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**Rule WLM014: A response goal was specified for "hot batch" workload**

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**Finding:** CPExpert noticed that a response goal was specified for a service class which might describe "hot batch" workload.

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

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

**Discussion:** Many organizations have a "hot batch" category of work, which describes work that is suddenly submitted to Operations with an immediate priority for execution and successful completion. Such a category might apply to critical work submitted by executive level management, work which has critical deadlines but which earlier failed to complete, etc. Whatever the reason, a "hot batch" category of work typically exists in most organizations.

By its normal definition, jobs do not frequently nor regularly appear in the "hot batch" category. That is, normally there is not a large number of "hot batch" jobs executing on the system, nor is there a continual supply of "hot batch" jobs submitted for execution. The "hot batch" category usually is reserved only for those infrequent batch jobs which **must** be completed as soon as possible. Consequently, the "hot batch" service class would have a very high priority relative to service classes describing other batch work.

Some organizations assign a response performance goal to the "hot batch" jobs, with a small value for the goal. The organizations believe that the small response goal will ensure that the "hot batch" job will be given a high priority by the Workload Manager and that the Workload Manager will manage system resources in an attempt to meet the goal.

**Unfortunately, a response goal often will not achieve the desired result.**

The Workload Manger detects that a service class is not meeting its response goal based on the response experienced by work elements (either jobs or transactions) executing in the service class. The Workload Manger can measure the response of a job or transaction only when the job or transaction ends. Thus, the Workload Manger detects that the service class is not meeting its response performance goal based on the response experienced by **previously-ended** jobs or transactions.

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Additionally the Workload Manager retains "historical" information for only 20 minutes. The 20-minute limit was implemented because the Workload Manager developers felt that data over 20 minutes old would represent "old" information and should not guide "current" Workload Manager decisions<sup>1</sup>

If "hot batch" jobs occur relatively infrequently, there would no immediate history of response time, and there may be no history at all.

The Workload Manager could not make any policy adjustment decisions relative to the response performance goal for the "hot batch" service class, since no recent response data would be available. Consequently, a response performance goal is inappropriate for a "hot batch" service class.

CPEXpert scans the Service Class Description (SMF Type 72 field R723MCDE) for the phrase "hot batch" and assumes that the service class describes a "hot batch" workload if "hot batch" is encountered. Additionally, CPEXpert examines the service class name (SMF Type 72 field R723MCNM) to see whether "HOTBATCH" is specified as the name of the service class. There are two considerations with this approach:

- It is, of course, possible that the service class does not describe a "hot batch" workload even though "hot batch" is in the description or in its name. This instance is unlikely, as most installations will use the phrase "hot batch" in a description of only "hot batch" work.
- It also is possible that "hot batch" will not be in the description of a service class describing "hot batch" workload. CPEXpert will be unable to detect these situations.

If CPEXpert detects "hot batch" in the Service Class Description, CPEXpert examines the performance goal to see whether the goal type is a response goal (either an average response or a percentile response).

CPEXpert produces Rule WLM014 when a response goal is specified for a service class that potentially describes "hot batch" workload.

The following example illustrates the output from Rule WLM014:

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<sup>1</sup>As described in Section 4, the Workload Manager makes decisions every 10 seconds about whether to adjust the resource policies. In 20 minutes, the Workload Manager would have made 120 such policy adjustment decisions. It is unlikely that "old" information after 120 policy adjustment decisions would still be relevant.

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RULE WLM014: RESPONSE GOAL WAS SPECIFIED FOR "HOT BATCH" WORKLOAD.

CPEXpert noticed that a response goal was specified for a service class that had "hot batch" as a part of its description. Many installations use "hot batch" to describe batch jobs which infrequently are submitted, but which require rapid turnaround. Unfortunately, a response goal may not achieve the desired effect. Please refer to the WLM Component User Manual for a discussion of this issue. If the considerations described in the User Manual do not apply, you should ignore this finding. This finding applies to the following service class:

SERVICE CLASS	PERIOD	DESCRIPTION
HOTBATCH	1	Special hot batch applications

**Suggestion:** CPEXpert suggests that you review the service class identified by Rule WLM014. If the service class does describe "hot batch" workload, CPEXpert suggests that you change the response performance goal to an execution velocity goal.

As described above, it is unlikely that the Workload Manager will be able to make policy adjustment decisions to achieve the response goal for the "hot batch" service class. This is because the Workload Manager does not have response information until the job completes; too late to help performance of the "hot batch" job being processed!

However, the Workload Manager collects CPU using and delay information on a continual basis<sup>2</sup>. You can assign a high execution velocity performance goal to the service class describing "hot batch" workload, and the Workload Manager will have immediate information upon which to make policy adjustment decisions.

You should, of course, make sure that the execution velocity performance goal you establish for the "hot batch" service class is consistent with the importance of work executing in the service class.

**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

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<sup>2</sup>Please refer to Section 4 for a description of the sampling process used to acquire information necessary to compute execution velocity.

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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

"Migrating to the MVS Workload Manager", Peter Enrico (IBM Corporation Workload Manager developer), 1995 SHARE Winter Meeting