
GemStone®

GemBuilder for Smalltalk Release Notes

Version 7.2

January 2008

GEMSTONE TM

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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 7.2 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, 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 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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Chapter

1

Release Notes for GemBuilder for Smalltalk 7.2

GemBuilder for Smalltalk (GBS) version 7.2 is a new release of the GemBuilder for Smalltalk product. Please take time to read through these release notes before installing or upgrading, to acquaint yourself with the changes.

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

This release supports GemStone/S 64 Bit 2.2.4 and later only. You cannot use this release with earlier versions of GemStone/S 64 Bit, nor with the 32-Bit GemStone/S product.

To install GemBuilder for Smalltalk 7.2, 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 describe the client Smalltalk versions and platforms supported by GBS 7.2, and the GemStone server product shared library versions that can be used with each.

This version of GemBuilder for Smalltalk supports only GemStone/S 64 Bit 2.2.4 and higher. GBS 7.2 can not be used with earlier versions of GemStone/S 64 Bit nor with GemStone/S, due to the new Single-trip feature (see “Single-trip” on page 3). A subsequent GBS release will include support for the previously used Multi-trip as well, allowing use with earlier versions of GemStone/S 64 Bit and GemStone/S.

The following table lists the supported client operating system, client Smalltalk, and GemStone/S 64 Bit server version configurations.

Table 1 Supported GemStone/S 64 Bit Server versions

	VW 7.4 with 7.4 OE	VW 7.4.1 with 7.4d OE	VW 7.5 with 7.5 OE
Windows 2000, SP 1 or later	2.2.4 (RPC only)	2.2.4 (RPC only)	2.2.4 (RPC only)
Windows XP, SP 1 or later	2.2.4 (RPC only)	2.2.4 (RPC only)	2.2.4 (RPC only)
SuSE Linux ES 10		2.2.4 (RPC only)	2.2.4 (RPC only)
Solaris 2.9	2.2.4 (RPC only)	2.2.4 (RPC only)	2.2.4 (RPC only)
Solaris 2.10	2.2.4 (RPC only)	2.2.4 (RPC only)	2.2.4 (RPC only)
HPUX 11.11	with 7.4d Object Engine: 2.2.4 (RPC only)	2.2.4 (RPC only)	2.2.4 (RPC only)

Changes and New Features

Improved Performance

This version of GemBuilder has a number of performance improvements. Among the significant improvements are:

- ▶ Single-trip server interface protocol (see 'Single-trip' below)
- ▶ Replication performance has been improved significantly
- ▶ Temporary object creation has been greatly reduced
- ▶ Cache dictionary inserts have been streamlined
- ▶ Replication finalization costs reduced

Single-trip

This version of GBS includes a new “Single-trip” interface to the GemStone/S 64 Bit server. This eliminates many round trips to the server, and will improve performance in particular for systems with high network latency. The Single-trip server protocol is only available on GemStone/S 64 Bit 2.2.4 or later.

In the GBS 7.2 release, only the Single-trip protocol is supported; the older Multi-trip protocol is not supported. Future GBS releases will include support for both.

Note that the Single-trip protocol is different from, and is not compatible with, the older “Single Round Trip” interface that was available as a separate parcel by special arrangement for some customers.

Immediate faulting

When using the Single-trip protocol, all objects are immediate faulting; the setting for the configuration parameter `defaultFaultPolicy` is disregarded. In Single-trip, there is minimal additional network cost in faulting all objects.

Immediate-faulting objects are now faulted with the current replication spec and level, rather than just faulting in the object itself, as was previously done. In cases where the modified object now references a not-replicated object, this saves a round trip if the stub for that object is sent a message.

Name changes

Some internal structures have been renamed in this release.

In particular, the GBS object cache mapping dictionaries are now referred to as “maps”. The dictionary keyed by client objects, formerly the `stObjectCache`, is now the `ClientMap`. The dictionary keyed by server object id, formerly the `gsObjectCache`, is now referred to as the `ServerMap`.

Time Zones - added full support for multiple daylight savings time rules

The changes in the rules governing the start and end of daylight savings time (DST) in the US and Canada in 2007 exposed a limitation in replication of `DateTime` instances. Recent versions of GBS have included patches suitable only for the US and Canada.

Version 7.2 includes a complete fix for this issue.

By default, a copy of the gem's current `TimeZone` is replicated to the client at login. This is used for the client's `GbsTimeZone` for replication.

If the customer application changes the gem's current `TimeZone` after a session has logged in, GBS cannot detect this. In this case, the client application needs to send the new message

```
GbsSession >> setClientTimeZoneFromServer
```

to re-replicate a copy of the timezone.

If the customer application has clients who are in different timezones from their gems, and wants the time zones to be different in the gem and the client, they should create the desired `TimeZone` on the server, and replicate it to the client, using the method

```
GbsSession >> clientTimeZone:
```

For example:

```
myGbsSession clientTimeZone:
(mySession evaluate: 'TimeZone
fromGemPath: ''/foo/bar/America/New_York''').
```

Changed, Deprecated and Removed interface methods

Many private GBS methods in base classes were renamed with 'gbx' prefixes to avoid possible conflict with non-GemStone code.

The following methods have been deprecated:

```
GbsError class>>gsiErrorSignal
GbsForwarder>>putInGSsession:toLevel:
Object>>putInGSsession:toLevel:
```

The new Single-trip interface impacts certain methods used for low-level access to GemStone server objects. As a result, the following messages are unsupported, and disabled in this release:

```
#addOOP:
#addOOPs:
#createObjectClass:values:
#createObjectClass:values:clusterBucket:permanent:
#fetch:namedOOPsAt:
#fetch:namedOOPsAt:onto:
#fetchNamedOOPAt:
#fetchObjectInfo
#fetchObjInfoStartingAt:maxBytes:
#objectFromFloat:
#newObjects:withIdxSizes:
#releaseInGs
#replaceVaryingOOPs:
#replaceOOPs:
#removeOOP:
#removeOOPs:
#storeBytes:at:instanceOf:
#storeIdxOOP:at:
#storeIdxOOPs:at:
```

```
#storeNamedOOP:at:  
#storeNamedOOPs:at:  
#storeOOPs:at:
```

The following operations may have different semantics. Use of these methods is not recommended; these methods may be formally deprecated in a future release.

```
#fetch:bytesAt:  
#fetch:bytesAt:onto:  
#fetch:charsAt:  
#fetch:charsAt:onto:  
#fetch:idxOOPsAt:  
#fetch:idxOOPsAt:onto:  
#fetch:OOPsAt:  
#fetch:OOPsAt:onto  
#fetch:varyingOOPsAt:  
#fetch:varyingOOPsAt:onto:  
#fetchByteAt:  
#fetchCharAt:  
#fetchIdxOOPAt:  
#newOfClass:  
#remoteClass (fails to work for ClientForwarders)  
#storeByte:at:  
#storeBytes:at:  
#storeChar:at:  
#storeChars:at:  
#storeOOP:at:
```

The following methods related to `unexportBufferSize` have been removed. While the internal implementation is different, see “`gcedObjBufferSize`” on page 9 for the closest equivalent.

```
GbsSession Class>>unexportBufferSize:  
GbsSession Class>>unexportBufferSize
```

Replication of hashed collections

If you define server hashed collection classes that you wish to replicate to the GBS client, you must do one of the following:

- ▶ The client hashed collection class must implement the method `#gbsMustDeferElements`, returning true;
- ▶ or, the client hashed collection must define replication specs that ensure that no stub is consulted while hashing the elements of the collection.

User Interface Changes

Enhanced Session Browser User Interface

VW 7.x only

The session browser has a number of interface improvements, including:

- ▶ Double clicking on a session parameter will open a Session Parameters Editor on that parameter.

- ▶ You can now reorder session parameters using drag and drop.
- ▶ The pop-up menu for the session parameters includes two new items, **import...** and **export...**. Export brings up a dialog that allows you to export all the session parameter values to an OS text file, and import allows you to load a file with exported sessions parameters

Note that the exported file will include, in plaintext, any saved passwords in the parameters. Exporting parameters with saved passwords is a security risk.

User Creation Segment handling

Against the 32-bit GemStone/S product, a new Segment was created for each newly created user, and both User and Segment were committed together. However, the Segment semantics are somewhat different in GemStone/S 64 Bit 2.2 and above; Segments must be committed prior to being used, and there are a limited number of Segments.

To accommodate these changes, creating a new user via the GemStone User List will now prompt you to select an existing Segment. If you do not choose a Segment from the list of existing Segments, clicking on the “Cancel” button will prompt if you wish to create a new Segment.

If you choose to create a new Segment, this Segment will be committed immediately; if you abort to cancel the new user creation, the Segment will remain.

If you select an existing Segment, this Segment’s ownership will be transferred to the new user. You can set Segment ownership as needed using the Segment Tool.

Improvements in Segment Tool

The Segment Tool includes an additional column on the right hand side, with the Segment Id.

Improvements were also made in performance; the Segment Tool will open faster than previously, for applications with many Segments.

Changes in GBS statistics

Date values in statistics archive now include leading zeros

To allow files to be more easily sorted, the Timestamps within the GBS stat archive file names now include leading zeros.

Removed and renamed statistics

The following statistics have been removed in this release:

Session Manager Main:

cInterfaceAccessProtectInvocations

Session Manager:

cInterfaceProtectInvocations

cInterfaceProtectTime

The Session Manager Main statistic **stObjectCacheSize** has been renamed to **clientMapSize**.

The Session Main statistic **gsObjectCacheSize** has been renamed to **serverMapSize**.

Note that some statistics are not collected in this release, and will show flatlines in the resulting data.

Changes in Errors/Exceptions

Fatal Errors are not resumable

Previously, Fatal errors were resumable. This has been changed; you now cannot resume from a fatal error.

Removed Exception classes

The following Exception classes have been removed in this release. These are errors that only exist in the 32-Bit server product.

```
GemStone.Gbs.GbsAuthErrSegReadSeg  
GemStone.Gbs.GbsAuthErrSegWriteSeg  
GemStone.Gbs.GbsBkupErrRestoreCommitFailed
```

Added Exception classes

The following exceptions have been added to support added GemStone/S 64 Bit errors:

```
GemStone.Gbs.GbsAuthErrProcessSwitch  
GemStone.Gbs.GbsAuthErrSegLoad  
GemStone.Gbs.GbsAuthErrSegRecursion  
GemStone.Gbs.GbsBkupErrNotInProgress  
GemStone.Gbs.GbsErrLostOtHandlingFailed  
GemStone.Gbs.GbsGciErrCallNotSupported  
GemStone.Gbs.GbsGsErrCacheTooBig  
GemStone.Gbs.GbsGsErrShrpcLostOtTimeout  
GemStone.Gbs.GbsLgcErrTravBuffSize  
GemStone.Gbs.GbsLockErrDeadlock  
GemStone.Gbs.GbsLockErrInvalidObject  
GemStone.Gbs.GbsLockErrTimeout  
GemStone.Gbs.GbsRtErrCantBecomeGeneric  
GemStone.Gbs.GbsRtErrClassIsNp  
GemStone.Gbs.GbsRtErrCollectionWithIncompleteIndex  
GemStone.Gbs.GbsRtErrCommitDisallowedUntilAbort  
GemStone.Gbs.GbsRtErrContinueTransFail  
GemStone.Gbs.GbsRtErrGciTravNotLicensed  
GemStone.Gbs.GbsRtErrMethodSrcTooBig  
GemStone.Gbs.GbsRtErrNoMoreSegments  
GemStone.Gbs.GbsRtErrNotInExportSet  
GemStone.Gbs.GbsRtErrRcUpdateDisallowed  
GemStone.Gbs.GbsRtErrRemoveAllIndexesFailed  
GemStone.Gbs.GbsRtErrRollbackDlFail  
GemStone.Gbs.GbsRtErrSignalAlmostOutOfMemory  
GemStone.Gbs.GbsRtErrSignalFinishTransaction  
GemStone.Gbs.GbsRtErrSuperclassIsNP  
GemStone.Gbs.GbsStDBErrStmtNoEffect  
GemStone.Gbs.GbsStDBPragmaInPrim  
GemStone.Gbs.GbsStDBPrimitiveInPragma
```

Configuration Parameters Changes

New rules governing when changes take effect

At login, a new GbsSession's configuration is copied from GbsConfiguration current. The session then has its own GbsConfiguration object. The user should access this GbsConfiguration by sending #configuration to the GbsSession. For settings that are set on a per-session basis and can vary while a session is logged in, the GbsSession uses its own configuration rather than GbsConfiguration current.

The following configuration settings may be changed on a per-session basis after the session has been logged in, and will take effect in that session until changed. Other settings for sessions either affect actions that only happen at login time, or are 'locked in' at login time, and setting them after login has no effect.

```
bulkLoad (no effect with GemStone/S 64 Bit and therefore unused in GBS 7.2).
connectorNilling
eventPriority
faultLevelLnk
faultLevelRpc
generateClassConnectors
generateClientClasses
generateServerClasses
initialDirtyPoolSize
pollForAsynchronousEvents (change takes effect the next time an event action
is changed using #gemSignalAction:, #notificationAction:, #sessionSignalAction:, or
#signaledAbortAction:.)
rpcSocketWaitTimeoutMs
serverMapLeafCapacity
traversalBufferSize (decreases in requested size after buffers are initially
allocated may be ignored. Increases in requested size will result in re-allocation at the
new size.)
```

So, for example:

```
GbsConfiguration current faultLevelRpc: 3.
```

will change the initial RPC fault level of all future sessions, but it will **not** change the fault level in sessions that are already logged in, which would have been the effect in previous releases.

```
mySession configuration faultLevelRpc: 3.
```

will change the RPC fault level for only this one already-logged-in session.

Removed configuration parameters

The following configuration parameters have been removed:

initialCacheSize

traversalBufferCompression - replaced by the new parameter fullCompression, which provides somewhat different semantics.

freeOopsEncoding - this was not displayed in the Settings Dialog, but remained in GbsConfiguration.

Added configuration parameters

The following configuration parameters have been added:

clientMapCapacity

The minimum capacity in objects of the client object map. The client object map is used to map client replicates, stubs, and forwarders to their corresponding server objects. The map will grow in capacity if it runs out of room, and may shrink in capacity if it has an excess of free space. The map will never shrink its capacity below `clientMapCapacity`. This value is also used as the initial capacity of the map, which is initialized only upon the first login after loading GBS into a clean image. Thus, changing `clientMapMinimumCapacity` will only affect the initial cache size if changed before the first login after GBS load. After that time, however, changing `clientMapMinimumCapacity` will limit the shrinkage of the map. Growing and shrinking the map take time, so performance-critical applications that replicate many objects may wish to have a larger map capacity. Check statistics for map size and grow/shrink events to see whether your map capacity is sufficient.

Legal values are any positive integer; GBS will use the next higher multiple of 16383 as the true capacity.

Default: 30000

clientMapFinalizerPriority

The process priority at which garbage-collected objects are finalized from the client object map. These must be finalized before the server can garbage-collect the corresponding server objects. By default, this finalization is done at a priority below the normal application priority. This allows finalization to run at times when the main application is waiting for user input or responses from the server. However, if your application seldom waits, and creates a lot of garbage replicates, it is possible that the finalizer might not get enough CPU cycles to keep up. If the unfinalized objects have no remaining references on the server, this will cause increased memory usage in the gem. If this is a problem, you may need to increase this setting to a priority above that of your application. Changing this value will change the finalizer's priority at the time of the next server interaction.

Legal values are positive integers between 1 and 99.

Default: 30

fullCompression

When true, GemStone compresses all communication between the client and the server, reducing the amount of data sent across a network connection to an RPC gem. Has no effect on linked sessions. For network connections with low throughput, compression may improve overall performance. For fast enough network connections, compression may decrease overall performance due to the CPU time required to do compression and decompression. This setting only takes effect at the time that a library is loaded (see the help text for `libraryName` below). If a library is loaded you will need to save your image, quit, and restart for a new `fullCompression` value to take effect.

Default: false

gcedObjBufferSize

The initial size in objects of the buffer that holds server object IDs for objects which have been garbage collected in the client. The buffer is enlarged when necessary, but performance-sensitive applications that release many replicates at once may want to

avoid this. The IDs in this buffer are sent to the server with each server interaction.
Default: 2000

serverMapLeafCapacity

The lower bound in objects of the capacity of each leaf in the server map. The server map maps the IDs of server objects to their corresponding client replicates, forwarders, and stubs. The server map is structured as a shallow fixed-depth tree. Each node in the tree is identified by the upper bits of the object ID. Each leaf node is a hashed collection indexed by the lower bits of the object ID. In GS/S 32-bit, each leaf has responsibility for up to 2^{22} object IDs. In GS/S 64-bit 1.x, each leaf has responsibility for up to 2^{23} object IDs. In GS/S 64-bit 2.0 and later, each leaf has responsibility for up to 2^{24} object IDs. Leaves are created on demand; only those leaves that actually contain objects exist. This setting controls the initial capacity of each leaf. Leaves will grow and shrink as necessary, but will not shrink below this setting. Growing and shrinking take some time, so performance-sensitive applications may want to adjust this value. Using a larger value decreases the time spent growing and shrinking each leaf, but increases memory use, and also increases the time spent initializing each leaf. This setting can be different from session to session. The value in GbsConfiguration current is used at login. Subsequently, you may send `#serverMapLeafCapacity:` to the session's configuration (acquired by sending `#configuration` to the session) to change the value for that session only. From that point on, new leaf creation and all leaf shrinkage will be subject to the new value.

Legal values are any positive integer; GBS will select a prime table size greater than this value, but not exceeding 2^{24} .

Default: 4000

useSingleTrip

In GBS version 7.2, Single-trip is always used; this setting is ignored.

When true, and connected to a server that supports it, the Single-trip interface is used for forwarder sends and other server execution. When false, or when connected to a server that does not support the Single-trip interface, traditional multiple round trip messages will be used. This setting is only checked at login; you cannot change interface types during the life of a session.

Default: true

Bugs Fixed

The following bugs have been fixed since GemBuilder for Smalltalk version 7.1.2:

Risk of data loss if with unmapped class and split replication

If an object whose class is not yet mapped was replicated, and the object happened to be split into two or more traversal buffers, only the data in the first traversal buffer was used. This resulted in lost data in the replicated object. (#36637)

Error on image launch with logged in session and unavailable client libraries

If an image is saved with one or more sessions logged in, and the image is relaunched in an environment without the shared libraries available, it resulted in a walkback. (#37027)

GbsStackDumper gets error basicCInterface not understood

Attempting to use GbsStackDumper>>dumpAllProcessStacks to dump the GBS stack resulted in a message not understood error. (#36772)

Other improvements have been made to the accuracy of stack dumping in this release.

Class connector allowed to non-class objects

GBS incorrectly allowed creation of a Class connector from a non-class object to a class. (#10913)

Skewed replication with modification causes segment reassignment

If automatic migration was invoked, due to replicating an instance of a class that is not the same as is currently mapped, and the replicated instance then modified, the modified instance ended up in the user's default segment, even if it was originally in a different segment. (#36474)

Error on add to server Array that was replicated

If an Array is replicated to the server, and the server Array has additional elements added, it resulted in an error, since client Arrays do not dynamically resize. (#36977)

Did not flush dirty immediately after resuming following server error

A server error generates an exception signal on the client. If a handler for this exception resumes, GBS calls GciContinue to continue server execution. It was possible for the exception handler code to modify replicates on the client, which should have been, but were not flushed to the server before the GciContinue. This could also occur during a ClientForwarder send. (#38310)

SmallDouble and Double problems on fault/flush

A number of problems occurred when faulting or flushing GemStone/S 64 Bit Doubles and server SmallDoubles at the farther ranges of values (extremely large and extremely small values.) (#37028)

User creation encountered Segment error against GemStone/S 64 Bit 2.2x

Creating a new user using the GBS tools failed with an error that the user's default segment must be committed. Segment behavior changed in GemStone/S 64 Bit 2.2, segments must now be committed before they can be used. (#36697)

As a result, for user creation in GemStone/S 64 Bit 2.2 or later, there is an extra query to confirm the Segment commit, before the user is added.

No selection in Session Browser after removing session programmatically

If a session is logged out programmatically, it left no session selected in the SessionBrowser, even if there had been a session selected previously. (#36181)

Segment tool may have failed with upgraded GS64 2.2x repositories

Repositories that were upgraded from versions of GemStone/S 64 Bit that did not support Segments to version 2.2.x require a Segment 20. However, if the previous repository

included Segments < 20, the intervening created Segments were nil, which caused failures in the Segment tool. (##37323, 38118)

Fetching the list of Segments has also been optimized to require many fewer round trips to the server.

Traversal in progress error in alternate replication spec set

With multiple replication spec sets, for each replication spec set, it caused a server round trip to fetch information needed for the offset cache. If replicating under a second or later replication spec set, and it does not fit in a single traversal buffer, this fetch occurred during the replication, causing a traversal in progress error. (#37686)

Replicating a metaclass failed if class generation disabled

Attempting to replicate a metaclass failed if class generation was disabled. (#37823)

Risk of unexport of referenced delegate

Even if there is a client reference to a server object's delegate, it was still possible for the object to be unexported on the server. (#36496)

GbxOopArray>>printOn:

This method previously did not print the buffer contents, although it included unused code to compute the size. The code has been refactored and buffer contents are now printed. (#33560)

Inspector/Debugger bugs

These bugs only apply to VisualWorks 7.x

Debugger accept/proceed may crash VisualWorks

With class generation disabled, accepting a method change from within the debugger and proceeding could have crashed the VisualWorks VM. (#38037)

Inspector hangs when ServerMap semaphore held

If the ServerMap (gsObjectCache) semaphore was being held, inspecting a delegate would bring up an inspector, but hang indefinitely. (#36068)

Subscript out of bounds during inspector dive

The fix in a previous release for bug 35672, "Inspector "Dive" sends #copy to inspected object", introduced cases where diving encountered a subscript out of bounds error. The inspectors have been changed to show the delegate instead, if available. (#36188)

FastConnector connect errors using deprecated creation protocol

Creating a GbsFastConnector using the deprecated messages #gemstone:smalltalk: or #smalltalk:gemstone: did not create the connectors correctly, resulting in errors. (#36964)

Debugger's stack inspector could not copy and paste server stack objects

In the Debugger's stack inspector (the top right pair of panes), copying and pasting a server object using the 'copy' and 'paste' menu items would often paste nil, rather than the selected and copied server object. (#35702)

Debugger message not understood if operate menu opened with no context selected

In the debugger, the stack pane operate menu raised a message not understood error if no context was selected. (#36184)

Browsing a server object from Inspector browsed ReplicateInspectionWrapper

When inspecting a server object, using the Object menu item 'browse' opened a VW Class Browser on the ReplicateInspectionWrapper class. (#36337)

Now, a browser will open on client object if the client tab is selected, and the server object if the server tab is selected.

Inspectors may display clients objects as delegates

The Inspector display of derived information incorrectly could display client object information as a delegate. (#36272)

TimeZone related bugs

Could not correctly replicate DateTimes in both 2006 and 2007

VisualWorks and GBS previously only supported a single client local TimeZone instance. If the rules governing the start and end of Daylight Savings Time changed from year to year, only one rule could be active. (#36432, #36563)

A full description of the way this issue has been resolved is described in the New Features section. See "Time Zones - added full support for multiple daylight savings time rules" on page 3.

Daylight Savings Time starts and ends a second late

Daylight Savings Time officially occurs at specified time such as 2:00:00 AM; meaning that there should be no time 2:00:00 AM, the local time at the instant following 1:59:59 will be 3:00:00 AM. GBS replication did not begin applying the DST change until the second following, which becomes 3:00:01. (#36433)

The equivalent bug exists in the GemStone server products; see GemStone/S bug #36374 and GemStone/S 64 Bit bug #37080.

Replicated DatesTimes incorrect for one hour at end of DST

The calculation to adjust server DateTime GMT values to client local time incorrectly applied the end Daylight Savings Time (DST) at the time of the change (usually 2am) in local standard time, one hour off from the correct time to apply the change. (#36390)

