
GemStone®

GemBuilder® for Smalltalk Installation Guide

For Cincom Smalltalk VisualWorks
Environment

Version 7.5

July 2012

vmware®

GEMSTONE[™]
S

INTELLECTUAL PROPERTY OWNERSHIP

This documentation is furnished for informational use only and is subject to change without notice. VMware, 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 VMware, 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 VMware, 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 VMware, Inc.

This software is provided by VMware, 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 VMware, 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

This software product, its documentation, and its user interface © 1986-2012 VMware, Inc., and GemStone Systems, Inc. All rights reserved by VMware, Inc.

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.

TRADEMARKS

VMware is a registered trademark or trademark of VMware, Inc. in the United States and/or other jurisdictions.

GemStone, **GemBuilder**, **GemConnect**, and the GemStone logos are trademarks or registered trademarks of VMware, Inc., previously 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**, and **Solaris** are trademarks or registered trademarks of Oracle and/or its affiliates. **SPARC** is a registered trademark of SPARC International, Inc.

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

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

Microsoft, **MS**, **Windows**, **Windows XP**, **Windows 2003**, **Windows 7** and **Windows Vista** 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.

SUSE is a registered trademark of Novell, Inc. in the United States and other countries.

AIX, **POWER5**, and **POWER6** are trademarks or registered trademarks of International Business Machines Corporation.

Apple, **Mac**, **Mac OS**, **Macintosh**, and **Snow Leopard** are trademarks of Apple Inc., in the United States and other countries.

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, VMware 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.

VMware, Inc.
15220 NW Greenbrier Parkway
Suite 150
Beaverton, OR 97006

About This Documentation

This document explains how to install GemBuilder® for Smalltalk version 7.5. This documentation is also available on the GemStone Technical Support website.

For information regarding new features and changes in this release of GemBuilder for Smalltalk, please refer to the *GemBuilder for Smalltalk Release Notes* for version 7.5.

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.

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 past and current versions of GemBuilder for Smalltalk.
- ▶ 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.

Contents

Chapter 1. Installation

| | |
|--|----|
| System Requirements | 8 |
| Installation Process. | 10 |
| Install GBS Files. | 10 |
| Loading GBS into a VisualWorks Image. | 10 |
| Setup Server Shared Library Access | 11 |
| Client libraries from the GemStone server product | 11 |
| Copy libraries and update path | 13 |
| Configure GBS to locate the correct shared libraries. | 14 |
| Save Image with libraryName | 15 |
| Verify installation by logging into the GemStone server. | 15 |

This document describes how to install GemBuilder for Smalltalk v7.5.

Please review the *GemBuilder for Smalltalk Release Notes* for details of the changes, before upgrading to this version.

This version of GemBuilder for Smalltalk (GBS) is compatible with both GemStone/S 64 Bit, the 64-bit GemStone/S-based object server, and with GemStone/S, the original 32-bit GemStone object server. Applications using GBS version 7.5 can log in to either GemStone/S 64 Bit or GemStone/S repositories (but not simultaneously), provided that the appropriate client libraries for each are used. For details, see “GemStone Server Shared Library Files” on page 8.

GBS version 7.5 supports VisualWorks 7.9 only.

Installing GBS is a multi-step process:

1. Ensure that your system is running the appropriate GemStone object server, operating system, and VisualWorks versions.
2. Install the GBS files in the desired directory.
3. Load the GBS code into your Smalltalk image.
4. Set up access to the server shared library files.
5. Configure GBS to locate the libraries.
6. Test the installation.

System Requirements

Operating system

Supported operating systems are listed in Table 1, Table 2, and Table 3.

Client Smalltalk

This version of GBS is supported with the Cincom VisualWorks Smalltalk environment, both 32-bit and 64-bit, as listed in Table 1, Table 2, and Table 3.

This version of GBS can only be loaded into VisualWorks v.7.9.

The 32-bit VisualWorks Smalltalk environment is supported with both 32-bit GemStone/S and GemStone/S 64 Bit.

The 64-bit VisualWorks Smalltalk environment is supported with GemStone/S 64 Bit only.

GemStone Server

Supported GemStone/S and GemStone/S 64 Bit platforms are listed in Table 1, Table 2, and Table 3.

GemStone Server Shared Library Files

GemBuilder for Smalltalk requires access to a set of shared library files that are compatible with the specific GemStone/S server product and version.

The required libraries must be for the platform on which GBS will be running, regardless of the platform on which the server is running.

32-Bit VisualWorks Smalltalk

With 32-bit VW, you must use 32-bit shared libraries. These are distributed with both 32-bit GemStone/S and with GemStone/S 64 Bit. The GemStone/S 64 Bit distribution includes 32-bit libraries in addition to (on Unix) 64-bit libraries.

32-bit GemStone/S allows both linked and RPC logins from 32-bit VW. With GemStone/S 64 Bit, you can only login RPC from 32-bit VW.

Details of the required libraries are listed in Table 4 on page 12.

64-Bit VisualWorks Smalltalk

With 64-bit VW, you can only login to GemStone/S 64 Bit; it is not compatible with 32-bit GemStone/S.

Using 64-bit GemStone/S 64 Bit shared libraries with 64-bit VW, you can login linked as well as RPC.

Details of the required libraries are listed in Table 5 on page 13.

Table 1 Supported 32-bit GemStone/S Server versions

| | VW 7.9 32-bit |
|---|---------------|
| Windows 2008 R2 | 6.6.2 |
| Windows 7; Windows XP, SP 1 or later | 6.6.2 |
| Red Hat Linux ES 5.0 and 5.5, and 6.1 | 6.6.2 |
| Solaris 9 and 10 on SPARC | 6.6.2 |

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

| | VW 7.9 32-bit |
|---|------------------------------|
| Windows 2008 R2 | 3.1, 3.0.1 |
| Windows 7; Windows XP, SP 1 or later | 3.1, 3.0.1, 2.4.5.1, 2.4.4.8 |
| SUSE Linux ES 11; Red Hat Linux ES 6.1 | 3.1, 2.4.5.1 |
| SUSE Linux ES 10; Red Hat Linux ES 5.5 | 3.1, 3.0.1, 2.4.5.1 |
| Solaris 10 on SPARC | 3.1, 3.0.1, 2.4.5.1 |
| Solaris 9 on SPARC | 2.4.5.1 |

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

| | VW 7.9 64-bit |
|---|---------------------|
| SUSE Linux ES 11; Red Hat Linux ES 6.1 | 3.1, 2.4.5.1 |
| SUSE Linux ES 10; Red Hat Linux ES 5.5 | 3.1, 3.0.1, 2.4.5.1 |
| Solaris 10 on SPARC | 3.1, 3.0.1, 2.4.5.1 |

Installation Process

Install GBS Files

1. GemBuilder for Smalltalk is provided in zipped form. Prior to installation, unzip the distribution.

The distributions includes the following:

A directory named **docs** that contains PDF copies of the GemBuilder for Smalltalk documentation:

- GBS-UsersGuide-VW-7.4.pdf (unchanged from previous release)
- GBS-ReleaseNotes-7.5.pdf
- GBS-InstallGuide-7.5.pdf

A directory named **VW** with the parcel files for VisualWorks:

- CstMessengerSupport.pcl
- CstMessengerSupport.pst
- GbsRuntime.pcl
- GbsRuntime.pst
- GbsTools.pcl
- GbsTools.pst

2. Determine the appropriate location for the GBS v7.5 parcels. This directory should already be on, or will need to be added to, the VisualWorks parcel path.

Copy the parcel files from the distribution directory named **vw** to this location.

Loading GBS into a VisualWorks Image

1. Start VisualWorks, using a clean image without any previous versions of GemBuilder for Smalltalk.
2. Use the **System > Settings** tool to ensure that the directory to which you copied the parcels is included in **System > Parcel Path**. Add it, if necessary.
3. In a Parcel Manager, select the parcel **GbsTools**. Select **Parcel > Load**. This parcel in turn loads the other required parcels.

If you are building a deployment image and do not need the GBS development tools, install the **GbsRuntime** parcel instead of **GbsTools**.

4. Save your image. You may find it helpful to create an additional copy of this GBS image to use as a backup during application development.

Setup Server Shared Library Access

To allow GBS to login to the GemStone/S server, the correct shared libraries must be available and GBS must be configured to find the libraries.

There are a number of options for where to locate the server client libraries on the GBS client machine. These decisions will determine whether you need to update the operating system search path, and how you will configure GBS.

The following is a general outline of the process to setup GBS to access the shared libraries:

- ▶ Locate the correct shared libraries. This may require installing the appropriate GemStone server product.
- ▶ If needed, copy the shared libraries to the desired final location.
- ▶ If needed, update the machine search path. Changing the machine search path will require that you restart VisualWorks so the path is correct in the VisualWorks environment.
- ▶ Configure GBS to locate the library

Read through the following sections so you understand the options before starting the client library configuration.

Client libraries from the GemStone server product

The shared libraries are distributed with the GemStone/S server product. Regardless of the platform on which the server is running, the shared libraries used for GBS must be for the platform on which GBS is running.

If GBS is running on the same platform as the server to which it will log in, you can use the shared libraries from the server installation. However, if GBS will be running on a different platform, you may need to download the server version for the client platform in order to access the correct libraries.

For details on the GemStone/S server distribution and installation, see the *Installation Guide* for your server product and version. The *GemStone/S Installation Guide* also includes instructions on copying the shared libraries and configuring GBS; however, documentation for previously released server versions will not include information specific to GBS v7.5.

The names and locations within the server distribution are different for different server products, server product versions, operating systems, and for 32-bit and 64-bit VisualWorks clients. The required libraries for 32-bit VisualWorks are listed in Table 4, and for 64-bit VisualWorks clients in Table 5.

32-Bit VisualWorks clients

The following tables list the shared library files required for running with 32-bit VisualWorks clients, with the supported GemStone/S server product versions and operating system platforms.

Table 4 32-bit Shared Library Names

| Server product and Version | Windows Client Shared Libraries | Solaris or Linux Client Shared Libraries |
|--|--|--|
| GemStone/S v6.6.2 32-bit VW Clients RPC or Linked Logins | In %GEMSTONE%\bin: gcilw66.dll (linked or RPC logins) gcirw66.dll (RPC logins only) gsw66.dll englis66.err | In \$GEMSTONE/lib: libgcilnk66.so (linked or RPC logins) libgcirpc66.so (RPC logins only) english66.err |
| GemStone/S 64 v2.4.5.1 32-bit VW Clients RPC logins only | In %GEMSTONE%\bin: libgcirpc.dll libgs64-245.dll msvcr90.dll | In \$GEMSTONE/lib32: libgcirpc.so |
| GemStone/S 64 v3.0.1 32-bit VW Clients RPC logins only | In %GEMSTONE%\bin: libgcirpc.dll msvcr90.dll | In \$GEMSTONE/lib32: libgcirpc.so |
| GemStone/S 64 v3.1 32-bit VW Clients RPC logins only | In %GEMSTONE%\bin: libgcirpc-3.1.0-32.dll libssl-3.1.0-32.dll msvcr90.dll | In \$GEMSTONE/lib32: libgcirpc-3.1.0-32.so libssl-3.1.0-32.so |

64-Bit VisualWorks clients

When running with 64-Bit VisualWorks clients, you may log in either linked or RPC to GemStone/S 64 Bit. You must use the 64-Bit shared libraries.

Table 5 64-bit Shared Library Files for GemStone/S 64 Bit

The following libraries can be used for linked or RPC logins with 64-Bit VW clients

| Server product and Version | Solaris or Linux Client Shared Libraries |
|---|--|
| GemStone/S 64 v2.4.5.1 64-bit VW Clients Linked or RPC logins | In \$GEMSTONE/lib: libgcilnk.so (linked or RPC) libgcirpc.so (RPC only) |
| GemStone/S 64 v3.0.1 64-bit VW Clients Linked or RPC logins | In \$GEMSTONE/lib: libgcilnk.so (linked or RPC) libgcirpc.so (RPC only) |
| GemStone/S 64 v3.1 64-bit VW Clients Linked or RPC logins | In \$GEMSTONE/lib: libgcilnk-3.1.0-64.so (linked or RPC) libgcirpc-3.1.0-64.so (RPC only) libssl-3.1.0-64 |

Copy libraries and update path

If the GBS client is running on the same machine as a GemStone/S server installation, you do not need to copy the libraries; you can use the libraries in the existing location.

If you do not need a complete server installation on this machine, and you will not be running linked GBS nor RPC sessions with Gems on this machine, then only the specific shared libraries, as listed in Table 4 or Table 5, are required for GBS.

There are several options when copying the shared libraries:

- ▶ You may copy these libraries to the working directory of your VisualWorks image or to the bin directory or subdirectory of your VisualWorks image's VISUALWORKS directory.
- ▶ You may copy these libraries to an existing directory on the machine search path.
- ▶ You may create a new directory, copy the libraries to this location, and add this directory to the machine search path.
- ▶ You may copy these shared libraries to another location, not on the path, and specify the absolute path and filename of the library using `libraryName:` or via the GBS dialog.

Note that in GBS version 7.5, leaving `libraryName` empty will not detect client libraries in directories on the path.

Configure GBS to locate the correct shared libraries

GBS uses the configuration parameter `libraryName` to identify the specific library to be loaded. This parameter can be set to an empty string, the name of the library, or the full path and name of the library.

While only one specific library name is set by this parameter, other shared library files that are listed in Table 4 or Table 5 must be available, usually in the same location, in order for the library load to succeed and logins to work.

There are a number of ways to specify the library file that should be loaded:

- ▶ Set `libraryName` to the full path and file name of the client library file. For example, for clients on Windows logging into GemStone/S 64 Bit v3.1:

```
GbsConfiguration current libraryName:
  'InstallDir\GemBuilderC3.1.0-x86.Windows_NT\bin\libgcirpc-
  3.1.0-32.dll'
```

or for 64-bit GBS clients on Solaris that will log in linked as well as RPC into GemStone/S 64 Bit v2.5.4.1:

```
GbsConfiguration current libraryName:
  'InstallDir/GemStone64Bit2.4.5.1-sparc.Solaris/lib/libgcilnk64-
  245.so'
```

This does not require the library be on the `%PATH%` or `$LD_LIBRARY_PATH`.

- ▶ Set `libraryName` to the file name of the client library file. For example, for clients Windows logging into GemStone/S 64 Bit v3.1:

```
GbsConfiguration current libraryName:
  'libgcirpc-3.1.0-32.dll'
```

This requires that the library be in a directory on the `%PATH%` or `$LD_LIBRARY_PATH`; or on Linux, in the standard Linux library directories.

On Windows, it may also be in the current working directory or in the VisualWorks executable directory.

For server products and versions other than GemStone/S 64Bit v3.1, be sure to verify that no other versions of shared libraries are in directories on the path.

- ▶ Leave `libraryName` set to the empty string. This is the default, equivalent to:

```
GbsConfiguration current libraryName: ''
```

This requires that the client libraries be in the current working directory, or in the bin directory or subdirectory of your VisualWorks image's VISUALWORKS directory.

Be sure to verify that no other versions of GemStone shared libraries are in these locations.

- ▶ Use the file dialog to select the library name and path.

If the library name specified by `libraryName` cannot be loaded, the resulting notification provides the option of selecting a file using a file dialog. The load error may be due to an incorrect `libraryName`, copying the wrong library, or an additional required library failing to load.

Navigate to the location of the shared library and select the file. The dialog provides filename filtering, so only valid library names will appear.

Selecting a file will set `libraryName` to the full path selected.

Save Image with `libraryName`

To preserve your `libraryName` setting, you may wish to save your image.

The `libraryName` setting controls the shared library that is loaded the first time GemStone server code is accessed after image startup. If you have a client library loaded in your image, changing the `libraryName` has no effect. If later, you want to use a different shared library (for example, to log in to a different server product or version), you will need to update the `libraryName` and save and restart the image.

Verify installation by logging into the GemStone server

Once the shared libraries are loaded, you should test your installation by logging into the GemStone/S server. You will need to ensure that the Stone repository monitor, and a NetLDI (if necessary), are accessible.

See the *GemBuilder for Smalltalk User's Guide*, Chapter 11, for instructions on logging into the GemStone/S server.

Note that GemStone/S 64-bit v3.1 and later uses SRP (Secure Remote Password) and SSL to initiate login and authenticate passwords for RPC logins, and for all communication between GBS clients and gem processes that are on separate machines. See the *GemStone/S 64 Bit System Administration Guide* for more information.