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GemStone®

***GemStone/S 64 Bit™***  
***Release Notes***

Version 2.4.4.3

October 2010

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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## About This Documentation

These release notes describe changes in the GemStone/S 64 Bit™ version 2.4.4.3 release. Please read these release notes before beginning installation, testing or development.

For information on installing or upgrading to this version of GemStone/S 64 Bit, please refer to the *GemStone/S 64 Bit Installation Guide* for version 2.4.4.3. 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.

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

Use of this site requires an account, but registration is free of charge and provides immediate access.

All GemStone product documentation is provided in PDF form on this website. Documentation is also available at

**<http://www.gemstone.com/documentation>**

In addition to documentation, the [support.gemstone.com](http://support.gemstone.com) 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, 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 down. The support website is the preferred way to contact Technical Support.

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

**Email:** [techsupport@gemstone.com](mailto: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.

## Training and Consulting

Consulting and training for all GemStone products are available through GemStone's Professional Services organization. GemStone periodically offers training courses at our offices in Beaverton, Oregon, or training can be arranged at your location. Contact your GemStone account representative for more details or to obtain consulting services.

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### Overview

GemStone/S 64 Bit 2.4.4.3 is a new version of the GemStone/S 64 Bit object server. This release provides several feature enhancements and fixes several serious bugs; we recommend all GemStone/S 64 Bit application upgrade to this version.

These release notes provide changes between the previous fully-public version of GemStone/S 64 Bit, version 2.4.4, and version 2.4.4.3. Versions 2.4.4.1 included only Seaside-specific changes, and 2.4.4.2 was a limited distribution releases; all changes in these versions are included in these release notes. If you are upgrading from a version prior to 2.4.4, please also review the release notes for each intermediate release to see the full set of changes.

For details about installing GemStone/S 64 Bit 2.4.4.3 or upgrading from earlier versions of GemStone/S 64 Bit or other GemStone server products, see the *GemStone/S 64 Bit Installation Guide* for version 2.4.4.3.

### Supported Platforms and GBS Versions

#### Platforms

GemStone/S 64 Bit version 2.4.4.3 is supported on the following platforms:

- ▶ Solaris 9 and 10 on SPARC
- ▶ Solaris 10 on x86
- ▶ HP-UX 11.11 and 11.31 on PA-RISC
- ▶ HP-UX 11.23 and 11.31 on Itanium
- ▶ AIX 5.3, TL5, SP3 and AIX 6.1, TL1, SP1
- ▶ SuSE Linux ES 10 SP1 and Red Hat Linux ES 5.0

For more information and detailed requirements for each supported platforms, please refer to the GemStone/S 64 Bit v2.4.4.3 Installation Guide for that platform.

## GBS versions

The following versions of GBS are supported with GemStone/S 64 Bit version 2.4.4.3, with the following client Smalltalk and platform versions.

If you are upgrading from version 2.4.3 or earlier, you must update the client libraries used with GBS clients. Protocol compatibility levels changed in version 2.4.4 and older client libraries are not compatible.

GBS versions 7.2 through 7.3 on VisualWorks may encounter serious errors when running with GemStone/S 64 Bit 2.4.4 and above, including with version 2.4.4.3. GBS users should upgrade to version 7.3.1 or later, or patch GBS. The patch is available here:

[http://support.gemstone.com/gemstone\\_s/downloads/patches/patch40751/index.htm](http://support.gemstone.com/gemstone_s/downloads/patches/patch40751/index.htm)

### GBS version 7.3.1 and 7.3.2

<b>VW 7.7 32-bit</b> with 32-bit 7.7 OE	<b>VW 7.7 64-bit</b> with 64-bit 7.7 OE	<b>VW 7.6 32-bit</b> with 32-bit 7.6c OE
<ul style="list-style-type: none"> <li>▶ Windows XP, Windows 2003 Server, Windows Vista, and Windows 7</li> <li>▶ Solaris 9 and 10 on SPARC</li> <li>▶ HP-UX 11.11 on PA-RISC</li> <li>▶ SuSE Linux ES 10 and RedHat Linux ES 5.0</li> </ul>	<ul style="list-style-type: none"> <li>▶ Solaris 10 on SPARC</li> <li>▶ SuSE Linux ES 10 and Red Hat Linux ES 5.0</li> </ul>	<ul style="list-style-type: none"> <li>▶ Windows XP and Windows 2003 Server</li> <li>▶ Solaris 9 and 10 on SPARC</li> <li>▶ HP-UX 11.11 on PA-RISC</li> <li>▶ SUSE Linux ES 10 and Red Hat Linux ES 5.0</li> </ul>

### GBS version 7.1.2patch2

<b>VW 7.5</b> with 7.5 OE	<b>VW 7.4.1</b> with 7.4d OE	<b>VW 5i.1 Envy</b> with 5i.4c OE
<ul style="list-style-type: none"> <li>▶ Windows XP and Windows 2003 Server</li> <li>▶ Solaris 9 and 10 on SPARC</li> <li>▶ HP-UX 11.11 on PA-RISC</li> <li>▶ SuSE Linux ES 10</li> </ul>	<ul style="list-style-type: none"> <li>▶ Windows XP</li> <li>▶ Solaris 9 and 10 on SPARC</li> <li>▶ HP-UX 11.11 on PA-RISC</li> <li>▶ SuSE Linux ES 10</li> </ul>	<ul style="list-style-type: none"> <li>▶ Windows XP</li> </ul>

For more information on supported platforms and requirements, see the release notes for that version of GBS.



## Changes and New Features

### Allow disableCommits feature to work with password aging configured

When password aging features are configured in the repository, each login performs a commit to record the lastLoginTime. This commit failed when commits were disabled for a particular user using the `UserProfile>>disableCommits` feature. Now, a commit is enabled from the C code only at this point during the login, to allow the lastLoginTime to be recorded. (#40410)

### Distributing static GCI RPC library

The product distribution now includes a static library suitable for linking with custom GCI applications. This file is: `$GEMSTONE/lib/libgcirpc64-244.a`

### GemBuilder for Java 3.0 shared libraries

This version includes GBJ shared libraries that are compatible with the GBJ 3.0 release.

## Bugs Fixed

### Object does not exist errors when temporary objects GCed on server

This was introduced by the fixes for bug #40703 and #40720 in 2.4.4 and is not in version 2.4.3 and earlier.

Temporary objects must be protected from garbage collection on the server, which is done in a variety of ways. Objects that were created as a result of a server execution during a traversal from GBS had a gap in this protection; if a gem in-memory garbage collection occurred during the gap, this object would be garbage collected. This resulted in Object does not exist errors when the object was next accessed. (#40948)

### \$PATH for spawned gems is hardcoded

When a gem is spawned by netldi, it inherits its environment from the netldi process, with the exception of the \$PATH, which was set to a specific hardcoded path. Now, the gem will inherit its \$PATH from the netldi's environment. (#40971)

### Persistent shared counters could become incorrect

*Solaris/Sparc only*

In rare cases when the 32-bit register carry bit was set, the code that reads a persistent shared counter could apply the carry and increment, resulting in an incorrect value for the shared counter. Although the operation was read-only, it actually modified the shared counter value, and therefore the change was visible to all sessions. This bug is in the code invoked by the gem-only, read-only persistent shared counter operations; operations that change the values of persistent shared counters require the Stone, and are not affected by this bug. (#40348)

## Index related changes

### **EqualityIndexes on Dates had slow query performance**

Btrees, the internal structures used to implement equality indexes, include the compressed contents for certain data types, so the actual object does not always need to be faulted in. The code that stored the contents of Date instances incorrectly stored incomplete data, which meant that Date instances always had to be faulted. This did not cause any functional errors, but performance under certain conditions was considerably slower. (#40792)

### **Improved performance in removing certain equality indexes**

An optimization has been made to improve performance of index removal for certain cases. This optimization is on btree removal, which means only the final term of an Equality index is impacted.

If there are no other indexes on the collection, single-term equality indexes removal exhibits this improvement. With other indexes present, the performance gain is in removal for both single and multi-term equality indexed paths.

## Exception related changes

### **ExceptionSets may have failed to catch signalled Errors**

Passing a list of Errors as the first argument to on:do: creates an ExceptionSet to handle any of the listed Errors. In some cases, particularly ZeroDivide, the ExceptionSet may have failed to catch one of the Errors. (#40715, #40815)

### **Pause caught by handler on Error**

An exception handler on Error incorrectly caught pause. (#40779)

## **System \_vmPrintInstanceCounts: failed to flush to gem log**

When calling System class >> \_vmPrintInstanceCounts: from an RPC gem, it writes the output to the gem log. The output was not completely written to the log file, however, due to a missing flush. The remaining output would only appear after a later operation wrote to the log. (#40909)