GemStone®

# *GemBuilder® for Java™ Release Notes*

Version 3.1

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vmware®

GEMSTONE S™

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GemStone software is covered by U.S. Patent Number 6,256,637 "Transactional virtual machine architecture", Patent Number 6,360,219 "Object queues with concurrent updating", Patent Number 6,567,905 "Generational garbage collector with persistent object cache", and Patent Number 6,681,226 "Selective pessimistic locking for a concurrently updateable database". GemStone software may also be covered by one or more pending United States patent applications.

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# *Preface*

## About This Documentation

These release notes describe new features and bugs fixed in the GemBuilder® for Java™ Version 3.1 release. We recommend that everyone using GemBuilder for Java read these release notes before beginning installation or development.

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

For information on installing or upgrading to this version of GemBuilder for Java, please refer to the *GemBuilder for Java Installation Guide* for version 3.0.

## Terminology Conventions

The term "GemStone" is used to refer to the server products GemStone/S 64 Bit and GemStone/S; and may also be used to refer to the company, previously GemStone Systems, Inc., now a division of VMware, Inc.

## Other Useful Documents

- The *Javadocs* that are provided with the GemBuilder for Java product distribution are a key source of up-to-date information on GemBuilder for Java functionality.
- *GemBuilder for Java Tools Guide* describes the independent set of tools that let you explore and modify Smalltalk code in the server.
- *GemBuilder for Java Programming Guide* describes how to develop java based applications that interface with a GemStone server.
- Documentation provided with the GemStone/S or GemStone/S 64 Bit server describe the GemStone System and programming in GemStone Smalltalk.

# Technical Support

## GemStone Website

**http://support.gemstone.com**

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

- Documentation for released versions of all GemStone products, in PDF form.
- Bugnotes, identifying performance issues or error conditions you should be aware of.
- TechTips, providing information and instructions that are not otherwise included in the documentation.
- Compatibility matrices, listing supported platforms for GemStone product versions.

This material is updated regularly; we recommend checking this site on a regular basis.

## Help Requests

You may need to contact Technical Support directly, if your questions are not answered in the documentation or by other material on the Technical Support site. Technical Support is available to customers with current support contracts.

Requests for technical support may be submitted online, or by email or by telephone. We recommend you use telephone contact only for serious requests that require immediate attention, such as a production system down. The support website is the preferred way to contact Technical Support.

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

**Email: techsupport@gemstone.com**

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

If you are reporting an emergency by telephone, select the option to transfer your call to the Technical Support administrator, who will take down your customer information and immediately contact an engineer. Please also open a ticket on the website, and include error and log information. Non-emergency requests received by telephone will be placed in the normal support queue for evaluation and response.

When submitting a request, please include the following information:

- Your name, company name, and GemStone server license number.
- The versions of all related GemStone products, and of any other related products, such as client Smalltalk products.
- The operating system and version you are using.
- A description of the problem or request.
- Exact error message(s) received, if any, including log files if appropriate.

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

## 24x7 Emergency Technical Support

GemStone Technical Support offers, at an additional charge, 24x7 emergency technical support. This support entitles customers to contact us 24 hours a day, 7 days a week, 365 days a year, for issues impacting a production system. For more details, contact your GemStone account manager.

## Training and Consulting

Consulting is available to help you succeed with GemStone products. Training for GemStone software is available at your location, and training courses are offered periodically at our offices in Beaverton, Oregon. Contact your GemStone account representative for more details or to obtain consulting services.

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## Chapter 1. GemBuilder for Java 3.1 Release Notes

Chapter 1

# GemBuilder for Java 3.1 Release Notes

GemBuilder for Java (GBJ) version 3.1 is a new release of the GemBuilder for Java product. This release provides new features to interface to GemStone/S cache statistics, from GBJ, via the Java JMX interface, or using VMware Hyperic tools.

This version of GemBuilder for Java supports only GemStone/S 64 Bit and cannot be used with 32-Bit GemStone/S.

These release notes provide details of the changes between v3.0.1 and this release. Please take time to read through them before installing the product, to acquaint yourself with the changes. If you are upgrading from a version earlier than 3.0.1, please refer to the Release Notes for each intermediate release as well.

To install GemBuilder for Java version 3.1, follow the instructions in the GemBuilder for Java Installation Guide for 3.0.

## Supported Platforms

GemConnect version 3.1 is supported with GemStone/S 64 Bit v2.4.4 and later.

GemBuilder for Java relies on libraries that must be compatible with the GemStone server. Due to changes in the GBJ API, the GBJ libraries that are distributed with the currently released versions of GemStone/S 64 Bit are not compatible with GBJ v3.1. Server releases that will occur after v2.4.5 and v3.0.1 will include compatible libraries.

For previously released versions of GemStone/S 64 Bit, please contact GemStone Technical Support with your server version and platform, and we will provide you with updated GBJ libraries.

# Cache statistics interface

The new package **com.gemstone.gbjstats** package provides support for accessing shared page cache statistics from a number of sources. For details on any of the packages or classes, refer to the Java documentation included with the distribution.

## Interface from GBJ

Class GbjCacheStats provides application-level support for accessing GemStone's shared page cache statistics information, using the GSCI interface. The protocol allows you to attache to a specific shared page cache, take a sample of statistics, and retrieve specific details on statistics.

The GSCI interface is documented in the GemBuilder for C manual, part of the GemStone/S 64 Bit server documentation.

Low-level support for accessing shared page cache information is provided through the **com.gemstone.gbjgci** package, classes **GbjGciCacheStats** and the **GbjGciInterface**.

## Interface from Java JMX

For customers with environments that support Java's framework for application monitoring and management (JMX), several classes are provided. These include:

**GbjJmxCacheStats**
an extension of JMX's DynamicMBean that wrappers a GbjCacheStat and provides JMX-level access to its features.

**GbjJmxCacheStatsMonitor**
a JMX-compatible monitoring program that works like statmonitor, but instead of writing a file, formats JMX DynamicMBeans for access through JMX-compliant monitoring applications, such as jconsole.

In addition, there are two template files located in $GBJ/server that can be modified to tailor the information and control provided through a JMX monitoring application. These include:

**GbjJmxSystemStatsTemplate.dat**
specifies a selection of important Stone and Shared Page Cache statistics to present in a system-level display via JMX.

**GbjJmxCommandsTemplate.dat**
provides a way of executing useful GemStone Smalltalk code for system management through a JMX monitoring application.

## Interface from Hyperic

Customers using VMware's Hyperic system monitoring and management tool can also manage GemStone applications through Hyperic. Several items are provided for this:

**GbjHypericPluginGenerator**
a Class used to generate the XML plugin file used by Hyperic to access GemStone processes.

**$GBJ/server/GbjHypericServerTemplate.xml**
**$GBJ/server/GbjHypericServiceTemplate.xml**
Files used by the GbjHypericPluginGenerator to format the resulting XML file.

Hyperic uses special plugin files (either XML files or jar files that contain an XML file) to be able to recognize and manage the various server and service resources that it manages. The GbjHypericPluginGenerator is a java application that can be used to generate this XML file in a form compatible with the customer's environment and configuration.

Refer to the class documentation for GbjHypericPluginGenerator for details on how to use the application and its associated Template files.

# Other Changes and Bugs Fixed

## Improvement in login performance

Server-dependent static variables are now initialized differently, and the results cached. This provides a 20% performance improvement in login.

## Excessive blocking between GBJ sessions

If a java client is running multiple sessions, a long operation
in one session (for example, executing a time-consuming GS smalltalk command) caused operations in other sessions to block until the first one completed. (#41796)

## Finalization of incomplete GbjGciObject could have crashed gem

Incomplete GbjGciObjects have an OOP of 0, which caused a failure in java finalization. (#42081)

## Gem-to-gem signals may not have been received

Gem-to-gem signals were not received by the recipient. (#40656)

## Asynchronous signals delayed on quiet GBJ client

With the 3.0 GbjGciInterface redesign, asynchronous signals were only signaled when GS smalltalk code was executed or when the GBJ client communicated with the gem. This caused delays in the receipt and/or processing of these signals if there was no communication between the GBJ client and gem; this included SigAbort, LostOTRoot, gem-to-gem signals, and object change notification. (#41755)

## Problems with GBJ client/server class mapping

GBJ provides a mechanism where the application can map a GS server class to a particular java class on the client, using calls to mapGsToJavaClass() and registerStub(). This did not work correctly in 3.0, resulting in all objects being mapping to instances of GbjObject. GBJ uses this mechanism to map collection classes to GbjCollection, so Java operations involving Enumeration also failed.(#41734)

## isLoggedIn() may have incorrectly reported true

The GbjGciSession method isLoggedIn() could have incorrectly reported true if the gem session has been externally terminated or killed and the GBJ client has not recently attempted to communicate with it. (#41757)

## GbjGemStoneErrors updated

The errors listed in GbjGemStoneErrors were out of date. (#40951)