
GemStone®

GemStone/S 64 Bit Release Notes

Version 2.2.5.3.1

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GEMSTONE  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 2.2.5.3.1 is a new version of the GemStone/S 64 Bit object server. This release fixes several critical bugs; details of the changes are provided in this document.

These release notes provide the changes between the previous version of GemStone/S 64 Bit, version 2.2.5.3, and version 2.2.5.3.1. If you are upgrading from a version prior to 2.2.5.3, 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 2.2.5.2.

Changes in this release

Mark/sweep performance

Algorithm changes have been made in the mark sweep garbage collection structures and code. These changes improve performance for Epoch, markForCollection, findDisconnectedObjects and findObjsConnectedTo:. (#39380)

Reclaim more efficient in presence of sigAborts

Previously, when the Reclaim GcGem received a sigAbort, it would discard the results of all the dead object lookups, which was unnecessary since dead objects in that Reclaim GcGem's extent range cannot move. This will allow faster reclaim progress on system with a high sigAbort rate.

New GcGem parameter

To allow throttling of dead object reclaim, a new parameter has been added for the GcGem, #deadObjsReclaimedCommitThreshold. This parameter determines the

maximum number of dead objects to reclaim in a single transaction. This has a default value of 20000 objects.

Now, the reclaim gem will commit as soon as any one of the following conditions is met:

- 1) Number of live objects moved exceeds #objsMovedPerCommitThreshold.
- 2) Duration of the transaction exceeds #maxTransactionDuration.
- 3) Number of dead objects reclaimed exceeds #deadObjsReclaimedCommitThreshold.

Bugs fixed

The following bugs have been fixed since GemStone/S 64 Bit version 2.2.5.3:

Restore from tranlogs caused repository bloat

When restoring tranlogs that include a large amount of page reclaim, pages were not disposed of quickly enough, resulting in repository growth, potentially shutting down the stone when space is exhausted. During tranlog restore, the stone was not servicing the page manager frequently enough, limiting the page disposal to 1792 pages per tranlog record. (#39564)

ReclaimAll could make no progress

With large dead not reclaimed, the reclaimAll process could have made little progress while consuming CPU. The reclaimAll code periodically alerts the Reclaim GcGem, which would discard and re-fetch its copy of the dead not reclaimed set. (#39573)

System cacheStatsForGemSwithName: sometimes incorrectly returned nil

The method System class >> cacheStatsForGemWithName: could return nil if any session was found that had been killed by lostOT and not yet removed from the internal tables. (#39371)