
GemStone®

GemStone/S 64 Bit™
Release Notes

Version 3.1.0.1

August 2012

vmware®

GEMSTONE S[™] 64

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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 3.1.0.1 release. Read these release notes carefully before you begin installation, conversion testing, or development with this release.

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 3.1.

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

Terminology Conventions

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

Technical Support

GemStone Website

<http://support.gemstone.com>

GemStone’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** 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. 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.gemstone.com>

Email: techsupport@gemstone.com

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

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 is available to help you succeed with GemStone products. Training for GemStone software is available at your location, and training courses are offered periodically at our offices in Beaverton, Oregon. Contact your GemStone account representative for more details or to obtain consulting services.

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Overview

GemStone/S 64 Bit 3.1.0.1 is a new version of the GemStone/S 64 Bit object server. This fixes a critical bug in upgrade, as well as including a number of other fixes. 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, and version 3.1.0.1. If you are upgrading from a version prior to 3.1, review the release notes for each intermediate release to see the full set of changes. In particular, if you are upgrading from version 2.4.x, note that there were substantial changes in v3.0 that impact your application.

Version 3.1.0.1 requires GBS version 7.5 or later.

For details about installing GemStone/S 64 Bit 3.1.0.1 or upgrading from earlier versions of GemStone/S 64 Bit, see the *GemStone/S 64 Bit Installation Guide* for version 3.1.

Supported Platforms and GBS Versions

Platforms

GemStone/S 64 Bit version 3.1.0.1 is supported on the following platforms:

- ▶ Solaris 10 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 v3.1.0.1 Installation Guide for that platform.

GBS versions

The following version of GBS is supported with GemStone/S 64 Bit version 3.1.0.1. Note that versions of GBS earlier than 7.5 cannot log in to GemStone/S 64 Bit v3.1.0.1.

GBS version 7.5

VW 7.9 32-bit	VW 7.9 64-bit
<ul style="list-style-type: none"> ▶ 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 	<ul style="list-style-type: none"> ▶ Solaris 10 on SPARC ▶ SuSE Linux ES 10 and 11, and RedHat Linux ES 5.5 and 6.1

For more details on supported GBS and client Smalltalk platforms and requirements, see the *GemBuilder for Smalltalk Release Notes* for version 7.5.

Changes and Bugs Fixed

Problems with upgrade of user account passwords

v3.1 introduced new password encryption using SRP, providing more secure password encryption than the old algorithms. This release also included changes in the login process to use SSL to login securely. The upgrade process in 3.1 did not handle user account passwords correctly, potentially creating security issues. (#42381)

The upgrade process has changed in v3.1.0.1, to avoid this issue and allow passwords to be automatically re-encrypted using the new algorithms. This is done at login time; after validating the submitted password, this password is encrypted and stored, replacing the previously-encrypted stored password data. If the login fails for any reason, the re-encrypted password is not stored. Concurrent logins do not attempt to each update the password.

The migration from the password stored using the old encryption to the new is done transparently, so no specific action is required. However, accounts that do not log in will continue to use the old passwords, which are stored in the older, less secure encryption. For better security, you should ensure that all user accounts have logged in, or had their passwords explicitly updated by an administrator. To make these tasks easier, the following methods have been added:

```
UserProfileSet >> usersWithOldPasswordEncryption
  Returns all UserProfiles that are using the old password encryption scheme. Requires #OtherPassword privilege.
```

```
UserProfileSet >> disableUsersWithOldPasswordEncryption
  Disable logins for all UserProfiles in the receiver that are using the old password encryption scheme. Requires #OtherPassword privilege.
```


UserProfile >> usesOldPasswordEncryption

Answer a Boolean indicating if the receiver uses the old password encryption scheme. Requires #OtherPassword privilege for UserProfiles other than that of the session executing this method.

Logins from Windows 7 and 8 failed over IPv4 networks

When logging in remotely from Windows versions Vista or later, the IPv6 to IPv4 mapping did not work correctly for cases where the network between the client and stone only routed IPv4 packets. This resulted in login failures over these networks. This problem does not occur on Windows XP. (#42400)

Memory leak when using internal temporary files

Operations that create temporary internal files, such as performOnServer:, had a small memory leak. (#42405)

Problems with Semaphores and ProcessScheduler

Some issues with ProcessScheduler that resulted in errors or hangs have been fixed in this release. (#42384, #42423, #42417)

Unicode and Utf8 Issues

Object >> isUnicodeString added

The method Object >> isUnicodeString has been added. This replaces Object>>isUtfString, which is deprecated.

Incorrect equality comparison results for Utf8 with encoding

Instances of Utf8 hold Strings that are encoded as UTF-8, and compare as equal to the equivalent Unicode or standard string. However, equality comparisons between instances of Utf8 containing Characters with codepoints over 127 incorrectly returned false when compared to the equivalent Unicode or standard strings. (#42368)

The SPC permissions, as set using the configuration parameter SHR_PAGE_CACHE_PERMISSIONS introduced in v3.1, are not applied correctly to the shared semaphore array. This resulted in users without user or group permissions not able to login, in spite of SHR_PAGE_CACHE_PERMISSIONS that should allow login. The login failures was also handled incorrectly, resulting in a SEGV. (#42416).

withAll: incorrect results with Unicode string and Utf8 argument

When a Unicode7, Unicode16, or Unicode32 withAll: argument was an instance of Utf8, in most cases it resulted in an error or incorrect results.

includesString: poor performance due to _findSmallString:startingAt:ignoreCase:

Due to C primitive code in _findSmallString:startingAt:ignoreCase: with case-insensitive searching, the methods includesString:, findStringNoCase:startingAt: and any other methods that relied on _findSmallString:startingAt:ignoreCase: could have very slow performance. (#42433)

Topaz strikes out password in echo on error in .topazini or -I file input

In v3.1, topaz handling of errors in -I input files or in .topazini, was improved, so errors are no longer suppressed. While output is normally suppressed during execution, if an error occurs, this output is echoed. To avoid potential security holes, in v3.1.0.1 the echo of any passwords using SET PASSWORD or SET HOSTPASSWORD are struck out. (#41712)

Copydbf -i/-I reported no checkpoints found

Copydbf -i/-I on a transaction log failed to report any checkpoints; whether or not the transaction file included checkpoints, it reported "No checkpoints found". (#42433)

Disk full during a fullBackupTo: may have caused crash

fullBackupTo: uses multiple threads in v3.1. If the disk became full during the backup, the error may not have been handled correctly between threads, causing a SEGV. (#42387)

Multithreaded Object audit could get cache coherency error

Starting in v3.1, objectAudit is multithreaded. When remote sessions ran multithreaded object audit, there was a risk of a cache coherency error. (#42358)

Session may have hung if trying to create symbol in restore state

When the stone is in restore state, new symbols cannot be created. Attempting to create a new symbol (such as by executing code that contains a symbol that did not previously exist) caused the session to hang. Now, an error is returned. (#42353)

Filein of code with constraints could cause class versioning (upgrade issue)

When a class is created by executing a subclass creation method, if there is a class of the same name, tests are done to determine if the new class is the same or if the class needs to be versioned. In the cases of classes that have constraints and using a subclass creation method that includes the #constraints keyword, the constraints equivalence test was too strict, which could result in a new version of the class being created.

This would primarily be an issue when upgrading from an earlier version to v3.x. The 3.x upgrade requires all methods be recompiled, which may be done by application filein. Versioning of the class creates methods on the new version rather than recompiling methods on the existing class. (#42421)

Starting cache warmers may SEGV with very low session limit

If the limit on the number of sessions is so low that not all cache warmer sessions can be started, the cache warmers may SEGV. (#42356)

ClassOrganizer >> methodsInCategory: errors

This method returned an error if any class did not have the specified category.