IBM Education Assistance for z/OS V2R1

Item: 8-Character Class Name on JOB JCL Statement
         Security (SAF) Control over Job Classes
         Batch Job System Symbol Support Enabled by Job Class
Element/Component: JES3

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Agenda

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Presentation Objectives

To describe the following V2R1 JES3 enhancements related to job class:

- Support job class names up to eight characters in length on the JOB JCL statement

- Security (SAF/RACF) control over JES3 job execution class

- Support system symbol substitution in batch job JCL, controlled by a new job class attribute

Overview of 8 Character Job Class Names

- **Problem Statement / Need Addressed**
  - The job class name specifiable on the JOB JCL statement is limited to a single character for a total of 36 separate job classes: A-Z, 0-9

- **Solution**
  - The CLASS parameter on the JOB JCL statement will be extended from 1 to up to 8 characters

- **Benefit / Value**
  - Standard JCL, common to both JES2 & JES3, can now be used to specify a job class name of more than one character, without having to resort to using JECL (JES3's //*MAIN card)

Usage & Invocation

- JES3 & MVS Converter/Interpreter were enhanced at V2R1 to accept up to 8 characters for the CLASS parameter on the JOB card.

- JES3 currently supports job class names up to 8 characters but only when specified on the //*MAIN card, not the the JOB card.

- JES2 was similarly enhanced at V2R1. (JES2 did not have any JECL statements similar to JES3's MAIN card allowing 8 character job class names.)

Usage & Invocation

The following JCL illustrates how class names greater than one character can be specified using JES3. Note that the class name on the MAIN card **overrides** the class name on the JOB card:

```
//WRITRECS JOB    MSGCLASS=T,MSGLEVEL=(1,1),CLASS=A
//*MAIN CLASS=WLMCLASS
//GO1        EXEC PGM=WRITRECS
//OUT1       DD SYSOUT=*
```

At V2R1, the above can now be changed to use standard JCL:

```
//WRITRECS JOB    MSGCLASS=T,MSGLEVEL=(1,1),CLASS=WLMCLASS
//GO1        EXEC PGM=WRITRECS
//OUT1       DD SYSOUT=*
```

Usage & Invocation

Q: Which characters are allowed for eight character class names?

A: The first character of the job class must be alphanumeric, that is: A-Z or 0-9, the same as when the class name was just a single character. Subsequent characters must be either alphanumeric or one of the three national characters (@,#,$). Furthermore to be valid, the job class name must be defined in the JES3 initialization deck.

JES3 initialization statement to define a job class:

CLASS,NAME=WLMCLASS,SYSTEM=JES3,GROUP=JES3WLM

. . .

Other special characters are not allowed for class names on the JOB card. Special characters are allowed when using JES3's //*MAIN card.

Usage & Invocation

- **More about a CLASS name on the MAIN card overriding the CLASS name on the JOB card.**
  - Previously, a job would fail if a JOB's CLASS name was not valid – even if it was overridden by a valid CLASS name on the MAIN card.
  - At JES3 V2R1, this behavior has been relaxed:
    - now just a warning message is generated, and this will no longer cause the job to fail.

- For example, the following JCL will no longer fail the job since JES3 overrides BOGUS class with WLMCLASS:

```
//WRITRECS JOB    MSGCLASS=T,MSGLEVEL=(1,1),CLASS=BOGUS
//*MAIN CLASS=WLMCLASS
//GO1        EXEC PGM=WRITRECS
//OUT1       DD SYSOUT=*
```

Migration & Coexistence Considerations

- Use of up to 8 characters for job class names on the JOB card for JES3 V2R1 requires no explicit enablement action.

- However, the JES3 Global main must remain at JES3 V2R1 at all times
  - Otherwise the job will fail Input Service processing with error message IAT6133

- In addition, C/I capability must be available at the JES3 V2R1 level somewhere in the JESPlex, either on a Local C/I FSS or at the Global
  - Otherwise if such C/I service is not available, the job will wait until eligible C/I service does become available

Overview of Security Checking on Job Class

- **Problem Statement / Need Addressed**
  - A job may run using a job class without any security checking performed to verify the job's access to the class.

- **Solution**
  - Use a new FACILITY class profile to activate security checking when a job attempts to execute using a job class.

- **Benefit / Value**
  - Standard security checking is used to control the use of a job class.

Usage & Invocation

- Activated by defining either or both of the following profiles to the **FACILITY** class:
  - **JES.JOBCLASS.OWNER**
    - Checks whether execution userid (owner) has access to entity
  - **JES.JOBCLASS.SUBMITTER**
    - Checks whether submitting userid has access to entity

- New entity is: **JOBCLASS.*nodename.classname.jobname*** in resource class **JESJOBS**, where:
  - *nodename* is the local NJE node name
  - *classname* is the class associated with the job
  - *jobname* is the jobname

- Note: READ access to this entity is required for the job to pass the security check

Usage & Invocation

- JES3 will issue a RACROUTE REQUEST=AUTH call in the following code paths to verify, and possibly fail, a job's access to a job class:
    - at the end of Input Service processing for a job
    - when the job class for a job is modified via command
    - when a job is restored via DUMP JOB (DJ)

- This enhancement matches JES2 support also added at V2R1

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Usage & Invocation

EXAMPLES:

- To deny any job from using CLASS=P regardless of userid:
  - Define entity JOBCLASS.NODE1.P.* in resource class JESJOBS
  - Permit all users access of NONE to that entity.

- To allow only payroll jobs named PAYRxxxx running under userid PAYRLLID to use CLASS=P:
  - Define entity JOBCLASS.NODE1.P.PAYR* in resource class JESJOBS
  - Permit userid PAYRLLID to have READ access to that entity

Migration & Coexistence Considerations

The JES3 Global main must remain at JES3 V2R1 at all times to use this enhancement. This enhancement was not rolled back to previous releases.

Overview of System Symbol Support for Batch Jobs

- **Problem Statement / Need Addressed**
  - System symbol substitution is supported only for Demand Select jobs (Started Tasks, TSO, etc.)

- **Solution**
  - Substitution of system symbols is extended to Batch jobs assigned to a job class defined with SYSSYM=ALLOW

- **Benefit / Value**
  - For batch job JCL using system symbols, it is no longer necessary to alter the JCL of (perhaps several) batch jobs, instead just the system symbol value need be altered
  - Batch job JCL can be kept identical across systems in a JES3 complex, using system symbols resolved to where the batch job can execute

Usage & Invocation

- MVS Converter does the actual system symbol substitution
  - JES3's role is to ensure the proper system symbol table is supplied to MVS at conversion time.

- Support is enabled for Batch jobs assigned to a class having this new attribute specified on a CLASS initialization statement. For example:
  - CLASS,NAME=A,...,SYSSYM=ALLOW
  - Default behavior, when unspecified, is SYSSYM=DISALLOW

- *MODIFY and *INQUIRY commands can be used to modify and display a CLASS's SYSSYM attribute. For example:
  - *MODIFY,C=A,SYSSYM=ALLOW
    - will modify class A to allow Batch jobs to have system symbol substitution occur at conversion time
  - *INQUIRY,C=A
    - will display the current SYSSYM setting for class A

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Usage & Invocation

QUESTION: When JES3 provides a System Symbol table to the MVS Converter, which system will the table be supplied from?

ANSWER: A system where the job is eligible to execute. This system is derived from the intersection of:

- the set of systems defined for the Batch job's class

- the system affinity of the job, if any

- the job's scheduling environment, if any

Usage & Invocation

Note if there are multiple systems in the execution set, one system from this set will be chosen to supply a symbol table. When there are multiple eligible systems to select from, the system chosen may or may not be the same system where the Batch job later executes on.

JES3 has defined a new message to identify which system was chosen for System Symbol substitution. For example:

– IAT4221 SYSTEM SYMBOLS SELECTED FROM SY2

This message is logged to the Batch job's JESMSGLG

Migration & Coexistence Considerations

The JES3 Global main must remain at JES3 V2R1 at all times to use this enhancement. This enhancement was not rolled back to previous releases.

Further, C/I capability must be available at a V2R1 level somewhere within the JES3 complex, otherwise the conversion of the Batch job will wait until such C/I capability becomes enabled and available.

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Appendix

- See the MVS JCL Reference for updates regarding CLASS on the JOB card (SA23-1385)

- See the JES3 Initialization and Tuning Guide (SA32-1003), Chapter 3 on 'Providing Security for JES3,' for more information on how to set up security control for job class

- See the JES3 Initialization and Tuning Reference (SA32-1005) for more information about SYSSYM keyword in the CLASS initialization statement