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GemStone®

# *GemBuilder for Smalltalk Release Notes*

Version 7.3

January 2010

GEMSTONE ™

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## PATENTS

GemStone is covered by U.S. Patent Number 6,256,637 "Transactional virtual machine architecture", Patent Number 6,360,219 "Object queues with concurrent updating", and Patent Number 6,567,905 "Generational Garbage Collector". GemStone may also be covered by one or more pending United States patent applications.

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## Preface

These release notes describe the changes in the GemBuilder for Smalltalk® version 7.3 release. We recommend that everyone using GemBuilder for Smalltalk read these release notes before installing or upgrading.

These release notes are also available on the GemStone customer website, as described in the next section.

For information on installing or upgrading to this version of GemBuilder for Smalltalk, please refer to the *GemBuilder for Smalltalk Installation Guide* for version 7.3.

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

## Technical Support

GemStone provides several sources for product information and support. The product-specific manuals provide extensive documentation, and should be your first source of information.

**GemStone Web Site:** <http://support.gemstone.com>

GemStone's Technical Support website provides a variety of resources to help you use GemStone products. Use of this site requires an account, but registration is free of charge. To get an account, just complete the Registration Form, found in the same location. You'll be able to access the site as soon as you submit the web form.

The following types of information are provided at this web site:

**Documentation** for GemBuilder for Smalltalk is provided in PDF format. This is the same documentation that is included with your GemBuilder for Smalltalk product.

**Release Notes** and **Install Guides** for your product software are provided in PDF format in the Documentation section.

**Downloads** and **Patches** provide code fixes and enhancements that have been developed after product release, and past and current versions of GemBuilder for Smalltalk.

**Bugnotes**, in the Learning Center section, identify performance issues or error conditions that you may encounter when using a GemStone product. A bugnote describes the cause of the condition, and, when possible, provides an alternative means of accomplishing the task. In addition, bugnotes identify whether or not a fix is available, either by upgrading to another version of the product, or by applying a patch. Bugnotes are updated regularly.

**TechTips**, also in the Learning Center section, provide information and instructions for topics that usually relate to more effective or efficient use of GemStone products.

**Community Links** provide customer forums for discussion of GemStone product issues.

Technical information on the GemStone Web site is reviewed and updated regularly. We recommend that you check this site on a regular basis to obtain the latest technical information for GemStone products.

## Help Requests

You may need to contact Technical Support directly for the following reasons:

- ▶ Your technical question is not answered in the documentation.
- ▶ You receive an error message that directs you to contact GemStone Technical Support.
- ▶ You want to report a bug.
- ▶ You want to submit a feature request.

Questions concerning product availability, pricing, keyfiles, or future features should be directed to your GemStone account manager.

When contacting GemStone Technical Support, please be prepared to provide the following information:

- ▶ Your name, company name, and GemStone/S license number
- ▶ The GemStone product and version you are using
- ▶ The hardware platform and operating system you are using
- ▶ A description of the problem or request
- ▶ Exact error message(s) received, if any

Your GemStone support agreement may identify specific individuals who are responsible for submitting all support requests to GemStone. If so, please submit your information through those individuals. All responses will be sent to authorized contacts only.

For non-emergency requests, the support website is the preferred way to contact Technical Support. Only designated support contacts may submit help requests via the support website. If you are a designated support contact for your company, or the designated contacts have changed, please contact us to update the appropriate user accounts.

**Website:** <http://techsupport.gemstone.com>

**Email:** [support@gemstone.com](mailto:support@gemstone.com)

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

Requests for technical assistance may be submitted online, or 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 that is non-operational. In these cases, please also submit your request via the web or email, including pertinent details such as error messages and relevant log files.

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.

Non-emergency requests received by telephone will be placed in the normal support queue for evaluation and response.

## 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, if they encounter problems that cause their production application to go down, or that have the potential to bring their production application down. For more details, contact your GemStone account manager.

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- ▶ Training courses are offered periodically at GemStone's offices in Beaverton, Oregon, or you can arrange for onsite training at your desired location.
- ▶ Customized consulting services can help you make the best use of GemStone products in your business environment.

Contact your GemStone account representative for more details or to obtain consulting services.



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# Release Notes for GemBuilder for Smalltalk 7.3

GemBuilder for Smalltalk (GBS) version 7.3 is a new version of the GemBuilder for Smalltalk product, providing product 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 7.2.2, and version 7.3. If you are upgrading from a version prior to 7.2.2, please also review the release notes for each intermediate release to see the full set of changes.

This release supports VisualWorks 7.x. It does not support VisualWorks 5i or VA Smalltalk; support for these is provided in separate releases. This release supports both the GemStone/S 64 Bit 2.x 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.

To install GemBuilder for Smalltalk 7.3, follow the instructions in the *GemBuilder for Smalltalk Installation Guide* for version 7.3.

## Supported Platforms and Versions

The following tables describe the client Smalltalk versions and platforms supported by GBS 7.3, and the GemStone server product shared library versions that can be used with each.

GemBuilder for Smalltalk version 7.3 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.

Updated information may be found on the GemStone Technical Support site at:

[http://support.gemstone.com/gemstone\\_s/learning\\_center/compat/index.html](http://support.gemstone.com/gemstone_s/learning_center/compat/index.html)

**Table 1 Supported GemStone/S Server versions**

	<b>VW 7.6 32-bit with 7.6c OE</b>	<b>VW 7.7 32-bit with 7.7 OE</b>
<b>Windows Vista</b>		6.5.5
<b>Windows Server 2003 Standard Edition, SP1 or later</b>	6.5.5	6.5.5
<b>Windows XP, SP 1 or later</b>	6.5.5	6.5.5
<b>Red Hat Linux Advanced Server 3.0</b>	6.5.5	6.5.5
<b>Red Hat Linux Enterprise Server 4.0</b>	6.5.5	6.5.5
<b>Solaris 2.9 on Sparc</b>	6.5.5	6.5.5
<b>Solaris 2.10 on Sparc</b>	6.5.5	6.5.5

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

	<b>VW 7.6 32-bit with 7.6c OE</b>	<b>VW 7.7 32-bit with 7.7 OE</b>
<b>Windows Vista</b>	2.3.1.6, 2.4.2	2.3.1.6, 2.4.2
<b>Windows Server 2003 Standard Edition, SP1 or later</b>	2.3.1.6, 2.4.2	2.3.1.6, 2.4.2
<b>Windows XP, SP 1 or later</b>	2.3.1.6, 2.4.2	2.3.1.6, 2.4.2
<b>SUSE Linux ES 10</b>	2.3.1.6, 2.4.2	2.3.1.6, 2.4.2
<b>Red Hat Linux ES 5.0</b>	2.3.1.6, 2.4.2	2.3.1.6, 2.4.2
<b>Solaris 9 on Sparc</b>	2.4.2	2.4.2
<b>Solaris 10 on Sparc</b>	2.4.2	2.4.2
<b>HPUX 11.11 on HP9000</b>	2.3.1.6, 2.4.2	2.3.1.6, 2.4.2

**Table 3 Supported GemStone/S 64 Bit Server versions - Linked or RPC logins**

Linked logins require 64-Bit VisualWorks Smalltalk clients

	<b>VW 7.7 64-bit with 64-bit 7.7 OE</b>
<b>SUSE Linux ES 10</b>	2.4.2
<b>Red Hat Linux ES 5.0</b>	2.4.2
<b>Solaris 10 on Sparc</b>	2.4.2

## Changes and New Features

### Updated Documentation

This release includes an updated *GemBuilder for Smalltalk User's Guide*.

### Support for Single-trip and Multi-trip

This release of GBS support both the Single-trip and Multi-trip server interfaces, depending on the server platform. When running against a GemStone/S repository, only Multi-trip is supported. When running against GemStone/S 64 Bit 2.2.x or later, only Single-trip is supported. Only one server product version and interface can be active at one time; to change server product, you must restart your client VM.

The GBS configuration setting `useSingleTrip`, allowing you to select Single-trip or Multi-trip, has been removed.

### Linked logins now supported with GemStone/S 64 Bit

Previous versions of GBS only supported RPC logins with GemStone/S 64 Bit. Now, linked logins are supported from 64-Bit versions of VisualWorks Smalltalk on some platforms. For supported platforms, see Table 3 "Supported GemStone/S 64 Bit Server versions - Linked or RPC logins" on page 10.

Linked logins require the 64-bit shared libraries, which have the same name as the 32-bit shared library files. The 64-bit shared libraries are distributed in the `$GEMSTONE/lib` directory rather than the `$GEMSTONE/lib32` directory.

See the *GemBuilder for Smalltalk Installation Guide* for v.7.3 for more information.

### Asynchronous Event Error Handling

For each session, there is a background thread that detects events from the server such as `sigAbort`, `lostOTroot`, gem to gem signals, and changed object notifications, and other events that are handled internally. Previously, this thread was not started if no handlers were specified, which resulted in incorrect behavior for idle sessions. Now, it is always started.

It is now possible to specify a handler for unexpected non-fatal errors during the handling of asynchronous events, that are not otherwise handled:

```
GbsSession >> eventDetectorErrorHandler: aOneArgBlock
```

If the `eventDetectorErrorHandler` is set, and if the exception is not already handled by another handler that is set up for the application, this handler block will be executed for an exception caught by the event detection thread.

### serverMapLeafCapacity default decreased

The GBS configuration parameter `serverMapLeafCapacity` default value has been decreased from 4000 to 400. In most cases, particularly for larger repositories, this will result in improved performance for server round trips.

### QuadByteString replication now supported

GemStone/S 64 Bit includes support for QuadByteStrings. These may now be replicated as VisualWorks FourByteStrings

## Default VW TimeZone used for GBS TimeZone in VW 7.7

When running on VisualWorks version 7.7, which includes a full TimeZone implementation, the VisualWorks current default TimeZone is used, rather than replicating the TimeZone from the gem. This is the TimeZone that is used when determining how to replicate DateTimes to VW TimeStamps, which have no time zone.

## Bugs Fixed

The following bugs have been fixed since GemBuilder for Smalltalk version 7.2.2:

### Unexpected image shutdown with idle linked sessions

An idle linked session did not notice a request from the stone to shut down. The stone would eventually assume the session was hung and kill the session process, which for linked sessions includes the VisualWorks image. (#40165)

This problem occurred when no event detection thread was running. An event detection thread was started only if the application had a handler for gem-to-gem signals, sigAbort, etc. Now, the event detection thread is always started, and can accept a handler if desired, see “Asynchronous Event Error Handling” on page 11.

### Create/Compile in GS may version class in different symbol dictionary

Making class definition changes on the client and propagating these changes to the server resulted in a new version of the class that could be in a different SymbolDictionary (#40045)

### Stack dumps may not show server context temporaries

GBS Stack dumps that include server contexts may omit information on temporaries, with an message such as:

Temporaries: No further information; a MessageNotUnderstood

(#40041)

### Possible out of memory errors due to accumulation in export set

Server objects replicated to GBS are put in the gem's export set, to avoid GC in the gem. After these objects are dereferenced and GCed on the client, they continue to consume gem temporary object memory until they are removed from the export set. Previously, this was done only after 2000 objects needed to be removed, risking out of memory issues in GemStone/S 64 Bit. Now, export set cleanup is immediate. (#34719)

### Cache inventory statistics not working

Due to code refactor, many cache inventory statistics were not being collected (#39765)

### Abort would lose data error handled as abort, causing problems

If a server operation resulted in a server error #rtErrAbortWouldLoseData, it was handled as an aborting error. This resulted in the incorrect error message being returned, and could hang the image (#39404)

## Handling of server compilation error was incorrect or raised error

Compilation errors in server code being executed from the client were not handled well. Depending on circumstances, this could have raised a message not understood error, or failed to give details of the error. In addition to correcting these problems, other minor improvements in compilation error handling have been made (#33368, 37451)

## Error on Symbol List Browser search

After searching for an entry in the Symbol List Browser, selecting a symbol from the dialog resulted in a walkback. (#39571)

## Debugger GS-Do its fail with duplicate temporary variable names

When the same temporary variable name was used in more than one scope within the same server method, attempting to do server execution from the debugger resulted in an error. (#39461)

## Static exception handler for sigAbort may error

In linked sessions, a static exception handler set up to handle sigAborts may encounter the error "Unhandled exception: Message not understood: #serverProcess". Since the session does not perform the sigAbort, the session, and therefore the VW image, may be terminated by the stone based on the server's STN\_GEM\_LOSTOT\_TIMEOUT setting. (#40106)

## System workspace window not closeable

After opening and closing a GemStone System Workspace, an image save and restart caused the appearance of a GemStone System Workspace window that could not be closed. (#39216)

## Walkback on stack dump if thread contains a nil server process

When dumping stacks, a walkback can occur if a client thread contains a server context for which the server process is not retrievable. This is the case when another thread is blocking the session semaphore. (#39218)

## Dive may dive into incorrect object for matching keys

For GemStone server objects that contain key/value child objects, whose keys have equal print strings, all dive operations into any of the keys dove into the same child object, whichever child was the target of the first dive. (#36144)

## Authorization errors prevented Symbol List Browser opening

If a SymbolDictionary is in a segment to which the user does not have read authorization, opening the Symbol List browser resulted in a error, preventing use of the tool. (#11138)

## Server synchronization from Debugger and Inspector

Debugger and inspector operations performed server synchronization that could have inappropriately modified objects. (#38192, #35771, #39191)

## Class variable connector MNU on undefined variable

If a Class Variable Connector attempted to connect to a class variable that was not defined on the client, it resulted in a message not understood on `connectionError:`, rather than reporting a connection error. (#34769)

## Browse Class/Class References from Debugger text pane broken

If a class name is highlighted in the debugger text pane, executing the “Browse Class” or “Browse References to Class” menu items resulted in a Message not understood on `bindingFor:`. (#39961)

## Inspecting an object that contains a stub may unstub the stub

Arrays and Associations, among other objects, display their contents when they are inspected. If an object such as this is inspected, any stubs that it contains may be unstubbed. This is incorrect, since debugging tools should not cause changes in the environment. (#40420)

## Dying gem may have caused socket read error

There was a small chance that if a gem died or was killed, but GBS was not yet aware of this, an error could be reported while attempting to read a socket. (#38489)

## Inspector shows delegates for proxies as proxies, not delegates

If you inspect a collection of delegates that are associated with proxies, selecting an element in the collection incorrectly showed that the delegate was a stub or forwarder. (#40421)

## Inspector has incorrect reference to self in stub or forwarder

In an inspector on a stub or forwarder, references to “self” in evaluation expressions will incorrectly refer to the delegate, not the object itself. (#39781)

## Invalid connector type not disallowed

It's not possible to connect a fast connector with a post-connect action of `#clientFowarder`, but this was not disallowed by the tools. (#40393)

## GbxTimeZone class >> fromLinux method removed

The method `GbxTimeZone class >> fromLinux` was inadvertently ported to GBS, and included inappropriate and non-functional code. This method has been removed. (#40319)

## Problems with inspecting CollisionBucket

`CollisionBuckets`, although inheriting from `Array`, behave like `Dictionaries`. The GBS inspectors previously treated `CollisionBuckets` as `Arrays`, which did not allow the contents to display. Now, `CollisionBucket` contents are displayed correctly. (#40209)

## Debugger and Inspector problems with non-GBS proxies

GBS inspectors and other debugging tools currently depend on sending certain messages to objects. Objects that did not inherit from `Object`, but that are not part of GBS (nor part of

the base VisualWorks image) do not reliably understand these messages. The GBS tools did not handle this case well, and could go into infinite recursion or have other serious problems when trying to display these objects. (#40196)

### **Debugger display problem with terminated process**

Attempting to debug a terminated process could encounter secondary errors, resulting in a blank debugger window. (#40422)

