

# IBM Education Assistance for z/OS V2R1

Item: Allow Groups of SPM Rules

Element/Component: WLM/SRM



## Agenda

- Trademarks
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- Usage & Invocation
- Interactions & Dependencies
- Migration & Coexistence Considerations
- Installation
- Presentation Summary
- Appendix



## Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of 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



## Usage & Invocation – New Levels in the WLM Administrative Application

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

```
File Utilities Notes Options Help
-----
Functionality LEVEL029          Definition Menu          WLM Appl LEVEL029
Command ==> _____

Definition data set . . . : none

Definition name . . . . : coeffs (Required)
Description . . . . . : Service coefficients

Select one of the
following options. . . . : 5
1. Policies
2. Workloads
3. Resource Groups
4. Service Classes
5. Classification Groups
6. Classification Rules
7. Report Classes
8. Service Coefficients/Options
9. Application Environments
10. Scheduling Environments
11. Guest Platform Management Provider
```



## Usage & Invocation – New Groups in the WLM Administrative Application

```
File Utilities Notes Options Help
-----
Functionality LEVEL029          Definition Menu
Command ==>

Definition data set . . . : none

Definition name . . . . . coeffs (required)
Description . . . . . Service coefficients

Select one of the
following options. . . . . 5      1. Policies

Classification Group Menu

Select one of the following options.
1. Accounting Information Groups      14. Plan Name Groups
2. Client Accounting Info Groups      15. Procedure Name Groups
3. Client IP Address Groups           16. Process Name Groups
4. Client Transaction Name Groups      17. Scheduling Environment Groups
5. Client Userid Groups                18. Subsystem Collection Groups
6. Client Workstation Name Groups      19. Subsystem Instance Groups
7. Collection Name Groups              20. Subsystem Parameter Groups
8. Connection Type Groups              21. Sysplex Name Groups
9. Correlation Information Groups       22. System Name Groups
10. LU Name Groups                    23. Transaction Class Groups
11. Net ID Groups                     24. Transaction Name Groups
12. Package Name Groups                25. Userid Groups
13. Perform Groups

F1=Help      F2=Split      F5=KeysHelp      F9=Swap      F12=Cancel
```

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

```

Group  Xref  Notes  Options  Help
-----
Command ==>
Modify a Group

Enter or change the following information:
Qualifier type . . . . . : Accounting Information
Group name . . . . . : SLOWACCT
Description . . . . . :
Fold qualifier names? . . . . . Y (Y or N)

Qualifier Name  Start  Description
020175
030275
040375
    
```

Use to collect together work when there is no naming convention that allows masking or wild-carding

```

Group  Xref  Notes  Options  Help
-----
Command ==>
Modify a Group

Enter or change the following information:
Qualifier type . . . . . : Accounting Information
Group name . . . . . : FASTDEPT
Description . . . . . :
Fold qualifier names? . . . . . Y (Y or N)

Qualifier Name  Start  Description
PURCHASE       8
SALES          8
SHIPPING       8
ITDEP*        11
HRDEP*        11
    
```

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

Subsys	Type	Xref	Notes	Options	Item Type	Row 1 to 9 of 9
Command =					Scroll ==> CSR	
Subsystem type : DB2					Fold	
Description :					Qualifier names? Y (Y or N)	
Action code: A=After C=Copy M=Move I=Insert rule						
B=Before D=Delete R=Repeat IS=Insert Sub-rule					More ==>	
Action	Type	Qualifier Name	Sta	Class	Service	Report
DEFAULTS: MEDIUM						
1	AIG	SLOWACCT			SLOW	
2	AIG	FASTDEPT			FAST	
1	CAI	CLIENTAI			VEL20	
1	CIP	CLIENTIP			VEL30	
1	CTN	CLIENTTN			VEL40	
1	CUI	CLIENTUI			VEL50	
1	CWN	CLIENTWN			VEL60	
1	PK	LONGPK	121		VEL80	
1	PR	LONGPR	119			

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

```

Action      -----Qualifier-----      -----Cl
Type        Name      Start
_____ 1   AIG      SLOWACCT _____
_____ 2   AIG      FASTDEPT _____

DEFAULTS:  Service
           MEDIUM
           SLOW
           FAST
    
```

```

Accounting Information Group SLOWACCT -
Created by user IBMUSER on 2011/08/23 at
Last updated by user IBMUSER on 2011/08/

Qualifier  Starting
name       position  Description
-----
020175
030275
040375
    
```

```

Accounting Information Group FASTDEPT -
Created by user IBMUSER on 2011/08/23 a
Last updated by user IBMUSER on 2011/08.

Qualifier  Starting
name       position  Description
-----
PURCHASE   8
SALES      8
SHIPPING   8
ITDEP*     11
HRDEP*     11
    
```

- '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:

-----Qualifier-----			-----Class-----		
Type	Name	Start	Service	Report	
DEFAULTS:					
AI	DIRS	8	MEDIUM		
AI	DIRS*	8	SLOW		
AI	0201		FAST		
UI	HUGO		FAST		
			SLOW		

- 1<sup>st</sup> rule matches accounting information with the 8 characters 'DIRS\_ \_ \_ \_' starting in the 8<sup>th</sup> position
- 2<sup>nd</sup> rule matches accounting information with the 4 characters 'DIRS' starting in the 8<sup>th</sup> position
- 3<sup>rd</sup> rule matches accounting information starting with the 4 characters '0201'
- 4<sup>th</sup> rule matches user ID equal to the 8 characters 'HUGO\_ \_ \_ \_'



## 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)

