z/OS Extended Status and SPOOL Browse: User Experience (REVISITED)

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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
• z/OS v1.12, JES3 v1.12 in test environment for this presentation

• Who are our customers?
  • Budget/Payroll System (BPP)
  • System-wide Financials (FAMIS) – 20+ universities and state agencies
    • 28,000 faculty and staff
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                                           *
*---------------------------------------------------------------*
TIJPFCI  IATYFCD  ECFMasks=FF,ECFADD=IATGRJR,R14=IATGRJR,
          R15=IATGRJR,COND=80,DRVR=IATUMIJ,INISH=YES,
          PRTY=6,SUCF=FSFCT,NAME=TAMUIJP,PREV=GRSRFCT
```
Local DSPs

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

<table>
<thead>
<tr>
<th>DEVICE</th>
<th>JOB</th>
<th>STATUS</th>
<th>LIMIT</th>
<th>FORMS</th>
<th>CARRIAGE</th>
<th>UCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>XEROX1</td>
<td>NO WTR</td>
<td>&lt;30K D100</td>
<td>8</td>
<td>PN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XEROX2</td>
<td>NO WTR</td>
<td>&lt;30K 1100</td>
<td>8</td>
<td>PN</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FORMS</th>
<th>CARRIAGE</th>
<th>UCS</th>
<th>DEST</th>
<th>LINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1DR</td>
<td>8</td>
<td>PN</td>
<td>XEROX</td>
<td>72</td>
</tr>
</tbody>
</table>
**Step One: Out with the Old… Technique**

**TAMIOSC**

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 Screen

<table>
<thead>
<tr>
<th>NUMB</th>
<th>NAME</th>
<th>STEP</th>
<th>REGION</th>
<th>CLASS</th>
<th>PRC</th>
<th>REL</th>
<th>HELD</th>
</tr>
</thead>
<tbody>
<tr>
<td>56998</td>
<td>F12AFRPR</td>
<td>STEP01</td>
<td>128K</td>
<td>ADAMCLAS</td>
<td>A</td>
<td>C/I</td>
<td>0</td>
</tr>
<tr>
<td>57314</td>
<td>INFOPACO</td>
<td>REPTPROC</td>
<td>0K</td>
<td>NRMCLASS</td>
<td>A</td>
<td>ERROR</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ALLOCATION</th>
<th>SETUP</th>
<th>DUPI NAME</th>
<th>VOL UNAVL</th>
<th>VOL MOUNT</th>
<th>MAIN</th>
<th>OUTPUT</th>
<th>PURGE</th>
<th>BACKLOG</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>28</td>
<td>885</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEVICE</th>
<th>JOB</th>
<th>STATUS</th>
<th>LMT</th>
<th>FORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>XEROX1</td>
<td>NO WTR</td>
<td>&lt;30K</td>
<td>D100</td>
<td></td>
</tr>
<tr>
<td>XEROX2</td>
<td>NO WTR</td>
<td>&lt;30K</td>
<td>1100</td>
<td></td>
</tr>
</tbody>
</table>
Step One: Out with the Old… Technique

**TAMDS77**

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.
Extended Status (SSI 80)

- z/OS V1.12.0 MVS Using the Subsystem Interface (SA22-7642-10)
- Detailed status information about jobs and SYSOUT in the JES queue
- The call is made in Problem State
- *Relatively* JES neutral (getting better)
- Six Request Types (STATTYPE)
  - STATTERS STATVRBO STATMEM
  - STATOUTT STATOUTTV
  - STATDLST
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 V1.12.0 MVS Using the Subsystem Interface (SA22-7642-10)**
- 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
Step Two: In with the New… Technique

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

Output Totals by FORMS – SSI 80
- **STATTYPE=STATOUTT**
- **STATSEL3=STATSNHL** (non held jobs)
- **STATSSL1=STATSSDS & STATSDS='XEROX'**
- **STATSSL1=STATSSNH** (non-SYSOUT held)
- Search **STATJQ** and **STATSETR** chain and build totals table
Step Two: In With The New… Technique

**TAMDS77**

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 82
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?

Thanks for stopping by…

Need SSI 83 - *Available in z/OS 1.12*