GemStone®

GemStone/S 64 Bit
Release Notes

Version 2.2.3

October 2007

GEMSTONES 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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About This Documentation

These release notes describe changes in the GemStone/S 64 Bit version 2.2.3 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 64 Bit version 2.2.3, or upgrading or converting from previous products or versions, see the Installation Guide for version 2.2.

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

Terminology Conventions

This document uses the following terminology:

The term "GemStone" is used to refer both to the product, GemStone/S 64 Bit, or previous GemStone/S server products; and to the company, GemStone Systems, Inc.

Technical Support

GemStone provides several sources for product information and support. The product-specific manuals and online help provide extensive documentation, and should always be your first source of information. GemStone Technical Support engineers will refer you to these documents when applicable.

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:

Help Request allows designated support contacts to submit new requests for technical assistance and to review or update previous requests.

Documentation for GemStone/S 64 Bit is provided in PDF format. This is the same documentation that is included with your GemStone/S 64 Bit 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. Most code fixes and enhancements listed on the GemStone Web site are available for direct downloading.

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. Some Tips may contain code that can be downloaded for use at your site.

Community provides 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. We also welcome suggestions and ideas for improving and expanding our site to better serve you.

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.

> **Email: support@gemstone.com**

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

Requests for technical assistance may also be submitted 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 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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Chapter 1. GemStone/S 64 Bit 2.2.3 Release Notes

GemStone/S 64 Bit 2.2.3 Release Notes

Overview

GemStone/S 64 Bit 2.2.3 is a new version of the GemStone/S 64 Bit object server. This release provides several new features and fixes a number of bugs; we recommend everyone using or intending to upgrade to GemStone/S 64 Bit 2.x, upgrade to this new version. 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 2.2.2, and version 2.2.3. If you are upgrading from a version prior to 2.2.2, 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 2.2, with the following changes and notes:

▸ Conversion now resets the DataCurator password to the default "swordfish", similarly to the way GcUser's password is handled. Following conversion, be sure to reset the DataCurator password as well as the SystemUser and GcUser passwords.

▸ Version 2.2.3 includes a conversion option to collect instances of Float objects during conversion, for later processing. However, use of this option requires that certain features are available in the originating repository. This feature is currently only available when converting from GemStone/S 64 Bit 1.2 to this release. It will be available when converting from the upcoming GemStone/S 6.2 release to this release.

▸ The conversion environment variable $GEMSTONE_22 is unchanged for later 2.2.x releases.

Changes and New Features

Methods to return byte order of gem and stone

The following methods have been added:

```
System class >> gemIsBigEndian
System class >> stoneIsBigEndian
```

Programmatic access to the stone log file path

A run-time read only configuration parameter as been added to provide programmatic access to the stone log file path and name. Execute the following statement:

```
System stoneConfigurationAt:#StnLogFileName
```

Bugs Fixed

The following bugs in GemStone/S 64 Bit 2.2.2 have been fixed in GemStone/S 64 Bit 2.2.3.

Conversion-related problems

During the conversion process from 6.1.5 to 2.2.2, certain Segment configurations within the originating repository are not handled properly. This resulted in SIGBUS or other errors. #(#37598, #37545, #37547).

There was a potential race condition going into single user mode when multiple conversion gems logged out at the same time (#37639)

GC cache warmers may have caused cache coherency errors

When multiple cache warmers were preloading pages, it was possible for one of them to attempt to load a page that was in the process of being loaded by another cache warmer. This tripped consistency checks that a page may only be loaded once in the shared page cache (#37607)

Login errors after restore

After a restore operation, it was possible to encounter login errors due to a race condition in accessing the process table. (#37277)

RcQueueElement missing methods

Previous versions introduced improvements in RcQueues to allow finer resolution of items in an RcQueue. Methods used by these improvements were inadvertently missing from the RcQueueElement class, resulting in errors in repositories with RcQueues that were upgraded to 2.2 or later. (#37817)

DbfHistory was being updated with incorrect upgrade information

DbfHistory tracks the upgrade history of the repository. The version number reported was incorrect when upgrading to versions later than 2.1. (#37526)

Sorting of large Dictionaries performed on Associations, not values

Sending `asSortedCollection:` to an instance of a Dictionary class, other than KeyValueDictionary or its subclasses, that was larger than 2000 may have failed. The arguments passed to the sort block were the Associations in the dictionary, rather than the values. (#37666)

Remote gems hung when stone shutdown due to keyfile limit reached

If the stone shut down due to reaching the key files's limit on the number of OOPs in the repository, gems running on remote machines may have hung. (#37464)

Gem hung sending errors after GCI RPC client gone

If a gem's GCI RPC client, usually topaz or GBS, disappeared, the gem went into an infinite loop attempting to report an error (#37490)

Zombie gem on kill -TERM during login

During session login, there is a window between login and the gem switch to remote SMC communications. If the session receives a kill -TERM during this window, it did not complete the logout process, remaining inactive but connected indefinitely, preventing (for example) entering single user mode. (#37596)

Log files deleted after GcGem login failures

If the GcGems fail to login, the log files were incorrectly deleted as they would be for normal process exit.

Risk of accessing partially logged in session

There is a very small window during stone processing of session login in which the new session has inconsistent state. If another session executed descriptionOfSession:, causing the stone to access the new session during this window, the stone could detect the inconsistent state, which resulted in a SEGV. (#37612)