GemStone®

GemBuilder® for Smalltalk Release Notes

Version 7.3.2

October 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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These release notes describe the changes in the GemBuilder® for Smalltalk version 7.3.2 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.

For information on installing or upgrading to this version of GemBuilder for Smalltalk, please refer to the *GemBuilder for Smalltalk Installation Guide* for version 7.3.2.

Technical Support

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

GemStone Web Site: http://support.gemstone.com

Use of this site requires an account, but registration is free of charge and provides immediate access.

All GemStone product documentation is provided in PDF form on this website. Documentation is also available at

http://www.gemstone.com/documentation

In addition to documentation, the support.gemstone.com website provides:

▸ 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 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.

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 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**

Your GemStone support agreement may identify specific designated contacts who are responsible for submitting all support requests to GemStone. If so, please submit your information through those individuals.

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.

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.

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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.

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Consulting and training for all GemStone products are available through GemStone's Professional Services organization. GemStone periodically offers training courses at our offices in Beaverton, Oregon, or training can be arranged at your location. Contact your GemStone account representative for more details or to obtain consulting services.

Contents

Chapter 1. Release Notes for GemBuilder for Smalltalk 7.3.2

1 *Release Notes for GemBuilder for Smalltalk 7.3.2*

GemBuilder for Smalltalk (GBS) version 7.3.2 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 7.3.1, and version 7.3.2. If you are upgrading from a version prior to 7.3.1, 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 7.3.2, follow the instructions in the *GemBuilder for Smalltalk Installation Guide* for version 7.3.2.

Supported Platforms and Versions

The following tables describe the client Smalltalk versions and platforms supported by GBS 7.3.2, and the GemStone server product shared library versions that can be used with each.

GemBuilder for Smalltalk version 7.3.2 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`

Table 1   Supported 32-bit GemStone/S Server versions

	VW 7.7 32-bit with 7.7 OE	**VW 7.6 32-bit** with 7.6c OE
32-bit Windows 7; **32-bit Windows Vista**	6.5.7	
32-bit Windows Server 2003 Std **Edition, SP1 or later;** **32-bit Windows XP, SP 1 or later**	6.5.7	6.5.7
Red Hat Linux ES 5.0	6.5.7	6.5.7
Solaris 10 on Sparc; **Solaris 9 on Sparc**	6.5.7	6.5.7

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

	VW 7.7 32-bit with 7.7 OE	**VW 7.6 32-bit** with 7.6c OE
64-bit Windows 7	2.4.4.3	
32-bit Windows 7	2.4.4.3, 2.3.1.6	
32-bit Windows Vista; **32-bit Windows Server 2003 Std** **Edition, SP1 or later;** **32-bit Windows XP, SP 1 or later**	2.4.4.3, 2.3.1.6	2.4.4.3, 2.3.1.6
SUSE Linux ES 10; **Red Hat Linux ES 5.0**	2.4.4.3, 2.3.1.6	2.4.4.3, 2.3.1.6
Solaris 10 on Sparc; **Solaris 9 on Sparc**	2.4.4.3	2.4.4.3
HPUX 11.11 on HP9000	2.4.4.3, 2.3.1.6	2.4.4.3, 2.3.1.6

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

	VW 7.7 64-bit with 64-bit 7.7 OE
SUSE Linux ES 10; **Red Hat Linux ES 5.0**	2.4.4.3
Solaris 10 on Sparc	2.4.4.3

Changes and New Features

Changes to polling

These changes only apply to RPC sessions.

To handle issues in much older versions of GBS/VW, GBS has provided a number of options for handling polling/waiting for server interactions. Some of these options are no longer useful, and may cause further performance degradation over slow networks.

Now, the polling interface is only used for linked session; all RPC sessions use a waiting interface for all interactions. A timeout on the socket ensures that periodic polls are done for an additional check.

A new configuration parameter, **backupPolling**, has been added. If set to true (or in a linked session), the timeout on the socket before polling is the current setting of eventPollingFrequency. When set to false, an arbitrary timeout of 10 minutes is used.

On Windows platforms, backupPolling defaults to false; on UNIX and Linux platforms, the default is true.

The following GBS configuration parameters have been removed:

    pollForRpcResponse
    rpcSocketWaitTimeoutMs
    pollForAsynchronousEvents

The default for eventPollingFrequency has been changed from 300ms to 1000ms.

Configurable memory policy

To address problems with memory management (see "Excessive VW Memory use during replication" on page 10), GBS now includes a customized MemoryPolicy, and a new configuration parameter to control whether to use this custom MemoryPolicy or the default VW MemoryPolicy. By default, the customized GBS MemoryPolicy is used.

useGbsMemoryPolicy
When true, GemBuilder will install a memory policy that defers some garbage collection activities until the current replication is finished, when more garbage is likely to be available for collection. In conditions of heavy replication, this can both control memory growth and save time running unproductive garbage collection. When false, a normal VisualWorks MemoryPolicy is used. You may tune the GBS memory policy the same way you would a VisualWorks MemoryPolicy. Tuning parameters are preserved when changing the state of this parameter.
Default: true

Improved window layout for Session Browser

When the session browser is enlarged, the upper-right buttons now remain the same size.

In addition, the divider between the upper and lower portions is now an adjustable splitter bar.

Added error class 'GbsErrFinishedObjAuditRepair'

To support this new error in GemStone/S 64 Bit v2.4.3 and later, this class has been added.

Old File Browser updated menu creation

The old File Browser (not the one currently opened by the Launcher File menu or icon), has updated the menu building invoked by gbxPreBuildWith:, to use pragma style menus.

File in with #Source encoding

When doing a GS-File In from a FileBrowser, the method gbxGsFileInFile opens a readStream on the specified file to be filed in. This file is now opened withEncoding: #Source.

Bugs Fixed

The following bugs have been fixed since GemBuilder for Smalltalk version 7.3.1:

Incorrect replication of SmallDouble on big-endian platforms

When a GemStone server SmallDouble was replicated from a big-endian server to a big-endian GBS/VW client (Solaris on Sparc or HP-UX), the bytes were read incorrectly and the resulting VW object (Double or SmallDouble) had a different value than the original server object. (#40953)

Excessive VW Memory use during replication

Under certain conditions of heavy replication, VW garbage collection does not keep up, and memory use may grow excessively, resulting in VW out of memory errors. (#40972)

To fix this, GBS has added a custom MemoryPolicy that tunes garbage collection specifically for GBS; see"Configurable memory policy" on page 9.

Stub and Forwarder Debugging enabled for workspace execution

In order to fix Bug #39781 - Inspector has incorrect reference to self in stub or forwarder, which was fixed in version 7.3, stub debugging and forwarder debugging was turned on for Do-its. This has unacceptable side effects, including excessive log messages in the transcript. An alternative fix has been implemented. (#40529)

Comparisons to NotCachedToken used = rather than ==

When an application class overrides the = method, it may result in a message not understood when testing replicates against the NotCachedToken. (#40548)

Improvements to Image startup/shutdown

Image startup and shutdown processing has been improved in this release. These changes fix the following bugs:

Headless images that cannot find GCI libraries loop forever

When the GCI library cannot be found, a Dialog is opened. In a headless image in which the Dialog class is not present, the code that invoke the dialog inadvertently assumed true, which caused an infinite loop. Now, if WindowingSystem >> isHeadless returns true (or WindowingSystem is not present), failing to find the GCI library on the first attempt results in the appropriate error. (#39875)

Image saved with logged in session may have caused library load issue on restart

If an image is saved with a logged-in session, when the image is restarted, it may attempt to load the client library at an inappropriate point in the image startup. (#39343)

Risk of UTL_GUARANTEE crash if server calls invoked during shutdown

If a server call was invoked after the C primitive interface has been nilled during shutdown, an internal initialize was called that did not expect to get invoked a second time. This resulted in a fatal UTL_GUARANTEE error from the GCI shared library. (#40492)

Errors with autoMarkDirty false and immutable objects

If autoMarkDirty is false, and an immutable object is replicated, an primitive failure error will occur when the code attempts to update the immutable object. (#40482)

"Unretrievable Gemstone Object" over WAN

GBS had performance issues when running over a slow network to the server. These issues were related to the polling load, and have been addressed in this release; see "Changes to polling" on page 9. In addition to slow performance, inspectors could display "Unretrievable Gemstone Object" after a polling timeout, rather than a meaningful result. (#40613)

Create/Compile in GS errors if no UserClasses

The menu options Create in GS and Compile in GS expect to place the new server classes in the UserClasses SymbolDictionary. If UserClasses SymbolDictionary does not exist (it does not by default), it will result in an error. This problem was introduced by changes in v7.3. (#40601)

New users created with User tool cannot log in

New users that are created using the Admin >> Users tool had a new default Segment created automatically for them. This new Segment was owned by the current user and was world read, and without write permission to their default Segment the new user was not able to log in. (#40621).

Now, the Segment for the new user can be selected from the existing Segments.

Improved display for Text and GapString

The inheritance of the method gbxDebugPrintOn: resulted in difficult to read debugger displays for objects that are instances of Text or GapString. (#40527)

In the tools, instances of Text displayed as "Text for ABC" rather than "ABC", due to inheritance of #cstArgumentPrintOn: (#40885)

Symbol List Browser errors

Error when selecting a removed symbol

The Symbol List Browser continues to display symbols that have been removed by another tool or programmatically. If the removed symbol was selected, it resulted in a walkback. Now, a message is reported and the tools are refreshed. (#15253)

Error on ClientForwarder

If a ClientForwarder is in a SymbolList, the Symbol List Browser reported errors in trying to display it. (#40434)

Incorrect self in client evaluations of server-only inspector

When inspecting a server-only object, in the evaluation pane, client doIts resolved self to the incorrect object - the string 'Not cached'. (#39780)

ConnectorBrowser menu option to initialize GlobalConnectors fails

When Global connectors are selected in the Connector Browser, the menu item initialize failed with a does not understand in version 7.3 and later. (#40938)

Immutable objects may not become forwarders

Client literal and other immutable objects cannot be changed and so should never be made into forwarders. In addition to the already-disallowed literal Strings, any literal objects or immutable object, including for example literal Arrays, now may not be made into forwarders. (#40893)

asUncachedForwarder may have returned cached stub or forwarder

If there is a cached client object for a delegate, and that object answers false to #gbxCouldBeForwardedTo, asUncachedForwarder will return the cached client object rather than a new uncached forwarder. This is correct for objects such as SmallIntegers, but for proxies it unexpectedly returned an existing cached forwarder, rather than a new uncached one. (#40892)

Error while opening Inspector could leave inspector incomplete

Under some circumstances if an error occurs while an inspector is being opened, the process of opening the Inspector did not complete, leaving an unusable Inspector with no information. (#40993)

Walkback on explain in Debugger GS Context

In a server (GS) context in the debugger, attempting to invoke "explain" on an instance variable caused a walkback. (#40403)