GemStone®

GemStone/S Release Notes

Version 6.6.3

November 2012

vmware®

GEMSTONE S™

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PATENTS

GemStone software is covered by U.S. Patent Number 6,256,637 “Transactional virtual machine architecture”, Patent Number 6,360,219 “Object queues with concurrent updating”, Patent Number 6,567,905 “Generational garbage collector with persistent object cache”, and Patent Number 6,681,226 “Selective pessimistic locking for a concurrently updateable database”. GemStone software may also be covered by one or more pending United States patent applications.

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Preface

About This Documentation

These release notes describe changes in the GemStone/S version 6.6.3 release. We recommend that everyone migrating to this version read these release notes before beginning installation, testing or development.

No separate Installation Guide is provided with this release. For instructions on installing GemStone/S version 6.6.3, or upgrading or converting from previous products or versions, see the Installation Guide for version 6.6.2.

These documents are also available on the GemStone customer website, as described below.

Technical Support

GemStone's Technical Support website provides a variety of resources to help you use GemStone products.

Documentation for released versions of all GemStone products is provided in PDF form on this website:

GemStone Web Site: http://support.gemstone.com

In addition to documentation, the GemStone support website provides:

- Downloads and Patches, including past and current versions of GemBuilder for Smalltalk.
- Bugnotes, identifying performance issues or error conditions that you may encounter when using a GemStone product.
- TechTips, providing information and instructions that are not in the documentation.
- Compatibility matrices, listing supported platforms for GemStone product versions.

This material is updated regularly; we recommend checking this site on a regular basis.

Help Requests

You may need to contact Technical Support directly, if your questions are not answered in the documentation or by other material on the Technical Support site.

Requests for technical assistance may be submitted online, by email, or by telephone. We recommend you use telephone contact only for more serious requests that require immediate evaluation, such as a production system down. The support website is the preferred way to contact Technical Support.

Website: http://techsupport.gemstone.com

Email: techsupport@gemstone.com

Telephone: (800) 243-4772 or (503) 533-3503

Your GemStone support agreement may identify specific designated contacts who are responsible for submitting all support requests to GemStone. If so, please submit your information through those individuals.

If you are reporting an emergency by telephone, select the option to transfer your call to the Technical Support administrator, who will take down your customer information and immediately contact an engineer. Non-emergency requests received by telephone will be placed in the normal support queue for evaluation and response.

When submitting a request, please include the following information:

- Your name, company name, and GemStone server license number.
- The versions of all related GemStone products, and of any other related products, such as client Smalltalk products.
- The operating system and version you are using.
- A description of the problem or request.
- Exact error message(s) received, if any, including log files if appropriate.

Technical Support is available from 8am to 5pm Pacific Time, Monday through Friday, excluding GemStone holidays.

24x7 Emergency Technical Support

GemStone offers, at an additional charge, 24x7 emergency technical support. This support entitles customers to contact us 24 hours a day, 7 days a week, 365 days a year, for issues impacting a production system. For more details, contact your GemStone account manager.

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Chapter 1

GemStone/S 6.6.3 Release Notes

Overview

GemStone/S 6.6.3 is a new version of the GemStone 32-bit Smalltalk object server, containing a number of performance improvements and bug fixes. We recommend everyone using GemStone/S upgrade to this new version.

These release notes provide changes between the previous version of GemStone/S, version 6.6.2, and version 6.6.3. If you are upgrading from a version prior to 6.6.2, 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 6.6.2.

Supported Platforms and GBS Versions

Platforms

GemStone/S version 6.6.3 is supported on the following platforms:

- Solaris 8, 9 and 10 on SPARC
- AIX 5.3, 6.1, and 7.1
- Red Hat Linux ES 5.0, 5.5, and 6.1
- Windows XP, Windows 2003, Windows 7, and Windows 2008 R2

For more information and detailed requirements for each supported platforms, please refer to the *GemStone/S Installation Guide* v6.6.2 for that platform.

GBS version summary

The following versions of GBS are supported with GemStone/S version 6.6.3, with the following client Smalltalk and platforms versions.

GBS version 7.5

VW 7.9 32-bit
▸ Windows XP, Windows 7, and Windows 2008 R2 ▸ Solaris 9 and 10 on SPARC ▸ RedHat Linux ES 5.0, 5.5, and 6.1

GBS version 7.4.1

VisualWorks 7.8.1	VisualWorks 7.8	VisualWorks 7.7.1
▸ Windows XP, Windows 7, and Windows 2008 R2 ▸ Solaris 9 and 10 on SPARC ▸ RedHat Linux ES 5.0, 5.5, and 6.1	▸ Windows XP, Windows 7, and Windows 2008 R2 ▸ Solaris 9 and 10 on SPARC ▸ RedHat Linux ES 5.0, 5.5, and 6.1	▸ Windows XP and Windows 7 ▸ Solaris 9 and 10 on SPARC ▸ RedHat Linux ES 5.0 and 5.5

GBS version 5.2.7

VA Smalltalk 8.0.2	VA Smalltalk 7.5.2
▸ Windows XP, Windows 7, and Windows 2008 R2	▸ Windows XP

For more information and details, see the *GemBuilder for Smalltalk Installation Guide* for that version. This information, and instructions for upgrading client libraries for GBS, are in the *GemStone/S Installation Guide* v6.6.2, chapter 3.

Changes in this release

Memory leak in Stone with use of notifiers

Gem signalling allocates memory on the C heap of the Stone's process. When notifiers are used, in some cases this memory was not freed, resulting in growth of the stone memory footprint. This ultimately could cause the stone to run out of memory and crash with a malloc error. (#42464)

Busy gem did not notice client's death

If an RPC gem is executing GemStone code, it may have continued to execute code even if its client (such as a GBS application) is killed. Now, the gem will notice if the client process disappears, and terminate. (#42252)

System signal handling

SIGTERM can cause fatal stuck spin lock

If a process is in the process of trying to get a queue lock for a spin lock, and gets a SIGTERM, and the spin lock is a non-recoverable type, the SPC monitor shut down, crashing the system. Now, the process will not immediately exit on SIGTERM, but complete the (short) wait for the queue lock. (#42225)

Risky stack printing on SIGUSR1 (kill -USR1)

Sending kill -USR1 to a GemStone process causes it to print current call stacks to the process log file. The way this was being done was not entirely safe and could result in timing problems. (#42269)

GS_DISABLE_SIGNAL_HANDLERS did not ignore SIGABRT

SIGABRT has been added the list of signals that cause the gem to exit when GS_DISABLE_SIGNAL_HANDLERS is set in the environment. (#42527)

Issues with page transfer compression

Config parameter GEM_PGSVR_COMPRESS_PAGE_TRANSFERS not respected

The configuration file setting for GEM_PGSVR_COMPRESS_PAGE_TRANSFERS was not used, although the internal value could be set using the runtime parameter. (#42430)

Pages sent from the gem to the page server not compressed

The setting for GEM_PGSVR_COMPRESS_PAGE_TRANSFERS previously only applies to pages send from the page server to the gem. Now, the configuration parameter controls compression for transfers in both directions. (#42434)

Shared page cache monitor did not detect loss of parent process, causing problems on remote hosts

Remote shared page caches are started by the SPC monitor on the remote host, which are started by a cache page server on the remote host, which are started by the remote netldi. If the cache page server does not start up properly or died in an unexpected way, the SPC monitor could continue to run. This prevented remote logins from succeeding, since the stone did not believe a remote cache was running, but a new one could not be started. (#42297)

Internal Performance Improvements

Internal changes have improved performance in a number of areas.

Performance degraded when number of extents increases

The page hash function did not scale well, so performance degraded for the same operation with an increasing number of extents. The page hash algorithm has been improved in this release. (#42479)

Reduced pressure on hash table spin lock

The code now avoids holding the hash table spin lock while uncompressing compressed page transfers, and avoids and extra release-reacquiring of this lock when a page is already in the cache.

Other improvements

There have also been improvements in the page cache entry (PCE) search and copy operations.

Recoverable stuck frame locks not recovered

When a stuck frame lock is detected, if the owner is gone the frame could be recovered. This was not being done. (#42171)

Reverse DNS lookup errors disable remote logins

Remote RPC or linked logins failed if gethostbyaddr() returned an error, rather than using the IP address. (#40343)

Note that the fix for this bug is implemented on UNIX platforms only; this bug still exists on Windows.

Stone crash on startup with STN_MAX_SESSIONS near upper limit

With a setting for STN_MAX_SESSIONS that is close to the maximum for this (8192), the stone crashed on startup. (#42140)

Added Cache Statistics

ClientCallsToStoneCompressed (Page Server)
Approximate number of times the client gem of this page server has made a call to stone using data compression.

ClientPageReadsCompressed (Page Server)
The number of pages that have been compressed and transmitted by the page server to the client.

ClientPageReadsCompressedKb (Page Server)
The number of kilobytes that have been transmitted by the page server to the client while performing page reads.

ClientPageWritesCompressed (Page Server)
The number of pages that have been compressed and transmitted by the client to the page server.

ClientPageWritesCompressedKb (Page Server)
The number of kilobytes that have been transmitted by the client to the page server while performing page writes.

PageReadsCompressed (All)
Number of pages read by the process which were compressed by its peer before being sent over the network.

PageReadsCompressedKb (All)
Total number of kilobytes read by the process which were compressed by its peer before being sent over the network.

PageWritesCompressed (All)
Number of pages written by the process which were compressed before being sent over the network to its peer.

PageWritesCompressedKb (All)
Total number of kilobytes written by the process which were compressed before being sent over the network to its peer.