Release Bulletin
Open Client™ and Open Server™ 12.5.1 for Linux

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2. Product summary

This release bulletin describes issues relating to Open Server™ and to all the components in the Software Developer's Kit (SDK), including Open Client™. See "Version contents" on page 4, for a complete list of SDK components.

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.

Sybase SDK and Open Server version 12.5.1 products are available on the following platforms and operating system configurations:

- Intel 32-bit and Intel IA (Itanium, 64-bit) platforms running on:

    - Red Hat Enterprise Linux AS 2.1 or United Linux/SuSe SLES 8.0/UL1.0

- Intel 32-bit, Intel IA64 (Itanium, 64-bit), AMD 64-bit (Opteron64), and Linux PowerPC running on:

    - Red Hat Enterprise Linux AS 3.0

- Linux PowerPC running on:

    - United Linux/SuSe SLES 9.0

Note For downloading the required Linux PowerPC runtime executables, refer to "Linux PowerPC runtime libraries to run Open Server, SDK and ASE executables" on page 5.

For more information regarding these platforms and the features supported, refer to Table 2 on page 18.

2.1 Required patches

The following are the minimum required release levels for Red Hat Enterprise Linux AS 2.1 and Red Hat Enterprise Linux AS 3.0.

- For Red Hat Enterprise Linux AS 2.1:
    - kernel version - 2.4.18-e.12 SMP
    - glibc - 2.2.4-29 or later
- For Red Hat Enterprise Linux AS 3.0:
    - kernel version - 2.4.21-20
    - glibc - 2.3.2 release 95.x

2.2 Version contents

This release bulletin contains the latest information for these products:

- SDK:
    - Open Client/C, version 12.5.1
    - Embedded SQL™/C, version 12.5.1
- Open Server, version 12.5.1

2.3 POSIX threads and pthreads libraries

As of version 12.5.1, Open Client and Open Server use POSIX threads. When you use threaded libraries (*_r), link with the pthreads library.

See the Open Client and Open Server *Programmer's Supplement* for UNIX for information on Open Client/C libraries.

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

2.4 IPV6 support

For SDK, Open Server, and Adaptive Server® Enterprise (ASE), Sybase does not yet support IPV6.

2.5 Sample files

To access the folder that contains the updated sample file for Open Client and Open Server, go to the CodeXchange Web site location at http://ase.codexchange.sybase.com/servlets/ProjectDocumentList?folderID=472.

2.6 Utilities

There are two versions of the bcp, isql, and defncopy utilities; nonthreaded and native-threaded. The native-threaded versions are named with "_r" suffixes.

3. Special installation instructions

See the Software Developer's Kit *Release Bulletin* or the SDK and Open Server *Installation Guide* for your platform for instructions on how to install the software. For guidelines for installing SDK and Open Server on the same server, refer to "Guidelines for installing SDK or Open Server with other Sybase products" on page 20 of this release bulletin.

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

For information on compiling and executing Open Client and Open Server applications, including the example programs, see the Open Client and Open Server *Programmer's Supplement Guide*.

3.1 Linux PowerPC runtime libraries to run Open Server, SDK and ASE executables

Open Server, SDK, and Adaptive Server Enterprise (ASE) is compiled and linked with the Visual Age compiler, XLC version 7.0, and prior to installation the runtime libraries for the Visual Age compiler must be installed on your system. Before installing the runtime libraries, check to see if the Visual Age runtime packages have been installed previously, by issuing the following command:

```
rpm -q vacpp.rte-7.0.0-0
```

If a "vacpp.rte-7.0.0-0" message is returned, then the Visual Age runtime packages have been installed and you can proceed with Open Server, SDK, and ASE installation.

If a "package vacpp.rte-7.0.0-0 is not installed" message is returned, then the Visual Age packages have not been installed, and you must download the XLC v7.0 runtime executables from the following location:

at http://www-1.ibm.com/support/docview.wss?uid=swg24007906.

Follow the instructions on the Web page to download and install the packages on your system. Select the package from the download table for the appropriate OS, RedHat 3.0 or SUSE Linux 9.0. Following the installation of the XLC Version 7.0 runtime libraries, proceed with Open Server, SDK, and ASE installation.

Note If you do not install these runtime libraries, you will receive an installation error.

Before installing SDK or Open Server on Linux PowerPC

Warning! If you are installing on an NFS remotely mounted disk, run df against the mount points. If it fails, there is an NFS problem and your install will fail.

Prior to installing SDK or Open Server on Linux PowerPC, version 12.5.1, run the following command:

```
df
```

If df fails to return to the command prompt, then the SDK or Open Server install will fail, since it requires df to determine the available space on a file system.

A reboot clears the problem with df. If this is not a viable option, you will need to work with your system administrator to resolve the issue with df before proceeding with the installation of SDK or Open Server.

3.2 Installing EBFs

To ensure that your installation is the most current, Sybase strongly recommends that, after you have installed SDK and Open Server version 12.5.1, you download and install the corresponding latest available EBFs. You can download product updates at http://downloads.sybase.com.

Each Open Server release includes a subset of the SDK. Thus, Open Server EBFs contain two separate version strings: one for the Open Server EBF, and one for the SDK files, such as Client-Library™, *isql*, and *bcp*.

For example, in an Open Server product, the Server-Library version string might be *Server-Library/12.5.1/P-EBF9728-9715*, and the Client-Library™ string might be *Client-Library/12.5.1/P-EBF9728-9715*. In these version strings, 9728 identifies the Open Server EBF, and 9715 identifies the Client-Library file (as well as other SDK files).

To verify that you are using the correct version of Open Server, enter the following command to check the version string of *libsrv*:

```
strings libsrv.a | grep Sybase
```

3.3 Installation and configuration instructions

Follow the instructions in the Software Developer's Kit *Release Bulletin* and the Software Developer's Kit and Open Server *Installation Guide* version 12.5.1 to install the SDK and Open Server software. When the software has completed installation with no errors, the products are ready to use and you can configure your environment.

3.3.1 Overwriting new versions

In certain cases when versions 12.5.1 of SDK or Open Server are installed with other Sybase products, you may see warnings about overwriting newer versions of **.xml* files. In these cases, simply instruct the installer to overwrite these files and proceed with the installation.

3.3.2 Incorrect environment variable for Linux Itanium

In the *sybopts.sh* script, the SYBBIN environment variable is being set to *${OCSBASE}/bin64*. You need to set it to *${OCSBASE}/bin* to work correctly. This is only for the ESQL/C examples. Refer to the latest SDK and Open Server ESD for additional information.

3.4 Modifying *interfaces* file entries with *dscp* or *dsedit*

Use dscp or dsedit to modify directory service entries. See the Open Client and Open Server *Configuration Guide* for details on how to use these tools.

4. Changed functionality in this version

This section summarizes new and changed functionality for version 12.5.1 of SDK and Open Server.

4.1 New features for SDK and Open Server version 12.5.1

The following sections describe the new features that are supported.

4.1.1 Date and time datatypes

SDK (except for DB-Library™) and Open Server now support two 4-byte binary datatypes, date and time, which are new, fixed-width, 4-byte server datatypes. The names for the new Client-Library and Server-Library shared C programming datatypes are CS_DATE and CS_TIME, which correspond to the ASE date and time datatypes, respectively. These new datatypes behave like their counterparts, CS_DATETIME and CS_DATETIME4, but they store data in only date or time, which are 4-byte, fixed-width binaries.

All Open Client and Open Server operations on CS_DATETIME and CS_DATETIME4 datatypes are implemented for CS_DATE and CS_TIME datatypes and behave in a similar manner. As a result, syntactically CS_DATE and CS_TIME can be used anywhere that CS_DATETIME and CS_DATETIME4 are used, for example: cs_convert, ct_bind, ct_param, ct_dt_crack, ct_dt_info, and others. For the definition and use of these new datatypes, refer to the Open Client and Open Server *Common Libraries Reference Manual*, the Open Client *Client-Library/C Reference Manual*, and the Open Client *Client-Library/C Programmer's Guide*.

4.1.2 High Availability Failover in ESQL

The feature called High Availability Failover (HA Failover) is now supported on Embedded SQL™/C. For a list of the supported platforms. Its use is defined in the Open Client *Embedded SQL/C Programmer's Manual* and in the Open Client *Embedded SQL/COBOL Reference Manual*.

Note Linux AMD (Opteron64) does not support HA Failover.

HA Failover allows a client to connect to a second server when a connection failure occurs to the primary server. When a flag (-H) is set, the precompilers generate code that supports the HA Failover capability. The command line argument parser reads the -H flag and then, the precompiler checks for this flag in the code generation stage and generates the necessary Client-Library statements to implement HA Failover.

Similar to manually written Client-Library code, the second server must be up and running, and correctly listed in the *interfaces* file (for UNIX), and the *sql.ini* (for Windows) file as an HA Failover server. Changes are necessary only if you want to generate code to implement the HA Failover capability. To activate this feature, enter the following on the command line: -H.

4.1.3 SMP Open Server performance and scalability

This improvement focuses on generic changes to increase performance over all platforms. This affects Shared Memory Multiprocessor (SMP) Open Server (SMPOS) applications that depend highly on communication with clients. It improves the handling of network completions and the explicit synchronization of Open Server threads in Open Server, reducing the overhead associated with communicating with client applications. For a more detailed description, refer to the Open Server *Server-Library/C Reference Manual*.

The Open Server API provides several functions for synchronizing Open Server processes using mutexes, message queues, and sleep-events. These changes improve the robustness of SMPOS and enhance the performance of these functions. Due to changes in Net-Library™, the new version of SMPOS uses significantly less thread resources than the pre-12.5 version of SMPOS.

4.1.4 Support for Chinese character sets

Open Client and Open Server now support the Chinese character set (GB 18030). SDK and Open Server products support the Chinese character set for version 12.5 ESD#8 or later, which is downloadable from the Sybase Web site for all licensed customers of SDK and Open Server. There are no required changes to the installation process or to the system tables. Once you download, the definition information is available and stored in the *SYSCHARSETS* directory.

Note Client-side conversion is not supported.

This feature adds support for a new Chinese character set to follow the standard GB 18030-2000, which is a new Chinese encoding standard first published in March 2000. It is a rather complex MBCS with 1-byte, 2-byte, and 4-byte forms. In this release, support for GB 18030 includes the following major functionalities:

- Provides the ability to receive, store, and process all characters defined in GB 18030-2000 at server-side. It provides support for all functionalities that apply to character datatypes (char, varchar, and text).

- Supports GB 18030 at client-side through Open Client and Unicode-based conversion.

- Provides binary sort order as the server's default sort order.

- Provides language-specific sort orders, such as "gbpinyin," through the use of built-in functions sortkey() and compare().

- Provides EURO symbol support.

Currently, support exists for the previous GB standards GB 2312-1980 and GBK (an extension to GB 2312). References to the new Chinese language support can be found in the Open Client and Open Server *International Developer's Guide*.

Note DB-Library does not support Chinese character sets.

4.1.5 Identity Update option

The new Identity Update feature reduces application downtime by allowing identity gaps to be fixed easily and quickly in a time-sensitive, high-availability environment. The Identity Update option, which is known as "identity columns" and is used by Adaptive Server, automatically generates consecutive numeric values upon insertion of new rows, with minimal impact on performance.

This new feature eliminates the identity gaps that can occur following a difficult server shutdown ("shutdown with nowait") or a crash of the server process. Identity Update allows you to quickly update the "high," out-of-range identity column values by writing a single SQL update statement that specifies the required range of rows and replaces them with correct values.

You can activate the Identity Update option by calling ct_options with correct arguments and in the correct context, or by using the following syntax:

```
set option <option> <table_name> on/off
```

For the definition and use of the new Client-Library options, refer to the Open Client *Client-Library/C Reference Manual*.

4.1.6 BCP support for long char client-side character set conversion

BCP support for long char client-side character set conversion provides conversion when expansion occurs between the client and server character sets. When invoked, the conversion of the data represented in the server's character will take place when the data takes up more space than the same data in the client's character set. This is usually the case when converting to Unicode UTF-8 encoding when a single byte can translate to 1-3 bytes in UTF-8, and when converting between two popular Japanese language encodings: SJIS and EUC. Popularized by Microsoft, SJIS encoding is mostly used by Windows clients, while EUC encoding is traditionally used by UNIX computers.

The bcp utility will perform character set conversion locally on the client side when bcp direction is *in*. The character set expansion factor is greater than 1, where expansion is taking place between the client and the server. This new feature is enabled in the utility by setting the -Y command line option. For bcp utility information, refer to the Open Client and Open Server *Programmer's Supplement* for UNIX or Microsoft Windows.

Note When a data truncation error occurs during client-side character set conversion, a general error message is displayed.

4.1.7 SSL Plus 3.1.5

Open Client and Open Server now support the new version of Secure Sockets Layer, SSL Plus 3.1.5, in place of the previous version, SSL Plus 3.0.9. For more information, refer to the Open Client and Open Server *Configuration Guide* for UNIX or Microsoft Windows.

4.1.8 MIT Kerberos

Sybase now supports MIT Kerberos on the following platforms:

- Sun Solaris 32-bit and 64-bit
- Linux 32-bit
- Linux Opteron 64-bit

To use and configure MIT Kerberos, refer to the following documents:

- The revised chapter and appendixes in the Open Client and Open Server *Configuration Guide* for UNIX:
  - Chapter 6, "Using Security Services"
  - Appendix B, "Configuration Files"
  - Appendix E, "Kerberos Security Services"
- The revised chapter and appendix in the Open Client and Open Server *Programmer's Supplement Guide* for UNIX:
  - Chapter 1, "Open Client Client-Library/C"
  - Appendix B, "Environment Variables"

4.2 Using pre-12.5 Open Client versions with Adaptive Server

Versions of Open Client prior to 12.5 had a limit of 255 bytes per column for character or binary columns stored in CS_CHAR and CS_BINARY host datatypes. If you use versions of Open Client earlier than version 12.5 with Adaptive Server version 12.5, the wider rows of the result set may be truncated.

Adaptive Server version 12.5 and later can store data that has different limits than data stored in pre-12.5 versions of ASE. Clients also must be able to handle the new limits the data can use. Open Client version 12.5 and later supports Adaptive Server 12.5 and later limits. If you are using pre-12.5 versions of Open Client, they cannot process the data if you:

- Upgrade to Adaptive Server version 12.5 or later

- Drop and re-create the tables with wide columns

- Insert wide data

Versions of Open Client earlier than 12.5 work successfully with Adaptive Server version 12.5 or later, if you do not use the new limits (such as wider columns and rows, larger logical page sizes, and so on).

4.3 Changes to directory structure and threaded libraries

The former naming convention of *_dce for threaded libraries and binaries has been changed to *_r.

5. Known problems

This section describes all of the known issues that exist for this release.

5.1 32-bit libraries on Linux Itanium

The SDK/Open Server 12.5.1 release on the Linux Itanium platform is primarily intended for developing and deploying 64-bit applications. However, the 32-bit version of the shared libraries is also provided for backward compatibility. This means that if you had a 32-bit SDK or Open Server application on a Pentium-based Linux machine, you would be able to run that application on Linux Itanium with the 32-bit libraries. Development of 32-bit SDK or Open Server applications on Linux Itanium is not supported.

5.2 32-bit libraries on Linux Opteron64

The SDK/Open Server 12.5.1 release on the Opteron64 platform is primarily intended for 64-bit application development. However, Opteron64 architecture is compatible with Linux 32-bit shared libraries that are provided for backward compatibility. You can run existing 32-bit SDK or Open Server based applications on an Opteron64 platform. Development of 32-bit SDK or Open Server applications on Opteron64 requires a separate purchase of Linux 32-bit SDK or Open Server.

5.3 File descriptor limit

Upon exceeding the file descriptor limit, Open Server reports the following error and then suspends operation:

```
SRVLIB Message: Test_ctos  - 16240/10/0: Net-Library
routine

net_accept() failed in srv__conservice

Network error: status = 159 - Error string not available
```

The workaround is to increase the file descriptor limit to a larger value, for example, 8192.

5.4 Open Server threads

Open Server 12.5 and later threads use POSIX threads. Threads started with srv_spawn() may not start in the order in which they are created.

5.5 Open Server start-up error

During start-up, Open Server may return the following error if there are multiple Network Interface Cards (NIC) on your server:

```
WARNING: SRV_CURPROC is null, msgno = 16240
```

The workaround is to create one master/query entry for each Open Server. There is no longer a need to have entries for each NIC in the *interfaces* file with version 12.5.1, since it now does a wildcard character bind to every network interface on the server.

5.6 InstallShield problems

This section describes the known problems you might encounter when installing SDK and Open Server products.

5.6.1 Server not responding causes InstallShield to hang

If you have an inaccessible NFS mounted device, InstallShield may hang while displaying the following message:

```
Performing install checks. Please wait ...
```

If this happens, the console from which you executed the installation displays a message similar to the following:

```
NFS3 server not responding still trying
```

You can verify this problem by executing "df -P" from a command prompt. This command should also hang.

The workaround is as follows:

1   Stop the installation process.

2   Unmount the inaccessible device.

3   Retry the installation.

This seems to exist only on platforms where the InstallShield "genericunix" ppk is used. Currently, this is used on SGI and HP Tru64 UNIX platforms.

5.6.2 Installation fails with a "JVM not found" error

The installation may fail with a "JVM not found" error if the installation directory has the set-group-ID bit set. If this happens, the <*install location*>/*log.txt* file will contain an error similar to the following:

```
An error occurred attempting to copy the current JVM:
ServiceException: (error code = 399; message = "Command
failed: '/bin/chmod 775 <install location>/uninstall
/JRE-1_4 '  rc = 1 Error message: chmod: not all
requested changes were made to <install location>
/uninstall/JRE-1_4
```

If you retry the installation a second time, it succeeds.

5.6.3 InstallShield overwrites existing Sybase files

InstallShield overwrites any existing file with the same name.

To protect against loss of data, save a copy of the *$SYBASE/SYBASE.sh* and *$SYBASE/SYBASE.csh* files before installing SDK and Open Server products into the *SYBASE* directory.

6. Product compatibilities and interoperability

Version 12.5.1 of SDK and Open Server work with Adaptive Server 12.5.1 on the following platforms:

- HP Tru64 UNIX 5.0a

- IBM RS/6000 AIX 4.3.3 and 5.1

- HP 9000/800 11.x and HP Itanium

- Linux, Linux Itanium, Linux AMD Opteron 64, and Linux PowerPC

- Sun Solaris 2.8 (SPARC)

- Windows NT 4.0, Windows 2000, Windows 2003, and Windows XP

- SGI IRIX 6.5

Note HP Itanium and Linux Itanium are not available on Adaptive Server for version 12.5.1.

Table 1 lists the compilers Sybase uses to build version 12.5.1 of Open Client and Open Server 12.5.1. These are not the only compilers you can use to build the programs.

Table 1: Open Client and Open Server platform compatibility

Platform	Operating system level	C and C++ compilers	COBOL compilers	Kerberos version	Light-weight Directory Access (LDAP)	Secure Sockets Layer (SSL)
HP 32-bit	HP/UX 11.0 with Patch bundle 99OP	HP C 11.00.00 ANSI HP ANSI C++ B3910B A.03.10	MF 4.0	CyberSafe Trust Broker 2.1	Netscape LDAP 4.1	Certicom SSL Plus 3.0.7

Platform	Operating system level	C and C++ compilers	COBOL compilers	Kerberos version	Light-weight Directory Access (LDAP)	Secure Sockets Layer (SSL)
HP 64-bit	HP/UX 11.0 with Patch bundle 99OP	HP C 11.00.00 ANSI HP ANSI C++ B3910B A.03.10	Not available	Not available	Netscape LDAP 4.1	Certicom SSL Plus 3.0.7
HP Itanium 32-bit	HP-UX 11.23	HP C++/ANSI C B3910B A.0550	Not available	Not available	Netscape LDAP 4.1	Not available
HP Itanium 64-bit	HP-UX 11.23	HP C++/ANSI C B3910B A.0550	Not available	Not available	Netscape LDAP 4.1	Not available
HP Tru64 UNIX 64-bit	Digital UNIX TRU64 5.0a	C++ 6.0-010	DEC COBOL 2.7	CyberSafe Trust Broker 2.1	Netscape LDAP 4.1	Certicom SSL Plus 3.0.7
IBM 32-bit	AIX 4.3.3	C++ 5.0.22	MF 4.0	CyberSafe Trust Broker 2.1	Netscape LDAP not available	Certicom SSL
IBM 64-bit	AIX 5.1	C++ 5.0.22	Not available	Not available	Netscape LDAP not available	Certicom SSL
Linux PowerPC	Red Hat AS 3.0 (RHEL 3.0) or United Linux/ SuSe SLES 9.0 (SLES 9)	XL C/C ++ Advance Edition V7.0	Not available	Not available	Not available	Not available
Linux Intel 32-bit	• Red Hat AS 2.1 or United Linux/ SuSe SLES 8.0/ UL1.0 • Red Hat AS 3.0	• GCC 2.96 • GCC 3.2.3	Not available	MIT 1.3.1	Netscape LDAP 4.1	Certicom
Linux Itanium 64-bit	• Red Hat AS 2.1 • Red Hat AS 3.0	• GCC 2.96 • GCC 3.2.3	Not available	Not available	Not available	Not available

Platform	Operating system level	C and C++ compilers	COBOL compilers	Kerberos version	Light-weight Directory Access (LDAP)	Secure Sockets Layer (SSL)
Linux AMD 64-bit (Opteron64)	Red Hat AS 3.0	GCC 3.2.3 (Red Hat Linux 3.2.3 - 42)	Not available	MIT 1.2.7	Not available	Not available
SGI 32-bit	IRIX 6.5.18	MIPSPro C7.3.x MIPSPro C++ 7.3.x	Not available	Not available	Netscape LDAP 4.0	Not available
SGI 64-bit	IRIX 6.5.18	MIPSPro C7.3.x MIPSPro C++ 7.3.x	Not available	Not available	Not available	Not available
Sun 32-bit	Solaris 2.8	Sun C/C++ 6.2	MF 4.0	CyberSafe Trust Broker 2.1, MIT 1.3.1	Netscape LDAP 4.0	Certicom SSL Plus 3.0.7
Sun 64-bit	Solaris 2.8	Sun C/C++ 6.2	Not available	MIT 1.3.1	Netscape LDAP 4.1	Certicom SSL Plus 3.0.7
Windows NT 32-bit	NT 4.0 Service Pack 4	MS C 6.0 (Microsoft Developers Studio; unoptimized, development only)	NetExpress 4.0	CyberSafe Trust Broker 2.1	Netscape LDAP 4.1	Certicom SSL Plus 3.1.5
Windows 2000	Service Pack 3	MS C 6.0 (Microsoft Developers Studio; unoptimized, development only)	NetExpress 4.0	CyberSafe Trust Broker 2.1	Netscape LDAP 4.1	Certicom SSL Plus 3.1.5
Windows 2003	Service Pack 1	MS C 6.0 (Microsoft Developers Studio; unoptimized, development only)	NetExpress 4.0	CyberSafe Trust Broker 2.1	Netscape LDAP 4.1	Certicom SSL Plus 3.1.5

Platform	Operating system level	C and C++ compilers	COBOL compilers	Kerberos version	Light-weight Directory Access (LDAP)	Secure Sockets Layer (SSL)
Windows XP		MS C 6.0 (Microsoft Developers Studio; unoptimized, development only)	NetExpress 4.0	CyberSafe Trust Broker 2.1	Netscape LDAP 4.1	Certicom SSL Plus 3.1.5

6.1 Open Client and Open Server compatibility

Open Server version 12.5.1 is certified to work with the Client-Library/C and Adaptive Server products shown in Table 2:

Table 2: Open Client and Open Server compatibility

Open Server 12.5.1 platform	Client-Library 12.5.1	Client-Library 12.5	Client-Library 12.0	Adaptive Server 12.5.1	Adaptive Server 12.5	Adaptive Server 12.0
HP Tru64 UNIX 5.0a	x	x	x	x	x	x
HP 9000/800 HP-UX 11.0	x	x	x	x	x	x
HP Itanium	x	n/a	n/a	x	n/a	n/a
IBM AIX 5.1	x	x	x	x	x	n/a
IBM RS/6000 AIX 4.3.3	x	x	x	x	x	x

Note

- 64-bit libraries SDK/OS for AIX 4.3.3 are not compatible to run on AIX 5.1.

- 32-bit libraries from AIX 4.3.3 are compatible to run on AIX 5.1, starting with version 12.5, ESD #6.

Open Server 12.5.1 platform	Client-Library 12.5.1	Client-Library 12.5	Client-Library 12.0	Adaptive Server 12.5.1	Adaptive Server 12.5	Adaptive Server 12.0
Linux PowerPC	x	n/a	n/a	n/a	n/a	n/a
Linux	x	x	n/a	x	x	n/a
Linux Itanium	x	n/a	n/a	x	n/a	n/a
Linux AMD Opteron64	x	n/a	n/a	n/a	n/a	n/a
SGI IRIX 6.5 (32-bit)	x	x	x	x	x	x

Open Server 12.5.1 platform	Client-Library 12.5.1	Client-Library 12.5	Client-Library 12.0	Adaptive Server 12.5.1	Adaptive Server 12.5	Adaptive Server 12.0
SGI IRIX 6.5 (64-bit)	x	n/a	n/a	x	n/a	n/a
Solaris 2.8 (SPARC (32-bit)	x	x	x	x	x	x
Solaris 2.8 (SPARC (64-bit)	x	x	n/a	x	x	n/a
Windows NT 4.0 Service Pack 4 or later	x	x	x	x	x	x
Windows 2000, 2003, and XP	x	x	n/a	x	x	n/a

LEGEND: x = compatible; n/a = product not available on that platform.

Warning! Some of the versions identified may be compatible but are no longer supported by Sybase.

Additionally, for Open Server:

- Header files included in an application must be the same version level as the library with which the application is linked.

- Bulk-Library routines cannot be used in applications that call Open Server version 2.x routines.

- DB-Library-based Open Server applications are not supported starting with version 11.x or later.

6.2 Interoperability matrix

This matrix shows the interoperability of ASE, Replication Server®, SDK, and Open Server across versions. In Table 3, "*x*" indicates a compatible configuration, and "*n/a*" indicates that the product is not available for that version or platform combination. For specific platform or O/S level information, refer to the respective product certification reports.

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

For the latest interoperability report on these products, refer to the technical document (#1026087) on MySybase at http://www.sybase.com/.

Table 3: Interoperability matrix

ASE 12.5.1	ASE 12.0	SDK and Open Server 12.5.1	SDK and Open server 12.0	Rep Server 12.6	Rep Server 12.5	Rep Server 12.1
Apple Mac OS X	n/a	x	n/a	x	n/a	n/a
HP Tru64 UNIX 5.x	x	x	x	x	x	x
HP-UX 11.x	x	x	x	x	x	x
IBM AIX 4.3.x	x	x	x	x	x	x
IBM AIX 5.1	x	x	x	x	x	x
Linux Advanced Server 2.1	n/a	x	n/a	x	n/a	n/a
Linux Advanced Server 3.0	n/a	x	n/a	x	n/a	n/a
Silicon Graphics IRIX	n/a	x	x	x	x	n/a
Sun Solaris	x	x	x	x	x	x
Microsoft Windows	x	x	x	x	x	x

6.2.1 Guidelines for installing SDK or Open Server with other Sybase products

Below are guidelines for installing version 12.5.1 of SDK or Open Server on the same server with other Sybase products:

- In general, Sybase recommends that new installations of SDK and Open Server be placed 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.

- Sybase does not recommend mixing versions of SDK and Open Server in the same directory. For example, do not install SDK 12.5.1 into a directory containing Open Server 12.5—in this case, upgrade both SDK and Open Server to 12.5.1.

6.3 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.

6.4 DB-Library compatibility with Client-Library and Open Server

Following are DB-Library compatibility issues:

- Support for new features in Open Client or ASE have been made primarily to the CT-Library API. This includes support for LDAP, SSL, XNL, HA Failover, bulk copies into DOL tables, and so on. For this reason, Sybase strongly recommends creating all new applications with the CT-Library API. Older applications written in DB-Library that may be run against ASE servers with new technology may also need to be migrated to CT-Library.

- Support for new features will not be added to this DB-Library.

- DB-Library is not reentrant or threadsafe and is not supported in threaded applications.

- Although it is possible for DB-Library and CT-Library calls to 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 CT-Library application, refer to the Open Client *Migration Guide*.

7. Documentation updates and clarifications

This section contains updates and additions to the Open Client and Open Server documentation.

7.1 Common Libraries Reference Manual

This section contains updates and additions to the Open Client and Open Server *Common Libraries Reference Manual*.

7.1.1 Defining a CS-Library message callback

Replace the declaration in Chapter 1, page 6, with the following:

```
CS_RETCODE CS_PUBLIC cslibmsg_cb(context, message)
CS_CONTEXT *context;
CS_CLIENTMSG *message;
```

8. Programming issues

This section describes programming issues relevant to Open Client/C, Open Server, and Embedded SQL.

8.1 General issues

This section describes programming issues for all Open Client and Open Server products.

8.1.1 Upgrading to a new release

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

- For statically linked applications, you are required to do a complete rebuild of the application(s) with the new version of software. You must recompile and relink the application with the new header files and libraries.

- For dynamically linked applications, Sybase recommends a recompile and relink. At the very least, a relink with the new libraries is required. If you have made any changes to the application files or the Sybase header files have changed, a recompile is mandatory. Be certain that the runtime libraries are for the same major release as the version used to build the application.

8.1.2 Using earlier versions of Client-Library with Open Server 12.5

When using a pre-12.5 Client-Library client with Open Server 12.5 and Adaptive Server 12.5, the Open Server capability bits for wide tables (both request and response) must be turned "off."

8.2 Client-Library issues

This section describes programming issues specific to Open Client Client-Library version 12.5.1.

8.2.1 Net driver libraries

The static net driver library is not shipped with Open Client version 12.5 or later; instead, this library is now loaded dynamically. As a result, you must remove references to the net driver library *libtli.a* or *libinsck.a* from your *makefile*.

8.2.2 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.

8.2.3 Asynchronous programming

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 your UNIX platform. For more information, see "Asynchronous Programming" in the Open Client *Client-Library/C Reference Manual*.

8.2.4 Registered procedure notifications

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

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.

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

8.3 DB-Library issues

This section describes programming issues specific to DB-Library version 12.5.

8.3.1 Sample programs

To build the DB-Library sample programs, you must uncomment the CFLAGS and DBLIBS definition in the *makefile* for your specific platform.

8.4 Open Server issues

This section describes programming issues specific to Open Server version 12.5.1.

8.4.1 Timeslice property and multithreaded library versions

The SRV_S_TIMESLICE Open Server property is not supported if you use the multithreaded versions of the Sybase libraries. Applications can set this property, but it has no effect; therefore, you must change existing application code that depends on timeslice events before relinking with the multithreaded libraries.

Applications can call srv_capability to determine if the timeslice feature is supported.

8.5 Embedded SQL issues

This section describes programming issues specific to Embedded SQL/C and COBOL versions 12.0 and later.

8.5.1 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.

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

8.5.2 Precompiler *-b* option

The -b option differs in version 10.0.x and versions 11 and later of the Embedded SQL/C precompiler:

- For 11.1 and later versions of cpre, the norebind attribute applies to all fetch statements of a given cursor whose declaration has been precompiled with the -b option.

- For the 10.0.x versions of cpre, the norebind attribute applies to all fetch statements in each Embedded SQL source file precompiled with -b, regardless of where the cursors were declared.

8.5.3 Precompiler *-p* option

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

8.5.4 Error or warning prevents retrieving all rows from a *select into* statement

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 or 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.

8.5.5 Embedded SQL/C sample programs

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

For the sample programs on Linux, the compiler generates a warning. You can ignore this warning.

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

When compiling the sample programs with the DataDirect COBOL compiler, you must set the COBMODE environment variable to 32 for 32-bit builds, and to 64 for 64-bit builds.

9. Utility issues

This section describes issues that concern the standalone utilities.

9.1 Utility messages

With this release, messages generated by the bcp, defncopy, and isql utilities have changed. If you process these messages with scripts that parse specific strings (such as with awk or grep), you may need to change the search patterns of the scripts to accommodate the new messages.

10. 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.

11. Other sources of information

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

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. 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 SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

  Some documentation may be provided in PDF format, which you can access through the PDF directory on the SyBooks CD. To read or print the PDF files, you need Adobe Acrobat Reader.

  Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.

- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

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

11.1 Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

v **To find the latest information on product certifications**

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

2 Select Products from the navigation bar on the left.

3 Select a product name from the product list and click Go.

4 Select the Certification Report filter, specify a time frame, and click Go.

5 Click a Certification Report title to display the report.

v   **To create 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.

11.2 Sybase EBFs and software maintenance

v   **To find 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.