
Rule WLM606: XCF local message buffer space may be too small

Finding: CPExpert has determined that a large percent of the cross system coupling facility (XCF) local messages were rejected because of constraints on the amount of local message buffer space.

Impact: This finding can have a MEDIUM IMPACT or HIGH IMPACT on the signalling performance of the sysplex.

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

Discussion: The XCF component of MVS/ESA allows authorized programs on one MVS system in a sysplex to communicate with programs on the same system or on other systems. A typical example of this communication is between CICS regions; CICS regions often communicate with other CICS regions in the same system or with CICS regions on other systems in the sysplex.

Please refer to the discussion associated with Rule WLM601 for additional information about XCF buffers.

Local message buffers are used to send and receive messages from programs within the same system. These buffers are allocated, as needed, to support the message traffic load.

Message buffer space for **local** messages is separated by transport class, so a sudden high volume of traffic in one transport class will not cause performance problems for another transport class. If the message buffer space required to support messages in a particular transport class is exhausted, MVS will reject additional messages until local message buffer space becomes available in the transport class.

Message buffer space for local traffic is assigned to transport classes in two ways: (1) the basic assignment to the transport class via the MAXMSG parameters on the CLASSDEF statement and (2) the MAXMSG parameter on the LOCALMSG statement. If no MAXMSG value is specified for the CLASSDEF statement, MVS uses the value of the MAXMSG parameter specified on the COUPLE statement (with a default of 750K bytes of buffer space). If the LOCALMSG statement is provided, the MAXMSG parameter must be specified.

The local message buffer space in a transport class is the **sum** of the message buffer space specified for the transport class on the CLASSDEF

statement, plus the message buffer space specified on the LOCALMSG statement.

SMF Type 74 (Subtype 2) provides statistics about the number of local messages sent by XCF groups in a transport class, how many messages were rejected because there was insufficient local message buffer space, and how much local message buffer space was allocated to the transport class.

CPEXpert analyzes this information to determine whether sufficient local message buffer space has been defined. CPEXpert computes the total local message traffic for a transport class. CPEXpert concludes that the message buffer space is too small for the transport class when more than the value specified for the **PCTREJ** guidance variable of the local messages were rejected because of no buffer space. The default specification for the PCTREJ guidance variable is **%LET PCTREJ = 0.1**; indicating that Rule WLM606 will be produced when more than one-tenth of a percent of the local traffic is rejected for insufficient buffer space.

CPEXpert produces Rule WLM606 to alert you that a significant percent of messages have been rejected because of insufficient buffer space.

The following example illustrates the output from Rule WLM606:

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RULE WLM606: THE XCF LOCAL MESSAGE BUFFER SPACE MAY BE TOO SMALL

The local message buffer space may be too small. CPEXpert noticed that
XCF local requests were rejected because of constraints on the amount
of message buffer space. An asterisk beside the buffer space means
that the local buffer space DECREASED during the reported measurement
interval, from the preceeding measurement interval. You should consider
increasing the amount of local message buffer space. This finding
applies to the following measurement intervals:
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MEASUREMENT INTERVAL	TOTAL REQUESTS	REJECTED REQUESTS	PCT REJECTED	BUFFER SPACE
10:00-10:30,26MAR1996	4,406	68	1.5	942K ***
10:30-11:00,26MAR1996	4,821	73	1.5	942K
11:00-11:30,26MAR1996	4,456	67	1.5	942K
11:30-12:00,26MAR1996	3,991	59	1.5	942K

Suggestion: The available local buffer space for a transport class can be too small because (1) the amount initially specified was too low or (2) a system operator could have decreased the amount of message buffer space for the transport class.

If Rule WLM606 is produced, CPExpert suggests that you consider the following alternatives¹:

- You should assess whether a system operator changed the amount of local message buffer space assigned to the transport class. CPExpert will notify you (by placing '***' beside the buffer space value) if the amount of local message buffer space assigned to the transport class **decreased** from the previous RMF measurement interval.

If the system operator did make a change resulting in less local message buffer space for the transport class, you should verify that there was a sound rationale for the action.

- You should evaluate the amount of local message buffer space specified for the transport class on the LOCALMSG statement, CLASSDEF statement, or the COUPLE statement. You should consider using the MAXMSG parameter of the LOCALMSG statement to increase the message buffer space for the transport class.
- If Rule WLM606 occurs frequently and there is no action you wish take, you should change the guidance to CPExpert by altering the PCTREJ guidance variable in USOURCE(WLMGUIDE).

Alternatively, you can use the **EXCLASSn** guidance variables to exclude the transport class from CPExpert's analysis. The EXCLASSn guidance variables allow you to exclude one or more transport classes from analysis.

Reference: MVS/ESA: Setting Up a Sysplex (GC28-1449)
Section 5: Planning Signalling Services in a Sysplex

MVS/ESA: Initialization and Tuning Reference (GC28-1452)
COUPLExx (Cross-System Coupling Facility Parameters)

OS/390: Setting Up a Sysplex (GC28-1779)
Section 5: Planning Signalling Services in a Sysplex

OS/390: Initialization and Tuning Reference (GC28-1752)
COUPLExx (Cross-System Coupling Facility Parameters)

¹**WARNING:** There exists little practical experience with analyzing coupling facility data and with selecting proper values for the controlling parameters. The CPExpert analysis and suggestions are based on (1) the information contained in the referenced documents and (2) our analysis of data provided by IBM or CPExpert users. Please keep this paucity of knowledge in mind when considering the alternatives. Additionally, **please** provide Computer Management Sciences with feedback!

z/OS: Setting Up a Sysplex (SA22-7625)
Section 5: Planning Signalling Services in a Sysplex

z/OS: Initialization and Tuning Reference (SA22-7592)
COUPLExx (Cross-System Coupling Facility Parameters)

"Parallel Sysplex Performance: tuning tips and techniques,"
Kelley, Joan (IBM, Poughkeepsie, NY), SHARE 86, February 1996.

z/OS V1R2: MVS System Messages, Volume 10 (IXP-IZP), SA22-7640

z/OS V1R3: MVS System Messages, Volume 10 (IXP-IZP), SA22-7640

z/OS V1R4: MVS System Messages, Volume 10 (IXP-IZP), SA22-7640 |