
Rule WLM020: Subsystem transactions in same service class as address space

Finding: The policy being evaluated contained a service class into which the workload classification scheme had placed subsystem transactions (e.g., CICS transactions) into the same service class as were placed address spaces (e.g., TSO transactions).

Impact: This finding should be viewed as generally having a LOW IMPACT or MEDIUM IMPACT on the performance of the workload involved.

Logic flow: This a basic finding. There are no predecessor rules.

Discussion: The Workload Manager allows installations to group similar work into service classes. For example, TSO transactions might be placed into one service class, batch jobs might be placed into another service class, etc. Users define service classes by specifying the name of the service class and specifying the performance goal, service class, and service class importance.

If subsystems are installed which support Workload Manager reporting (e.g., CICS/ESA Version 4.1 or IMS/ESA Version 5), installations can define service classes which describe particular transaction types and specify performance goals for the transactions in the service class. All transactions entering the system which fall into the workload category described by the service class are associated with the service class.

Please refer to Section 4 for discussion of the relationship between server service classes and transaction service classes.

The Workload Manager ISPF application does not prevent an installation from grouping subsystem transactions into the same service class as address spaces. For example, an installation may define a workload classification scheme to place certain TSO transactions and certain CICS into an *INTERACT Service Class*. The workload classification algorithms would dutifully place the TSO transactions (really address spaces) and the CICS transactions (logical entities which would be processed by CICS tasks), into the *INTERACT Service Class*.

There are many disadvantages to such a workload classification scheme and service class structure. As examples:

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- If a response goal were specified for the INTERACT Service Class, the Workload Manager would use the response time of both TSO transactions and CICS transactions as the basis for analyzing whether the service class met its performance goal. The TSO transactions and the CICS transactions typically would have vastly different response characteristics.
 - If multiple periods were defined for the INTERACT Service Class, only TSO transactions could migrate to any period other than Period 1. Resources are not accumulated for subsystem transactions and they are not address spaces, so they would not migrate to Period 2 and beyond.
 - If the example INTERACT Service Class did not meet its performance goal, the Workload Manager must decide whether to allocate resources to the INTERACT Service Class (for the TSO transactions) **or to the server service class** (the CICS region providing service to the CICS transactions).

The bottom line is that such a workload classification scheme is "mixing apples and oranges" and would not yield good results.

With OS/390 V2R10, IBM introduced an "exemption from transaction response time management" option. This option is available with APAR OW43812 installed. With the APAR applied, organizations can specify whether an address space (CICS region or IMS region) will be managed based on the goals of the transactions that the region is serving, or managed based on the goals specified for the region itself. This option is exercised by using the new "Manage Region Using Goals Of:" field on the WLM ISPF "Modify Rules for the Subsystem Type" panel.

When "TRANSACTION" is entered in the "Manage Region Using Goals OF:" field, the region will be managed as a CICS/IMS transaction server by the WLM. "TRANSACTION" is the default specification. If "REGION" is entered in this field, the region will be managed based on the performance goal specified for the service class to which the region is assigned. This performance goal normally would be an execution velocity goal.

When "REGION" is specified, the WLM does not consider the region to be a "server" of transactions. Rather, the WLM server topology algorithms ignore the region when establishing server topology. Consequently, the goals for any transaction processed by the region will not be considered by the WLM when it determines whether service class periods meet goals and whether policy adjustment is necessary.

This consequence might have undesired implications if you specify goals for CICS or IMS transactions and some or all of those transactions are

processed by a CICS or IMS region that has “REGION” specified in the “Manage Region Using Goals Of:” field. In this case, **performance of the transaction service class will not be considered when adjusting resource policy for the region.** This could have the undesired result of transactions not achieving the performance that you desire, simply because the transactions were processed by a CICS or IMS region that was managed based on the goals specified for the region. Alternatively, some transactions might receive better performance than desired because of the same “region-oriented” management by the WLM.

CPEXpert produces Rule WLM020 when a service class has been identified as an address space (the service class has accumulated service), and the SMF record contains Work Manager/Resource Manager State data. Rule WLM020 is suppressed if the address space is a server, as Rule WLM017 addresses this issue.

The following example illustrates the output from Rule WLM020:

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RULE WLM020:  SUBSYSTEM TRANSACTIONS IN SERVICE CLASS WITH ADDRESS SPACE

CPEXpert noticed that the INTERACT Service Class was defined to include
both subsystem transactions (e.g., CICS transactions) and one or more
address spaces accumulating service (e.g., TSO transactions). CPEXpert
suggests that your workload classification scheme be revised to place
the subsystem transactions into a different service class than the
address spaces.
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Suggestion: CPEXpert suggests that you change your workload classification scheme to place the subsystem transactions into a different service class from the address spaces.

Alternatively, if you are running OS/390 Version 2 Release 10 (with APAR OW43812 installed) you might have deliberately assigned the “served” transaction service class to the region, and specified that the region be managed based on the goals specified for the region (normally, this would be an execution velocity goal). If this is the situation, you should consider the following alternatives:

- You can simply ignore this finding, but allow CPEXpert to continue to check for such situations. The reason that you might wish to allow CPEXpert continue to invoke Rule WLM020 is that your workload classification might change, new transactions might be added, CICS or IMS might route transactions to the CICS region or message processing region, etc. You might not be aware of the implications of the WLM assigning a specific transaction to a region managed by the region’s goal.

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- You can “turn off” Rule WLM020 as described in Section 2 of this WLM Component User Manual. This action should be taken if you become annoyed by Rule WLM020 being produced when you do not plan to take action.

Reference: MVS Planning: Workload Management

MVS/ESA(SP 5):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V1R1):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V1R2):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V1R3):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R4):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R5):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R6):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R7):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R8):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R9):	Chapter 8: Defining Service Classes and Performance Goals
OS/390 (V2R10):	Chapter 8: Defining Service Classes and Performance Goals
z/OS (V1R1):	Chapter 8: Defining Service Classes and Performance Goals
z/OS (V1R2):	Chapter 8: Defining Service Classes and Performance Goals
z/OS (V1R3):	Chapter 8: Defining Service Classes and Performance Goals
z/OS (V1R4):	Chapter 8: Defining Service Classes and Performance Goals