GemStone®

GemConnect
Release Notes

Version 2.1

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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

About the Documentation

These release notes describe the changes in the GemConnect version 2.1 release. We recommend that everyone using GemConnect read these release notes before beginning installation or development. These release notes are also available on the GemStone customer support website, as described in the next section.

For information on installing or upgrading to this version of GemConnect, please refer to the *GemConnect Installation Guide*.

Typographical Conventions

This document uses the following typographical conventions:

‣ Commands issued at a command prompt are shown in **bold** typeface. For example:

     copydbf

‣ Smalltalk methods, GemStone environment variables, 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

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 GemConnect is provided in PDF format. This is the same documentation that is included with your GemConnect 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 provides 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.

Contents

Chapter 1. GemConnect 2.1 Release Notes

1 *GemConnect 2.1 Release Notes*

GemConnect version 2.1 is a new release of the GemConnect product, including significant new features, and fixing a number of bugs. This version of GemConnect supports both GemStone/S 6.x and GemStone/S 64 Bit versions 1.x and 2.x.

These release notes provide details of the changes between the previous version of GemConnect, version 2.0.1, and version 2.1. Please take time to read through them before installing the product, to acquaint yourself with the changes. If you are upgrading from a version prior to 2.0.1, please also review the release notes for each intermediate release to see the full set of changes.

To install GemConnect version 2.1, follow the instructions in the *GemConnect Installation Guide.*

Changes and New Features

LOB DataTypes

Oracle BLOB, CLOB, and NCLOB are now supported.

In the default GemStone configuration, these are treated just like LONG/LONGRAW fields. New GemStone classes GsOracleBLOB and GsOracleCLOB provide extended capabilities.

Added Classes

The following classes have been added in this release:

    GsOracleLOB
    GsOracleBLOB
    GsOracleCLOB.

These new classes offer enhanced BLOB/CLOB functionality. They are used when the GsOracleConnection is connected with a setting for lobLimit that is greater than zero.

When in use, a SQL read operations will return a GsOracleBLOB or GsOracleCLOB object, which acts as a forwarder to the actual BLOB/CLOB in the Oracle database.

To acquire a GsOracleBLOB/CLOB, use #openCursorOn:

‣ For reading: use normal SQL select statement.

‣ For reading/writing: use SQL select for update statement.

Example: 'SELECT * FROM MY_TABLE FOR UPDATE'

The following operations can be performed on a GsOracleBLOB/CLOB:

free
Free the storage used by the GsOracleBLOB/CLOB. The storage can be reused by a new GsOracleBLOB/CLOB without exceeding the lobLimit.

lobSize
The number of bytes (BLOB) or characters (CLOB) contained by the CLOB/BLOB

readAll
Return a ByteArray (BLOB) or String/DoubleByteString (CLOB) representing the entire contents of the BLOB/CLOB.

writeAll: aByteObject
Write this byte object to the BLOB/CLOB

GsOracleConnection changes

The GsOracleConnection class has new instance variables:

textLimit

textLimit was previously defined on the GsOracleParameters object associated with a GsOracleConnection. It is now part of GsOracleConnection. The GsOracleParameters instance variable textLimit is deprecated, but remains defined on that class; it may be removed in a future release.

On creation of a GsOracleConnection, this value is copied from the GsOracleParameter instance. This can be subsequently modified as needed for the particular GsOracleConnection. If it is not set, it defaults to 65K bytes, which is the maximum value.

lobLimit

lobLimit is used to determine the maximum number of BLOB/CLOB objects that will be in active use by a connection at any one time. When zero, which is the default setting, BLOB/CLOB fields are treated the same as LONG/LONGRAW fields, with no difference in use. In this case textLimit determines the maximum size BLOB/CLOB that can be read/written. Note that this limits the maximum BLOB/CLOB size to 65K bytes.

When lobLimit > 0, this allocates internal buffers for representing that number of GsOracleBLOB/CLOB objects for this connection. Exceeding this number triggers a #lobAllocationError.

Note that textLimit and lobLimit may be dynamically changed, but the new values do not come into effect until the connection is re-established. For example:

```
conn disconnect.
conn textLimit: newValue1.
conn lobLimit: newValue2.
conn connect.
```

Added access to Oracle DESCRIBE information

The method instanceVariablesAndConstraints now returns information equivalent to the Oracle DESCRIBE function. For each field, the following information is provided:

1. The column name.

2. The GemStone class this column is constrained to.

3. The Oracle DataType code for this column. Refer to Oracle Call Interface Programmer's Guide for details on these codes.

4. The maximum field length in bytes for this column.

5. The Oracle precision for this column.

6. The Oracle scale for this column.

7. A boolean flag indicating if null values are accepted.

Change in object change tracking

In the GemStone server, both GemStone/S and GemStone/S 64 Bit, there was a inconsistency in the object change tracking indexing offset for delete operations on SequencableCollections in GemStone server code. Formerly, this used an offset into the object size (including named instance variables), while the insert operation used the offset from the first unnamed slot. In the most recent versions, this has been corrected, so now both operations use an index offset based on the first unnamed slot.

GemConnect's use of this mechanism compensated for this behavior, and produced consistent results. Version 2.1 has added code that automatically detects if you are using a server version with the newer correct behavior or the older behavior, and will produce correct results for either server behavior.

TimeStamp DataTypes

The following Oracle DataTypes are now supported, mapped to the GemStone DateTime class:

```
TIMESTAMP
TIMESTAMP WITH TIME ZONE
TIMESTAMP WITH LOCAL TIME ZONE
```

TimeZone conversion now done in C for Performance

In version 2.0, DateTime conversion was updated to allow multiple TimeZone daylight savings times rules, and this conversion was moved to GemStone Smalltalk. For performance, this conversion has been moved back to C.

Added Errors

The following errors have been added:

#lobAllocationError
> While attempting to create a new GsOracleBLOB/CLOB, exceeded lobLimit for this connection. Try using GsOracleBLOB/CLOB free to free up unneeded BLOB/CLOBs.

#lobUsageError
> Incorrect operation on GsOracleBLOB/CLOB object. Examples of incorrect usage are:
>
> > Associated connection no longer valid.
> > Attempting to change lobLimit while connected.
> > GsOracleBLOB/CLOB object has been freed.
> > Can't use Oracle SQL with GsOracleBLOB/CLOB objects

Bug Fixes

The following bugs have been fixed since release 2.0.1:

GsRdbChangeNotifObj>>removeAllNotification broken

The method GsRdbChangeNotifObj>>removeAllNotification called the incorrect primitive number, and returned an error if used. (#29870)

Truncated Strings when writing to a too short Oracle column

Previously, when writing to an Oracle column that was set to a shorter length, Strings would be truncated without warning. Now, a #typeConversionError is generated. (#37906)

Requirement to define columns in the same order as declared in Oracle

Previously, you were required to define the columns in rdbColumnMapping methods in the same order as they were declared in Oracle. Now, they can be specified in any order. (#37455)

SQL statements with CRs may have caused errors in Oracle

In some types of Oracle operations, SQL statements that contain a carriage return (Character cr) on a line by itself will cause the Oracle interface to return an error. (#35459)

Could not use DoubleByteStrings in SQL statements

You could not pass a DoubleByteString SQL statement to a GemConnect execute* method. Doing so caused an invalidSQL error. #(35736)

Error handling when not logged into GemStone

Errors that occur in GemConnect need to access the repository to retrieve error information. If the session is not logged in, as for example during a topaz loadua, an invalid session error is returned, masking the actual error. (#37609)

Stale Oracle error details were available after subsequent unrelated error

GsOracleConnection>>messages holds details of errors that were returned from Oracle. If a non-Oracle error occurred later, it was possible to access error or warning information related to this earlier Oracle error that was not related to the current error. (#37786)

Possible memory leak on disconnect and error

Under certain error scenarios on disconnect, there was a potential memory leak. (#38488)

Oracle-specific Issues

Simultaneous BLOB/CLOB and LONG/LONGRAW operations

There is an Oracle limitation where if both BLOB/CLOB and LONG/LONGRAW fields are being read/written in the same SQL operation, if both have field lengths > 4K, the operation will fail with an Oracle Error. This can be avoided by either breaking the read/write into separate SQL calls, or using GsOracleBLOB/CLOB objects.