
Rule WLM056: Local page data sets share volume with Common or PLPA

Finding: CPEXpert has determined that local page data sets are defined on the same volume as the Common page data set or the Pageable Link Pack Area (PLPA) page data set.

Impact: This finding can have a LOW impact, MEDIUM impact, or HIGH impact on performance of your computer system. The level of impact depends upon the amount of page delay being experienced.

Logic flow: The following rule causes this rule to be invoked:
Rule WLM400: Page-in from auxiliary storage was a major performance problem

Discussion: The delay time experienced by individual page fault resolution may increase significantly if local page data set are defined on the same volume as contains Common page data set or PLPA page data set. This is because the device must perform seeks between the page data sets, and seek time is significant.

Delays to page faults from Common or PLPA can delay many users. Thus, these delays are more serious than if the page fault were to the private area.

Additionally, if you place more than one page data set on the same volume, the Auxiliary Storage Manager (ASM) will be unable to implement the suspend/resume function. Each I/O request for one page data set will interrupt the suspended I/O for the other data set. The suspended I/O end, and must be restarted through the I/O Supervisor STARTIO function. Consequently, all potential performance gains resulting from the suspend/resume function will be lost.

Under some circumstances, performance would not be degraded by having Common and PLPA page data sets share a volume with a local page data set. For example, in a system with sufficient expanded storage (and perhaps with storage isolation protecting the Common area), there may be few or no page faults to Common or PLPA. CPEXpert checks SMF Type 71 variables describing the pages read from and written to Common and PLPA (SMF71SNI and SMF71SNO, respectively) and does not produce Rule WLM056 if these counts are low.

CPEXpert produces Rule WLM056 if some service class missed its performance goal because of page-in delays or swap-in delays, and a local page data set shared a volume with Common or PLPA.

The following example illustrates the output from Rule WLM056:

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RULE WLM056: LOCAL PAGE DATA SETS SHARE VOLUME WITH COMMON OR PLPA
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CPEXpert has determined that a local page data set and either COMMON or PLPA page data sets are allocated on VOLSER PG3040. In many environments, allocating local page data sets on the same volume as COMMON or PLPA will result in overall poor performance of the paging subsystem. In this case, page fault resolution from VOLSER PG3040 was significantly longer than the page fault resolution of other local page data sets.
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Suggestion: CPEXpert suggests that you separate the Common/PLPA and local page data sets onto different volumes, preferably on different paths. Common and PLPA may share a volume only if the activity is low for these data sets (see the discussion in Rule WLM060).

Reference: MVS Initialization and Tuning Guide, MVS/ESA SP5.
Section 2.4 (Performance recommendations)

Please note that while this reference applies to MVS/ESA SP5 (Compatibility Mode), the finding is applicable to MVS/ESA SP5 (Goal Mode), OS/390 (Goal Mode), and z/OS (Goal Mode).