GemStone®

GemStone/S Release Notes

Version 6.5.3.3

January 2010

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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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Preface

About This Documentation

These release notes describe changes in the GemStone/S version 6.5.3.3 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 6.5.3.3, 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

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 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 6.5.3.3 Release Notes

Overview

GemStone/S 6.5.3.3 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 6.5.3.2, and version 6.5.3.3. If you are upgrading from a version prior to 6.5.3.2, 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 6.5.

This release supports Solaris and Linux.

Changes and New Features

Log file name change

Certain log files that contained the PIDs of the parent as well as the process' PID now have an additional underscore to distinguish the two sets of digits.

Specifically, the format:

```
name%P%p.log
```

now is:

```
name%P_%p.log
```

where `%P` is the parent PID and `%p` is the process ID of the process.

Added configuration parameter

The following configuration parameter has been added:

STN_NUM_SMC_QUEUES

STN_NUM_SMC_QUEUES specifies the number of shared memory communication (SMC) queues used by gems and page servers to communicate with the stone. Valid values are: 0, 1, 2, 4 and 8.

A value of zero indicates the stone should compute the correct value based upon the maximum number of processes that can attach to the stone's shared page cache (SHR_PAGE_CACHE_NUM_PROCS) as follows:

SHR_PAGE_CACHE_NUM_PROCS	STN_NUM_SMC_QUEUES
< 256	1
256 - 1023	2
1024 - 2023	4
> 2024	8

Default: 0
Minimum: 0
Maximum: 8

Cache Statistics Changes

The Stone cache statistic **SmcQueueSize** is now obsolete.

The following cache statistics have been added:

NumSlotsPendingReuse (SPC Monitor)
Number of slots in the shared page cache that will be reused when the stone completes cleanup of a session which previously used the slot.

ProcessesWaitingForQueueLocks (SPC Monitor)
Number of processes attached to the shared cache which are spinning while attempting to acquire a queue lock.

SmcQueuesInUse (Stone)
Number of shared memory queues in use on this shared page cache. On stone's cache, this value can be 1, 2, 4, or 8. It is always zero on remote shared page caches.

SmcQueueSize0 (Stone)
Number of sessions present in shared memory queue 0.

SmcQueueSize1 (Stone)
Number of sessions present in shared memory queue 1.

SmcQueueSize2 (Stone)
Number of sessions present in shared memory queue 2.

SmcQueueSize3 (Stone)
Number of sessions present in shared memory queue 3.

SmcQueueSize4 (Stone)
Number of sessions present in shared memory queue 4.

SmcQueueSize5 (Stone)
Number of sessions present in shared memory queue 5.

SmcQueueSize6 (Stone)
Number of sessions present in shared memory queue 6.

SmcQueueSize7 (Stone)
Number of sessions present in shared memory queue 7.

Bug Fixes

SMC queue lock performance problem

Shared Memory Communication (SMC) between locals gems and the stone was managed by a queue; a local session placed itself on this queue when it needed to communicate with the stone. However, to get on this queue, the queue lock was required. On systems with many gems, sessions attempting to get the queue lock could overload the CPU. (#40456)

To avoid this problem, larger systems now may have up to eight SMC queues, specified by a new configuration parameter, STN_NUM_SMC_QUEUES. By default, the number of queues is calculated based on the maximum number of sessions for the system. See “STN_NUM_SMC_QUEUES” on page 10 for details on this parameter.

In addition, there have been code optimizations to reduce the CPU load when waiting for a queue lock.

Checkpoints can take too long on large shared page caches

One step of the checkpoint processing is a scan of pages in the cache. This scan was inefficient, and on large caches could result in the time to complete the checkpoint taking longer than the default checkpoint interval. Operations such as backup that cannot start during checkpoints could be difficult to start. (#40463).