

Finding: CPExpert believes that the buffer size allocated for the system log journal may be too small.

Impact: This finding should normally have a LOW IMPACT on the performance of the CICS region.

Logic flow: This is a basic finding, based upon an analysis of the CICS statistics.

Discussion: A user journal may be used to record file control or message activity during CICS execution. CICS can be directed to perform automatic journaling by specifying entries in either the file control table or the program control, or users can provide explicit user journaling routines.

For systems prior to CICS Version 3.2.1, a single buffer is acquired for a user journal (CICS Version 3.2.1 acquires two buffers for each journal). The size of each journal buffer is specified in the BUFSIZE operand of the DFHJCT macro.

The BUFSIZE operand determines the maximum size of a physical journal block. A physical journal normally contains more than one logical journal record, however. Journal records are placed sequentially in the journal buffer until a physical journal block is written. A physical journal block is written for a user journal under the following conditions:

- The SYSWAIT=ASIS operand was entered in the DFHJCT macro. CICS maintains a dynamic threshold called the "sliding buffer shiftup value" which is adjusted according to the rate of journal requests and the amount of data written. The intent is to achieve an output rate of approximately two blocks per second.

IBM discourages use of the SYSWAIT=ASIS option for CICS versions prior to Version 3.2.1, and the option is not available for CICS Version 3.2.1.

- The logical records placed into the buffer used the amount of buffer space specified in the BUFSUV operand in the DFHJCT macro (the default value of the BUFSUV operand is the BUFSIZE value). When the logical records placed into the buffer used the amount of buffer space specified in the BUFSUV operand, a physical block output is started.

For CICS prior to Version 3.2.1, the BUFSUV operand can be used to overlap physical output with placing of additional logical records into the buffer. For CICS Version 3.2.1, two buffers are acquired and overlap is managed by switching buffers.

However, prior to Version 3.2.1, a physical output is initiated when the buffer space used by logical records reached the BUFSUV value. CICS continues to add logical records to the buffer until the physical output is complete (or until the buffer space is used up). After the physical output is completed, the logical records added to the buffer are "shifted up" to the beginning of the buffer.

If the buffer is full, tasks using the user journal must wait until the physical output completes. This wait time delays the tasks and lengthens response. These response delays should be prevented, unless there are system design reasons for regularly writing out the journal buffers.

Additionally, there is potentially a more serious effect for the overall CICS region when tasks wait for user journal, if the journal is used by several tasks. When tasks wait for a journal output, they will become dispatchable whenever the physical output completes and their records are placed in the buffer. CICS can enter a stress condition if a number of tasks are suddenly dispatchable and require resources.

CPEXpert fires Rule CIC221 if the number of times a buffer full" condition exceeded the JCBUFUL guidance variable. This guidance variable is provided so that the rule will not fire spuriously in those situations when system design decisions require user journals to be written frequently and the BUFSUV operand is insufficient to meet the requirement.

Suggestion: Unless you have unusual circumstances, CPEXpert suggests that you increase the buffer size for the user journal. This is accomplished by increasing the value of the BUFSIZE operand in the DFHJCT macro for the user journal. If your system design considerations require the user journal be written frequently, change the JCBUFUL guidance variable so that this rule does not fire spuriously.

Reference: *CICS/OS/VS Version 1.7 Performance Guide: page 255.*

CICS/ESA Version 3.2 Performance Guide: page 234.

CICS/ESA Version 3.3: not applicable.

CICS/ESA Version 4.1: not applicable.

CICS/TS: not applicable.

|