

GemBuilder for Smalltalk Installation Guide

For Cincom Smalltalk VisualWorks
Environment

Version 7.3beta DRAFT

October 2009



INTELLECTUAL PROPERTY OWNERSHIP

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

This software is provided by GemStone Systems, 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 GemStone Systems, 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 © 1986-2009 GemStone Systems, Inc. All rights reserved by GemStone Systems, Inc.

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.

TRADEMARKS

GemStone, **GemBuilder**, **GemConnect**, and the GemStone logos are trademarks or registered trademarks 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**, **Solaris**, and **SunOS** are trademarks or registered trademarks of Sun Microsystems, Inc. All **SPARC** trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. **SPARCstation** is licensed exclusively to Sun Microsystems, Inc. Products bearing **SPARC** trademarks are based upon an architecture developed by Sun Microsystems, Inc.

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

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

Microsoft, **MS**, **Windows**, **Windows 2000** and **Windows XP** 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.

AIX and **POWER4** are trademarks or registered trademarks of International Business Machines Corporation.

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, GemStone 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.

GemStone Systems, Inc.

1260 NW Waterhouse Avenue, Suite 200
Beaverton, OR 97006

Preface

This document explains how to install GemBuilder for Smalltalk® version 7.3beta. 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 provide extensive documentation, and should be your first source of information.

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:

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, and past and current versions of GemBuilder for Smalltalk.

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.

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.

Help Requests

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.

Website: <http://techsupport.gemstone.com>

Email: support@gemstone.com

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

Requests for technical assistance may be submitted online, or 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 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.

Contents

Chapter 1. Installation

| | |
|--|---|
| System Requirements | 2 |
| Distribution Files | 4 |
| Shared Library Files | 5 |
| Loading GBS into Your Development Environment | 6 |
| Installing into a VisualWorks 7.x Image with Parcels | 6 |
| Test Your Installation by Logging into GemStone | 7 |

Version 7.3beta of GemBuilder for Smalltalk supports VisualWorks 7.x only. VisualWorks 5i.1Envy and VA Smalltalk support is provided in a separate release.

This version of GemBuilder for Smalltalk is compatible with both GemStone/S 64 Bit and 32-bit GemStone/S. Applications using GBS version 7.3beta 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 "Shared Library Files" on page 5.

GBS uses the new Single-trip interface to connect to GemStone/S 64 Bit 2.2.5 and above, and the Multi-trip interface to connect to GemStone/S. The older, limited release "Single Round Trip" protocol is not supported in this version of GBS.

For details on changes in this version of GemBuilder for Smalltalk, see the *GemBuilder for Smalltalk Release Notes*. If you are upgrading from version 7.1.2 or before, please be careful to review the release notes for version 7.2, 7.2.1, and 7.2.2, as the changes in these releases may impact your application.

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 VisualWorks 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.

System Requirements

Disk space

- ▶ Unzipping the distribution file will require 9 megabytes. Unzipping the shared library files will require further disk space, depending on the platform.
- ▶ Shared library files require approximately 1.5 megabytes of free disk space.
- ▶ Users of VisualWorks with parcels will need approximately 4.5 megabytes of free disk space for the parcel files.
- ▶ 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. GemStone/S 64 Bit only supports RPC sessions.

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 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 and Table 2.

GemStone Server product

A supported GemStone/S object server version, installed on a network-accessible host. GemBuilder for Smalltalk supports both GemStone/S, the original 32-bit GemStone object server, and GemStone/S 64 Bit, the 64-bit GemStone/S-based object server.

The following tables list the supported client operating system, client Smalltalk, and GemStone server version configurations

Client Smalltalk

A supported client Smalltalk, correctly installed and configured. This version of GemBuilder for Smalltalk supports the Cincom VisualWorks versions listed in Table 1 and Table 2.

Table 1 Supported GemStone/S 64 Bit Server versions

Note that only RPC logins are supported from GBS to GemStone/S 64 Bit

| | VW 7.6 with 7.6 OE | VW 7.7 with 7.7 OE |
|---|------------------------------|------------------------------|
| Windows Vista | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |
| Windows Server 2003 Standard Edition, SP1 or later | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |
| Windows XP, SP 1 or later | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |
| SUSE Linux ES 10 | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |
| Red Hat Linux ES 5.0 | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |
| Solaris 10 on x86 | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |
| HPUX 11.11 on HP9000 | 2.3.1.6, 2.4 | 2.3.1.6, 2.4 |

Table 2 Supported GemStone/S Server versions

| | VW 7.6 with 7.6 OE | VW 7.7 with 7.7 OE |
|--|------------------------------|------------------------------|
| Windows Vista | | 6.5.4 |
| Windows 2003 | 6.3.1, 6.5.4 | 6.3.1, 6.5.4 |
| Windows XP, SP 1 or later | 6.3.1, 6.5.4 | 6.3.1, 6.5.4 |
| Red Hat Linux Advanced Server 3.0 | 6.3.1, 6.5.4 | 6.3.1, 6.5.4 |
| Red Hat Linux Enterprise Server 4.0 | 6.3.1, 6.5.4 | 6.3.1, 6.5.4 |
| Solaris 2.9 on Sparc | 6.3.1, 6.5.4 | 6.3.1, 6.5.4 |
| Solaris 2.10 on Sparc | 6.3.1, 6.5.4 | 6.3.1, 6.5.4 |

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:

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

- GBS-UsersGuide-VW-7.3beta-draft.pdf
- GBS-ReleaseNotes-7.3beta.pdf
- GBS-InstallGuide-7.3beta.pdf
- GBS-Tutorial-6.1.pdf (unchanged from release 6.1)

A directory named **tutorial** that includes these files for the GBS Tutorial:

- GemStoneAdministrator.gs
- GemStoneAdministrator-methods.gs
- GsPim.pcl
- GsPim.pst
- PimUserProfile-converting.gs
- tutorialWorkspace.txt

A directory named **vw7** with the parcel files for VisualWorks 7.x images:

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

Shared Library Files

GemBuilder for Smalltalk 7.3beta 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*. This is distributed along with the server distribution archive. 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 3, Table 4, Table 5, or Table 6, for your GemStone/S server product and platform 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 the following tables. This is described in more detail in the section “Test Your Installation by Logging into GemStone” on page 7 .

Table 3 Shared Library Files for GemStone/S v6.5.4

| Operating System | Shared Library Files |
|------------------|--|
| Windows | gcilw65.dll (linked or rpc logins) gcirw65.dll (rpc logins only) gsw65.dll englis65.err |
| Solaris or Linux | libgcilnk65.so (linked or rpc logins) libgcirpc65.so (rpc logins only) english65.err |

Table 4 Shared Library Files for GemStone/S v6.3.1

| Operating System | Shared Library Files |
|------------------|---|
| Windows | gcilw63.dll (linked or rpc logins) gcirw63.dll(rpc logins only) gsw63.dll englis63.err |
| Solaris or Linux | libgcilnk63.so (linked or rpc logins) libgcirpc63.so (rpc logins only) english63.err |

Table 5 Shared Library Files for GemStone/S 64 Bit v2.4

| Operating System | Shared Library Files |
|------------------|----------------------------------|
| Windows | libgcirpc.dll libgs64-240.dll |
| Solaris or Linux | libgcirpc.so |
| HP-UX | libgcirpc.sl |

Table 6 Shared Library Files for GemStone/S 64 Bit v2.3.1.6

| Operating System | Shared Library Files |
|------------------|----------------------------------|
| Windows | libgcirpc.dll libgs64-231.dll |
| Solaris or Linux | libgcirpc.so |
| HP-UX | libgcirpc.sl |

Loading GBS into Your Development Environment

Installing into a VisualWorks 7.x Image with Parcels

1. Copy the parcel files from the distribution directory named **vw7** (for VisualWorks 7.x) to the desired directory visible to your VisualWorks parcel path.
2. Start VisualWorks, using an image without any previous versions of GemBuilder for Smalltalk.
3. 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.
4. In a Parcel Manager, select the parcel GbsTools. Select **Parcel > Load**. This parcel in turn loads the other required parcels.
5. 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). You will also need to start a NetLDI process on the server host. For example:

```
% startstone gs64stone
...
% startnetldi
...
```

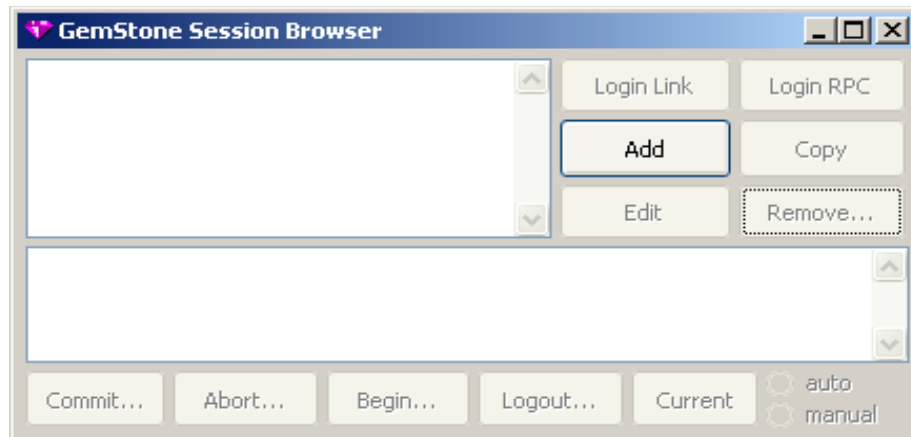
2. If you plan to run gems or remote linked logins on your client machine, start a NetLDI process on the client host as well.
3. Start your client Smalltalk using the image into which you have loaded GemBuilder for Smalltalk.
4. Set the GbsConfiguration parameter `libraryName` to the name of the appropriate shared library for your platform and server product. The library names are listed in Table 3, Table 4, Table 5, and Table 6. You may set `libraryName` using the Settings tool. In VisualWorks 7.x, select the menu item **System > Settings**, and choose **GemStone > Server Communications**.

Alternatively, `libraryName` can be set by executing:

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

5. Select **GemStone > Browse Sessions**, or press the GemStone Session Browser toolbar button.

Figure 1.1 The Session Browser Before Adding a Session Parameters



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

Session Parameters Editor

GemStone repository: !@lark!gs64stone

GemStone username: DataCurator

GemStone password: *****

☒ Remember

Host username: lisam

Host password: *****

☒ Remember

Gem Service: !@lark!gemnetobject

OK Cancel

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 'gs64stone' running on node 'lark', specify the NRS string:

!@lark!gs64stone

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), 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,

!@lark!gemnetobject

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

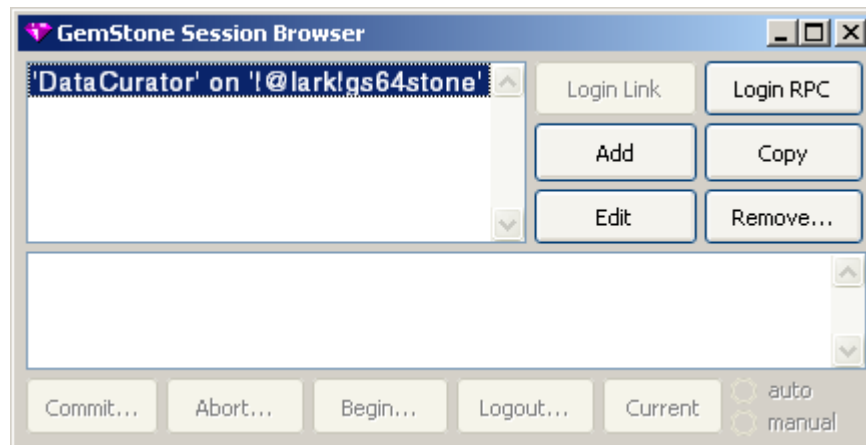
```
!@lark#netldi:<processNameOrPort>!gemnetobject
```

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

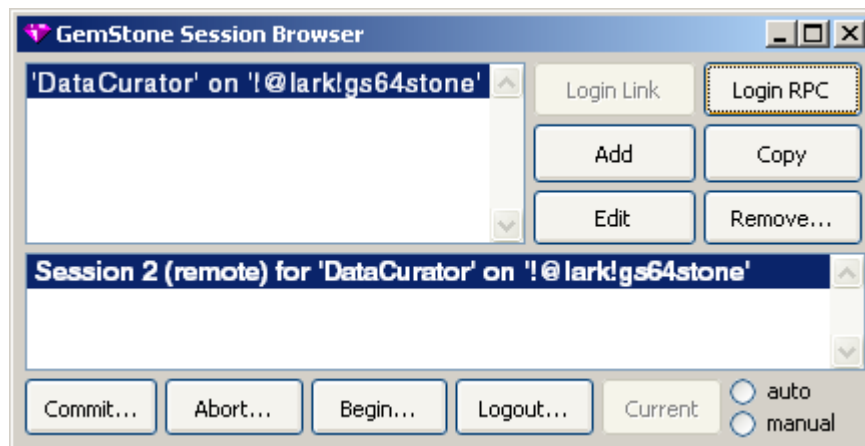
When you are done, click **OK**. The dialog closes, and the session parameters you have provided appear in the top left pane of the Session Browser.

8. In the Session Browser, select the newly-defined session parameters (Figure 1.3—again, depending on the platform, details and window widgets may vary) and click on **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.