
Rule CIC175: The VSAM LSR pool was seldom used

Finding: CPExpert has detected that a VSAM Local Shared Resources (LSR) pool was seldom used.

Impact: This finding should normally have a LOW IMPACT or MEDIUM IMPACT on the performance of the CICS region. This should be ignored unless storage is a constraint to CICS performance.

Discussion: VSAM files assigned to an LSR pool share common buffers (and also share strings) assigned to the LSR pool. Since the buffers are shared, significantly fewer buffers normally are required to support I/O access operations. This is because not all files will be accessed at any particular time. Rather, file accesses will tend to be distributed across files at different times. Some files will have requirements for buffers at one time, while at another time they will not be accessed and will not require buffers. The demand for buffers therefore is the **peak collective demand** rather than the **sum** of the **peak individual** demands.

For example, three files might individually have a peak I/O access demand for five buffers. The sum of the individual buffers required to prevent buffer waits would be a total of 15 buffers (3 * 5). However, the peak collective demand would normally be less than 15 buffers. If there were no overlap of I/O access operations among the files, the peak collective demand would be only five buffers.

In practice, the peak collective demand for buffers is usually less than half of the sum of the peak individual demands. Assigning files to LSR pools therefore significantly decreases the storage requirements to support CICS VSAM buffers.

Please refer to Rule CIC165 for further discussion of the benefits of using LSR pools.

The discussion regarding benefits of using LSR pools assumes that VSAM files actually use the pools. If VSAM files do not use the LSR pools that are created, the storage dedicated to a particular pool might be better used elsewhere in CICS.

The CICS statistics provide information about the number of times an I/O request was made to an LSR pool.

CPExpert calculates the total I/O requests made to each LSR pool that was defined. The resulting value is compared with the LSRUSE guidance

variable. CPEXpert produces Rule CIC175 if the total number of I/O requests to the LSR pool is lower than the LSRUSE guidance variable. The default value for the LSRUSE guidance variable is 100, meaning that CPEXpert will produce Rule CIC175 when less than 100 I/O requests are made to the LSR pool.

CPEXpert will not produce Rule CIC175 unless the condition exists for more than 50% of the CICS statistics intervals being analyzed.

Suggestion: As mentioned above, if VSAM files do not use the LSR pools that are created, the storage dedicated to a particular pool might be better used elsewhere in CICS.

- If storage is a constraint to CICS performance, and Rule CIC175 is produced for a particular LSR pool, you should consider eliminating the LSR pool so the storage can be used elsewhere in CICS. You should, of course, identify any VSAM files that have specified the LSR pool and change their specification to a different LSR pool.
- You can alter CPEXpert's analysis by specifying a different value for the LSRUSE guidance variable.

Reference: *CICS/OS/VS Version 1.7 Performance Guide*: pages 65-68, pages 232-238, and page 244.

CICS/MVS Version 2.1.2 Performance Guide: pages 158-162, page 170, and pages 394-397.

CICS/ESA Version 3.1.1 Performance Guide: pages 71-73, pages 93-106, and page 239.

CICS/ESA Version 3.2.1 Performance Guide: pages 147-152, page 155, and pages 310-321.

CICS/ESA Version 3.3.1 Performance Guide: pages 157-162, pages 165-166, and pages 329-339.

CICS/ESA Version 4.1.1 Performance Guide: Section 4.4.2, Section 4.4.4, and Appendix A.1.11.

CICS/TS Release 1.1 Performance Guide: Section 4.4.2, Section 4.4.4, and Appendix 1.1.9.

CICS/TS Release 1.2 Performance Guide: Section 4.4.2, Section 4.4.4, and Appendix 1.1.10.

CICS/TS Release 1.3 Performance Guide: Section 4.6.2, Section 4.6.4, and Appendix 1.1.11.

CICS/TS for z/OS Release 2.1 Performance Guide: Chapter 18 (VSAM resource usage (LSRPOOL)), Chapter 18 (VSAM buffer allocations for LSR), and Appendix A (Table 53).

CICS/TS for z/OS Release 2.2 Performance Guide: Section 4.5.2 (Defining VSAM resource usage), Section 4.5.4 (Defining VSAM buffer allocations for LSR), and Appendix 1.1.17.6.

CICS/TS for z/OS Release 2.3 Performance Guide: Section 4.5.2 (Defining VSAM resource usage), Section 4.5.4 (Defining VSAM buffer allocations for LSR), and Appendix 1.1.20.1.

CICS/TS for z/OS Release 3.1 Performance Guide: Section 4.6.2 (Defining VSAM resource usage), Section 4.6.4 (Defining VSAM buffer allocations for LSR), and Appendix 1.1.20.1.

CICS/TS for z/OS Release 3.2 Performance Guide:
Chapter 15. VSAM and file control: improving performance
 Defining VSAM string settings for LSR
 Defining VSAM buffer allocations for LSR

CICS/TS for z/OS Release 4.1 Performance Guide:
Chapter 15. VSAM and file control: improving performance
 Defining VSAM string settings for LSR
 Defining VSAM buffer allocations for LSR

CICS/TS for z/OS Release 4.2 Performance Guide:
Chapter 13. CICS VSAM and file control: Performance and tuning
 Defining VSAM string settings for LSR
 Defining VSAM buffer allocations for LSR

CICS/TS for z/OS Release 5.1 Performance Guide:
Chapter 15. CICS VSAM and file control: Performance and tuning
 Defining VSAM string settings for LSR
 Defining VSAM buffer allocations for LSR

Thanks: Thanks to Paul Gordon (Bank of America) for suggesting this rule.

