
GemStone®

GemStone/S Installation Guide

for Windows
on Intel-compatible Systems

January 2006


GEMSTONE®

Version 6.1.5

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Patents

GemStone is covered by U.S. Patent Number 6,256,637 "Transactional virtual machine architecture" and Patent Number 6,360,219 "Object queues with concurrent updating". GemStone may also be covered by one or more pending United States patent applications.

Preface

This document explains how to install GemStone/S version 6.1.5, and how to upgrade from previous GemStone releases. This Installation Guide is also available on the GemStone customer website.

For information regarding new and modified features in this release of GemStone/S, please refer to the *GemStone/S Release Notes*.

Typographical Conventions

This document uses the following typographical conventions:

- ▶ Operating system and Topaz commands are shown in **bold** typeface. For example:
`copydbf`
- ▶ Smalltalk methods, GemStone environment variables, operating system file names and paths, listings, and prompts 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:
`StoneName.conf`
- ▶ The symbols `%GEMSTONE%` and `$GEMSTONE` refer to the directory where the GemStone software is installed.

In formal syntax listings, these additional conventions are used:

- ▶ Literals are shown in **bold** typeface. For example:
`tcp`
- ▶ Optional arguments and terms are enclosed in square brackets. For example:
`[dbfName]`
- ▶ Braces `{ }` mean 0 or more modifiers. For example:

{modifier}

In this example you may list as many modifiers as you wish, but they are not required.

- ▶ Alternative arguments and terms are separated by a vertical bar (pipe). For example:

gemStoneName | netLdiName

In this example you must specify one name, but not both.

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 GemStone/S is provided in PDF format. This is the same documentation that is included with your GemStone/S 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 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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Installing GemStone/S Version 6.1.5

This chapter describes the procedure for installing GemStone/S version 6.1.5 on a single machine. If you have enough disk space on a single machine, we recommend that you set up GemStone this way initially to ensure that all the pieces work together. At the end of this chapter, we suggest refinements you might want to make, such as relocating the repository files or running GemStone in a network configuration.

NOTE

If you are upgrading to GemStone/S 6.1.5 from an earlier release, follow the instructions in Chapter 2 of this installation guide.

Adjust the installation to meet your specific needs. The topic “What Next?” on page 1-8 provides references to procedures and related information in the *GemStone/S System Administration Guide*.

Installation instructions and system requirements for other system components, such as GemBuilder for Smalltalk, are provided separately with their respective products.

Review the Installation Procedure

The following list summarizes the steps to install GemStone.

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Check the System Requirements

Before you install GemStone, ensure that the following system requirements are satisfied. Systems meeting these requirements are suitable for installing GemStone and beginning development, but additional system resources may be necessary to support large applications.

Platform

- ▶ An Intel-compatible Pentium-class system, clock speed 200Mhz or faster

RAM

- ▶ At least 128 MB (256 MB recommended)
- ▶ 2 MB for each Gem session process beyond the first two

Virtual memory

- ▶ At least 128 MB of virtual memory beyond other system needs (512 MB recommended). In general, your total virtual memory should be at least twice the RAM installed.

Disk space

- ▶ About 50 MB on an NTFS or FAT file system for the typical (default) installation of the GemStone software. Installation on HPFS is not supported.
- ▶ Additional disk space as required for your repository.
- ▶ The repository files should be located on a disk drive that does not contain virtual memory. Use of multiple disk drives is advisable for servers.

Media drive

- ▶ CD-ROM drive

Operating system

- ▶ Windows 2000 5.0 or Windows XP 5.1.
- ▶ The configuration option `SHR_PAGE_CACHE_SIZE_KB` defines the size (in KBytes) of extent page space in the shared page cache. The maximum acceptable value for this configuration option is limited by system memory, kernel configurations, and cache space allocated by `SHR_PAGE_CACHE_NUM_PROCS`. As a general guideline, the maximum limit for `SHR_PAGE_CACHE_SIZE_KB` is approximately 1.3 GB.

For more general information about these and other configuration options, see Appendix A of the *GemStone/S System Administration Guide*.

System clock

- ▶ The system clock must be set to the correct time. When GemStone opens the repository at startup, it compares the current system time with the recorded

checkpoint times as part of a consistency check. A system time earlier than the time at which the last checkpoint was written may be taken as an indication of corrupted data and prevent GemStone from starting. The time comparisons use GMT.

TCP keepalive option

- ▶ GemStone processes ordinarily use the TCP *keepalive* option to determine how long they will wait after communications activity ceases unexpectedly. This setting can be useful for reaping stale RPC Gems, but the operating system default may not be appropriate for this purpose. For further information, refer to your operating system documentation.

C Compiler

- ▶ Microsoft Visual C++, version 6.0 Professional

GemStone requires a C compiler only if you are developing C code for user actions or for a C application. The C compiler is required only for development work, not for execution.

Prepare for Installation

Perform the following steps to prepare the machine to receive the GemStone software. You must perform these steps as Administrator or while logged in as a member of the Administrators group.

NOTE

For the rest of this document, the installation directory is referred to as InstallDir, which is the same directory as %GEMSTONE%.

1. As the Windows Administrator account or as an account that belongs to the Administrators group, log in to a machine with adequate resources to run GemStone and that owns the disk on which you are going to install the GemStone files.
2. Determine that adequate virtual memory is available:
 - a. Right click on the My Computer icon and select Properties. Select the Advanced tab.
 - b. Click on the Performance settings tab or button. On Windows XP, select the Advanced tab.
3. Check the free disk space and determine the disk drive and partition on which you will install the GemStone software. The default path is \GemStone615 on the file system where Windows is installed.
4. Select an installation directory, *InstallDir*, and make this directory the current working directory.

When selecting an installation directory, consider the following points:

- ▶ We recommend that you install GemStone on an NTFS file system because of the increased file security it provides.
- ▶ GemStone must be installed on a file system that supports long file names. If you intend to install GemStone on a FAT file system, you must verify that it supports

long file names (longer than the traditional 8.3 format) before proceeding. Installation on HPFS is not supported.

- ▶ We recommend that you avoid choosing either a network drive for the initial installation or one containing Windows virtual memory. Shared directories can result in executables running on the wrong machine and in file permission problems. Locating GemStone on a drive that doesn't contain virtual memory can dramatically speed up GemStone disk accesses.

Run the Installation Program

1. If a previous version of GemStone existed on this machine, ensure that the system environment variable `GEMSTONE_LANG` is deleted.
 - a. Open the Control Panel.
 - b. From the Control Panel, double-click the System icon.
 - c. In the System Environment Variables list, if `GEMSTONE_LANG` is defined, select it, and click the Delete button.
2. Decide whether you want to install GemStone from the distribution media onto a single machine or from a network file server onto multiple machines.

If you are going to install GemStone on several systems, consider placing the GemStone distribution files on a network file server or shared CD-ROM drive and then running the installation program from that directory. This saves the time of reading the distribution media multiple times.

To install from the distribution media onto a single machine:

- a. Insert the CD-ROM into the drive.

To install from a network file server onto multiple machines:

- a. Log on to the file server as Administrator.
 - b. In Explorer, create a directory to contain the GemStone files. The directory name does not matter.
 - c. Select the directory, then right-click, and select **Sharing**.
 - d. In the Properties dialog box, click the Sharing tab.
 - e. Click the Shared As radio button, and specify the Share Name.
 - f. Under Access Type, click the Full radio button.
 - g. Do not enter the Full Access Password for the directory.
 - h. Click OK.
 - i. Copy the contents of the CD-ROM to the shared directory.
 - j. Log out as Administrator.
3. In Explorer, navigate to the local drive or network directory that contains the GemStone installation program, `setup.exe`.

The `setup.exe` file is located in the `\gemstone` directory at the root of the CD.

4. Double-click on `setup.exe`, and follow the instructions.

If you are installing into an existing GemStone directory and the installation program encounters a file that is read-only, you are asked whether to overwrite it. If you want the installation program to overwrite all read-only files without asking again, check the box "Don't display this message again."

CAUTION

If you choose to have the installation program overwrite files without notifying you, ensure that you have copies of any GemStone files (such as configuration files) that have been modified for your use. After the installation, compare the saved files to the new files, and edit the new files to accomplish what the saved files did.

Decisions to Make During Installation

During installation, you must make several decisions. The entire installation dialog is not reproduced here, but the main points are addressed.

Setup Type

Choose the type of installation: Typical (recommended for most users), Compact (required files only), and Custom (you select the files).

The installation program displays a list of the files it intends to install before installing them. At this point, if needed, you can go back and change the type of installation.

Install Options

We recommend that you allow the installation program to perform all the Install Options:

- ▶ Set the system environment variable GEMSTONE to *InstallDir*
- ▶ Add *InstallDir\bin* to the Path
- ▶ Create a menu item in **Start > Programs**
- ▶ Add NetLDI to the TCP services

CAUTION

If you choose not to allow the installation program to perform these actions, you must perform them yourself. THIS GUIDE DOES NOT ADDRESS THESE ISSUES.

Actions Performed During Installation

The installation program performs the following actions:

- ▶ Installs or updates the Microsoft C runtime library (*Windows Dir\SYSTEM32\MSVCRT40.DLL*) unless the same or a newer version is present

NOTE

If an update of the DLL is necessary and the existing version is in use by another application, you will be asked to close other applications and try again.

- ▶ Creates working copies of the repository extent and system configuration file in the directory *InstallDir\data*

- ▶ Adds GemStone keys to the Windows registry (the path is `HKEY_LOCAL_MACHINE\SOFTWARE\GemStone\GemStone`)
- ▶ Sets the system environment variable GEMSTONE to the location of the GemStone files and adds the directory `InstallDir\bin` to the system environment variable `Path`
- ▶ Creates the GemStone menu item in **Start > Programs**
- ▶ Adds the GemStone `netldi61` service to your TCP/IP network database, which typically is `Windows Dir\SYSTEM32\DRIVERS\ETC\SERVICES`. The NetLDI (Network Long Distance Information) service ensures that GemStone processes are created under the correct individual user accounts. By default, the `netldi61` is assigned to port 10377.

Create the GemStone Key File

To run GemStone, you must create a key file. Instructions and information to create this file were shipped with the distribution media. If either of these materials is missing, call GemStone Contract Administration.

1. Using a text editor and the information provided, create the key file `InstallDir\sys\gemstone.key`.

Set the GemStone File Permissions or Attributes

To protect certain GemStone files, you must change the files' permissions (on an NTFS file system) or the attributes (on a FAT file system).

Permissions on NTFS

Because the files in a directory on an NTFS file system inherit their permissions from the parent directory, you need only set the permissions for the directories.

To set these permissions:

1. In Explorer, select the directories `InstallDir\log` and `InstallDir\data`.
2. Right-click, select **Properties**, click the Security tab, and click Permissions
3. In the Directory Permissions dialog box, check the box Replace Permissions on Existing Files.
4. Select the group named Everyone, and set the Type of Access to **Change**.
5. Click OK.

NOTE

Your site may prefer to restrict access to these directories to a special group. Chapter 1 of the GemStone/S System Administration Guide contains suggestions for doing this.

6. Protect the other GemStone directories (that is, all but `data` and `log`) by changing the permissions for group Everyone to **Read**.

Ordinary users do not need to create or modify any files in the other directories.

Attributes on FAT

1. We recommend that you protect all GemStone directories, except *InstallDir\data* and *InstallDir\log*, by setting the files' attributes to read only:
2. In Explorer, select all GemStone directories except *data* and *log*.
3. Right-click, and select **Properties**.
4. In the Properties dialog box, check the box Read-only, then click OK.
5. Repeat this procedure for all the files in each of these directories.

Verify TCP/IP

To run GemStone, TCP/IP networking software must be functioning, even if your machine is not connected to a network.

1. Verify that TCP/IP is functioning by executing the following command at a Windows command prompt (the **1** is the number one):

```
C:\> ping -n 1 hostname
```

where *hostname* is the name of your machine. If **ping** responds with statistics, TCP/IP is functioning. If you see a message that indicates that the name is not recognized as an internal or external command, no TCP/IP network adapter is installed on the machine. Perform the following procedure.

Install the Minimum TCP/IP Functionality

Perform this procedure only if the machine is not connected to a network. This procedure installs the minimum TCP/IP functionality required for GemStone interprocess communication.

1. From the Control Panel, double-click the Network icon.
2. In the Network Settings dialog box, click Add Adapter.
3. In the Add Network Adapter dialog box, select the MS Loopback Adapter from the Network Adapter Card selection list, and click OK.

Define the Windows Services

The GemStone repository monitor (the Stone) and the NetLDI network server ordinarily run as Windows services independent of a particular login. As services, they can be started automatically when the system boots, and they can continue to run after the user who started them logs out.

Creating the services merely adds them to the Windows services database so that they can be started later as described in the *GemStone/S System Administration Guide*.

1. Create the recommended default Stone service:

```
C:\> stone create /b
```

This command creates a Stone service with the default name of *gemserver61* and configures it to start automatically at system boot (/b).

2. Create the recommended default NetLDI service.

```
C:\> netldi create /b /g /a
```

This command creates a NetLDI service with the default name `netldi61` and configures it to start automatically at system boot (`/b`) using guest mode (`/g`) with a captive account (`/a`).

For information about the `stone` and `netldi` commands, see the online help or Appendix B of the *GemStone/S System Administration Guide*.

Start the GemStone Services

Before you log out as Administrator, start the Stone and NetLDI services.

1. Start the recommended default Stone and NetLDI services:

```
C:\> stone start
C:\> netldi start
```

2. Log out as Administrator.

Change System Passwords and Add Users

After installing GemStone 6.1.5, you must change the passwords for the three administrative users: DataCurator, SystemUser, and GcUser (The initial password for each is `swordfish`). The DataCurator account is used to perform system administration tasks. The SystemUser account ordinarily is used only for performing GemStone system upgrades. The GcUser account is used by the garbage collection task, which runs automatically as a separate login. Access to each of these accounts should be restricted.

Chapter 6 of the *GemStone/S System Administration Guide* tells you how to change the passwords and set up accounts for other GemStone users.

What Next?

This chapter has guided you through installation of GemStone 6.1.5 in an initial configuration that is sufficient to create a basic repository and begin setting up user accounts. The objective was to get a simple, default configuration up and running.

You might consider performing the following tasks:

- ▶ To modify the initial object server configuration to one that is more efficient for your particular needs, refer to Chapter 1 of the *GemStone/S System Administration Guide*. This chapter contains sample configurations, from small to very large, and also contains detailed information about how to tailor these configurations to your own system.
- ▶ To modify the configuration of Gem session processes and to ensure that users have the necessary permissions to access the shared page cache and the extents, refer to Chapter 2 of the *GemStone/S System Administration Guide*.
- ▶ If you are going to operate in a network environment, Chapter 3 of the *GemStone/S System Administration Guide* has additional information about the GemStone network

object server (NetLDI), how to handle user authentication, how to share software over the network, and how to set up some common configurations.

- ▶ To start and stop the GemStone object server, refer to instructions in Chapter 4 of the *GemStone/S System Administration Guide*.
- ▶ GemStone/S is shipped with a default time zone of US Pacific. To modify this setting, edit the file `timezone.txt` in the GemStone `install` directory, then file it in as `DataCurator`.

Upgrading from Previous GemStone/S Versions

The procedure for upgrading to GemStone/S 6.1.5 differs depending on which version you are currently using. The following table describes the possible upgrade scenarios for the GemStone/S server. For corresponding GemBuilder upgrade procedures, see Chapter 3. For GemConnect upgrade procedures, see Chapter 4.

Current Version	Overview of Upgrade Procedure	Detailed Upgrade Instructions
6.0.1 through 6.1.4	6.0.1, 6.1, 6.1.1, 6.1.2, 6.1.3, and 6.1.4 extents, tranlogs, and backups are compatible with version 6.1.5	See “Upgrading to Version 6.1.5” on page 2-1
5.1.5 through 6.0	5.1.5, 5.1.5.1, and 6.0 repositories must be converted to be compatible with version 6.1.5.	See “Upgrading to Version 6.1.5” on page 2-1
5.1.3 or 5.1.4	You must first upgrade to version 6.0.	Installation Guide for GemStone/S 6.0
prior to 5.1.3	You must first upgrade to version 5.1.3, then upgrade to 6.0.	Installation Guide for GemStone/S 5.1.3

NOTE

Multiple steps are required to upgrade from older releases.

Upgrading to Version 6.1.5

NOTE

If you are upgrading from GemStone/S 5.x, before upgrading you may want to install GemBuilder for Smalltalk (GBS) 5.2.2 or later to take advantage of its new features with your existing GemStone server. Later, you can configure GBS to work with GemStone 6.1.5 by following the steps in Chapter 3.

This upgrade procedure is divided into two parts:

- ▶ An overview of the recommended strategy for carrying out the upgrade (see page 2-2).
- ▶ Instructions for upgrading the GemStone Object Server (see page 2-3).

NOTE

The following instructions use the version number 6.1.4 to represent any of the versions 5.1.5, 5.1.5.1, 6.0, 6.0.1, 6.1, 6.1.1, 6.1.2, 6.1.3, or 6.1.4. The procedure is the same regardless which of these versions you have.

Overview of the Upgrade Strategy

We recommend that you perform the upgrade twice: first a pilot upgrade and then the production upgrade. With this strategy, you can keep your version 6.1.4 production system running while you familiarize yourself with the upgrade process.

Pilot Upgrade

The purpose of the Pilot upgrade is to familiarize yourself with the upgrade process and to help ease the upgrade of your production system. To help you gain the most information and experience from the Pilot upgrade, you must create a small repository that contains objects that are representative of your production system.

Using the representative repository, complete the upgrade and file out all changes so you can minimize down time when you upgrade your production system. During the Pilot upgrade, you:

- ▶ Modify classes and methods that run in GemStone so they work properly with the version 6.1.5 classes and methods.
- ▶ Modify your application's client code as necessary. This code may be in C, C++, or client Smalltalk.

NOTE

In order to use GemBuilder for Smalltalk (GBS) with the v6.1.5 server, you should install GBS 5.2.2 or later if you have not done so, and then follow the configuration instructions in Chapter 3 of this document.

- ▶ File out the changes so they can be loaded quickly when you perform the Production upgrade.
- ▶ Recompile and relink any C or C++ programs.
- ▶ Reload client Smalltalk images.

Once you complete the Pilot upgrade, you will be able to schedule down time of your production system based on what you learned during the Pilot upgrade.

NOTE

Most upgrade procedures apply to both the Pilot upgrade and the Production upgrade. Differences are noted in the procedures.

Production Upgrade

The purpose of the Production upgrade is to upgrade your production system using the information you gathered during the Pilot upgrade.

Perform the Upgrade

Review the Upgrade Procedure

The following list summarizes the steps to upgrade to GemStone version 6.1.5.

- ▶ Prepare for the Upgrade 2-3
- ▶ Perform the Upgrade 2-5
- ▶ Restore Your Site-Specific Settings and Back Up the Repository. 2-5

Prepare for the Upgrade

Perform the following steps to prepare for the upgrade.

1. Install GemStone/S 6.1.5 to a new installation directory, separate from the installation directory for version 6.1.4, using the instructions in Chapter 1.
2. Create the version 6.1.5 Stone as a Windows service:

```
C:\> stone create StoneName
```

3. Configure version 6.1.5 the way you expect to use it — that is, with the appropriate extent locations and sizes.

Ensure that adequate space is available for extents, transaction logs, and a backup during the upgrade:

Use Windows Explorer to determine available disk space.

Space is needed for the following:

- ▶ Your version 6.1.4 extents and transaction logs.
- ▶ Your version 6.1.5 extents and transaction logs — allow for some growth of the extents during the upgrade (you can reclaim much of the physical space later by performing a full backup and restoration of the converted repository).

4. Log in to the 6.1.4 GemStone system and reset the SystemUser password to 'swordfish':

```
topaz 1> printit
```

```
(AllUsers userWithId: #SystemUser) password: 'swordfish' .
```

```
System commitTransaction .
```

```
%
```

The upgrade scripts log in to GemStone with the SystemUser account and the default password.

5. Halt all user activity on the repository you are going to upgrade:

- a. Log in to Topaz as DataCurator.
- b. Force all other users off the system:

```
topaz 1> printit
System stopOtherSessions.
%
```

CAUTION

You MUST file out any changes you have made to the GemStone kernel classes in order to preserve these changes in version 6.1.5. Also, consider saving important modified files, such as configuration files, that will be overwritten during the upgrade.

6. If this is the Pilot upgrade, file out any modifications or additions you made to GemStone kernel class methods by using Topaz command **fileout**. (For information about **fileout**, see the *GemStone Topaz Programming Environment*.)

7. Shut down the Stone:

```
C:>\ stone stop stone614
```

where *stone614* is the name of version 6.1.4 Stone on this machine.

8. Set up the 6.1.5 environment.

Set the environment variables required for the upgrade.

```
C:\> set GEMSTONE=InstallDir615
C:\> set PATH=%GEMSTONE%\bin;%PATH%
C:\> set upgradeLogDir=tempDir
```

where *tempDir* is a temporary directory for which you have write permission.

NOTE

Use a separate log directory for each repository you upgrade. A repository may contain multiple extents.

9. Copy your version 6.1.4 extent files into the location specified by the GemStone configuration option `DBF_EXTENT_NAMES`:

- a. Using a text editor, open the file `%GEMSTONE%\data\system.conf`, or whichever configuration file your system uses.
- b. Locate the last occurrence of the option `DBF_EXTENT_NAMES`, and note its value.
- c. Copy each `.dbf` file to the noted location. For example:

```
C:>\ copydbf InstallDir614\data\extent0.dbf 615location
C:>\ copydbf InstallDir614\data\extent1.dbf 615location
C:>\ copydbf InstallDir614\data\extent2.dbf 615location
```

where *615location* is the location specified by `DBF_EXTENT_NAMES`.

Perform the Upgrade

NOTE

If you are upgrading from version 6.0.1, 6.1, 6.1.1, 6.1.2, 6.1.3, or 6.1.4 you do **not** need to perform step 1.

1. For each extent file you copied from your 6.1.4 location, invoke the script `convDbf` with the extent name as an argument:

```
% convDbf 615location\extent0.dbf
```

2. Start the 6.1.5 Stone:

```
C:\> stone start stone615
```

3. Run the upgrade script:

```
C:\> upgradeTo615 stone615
```

where `stone615` is the name of the version 6.1.5 Stone started in the previous step.

This script invokes several subordinate scripts to complete the upgrade. It is normal for the display to stop scrolling occasionally while output is sent only to a log file and while methods are recompiled. Each step should end with this display:

```
No errors detected in this step.
```

If errors were reported during the upgrade, please preserve the contents of `%upgradeLogDir%`. Contact your internal GemStone support person or GemStone Technical Support.

Restore Your Site-Specific Settings and Back Up the Repository

1. Reinstall any other GemStone products that modify kernel classes.

If you use GemConnect, GemBuilder for Java, or GemEnterprise, you must install them again at this time. Use the procedure in the installation guide for each product. If you have a new product version you may install it at this time. Otherwise, install the same version that was previously installed.

2. Log in to GemStone version 6.1.5 as DataCurator.

3. Change the password for SystemUser, which you changed to `swordfish` prior to the conversion, back to its version 6.1.4 value. Also, change the password for GcUser, which was reset by the conversion process, back to its version 6.1.4 value:

```
topaz 1> printit
(AllUsers userWithId: 'SystemUser') password: '614Password'.
(AllUsers userWithId: 'GcUser') password: '614Password'.
System commitTransaction
%
```

where `614Password` is the account password used in version 6.1.4.

4. If this is the Production upgrade, create a full backup of the upgraded repository now. For details, see Chapter 9 of the *GemStone/S System Administration Guide*.

The upgraded repository is now usable.

If you have modified any kernel class methods of the previous GemStone/S version, perform steps 5 and 6 for the Pilot upgrade.

5. Carefully compare your changes with version 6.1.5 kernel methods to see whether your changes are still necessary or appropriate.

In some cases, an appropriate method may have been added to version 6.1.5. You may find it useful to examine the ASCII text files in the GemStone upgrade directory.

6. File out the changes that you plan to carry forward into version 6.1.5, for use when you perform the Production upgrade.

If this is the Production upgrade, perform steps 7 and 8.

7. File in the kernel class changes that you filed out as part the Pilot upgrade, and have determined are still required.
8. Commit the changes.

Configuring GBS for the v6.1.5 Server

This chapter describes how to configure your application using 5.2.2 (or later) GemBuilder for Smalltalk (GBS) on VisualWorks 5.x or VisualAge, or 6.0 (or later) GemBuilder for Smalltalk with VisualWorks 7.x, to run with GemStone 6.1.5.

NOTE

Applications based on an earlier version must first upgrade to GBS v5.2.2 or later for VisualWorks 5.x, or GBS v6.0 or later for VisualWorks 7.x. For installation instructions, refer to the GemBuilder for Smalltalk Installation Guide.

To use *linked* logins to a 6.1.5 server, you must use 6.1.5 client libraries.

To use *RPC* logins to a 6.1.5 server, we recommend that you use 6.1.5 client libraries. However, 6.0.1 and later client libraries are compatible with the 6.1.5 server.

The following section, “Copying the GemStone 6.1.5 Libraries,” describes the procedure for updating your libraries and getting GBS to recognize them.

Copying the GemStone 6.1.5 Libraries

1. Install the GemStone 6.1.5 object server if you have not already done so.
2. Unzip the file `clientFiles.zip`, located at the top level of the distribution medium. This file unzips into a directory tree:

```
clientFiles\<clientPlatform>\<shared library files>
```
3. Quit any running client Smalltalk VM that is using GBS.
4. Log in to your GBS platform as the user who is the owner of the GBS installation files.

NOTE

In the following steps, <GBS> refers to your GemBuilder installation directory, and <SRC> refers to the `clientFiles` subdirectory for your GemBuilder platform (for example, `$GEMSTONE/clientFiles/sparc.Solaris`). Under UNIX, it may help to define two environment variables.

5. Copy the files from the GemStone source directory `<SRC>` to the GemBuilder installation directory `<GBS>`.

On Solaris or Linux:

```
% cp <SRC>/libgcilnk61.so <GBS>
% cp <SRC>/libgcirpc61.so <GBS>
% cp <SRC>/english61.err <GBS>
```

On HPUX:

```
% cp <SRC>/libgcilnk61.sl <GBS>
% cp <SRC>/libgcirpc61.sl <GBS>
% cp <SRC>/english61.err <GBS>
```

On Windows:

```
C:\> copy <SRC>\gcilw61.dll <GBS>
C:\> copy <SRC>\gcirw61.dll <GBS>
C:\> copy <SRC>\gsw61.dll <GBS>
C:\> copy <SRC>\englis61.err <GBS>
```

6. Set up GBS to use the correct client libraries. The technique will vary according to the version of GBS used. This is discussed in the following section.

Setting up GBS to recognize the client libraries

The process that GBS uses to locate the correct client libraries differs depending on the version of GBS that is used.

GBS version 6.1 or later and 5.2.3

Before logging into GemStone, set the new GBS configuration parameter 'libraryName' to the appropriate client library name. Client library names containing "lnk" or "lw" permit both linked and rpc logins. Names containing "rpc" or "rw" permit only rpc logins. For more information, see the release notes for the version of GBS you are using.

GBS versions prior to 6.1 and 5.2.3

If it exists, delete the file `<GBS>\gbsSharedLibraryVersion.cfg`. The next time GBS needs to know the shared library version number, a prompt asks which version of the shared libraries to use. Enter the two digits from the file name, "61" in this example.

GemBuilder uses shared libraries on Solaris, HPUX, Linux, and Windows. The copy procedure you have just completed is sufficient to allow an existing GBS v5.2.2 (or later) application on Solaris, HPUX, or Windows to run with GemStone 6.1.5.

Configuring GemConnect for the v6.1.5 Server

Changes in GemStone/S 6.1.5 functionality affect compatibility with the GemConnect product. The procedure for upgrading GemConnect differs depending on the version of GemConnect that you are currently using. The following table describes the possible upgrade scenarios.

Current GemConnect Version	Overview of Upgrade Procedure	Detailed Upgrade Instructions
1.1.3	You must upgrade the GemConnect shared libraries.	“Using GemStone/S 6.1.5 with GemConnect 1.1.3” on page 4-1
prior to 1.1.3	You must first upgrade to GemConnect version 1.1.3.	Installation Guide for GemConnect 1.1.3

Using GemStone/S 6.1.5 with GemConnect 1.1.3

GemConnect customers upgrading to GemStone/S 6.1.5 must copy the GemConnect shared libraries from the GemStone/S 6.1.5 distribution medium to the GemStone object server shared library directory.

1. Install the GemStone 6.1.5 object server if you have not already done so.
2. Unzip the file `clientFiles.zip`, located at the top level of the distribution medium. This file unzips into a directory tree:

```
clientFiles\<clientPlatform>\<shared library files>
```
3. Log in to your GemStone server platform as the user who is the owner of the GemStone installation files.

NOTE

In step 4, <SRC> refers to the appropriate `clientFiles` subdirectory for your

GemStone platform (for example,
%GEMSTONE%\clientFiles\x86.Windows_NT).

4. Copy the GemConnect for Oracle shared library file from the appropriate source directory <SRC> into the GemStone object server shared library directory.

```
C:\> copy <SRC>\oraapi11.dll %GEMSTONE%\ualib
```