

Release Bulletin Software Developer's Kit 15.7 for Linux

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1. Accessing current release bulletin information

A more recent version of this release bulletin may be available on the Web. To check for critical product or document information added after the product release, use the Sybase® Product Documentation Web site.

❖ Accessing release bulletins at the Sybase Product Documentation Web site

- 1 Go to Product Documentation at <http://www.sybase.com/support/manuals/>.
- 2 Select a product.
- 3 Select a product version from the Document Set list.
- 4 From the list of individual documents, select the link to the release bulletin for your platform. You can either download the PDF version or browse the document online.

2. Product summary

Sybase Software Developer's Kit (SDK) version 15.7 is compatible with these operating system configurations.

- Linux x86 32-bit
- Linux x86-64 64-bit
- Linux on POWER 32-bit and 64-bit

For the most current list of supported operating systems, see the Sybase platform certifications page at <http://certification.sybase.com/ucr/search.do>. For a list of platforms, compilers, and third-party products on which SDK is built and tested, see the *New Features Bulletin Open Server 15.7 and SDK 15.7 for Windows, Linux, and UNIX*.

2.1 Product components

For a list of SDK components and the platforms on which these components are supported, see the *New Features Bulletin Open Server 15.7 and SDK 15.7 for Windows, Linux, and UNIX*.

2.2 Availability with 64-bit libraries

SDK version 15.7 is available in 64-bit versions, with these caveats:

- Extended Architecture (XA) 64-bit and Adaptive Server® Enterprise ODBC Driver 64-bit are not available on Linux on POWER 64-bit.
- Use the `-DSYB_LP64` flag when compiling applications that use the 64-bit libraries.

2.3 Utilities

There are two versions of the `bcp`, `isql`, `defncopy`, and `cpre` utilities—nonthreaded and native-threaded. The native-threaded version names have “`_r`” suffixes.

2.4 Patches

These are the required release levels for Red Hat Enterprise Linux 5.3 x86 32-bit and x86-64 64-bit:

- kernel-2.6.18-128.el5 SMP
- glibc-2.5-34
- gcc-4.1.2 20080704 (Red Hat 4.1.2-44)

The requirements for Red Hat Enterprise Linux 5.3 on POWER 32-bit and 64-bit are:

- kernel-2.6.18-128.el5 SMP
- glibc-2.5-34
- IBM XL C 10.1

2.5 POSIX threads and pthreads libraries

Open Client™ uses POSIX threads. When you use threaded libraries (*_r), link with the pthreads library.

See the *Open Client and Open Server Programmers Supplement for UNIX* for information about Open Client libraries.

Note DB-Library™ does not support any type of thread interface.

2.6 IPv6 support

Sybase SDK version 15.7 on Linux platforms supports IPv6.

This is a sample *interfaces* file entry:

```
BARNARD_OS
  master tcp ether barnards.sybase.com 18200
  query tcp ether barnards.sybase.com 18200
  master tcp ether barnards.v6.sybase.com 18200
  query tcp ether barnards.v6.sybase.com 18200
  master tcp ether
    fd77:55d:59d9:165:203:baff:fe68:aa12 18200
  query tcp ether
    fd77:55d:59d9:165:203:baff:fe68:aa12 18200
```

Note All master and query lines in the *interfaces* file must begin with a tab.

2.7 Sample files

You can find sample source code files in the SDK installation directory `$/SYBASE/$SYBASE_OCS/sample`.

3. Special installation and configuration instructions

See the *Software Developer's Kit and Open Server Installation Guide* for your platform for instructions on how to install the software. For guidelines for installing SDK with other Sybase products on the same server, see "Guidelines for installing SDK with other Sybase products" on page 9.

Warning! If you install both SDK and Open Server™ in the same directory, Sybase recommends that you use the same version and ESD levels. Because SDK and Open Server share files, using different version and ESD levels can cause product failures.

For instructions on configuring your environment, see the *Open Client and Open Server Configuration Guide* for your platform.

For information about compiling and executing Open Client and Open Server applications, including the sample programs, see the *Open Client and Open Server Programmers Supplement* for your platform.

3.1 Installing EBFs

To ensure that your installation is the most current, Sybase strongly recommends that, after you install SDK version 15.7, you download and install the corresponding latest available EBF. You can download product updates from Sybase Downloads at <http://downloads.sybase.com>.

To verify that you are using the correct version of SDK, enter the following command to check the version string of the SDK library:

```
isql -v
```

A sample SDK version string might be *Sybase Client-Library/15.7/A-EBFXXXX ESD #X*, where XXXX identifies the Client-Library file and the other SDK files.

3.2 Installing SDK 15.7 on top of SDK 15.5

SDK version 15.7 is a shelf replacement for version 15.5. When you install SDK 15.7 into an existing SDK 15.5 directory, version 15.7 files overwrite the 15.5 files. Sybase recommends that you back up your SDK 15.5 directory before you install SDK 15.7.

3.3 Running InstallAnywhere and InstallShield Multiplatform installers

Some of the files generated by InstallAnywhere and InstallShield Multiplatform share the same file names. This becomes an issue when you use both InstallAnywhere and InstallShield technologies to install or uninstall products in the same installation directory, because files that are used by both installers are overwritten or removed without warning. Sybase recommends that you do not use InstallShield and InstallAnywhere to install to or uninstall from the same installation directory.

4. Changed functionality in this version

Changed functionality for Sybase SDK 15.7 is described in the *New Features Bulletin Open Server 15.7 and SDK 15.7 for Windows, Linux, and UNIX*.

5. Known problems

This section describes all of the known issues that exist in this version.

5.1 Failure of ESQL/C and ESQL/COBOL compilations on Linux

[CR #436932] Compiling Embedded SQL™/C or Embedded SQL/COBOL applications on Linux platforms fails if the LANG environment variable is set to a UTF-8 default, as occurs on some Linux platforms. For example, on Red Hat Enterprise Linux AS platforms the LANG environment variable is, by default, set to “en_US.UTF-8”.

Workaround: One of the following:

- Unset the LANG environment variable at the shell level.
- Set the LANG environment variable equivalent to the iso_1 mapping indicated in the [linux] section of the *locales.dat* file. For example, you can set LANG to “en_US (iso_1)” or “C (iso_1)”.

5.2 Adaptive Server Enterprise ODBC Driver issues

This section describes the known problems and workarounds, if any, for Adaptive Server Enterprise ODBC Driver.

5.2.1 Bulk insert routines cannot support in-row LOB columns in APL tables

[CR #682086] The bulk insert functionality of the ODBC Driver available with SQLBulkOperations has not been tested with large object (LOB) columns marked for in-row storage on allpages-locked (APL) tables. Using this API against such APL tables could result in errors or corrupted data.

Workaround: Do not mark LOB columns for in-row storage on APL tables if you are using SQLBulkOperations to bulk load data into the tables.

5.2.2 Use SQLSetDescField to set decimal or numeric datatypes

You see an error if you do not specify the precision and scale using the ODBC API method – SQLSetDescField – when retrieving data from numeric or decimal columns in a table.

Workaround: Specify the SQLSetDescField with value types SQL_DESC_PRECISION and SQL_DESC_SCALE.

This code illustrates how to retrieve a numeric column from a table specifying a precision and scale.

```

/*
Insert values
Execute select statement
*/

/*
Fetch Values
*/

#define ROW_SIZE 10
SQLRETURN sr;
SQL_NUMERIC_STRUCT      g[ROW_SIZE];
SQLLEN  gLen[ROW_SIZE];
SQLINTEGER intVal[ROW_SIZE];
SQLLEN  intLen[ROW_SIZE];;

sr = SQLBindCol(hStmt, 1, SQL_C_LONG, intVal,
sizeof(SQLINTEGER), intLen);
sr = SQLBindCol(hStmt, 2, SQL_C_NUMERIC, g,

```

```

sizeof(SQL_NUMERIC_STRUCT), gLen);

SQLHDESC hdesc = NULL;
SQLGetStmtAttr(hStmt, SQL_ATTR_APP_ROW_DESC, &hdesc, 0,
NULL);
SQLSetDescField(hdesc, 2, SQL_DESC_PRECISION,
SQLPOINTER) 5, 0);
SQLSetDescField(hdesc, 2, SQL_DESC_SCALE, (SQLPOINTER)
2, 0);
SQLUSMALLINT rowStatus[ROW_SIZE];

sr = SQLSetStmtAttr(hStmt, SQL_ATTR_ROW_STATUS_PTR,
rowStatus, 0);
for (short i = 0; i < ROW_SIZE; i++)
{
    memset(&g[i], '\0', sizeof(SQL_NUMERIC_STRUCT));
    memset(g[i].val, 0, 16);
}
sr = SQLFetch(StatementHandle);

```

See the Microsoft ODBC API Reference at <http://msdn.microsoft.com/en-us/library/ms713560%28v=VS.85%29.aspx>.

5.2.3 Unsupported ODBC features

Adaptive Server ODBC Driver version 15.7 does not support the Kerberos network traffic encryption.

5.2.4 Behavior change when *datetime* parameter is out of range

When you use Adaptive Server ODBC Driver 15.0 or earlier, or connect to Adaptive Server version 15.0.x or earlier, and the application binds a datetime parameter to an invalid datetime range, such as 01-01-0001, the Adaptive Server ODBC Driver returns error 30122, Invalid datetime field. Year is out of range.

For an Adaptive Server ODBC Driver 15.5 that is connected to Adaptive Server 15.7, this behavior has changed. In the 15.7 versions, Adaptive Server ODBC Driver sends the date to Adaptive Server, and Adaptive Server returns an error. The error code returned is 247, Arithmetic overflow during implicit conversion of BIGDATETIME value 'Jan 1 0001 12:00AM' to a DATETIME field, or something similar.

5.3 Installer issues

This section describes the known problems you might encounter when installing SDK.

5.3.1 Installer fails to launch when path to *setup.bin* contains “..”

[CR #595582] The installer fails to launch if you specify a path to *setup.bin* that contains “..”.

Workaround: Ensure that the path to *setup.bin* does not contain “..”.

5.3.2 Installer stops responding at the Pre-Installation Summary screen

[CR #589483] When the *df* command stops responding, the installer also stops responding at the Pre-Installation Summary screen.

Workaround: Fix the Network File System (NFS) mount and re-run the installer.

5.3.3 Feature names are not validated when installing in silent mode

[CR #583979] The installer does not validate feature names specified in the response file when you install in silent mode.

Workaround: Ensure that the specified feature names are correct.

6. Product compatibility and interoperability

This section contains information about products that are compatible with SDK 15.7. For a list of platforms, compilers, and third-party products SDK is built and tested on, see the *New Features Bulletin Open Server 15.7 and SDK 15.7 for Windows, Linux, and UNIX*.

6.1 Interoperability matrix

Table 1 shows the interoperability matrix of SDK, Open Server, Adaptive ServerEnterprise, and Replication Server® that are installed on the same machine. For specific platform information, refer to the respective product certification reports.

Although two or more products can be interoperable, remember that new features introduced in a newer version of a product may not be supported with older versions of the same or other products.

Table 1: Interoperability matrix

SDK 15.7	Open Server			Adaptive Server				Replication Server					
	15.7	15.5	15.0	15.7	15.5	15.0.x	12.5.x	15.7	15.5	15.2	15.1	15.0.1	12.6
Linux x86 32-bit	x	x	x	x	x	x	x	n/a	x	x	x	x	x
Linux x86-64 64-bit	x	x	x	x	x	x	x	x	x	n/a	n/a	n/a	n/a
Linux on POWER 32-bit	x	x	x	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Linux on POWER 64-bit	x	x	x	x	x	x	x	x	x	x	x	n/a	n/a

LEGEND: x = interoperable; n/a = product not available or does not work with SDK on that platform.

Note The SDK interoperability information shown in Table 1 is relevant only if the interoperable products are installed in different *SYBASE* directories.

6.1.1 Guidelines for installing SDK with other Sybase products

Follow these guidelines if you are installing SDK on the same machine with other Sybase products:

- In general, Sybase recommends that you place the new installation of SDK in separate directories from other Sybase products, such as Replication Server, OpenSwitch™, Enterprise Connect™ Data Access, and Sybase® IQ, unless Sybase Technical Support has specifically recommended installation in the same directory to address an issue.
- Installing SDK 15.7 on the same machine as Adaptive Server 15.0.x could cause Adaptive Server to fail to start. To configure this configuration, either upgrade Adaptive Server to 15.7, or follow the directions in the *Software Developers Kit and Open Server Installation Guide for Microsoft Windows*.
- Sybase recommends that you do not mix versions of SDK and Open Server in the same directory. For example, do not install SDK 15.7 in a directory containing Open Server 15.5—in this case, upgrade both SDK and Open Server to 15.7.

6.2 SDK and Open Server compatibility

For SDK and Open Server compatibility, the header files included in an application must be the same version level as the library with which the application is linked.

6.3 DB-Library compatibility with Client-Library

DB-Library compatibility issues include:

- Support for new features in Open Client or Adaptive Server have been made primarily to the Client-Library API. This includes support for LDAP, SSL, high availability failover, bulk-copies into DOL tables, and so on. For this reason, Sybase strongly recommends that you create all new applications using the Client-Library API. You may also need to migrate, to Client-Library, older applications written in DB-Library that can be run against Adaptive Servers that offer newer technology.
- Support for new features are not added to the DB-Library.
- Although DB-Library and Client-Library calls can exist in the same application, Sybase does not test or certify combining the two different APIs. If you must use the two APIs together, make sure the libraries are not only at the same major release level but also at the same ESD level.

For help on converting a DB-Library application to a Client-Library application, see the *Open Client Client-Library Migration Guide*.

7. Programming issues

This section describes programming issues relevant to Open Client and Embedded SQL.

7.1 General issues

This section describes programming issues for all Open Client products.

7.1.1 Upgrading to a new version

For statically and dynamically linked Open Client applications (dblib, ctlib, and esql), Sybase recommends the following:

- Rebuild all statically linked Open Client applications (dblib, ctlib, and esql) using the new version of software. Recompile and relink the applications using the new header files and libraries.
- For dynamically linked Open Client applications, recompile and relink with the SDK libraries that now include “syb” in the library names.

Note If you have made any changes to the application files, you must recompile.

Ensure that the runtime libraries are for the same major release as the version used to build the application.

7.2 Client-Library issues

This section describes programming issues of Client-Library.

7.2.1 *ct_poll*

Do not call `ct_poll` from within any Client-Library callback function or from within any other function that can execute at the system-interrupt level. Calling `ct_poll` at the system-interrupt level corrupts Open Client and Open Server internal resources and causes recursion in the application.

7.2.2 Asynchronous operations

To properly exit Client-Library, wait until all asynchronous operations are complete, then call `ct_exit`. If an asynchronous operation is in progress when `ct_exit` is called, the routine returns `CS_FAIL` and does not exit Client-Library properly, even when `CS_FORCE_EXIT` is used.

Client-Library fully supports asynchronous operations on UNIX platforms. See “Asynchronous Programming” in the *Open Client Client-Library/C Reference Manual*.

7.2.3 Registered procedure notifications

The `CS_ASYNC_NOTIFS` connection property controls how a Client-Library application receives registered procedure notifications from an Open Server application.

Currently, the Open Server application sends a notification to the client as one or more Tabular Data Stream™ (TDS) packets. However, the client application does not learn of the notification until Client-Library reads the notification packets from the connection and invokes the application's notification callback.

To trigger the application's notification callback on a connection that is otherwise idle, set `CS_ASYNC_NOTIFS` to `CS_TRUE` for `ct_poll`. In other words, unless the application is actively sending commands and reading results on the connection, it does not receive notifications when `CS_ASYNC_NOTIFS` is `CS_FALSE` (the default).

7.3 Embedded SQL issues

This section describes programming issues specific to:

- Embedded SQL/C version 15.0 and later.
- Embedded SQL/COBOL version 15.0 and later.

For a list of platforms on which Embedded SQL/C and Embedded SQL/COBOL are available, see the *New Features Bulletin Open Server and SDK for Windows, Linux, and UNIX*.

7.3.1 Sharing Embedded SQL/C objects among multiple threads

By default, Embedded SQL/C connections, cursors, and dynamic statements cannot be shared by multiple threads. The namespace for each of these object types is limited to the currently executing thread; one thread cannot refer to objects that were created by another thread. Objects can be shared by setting the macro `CONNECTIONS_ARE_SHARED_ACROSS_THREADS` to 1 by using the `-D` compiler option when compiling the *sybesql.c* module.

Warning! If Embedded SQL/C objects are shared by multiple threads, the application programmer must add thread serialization code to ensure that objects associated with a single connection are not used simultaneously by multiple threads.

Normally, dynamic descriptors can be shared by multiple threads. To give each thread its own namespace for dynamic descriptors, when compiling the *sybesql.c* module, use the `-D` compiler option to set the macro `DESCRIPTOR_SCOPE_IS_THREAD` to 1.

7.3.2 Precompiler **-p** option

Applications that rely on inserting empty strings instead of NULL strings when the host string variable is empty does not work if the **-p** option is turned on. The persistent bind implementation prevents Embedded SQL from circumventing Client-Library protocol (which inserts NULL strings).

7.3.3 Error or warning prevents with **select into** statements

You can retrieve multiple rows with a single **select into** statement by using arrays as output host variables. If no errors or warnings occur, all selected rows are returned up to the limit of the length of the arrays. However, if a truncation, conversion warning, or error occurs, rows are returned only up to and including the row where the error or warning occurred. To ensure receiving all rows, use a cursor and continue fetching until there are no more rows.

7.3.4 Embedded SQL/C sample programs

When you enter an incorrect password, sample programs *example1.pc* and *example2.pc* generate incorrect error numbers. You can ignore these numbers.

7.3.5 Embedded SQL/COBOL sample programs

The shared library path for compiling the sample programs must include *\$COBDIR/lib* and *\$SYBASE/\$SYBASE_OCS/lib*. The path must also include *\$COBDIR/bin* and *\$SYBASE/bin*.

8. Technical support

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you have any questions about this installation or if you need assistance during the installation process, ask the designated person to contact Sybase Technical Support or the Sybase subsidiary in your area.

9. Other sources of information

Use the Sybase Getting Started CD and the Sybase Product Documentation Web site to learn more about your product:

- The Getting Started CD contains release bulletins and installation guides in PDF format. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The Sybase Product Documentation Web site is accessible using a standard Web browser. In addition to product documentation, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

To access the Sybase Product Documentation Web site, go to Product Documentation at <http://www.sybase.com/support/manuals/>.

9.1 Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

❖ Finding the latest information on product certifications

- 1 Point your Web browser to Technical Documents at <http://www.sybase.com/support/techdocs/>.
- 2 Click Partner Certification Report.
- 3 In the Partner Certification Report filter select a product, platform, and timeframe and then click Go.
- 4 Click a Partner Certification Report title to display the report.

❖ Finding the latest information on component certifications

- 1 Point your Web browser to Availability and Certification Reports at <http://certification.sybase.com/>.
- 2 Either select the product family and product under Search by Base Product; or select the platform and product under Search by Platform.
- 3 Select Search to display the availability and certification report for the selection.

❖ Creating a personalized view of the Sybase Web site (including support pages)

Set up a MySybase profile. MySybase is a free service that allows you to create a personalized view of Sybase Web pages.

- 1 Point your Web browser to Technical Documents at <http://www.sybase.com/support/techdocs/>.

- 2 Click MySybase and create a MySybase profile.

9.2 Sybase EBFs and software maintenance

❖ Finding the latest information on EBFs and software maintenance

- 1 Point your Web browser to the Sybase Support Page at <http://www.sybase.com/support>.
- 2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.
- 3 Select a product.
- 4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

Padlock icons indicate that you do not have download authorization for certain EBF/Maintenance releases because you are not registered as a Technical Support Contact. If you have not registered, but have valid information provided by your Sybase representative or through your support contract, click Edit Roles to add the “Technical Support Contact” role to your MySybase profile.

- 5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

10. Accessibility features

This document is available in an HTML version that is specialized for accessibility. You can navigate the HTML with an adaptive technology such as a screen reader, or view it with a screen enlarger.

SDK documentation has been tested for compliance with U.S. government Section 508 Accessibility requirements. Documents that comply with Section 508 generally also meet non-U.S. accessibility guidelines, such as the World Wide Web Consortium (W3C) guidelines for Web sites.

Note You might need to configure your accessibility tool for optimal use. Some screen readers pronounce text based on its case; for example, they pronounce ALL UPPERCASE TEXT as initials, and MixedCase Text as words. You might find it helpful to configure your tool to announce syntax conventions. Consult the documentation for your tool.

For information about how Sybase supports accessibility, see Sybase Accessibility at <http://www.sybase.com/accessibility>. The Sybase Accessibility site includes links to information on Section 508 and W3C standards.