GemStone®

GemBuilder for Smalltalk Release Notes

Version 7.1

October 2006

INTELLECTUAL PROPERTY OWNERSHIP

This documentation is furnished for informational use only and is subject to change without notice. GemStone Systems, Inc. assumes no responsibility or liability for any errors or inaccuracies that may appear in this documentation.

This documentation, or any part of it, may not be reproduced, displayed, photocopied, transmitted, or otherwise copied in any form or by any means now known or later developed, such as electronic, optical, or mechanical means, without express written authorization from GemStone Systems, Inc.

Warning: This computer program and its documentation are protected by copyright law and international treaties. Any unauthorized copying or distribution of this program, its documentation, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted under the maximum extent possible under the law.

The software installed in accordance with this documentation is copyrighted and licensed by GemStone Systems, Inc. under separate license agreement. This software may only be used pursuant to the terms and conditions of such license agreement. Any other use may be a violation of law.

Use, duplication, or disclosure by the Government is subject to restrictions set forth in the Commercial Software - Restricted Rights clause at 52.227-19 of the Federal Acquisitions Regulations (48 CFR 52.227-19) except that the government agency shall not have the right to disclose this software to support service contractors or their subcontractors without the prior written consent of GemStone Systems, Inc.

This software is provided by GemStone Systems, Inc. and contributors “as is” and any expressed or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall GemStone Systems, Inc. or any contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.

COPYRIGHTS

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.

TRADEMARKS

GemStone, **GemBuilder**, **GemConnect**, and the GemStone logos are trademarks or registered trademarks of GemStone Systems, Inc. in the United States and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Sun, **Sun Microsystems**, **Solaris**, and **SunOS** are trademarks or registered trademarks of Sun Microsystems, Inc. All **SPARC** trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. **SPARCstation** is licensed exclusively to Sun Microsystems, Inc. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

HP and **HP-UX** are registered trademarks of Hewlett Packard Company.

Intel and **Pentium** are registered trademarks of Intel Corporation in the United States and other countries.

Microsoft, **MS**, **Windows**, **Windows 2000** and **Windows XP** are registered trademarks of Microsoft Corporation in the United States and other countries.

Linux is a registered trademark of Linus Torvalds and others.

Red Hat and all Red Hat-based trademarks and logos are trademarks or registered trademarks of Red Hat, Inc. in the United States and other countries.

AIX and **POWER4** are trademarks or registered trademarks of International Business Machines Corporation.

Other company or product names mentioned herein may be trademarks or registered trademarks of their respective owners. Trademark specifications are subject to change without notice. All terms mentioned in this documentation that are known to be trademarks or service marks have been appropriately capitalized to the best of our knowledge; however, GemStone cannot attest to the accuracy of all trademark information. Use of a term in this documentation should not be regarded as affecting the validity of any trademark or service mark.

GemStone Systems, Inc.
1260 NW Waterhouse Avenue, Suite 200
Beaverton, OR 97006

Preface

These release notes describe the changes in the GemBuilder for Smalltalk® version 7.1 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.*

Technical Support

GemStone provides several sources for product information and support. The product-specific manuals and online help provide extensive documentation, and should always be your first source of information. GemStone Technical Support engineers will refer you to these documents when applicable.

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:

Help Request allows designated support contacts to submit new requests for technical assistance and to review or update previous requests.

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. Most code fixes and enhancements listed on the GemStone Web site are available for direct downloading.

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. Some Tips may contain code that can be downloaded for use at your site.

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. We also welcome suggestions and ideas for improving and expanding our site to better serve you.

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.

Email: support@gemstone.com

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

Requests for technical assistance may also be submitted 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 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.

Training and Consulting

Consulting and training for all GemStone products are available through GemStone's Professional Services organization.

- 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.

Contents

Chapter 1. Release Notes for GemBuilder for Smalltalk 7.1

Chapter 1

Release Notes for GemBuilder for Smalltalk 7.1

GemBuilder for Smalltalk (GBS) version 7.1 is a new release of the GemBuilder for Smalltalk product. This release provides performance improvements and fixes for a number of bugs. Please take time to read through these release notes before installing the product, to acquaint yourself with the changes.

This release supports both VisualWorks 5i and 7.x. It does not support VisualAge or VA Smalltalk; support for this is provided in a separate release. For details on supported client platforms, see 'Supported Platforms and Versions' below.

To install GemBuilder for Smalltalk 7.1, follow the instructions in the *GemBuilder for Smalltalk Installation Guide.*

If you have any questions regarding this release, please contact your GemStone account manager or GemStone Technical Support.

Supported Platforms and Versions

The following tables describes the client Smalltalk versions and platforms supported by GBS 7.1, and the GemStone server product shared library versions that can be used with each.

GemBuilder for Smalltalk supports all three GemStone/S server products: GemStone/S, the original GemStone object server; GemStone/S 2G, a specialized server product, and GemStone/S 64 Bit, the redesigned 64-bit GemStone/S-based object server.

The following tables list the supported client operating system, client Smalltalk, and GemStone server version configurations for each GemStone server product.

Table 1 Supported GemStone/S Server versions

	VW 7.3.1 with 7.3a OE	**VW 7.4** with 7.4 OE	**VW 7.4.1** with 7.4c OE	**VW 5i.1 Envy** with 5i.4c OE
Windows 2000, SP 1 or later	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5
Windows XP, SP 1 or later	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5
Windows 2003	6.1.5	6.1.5	6.1.5	6.1.5
Red Hat Linux Advanced Server 2.1	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5	
Red Hat Linux Advanced Server 3.0	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5	
Solaris 2.8	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5
Solaris 2.9	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5	6.1.4, 6.1.5
Solaris 2.10	6.1.5	6.1.5	6.1.5	6.1.5
HPUX 11.11	6.1.4, 6.1.5 (RPC only)	6.1.4, 6.1.5 (RPC only)	6.1.4, 6.1.5 (RPC only)	6.1.4, 6.1.5 (RPC only)

Table 2 Supported GemStone/S 64 Bit Server versions

	VW 7.3.1 with 7.3a OE	**VW 7.4** with 7.4 OE	**VW 7.4.1** with 7.4c OE	**VW 5i.1 Envy** with 5i.4c OE
Windows 2000, SP 1 or later	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)
Windows XP, SP 1 or later	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)
Red Hat Linux ES 4.0	1.1.7 (RPC only)	1.1.7 (RPC only)	1.1.7, 2.1 (RPC only)	
SuSE Linux ES 9.3	1.1.7 (RPC only)	1.1.7 (RPC only)	1.1.7, 2.1 (RPC only)	
Solaris 2.9	1.1.7 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7 (RPC only)
Solaris 2.10	1.1.7 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7, 2.0.4, 2.1 (RPC only)	1.1.7 (RPC only)
HPUX 11.11		with 7.4c Object Engine: 2.0.4, 2.1 (RPC only)	2.0.4, 2.1 (RPC only)	

Table 3 Supported GemStone/S 2G Server versions

	VW 7.4 with 7.4 OE	**VW 5i1 Envy** with 5i.4c OE
Windows 2000, SP 1 or later	1.2.3 (RPC only)	1.2.3 (RPC only)
Windows XP, SP 1 or later	1.2.3 (RPC only)	1.2.3 (RPC only)
Solaris 2.8	1.2.3 (RPC only)	1.2.3 (RPC only)
Solaris 2.10	1.2.3 (RPC only)	1.2.3 (RPC only)
HPUX 11.11	1.2.3 (RPC only)	1.2.3 (RPC only)

Changes and New Features

Performance Improvements

Performance has been reviewed and optimized for version 7.1.

The cache dictionary structure which GBS uses for mapping server and client objects has changed. The new structure handles removals faster, especially when there are a large number of objects mapped.

Temporary memory usage during replication has been reduced, reducing the amount of time spent collecting garbage.

The speed of the collection used to temporarily hold the server identifiers of objects that had been garbage collected on the client was slow when identifiers were large integers. This has been improved, so less time is spent in object finalization.

Also see 'Performance could have been poor for Windows RPC sessions' in the Bugs Fixed section.

Stack Dumping Improvements

Stacks dumped through the class GbsStackDumper now contain more information, and the format has changed to be easier to read.

There were also several situations in which stack dumping would hang or produce errors; see 'Hang or walkback possible during stack dumps' and 'Stack dump from runtime image missing information' in the Bugs Fixed section.

Bugs Fixed

The following bugs have been fixed since GemBuilder for Smalltalk version 7.0.2:

Performance could have been poor for Windows RPC sessions

The default RPC interface could miss network events from Windows, causing it to continue waiting for a response from the server after the response had arrived. (#35750)

GbxDelegate >> fetch* errored if traversal size exceeded

Architectural changes in 7.0 allowed the GbxDelegate >> fetch* methods (such as fetch:varyingOOPsAt:, fetch:OOPsAt:, etc.) to use the traversal buffer mechanism. However, if the size of the object being fetched exceeded the traversal buffer size, it resulted in an error. (#34765)

Automatic loading of default libraries did not work correctly

If no library name is specified, GBS attempts to load the linked version of the GCI libraries (libgcilnk), and if it is not found, it should automatically attempt to load the RPC version (libgcirpc), before opening a dialog for the user. It was not correctly loading the RPC version, but opened a dialog if the linked version was not found. (#35682)

Fileout fails for SymbolLists that have a dash (-) in their name

Attempting to file out a GemStone SymbolList resulted in a walkback if the SymbolDictionary name included the dash character. (#35784)

Immutable objects could have been stubbed

Sending stubYourself to an immutable object, such as a literal string, inadvertently worked, with a risk of defunct stubs or other problems. Immutable objects now ignore the stubYourself message. (#35793)

GbsGenericError now subclass of GbsInterpreterError again

In GBS 6.2, GbsGenericError was reparented from GbsInterpreterError to GbxAbstractControlInterrupt. The intention of this change was to allow #halt to open a debugger rather than a notifier; however, it affected application specific / user defined errors. In this release GbsGenericError has been returned to being a subclass of GbsInterpreterError, and #halt in your server code will now open a notifier again. Use #pause instead, if you wish to go straight to a debugger. (#33050)

Variable name conflict in inspectors and browsers

Operation of the GBS inspectors and browsers can require execution of GBS-defined server code in the context of application-defined classes and instances. If a temporary variable name used by GBS happened to be the same as the name of an instance variable of the server class or instance, the operation would fail. In these situations, GBS now uses temporary names starting with 'gbx' to avoid conflict. (#34305)

Presence of client class “System” caused problems opening dialogs

If a class named “System” existed in the VisualWorks client, an exception was raised when opening a dialog. (#35337)

continueTransaction failed with GemStone/S 64 Bit servers

Sending #continueTransaction to a GbsSession logged into a GemStone / S 64 Bit server raised an exception. (#35367)

Uncached forwarder returned uncached forwarder as self

If a message sent to an uncached forwarder returned “self”, GBS previously returned the uncached forwarder. To be consistent with all other forwarder return values, it now

returns the cached replicate, stub, or forwarder for the server object. If there is no cached client object for the server object, the server object is replicated. (#29075)

Logout via Session Browser blocked by another session's GemStone operation

If one session is executing GemStone server code, and another session attempts to log out using the session browser, the logout blocked until the first sessions' execution completed, while the Session Browser attempted to get status for all sessions. (#34356)

No class connector for GsMethod

There was no global class connector for the server GsMethod class. This caused too much to be traversed the first time any GsMethods were referenced during replication from the server to the client. (#35732)

Use of unsupported GBS Configuration options caused errors

The unsupported GBS Configuration options #fullCompression and #freeOopEncoding are not fully implemented. Turning these options on previously caused unexpected errors. These errors no longer occur. (#35634)

Hang or walkback possible during stack dumps

It was possible to get a walkback, or for the image to hang, while creating a GBS stack dump. Known potential causes have been fixed. (#35695, #35698, #35701)

Stack dump from runtime image missing information

Due to runtime stripping of error classes, the stack dumps produced in runtime images may have omitted useful information (#35624)

VisualWorks 7.x Bugs Fixed

Assignment to instance variable of a stub could be lost

If a replicate became a stub during the execution of a method whose receiver was the replicate, any assignments to its instance variables later in the method were lost. Now, if autoMarkDirty is enabled (which is recommended) any such assignments will cause the object to revert to being a replicate, and the assignments will not be lost. (#35385)

Trippy inspector "dive" caused unnecessary copy

To allow the Trippy inspectors to show the GS tabs for delegate objects correctly, a copy was made of the object; this was unnecessary and may have caused problems if the inspected object raised an error when sent #copy. (#35672)

Trippy dive/inspect in a GemStone Bag inspected wrong element

If a GemStone Bag or instance of a subclass of Bag has fewer than 2000 elements, inspecting or diving into an element in that collection may inspect the incorrect element. (#35339)

Could not set server breakpoints from within GBS debugger

It is now possible to set a breakpoint in server code from the GBS debugger. (#30625)

GBS Debugger could not change GemStone method text

GemStone server code may now be edited from within the debugger. (#30987)

No-effect instance variable assignments caused mark dirty

Setting the value of an instance variable to the identical current value caused the object to be marked dirty. This caused the object to be flushed to the server unnecessarily since there was no actual change. The fix to this means that assignments that would not have an effect, no longer occur. (#33250)

Error using debugger context list coloring

When using the VisualWorks debugger's ability to color-code contexts in the stack, an exception was raised if the stack contained any server contexts. (#35454)