
GemStone®

GemConnectTM **Release Notes**

Version 2.5

September 2024



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PATENTS

GemStone software is or has been covered by U.S. Patent Number 6,256,637 “Transactional virtual machine architecture” (1998-2018), Patent Number 6,360,219 “Object queues with concurrent updating” (1998-2018), Patent Number 6,567,905 “Generational garbage collector with persistent object cache” (2001-2021), and Patent Number 6,681,226 “Selective pessimistic locking for a concurrently updateable database” (2001-2021).

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GemTalk Systems LLC

15220 NW Greenbrier Parkway
Suite 240
Beaverton, OR 97006



Preface

About This Documentation

These release notes describe the changes in the GemConnect® version 2.5 release. We recommend that everyone using GemConnect read these release notes before beginning installation or development.

For information on installing or upgrading to this version of GemConnect, please refer to the *GemConnect Installation Guide* for version 2.5.

These documents are available on the GemTalk support website, as described below.

Technical Support

Support Website

<http://gemtalksystems.com>

GemTalk's website provides a variety of resources to help you use GemTalk products:

- ▶ **Documentation** for the current and for previous released versions of all GemTalk products, in PDF form.
- ▶ **Product download** for the current and selected recent versions of GemTalk software.
- ▶ **Bugnotes**, identifying performance issues or error conditions that you may encounter when using a GemTalk product.
- ▶ **TechTips**, providing information and instructions that are not in the documentation.
- ▶ **Compatibility matrices**, listing supported platforms for GemTalk product versions.

This material is updated regularly; we recommend checking this site on a regular basis.

Help Requests

You may need to contact Technical Support directly, if your questions are not answered in the documentation or by other material on the Technical Support site. Technical Support is available to customers with current support contracts.

Requests for technical assistance may be submitted online, 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 down. The support website is the preferred way to contact Technical Support.

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

Email: techsupport@gemtalksystems.com

Telephone: (800) 243-4772 or (503) 766-4702

When submitting a request, please include the following information:

- ▶ Your name and company name.
- ▶ The version of GemConnect, the GemStone/S product and version, and Oracle version.
- ▶ The operating system and version you are using.
- ▶ A description of the problem or request.
- ▶ Exact error message(s) received, if any, including log files if appropriate.

Technical Support is available from 8am to 5pm Pacific Time, Monday through Friday, excluding GemTalk holidays.

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Table of Contents

Chapter 1. GemConnect 2.5 Release Notes

Supported Platforms.	7
Platforms for Version 2.5	7
GemStone/S 64 Bit 3.7.1 and 3.6.8	7
Changes in this release.	8
Minimum Oracle version is now 19	8
New library name format	8
Makefile name change	8
New Process for specifying Oracle Library	8
Support for Kerberos / Oracle wallet authentication	9
SHA build information provided in version information	9
Additional information printed during the connection to Oracle.	9
Timeouts for OCI operations	10
Support for recent GemStone/S 64 Bit special classes	10
Returning instances of DateAndTime rather than DateTime	10
Added Errors	10
Bug Fixes	11
UncontinuableErrors in GemConnect userActions when trapped by an application exception handler.	11
Uncontinuable error during GemConnect user actions	11
GsRdbChangeNotifObj >> removeAllNotification invokes obsolete code	11
Rounding error on Oracle BINARY_FLOAT fields.	11
GemConnect Installation Errors	11

GemConnect 2.5 Release Notes

GemConnect version 2.5 is a new release of the GemConnect product. This release provides a number of bug fixes and feature enhancements.

These release notes provide changes between the previous version of GemConnect, version 2.4, and version 2.5. If you are upgrading from a version prior to 2.4, please review the release notes for each intermediate release to see the full set of changes.

To install GemConnect v2.5, follow the instructions in the *GemConnect Installation Guide* for v2.5.

This version of GemConnect is supported with GemStone/S 64 Bit v3.6 and later. Earlier versions may be usable; contact GemTalk Technical Support for assistance.

Supported Platforms

Platforms for Version 2.5

GemConnect version 2.5 is certified on the following GemStone server product versions and platforms:

GemStone/S 64 Bit 3.7.1 and 3.6.8

- ▶ Ubuntu 20.04 and 22.04
- ▶ Red Hat-compatible Linux ES 7.9, 8.9, and 9.4, on x86.
GemStone testing is done on a mixture of Red Hat, CentOS, and Rocky installations; these are all considered equally certified platforms.

Testing has also been done on some earlier versions of GemStone/S 64 Bit. Contact GemTalk Technical Support for certification of specific version/platform configurations.

Changes in this release

Minimum Oracle version is now 19

GemConnect now built using Oracle version 19.14.0.0.0. All versions of Oracle earlier than 19 are not supported.

New library name format

For v2.5, the GemConnect library name has been changed to be consistent with other GemStone shared library names.

Previously the name was (for example), **liboraapi24-643.so**, where "24" was the GemConnect version, "64" indicated 64 bit, and "3" distinguished the library from those for legacy environments.

Now, the name is (for example), **liboraapi25-3.7.1-64.so**, which includes the server version with which the library was built, in this case 3.7.1.

The current GemStone/S 64 distributions include (in ualib), a GemConnect 2.4 library using the older filename. An undetermined future release of GemStone/S 64 Bit will start including GemConnect 2.5 libraries using the new filename format.

The GemConnect v2.5 distribution includes an equivalent v2.5 shared library, with the name **liboraapi25.so**. This is a library built with GemStone/S 64 Bit v3.7 library, that is compatible with 3.7 and later 3.7.x versions. When this library is copied to the GemStone/S 64 bit installation, it must be renamed to match the new format.

For example:

```
os$ cp $GemConnect/ualib/liboraapi25.so
    $GEMSTONE/ualib/liboraapi25-3.7.1-64.so
```

Makefile name change

The name of the makefile for GemConnect has also been changed. The name now includes the version, for example `Makefile25`.

New Process for specifying Oracle Library

Earlier releases of GemConnect required specifying the location of the Oracle libraries using `$LD_LIBRARY_PATH`. The SELinux security mode does not pass on the value of this environment variable, causing problems on this operating system.

To avoid this problem, in this release a new process is used to specify the Oracle libraries. You must now specify the full path to the Oracle library `libclntsh*`.

The actual path and name will depend on your particular version of Oracle. For example, on Oracle 19 the name might be `libclntsh.so.19.1` and the full path `/opt/oracle/19.14.0.0.0/lib/libclntsh.so.19.1`.

There are two ways to specify the path:

- ▶ Set the environment variable `$GS_GEMCONNECT_ORACLE_LIBRARY`.

For example,

```
export GS_GEMCONNECT_ORACLE_LIBRARY=
/opt/oracle/19.14.0.0.0/lib/libclntsh.so.19.1
```


- ▶ Set Globals at: #GemConnectOracleLibrary

For example,

```
Globals at: #GemConnectOracleLibrary put:  
'/opt/oracle/19.14.0.0.0/lib/libclntsh.so.19.1'
```

#GemConnectOracleLibrary may be a String or a Block which returns a String when evaluated.

If both are specified, #GemConnectOracleLibrary takes precedence over \$GS_GEMCONNECT_ORACLE_LIBRARY.

Incorrect configuration will signal RdbError 34 (#orlibError), which produces an error similar to the following:

```
ERROR 34 , a GsRdbError occurred (error 34),  
reason:orlibError, Oracle library load error, path:  
'/opt/oracle/12.2.0.1.0/lib/libclntsh.so' details: 'Dlopen  
failed: /opt/oracle/12.2.0.1.0/lib/libclntsh.so: cannot open  
shared object file: No such file or directory'
```

Support for Kerberos / Oracle wallet authentication

GemConnect now supports Kerberos and Oracle wallet authentication.

To activate this, set the new GsOracleParameters instance variable #credentials to #EXT (external). The default value for normal Oracle-based authentication is #RDBMS.

One of the following informational messages will appear on stdout during a GsOracleConnection connect:

```
[Info] Credentials: #RDBMS
```

or:

```
[Info] Credentials: #EXT
```

Attempting to set credentials to something other than #RDBMS or #EXT will trigger the RdbError 35 (#credentialsError). For example:

```
ERROR 35 , a GsRdbError occurred (error 35),  
reason:credentialsError, Invalid credentials - must be either  
#RDBMS or #EXT
```

SHA build information provided in version information

The unique internal GemTalk SHA code for this build of GemConnect is now included in the verora.txt file in the product.

For example:

```
GemConnect for Oracle  
2.5  
Official Release  
8316dc34a89c61bd41215d064675db19c29208c4  
Mon Sep 9 13:17:32 PDT 2024
```

Additional information printed during the connection to Oracle

When a connection to Oracle is established, the output now includes the Oracle database name and the username for the connection.

Timeouts for OCI operations

The default timeout for Oracle OCI calls is 2 minutes. This timeout can be overridden using an environment variable, or for an individual connection.

The new environment variable `$GS_GEMCONNECT_OCI_TIMEOUT` specifies how long to wait for Oracle OCI calls before timing out.

To control the timeout for individual database calls, the following methods have been added:

```
GsOracleConnection >> ociTimeout: seconds
```

Set the timeout in seconds for OCI operations. If *seconds* is nil, the default handling (`$GS_GEMCONNECT_OCI_TIMEOUT` or 2 minutes) will apply.

```
GsOracleConnection >> ociTimeout
```

Returns an integer seconds timeout value that has been set. If this is nil, the default handling (`$GS_GEMCONNECT_OCI_TIMEOUT` or 2 minutes) will apply.

After an OCI call is initiated and does not complete within the timeout (including a default timeout when no specific timeout is defined), it triggers `RdbError 33 (#timeoutError)`, for example:

```
ERROR 33 , a GsRdbError occurred (error 33),
reason:timeoutError, Oracle OCI operation timed out,
connection: aGsOracleConnection stream: aGsRdbWriteStream
```

Support for recent GemStone/S 64 Bit special classes

GemConnect support has been added for the new "special" classes added in GS 3.6:

SmallTime

SmallDate

SmallDateAndTime

SmallScaledDecimal

These classes are comparable to the previously existing Integer/SmallInteger and Fraction/SmallFraction, etc., pairs. When an instance of a Time, Date, DateAndTime, or ScaledDecimal is returned from Oracle, and the value is in the range of the equivalent Small* class, the instance of the Small* class will be returned.

Returning instances of DateAndTime rather than DateTime

By default, GemConnect will return DateTime objects for Oracle dates.

The new GsOracleConnection instance variable `#returnDateAndTime` enables mapping of appropriate Oracle fields to DateAndTime objects. When this flag is set to true, GemConnect will return instances of SmallDateAndTime or DateAndTime, instead of instances of DateTime.

Added Errors

The following errors have been added in this release.

33: #timeoutError

Oracle OCI operation timed out, connection: <c> stream: <s>.

See "Timeouts for OCI operations" on page 10.

34: #orLibError

Oracle library load error, path: <p> details: <d>.
See "Added Errors" on page 10.

35: #credentialsError

Invalid credentials - must be either #RDBMS or #EXT.
See "Support for Kerberos / Oracle wallet authentication" on page 9.

Bug Fixes

UncontinuableErrors in GemConnect userActions when trapped by an application exception handler

There are a number of places within GemConnect userActions where they do callbacks to the Smalltalk VM. If this Smalltalk code happens to hit an error, and the error is trapped by a customer application exception handler, this can confuse the Smalltalk VM and trigger an UncontinuableError. (#49024)

Uncontinuable error during GemConnect user actions

When using GemConnect in a multi-threaded environment where one or more of the other threads are performing socket operations (for example, while using Seaside), there can be rare failures of threads performing GemConnect user actions with an UncontinuableError (error 6011). There are a number of different detailed error messages, but these will usually mention: "would cross frame of C primitive, user action, or FFI call". (#48479)

GsRdbChangeNotifObj >> removeAllNotification invokes obsolete code

This method used an obsolete primitive to enter protected mode, resulting in an error. (#49506)

Rounding error on Oracle BINARY_FLOAT fields

The auto conversion from an Oracle BINARY_FLOAT, when SQLT_IBFLOAT fields are mapped to SQLT_FLT rounded incorrectly. (#48862)

Note that this fix has been available in the shared libraries distributed with server versions 3.6 and later.

GemConnect Installation Errors

The GemConnect installation script for v2.4 included an topaz define that was invalid in GemStone/S 64 Bit v3.6 and later. (#49155)