
GemStone®

GemBuilder for Smalltalk Installation Guide

For IBM VisualAge and Instantiations VA
Smalltalk Environments

Version 5.2.5

August 2006

GEMSTONE ™

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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

This document explains how to install GemBuilder for Smalltalk® version 5.2.5. This information is also available on the GemStone customer website.

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

Typographical Conventions

This document uses the following typographical conventions:

- ▶ Commands and user input are shown in **bold** typeface. For example:

copydbf

- ▶ Smalltalk methods, environment variables, file names and paths, and screen dialogue examples are shown in monospace typeface. For example:

markForCollection

- ▶ Place holders that are meant to be replaced with real values are shown in *italic* typeface. For example:

execute: *aString*

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.

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.

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Installation

Version 5.2.5 of GemBuilder for Smalltalk supports VisualAge and VA Smalltalk, as shown in Table 1. VisualWorks support is provided in a separate release.

Installing GemBuilder for Smalltalk is a five-step process:

1. Ensure that your system has the necessary disk space, RAM, GemStone object server version, operating system version, and a supported client Smalltalk version.
2. Copy the GemBuilder for Smalltalk files to the desired directory.
3. Ensure that the shared library files can be found in your path.
4. Load the GemBuilder for Smalltalk code into your Smalltalk image.
5. Test the installation.

NOTE

This release of GemBuilder for Smalltalk is compatible with GemStone/S and GemStone/S 64 Bit 1.x. You can take advantage of the latest GBS release while running with your existing server, and then upgrade the server at a later date. For further information, See "Shared Library Files" on page 1-3.

System Requirements

Disk space

- ▶ Unzipping the distribution file will require 13 megabytes. Unzipping the shared library files requires 35 megabytes of free disk space.
- ▶ Shared library files require approximately 1.5 megabytes of free disk space.
- ▶ Installing GemBuilder for Smalltalk into your ENVY repository will increase its size by approximately 9 megabytes.
- ▶ Adding GemBuilder for Smalltalk to your Smalltalk image adds about 2 MB to the image file size.

RAM

Logging into a GemStone server requires a Gem session. This can be either a linked Gem, which is part of the client image, or a separate RPC Gem process running on the same or a different machine.

The Gem requires memory for heap and stack space. The amount of memory required depends on the GemStone configuration parameter settings; the default settings and memory requirements may be different depending on which server product and version is used. Application usage also can cause the requirements to vary greatly. A modest amount of computation may require only an additional 2 MB, while a computationally intensive application may use as much as 50 MB or more.

- ▶ A linked Gem increases the memory requirements for the client image by the Gem memory requirements for heap and stack space.
- ▶ An RPC Gem requires no additional memory for the client image that spawned it. The new Gem process itself requires about 3 MB, plus the memory required for heap and stack space (see above).
- ▶ Changing various GemStone configuration parameters beyond the defaults will add to the memory required for the Gem. These parameters include:
 - ▶ GEM_MAX_SMALLTALK_STACK_DEPTH
 - ▶ GEM_PRIVATE_PAGE_CACHE_KB
 - ▶ GEM_TEMPOBJ_CACHE_SIZE

See the system configuration file and GemStone server documentation for details.

NOTE

Your operating system may report that each individual Gem is using the RAM required for its process plus the RAM required for the shared page cache. For example, if you increase the shared page cache size to 150 megabytes, the operating system may report that each Gem process is using over 150 megabytes of RAM. This is, however, misleading; RAM used by the shared page cache is shared among all Gem processes.

Operating system

Operating systems are listed in Table 1.

GemStone/S server product

A supported GemStone/S object server product version, installed on a network-accessible host. GemBuilder for Smalltalk supports the GemStone/S server products: GemStone/S, the original GemStone object server, and GemStone/S 64, the redesigned 64-bit GemStone/S-based object server.

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

Table 1 GemStone/S shared library versions compatible with GBS 5.2.5 on each platform and client Smalltalk

	Windows 2000, Service pack 1 or later	Windows XP, Service pack 1 or later	Windows 2003
IBM VisualAge Smalltalk 6.0.2	GemStone/S 6.1.4, 6.1.5 GemStone/S 64 Bit 1.1.5 (rpc logins only)	GemStone/S 6.1.4, 6.1.5 GemStone/S 64 Bit 1.1.5 (rpc logins only)	GemStone/S 6.1.5 GemStone/S 64 Bit 1.1.5 (rpc logins only)
Instantiations VA Smalltalk 7.0	GemStone/S 6.1.4, 6.1.5 GemStone/S 64 Bit 1.1.5 (rpc logins only)	GemStone/S 6.1.4, 6.1.5 GemStone/S 64 Bit 1.1.5 (rpc logins only)	GemStone/S 6.1.5 GemStone/S 64 Bit 1.1.5 (rpc logins only)

Distribution Files

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

The GemBuilder for Smalltalk distribution includes the following:

gbs5.2.5.dat — The GemBuilder for Smalltalk ENVY data file.

A directory named **docs** that contains online copies of the printed documentation in the form of searchable PDF files:

GemBuilder_VA.pdf (unchanged from previous releases)
 GBS-ReleaseNotes-5.2.5.pdf
 GBS-InstallGuide-5.2.5.pdf

Shared Library Files

GemBuilder for Smalltalk 5.2.5 requires access to a set of shared library files that are compatible with the specific GemStone/S server product and version.

The GemStone/S 64 Bit shared library files are distributed differently than GemStone/S. For GemStone/S 64 Bit, follow the instructions provided in the GemStone/S 64 Bit Installation Guide, and proceed with Step 3.

For GemStone/S, follow these steps:

1. For the GemStone/S server version you will be connecting to, locate the file *clientFiles.zip* in the installation directory, and unzip it. This file unzips to a directory tree:


```
clientFiles/<clientPlatform>/<shared library files>
```
2. From the appropriate client platform directory, copy the shared library files listed in Table 2 into the directory in which your client Smalltalk executable resides.

3. Ensure that your library search path includes the directory to which they were copied, and that your client has read and execute privileges on these files.
4. When logging into a GemStone server product other than GemStone/S 64 Bit, you will need to explicitly set the GbsConfiguration parameter *libraryName* to the correct library name from Table 2. This is described in more detail in the section “Test Your Installation by Logging into GemStone” on page 5.

Table 2 Shared Library Files for Windows

Server Product and version	Shared Library Files
GemStone/S 6.1.x	gcilw61.dll (linked or rpc logins) gcirw61.dll (rpc logins only) gsw61.dll englis61.err
GemStone/S 64 Bit 1.1.5	libgcirpc.dll libgs64-115.dll english.err

Loading GBS into Your Development Environment

Installing Gembuilder for Smalltalk is a two-step process:

1. Import the GemBuilder for Smalltalk configuration maps into your ENVY repository.
2. Load GemBuilder for Smalltalk from your ENVY repository into your image.

Importing into your ENVY Repository

You need to perform this procedure only once per ENVY repository. You can then load GBS from that repository into any number of Smalltalk client images.

1. Start a client Smalltalk image which does not have any previous versions of GemBuilder for Smalltalk loaded.
2. In the Configuration Maps Browser, choose **Names > Import > Selected Versions...**
3. A dialog will open requesting **Enter the IP address or host name of the server.** Leave the field blank and click on **OK.**
4. In the resulting dialog, navigate to the GBS distribution location and select the file `gbs5.2.5.dat`.
5. Click **Open.**
6. In the Name pane on the left, select the `GBSGemBuilder` configuration map to import.
7. In the middle versions pane, select version `5.2.5`, and click **>>** to move it to the Selected versions pane on the right.
8. Click **OK** or **Accept.**
9. Check in the Configuration Maps Browser to ensure that the configuration maps were imported.
10. Quit the image if you wish (you need not save it), or proceed to the next task.

Loading into an Image

1. Start a client Smalltalk image which does not have any previous versions of GemBuilder for Smalltalk loaded.
2. From a Configuration Maps Browser, select the newly imported `GBSGemBuilder` map in the Names pane on the left. Version `5.2.5` appears in the middle Editions and Versions pane.
3. In the Editions and Versions pane, select `5.2.5` and choose the menu item **load** to load the configuration map.
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.

Test Your Installation by Logging into GemStone

1. If you have not already done so, start a GemStone server (stone process). If you will be using a remote Gem (logging in RPC) or will be logging into the object server from another host in your network, start a NetLDI process on the server host. For example:

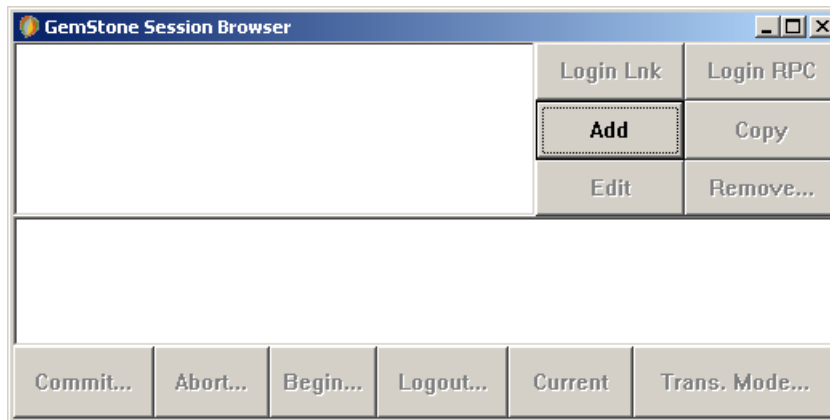
```
% startstone gemserver61
...
% startnetldi
...
```

2. If you plan to run gems or remote linked logins on your client machine, start a NetLDI process on the client host as well.
3. Start your client Smalltalk using the image into which you have loaded GemBuilder for Smalltalk.
4. Set the `GbsConfiguration` parameter `libraryName` to the name of the appropriate shared library for your platform and server product. The library names are listed in Table 2. You may set the `libraryName` by executing:

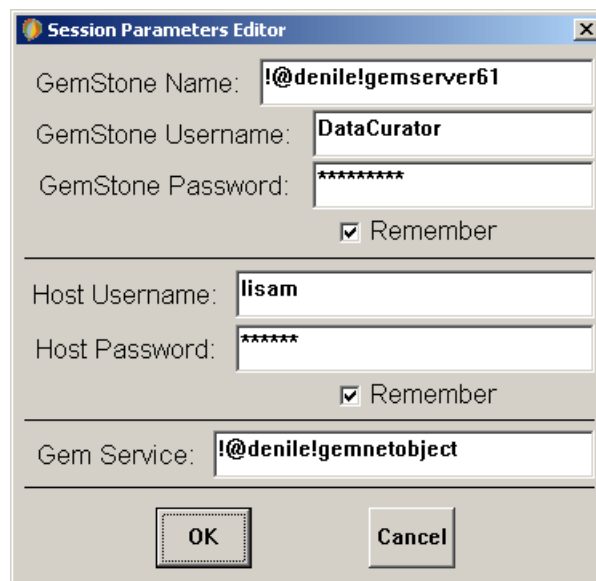
```
GbsConfiguration current libraryName: 'libraryname'
```

Alternatively, `libraryName` can be set using the Settings tool. Selecting **GemStone > Tools > Settings**, and go to the tab **Server Communication**.

5. Select **GemStone > Sessions**.

Figure 1.1 The Session Browser Before Adding a Session

6. Select the **Add** button to add a set of session parameters. A Session Parameters Editor dialog opens, prompting you for the session parameters (Figure 1.2).

Figure 1.2 The Session Parameters Editor

7. Fill in the session parameters:

GemStone repository: provide the name of the Stone process that you started running in Step 1. For a Stone running on a remote server, be sure to include the server's hostname in Network Resource String (NRS) format. For example, for a Stone process called 'gemserver61' running on node 'denile', specify the NRS string:

```
!@denile!gemserver61
```

GemStone username: Your GemStone username, such as DataCurator.

GemStone password: Your GemStone password. Click on **Remember** if you do not wish to supply this password each time you log in. When this is set, the password is stored in the client image.

Host username: Supply the username for your account on the server host.

Host password: The password for your account on the server. Again, click on **Remember** if you do not wish to supply this password each time you log in. When this is set, the password is stored in the client image.

NOTE

If you start your NetLDI process in guest mode (startnetldi -g on UNIX or netldi start /g on Windows), you do not need to supply a host username and password.

Gem Service: Specify gemnetobject. For a remote Gem process, you must provide the Gem host name in NRS format. For example,

```
!@denile!gemnetobject
```

For NetLDI processes with names other than the default, insert the NetLDI name or port number as well:

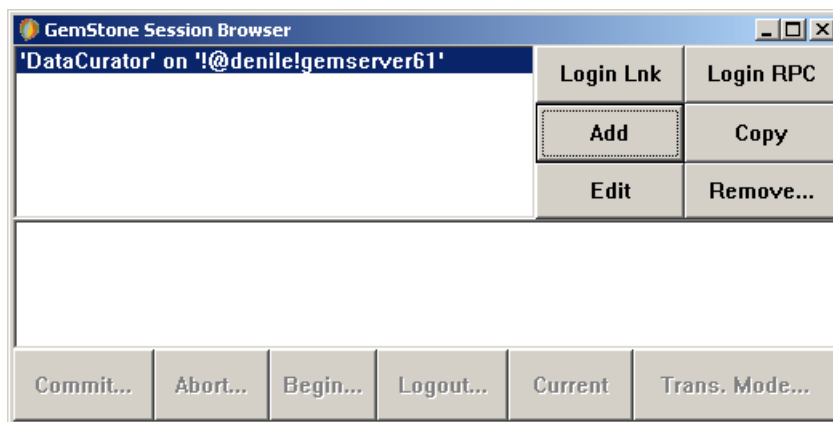
```
!@denile#netldi:<processNameOrPort>!gemnetobject
```

For more information on Network Resource Strings, see the *GemBuilder for Smalltalk User's Guide*.

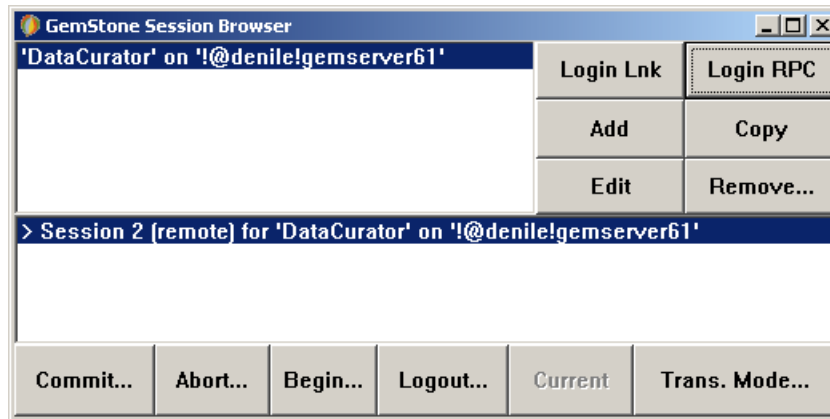
When you're done, click **OK**. The dialog closes, and the session parameters you have provided appear in the top left pane of the Session Browser.

8. In the Session Browser, select the newly-defined session parameters (Figure 1.3) and click on **Login Lnk** or **Login Rpc** to log in to GemStone.

Figure 1.3 The Session Browser Before Login



9. A successful login results in the session information appearing in the lower pane of the Session Browser, with the bottom row of buttons enabled (Figure 1.4).

Figure 1.4 The Session Browser After Login

10. Successfully logging in to GemStone verifies that your GBS installation is complete. To end the session, click **Logout**. If you wish to save your session parameters, save your Smalltalk image when you exit.

If the login attempt did not succeed, see your GemBuilder for Smalltalk User's Guide for details on login parameters. Highlight the session parameters in the upper pane of the browser and select **Edit** to change your settings and try again.