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GemStone®

# *GemStone/S* *Release Notes*

Version 6.5.3.2

December 2009

GEMSTONE ™

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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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## About This Documentation

These release notes describe changes in the GemStone/S version 6.5.3.2 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 6.5.3.2, or upgrading or converting from previous products or versions, see the Installation Guide for version 6.5.

## Technical Support

GemStone provides several sources for product information and support. The product-specific manuals provide extensive documentation, and should be your first source of information.

**GemStone Web Site:** <http://support.gemstone.com>

GemStone's Technical Support website provides a variety of resources to help you use GemStone products. Use of this site requires an account, but registration is free of charge. To get an account, just complete the Registration Form, found in the same location. You'll be able to access the site as soon as you submit the web form.

The following types of information are provided at this web site:

**Documentation** for GemStone/S is provided in PDF format. This is the same documentation that is included with your GemStone/S product.

**Release Notes** and **Install Guides** for your product software are provided in PDF format in the Documentation section.

**Downloads** and **Patches** provide code fixes and enhancements that have been developed after product release, and past and current versions of GemBuilder for Smalltalk.

**Bugnotes**, in the Learning Center section, identify performance issues or error conditions that you may encounter when using a GemStone product. A bugnote describes the cause

of the condition, and, when possible, provides an alternative means of accomplishing the task. In addition, bugnotes identify whether or not a fix is available, either by upgrading to another version of the product, or by applying a patch. Bugnotes are updated regularly.

**TechTips**, also in the Learning Center section, provide information and instructions for topics that usually relate to more effective or efficient use of GemStone products.

**Community Links** provide customer forums for discussion of GemStone product issues.

Technical information on the GemStone Web site is reviewed and updated regularly. We recommend that you check this site on a regular basis to obtain the latest technical information for GemStone products.

## Help Requests

You may need to contact Technical Support directly for the following reasons:

- ▶ Your technical question is not answered in the documentation.
- ▶ You receive an error message that directs you to contact GemStone Technical Support.
- ▶ You want to report a bug.
- ▶ You want to submit a feature request.

Questions concerning product availability, pricing, keyfiles, or future features should be directed to your GemStone account manager.

When contacting GemStone Technical Support, please be prepared to provide the following information:

- ▶ Your name, company name, and GemStone/S license number
- ▶ The GemStone product and version you are using
- ▶ The hardware platform and operating system you are using
- ▶ A description of the problem or request
- ▶ Exact error message(s) received, if any

Your GemStone support agreement may identify specific individuals who are responsible for submitting all support requests to GemStone. If so, please submit your information through those individuals. All responses will be sent to authorized contacts only.

For non-emergency requests, the support website is the preferred way to contact Technical Support. Only designated support contacts may submit help requests via the support website. If you are a designated support contact for your company, or the designated contacts have changed, please contact us to update the appropriate user accounts.

**Website:** <http://techsupport.gemstone.com>

**Email:** [support@gemstone.com](mailto:support@gemstone.com)

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

Requests for technical assistance may be submitted online, or 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 that is non-operational. In these cases, please also submit your request via the web or email, including pertinent details such as error messages and relevant log files.

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.

## 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, if they encounter problems that cause their production application to go down, or that have the potential to bring their production application down. For more details, contact your GemStone account manager.

## Training and Consulting

Consulting and training for all GemStone products are available through GemStone's Professional Services organization.

- ▶ Training courses are offered periodically at GemStone's offices in Beaverton, Oregon, or you can arrange for onsite training at your desired location.
- ▶ Customized consulting services can help you make the best use of GemStone products in your business environment.

Contact your GemStone account representative for more details or to obtain consulting services.



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# *GemStone/S 6.5.3.2*

## *Release Notes*

### Overview

GemStone/S 6.5.3.2 is a new version of the GemStone Smalltalk object server. This is a special build release providing fixes for several significant bugs.

These release notes provide changes between the previous version of GemStone/S, version 6.5.3.1, and version 6.5.3.2. If you are upgrading from a version prior to 6.5.3.1, 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 6.5.

This release supports Solaris and Linux. There have been changes in the client libraries; clients on Windows require updated .dlls.

### Changes and New Features

#### Added method to terminate sessions holding commit record

In unusual cases where the session holding the oldest commit record is not a regular logged-in session, it can cause a commit record backlog that is difficult or impossible to release. For use in situations like this, the following method has been added:

**System class >> terminateAllSessionsReferencingOldestCr**

This method causes the stone to immediately log off all sessions which reference the oldest commit record, except for the current session, and to dispose the oldest commit record and all other commit records eligible for disposal.

**WARNING:** This method bypasses internal mechanisms which prevent the immediate termination of active sessions, and therefore should only be used if the oldest CR session(s) could not be stopped by any other means. Usage of this method when one or more sessions referencing the oldest CR are active may cause cache coherency errors.

## Keepalive on OOB socket

An option has been added to enable sending keep-alive packets on the out-of-band (OOB) socket between the GCI client and the gem. This socket has little activity and may be closed as inactive by firewall software.

This option is enabled by the new gem configuration option, `GEM_RPC_KEEPALIVE_INTERVAL`. The keep-alive consists of the GCI client sending a single byte to the gem on the OOB socket. It then does a blocking read and waits for a reply. The gem will send a single byte back to the GCI acknowledging the keep alive. The new gem cache statistic `GciRpcKeepAlivePacketCount` tracks the number of keep-alives received by the gem (see page 11, in the section 'Added Cache Statistics').

This option is intended for use with GBS client. Keep-alives are only sent at the end of the `GciPollForSignal()` call. GBS makes this call every 300 ms by default. On some older GBS versions, it is only made if the client is out of transaction, but recent GBS versions make the call for all transaction states.

### **GEM\_RPC\_KEEPALIVE\_INTERVAL**

Interval in seconds for the RPC GCI client keep-alive packet to be sent on the seldom used out-of-band (OOB) socket between the gem and the GCI client (normally GBS). Has no effect for linked sessions or RPC sessions running the same host as the gem process.

If enabled, keep-alive packets are sent at the end of the `GciPollForSignal()` call. GBS clients make this call by default every 300ms. In some older versions of GBS, this call is only made when the client is out of transaction.

Default: 0 (disabled)

Minimum: 0

Maximum: 7200

## Login details recorded in tranlogs

Tranlog analysis allows searching the transaction logs for exact details on data modifications, useful for audits under Sarbanes-Oxley. Now, addition information is written to the logs when a user logs in:

- timestamp
- real user ID (integer)
- real user ID name (string)
- effective user ID (integer)
- effective user ID name (string)
- gem process ID

The GemStone scripts `searchlogs.sh` and `printlogs.sh` have been modified to process these records.

For more information on transaction log analysis, see the *System Administration Guide for GemStone/S 64 Bit*, appendix H.

## Added Cache Statistics

### **ClientAborts** (Page Server)

Number of times the client gem of this page server aborted a transaction.

**ClientCallsToStone** (Page Server)

Approximate number of times the client gem of this page server has made a call to stone. Some calls to stone during the login sequence are not included in this statistic.

**ClientCommits** (Page Server)

Number of times the client gem of this page server committed a transaction.

**ClientFailedCommits** (Page Server)

Number of times the client gem of this page server failed to commit a transaction because of concurrency conflicts.

**ClientLostOtRoots** (Page Server)

Number of times the client gem of this page server was sent a SigLostOtRoot.

**ClientSigAborts** (Page Server)

Number of times the client gem of this page server was sent a SigAbort.

**ClientStopSessionRequests** (Page Server)

Number of times the stone has requested this session to stop. Only updated for gems that running on the same host as the stone.

**GciRpcKeepAlivePacketCount** (Gem)

Number of keep-alive packets received from the GCI client on a remote host.

**StopSessionCount** (Gem)

Number of times the stone has requested this session to stop. Only updated for gems that running on the same host as the stone.

## Bug Fixes

### SPC Monitor and Page Manger logs no longer deleted on clean shutdown

Normally GemStone processes delete their log files on clean shutdown. This has been changed so the Shared Page Cache Monitor and Page Manager log files are not deleted on shutdown, for clean or unclean shutdowns. (#40433)

### Remote caches may have failed to shut down

When a connection to a remote shared page cache was lost, the page manager may not have closed the connection to the cache page server. This prevented the remote cache from shutting down, as it should if there are no remote gems using that cache. (#40340)

### GcGems may have run hot and bloated log

During backup, if the GcGem attempts to reclaim a page that is greater than the current backup position, the commits fails and a message is written to the log. This was not handled correctly, so the GcGem immediately retried, resulting in continuous log messages until the backup progressed beyond that point. (#40432)

### SPC Monitor death may cause SEGV in pgsvr

If the SPC Monitor died, it could have caused the AIO or Free Frame page servers to SEGV. (#40437)

