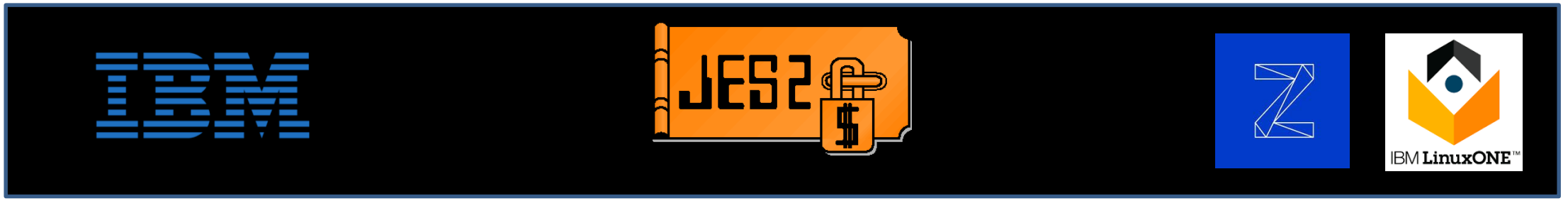
IBM Education Assistant

JES2 SSI updated to return resiliency data



Agenda

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- Session Objectives
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Trademarks

- See url http://www.ibm.com/legal/copytrade.shtml for a list of trademarks.
- Additional Trademarks:
  - None

Session Objectives

- In this session we will introduce the V2R4 enhancements to the JES Job Information SSI 71 to report on Resiliency resource usage data collated in V2R3 and V2R4.
- This session will also cover the updates to the Resiliency data support that allow reporting active job resource rate allocations on a MAS-wide basis
  - V2R3 code provides active job resource rate allocation data from the local member's view

Overview

- Who (Audience)
  - JES2 system managers require the ability to request resource usage data to detect and resolve resource allocation issues
- What (Solution)
  - Provide a consolidated view of resource usage across a JESPlex in a way consumable by applications
    - New output function on the JES Job Information Services SSI (SSI 71)
- Wow (Benefit / Value, Need Addressed)
  - Tools used by JES2 system managers can be enhanced to provide insights into JES2 resource utilization
  - Improved insight allow situations to be addressed before they become problems

New resource usage SSI

Making resource data available to system management tools

Usage & Invocation – SSI 71 Updates & Invocation

- The JES Job Information SSI (SSI 71) has been updated to support two new functions associated with reporting Resiliency Data
  - SSJILMOD – Resource Limits obtain data
  - SSJILMRS – Resource Limits return storage
- Using the new SSI function:
  - Construct normal SSI SSOB
  - SSOB extension IAZSSJI is filled out to request one of the two functions listed above
  - Use new IAZLIMD data area to request resiliency data
    - IAZLIMD also documents the output data areas returned

Usage & Invocation – IAZLIMD

- Selection Criteria
  - Several different sections of resource data can be requested for the four different resource types tracked – SPOOL, JQE, JOE and BERT
    - Overall resource usage statistics and history
    - Privilege space usage
    - Top 100 jobs using resources by total Count of resource used
    - Top 100 jobs using resources by allocation Rate of resource
    - Note that the SSI output data areas can report on the Top 100 jobs, where the $D LIMITS command output only reports the Top 10
  - Selection criteria also includes requesting the above sections by resource type
    - SPOOL
    - JQE
    - JOE
    - BERT

Usage & Invocation – IAZLIMD

- Reporting options
  - Resource Limits output data areas can be requested in 64 bit storage
  - Resource Limits output data areas can report Top 100 job information from the local member's perspective
    - Matches with the $D LIMITS,LONG display command output available in V2R3
    - Default is to report the Top 100 job information from a MAS-wide viewpoint
      - MAS-wide view is newly available in V2R4

Usage & Invocation – IAZLIMD Output Data Areas

- Output Data reported
  - General information
    - If privilege support is active
    - If privilege support is active in Small Environment mode
    - If privilege support is suspended
    - The date/time when the Resource Limits data being reported was collected

Usage & Invocation – IAZLIMD Output Data Areas

- Output Data reported
  - Overall resource utilization data by resource type
    - Resource name
    - Count of non-privilege resource in-use
    - Percentage of non-privilege resource in-use
    - Maximum count of non-privilege resource
    - Warning percentage for % of maximum non-privilege in-use
    - Count of privilege resource in-use
    - Percentage of privilege resource in-use
    - Maximum count of privilege resource
    - Projected date and time when non-privilege resource will be exhausted
    - Status indicators
      - Resource shortage message $HASP050 issued
      - Non-privilege resource shortage exists
      - Non-privileged resource exhausted

Usage & Invocation – IAZLIMD Output Data Areas

- Resource utilization historical data by resource type
  - Resource name
  - Count of non-privilege resource in-use at this point in time
  - Date/time when this history entry was recorded
- Privilege space usage by resource type
  - Status indicators
    - Privilege support is active
    - Message indicating privilege support is no longer active has been issued
    - Small environment mode is active
    - Non-privilege resource shortage exists
  - Count of privilege resource in-use
  - Percentage of maximum count of privilege resource in-use
  - Maximum count of privilege resource

Usage & Invocation – IAZLIMD Output Data Areas

- Report use count of the top 100 consumers of each resource type
  - Reported in descending order by total count of resource used
  - Job name
  - Job ID
  - Total count of resource in-use
  - Percentage of total of resource in-use by this job
  - Resource allocation rate, if available
  - If executing, which MAS member the job is executing on
  - Status indicators
    - Job is executing
    - Job is not executing on this member
    - Job's total resource count is zero
    - Job's resource allocation rate is zero

Usage & Invocation – IAZLIMD Output Data Areas

- Report consumption rate of top 100 consumers of each resource
  - Reported in descending order by resource allocation rate
  - Job name
  - Job ID
  - Total count of resource in-use
  - Percentage of total of resource in-use by this job
  - Resource allocation rate, if available
  - If executing, which MAS member the job is executing on
  - Status indicators
    - Job is executing
    - Job is not executing on this member
    - Job's total resource count is zero
    - Job's resource allocation rate is zero

A single JESPlex view of resources

Understand resource usage at a JESPlex vs a system level

Usage & Invocation – $D LIMITS,MASVIEW

- In V2R3 the `$D LIMITS,LONG` reports the Top 10 jobs by
  - Total count of resource used
  - Resource allocation rate if the job was active.
- This report was from the view of the local member.
  - If a job was executing on a different MAS member the resource allocation rate would be reported as “UNKNOWN”
  - The MAS member where the job was executing was supplied.
  - A `$D LIMITS,LONG` command had to be issued on that member to show the resource allocation rate for that job.
- Customers requirement was for a consolidated MAS-wide view of job resource allocation rates
  - Single command issued on any member
- This new support provided that functionality.

Usage & Invocation – $D LIMITS,MASVIEW

- New keyword “MASVIEW” was introduced to request a MAS-wide view of job resource allocation rates
  - `$D LIMITS,MASVIEW` invokes the function
    - Resource-specific requests can also be made `$D LIMITS(SPOOL),MASVIEW`
- The JES Job Information Services SSI (SSI 71) defaults to MASVIEW
  - New LIMIT SSI for application use
- The `$D LIMITS` output indicates if MASVIEW data was requested
  - “`MASVIEW IS ON`”

Interactions & Dependencies

- To exploit this item, all systems in the Plex must be at the new z/OS level: No

- Software Dependencies
  - None
- Hardware Dependencies
  - None
- Exploiters
  - SDSF

Migration & Coexistence Considerations

- From JES2 z/OS 2.2 or z/OS 2.3
  - APAR OA53860 needed on z/OS 2.2 or z/OS 2.3 member to coexist in a MAS with z/OS 2.4
  - APAR OA53860 is also highly recommended for fall back
  - Some new data structures created by z/OS 2.4 JES2 may result in problems if OA53860 is not installed.

Installation

- None

Appendix

- Publications
  - z/OS V2R4.0 JES Application Programming – SA32-0987-40
  - z/OS V2R4.0 JES2 Commands – SA32-0990-40
  - Z/OS V2R4.0 JES2 Diagnosis - GA32-0993-40
  - z/OS V2R4.0 JES2 Initialization and Tuning Guide – SA32-0991-40
  - z/OS V2R4.0 JES2 Initialization and Tuning Reference – SA32-0992-40
  - z/OS V2R4.0 JES2 Installation Exits – SA32-0995-40
  - z/OS V2R4.0 JES2 Macros – SA32-0996-40
  - z/OS V2R4.0 JES2 Messages – SA32-0989-40
  - z/OS V2R4.0 MVS JCL Reference - SA23-1385-40
  - z/OS V2R4.0 MVS Using the Subsystem Interface – SA38-0679-40