IBM Education Assistance for z/OS V2R1

Item: Allow Groups of SPM Rules
Element/Component: WLM/SRM
Agenda

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- Usage & Invocation
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Trademarks

Presentation Objectives

- With z/OS V2R1, WLM/SRM introduces new classification group types, and some new and modified work qualifier types for use in classification rules in the WLM service definition.

- These can be used to improve readability of the service definition, and classify new DB2/DDF requests.

- This presentation explains:
  - Which new classification groups and work qualifier types are available
  - How they can be used in classification rules
Overview – Problem Statement

- Groups of classification attributes can be defined to collect together work when there is no naming convention that allows masking or wild-carding
  - Currently restricted to work qualifier types that are 8 characters long, like transaction name or user ID
  - Do not allow specifying a start position for group members, or nesting

- For subsystem types DB2 and DDF, DB2®
  - Requires increased maximum length for work qualifier types “Package Name” and “Procedure Name”
  - Requires new work qualifier types
    • Client Accounting Information
    • Client IP Address
    • Client Transaction Name
    • Client User ID
    • Client Workstation Name
  - Requires increased notepad size for service definition
Overview – Solution (I)

- Allow definition of classification groups for all non-numeric work qualifier types. For long qualifier types, allow specifying a start position for group members, and nesting

- New Groups:
  - Accounting Information Group
  - Client Accounting Information Group
  - Client IP Address Group
  - Client Transaction Name Group
  - Client Userid Group
  - Client Workstation Name Group
  - Collection Name Group
  - Correlation Information Group
  - Procedure Name Group
  - Process Name Group
  - Scheduling Environment Group
  - Subsystem Collection Group
  - Subsystem Parameter Group
  - Sysplex Name Group

- Exceptions: Priority (numeric), zEnterprise Service Class (EWLM only)
Overview – Solution (II)

- **DB2® requirements:**
  - Increase maximum length of work qualifier type “Package Name” from 8 to 128 characters
  - Increase maximum length of work qualifier type “Procedure Name” from 18 to 128 characters
  - Introduce new work qualifier types
    * Client Accounting Information with maximum length 512 characters
    * Client IP Address with maximum length 39 characters
    * Client Transaction Name with maximum length 255 characters
    * Client User ID with maximum length 128 characters
    * Client Workstation Name with maximum length 255 characters
  - Classification for the new and modified work qualifier types is implemented only with the new 64-bit classify IWM4CLSY
  - Increase the maximum number of lines that the “Notepad” of a service definition can contain from 500 to 1000 lines
Overview – Solution (III)

- The WLM Administrative Application level changes from 25 to 29
- As soon as the new functionality is used, the functionality of the service definition changes to 29
Overview – Benefit/Value

- Improved readability of the WLM service definition for work when there is no naming convention that allows masking or wild-carding
- New and extended qualifier types allow better classification of new DB2 and DDF workload
- More notepad information about a service definition allowed
After new groups or qualifier types are defined or used, the functionality level of the service definition changes to 29.

The WLM Administrative Application level changes from 25 to 29.
Usage & Invocation –
New Groups in the WLM Administrative Application

Option 5 Classification Groups:
Groups can be defined for all non-numeric work qualifier types.
Exceptions: Priority (numeric), zEnterprise Service Class (EWLM only)
Usage & Invocation –
Samples for New Groups in the WLM Administrative Application

Use to collect together work when there is no naming convention that allows masking or wildcarding.

Use a start position for each group member to indicate how far to index into the character string for a match. The start position needs not be the same for all group members.
Usage & Invocation –
Use of New Groups and Qualifiers in the WLM Administrative Application

Groups of long work qualifier types can be nested.

New work qualifier types:
- Client Accounting Information
- Client IP Address
- Client Transaction Name
- Client User ID
- Client Workstation Name

Increased maximum length for work qualifier types
- Package Name and Procedure Name
Usage & Invocation –
Group and Subsystem types

- Classification group types are valid for the same subsystem types as the underlying work qualifier types they group
  - For example, accounting information (AI) is valid for subsystem types ASCH, DB2, DDF, JES, OMVS, STC and TSO
  - Then accounting information group (AIG) is valid for the same subsystem types

- Exception: Subsystem parameter group (SPMG) is not valid for subsystem type STC, though the underlying work qualifier type subsystem parameter (SPM) is

- The new and modified work qualifier types for DB2® are valid for subsystem types DB2 and DDF
Usage & Invocation –
Example: Classification using New Groups

<table>
<thead>
<tr>
<th>Action</th>
<th>Type</th>
<th>Name</th>
<th>Start</th>
<th>Service</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AIG</td>
<td>SLOWACCT</td>
<td></td>
<td>FAST</td>
<td></td>
</tr>
<tr>
<td></td>
<td>AIG</td>
<td>FASTDEPT</td>
<td></td>
<td>SLOW</td>
<td></td>
</tr>
</tbody>
</table>

- '040375, SHIPPING' → FAST.
- '030275, D71ITDEP' → FAST.
- '020175, CONTROL' → SLOW, because the department is not contained in the FASTDEPT group.
- '020177, SALES' → MEDIUM, because the account number does not match group SLOWACCT, and therefore the system never checks any sub-rules.
Usage & Invocation –
How WLM matches qualifier values

- When matching on qualifier values shorter than 8 characters, WLM treats long and short qualifier types differently:
  - **Short qualifier types:**
    Value padded with blanks to be 8 characters, blanks used for matching
  - **Long qualifier types with start position:**
    Value padded with blanks to be 8 characters, blanks used for matching
  - **Long qualifier types without start position:**
    Value matched according to the number of characters specified

- Example:

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Start</th>
<th>Service</th>
<th>Class</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI</td>
<td>DIRS</td>
<td>8</td>
<td>MEDIUM</td>
<td></td>
<td>______</td>
</tr>
<tr>
<td>AI</td>
<td>DIRS*</td>
<td>8</td>
<td>SLOW</td>
<td>FAST</td>
<td>______</td>
</tr>
<tr>
<td>AI</td>
<td>0201</td>
<td>___</td>
<td>FAST</td>
<td>FAST</td>
<td>______</td>
</tr>
<tr>
<td>UI</td>
<td>HUGO</td>
<td>___</td>
<td>SLOW</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

- 1\(^\text{st}\) rule matches accounting information with the 8 characters 'DIRS_____' starting in the 8\(^\text{th}\) position
- 2\(^\text{nd}\) rule matches accounting information with the 4 characters 'DIRS' starting in the 8\(^\text{th}\) position
- 3\(^\text{rd}\) rule matches accounting information starting with the 4 characters '0201'
- 4\(^\text{th}\) rule matches user ID equal to the 8 characters 'HUGO_____'

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Interactions & Dependencies

- Software Dependencies
  - Toleration APAR OA36842 for z/OS V1R12 and R13
  - z/OSMF support for the new groups, and new and modified work qualifier types

- Hardware Dependencies
  - None

- Exploiters
  - System administrators when creating or modifying their WLM service definition
Migration & Coexistence Considerations (I)

- Apply toleration APAR OA36842 to z/OS V1R12-R13 to handle service definitions with functionality level 29 introduced by use of z/OS V2R1 functionality
  - Service definitions with functionality level 29 cannot be extracted, displayed, modified, installed or activated in a back-level WLM Administrative Application
  - But they can be activated in a mixed z/OS V1R12-V2R1 sysplex using
    - The WLM Administrative Application on the z/OS V2R1 system
    - Console command “v wlm,policy=<pol>” on the z/OS V2R1 system
    - WLM service IWMPACT on the z/OS V2R1 system
  - WLM then runs with this service definition on all systems
  - However, the new groups and new and modified qualifier types are not honored for workload classification on z/OS V1R12-R13 systems
Migration & Coexistence Considerations (II)

- If you plan to use more than 500 lines of notepad information, re-allocate the WLM couple data set on the z/OS V2R1 system before installing the service definition.
  - By using z/OS V2R1 to allocate the WLM couple data set, the space allocated is sufficient for the increased notepad size.
  - Else you get error message “WLM couple data set is too small to hold the service definition. (IWMAM047)”
Installation

- Support for this line item is packaged with, and installed as part of z/OS V2R1
- No rollbacks, but toleration APARs for z/OS V1R12-R13 are required – APAR OA36842
- If customers plan to add more than 500 lines of notepad information about their service definition, they need to re-allocate the WLM couple data set before installing this service definition
Presentation Summary

- With z/OS V2R1, WLM/SRM introduces new classification group types, and some new and modified work qualifier types for use in classification rules in the WLM service definition.

- These can be used to improve readability of the WLM service definition for work when there is no naming convention that allows masking or wild-carding.

- New and modified qualifier types allow better classification of new DB2 and DDF workload.

- More notepad information about a service definition allowed.
Appendix

- Publications:
  - z/OS V2R1 MVS Data Areas Volume 4 (IRDDFSD-LLP1)
    - IWMSVDCR Mapping Macro
  - z/OS V2R1 MVS Planning: Workload Management SC34-2662-00
    - Chapter Defining Classification Rules
    - Chapter Using the WLM ISPF Application
    - Chapter Workload Management Migration
  - z/OS V2R1 MVS Programming: Workload Management Services SC34-2663-00
    - Chapter IWMDEXTR - Extracting WLM Service Definition
    - Chapter IWMPACT - Activating Service Policy
    - Appendix B. Application Validation Reason Codes
    - Appendix C. Structure of the XML Service Definition (DTD)