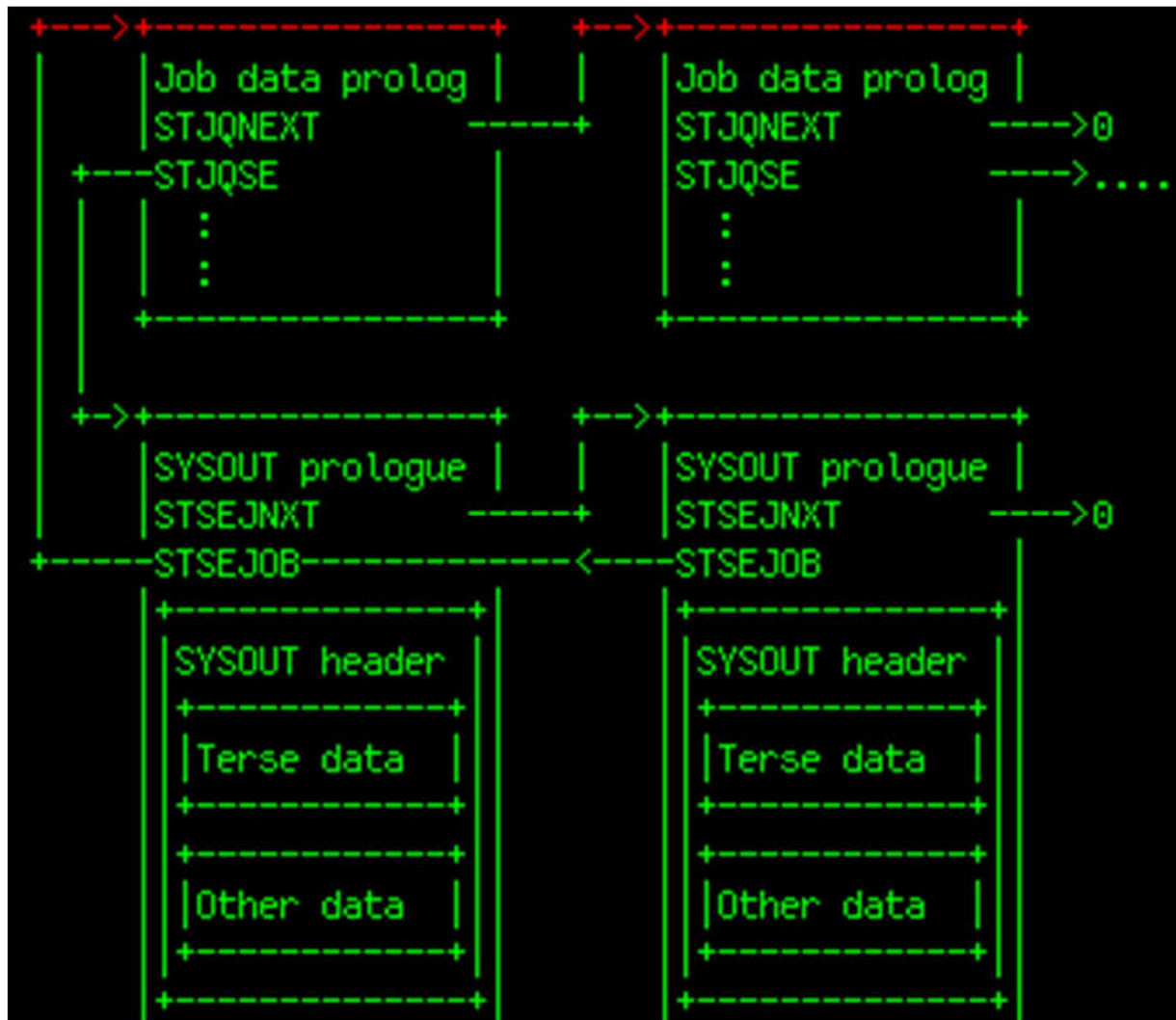 - SSVE - SYSOUT Verbose Element (chained from SOUT and SJQE)
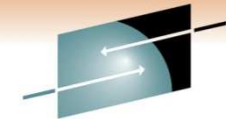
Environment for SSI 80 Call
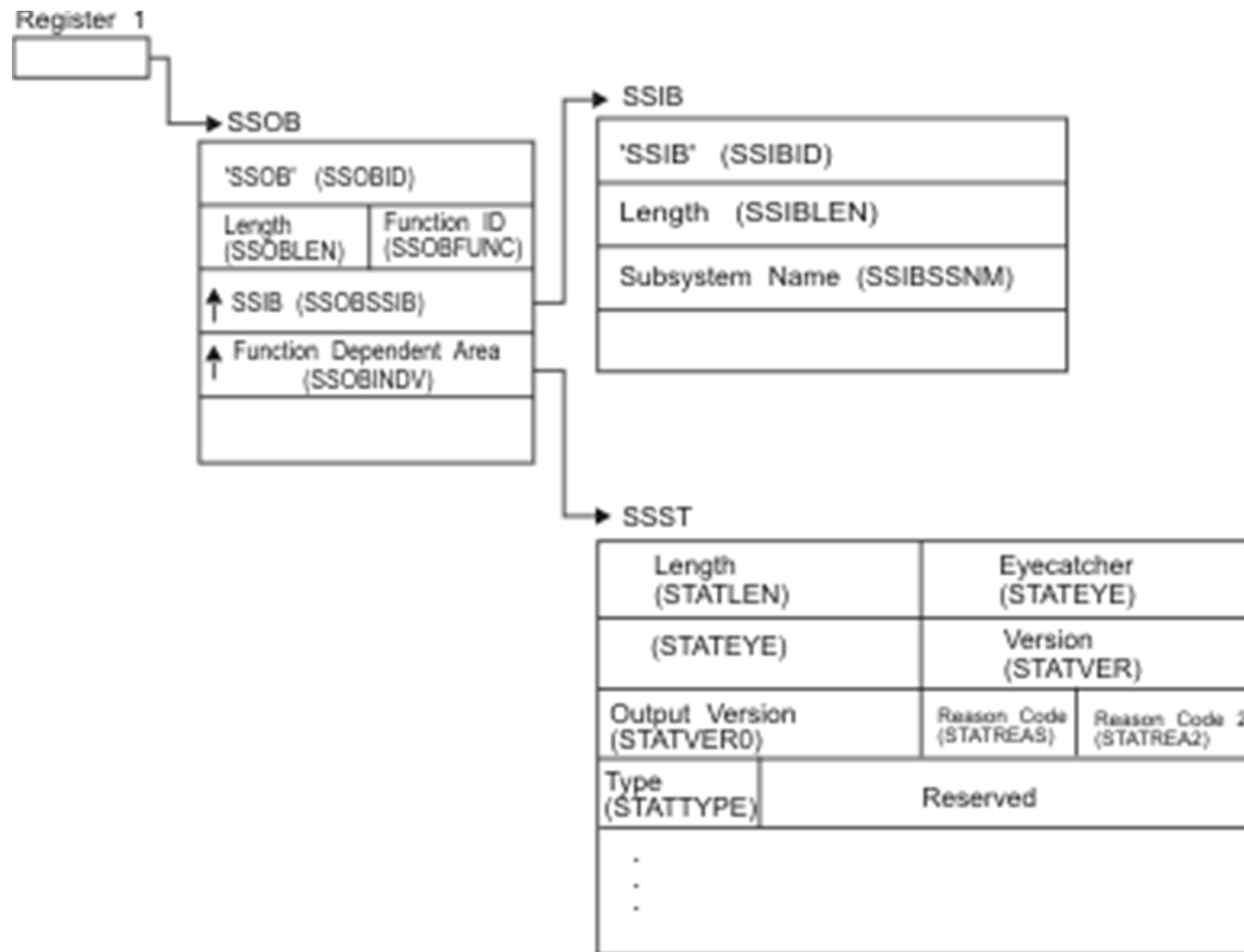
Return for SSI 80 Call - STATOUTT

JES Properties (SSI 82)

- *z/OS V1.11 MVS Using the Subsystem Interface   (SA22-7642-09)*

- Obtain information about JES managed structures (SPOOL, initiators, job classes, etc.)

- The call is made in Problem State

- *Relatively* JES neutral

- Request Types (SSJPFREQ)
  - SSJPSPOD   SSJPSPRS
  - SSJPITOD   SSJPITRS
  - SSJPJCOD   SSJPJCRS

The Old… TAMIOSC Technique

Printer Status

- Search FCT chain for printer
- Obtain device status, WTR status, and job name, if applicable

Output Totals by FORMS

- Search OSE chain and build table

The Old… TAMDS77 Technique

Spool Status

- Search SPB chain for used and total tracks

Main Processor Status

- Search MPC chain

Device Status

- Search SUP chain

Queue Status

- Search JQE chain (IATXJQE) by priority

Active Initiators

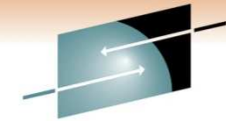- Search RSQ for Job number, Job name, Step, Region, etc.

Step Two: In with the New… Technique

Device Status
- Need SSI 83 - _Available in z/OS 1.12_

Output Totals by FORMS
- STATTYPE=STATOUTT
- STATSEL3=STATSNHL (non held jobs)
- STATSSL1=STATSSDS & STATSDES='XEROX'
- STATSSL1=STATSSNH (non-SYSOUT held)
- Search STATJQ and STATSETR chain and build totals table
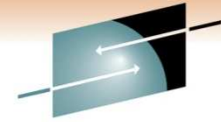
The Old… TAMDS77 Technique

- Spool Status
  - SSI 82

- Main Processor Status
  - Not sure this is available

- Device Status
  - Need SSI 83 - Available in z/OS 1.12

- Queue Status
  - Not sure this is available

- Active Initiators
  - SSI 80

What We Learned

- We need to get more current before we can continue
- What we were able work with is powerful and versatile
- Example program in the _SSI_ manual is a good starting point
  - Might clean up the CALL section….

- STATPERF (IAZSSST) isn't set for JES3!
  - Can't measure the cost of running the SSI
- Job Owner vs Job Submitter?

Where Do We Go From Here?

- Get to JES3 V1.12 or better!

- Look forward to newer and enhanced SSIs

- Continue with JES mod elimination

  - Rewrite with SPOOL BROWSE and new SSIs to eliminate FCT

  - Rewrite other DSPs

Questions?