GemStone/S 64 Bit™
Release Notes

Version 3.3.8

August 2018

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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 64 Bit™ version 3.3.8 release. Read these release notes carefully before you begin installation, conversion testing, or development with this release.

No separate Installation Guide is provided with this release. For instructions on installing GemStone/S 64 Bit version 3.3.8, or upgrading or converting from previous products or versions, see the Installation Guide for version 3.3.5.

For questions or to submit feedback on this manual, join the documentation mailing list: http://lists.gemtalksystems.com/mailman/listinfo/documentation.

Terminology Conventions

The term "GemStone" is used to refer to the server products GemStone/S 64 Bit and GemStone/S, and the GemStone family of products; the GemStone Smalltalk programming language; and may also be used to refer to the company, now GemTalk Systems LLC, previously GemStone Systems, Inc. and a division of VMware, Inc.

Technical Support

Support Website

gemtalksystems.com

GemTalk's website provides a variety of resources to help you use GemTalk products:

- **Documentation** for the current and for previous released versions of all GemTalk products, in PDF form.

- **Product download** for the current and selected recent versions of GemTalk software.
- **Bugnotes**, identifying performance issues or error conditions that you may encounter when using a GemTalk product.
- **TechTips**, providing information and instructions that are not in the documentation.
- **Compatibility matrices**, listing supported platforms for GemTalk product versions.

We recommend checking this site on a regular basis for the latest updates.

Help Requests

GemTalk Technical Support is limited to customers with current support contracts. Requests for technical assistance may be submitted online (including by email), or by telephone. We recommend you use telephone contact only for urgent requests that require immediate evaluation, such as a production system down. The support website is the preferred way to contact Technical Support.

Website: techsupport.gemtalksystems.com

Email: techsupport@gemtalksystems.com

Telephone: (800) 243-4772 or (503) 766-4702

Please include the following, in addition to a description of the issue:

- The versions of GemStone/S 64 Bit and of all related GemTalk products, and of any other related products, such as client Smalltalk products, and the operating system and version you are using.
- Exact error message received, if any, including log files and statmonitor data if appropriate.

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

24x7 Emergency Technical Support

GemTalk 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 GemTalk Support Renewals.

Training and Consulting

GemTalk Professional Services provide consulting to help you succeed with GemStone products. Training for GemStone/S is available at your location, and training courses are offered periodically at our offices in Beaverton, Oregon. Contact GemTalk Professional Services for more details or to obtain consulting services.

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Chapter

1 GemStone/S 64 Bit 3.3.8 Release Notes

Overview

GemStone/S 64 Bit™ 3.3.8 is a maintenance release of the GemStone/S 64 Bit object server. This release fixes a critical bug affecting nested transactions. It also introduces Community and Web Edition licensing for GemBuilder for Smalltalk.

These release notes describe changes between the previous version of GemStone/S 64 Bit, version 3.3.7, and version 3.3.8. If you are upgrading from a version prior to 3.3.7, review the release notes for each intermediate release to see the full set of changes.

The Installation Guide has not been updated for this release. For installation, upgrade and conversion instructions, use the Installation Guide for version 3.3.5.

Supported Platforms

Platforms for Version 3.3.8

GemStone/S 64 Bit version 3.3.8 is supported on the following platforms:

- Solaris 10 and 11.3 on x86
- AIX 6.1, 7.1, and 7.2
- Red Hat Enterprise Linux Server 6.4, 6.9, 7.1, and 7.4;
  Ubuntu 14.04 and 16.04; and SUSE Linux Enterprise 12, all on x86
- OS X 10.11.2 (El Capitan) with Darwin 15.2.0 kernel, and OS X 10.13.2 (High Sierra) with Darwin 17.3.0 kernel, on x86 (Mac is supported for development only)

Supported Windows client platforms are

- Windows 7, Windows 2008 R2, Windows 8, and Windows 10

Note that (deprecated) Solaris/SPARC distributions are available for development and debugging only. Solaris on x86 continues to be fully supported.

For more information and detailed requirements for each supported platforms, please refer to the GemStone/S 64 Bit v3.3.5 Installation Guide for that platform.

GemBuilder for Smalltalk (GBS) Versions

The following versions of GBS are certified with GemStone/S 64 Bit version 3.3.8:

GBS version 8.3

VisualWorks 8.2.1 32-bit	VisualWorks 8.2.1 64-bit	VisualWorks 7.10.1 32-bit	VisualWorks 7.10.1 64-bit
▸ Windows 10 and Windows 7 ▸ RedHat ES 6.9 and 7.4, Ubuntu 14.04 and 16.04	▸ Windows 10 ▸ RedHat ES 6.9 and 7.4, Ubuntu 14.04 and 16.04	▸ Windows 10 and Windows 7 ▸ RedHat ES 6.9 and 7.4, Ubuntu 14.04 and 16.04	▸ Windows 10 ▸ RedHat ES 6.9 and 7.4

GBS version 8.2

VisualWorks 8.1.1 32-bit and 64-bit	VisualWorks 7.10.1 32-bit	VisualWorks 7.10.1 64-bit
▸ Windows 10 and Windows 7 ▸ RedHat ES 6.9 and 7.4	▸ Windows 7 ▸ RedHat ES 6.4, 6.9 and 7.4, Ubuntu 14.04 and 16.04	▸ Windows 7 ▸ RedHat ES 6.9 and 7.4

GBS version 5.4.4

VA Smalltalk 8.6.3
▸ Windows 10, Windows 8.1, Windows 2008 R2 and Windows 7

For more details on supported GBS and client Smalltalk platforms and requirements, see the *GemBuilder for Smalltalk Installation Guide* for that version of GBS. Consult the matrices on the website, gemtalksystems.com/products/gbs-vw or gemtalksystems.com/products/gbs-va, for the latest updates.

Changes in this release

Community and Web Edition licencing for GemBuilder for Smalltalk

The GemStone/S 64 Bit Community and Web Edition licensing now also include licencing for GemBuilder for Smalltalk (GBS). This allows free for commercial use, in production as well as development, for GBS.

The Community Edition license for GemBuilder applies to all GemBuilder client platforms, with Community Edition GemStone/S 64 Bit on Linux and Macintosh.

The Starter Community and Web Edition keyfile that is included in the GemStone/S 64 Bit distribution for Linux and Macintosh now allows GBS logins.

Added Support for AIX 7.2

This release adds support for AIX 7.2, which was verified on POWER7.

Updated library versions

The version of OpenSSL has been updated to 1.0.2p.

logsender and logreceiver stats for block ID

Currently, the logsender and logreceiver can record, in statmonitor data, the only the tranlog file being processed. Now the block ID is recorded in SessionStat00 in logsender, and SessionStat23 in logreceiver.

fullBackupTo: and restoreFromBackup: no longer limited to 16 sessions

The multi-threaded backup and restore are initiated with an upper limit on the number of slave sessions (threads). The actual number of threads may be further limited during the course of execution as the backup or restore respects the configured CPU and thread limits. These limits can be adjusted during runtime to further limit or increased the number of threads, but only up to the upper limit set when the operations initialized.

Previously, backup and restore set that maximum limit of the number of threads based on the number of extents, to a number between 2 and 16. With solid-state drives, however, backup and restore may no longer be I/O bound, and that limit of 16 can result in CPU-bound performance.

In this version, the maximum thread limit is still by default set, to two times the number of extents, but without the limit of 16. This upper limit can be further increased, before the backup or restore is started, by executing:

```
SessionTemps current at: #GsOverrideNumThreads put: numThreads
```

where *numThreads* is a value between 1 and 4 * the number of CPUs (inclusive).

Note that you should verify that your operation is CPU bound and not I/O bound before raising the threads maximum. Increasing the number of threads will not improve performance if the operation is limited by the performance of disk reads and writes.

The following private methods have been removed:

```
Repository >> _fullBackupTo:MBytes:compress:
Repository >> _restoreBackups:scavPercentFree:
```

Bugs Fixed

Nested Transaction can create references to non existent objects

There is a sequence of processing within a nested transaction that has the ability to create a committed reference to an object that does not exist.

This involves a nested transaction followed by a failed commit of the outer transaction; then an abort and another commit. The problem is related to objects that were not correctly sorted between the closures of the inner and outer commits, such that state was not correctly handled by the abort. (#47659)

beginNestedTransaction did not handle instancesNonPersistent correctly

If the closure of a `nestedBeginTransaction` contained instances of classes with the option instancesNonPersistent, or other instances that were immune to rollback on abort, these objects were incorrectly being added to the closure of the nested transaction. This cause the later commit to the outer transaction to fail with error 2407, attempt to commit a not committable object. (#47584)

GCI Execute issues with UTF8 source containing code points over 255

GciExecute(), GciTsExecute(), and their variants did not work correctly with UTF8 source arguments that have code points greater than 255 (#47634)