
GemStone®

GemStone/S 64 Bit Release Notes

Version 2.3.1.1

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GEMSTONE[™] S 64

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PATENTS

GemStone is covered by U.S. Patent Number 6,256,637 "Transactional virtual machine architecture", Patent Number 6,360,219 "Object queues with concurrent updating", and Patent Number 6,567,905 "Generational Garbage Collector". GemStone may also be covered by one or more pending United States patent applications.

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Overview

GemStone/S 64 Bit 2.3.1.1 is a new version of the GemStone/S 64 Bit object server. This release provides performance enhancements and fixes a number of bugs. The details of these changes are provided in this document.

These release notes provide changes between the previous version of GemStone/S 64 Bit, version 2.3.1, and version 2.3.1.1. If you are upgrading from a version prior to 2.3.1, please also review the release notes for each intermediate release to see the full set of changes.

No separate Installation Guide is provided with this release. For installation instructions, use the Installation Guide for version 2.3.

Changes and New Features

Cached Page Cache Entries

As processes use page frames in the cache, they also use page cache entries (PCEs). On busy systems, waiting for the PCE spin lock may be a bottleneck. Now, PCEs are cached by all processes, reducing contention for the PCE lock and improving performance. The PCE cache is sized based on the free frame cache size for that process.

New cache statistics

FreePceCacheEntries (All)

The number of entries in the free PCE cache for this process.

PcesRemovedFromFreeList (All)

The number of PCEs removed from the free list by this process.

PcesAddedToFreeList (All)

The number of PCEs added to the free list by this process.

FreePceCount (SPC Monitor)

The current number of PCEs on the free list.

TotalKPcesRemovedFromFreeList (SPC Monitor)

The total PCEs removed from free list by all processes, in thousands.

TotalKPcesAddedToFreeList (SPC Monitor)

The total PCEs added to the free list by all processes, in thousands.

TotalFramesInFreeFrameCaches (SPC Monitor)

The aggregate of all cache processes' free frame cache size.

TotalPcesInFreePceCaches (SPC Monitor)

The aggregate of all cache processes' free PCE cache size.

Bugs Fixed

The following bugs in GemStone/S 64 Bit 2.3.1 have been fixed in GemStone/S 64 Bit 2.3.1.1.

Core file may still be created

When GemStone processes encounter fatal internal errors and terminate, they should only create core files if `GS_WRITE_CORE_FILE` is set. However, under some conditions involving multiple fatal errors, a core file could still have been generated, potentially causing disk space problems. (#39743)

Cache statistics impact reduced

To reduce the impact of collecting cache statistics on very large systems, several enhancements have been made. Statistics are now computed in a separate thread, and not more than once per second. Additional checks are made to sleep when idle. (#39708)

Incorrect free frame cache size

For the configuration parameter `GEM_FREE_FRAME_CACHE_SIZE`, the threshold at which the gem free frame cache is disabled was incorrectly 200MB, rather than 100MB as documented. (#39750)

SPCMonitor impacted by remote page server disconnects

When a remote session logged out, the associated page server process was doing an unclean disconnect from the cache, requiring cleanup by the SPC monitor. On busy systems, this could overload the SPC monitor. Now, the page server will cleanly detach if possible, retaining the page server log file if an error is encountered. (#39706)