
Rule CIC107: PURGETHRESH value should be increased

Finding: CPExpert has detected that the PURGETHRESH value limited the number of queued tasks but the CICS region had not encountered a Short-on-Storage condition.

Impact: This finding has a MEDIUM IMPACT or HIGH IMPACT on the performance of the CICS region.

Logic flow: The following rules cause this rule to be suppressed:
CIC106: Too many tasks were queued for MAXACTIVE reason
CIC110: CICS encountered a Short-on-Storage condition

Discussion: Please refer to Rule CIC105 for a discussion of the processing of transaction tasks: how the transactions are accepted, purged, or queued for processing.

When the number of active transactions reaches the MAXACTIVE value, attach requests are queued.

Each queued transaction requires only 256 bytes plus the size of the terminal input/output area (TIOA) holding any terminal input. However, if a large number of transactions are queued, the queue could grow to occupy all available storage in the CICS Dynamic Storage Area (DSA). CICS then could become short-on-storage, with serious performance consequences.

The PURGETHRESH value controls the number of newly-created tasks that are accepted but must be queued because of MAXACTIVE reasons. A limit on the number of queued transactions is necessary in some situations because a very large number of transactions might be queued in a heavily-loaded system.

CPExpert produces Rule CIC107 if the CICS interval statistics reported that transactions were purged because the PURGETHRESH value had been reached, but the CICS region had not encountered a short-on-storage situation.

Rule CIC107 is the counterpart of Rule CIC106: Rule CIC106 suggests that the PURGETHRESH value be reduced because a short-on-storage situation occurred; Rule CIC107 notes that no short-on-storage situation was encountered, but transactions were purged. CPExpert suppresses Rule CIC107 if Rule CIC106 is produced during any analysis interval.

CPEXpert estimates and reports the storage used by the queued transactions by multiplying the peak number of queued transactions by 256 bytes. This calculation results in a low value, as the TIOA is not included.

Suggestion: CPEXpert suggests that you review the PURGETHRESH attribute for the transaction class. Under most circumstances, the PURGETHRESH ceiling should be high enough that transactions are queued but are not purged.

However, when the CICS region encounters a short-on-storage situation, the PURGETHRESH is one way in which storage may be regained. The PURGETHRESH attribute is intended to prevent a significant amount of storage being used by queued transactions. This situation might occur when the CICS region slows down or when an unexpectedly large number of transactions attempt to attach.

Before taking any action to increase the PURGETHRESH, you should wait for a reasonable interval (perhaps a week or so) to ensure that Rule CIC106 is not produced.

Before specifying a smaller value for the PURGETHRESH attribute, you should explore other alternatives (improve the overall performance of the CICS region so transactions are processed faster, impose MAXACTIVE limits on transaction classes which are heavy resource users, etc.).

Reference: *CICS/ESA Version 4.1 Performance Guide*: Section 4.7.5 and Appendix A.1.30.

CICS/TS Release 1.1 Performance Guide: Section 4.7.5 and Appendix 1.1.27.

CICS/TS Release 1.2 Performance Guide: Section 4.7.6 and Appendix 1.1.28.

CICS/TS Release 1.3 Performance Guide: Section 4.11.5 and Appendix 1.1.31.

CICS/TS for z/OS Release 2.1 Performance Guide: Chapter 23 (PURGETHRESH) and Appendix A (Table 129)

CICS/TS for z/OS Release 2.2 Performance Guide: Section 4.10.5 Specifying a transaction class purge threshold (PURGETHRESH) |