
GemStone®

GemStone/S 64 Bit™ **Release Notes**

Version 3.3.5

May 2017



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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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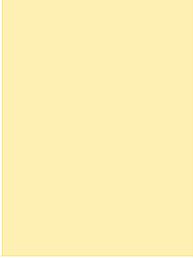
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Preface

About This Documentation

These release notes describe changes in the GemStone/S 64 Bit™ version 3.3.5 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 3.3.1.

These documents are available on the GemTalk website, as described below.

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.

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: 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 GemStone/S 64 Bit and of all related GemTalk 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 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.

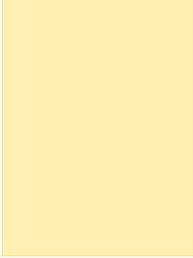


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GemStone/S 64 Bit

3.3.5 Release Notes

Overview

GemStone/S 64 Bit 3.3.5 is a new version of the GemStone/S 64 Bit object server. This release fixes a number of bugs, and adds support for Solaris/x86 v11.3.

These release notes describe changes between the previous version of GemStone/S 64 Bit, version 3.3.4, and version 3.3.5. If you are upgrading from a version prior to 3.3.4, review the release notes for each intermediate release to see the full set of changes.

For details about installing GemStone/S 64 Bit 3.3.5 or upgrading from earlier versions of GemStone/S 64 Bit, see the *GemStone/S 64 Bit Installation Guide* for v3.3.5 for your platform.

Supported Platforms

Platforms for Version 3.3.5

GemStone/S 64 Bit version 3.3.5 is supported on the following platforms:

- ▶ Solaris 10 and 11 on SPARC
- ▶ Solaris 10 and 11.3 on x86
- ▶ AIX 6.1 on POWER6 and POWER7 and AIX 7.1 on POWER7 and POWER8
- ▶ Red Hat Enterprise Linux Server 6.4, 6.5, 6.7, and 7.1;
Ubuntu 14.04 and 16.04; and SUSE Linux Enterprise 12, all on x86
- ▶ OS X 10.9.5 (Mavericks) with Darwin 13.4.0 kernel, and OS X 10.11.2 (El Capitan) with Darwin 15.2.0 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 Solaris/SPARC support is being deprecated and will be available for development only. Solaris on x86 will continue 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 3.3.5:

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
<ul style="list-style-type: none"> ▶ Windows 10, Windows 8, Windows 2008 R2, and Windows 7 ▶ Solaris 10 on SPARC ▶ RedHat ES 6.7 and 7.1, SUSE ES 12, and Ubuntu 14.04 and 16.04 	<ul style="list-style-type: none"> ▶ Windows 8, Windows 2008 R2, and Windows 7 ▶ Solaris 10 on SPARC ▶ RedHat ES 6.7 and 7.1, SUSE ES 12, Ubuntu 14.04 and 16.04 	<ul style="list-style-type: none"> ▶ Windows 7 ▶ RedHat ES 6.7 and 7.1

GBS version 8.1

VisualWorks 7.10.1 32-bit
<ul style="list-style-type: none"> ▶ Windows 8, Windows 2008 R2, and Windows 7 ▶ Solaris 10 on SPARC ▶ RedHat ES 6.4, 6.5, 6.7, and 7.1, SUSE ES 12, and Ubuntu 14.04

GBS version 5.4.3

VA Smalltalk 8.6.2	VA Smalltalk 8.5.2
<ul style="list-style-type: none"> ▶ Windows 10, Windows 8, Windows 2008 R2 and Windows 7 	<ul style="list-style-type: none"> ▶ 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.

VSD Version

The GemStone/S 64 Bit v3.3.5 distribution includes VSD version 5.3, the same version of VSD as v3.3.4. For details on VSD versions, see the documentation on the website at gemtalksystems.com/products/vsd/versions/.

Changes in this release

Simplified ICU library version handling

GemStone uses the open-source ICU libraries to support sophisticated handling of sorting and collation of strings containing Characters outside of the ASCII range. As the Unicode standard is updated and versioned, the ICU libraries are also versioned. This can impact GemStone structures that rely on unchanging collation order.

Rather than rebuilding these data structures, GemStone applications can safely continue to use the earlier version of the ICU libraries. New applications, that start with an empty repository, will use the ICU library that was current for that version.

When the ability to control the ICU version was introduced, in v.3.3.1, several global and environment variables were introduced to ensure that repositories did not inadvertently mix up ICU versions. This created some complexity during upgrade and restore from backup.

This has been simplified for version 3.3.5.

- ▶ The configuration parameter `STN_GEM_LIBICU_VERSION` and the environment variable `$GS_LIB_ICU_VERSION` have been removed and are ignored if present. `$GS_LIB_ICU_BYPASS` has also been removed and is no longer needed.
- ▶ The value of (Globals at: `#IcuLibraryVersion`) in the repository now controls which version of the ICU library is loaded during login.
- ▶ There is now no special processing required during upgrade from earlier GemStone/S 64 Bit versions.
- ▶ During restore from full backup, you do not need to do any special handling for a discrepancy between the clean extent and the restored version. However, after performing the restore in a linked session, topaz will have the clean extent's ICU libraries loaded, so you may need to exit topaz and restart to restore transaction logs or commit the restore.
- ▶ To upgrade the ICU library version, you must execute

```
Globals at: #IcuLibraryVersion put: aValue
```

where *aValue* is either '54.1' or '51.2'.

This should only be changed by SystemUser when no other sessions are logged in, and you must shut down and restart the stone, and then ensure that all SortedCollections, indexes, and other structures that depend on collation are rebuilt.

Applications progressively upgraded through 3.3 or any 3.1.x version

Unicode-collation based data structures created in any 3.1.x version may be collated according to ICU v48.1. After upgrading, there will be a sort order mismatch, with a small risk of incorrect lookups. This is true for applications that were subsequently upgraded to 3.2.x or 3.3.x. It is recommended that all applications that used unicode comparisons in persistent data structures in 3.1.x examine all data structure and resort and rebuild.

Applications that upgraded specifically to v3.3, not to a later 3.3.x version, may also have a mismatch, as this version loaded the incorrect ICU library version for upgraded repositories.

Special issues for ICU libraries on AIX

Note the automated handling of ICU library loading and simplified process does **not** apply to applications on AIX. AIX does not support deferred binding of shared libraries; using older ICU library versions requires changing the library names by creating symbolic links, and/or manually setting the IcuLibraryVersion value before upgrade.

If you are using unicode comparisons on AIX and are upgrading, contact GemTalk Technical Support to determine the appropriate actions.

Bugs Fixed

Remote shared cache shutdown

When there is a stuck read in progress, due (for example) to a Gem death, the remote cache may get stuck in removing pages from the cache and be unable to recover. This prevents the cache from shutting down, including when the stone itself is shut down. (#46821)

This is related to the issue for bug #46708, which was fixed in v3.3.4.

Split IdentitySet store traversal may encounter oop not allocated error

If you do a store traversal of an IdentitySet, and the report is split across traversal buffers so that the first report in a buffer starts with one of the private named instvars that is not the first instvar, the server reports the error GbsObjErrOopNotAllocated. (#46822)

Stone encountering EWOULDBLOCK risked failing to send OOB bytes

If the Stone's send to a gem results in an EWOULDBLOCK, the Out of Band (OOB) bytes may have been lost. OOB processing supports sigAbort handling. (#46846).

Gems may hang following a malloc failure

When a Gem dies due to a malloc failure, it forks a pstack to record the stack. This may hang if there is insufficient virtual memory. (#46830)