GemStone®

GemStone/S 64 Bit™ Release Notes

Version 2.4.5.1

April 2012

vmware®

GEMSTONE S™ 64

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PATENTS

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 changes in the GemStone/S 64 Bit™ version 2.4.5.1 release. Read these release notes carefully before you begin installation, conversion testing, or development with this release.

No separate Installation Guide is provided with this release. For instructions on installing GemStone/S 64 Bit version 2.4.5.1, or upgrading or converting from previous products or versions, see the Installation Guide for version 2.4.5.

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

Terminology Conventions

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

No separate Installation Guide is provided with this release. For instructions on installing GemStone/S 64 Bit version 2.4.5.1, or upgrading or converting from previous products or versions, see the Installation Guide for version 2.4.5. These documents are also available on the GemStone customer website, as described below.

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.
- **Downloads** and **Patches**, including 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 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 assistance may be submitted online, 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

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.

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, 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.

Contents

Chapter 1. GemStone/S 64 Bit 2.4.5.1 Release Notes

Overview 7

Supported Platforms and GBS Versions 7

Platforms 7
GBS version summary 8

Changes in this release 9

Support for AIX on POWER7 9
Memory leak in tranlog restore 9
Scopes overflow error 9
Risk of bad tranlog record written with nonzero STN_GEM_TIMEOUT 9
Commit Record Backlog during restore 9
Failure in pregrow of dynamically added extent causes extent corruption 9
Allow %Z timezone specifier in GS_CFTIME and enforce format 9

Chapter 1

GemStone/S 64 Bit 2.4.5.1 Release Notes

Overview

GemStone/S 64 Bit 2.4.5.1 is a new version of the GemStone/S 64 Bit object server, with fixes for a number of bugs, including critical bugs, and containing C-level memory barrier additions that address issues with AIX on POWER7. These issues technically also could affect Solaris on SPARC and HP-UX, but have no effect on operating systems running on Intel.

We recommend everyone using GemStone/S 64 Bit 2.x upgrade to this new version.

These release notes provide changes between the previous version of GemStone/S 64 Bit, version 2.4.5, and version 2.4.5.1. If you are upgrading from a version prior to 2.4.5, please also review the release notes for each intermediate release to see the full set of changes.

No separate Installation Guide is provided with this release. For installation instructions, use the Installation Guide for version 2.4.5.

Supported Platforms and GBS Versions

Platforms

GemStone/S 64 Bit version 2.4.5.1 is supported on the following platforms:

- Solaris 9 and 10 on SPARC
- Solaris 10 on x86
- HP-UX 11.11 and 11.31 on PA-RISC
- AIX 5.3, 6.1, and 7.1
- SuSE Linux ES 10 and 11, and Red Hat Linux ES 5.0, 5.5, and 6.1

For more information and detailed requirements for each supported platform, please refer to the GemStone/S 64 Bit v2.4.5 Installation Guide for that platform.

GBS version summary

The following versions of GBS are supported with GemStone/S 64 Bit version 2.4.5.1.

GBS version 7.4.1

VW 7.8.1 32-bit	VW 7.8.1 64-bit	VW 7.8 32-bit	VW 7.8 64-bit	VW 7.7.1 32-bit	VW 7.7.1 64-bit
▸ Windows XP and Windows 7 ▸ Solaris 9 and 10 on SPARC ▸ SuSE Linux ES 10 and 11; Red Hat Linux ES 5.5 and 6.1	▸ Solaris 10 on SPARC ▸ SuSE Linux ES 10 and 11; Red Hat Linux ES 5.5 and 6.1	▸ Windows XP and Windows 7 ▸ Solaris 9 and 10 on SPARC ▸ SuSE Linux ES 10 and 11; Red Hat Linux ES 5.5 and 6.1	▸ Solaris 10 on SPARC ▸ SuSE Linux ES 10 and 11; Red Hat Linux ES 5.5 and 6.1	▸ Windows XP and Windows 7 ▸ Solaris 9 and 10 on SPARC ▸ SuSE Linux ES 10, Red Hat Linux ES 5.0 and 5.5	▸ Solaris 10 on SPARC ▸ SuSE Linux ES 10, Red Hat Linux ES 5.0 and 5.5

GBS version 7.3.3

VW 7.7.1 32-bit	VW 7.7.1 64-bit	VW 7.7 32-bit	VW 7.7 64-bit
▸ Windows XP and Windows 7 ▸ Solaris 9 and 10 on SPARC ▸ SuSE Linux ES 10, Red Hat Linux ES 5.0 and 5.5	▸ Solaris 10 on SPARC ▸ SuSE Linux ES 10, Red Hat Linux ES 5.0 and 5.5	▸ Windows XP and Windows 7 ▸ Solaris 9 and 10 on SPARC ▸ SuSE Linux ES 10, Red Hat Linux ES 5.0 and 5.5	▸ Solaris 10 on SPARC ▸ SuSE Linux ES 10, Red Hat Linux ES 5.0 and 5.5

GBS version 5.3.2

VA Smalltalk 8.0.2	VA Smalltalk 7.5.2
▸ Windows XP, Windows 7, and Windows 2008 R2	▸ Windows XP

For more details on supported platforms and requirements, see the Release Notes for that version of GemBuilder for Smalltalk.

Changes in this release

Support for AIX on POWER7

The POWER7 chip provides more aggressive prefetch of data and instructions. This required additional memory barriers on atomic updates within GemStone, to avoid the risk of coherency and audit problems.

Previous versions of GemStone/S 64 Bit were not certified on POWER7. These earlier versions could encountered cache coherency and corruption problems when running with production loads on POWER7 systems. (#42089)

Memory leak in tranlog restore

During transaction log restore operations, there was a memory leak of variable size. This memory leak was primarily an issue for warm backups, which repeatedly perform tranlog restores; the stone would eventually run out of memory and shut down. (#42141)

Scopes overflow error

When handling an exception, it was possible to encounter a fatal error "VM temporary object scopes overflow " (#42105)

Risk of bad tranlog record written with nonzero STN_GEM_TIMEOUT

The way transaction log records are generated when there is a gem terminated due to STN_GEM_TIMEOUT created a risk of writing a bad record to the tranlog. This is not visible when writing the tranlog, but when the transaction log containing this record is replayed, including during recovery after a shutdown, it fails with the error "unhandled recordKind". (#42114)

Commit Record Backlog during restore

When restoring transaction logs containing a large amount of reclaim, it was possible for a commit record backlog to develop. This could use up all available free space and cause the restore to fail. (#42125)

Failure in pregrow of dynamically added extent causes extent corruption

When an extent is added dynamically using methods such as createExtent:withMaxSize:, the new extent is pregrown if DBF_PRE_GROW is true. If the operation fails, for example if the specified size is larger than available disk, the system does not clean up properly, and it can result in the wrong information written to the root page. (#42147)

Allow %Z timezone specifier in GS_CFTIME and enforce format

GemStone allows you to customize the way timestamps are printed in log files using the GS_CFTIME environment variable. This previously always embedded the timezone, so including the %Z specifier within the GS_CFTIME resulted in the timezone included twice. (#41857)

In addition, logic has been added to verify that the GS_CFTIME contains sufficient information for debugging of log files following incidents. $GS_CFTIME must be a valid strftime format string containing fields for the month, day, hour, minute and seconds. If the setting does not meet these restrictions, default formatting is used.