
GemStone®

GemBuilder® for Smalltalk Release Notes

Version 7.4

June 2011

vmware®

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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 the changes in the GemBuilder® for Smalltalk version 7.4 release. This documentation is also available on the GemStone Technical Support website.

Terminology Conventions

The term “GemStone” is used to refer to the server products GemStone/S 64 Bit and GemStone/S; 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 you should be aware of.
- ▶ TechTips, providing information and instructions that are not otherwise included 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 support may be submitted online, or by email or by telephone. We recommend you use telephone contact only for serious requests that require immediate attention, 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

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. Please also open a ticket on the website, and include error and log information. 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.

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

24x7 Emergency Technical Support

GemStone Technical Support 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

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Release Notes for GemBuilder for Smalltalk 7.4

GemBuilder for Smalltalk (GBS) version 7.4 is a new version of the GemBuilder for Smalltalk product, adding support for GemStone/S 64 Bit version 3.0 and providing performance improvements and bug fixes. Please take time to read through these release notes before installing or upgrading, to acquaint yourself with the changes.

These release notes provide changes between the previous version of GBS, version 7.3.3, and version 7.4. If you are upgrading from a version prior to 7.3.3, please also review the release notes for each intermediate release to see the full set of changes.

This release supports VisualWorks 7.7.1 and later. It does not support VA Smalltalk; support for this is provided in a separate release. This release supports both the GemStone/S 64 Bit product, using the Single-trip interface, and GemStone/S, using the Multi-trip interface. It is not usable with versions of GemStone/S 64 bit earlier than 2.2.5. For details on supported client platforms, see 'Supported Platforms and Versions' below.

Supported Platforms and Versions

The following tables describe the client Smalltalk versions and platforms supported by GBS 7.4, and the GemStone server product shared library versions that can be used with each.

GemBuilder for Smalltalk version 7.4 supports both GemStone/S, the original 32-bit GemStone object server, and GemStone/S 64 Bit, the 64-bit GemStone/S-based object server. The following tables list the supported client operating system, client Smalltalk, and GemStone server version configurations for both GemStone/S server products.

Table 1 Supported 32-bit GemStone/S Server versions

	VW 7.8 32-bit with 7.8 OE	VW 7.7.1 32-bit with 7.7.1 OE
32-bit Windows 7; 32-bit Windows Vista; 32-bit Windows Server 2003 Std Edition, SP1 or later; 32-bit Windows XP, SP 1 or later	6.5.8	6.5.8
Red Hat Linux ES 5.5; Red Hat Linux ES 5.0	6.5.8	6.5.8
Solaris 10 on Sparc; Solaris 9 on Sparc	6.5.8	6.5.8

Table 2 Supported GemStone/S 64 Bit Server versions - RPC logins only

	VW 7.8 32-bit with 7.8 OE	VW 7.7.1 32-bit with 7.7.1 OE
64-bit Windows 7	3.0, 2.4.4.5	3.0, 2.4.4.5
32-bit Windows 7; 32-bit Windows Vista; 32-bit Windows Server 2003 Std Edition, SP1 or later; 32-bit Windows XP, SP 1 or later	3.0, 2.4.4.5	3.0, 2.4.4.5
SUSE Linux ES 10; Red Hat Linux ES 5.5; Red Hat Linux ES 5.0	3.0, 2.4.4.5	3.0, 2.4.4.5
Solaris 10 on Sparc	3.0, 2.4.4.5	3.0, 2.4.4.5
Solaris 9 on Sparc	2.4.4.5	2.4.4.5

Table 3 Supported GemStone/S 64 Bit Server versions - Linked or RPC logins
Linked logins require 64-Bit VisualWorks Smalltalk clients

	VW 7.8 64-bit with 7.8 OE	VW 7.7.1 64-bit with 7.7.1 OE
SUSE Linux ES 10; Red Hat Linux ES 5.5; Red Hat Linux ES 5.0	3.0, 2.4.4.5	3.0, 2.4.4.5
Solaris 10 on Sparc	3.0, 2.4.4.5	3.0, 2.4.4.5

Changes and New Features

Support for GemStone/S 64 Bit 3.0

GemStone/S 64 Bit 3.0 is a major update of the 64-bit server product, with many new and redesigned features. GBS has been updated to support GemStone/S 64 Bit v3.0, while continuing to fully support GemStone/S 64 Bit 2.x and the 32-bit GemStone/S product.

GBS users connected to a server running GS64 2.x or GemStone/S will not see changes in the GUI, but users connect to a server running GS64 3.0 will see some changes in the interface to support new v3.0 features.

Specific changes that will be visible when logged into a GS64 3.0 server are:

New ANSI Exception Classes

The GS64 v3.0 server includes new ANSI Exception classes for server errors. Matching new GBS Exception classes are provided in GBS version 7.4, in addition to the previously existing GBS Exception classes.

A new configuration parameter, `#replicateExceptions`, is available. If this configuration parameter is true, then when a 3.0 server Exception is signaled (and not handled on the server), the exception instance is replicated to the client and signaled there. The new GBS exception classes have the same name as the corresponding 3.0 server exception classes, and are defined in the namespace `GemStone.Gbs.Exceptions`.

By default, `#replicateExceptions` is false, in which case the previously available GBS Exception class is signaled.

For example, the server exception #6009 is `#rtErrSignalAbort`. If `#replicateExceptions` is false, or when logged into server products or versions other than GS64 v3.0, this signals a `GbsRtErrSignalAbort` on the client, as in previous versions of GBS. Against a 3.0 server only, when `#replicateExceptions` is true, a `TransactionBacklog` is signaled instead.

The new ANSI Exception classes resolve a number of issues that were present when previous release server exceptions were propagated to the client, including Bug #41421, User-defined ANSI exceptions prepend strings to message text.

PositionableStream mapping

GS64 v3.0 includes a new, ANSI-compliant and portable implementation of the PositionableStream classes (`PositionableStream`, `ReadStream` and `WriteStream`), in addition to the previously existing PositionableStream classes. The class names are the same, so either one or the other set of classes may be installed. For more on the changes in PositionableStream and details on how to install the legacy or portable implementations, see the *GemStone/S 64 Bit Release Notes* for v3.0.

The only classes you can replicate to GBS are the PositionableStream classes with the legacy implementation. In servers upgraded from 2.x to 3.0, the legacy classes are installed by default and no further action is required.

The new portable PositionableStream classes are installed by default in new GS64 3.0 repositories. If you are using a new GS64 3.0 repository, rather than one which has been upgraded from an earlier version of the server, you must install the legacy classes if you will be replicating streams or objects referring to streams to GBS.

Instances of the `PositionableStream` classes that have names ending in 'Portable' or 'Legacy' cannot be replicated, but become forwarders on the client. Attempting to replicate instances of the `PositionableStream` classes with the same name and the portable implementation to GBS v7.4 will result in errors.

Segment name change to `GsObjectSecurityPolicy`

The server class `Segment` has been renamed to `GsObjectSecurityPolicy`. The user interface uses the term “security policy” in a number of places.

Redesigned User dialog

The User dialog has been redesigned, improving handling of groups and allowing specification of Unix or LDAP authentication.

See the updated *GemBuilder for Smalltalk User Guide v7.4* for details on the new User dialog.

Objects allowed to drop from Gem memory

GS64 3.0 includes a new runtime configuration parameter, `#GemDropCommittedExportedObjs`. GBS takes advantage of this, so clean committed objects that are replicated to the client will not be locked into the Gem’s memory, but will be allowed to leave memory if there is memory pressure on the Gem.

Other Behavior Changes

There are many changes in behavior in GS64 v3.0. These changes may impact GBS client behavior when performing operations that depend on the server. For details on the changes in v.3.0, see the *GemStone/S 64 Bit Release Notes* for v3.0.

Class comment handling

`GemStone/S 64 Bit 3.0` servers now define a class method `#comment` to provide the comment for the class, rather than using an instance of `GsClassDocumentation` stored and retrieved using the `#description` methods for a `Class`.

To display or update class comments in the GBS Browsers, first the browser determines if the `Class` understands `#comment`. Since this is implemented for `Object` class in version 3.0, this will generally always be true when running against GS64 v3.0. On GS64 2.x, or with 32-bit servers, it will depend in on whether your application class implements or inherits a class method named `#comment`.

If the `Class` understands `#comment`, it will display the results of executing the `comment` method in the browser, and create or update a class method `comment` when updating in the browser comment field.

If the `Class` does not understand `#comment`, it will display and update the instance of `GsClassDocumentation` stored in the `Class`’s description variable.

Note that the `GemStone/S 64 Bit 3.0` upgrade process results in the loss of any data stored in the `Class #description`. Prior to upgrading from an earlier version of `GemStone/S 64 Bit` to v3.0, if you have defined application class comments, you should move these to a separate location, or define `Class #comment` methods including the contents.

Improved round-trip performance

For application with a large number of mapped objects, the overhead associated with server round trips has been reduced. This change is internal and transparent to the user.

This improvement is possible due to a bugfix in the VisualWorks VM. **It is not safe to run GBS v7.4 with versions of VisualWorks earlier than 7.7.1.**

Optimizations for browser operations against 64-Bit servers

By using `performOnGsServer:` rather than the two operations `remotePerform:` and `asLocalObject`, a number of operations, especially in browsers, require fewer round trips to the server (in the Single-trip protocol used with GemStone/S 64 bit).

This optimization can be used in customer application code as well, since these methods are now public.

Public methods equivalent to earlier private methods

gbsAsUncachedForwarder, gbsAsUncachedForwarderInSession:

The methods `GbxDelegate>>gbsAsUncachedForwarder` and `GbxDelegate>>gbsAsUncachedForwarderInSession:` have been added as public methods.

performOnGsServer:, performOnGsServer:withArguments:

The methods `performOnGsServer:` and `performOnGsServer:withArguments:` are now available as public methods. These methods are understood by delegates, replicates, stubs, and forwarders.

Class generation now disabled by default

The configuration parameters `#generateClientClasses` and `#generateServerClasses` are now false by default.

ObsoleteSymbol is no longer mapped

The server class `ObsoleteSymbol` is no longer mapped to a client class, and any instances will no longer replicate to a GBS client as a `ByteSymbol`.

Bugs Fixed

The following bugs have been fixed since GemBuilder for Smalltalk version 7.3.3:

Instances of subclasses of Array may have turned into Arrays on client

If a replicate that is an instance of a subclass of Array changes size on the client, the class of the client object may change to Array. (#41310)

Browse references to any version of a class

Previously, the System browser class pane menu item **browse references > to any version of the class** searched for the given symbols in source code, which returned incorrect results in some cases. Now, it uses the class versions in the classHistory, yielding correct results. (#41614)

Display of debugger contexts when using shorted class names

Selecting the Debugger **Stack** menu option **Use Short Class Names** resulted in badly formatted context labels, with duplicate text. (#41282)

This has been fixed for stacks from all supported servers. Note that with GS64 v3.0, the debugger contexts use the syntax *className >> methodName*, rather than *className | methodName* as in earlier server versions and products.