GemStone®

GemStone/S 64 Bit™

Release Notes

Version 3.1.0.5

November 2013

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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 3.1.0.5 release. Read these release notes carefully before you begin installation, testing, or development.

No separate Installation Guide is provided with this release. For instructions on installing GemStone/S 64 Bit version 3.1.0.5, or upgrading or converting from previous products or versions, see the Installation Guide for version 3.1.

These documents are also available on the GemTalk Systems website.

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, previously GemStone Systems, Inc. and a division of VMware, Inc.

Technical Support

GemTalk Website

http://gemtalksystems.com/techsupport

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

▸ **Documentation** for released versions of all GemStone products, in PDF form.

▸ **Downloads**, including current and recent versions of GemStone/S products.

▸ **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. Technical Support is available to customers with current support contracts.

Requests for technical assistance may be submitted online, 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.gemtalksystems.com

Email: techsupport@gemtalksystems.com

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

When submitting a request, please include the following information:

‣ Your name and company name.

‣ 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 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 your GemTalk account manager.

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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GemStone/S 64 Bit 3.1.0.5 Release Notes

Overview

GemStone/S 64 Bit 3.1.0.5 is a new version of the GemStone/S 64 Bit object server. This release fixes a number of significant bugs; we recommend everyone using GemStone/S 64 Bit upgrade to this new version.

These release notes provide changes between the previous version of GemStone/S 64 Bit, version 3.1.0.4, and version 3.1.0.5. If you are upgrading from a version prior to 3.1.0.4, review the release notes for each intermediate release to see the full set of changes.

Installation and Upgrade

No separate Installation Guide is provided with this release. For installation instructions, use the Installation Guide for version 3.1.

PAM now used for UNIX authentication

This release requires that PAM (Pluggable Authentication Module) be installed and configured, if you either use UNIX authentication for GemStone UserProfiles, or if you run NetLDI as root.

Upgrading from 3.1.0.x versions

To upgrade from an earlier 3.1.0.x version to version 3.1.0.5, follow the instructions in the Installation Guide chapter "Upgrading from previous GemStone/S 64 Bit 3.x versions", replacing 3.0.1 with your previous version and replacing 3.1.0.5 for 3.1 in the instructions. You do not need to upgrade comments if you have previously performed this step.

Supported Platforms and GBS Versions

Platforms

GemStone/S 64 Bit version 3.1.0.5 is supported on the following platforms:

- ‣ Solaris 10 and 11 on SPARC
- ‣ Solaris 10 on x86
- ‣ AIX 6.1, TL1, SP1, and AIX 7.1
- ‣ SuSE Linux ES 10 SP1 and ES11 on x86; Red Hat Linux ES 5.5 and 6.1 on x86
- ‣ Mac OSX 10.6.4 (Snow Leopard), with Darwin 10.4.0 kernel, on x86

For more information and detailed requirements for each supported platforms, please refer to the GemStone/S 64 Bit v3.1 Installation Guide for that platform.

GBS version summary

The following versions of GBS are supported with GemStone/S 64 Bit version 3.1.0.5.

GBS version 7.6

VW 7.9.1 32-bit	VW 7.9.1 64-bit	VW 7.9 32-bit	VW 7.9 64-bit
‣ Windows 2008 R2, Windows 7, and Windows XP ‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1	‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1	‣ Windows 2008 R2, Windows 7, and Windows XP ‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1	‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1

GBS version 7.5

VW 7.9.1 32-bit	VW 7.9.1 64-bit	VW 7.9 32-bit	VW 7.9 64-bit
‣ Windows 2008 R2, Windows 7, and Windows XP ‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1	‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1	‣ Windows 2008 R2, Windows 7, and Windows XP ‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1	‣ Solaris 10 on SPARC ‣ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1

GBS version 5.4.1

VA Smalltalk 8.5.2	VA Smalltalk 8.5	VA Smalltalk 8.0.3
▸ Windows 2008 R2, Windows 7, and Windows XP	▸ Windows 2008 R2, Windows 7, and Windows XP	▸ Windows 2008 R2, Windows 7, and Windows XP

For more details on supported GBS and client Smalltalk platforms and requirements, see the *GemBuilder for Smalltalk Release Notes* for the appropriate GBS version.

Changes in this Release

PAM now used for authentication

Host user authentication now uses PAM (Pluggable Authentication Module). PAM must be installed on machines that use UNIX user authentication or that run NetLDI as root.

Backup, MFC and other multi-threaded operations may conflict with reclaim

The multi-threaded scan operations, introduced in versions 3.0 and 3.1, do not coordinate correctly with reclaim, and may have caused the multi-threaded operation to crash with a page header fault, SEGV, or other error. In v3.1.0.5, reclaim is paused while a multi-threaded operation is executing. (#43261)

When out of sessions, Stone risk of SEGV

There was a code that in which a session request when none was available resulted in a Stone SEGV. (#43443)

Cache Warmer issues

Cache warming with insufficient sessions results in SEGV

Multi-threaded cache warming requires a session to be available for each warmer thread. If the repository did not have sufficient sessions, warmer threads cannot login. The code did not handle this correctly as a fatal login error, which resulted in the cache warmer SEGVs. (#43431)

Cache warmer termination may cause corruption

If cache warmers were terminated unexpectedly, threads within the cachewarmer may have continued to write to memory. This may have caused corruption in the repository. (#42896)

Cache warmers not in transaction, may cause page header fault

Cache Warmer Gems were not executing in transaction, which allowed commit records to be disposed of too soon and pages to be reclaimed. The cache warmer then could have read an old life time of a data page into the shared cache. (#43334)

Process Scheduler issues

Several issues have been fixed in this release, and code has been improved to be more robust. Among other possible errors, these problems could result in error 2261, OBJ_ERR_CORRUPT_OBJ.

Thread-unsafe code in ProcessScheduler

The management of GsProcesses in the ProcessScheduler was and is protected by a critical region. However, it was still possible for asynchronous interrupts to cause a process switch after the start of GsProcess state change, but before the critical region is entered; further protection has been added. (#43202).

Attempt to switch to a terminated process

When a GsProcess switch occurred in some cases it may be possible for it to incorrectly attempt to switch to a terminated process. (#43245)

Terminate of idle session may not have completed correctly

When an idle gem was killed, there was a possible race condition between the internal disconnect and the process kill of the session. This could result in the session's socket not getting the disconnect. The gem remained in AFTER_LOGOUT_PGSVR_WAIT, and continued to occupy its slot in the process table, though the OS process itself was gone. (#43205)

Changes in SIGTERM handling

To avoid risk of inconsistent state, processes that receive a SIGTERM now continue to complete certain operations, such as removing pages from cache or certain types of I/0. (#43417)

Upgrade with disallowUsedPasswords caused user account problems

After upgrade from 2.x to 3.1 or later, on the first login of a user account, the current password information is updated to the new format. However, if the user's password is changed (using oldPassword:newPassword:) before their first login, if disallowUsedPasswords is true, then the authentication information for the old password format is stored, which corrupts the password history. This causes problems on any further password change, unless passwordHistory is cleared. (#43222)

With disallowUsedPasswords, oldPassword:newPassword: allowed equal arguments.

In a repository with disallowUsedPasswords set to true, using the same arguments to oldPassword:newPassword: should, but did not, error. (#43226)

Risk of error 2261 in NSC operation

Code has been changed to avoid a case where an operation on an NSC (UnorderedCollection or Non-Sequential Collection) could have resulted in error 2261, OBJ_ERR_CORRUPT_OBJ. (#43256)

Hotstandby logsender may have failed in RdbfCompressLogRecords

It is possible for a data transmit by the logsender to fail due to insufficient destination buffer size. The destination buffer size was not large enough for the "worst case" data, when the compressed result was larger than expected. (#43194)

Socket buffer sizes smaller than OS default

The internal socket buffer sizes were smaller than the OS default. This could impact performance. (#43364)

printlogs now uses /tmp, not /usr/tmp

The tranlog analysis script printlogs used /usr/tmp for temporary files, which was not available on all systems. It now uses /tmp. (#42687)