Release Bulletin Sybase® IQ 12.7 for Windows

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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 Manuals Web site.

❖ **Accessing release bulletins at the Sybase Product Manuals Web site**

1 Go to Product Manuals at http://www.sybase.com/support/manuals/.

2 Select a product and language and click Go.

3 Select a product version from the Document Set list.

4 Select the Release Bulletins link.

5 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

Enclosed is Sybase® IQ 12.7 for Windows with multiplex capability. This product is compatible with the following platform and operating system configurations:

- Microsoft Windows 2000 (x86) certified with Service Pack 4 (32-bit)
- Microsoft Windows 2003 (x86) 32-bit
- Microsoft Windows 2003 (x64) certified with Service Pack 1 (64-bit)
- Microsoft Windows XP Professional (x86) certified with Service Pack 2 (32-bit)
- Microsoft Windows Vista (IQ Network Client only)

Information regarding Sybase IQ on the Windows platform applies to all supported Windows platforms unless otherwise noted.

If you purchased the Sybase IQ Extended Enterprise Edition, the following products are also enclosed:

- Sybase IQ ETL Server
- Sybase IQ ETL Development – runs only on Windows systems, on the following platforms:
  - Microsoft Windows 2003 (x86) 32-bit

- Microsoft Windows 2003 (x64) certified with Service Pack 1 (32-bit version on 64-bit platform)
- Microsoft Windows XP Professional (x86) certified with Service Pack 2 (32-bit version on 64-bit platform)

Note Sybase IQ is also referred to as Adaptive Server IQ. You will sometimes see the name Adaptive Server IQ in documentation and in the product.

Refer to the *New Features in Sybase IQ 12.7* document for descriptions of new features and behavior changes in Sybase IQ 12.7.

2.1 Installation kit

The Developer's and Enterprise Edition installation kits include the following CDs:

- Getting Started – Installation Guide, Release Bulletin.
- Sybooks – Core documentation. (See "Documentation for this version" on page 82.)
- Network Client – IQ Network Client.
- Developer's Kit or Enterprise Edition – IQ Server and related products. (See *Sybase IQ Installation and Configuration Guide* for details.)

The Extended Enterprise Edition installation kit includes the following CDs:

- Getting Started – Installation Guide, Release Bulletin, User's Guide for Sybase IQ ETL.
- Sybooks – Core documentation. (See "Documentation for this version" on page 82.)
- Extended Enterprise Edition – IQ Server and related products, IQ ETL Server. (See *Sybase IQ Installation and Configuration Guide* for details.)
- Extended Enterprise Edition Client – IQ Network Client, IQ ETL Development.

To update the IQ Network Client on Windows to run on Windows Vista™, download and install Sybase IQ 12.7 ESD #3. For details, see "Installing the Network Client on Windows Vista" on page 14.

2.2 Updated software components

Sybase IQ Server 12.7 installs the following software components, updated to the latest versions available at release time:

- Sybase jConnect JDBC Driver version 5.5. This component is optional but strongly recommended. If you install the jConnect driver, Java classes installed into a database can make JDBC calls to access and modify data.

  Sybase jConnect JDBC Driver version 6.0 is also included with this release and is optional. For more information, see the *Sybase IQ Installation and Configuration Guide for Windows*.

- Java Runtime Environment (JRE) version 1.4.2 allows you to use the latest Sybase Central plug-in for Sybase IQ.

- Open Client Software Developer's Kit version 15.0

IMPORTANT!
Sybase strongly recommends that you check the online support Web site for software updates to these components before you install the software. If a software update (ESD or EBF) has been released, it contains bug fixes made after this product shipped. You must download the latest update and install it after you install Sybase IQ from the product CD. For more information, see "Sybase EBFs and software maintenance" on page 149.

2.3 Configuring ETL client/server connectivity

For an overview of client/server connectivity for Sybase IQ, see "Configuring client connectivity," in Chapter 4, "Configuring Sybase IQ," in the *Sybase IQ Installation and Configuration Guide*. You must define Open Client server definitions and ODBC data source names (DSNs) for ETL projects or jobs on the appropriate machine. Server definitions and DSNs must be appropriate for the platform and operating system where the ETL project or job runs.

For example, if you build a project or job in the Windows ETL Development client that you plan to run on a remote GridNode engine on Solaris, you need to configure the connectivity on that remote machine with the GridNode. The ODBC DSN or Open Client server name must be defined in the Solaris *.odbc.ini* file or interfaces file.

❖ **Configuring ETL as an ODBC client on Windows**

1 Install Sybase IQ ETL Development from the Extended Enterprise Edition Client CD.

2 Open the ODBC Data Source Administrator (Start > Programs > Sybase > Data Access > ODBC Data Source Administrator.)

3 In the ODBC Data Source Administrator application, choose the System DSN tab.

4 Click Add and select the Adaptive Server IQ driver when prompted.

5 Name the data source (DSN) and complete the connection information.

See "Creating ODBC data sources," in Chapter 5, "Configuring Sybase IQ," in the *Sybase IQ Installation and Configuration Guide*.

6 Within the ETL client, create a project and add a DB component. In the component properties, select ODBC from the Interface drop-down menu and then specify the ODBC DSN in the Host name field, user id and password to connect.

❖ **Configuring Open Client on Windows**

Follow these steps to configure IQ ETL to be an Open Client Sybase IQ client on Windows.

1 Install the Sybase IQ Server from the Extended Enterprise Edition.

2 Install Sybase IQ SDK (Open Client).

3 Create a *sql.ini* file entry for Sybase IQ using the dsedit utility (Start > Sybase > Connectivity > Open Client Directory Services Editor).

For more details, see "Connecting using Open Client," in Chapter 5, "Configuring Sybase IQ," in the *Sybase IQ Installation and Configuration Guide*.

4 Click Add to define a server, name it, and provide the connectivity information.

5 Use the Ping utility to verify it.

6 Within the ETL client, create a project and add a DB component. In the component properties, select Sybase from the Interface drop-down menu and then specify the Open Client server name defined in the *sql.ini* file in the Host name field, user id and password to connect.

Note The Sybase IQ 12.7 Windows Client does not include Sybase native (Open Client) connectivity. In order to use Sybase native connectivity from Sybase IQ ETL to Sybase IQ, you must install the native libraries from another Sybase product. For example, the native libraries are available in the Sybase Software Development Kit (SDK), which is an installation option of the 12.7 Sybase IQ Server on Windows or as a separate product. Contact your Sybase Technical Support representative for information about the best way to obtain Sybase native connectivity for your site.

ETL products for Windows are 32-bit applications but can run on the Windows 64-bit platform. If the 64-bit Sybase IQ Server was installed on the same machine and the installation included the SDK, the 32-bit libraries would also be installed and could be used.

❖ **Configuring an ETL server as an ODBC client to Sybase IQ on UNIX or Linux**

Follow these steps to configure a Sybase IQ ETL Server as an ODBC client to Sybase IQ on UNIX or Linux.

1 Choose the Sybase IQ Server option from the Extended Enterprise Edition installation.

2 Install Sybase IQ Server.

3 Create a *.odbc.ini* file with any text editor and define a Data Source Name there. For details, see "Using ODBC data sources on UNIX," in the *Sybase IQ System Administration Guide*.

4 Set the $ODBCINI variable to point to the file by typing the following C shell command:

```
setenv ODBCINI
/<Sybase_iq_installation_directory>/.odbc.ini
```

For other shells, use the sh /export syntax.

5 Run *ASIQ-12_7.csh* or *ASIQ-12_7.sh* script from the root installation directory to set the variables.

6 Verify the ODBC configuration using the Sybase IQ component Interactive SQL. Change to the *$ASDIR/bin* directory and type:

```
./dbisql -c "uid=<user_id>;pwd=<password>"
-ODBC -dataSource
<ODBC_data_source_name_from_.odbc.ini> -nogui.
```

On connection, a user name displays. Type `select @@version` to return the Sybase IQ versions string to verify the connection. If an error indicates that no driver and no valid data source are found, the $ODBCINI variable is not set properly. Check the $ODBCINI variable setting and the *.odbc.ini* file for any possible mistakes or omissions. Type `exit` to exit dbisql.

For more information, see "Storing connection information," in Chapter 5, "Configuring Sybase IQ," in the *Sybase IQ Installation and Configuration Guide*.

7 In the same console session where the ASIQ and $ODBCINI variables are set, change to the ETL server installation directory and run the *GridNode.sh* script.

8 Within the ETL client, create a project and add a DB component. In the component properties, select ODBC from the Interface drop-down menu and then specify the ODBC DSN from the *.odbc.ini* file in the Host name field to connect.

❖ **Configuring Open Client**

Follow these steps to configure the ETL server to be an Open Client to Sybase IQ on UNIX or Linux.

1 Choose the Sybase IQ Server option from the Sybase IQ Extended Edition Server installation media.

2 Choose to install Open Client from the Sybase IQ Server installation.

3 Run the sybase environment variable script in the root $SYBASE installation directory. For example, for the C shell, type: `./source SYBASE.csh`

4 Use dsedit to create an interfaces file in the root $SYBASE directory. Change to the *$SYBASE/OCS-15_0/bin* directory and type: `./dsedit`

Since dsedit is a GUI application, you may need to set the $DISPLAY variable to the machine where you want dsedit to display. For example, in the C shell, type: `setenv DISPLAY mypc:0.0`

5 Specify the interfaces file. Use the default file in the root $SYBASE installation directory or create your own. Click OK.

6 When the Directory Service Session panel appears, click the Add new server entry button to define a new server.

7 In the Server Entry Editor panel, enter the server and click the Add new network transport button.

8 In the Network Transport Editor panel, provide the following information:

- Transport type: Select tcp from the drop-down menu.
- Host name: Enter the machine name of the IQ host.
- Port number: Enter the port on which the IQ server is running. For example, the default port for the Sybase IQ demo server is 2638. in the interfaces file.

Click OK.

9 Click Cancel as necessary and Exit to close the dsedit.

10 In the same console with the Sybase variables set, and within the *$SYBASE/OCS-15_0/bin* directory, use the isql application to verify the Open Client server definition. Type the following command:

```
./isql -U<user_name>  -P<password>
-S<server_name_defined_in_interfaces>
```

For example, for the Sybase IQ demo server, use: `./isql -Udba -Psql -Sasiqdemo`. The application connects and displays a 1> prompt.

11 To return the Sybase IQ version string for verification, type: `select @@version`, press return and then enter `go`. If the connection fails, use any messages to troubleshoot the problem and verify the dsedit entry

12 Type exit at the command prompt to close dbisql and the connection.

13 In the same session where the $SYBASE variables are set, change to the ETL server installation directory and run the *configure.sh* file to update the ETL environment with the Sybase environment information.

14 Run the *GridNode.sh* file.

15 Within the ETL client, create a project and add a DB component. In the component properties, select Sybase from the Interface drop-down menu and then specify the Open Client server name defined in the *sql.ini* file in the Host name field to connect.

2.4 ODBC and database drivers for Sybase IQ ETL

The Sybase IQ ETL environment has been tested, evaluated, and verified thoroughly to comply with many interface drivers of the supported database systems. While most drivers used in a current Windows environment exhibit no problems, some drivers might cause unexpected results when dealing with Unicode character sets.

If you encounter unexpected results that might be related to driver incompatibility, install one of the following versions for your interface driver.

Table 1: Interface driver versions for Sybase IQ ETL Server

Driver	Version
Sybase native (via ct-lib)	15.0
Sybase ASE ODBC	15.00.00.50 (Windows only)
Sybase IQ ODBC	9.00.02.1023
DB/2 native	9
DB/2 ODBC	9.01.00.356 (Windows only)
Microsoft Access ODBC	12.00.4518.1014 (Windows only)
Microsoft SQL Server ODBC	2005.90.3042.00 (Windows only)
Oracle native (via oci)	10.2.0.3
Oracle ODBC	10.2.0.3.0 (Windows only)

2.5 Network Client supported platforms

The Sybase IQ Network Client is available for Windows and Linux. Both the Windows and the Linux versions of the Sybase IQ Network Client operate with the Sybase IQ server on any supported platform.

The Sybase IQ Network Client for Windows is included with Sybase IQ 12.7 on all platforms. The Sybase IQ Network Client for Linux can be downloaded or ordered separately.

- **Linux** – The Sybase IQ Network Client for Linux can be installed on the following configurations:
  - Red Hat Enterprise Linux 3.0 IA32, Advanced Server or Workstation Edition, distribution of kernel version 2.4.21-4.0.1.ELhugemem #1 SMP and glibc version 2.3.2-95.39, or
  - Red Hat Enterprise Linux 4.0, Advanced Server or Workstation Edition, distribution of kernel version 2.6.9-22.0.2.ELsmp #1 SMP and glibc version 2.3.4-2.13, or

  - Red Hat Enterprise Linux 5.0, Advanced Server or Workstation Edition, or
  - SuSE Linux Enterprise Server 8.0, or
  - SuSE Linux Enterprise Server 9.0, with kernel version 2.6.5-7.244-pseries64 #1 SMP and glibc version 2.3.3.-98.61, or
  - SuSE Linux Enterprise Server (SLES) 10.0, with kernel version 2.6.16.21-0.25-ppc64 #1 SMP and glibc version 2.4-31.5.
- **Windows** – The Sybase IQ Network Client for Windows can be installed on a Windows 2000 SP2, Windows 2003, Windows XP SP2, or Windows Vista system.

The Sybase IQ installation for UNIX and Linux platforms includes ODBC drivers needed for the client and DBISQL.

2.6 Required Windows operating system patches

Sybase recommends that you keep your system current with the latest patch level. Refer to the Microsoft Corporation Web site for the latest patches.

2.6.1 Determining the service pack level

1 On the Windows taskbar, click Start | Run.

2 Type in the Open: text box.

```
winver
```

3 Click OK.

The About Windows dialog box displays the operating system version and the service pack level.

4 Click OK.

2.6.2 Enabling 4GT

In order to use the full available process virtual memory, you need to modify the *boot.ini* file by adding the /3GB parameter to the start-up line to enable 4GT. Only the following platforms support this capability:

- Windows 2000 Advanced Server
- Windows 2000 Datacenter Server

For an example of how to set this option, see the *Sybase IQ Installation and Configuration Guide*.

2.7 Windows x64 (64-bit) components

On the Windows x64 (64-bit) platform, only the server is 64-bit.

- The Windows service managers, their required libraries, start_asiq, asiqsrv12, and dbspawn utilities are 64-bit and reside in the *%ASDIR%\x64* directory.
- All other executables and necessary components are 32-bit and reside in the *%ASDIR%\Win32* directory.

The start menu has been changed appropriately, and both *%ASDIR%\x64* and *%ASDIR%\Win32* directories are included in the %PATH%.

Both 32-bit and 64-bit ODBC drivers and driver managers are installed.

3. Special installation and migration instructions

This section includes installation and migration information that is new for this release or needs emphasis. For complete installation and migration instructions, see the *Sybase IQ Installation and Configuration Guide for Windows*. Be sure to read the section "Before you install" before installing Sybase IQ 12.7.

Sybase IQ 12.6 and higher enforces check constraints. If you have existing check constraints, see the section "Before you install" in the chapter "Installing Sybase IQ" in the *Sybase IQ Installation and Configuration Guide* before installing.

"Before you install" also contains important information on upgrading LONG BINARY columns.

IMPORTANT!
You must upgrade all existing databases after you install *any* Sybase ESD. To upgrade, run ALTER DATABASE UPGRADE. See the *Sybase IQ Installation and Configuration Guide* for details.

Before you run a new version of Sybase IQ, see "Restrictions" on page 73 for the most current requirements.

Sybase strongly recommends that you check the online support Web site for software updates to these components before you install the software. If a software update (ESD or EBF) has been released, it contains bug fixes made after this product shipped. You must download the latest update and install it after installing IQ from the product CD. See “Sybase EBFs and software maintenance” on page 149.

3.1 Back up database and log files [CR 465000, CR 424572]

As a backup, copy the *.db* and *.log* files for the database immediately before running ALTER DATABASE UPGRADE. Perform this backup before starting the server. Because ALTER DATABASE UPGRADE modifies only the catalog, a full backup is unnecessary.

3.2 Windows Vista support issues

For Sybase IQ 12.7 ESD #3, the IQ Network Client is certified on the Windows Vista operating system. Following are some issues relating to running Sybase IQ software on Vista:

- Windows Vista security

  Windows Vista incorporates a new security model. User Account Control (UAC) is enabled by default and may affect the behavior of programs that expect to be able to write files, especially when the computer supports more than one user. Depending on where and how files and directories are created, a file created by one user may have permissions that do not allow another user to read or write to that file. If you install Sybase IQ in the default directories, files and directories that require read/write access for multiple users are set up appropriately.

- Sybase IQ elevated operations agent

  In Vista, certain actions require privilege elevation to execute when run under User Account Control. The programs *dbelevate9.exe*and *iqdsn.exe* may require elevation in Sybase IQ.

  The following dll files require elevation when they are registered or unregistered: *dbodbc9.dll* and *dboledb9.dll*.

On a Vista system with User Account Control activated, you may receive an elevation prompt for the Sybase IQ elevated operations agent. The prompt is issued by the Vista User Account Control system to confirm that you want to continue running the identified program (if logged on as an administrator) or to provide administrator credentials (if logged on as a non-administrator).

- Deployment changes

  The program *dbelevate9.exe* is used internally by Sybase IQ components to perform operations that require elevated privileges. This executable must be included in deployments of Sybase IQ. Administrator privileges are required to run dbelevate.

- Sybase IQ executables signed

  Sybase IQ executables on Vista are signed by Sybase, Inc.

- Using an AWE cache

  To use an AWE (Address Windowing Extensions) cache on Windows Vista, you must run the database server as administrator. Starting a non-elevated database server with an AWE cache results in a warning that the database server must be run as an administrator to use AWE. See "-cw server option" in Chapter 1, "Running the Database Server," in the *Sybase IQ Utility Guide*.

- Samples

  Samples now correctly handle Sybase IQ installation path names that contain one or more spaces.

- Windows services

  Vista-compliant services are not allowed to interact with the desktop. On Windows Vista, no Sybase IQ services interact with the desktop (even if Allow Interaction with Desktop is enabled in the service definition). Sybase IQ database servers can be monitored using the dbconsole utility or from Sybase Central. Sybase Central disables the option to allow service to interact with desktop when running on Windows Vista.

3.3 Adding ODBC Data Source Names on 64-bit Windows systems [CR 480906]

On 64-bit Windows systems, Sybase IQ installs a 32-bit ODBC driver. To add new Data Source Names, invoke the ODBC Administrator one of two ways:

- Run Start > Programs > Sybase > Data Access > ODBC Data Source Administrator
- Run *C:\WINDOWS\SysWOW64\odbcad32.exe*

Other methods of launching ODBC Administrator from the Control Panel or Run box do not return desired results. If you type “odbcad32” instead of the full path in the Run text box, ODBC lists only one driver (SQL Server driver) and prevents adding Data Source Names. The Version or Company column in the driver list may include the value “(Not Marked).”

Attempts to add a DSN starting the ODBC Administrator incorrectly may return one of the following errors:

- `The setup routines for the Adaptive Server IQ ODBC driver could not be loaded due to system error code 126.`
- `Driver's ConfigDSN, ConfigDriver, or ConfigTranslator failed: Could not load the setup or translator library.`
- `The setup routines for the Adaptive Server IQ ODBC driver could not be found. Please reinstall the driver.`

3.4 Changes to Sybase IQ server components on Windows

The following changes affect Sybase IQ 12.7 ESD #3 and higher releases:

- The license block formerly embedded in the product executable is now created in *%ASDIR\win32\asiqsrv12.lic*.
- The new utility *%ASDIR\win32\dbelevate9.exe* allows programs to change security levels easily.

3.5 Installing the Network Client on Windows Vista

Windows Vista’s multiple security levels affect Sybase IQ Network Client installation and operation in several areas:

- Sybase IQ digitally signs all *.exe* and *.dll* files. Digital signing guarantees that the executable was built by the signing company and has not been modified.
- Only users with administrator privileges can write to the Program Files directory. If another user attempts to write to Program Files, the write is redirected (without the user’s knowledge) or blocked (returning an error).

- Sybase IQ files that need to be modified by programs are moved to new user writable directories:
  - User public directory
    <MainDisk>:\Users\Public\Documents\Sybase IQ *\12.7*
  - Program data directory
    <MainDisk>:\ProgramData

  On the IQ Network Client on the Windows Vista platform, the sample files are relocated from *<MainDisk>:Program Files\SYBASE\ASIQ-12_7\Samples* to *<Main_Disk>:Users\Public\Documents\Sybase IQ\12.7\Samples*

See “Before you install Sybase IQ Extended Enterprise Edition on Windows Vista” if installing Extended Enterprise Edition.

3.6 Before you install Sybase IQ Extended Enterprise Edition on Windows Vista

If you changed any of the default Vista settings, installing the GA version of Sybase IQ Extended Enterprise Edition may require a lower security setting.

❖ **Setting signed executables option**

The following procedure does not apply to the Enterprise Edition or Developer’s Kit.

1 Select Control Panel > Administrative Tools > Local Security Policy > Local Policies > Security Options.

2 Select User Account Control: Only elevate executables that are signed and validated.

3 If enabled, set to Disabled until Sybase IQ installation completes.

3.7 Upgrading write and query servers [CR 474126]

The order in which you upgrade multiplex servers depends on the versions of Sybase IQ on the servers.

If you plan to run a mixed-version multiplex, you must upgrade query servers before the write server as described in the section “Running a mixed-version multiplex,” in Chapter 4, “Migrating data,” in the *Sybase IQ Installation and Configuration Guide*.

If you plan to run one version across the multiplex, you may upgrade servers in any order. You must shut down all multiplex servers, and after the write server is upgraded, synchronize query servers. See the section “Upgrading servers from 12.6 to 12.7” in the same chapter.

3.8 Reboot to synchronize message and SQL log files [CR 467129]

If you run Sybase IQ in a country that observes Daylight Savings Time, you must reboot IQ servers after the change back to standard time. The reboot corrects a time difference between the IQ message log and the SQL log generated by specifying the -zr switch on the server startup. IQ servers require the reboot only after the change back to standard time, not for the change to daylight savings time.

3.9 Correction to “Installing ODBC Drivers” [CR 446798]

The following paragraph appeared erroneously in the section “Installing ODBC Drivers” in Chapter 4, “Configuring Sybase IQ” of the *Sybase IQ Installation and Configuration Guide*.

If you are using ODBC with UNIX or Linux, see “Using ODBC without the driver manager” in Chapter 4 of the *Adaptive Server Anywhere Programming Interfaces Guide* to ensure that you are using the correct driver.

The *Programming Interfaces Guide* does not exist in the Adaptive Server Anywhere documentation set. The relevant section is now “Linking ODBC applications on UNIX” in Chapter 7 of the *Adaptive Server Anywhere Programming Guide*. This section is cross-referenced earlier in the same section of the *Sybase IQ Installation and Configuration Guide*. Another reference is unnecessary.

3.10 Migrating across hardware platforms [CR 445754]

This section was omitted from Chapter 3, “Migrating Data from Previous Versions,” in the *Sybase IQ Installation and Configuration Guide*.

Sybase IQ supports migrating your database from one platform to another, as long as both have the same endian structure.

Platforms with big-endian structure are:

- AIX64
- HP-UX64 PA-RISC

- HP-UX64 Itanium
- IBM Linux on POWER
- SunOS64

Platforms with little-endian structure are:

- Linux32**
- Linux64
- Windows 32
- WinAMD64
- SunAMD64

Sybase IQ 12.6 ESD #2 and higher releases support migration between Windows and Linux.

IMPORTANT!
** If you created your Sybase IQ database on a Linux 32-bit version prior to Sybase IQ 12.6 ESD #2, you must first install IQ 12.6 ESD #2 for Linux 32-bit systems and create a new data backup before migrating to another platform.

❖ **Migrating a database from one platform to another (same endian structure)**

1 Back up the database.

2 Shut down the Sybase IQ server.

3 Install the Sybase IQ server on the new platform. Your migration can take place on the same or a different machine.

4 Start the Sybase IQ server on the new hardware platform.

5 Connect to the utility database, *utility_db*.

6 Restore the database from the backup you created in Step 1.

7 Shut down the server and restart it against the restored database. If the current version of Sybase IQ is higher than the version on which you were previously running, you need to upgrade databases, and therefore restart the server in a way that restricts user connections. Sybase recommends using two server start-up options:

   - Use -gd DBA so that only users with DBA authority can start and stop databases.

- Use -gm 1 to allow a single connection plus one DBA connection above the limit so that a DBA can connect and drop others in an emergency.

An alternate way to restrict connections is to specify

```
sa_server_option 'disable_connections', 'ON'
```

on the connection where you intend to perform the upgrade and

```
sa_server_option 'disable_connections', 'OFF'
```

on the same connection after upgrading. *The disadvantage is that this method precludes emergency access from another DBA connection.*

8 Start Interactive SQL and issue the database upgrade statement. For example:

```
ALTER DATABASE UPGRADE
```

If the database was created with the Java options off, append the keywords JAVA OFF JCONNECT OFF to the preceding command.

For more information, see "Upgrading non-multiplex databases," in Chapter 3, "Migrating Data," in the *Sybase IQ Installation and Configuration Guide*.

3.11 Moving data in one endian format to a system with a different endian format [CR 445754]

The following information was omitted from the 12.7 *Sybase IQ Release Bulletin*.

This section documents a procedure for moving data from a database in big-endian format to a database in little-endian format. This procedure moves table definitions but does not include migration of database objects, such as stored procedures or events, which you must recreate.

For example, Sybase IQ databases built on Sun64 SPARC systems store binary data in big-endian (Most Significant Byte first) format. Because Sun Solaris x64 is a little-endian system, Sybase IQ databases built on Sun64 SPARC cannot be upgraded with ALTER DATABASE UPGRADE to run on Sun Solaris x64 systems.

To move data for each database across hardware platforms of different endian structures, you must:

- Copy the database schema from the source platform (tables, indexes, etc.).
- Create a new database on the target platform.

- Perform a binary data dump from the source database.
- Load data into the new target database.

The following steps describe this process in detail.

❖ **Moving data from big-endian to little-endian systems or the reverse**

Note Before you begin, *make sure that you have a process for capturing your database and table schema.*

The following example loads a table named lineitem and identifies one extract file on UFS (file system) called *lineitem_binary.inp*.

Check operating system documentation for the maximum file size for your system. For example, an extract file on Sun Solaris x64 has a maximum size of 512GB.

1 Activate the extract utility:

```
SET TEMPORARY OPTION Temp_Extract_Name1 =
'lineitem_binary.inp'
SET TEMPORARY OPTION Temp_Extract_Name2 = ''
```

2 Set up a binary extract of the *lineitem* table:

```
SET TEMPORARY OPTION Temp_Extract_Binary = 'on'
SET TEMPORARY OPTION Temp_Extract_Swap = 'off'
```

3 Place output in the file *lineitem_binary.inp*:

```
SELECT * FROM lineitem
```

4 Turn off the extract utility:

```
SET TEMPORARY OPTION Temp_Extract_Name1 = ''
```

5 Create a duplicate of your database on the target system.

6 Assuming table *lineitem* as defined below, load the *lineitem* table as follows:

```
LOAD TABLE lineitem
( l_orderkey     BINARY WITH NULL BYTE,
l_partkey        BINARY WITH NULL BYTE,
l_suppkey        BINARY WITH NULL BYTE,
l_linenumber     BINARY WITH NULL BYTE,
l_quantity       BINARY WITH NULL BYTE,
l_extendedprice  BINARY WITH NULL BYTE,
l_discount       BINARY WITH NULL BYTE,
```

```
l_tax            BINARY WITH NULL BYTE,
l_returnflag     BINARY WITH NULL BYTE,
l_linestatus     BINARY WITH NULL BYTE,
l_shipdate       BINARY WITH NULL BYTE,
l_commitdate     BINARY WITH NULL BYTE,
l_receiptdate    BINARY WITH NULL BYTE,
l_shipinstruct   BINARY WITH NULL BYTE,
l_shipmode       BINARY WITH NULL BYTE,
l_comment        BINARY WITH NULL BYTE )
FROM 'C:\\mydata\\lineitem_binary.inp'
FORMAT BINARY
STRIP OFF
QUOTES OFF
ESCAPES OFF
PREVIEW ON
BYTE ORDER HIGH
COMMIT
```

Note particularly two clauses:

- BINARY WITH NULL BYTE is required when loading a binary file.
- BYTE ORDER HIGH specifies the byte order from the system where the data *originated*. The source database in this example is a big-endian platform; therefore, this data requires byte order HIGH. (Little-endian databases require byte order LOW.)

When loading a multiplex database, *use absolute (fully-qualified) paths in all file names*. Do not use relative path names.

3.12 Avoiding port number conflicts [CR 358218]

To avoid product conflicts, change the IQ port number in *default.cfg* and other configuration files (for example, *asiqdemo.cfg*) if Adaptive Server Anywhere is installed on the same system as Sybase IQ. Both products use the default port 2638.

1 Add the following line to *%ASDIR%/scripts/default.cfg* with an unused port number, for example:

```
-x  tcpip{port=4444}
```

2 Look for a port number definition in each configuration file. For example, *%ASDIR%/demo/asiqdemo.cfg* contains the following line:

```
-x  tcpip{port=2638}
```

3 Edit the line and replace the default port number with the new one, for example:

```
-x  tcpip{port=4444}
```

4 Save each file when finished.

If Adaptive Server Anywhere is on the same subnet as Sybase IQ, the server names must be unique.

3.13 Transport Layer encryption and Adaptive Server 12.5.x

Installing Adaptive Server Enterprise 12.5.x on a system where Sybase IQ 12.7 is installed disables Sybase IQ encryption with Transport Layer Security functionality. Installing Sybase IQ 12.7 on a system where Adaptive Server 12.5.x is installed disables Adaptive Server 12.5.x.

3.14 Upgrading database options

Sybase IQ 12.7 has many new and modified database options. For information on these options, see *New Features in Sybase IQ 12.7*.

If you have explicitly set database options that adjust performance and want to be sure that the new settings are appropriate for your environment, you may find it helpful to run sp_iqcheckoptions, which displays:

- Database options whose value is different from the default
- Current value of these options
- Default value for the connected user

It is a good idea to run sp_iqcheckoptions and capture the output before and after running ALTER DATABASE UPGRADE.

3.15 Megaphone Telco Demo

The Megaphone Telco Demo is larger than the *asiqdemo* sample database and shows how fast Sybase IQ can be as the amount of data grows. It features sample queries, a star schema, and a fact table with over one million rows. You can download the Megaphone Telco Demo from the Sybase Software Download Page at http://downloads.sybase.com.

4. New features and behavior changes

For new features and behavior changes, see *New Features in Sybase IQ 12.7*, which you should read before you install Sybase IQ 12.7. This section describes changes omitted from that book or the documentation set.

4.1 Highlights of new features in Sybase IQ 12.7 ESD #3

Sybase IQ 12.7 ESD #3 includes new features in the areas of large object (LOB) support, operational management, ease of use, and performance.

- INSERT...LOCATION now supports retrieving large object data (LOB) up to 20MB in length from a remote database.

  See “INSERT...LOCATION supports 20MB large object (LOB) data [CR 453439]” on page 34.

- WORD (WD) indexes are now supported on LONG VARCHAR character large object (CLOB) columns. The CONTAINS predicate is also supported on LONG VARCHAR (CLOB) columns with a WORD (WD) index.

  See “WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]” on page 47.

- String search functions for LONG VARCHAR (CLOB) and LONG BINARY (BLOB) data are now supported.

  See “String search functions for large object columns [CR 415543]” on page 50.

- Support of the LIKE predicate on LONG VARCHAR (CLOB) columns is now included.

  See “LIKE predicate for character large object (CLOB) columns [CR 415546]” on page 49.

- The LOCK TABLE statement supports acquiring WRITE locks on a set of tables. The LOCK TABLE statement also allows enqueuing for READ, WRITE, and EXCLUSIVE locks for a specified time period.

  See “LOCK TABLE support [CR 480880, CR 472791, CR 463196, 444921]” on page 24.

- Authorized users can now display query plans in the Java-based Interactive SQL (dbisql) plan window. You can also save and print query plans from dbisql, instead of accessing the *.iqmsg* file or query plan files on the server.

See “Using query plans with Interactive SQL for Java [338070]” on page 53.

- Workload monitoring enhancements provide a mechanism to analyze a workload to determine the actual tables, columns, and indexes being used, so that unused objects can be deleted to save space, increase DML performance, and decrease backup time.

  See “Workload monitoring [CR 472513]” on page 37.

- The login auditing feature, present in previous ESDs, lets you log connection details for a given user in the transaction log file. A new example added to documentation shows how to use the auditing feature to examine attempts to access unauthorized information.

  See “Login auditing capability” on page 92.

- The IQ Network Client is now certified on the Windows Vista operating system.

  See “Product summary” on page 2.

4.2 Data Definition Language (DDL) changes

This section contains new features and changes related to DDL.

4.2.1 Database created with JAVA ON now returns correct error [CR 469250]

ESD #3 corrects a problem where Sybase IQ returned the same error (Error -845) for two different situations.

Now a database created with JAVA ON correctly reports a different error for incorrect dotted references than a database created with JAVA OFF.

In a database created with JAVA OFF, the following statement reports error -845, `SQLSTATE_INVALID_COLUMN_QUALIFICATION, "Owner used in a qualified column reference does not match correlation name."`

```
CREATE TABLE dot ( a int, b int );
INSERT dot VALUES ( 1, 1 );
COMMIT;
SELECT * FROM dot WHERE
dot..a = 100;
```

In a database created with JAVA ON, the statement reports error -706, `SQLSTATE_OMNI_SERVER_NOT_CAPABLE, "Remote server does not have the ability to support this statement."`

4.2.2 Unique table names on a connection [CR 455684]

In Sybase IQ 12.7 ESD #3, an attempt to create a base table or a global temporary table will fail, if a local temporary table of the same name exists on that connection, as the new table cannot be uniquely identified by *owner.table*.

You can, however, create a local temporary table with the same name as an existing base table or global temporary table. References to the table name access the local temporary table, as local temporary tables are resolved first.

For example, consider the following sequence:

```
CREATE TABLE t1 (c1 int);
INSERT t1 VALUES (9);

DECLARE LOCAL TEMPORARY TABLE t1 (c1 int);
INSERT t1 VALUES (8);

SELECT * FROM t1;
```

The result returned is 8. Any reference to t1 refers to the local temporary table t1 until the local temporary table is dropped by the connection.

4.2.3 LOCK TABLE support [CR 480880, CR 472791, CR 463196, 444921]

Sybase IQ now allows users to reserve WRITE locks in advance to prevent failure of DML update statements like INSERT, DELETE, SYNCHRONIZE JOIN INDEX, UPDATE, and TRUNCATE due to version errors. Sybase IQ now also allows connections to enqueue for READ, WRITE, and EXCLUSIVE locks in case of lock unavailability.

As of 12.7 ESD #3, the LOCK TABLE statement supports acquiring WRITE locks on a set of tables as well as enqueuing on all the lock types. The following updates apply to existing documentation:

Syntax

LOCK TABLE *table-list* [**WITH HOLD**] **IN** { **SHARE** | **WRITE | EXCLUSIVE** } **MODE** [**WAIT** [*time*]]

Parameters

table-list:

[*owner.*] *table-name* [, [*owner.*] *table-name*, …]

time:

string

Examples

For example, the following statement obtains a WRITE lock on the customer and employee tables, if available within 5 minutes and 3 seconds:

```
LOCK TABLE customer, employee IN WRITE MODE WAIT
'00:05:03'
```

The following statement waits indefinitely, until the WRITE lock on the customer and employee tables, if available or an interrupt occurs:

```
LOCK TABLE customer, employee IN WRITE MODE WAIT
```

table-name The table must be a base table, not a view. WRITE mode is only valid for IQ base tables. LOCK TABLE either locks all tables in the table list, or none. If obtaining a lock for a SQL Anywhere table, or when obtaining SHARE or EXCLUSIVE locks, you may only specify a single table. Standard Sybase IQ object qualification rules are used to parse *table-name*. For related details, see the section “Identifiers” in Chapter 3 “SQL Language Elements,” in *Reference: Building Blocks, Tables, and Procedures* and “Types of tables,” in Chapter 5, “Working with Database Objects,” in the *Sybase IQ System Administration Guide*.

WRITE A WRITE lock on an IQ base table prevents it from being updated by concurrent transactions.
WRITE mode lock on a table is compatible with SHARE locks but not with WRITE and EXCLUSIVE locks in other connections.

LOCK TABLE IN WRITE MODE unconditionally commits the connection's outermost transaction and returns successfully if all locks are available within the specified wait time. The snapshot of the database to be used by the transaction is established not by the LOCK TABLE IN WRITE MODE statement, but by the execution of the next command processed by Sybase IQ.

For all LOCK TABLE statement write mode failures, the user’s current transaction commits unless there is a syntax error.

A WRITE mode lock on an IQ table X that participates in a join index also locks:

- The top table of the join index hierarchy in WRITE mode when X is a non-top table
- The corresponding join virtual table (JVT)

LOCK TABLE grants write locks only if the user has permission to execute a DML update statement (INSERT/DELETE/UPDATE/TRUNCATE). The user must have one of these permissions on each table in the table-list. Even after write locks are granted, IQ checks for the appropriate permissions for subsequent commands. For example, INSERT permissions are checked when executing an INSERT statement.

Write locks can never be held across transactions (WITH HOLD mode is not supported). Once acquired, locks are released only when the transaction commits or rolls back, or when the connection disconnects. If necessary, the DBA can issue a DROP CONNECTION statement, causing the transaction to roll back.

WAIT time Wait options specify maximum blocking time for all lock types. This option is mandatory when lock mode is WRITE. When a time argument is given, the server locks the specified tables only if available within the specified time. The time argument can be specified in the format *hh:nn:ss:sss*. If a date part is specified, the server ignores it and converts the argument into a timestamp. When no time argument is given, the server waits indefinitely until a WRITE lock is available or an interrupt occurs.

LOCK TABLE on views is unsupported. Attempting to lock a view acquires a shared schema lock regardless of the mode specified in the command. A shared schema lock prevents other transactions from modifying the table schema.

The Transact-SQL (TSQL) stored procedure dialect does not support LOCK TABLE. For example, the following statement returns `Syntax error near LOCK`:

```
CREATE PROCEDURE tproc()
AS
BEGIN
COMMIT
LOCK TABLE t1 IN SHARE MODE
INSERT INTO t1 VALUES(30)
END
```

The Watcom-SQL stored procedure dialect supports LOCK TABLE. The default command delimiter is a semicolon (;). For example:

```
CREATE PROCEDURE wproc()
BEGIN
COMMIT;
LOCK TABLE t1 IN SHARE MODE;
INSERT INTO t1 VALUES (20);
END
```

4.2.4 Change to ROLLBACK TO SAVEPOINT behavior [CR 472791]

As of ESD #3, rollback to savepoint does not release WRITE locks. For example:

```
SAVEPOINT sp1
INSERT INTO table1 [...]
ROLLBACK TO SAVEPOINT sp1
```

In ESD #2 and earlier releases, a rollback to savepoint released WRITE locks.

4.2.5 ALTER DBSPACE returns out of space error messages [CR 435501]

In Sybase IQ 12.7 ESD #2, if a dbspace is out of space and an ALTER DBSPACE is attempted on that dbspace without adding new space, or if an ALTER DBSPACE is attempted on any other dbspace, the command fails with error -1010015 "The MAIN store is out of space. Space must be added to the MAIN store first" or -1010016 "The TEMPORARY store is out of space. Space must be added to the TEMPORARY store first."

When error -1010015 is returned, space must be added to the MAIN store before space can be added to any other store or before any other dbspace operation can be performed.

When error -1010016 is returned, space must be added to the TEMPORARY store before space can be added to any other store or before any other dbspace operation can be performed.

4.2.6 NEWID() function in column default values [CR 435215]

A Sybase IQ 12.7 ESD #1 enhancement allows values generated by the NEWID() function to be used as default values for columns.

4.2.7 Limiting number of rows fetched [CR 424766]

In ESD #1, Sybase Central lets you limit the number of rows fetched when displaying table data.

1 Right-click Sybase IQ (the plug-in name) in the left pane.

2 Choose Preferences from the drop-down menu.

3 Click the Table Data tab on the Plug-in Preferences dialog.

4 To specify a row limit, type a positive integer value in the text field to limit the number of rows displayed. A zero value (the default) displays all rows.

5 Click OK, Apply, or Enter.

4.2.8 Out-of-space status for sp_iqstatus [CR 416006]

In ESD #3, sp_iqstatus displays out-of-space status for main, temporary and local stores. If a store runs into an out-of-space condition, sp_iqstatus shows `Y` in the store's out-of-space status display value.

4.3 Start-up and connection changes

This section contains new features and changes related to start-up and connection.

4.3.1 IQ Agent startup takes list as argument [CR 465686]

The IQ Agent startup command accepts a list of alternate host names or IP addresses, separated by commas, in addition to a single argument. Blank spaces are disallowed in the list. IP aliases may be used on a single host that supports multiple networking cards with unique addresses.

For example:

```
S99SybaseIQAgent12 -host
"fiona.sybase.com,10.20.30.40,ciaran,12.20.30.41"
```

To avoid a known issue when binding to fully qualified host names, start the IQ Agent using either the short host name only or all three structures. For example:

```
S99SybaseIQAgent12 -host ciaran -port 2099
```

or

```
S99SybaseIQAgent12 -host
"ciaran,ciaran.sybase.com,10.50.7.70" -port 2199
```

Note that the IQ Agent binds in the following order:

1 The local host name

2 The host IP address

3 The item(s) specified in the -host command line parameter

For example:

```
$ASDIR/bin/S99* -port 2099 -host "10.50.7.70,njal,njal.sybase.com"
Agent Log File: /ABC-IQPROD/test/logfiles/SybaseIQAgent2099.001.log
Starting Agent ...
----------------------------------------
07/24 14:27:38 Agent: Initializing security manager
07/24 14:27:38 Agent: Startup Timestamp = 07/24 14:27:37.027
07/24 14:27:38 setProperty: asiqalthost (10.50.7.70,njal,njal.sybase.com)
07/24 14:27:38 setProperty: asdir (/ABC-IQPROD/iq127/ASIQ-12_7)
07/24 14:27:38 setProperty: host (PRDNJA)
07/24 14:27:38 setProperty: asiqalthost (10.50.7.71,10.50.7.70,njal,njal.sybase.com)
07/24 14:27:38 getProp: asdir = /ABC-IQPROD/iq127/ASIQ-12_7
07/24 14:27:38 Agent: Started RMI server
07/24 14:27:38 Agent: Binding to //PRDNJA:2099/Agent
07/24 14:27:38 getProp: asiqalthost =10.50.7.71,10.50.7.70,njal,njal.sybase.com
07/24 14:27:38 Agent: Binding to //10.50.7.71:2099/Agent
07/24 14:27:38 Agent: Binding to //10.50.7.70:2099/Agent
07/24 14:27:38 Agent: Binding to //NJAL:2099/Agent
07/24 14:27:38 Agent: Binding to //NJAL.SYBASE.COM:2099/Agent

07/24 14:27:38 Agent: Agent Started Successfully
07/24 14:27:38 Agent: version 12.7 - 070706
```

4.3.2 TDS connects through default database [CR 449141]

Sybase IQ now allows connections to continue through to the default database even if the Open Client login server name does not match the name of the default database, provided that the connection string does not start a database (that is, there is no DBF=parameter) and the server is running only one database. If both of these conditions are met, then the Open Client connection to the default database is allowed.

4.4 Administration and troubleshooting improvements

This section contains new features and changes related to administration and troubleshooting.

4.4.1 Unsupported procedures and views [CR 460819, CR 442581]

The following list contains Adaptive Server Enterprise stored procedures that Sybase IQ no longer supports:

- sp_addserver
- sp_configure
- sp_estspace

- sp_help
- sp_helpuser
- sp_who

The following list contains the catalog procedures that Sybase IQ no longer supports:

- sp_column_privileges
- sp_databases
- sp_datatype_info
- sp_server_info

Obsolete procedures and views are removed from databases created prior to Sybase IQ 12.7 ESD #2 when you run the ALTER DATABASE UPGRADE command using Sybase IQ 12.7 ESD #2 or higher.

If you do not run ALTER DATABASE UPGRADE, the procedures remain in the database.

The following list contains the Adaptive Server Enterprise views that Sybase IQ no longer supports:

- sysalternates
- sysaudits
- sysauditoptions
- sysconstraints
- syscharsets
- sysconfigures
- syscurconfigs
- sysdatabases
- sysdepends
- sysdevices
- sysengines
- syskeys
- syslanguages
- syslocks

- syslogs
- sysloginroles
- sysmessages
- sysprocedures
- sysprocesses
- sysprotects
- sysreferences
- sysremotelogins
- sysroles
- syssegments
- sysservers
- syssrvroles
- systhresholds
- sysusages

4.4.2 DBSpace Header utility (iqheader) [CR 427630]

The dbspace management enhancements added in Sybase IQ 12.6 allowed users to view an IQ server dbspace configuration from a connected user. At times, an administrator might want to determine which server, if any, is using a particular LUN/device/file as a dbspace in order to analyze disk usage or to configure a multiplex query server.

In ESD #1, the iqheader utility reports the configuration of an arbitrary device regardless of whether it is currently in use by an IQ server.

The user interface is a standalone console application called iqheader (header.exe on Windows). The iqheader tool searches the device for a IQ dbspace header and reports the header information in a user-readable format.

Note LUN is a Logical Unit Number and is used to identify SCSI devices so the host can address and access the data on each disk drive in an array.

Syntax

iqheader [[*dbspace_path*]

Parameters

The iqheader application takes a single parameter, which is the device to be checked.

Usage

iqheader usage When invoked with no parameters, a usage summary is reported and a non-zero status is returned:

```
>iqheader
Usage: iqheader [dbspace_path]
```

iqheader error When the specified target is not an IQ dbspace, an error message is reported and a non-zero status is returned:

```
>iqheader /dev/null
Not an IQ file: Error 0
```

Operating system errors When the specified target is unreadable or any file operation fails due to an error returned from the operating system, the native operating system error displays and a non-zero status is returned.

```
>iqheader /dev/rdsk/c1t32d0s1              <
Open Failed: No such file or directory

>iqheader /dev/rdsk/c1t3d0s1               <
Open Failed: Permission denied
```

iqheader output When a valid IQ dbspace is specified, iqheader prints the dbspace configuration to the console and returns a 0 exit status. Table 2 describes the fields in the iqheader output.

Table 2: iqheader output

Field	Description
Full Path	Full path after symbolic link resolution
Version	dbspace file format version
File ID	Unique number assigned to each dbspace
Create Time	Time of dbspace creation
RW Mode	Current Readwrite mode: RW, RO, RW, N/A (Upgraded)
Last RW Mode	Last dbspace mode
Size (MB)	DBSpace size in Megabytes
Reserve (MB)	DBSpace reserve size in Megabytes
Block Size	Size of IQ block in Bytes
Page Size	Size of IQ page in Bytes
First Block	First IQ block number mapped to dbspace
Block Count	Number of IQ blocks that map to actual disk blocks
Reserve Blocks	Number of IQ blocks that may be added to this dbspace
Last Real Block	Last IQ block number that maps to an actual disk block
Last Mapped Block	Last IQ block number mapped to dbspace
Online	Online Status (YES/NO)
Create ID	Commit ID in which dbspace was created

Field	Description
Alter ID	Last Commit ID in which dbspace was altered
DBID1	Location of 1st database identity
DBID2	Location of 2nd database identity
CREATE DBSPACE command	Template create dbspace command

Example

The following example shows output for the iqheader command when executed against an IQ dbspace on a Solaris raw partition.

```
>iqheader /dev/rdsk/c1t17d0s4
File Name: /dev/rdsk/c1t17d0s4

Full Path:
/devices/sbus@2,0/SUNW,socal@d,10000/sf@1,0/ssd@w21000
02037229873,0:e,raw

DBSpace Header Info
  Version: 2
  File ID: 16404
  Create Time: 2006-04-03 09:32:00
  RW Mode: RW
  Last RW Mode: N/A
  Size (MB): 1025
  Reserve (MB): 0
  Block Size: 4096
  Page Size: 65536
  First Block: 2611040
  Block Count: 262575
  Reserve Blocks: 0
  Last Real Block: 2873614
  Last Mapped Block: 3133247
  Online: YES
  Create ID: 90
  Alter ID: 0
vDBID1: 0
  DBID2: 0

CREATE DBSPACE command
create dbspace "[DBSPACENAME]" as '/dev/rdsk/c1t17d0s4'
  iq [MAIN|TEMPORARY|LOCAL] store
server "[|SERVER_NAME]" file id 16404 prefix 65536
  finish 0 first block 2611040 block count 262575
```

See also

Chapter 5, “Working with Database Objects,” in the *Sybase IQ System Administration Guide*.

4.5 Data load, update, and extraction enhancements

This section contains new features and changes related to data load, update, and extraction.

4.5.1 INSERT...LOCATION supports 20MB large object (LOB) data [CR 453439]

Sybase IQ 12.7 ESD #3 increases the limit on the length of large object data (LOB) that can be retrieved from a remote database using INSERT...LOCATION from 32767 bytes to 20MB (20971520 bytes).

An Adaptive Server Enterprise IMAGE column inserted into a LONG BINARY column using the INSERT...LOCATION command is now silently right truncated at 20971520 bytes, rather than 32767 bytes.

An Adaptive Server Enterprise TEXT column inserted into a LONG VARCHAR column using the INSERT...LOCATION command is now silently right truncated at 20971520 bytes, rather than 32767 bytes.

See “Documentation updates and clarifications” for documentation changes related to this feature.

Users must be specifically licensed to use the Large Objects Management functionality. For details on the Large Objects Management option, see *Large Objects Management in Sybase IQ*.

4.5.2 Implicit conversion between BIT and CHAR/VARCHAR data types supported [CR 451862]

Sybase IQ 12.7 ESD #2 supports implicit conversion between BIT and CHAR and BIT and VARCHAR data types for arithmetic, comparison, INSERT, and UPDATE operations. For more information, see “Implicit conversion between BIT and CHAR/VARCHAR data types supported [CR 451862]” on page 115.

4.5.3 INSERT...LOCATION supports additional ASE data types [CR 442348]

12.7 ESD #2 supports inserting data from an Adaptive Server Enterprise database column of data type DATE, TIME, UNSIGNED SMALLINT, NCHAR, or NVARCHAR using the INSERT...LOCATION syntax of the INSERT statement.

Note The Adaptive Server Enterprise data type UNSIGNED SMALLINT is not supported by Sybase IQ INSERT...LOCATION on Linux 32-bit systems, but is supported by INSERT...LOCATION on all other Sybase IQ supported platforms.

4.5.4 LOAD TABLE supports BCP files as input [CR 437332]

Sybase IQ 12.7 ESD #2 supports using a BCP character file as input to the LOAD TABLE command. The BCP input file must be generated by the BCP OUT command with the -c option. The LOAD TABLE FORMAT BCP feature is an alternative to the iq_bcp utility and will perform better than iq_bcp in all cases.

Syntax

LOAD [**INTO**] **TABLE** [*owner*.]*table-name*
... (*load-specification* [, …])
... **FROM** { '*filename-string*' | *filename-variable* } [, …]
... [**CHECK CONSTRAINTS** { **ON** | **OFF** }]
... [**DEFAULTS** { **ON** | **OFF** }]
... **QUOTES OFF**
... **ESCAPES OFF**
... [**FORMAT** { **ascii** | **binary | bcp** }]
... [**DELIMITED BY** '*string*']
...

Parameters

load-specification:

{ *column-name* [*column-spec*]
| FILLER (*filler-type*) }

column-spec:

{ ASCII (*input-width*)
| BINARY [WITH NULL BYTE]
| PREFIX { 1 | 2 | 4 }
| '*delimiter-string*'
| DATE (*input-date-format*)
| DATETIME (*input-datetime-format*) }
[NULL ({ BLANKS | ZEROS | '*literal*', …})]
| ENCRYPTED (*data-type* '*key-string*' [, '*algorithm-string*'])

Example

The following LOAD TABLE statement is now supported with the FORMAT BCP load option:

```
LOAD TABLE t1 (c1, c2, c3)
FROM 'bcp_file.bcp'
FORMAT BCP
...
```

Usage

FORMAT Sybase IQ supports ASCII and binary input fields. The format is usually defined by the *column-spec* described above. If you omit that definition for a column, by default Sybase IQ uses the format defined by this option. Input lines are assumed to have ascii (the default) or binary fields, one row per line, with values separated by the column delimiter character.

Sybase IQ also accepts data from BCP character files as input to the LOAD TABLE command.

- The BCP data file loaded into Sybase IQ tables using the LOAD TABLE FORMAT BCP statement must be exported (BCP OUT) in cross-platform file format using the -c option. Files generated by the iq_bcp utility (using the -c option) can be used as input to the LOAD TABLE FORMAT BCP command.
- For FORMAT BCP, the default column delimiter for the LOAD TABLE statement is <tab> and the default row terminator is <newline>.
- For FORMAT BCP, the last column in a row must be terminated by the row terminator, not by the column delimiter. If the column delimiter is present before the row terminator, then the column delimiter is treated as a part of the data.
- Data for columns that are not the last column in the load specification must be delimited by the column delimiter only. If a row terminator is encountered before a column delimiter for a column that is not the last column, then the row terminator is treated as a part of the column data.
- Column delimiter can be specified via the DELIMITED BY clause. For FORMAT BCP, the delimiter must be less than or equal to 10 characters in length. An error is returned, if the delimiter length is more than 10.
- For FORMAT BCP, the load specification may contain only column names, NULL, and ENCRYPTED. An error is returned, if any other option is specified in the load specification.

  For example, the following LOAD TABLE load specifications are valid:

```
LOAD TABLE x( c1, c2 null(blanks), c3 )
FROM 'bcp_file.bcp'
FORMAT BCP
...

LOAD TABLE x( c1 encrypted(bigint,'KEY-ONE','aes'),
c2, c3 )
FROM 'bcp_file.bcp'
FORMAT BCP
...
```

  For information on the LOAD TABLE ENCRYPTED clause, see *Encrypted Columns in Sybase IQ*.

Error messages

Sybase IQ no longer returns an error message when FORMAT BCP is specified as a LOAD TABLE option.

- If the specified load format is not ASCII, BINARY, or BCP, Sybase IQ now returns the message `"Only ASCII, BCP and BINARY are supported LOAD formats."`
- If the LOAD TABLE column specification contains anything other than column name, NULL, or ENCRYPTED, then Sybase IQ returns the new error message `"Invalid load specification for LOAD ... FORMAT BCP."`
- If the column delimiter or row terminator size for the FORMAT BCP load is greater than 10 characters, then Sybase IQ returns the message `"Delimiter '%2' must be 1 to %3 characters in length."` (where %3 equals 10).

  Messages corresponding to error or warning conditions which can occur for FORMAT BCP as well as FORMAT ASCII are the same for both formats.

4.6 Query enhancements, optimization, and changes

This section contains new features and changes related to queries and optimization.

4.6.1 Workload monitoring [CR 472513]

Indexes are often created to provide optimization metadata and to enforce uniqueness and primary/foreign key relationships. Once an index is created, however, DBAs face the challenge of quantifying benefits that the index provides.

Tables are often created in the IQ Main Store for the temporary storage of data that must be accessed by multiple connections or over a long period. These tables might be forgotten while they continue to use valuable disk space. Moreover, the number of these tables in a data warehouses is too large and the workloads are too complex to manually analyze usage.

Thus, unused indexes and tables waste disk space, increase backup time, and degrade DML performance.

In ESD #3, Sybase IQ workload monitoring procedures provide a mechanism for analyzing workloads and determining the columns, indexes, and tables in use. DBAs can quickly determine which database objects are being referenced by queries and should be kept.

Sybase IQ implements workload monitoring in the form of stored procedures, which control the collection and report detailed usage of column, index, and table information. These procedures complement INDEX_ADVISOR functionality, which generates messages suggesting additional column indexes that may improve performance of one or more queries Once recommended indexes have been added, their usage can be tracked to determine if they are worth keeping.

For more information, see "INDEX_ADVISOR option" and "sp_iqindexadvice procedure," in the *Sybase IQ Reference Manual*.

sp_iqworkmon procedure

Function

Controls collection of workload monitor usage information and reports monitoring collection status.

Syntax

sp_iqworkmon [*'action'*] [, *'mode'*]

action = 'start' , 'stop' , 'status' , 'reset'

mode = 'index' , 'table' , 'column' , 'all'

For example:

sp_iqworkmon *'start'* , *'all'*

If one argument is specified, it can only be *action*. For example:

sp_iqworkmon *'stop'*

Permissions

DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Usage

action Specifies the control action to apply. A value of *start* starts monitoring for the specified mode immediately. A value of *stop* stops monitoring immediately. A value of *reset* clears all collected usage information. A value of *status* (the default) displays the current status without changing state.

mode Specifies the type of monitoring to control. The INDEX, TABLE, and COLUMN keywords individually control monitoring of index usage, table usage, and column usage respectively. The default ALL keyword controls monitoring of all usage monitoring features simultaneously.

A result set always displays when sp_iqworkmon is executed. If a specific mode is specified (such as index), only the row for that mode displays.

Usage is collected only for SQL statements containing a FROM clause; for example, SELECT, UPDATE, and DELETE.

Table 3: sp_iqworkmon columns

Column name	Description
MonMode	Table, index, or column
Status	Started or stopped
Rowcount	Current number of rows collected

Example

The following table illustrates sample output from the sp_iqworkmon procedure.

```
MonMode     Status      Rowcount
index       started     15
table       started     10
column      started     31
```

sp_iqcolumnuse procedure

Function

Reports detailed usage information for columns accessed by the workload.

Syntax

sp_iqcolumnuse

Permissions

DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Description

Columns from tables created in SYSTEM are not reported.

Table 4: sp_iqcolumnuse columns

Column name	Description
TableName	Table name
ColumnName	Column name
Owner	Username of column owner
UID**	Column Unique Identifier
LastDT	Date/time of last access
NRef	Number of query references

**UID is a number assigned by the system that uniquely identifies the instance of the column (where instance is defined when an object is created).

Example

The following table illustrates sample output from the sp_iqcolumnuse procedure.

TableName	ColumnName	Owner	UID	LastDT	NRef
orders	o_orderdate	DBA	151	20070917 22:41:22..	13
orders	o_shippriority	DBA	154	20070917 22:41:22..	13
lineitem	l_orderkey	DBA	186	20070917 22:41:22..	13
lineitem	l_extendedp..	DBA	191	20070917 22:41:22..	13
lineitem	l_discount	DBA	192	20070917 22:41:22..	13
lineitem	l_shipdate	DBA	196	20070917 22:41:22..	13
#tmp1	expression	DBA	10000000001218	20070917 22:57:36..	1
#tmp1	expression	DBA	10000000001222	20070917 22:41:58..	1
...					

Note The long numbers in the example above are temporary IDs.

sp_iqindexuse procedure

Function

Reports detailed usage information for secondary (non-FP) indexes accessed by the workload.

Syntax

sp_iqindexuse

Permissions

DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Description

Each secondary index accessed by the workload displays a row. Indexes that have not been accessed are not displayed. Index usage is broken down by optimizer, constraint, and query usage.

Indexes from tables created in SYSTEM are not reported.

Table 5: sp_iqindexuse columns

Column name	Description
IndexName	Index name
TableName	Table name
Owner	Username of index owner
UID**	Index Unique Identifier
Type	Index type
LastDT	Date/time of last access
NOpt	Number of metadata/uniqueness accesses
NQry	Number of Query accesses
NConstraint	Number of accesses for Unique or RI checks

**UID is a number assigned by the system that uniquely identifies the instance of the index (where instance is defined when an object is created).

Example

The following table illustrates sample output from the sp_iqindexuse procedure.

```
IndexName       TableName  Owner UID Type LastDT              NOpt  NQry  NConstraint
n_nationkey_hg  nation     DBA   29  HG   20070917 22:08:06~  12    0     12
n_regionkey_hg  nation     DBA   31  HG   20070917 22:08:06~  12    0      0
r_regionkey_hg  region     DBA   47  HG   20070917 22:08:06~  12    0     12
s_suppkey_hg    supplier   DBA   64  HG   20070917 22:08:06~  12    0     12
p_partkey_hg    part       DBA   87  HG   20070917 22:08:06~   6    0      6
s_suppkey_hg    supplier   DBA   64  HG   20070917 22:08:06~  12    0     12
...
```

sp_iqtableuse procedure

Function

Reports detailed usage information for tables accessed by the workload.

Syntax

sp_iqtableuse

Permissions

DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Description

Tables created in SYSTEM are not reported.

Table 6: sp_iqtableuse columns

Column name	Description
TableName	Table name
Owner	Username of table owner
UID**	Table Unique Identifier
LastDT	Date/time of last access
NRef	Number of query references

**UID is a number assigned by the system that uniquely identifies the instance of the table (where instance is defined when an object is created).

sp_iqunusedcolumn procedure

Function

Reports IQ columns that were not referenced by the workload.

Syntax

sp_iqunusedcolumn

Permissions

DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Description

Columns from tables created in SYSTEM or local temporary tables are not reported.

Table 7: sp_iqunusedcolumn columns

Column name	Description
TableName	Table name
ColumnName	Column name
Owner	Username of column owner

Example

The following table illustrates sample output from the sp_iqunusedcolumn procedure.

TableName	ColumnName	Owner
sales_order	id	DBA
sales_order	cust_id	DBA
sales_order	order_date	DBA
sales_order	fin_code_id	DBA
sales_order	region	DBA
sales_order	sales_rep	DBA
sales_order_items	id	DBA
sales_order_items	line_id	DBA
sales_order_items	prod_id	DBA
sales_order_items	quantity	DBA
sales_order_items	ship_date	DBA
contact	id	DBA
contact	last_name	DBA
contact	first_name	DBA
contact	title	DBA
contact	street	DBA
contact	city	DBA
contact	state	DBA
contact	zip	DBA
contact	phone	DBA
contact	fax	DBA
customer	id	DBA
...		

sp_iqunusedindex procedure

Function — Reports IQ secondary (non-FP) indexes that were not referenced by the workload.

Syntax — **sp_iqunusedindex**

Permissions — DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Description — Indexes from tables created in SYSTEM or local temporary tables are not reported.

Table 8: sp_iqunusedindex columns

Column name	Description
IndexName	Index name
TableName	Table name
Owner	Username of index owner
IndexType	Index type

Example

The following table illustrates sample output from the sp_iqunusedindex procedure.

IndexName	TableName	Owner	IndexType
ASIQ_IDX_T450_I7_HG	sales_order	DBA	HG
ASIQ_IDX_T450_C6_HG	sales_order	DBA	HG
ASIQ_IDX_T450_C4_HG	sales_order	DBA	HG
ASIQ_IDX_T450_C2_HG	sales_order	DBA	HG
ASIQ_IDX_T451_I6_HG	sales_order_items	DBA	HG
ASIQ_IDX_T451_C3_HG	sales_order_items	DBA	HG
ASIQ_IDX_T451_C1_HG	sales_order_items	DBA	HG
ASIQ_IDX_T452_I11_HG	contact	DBA	HG
ASIQ_IDX_T453_I10_HG	customer	DBA	HG
ASIQ_IDX_T454_I4_HG	fin_code	DBA	HG
ASIQ_IDX_T455_I5_HG	fin_data	DBA	HG
ASIQ_IDX_T455_C3_HG	fin_data	DBA	HG
ASIQ_IDX_T456_I8_HG	product	DBA	HG
ASIQ_IDX_T457_I4_HG	department	DBA	HG
ASIQ_IDX_T457_C3_HG	department	DBA	HG
ASIQ_IDX_T458_I21_HG	employee	DBA	HG
ASIQ_IDX_T458_C5_HG	employee	DBA	HG
ASIQ_IDX_T459_I7_HG	alt_sales_order	DBA	HG
ASIQ_IDX_T460_I6_HG	alt_sales_order_items	DBA	HG

sp_iqunusedtable procedure

Function

Reports IQ tables that were not referenced by the workload.

Syntax

sp_iqunusedtable

Permissions

DBA authority required. Users without DBA authority must be granted EXECUTE permission in order to run the stored procedure.

Description

Tables created in SYSTEM and local temporary tables are not reported.

Table 9: sp_iqunusedtable columns

Column name	Description
TableName	Table name
Owner	Username of table owner

Example

The following table illustrates sample output from the sp_iqunusedtable procedure.

```
TableName               Owner
fin_code                DBA
contact                 DBA
employee                DBA
emp1                    DBA
alt_sales_order_items   DBA
sales_order             DBA
fin_data                DBA
department              DBA
alt_sales_order         DBA
sales_order_items       DBA
product                 DBA
iq_dummy                DBA
customer                DBA
sale                    DBA
```

sp_iqdbspace procedure enhancement

Block type reporting is enhanced to report temporary storage used by the workload monitor. Additional block types are defined in the following table.

Identifier	Block Type
T	Table use
U	Index use
N	Column use

4.6.2 Results returned in a case insensitive database [CR 472049]

In some cases, an optimization in Sybase IQ 12.7 causes the results of a comparison returned in a case insensitive database to be different from the results returned in previous releases of IQ. You cannot expect case sensitive results in a database that is case insensitive (CASE IGNORE). This has always been true for Sybase IQ.

Character strings inserted into tables are always stored in the case they are entered, regardless of whether the database is case sensitive or not. If the string Value is inserted into a character data type column, the string is always stored in the database with an uppercase V and the remainder of the letters lowercase. SELECT statements return the string as Value. If the database is not case sensitive, however, all comparisons make Value the same as value, VALUE, and so on. The IQ server may return results in any combination of lowercase and uppercase, so you cannot expect case sensitive results in a database that is case insensitive.

For example, given the following table and data:

```
CREATE TABLE tb (id int NOT NULL,
                 string VARCHAR(30) NOT NULL);
INSERT INTO tb VALUES (1, 'ONE');
SELECT * FROM tb WHERE string = 'oNe';
```

The result of the SELECT can be 'oNe' (as specified in the WHERE clause) and not necessarily 'ONE' (as stored in the database).

Similarly, the result of

```
SELECT * FROM tb WHERE string = 'One';
```

can be 'One' and the result of

```
SELECT * FROM tb WHERE string = 'ONe';
```

can be 'ONe'.

4.6.3 Behavior change for columns with null values [CR 435353]

An ESD #1 enhancement optimizes queries involving columns that have a significant number of null values. Such queries now run faster. To support this query optimization, the process of inserting or updating data in a table may take longer (compared with previous releases) in cases where a significant number of NULL values are being inserted into the table.

4.6.4 Support for Join_Preference hint on join equality conditions [CR 433686]

An ESD #1 enhancement allows users to specify a join algorithm preference that does not affect every join in the query.

Simple equality join predicates can be tagged with a predicate hint that allows a join preference to be specified for just that one join. If the same join has more than one join condition with a local join preference, and if those hints are not the same value, then all local preferences are ignored for that join. Local join preferences do not affect the join order chosen by the optimizer.

The following example requests a hash join:

```
AND (T.X = 10 * R.x, 'J:4')
```

For additional information, see "User-supplied condition hints" in Chapter 3, "SQL Language Elements" in the *Sybase IQ Reference Manual*.

4.6.5 WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]

Sybase IQ 12.7 ESD #3 provides support for WORD (WD) indexes on LONG VARCHAR character large object (CLOB) columns. A WORD index is also called a Containment index.

Sybase IQ 12.7 ESD #3 also includes support of the CONTAINS predicate on LONG VARCHAR (CLOB) columns with a WORD (WD) index. Formerly, the CONTAINS predicate was supported only on CHAR and VARCHAR columns with a WD index.

Users must be specifically licensed to use the Large Objects Management functionality. For details on the Large Objects Management option, see *Large Objects Management in Sybase IQ*.

WD index support

The following enhancements support the WORD (WD) index on LONG VARCHAR (CLOB) columns:

- Sybase Central Java allows you to create a WD index on columns of CHAR, VARCHAR, and LONG VARCHAR data types.
- The widest column supported by the WD index increased from 32767 bytes up to the maximum width for a LOB column. (The maximum length is equal to 4GB multiplied by the database page size.)

  The maximum word length supported by Sybase IQ is still 255 bytes.
- All sp_iqcheckdb options for WD indexes over CHAR and VARCHAR columns are also supported for LONG VARCHAR (CLOB) columns, specifically, allocation, check, verify, and repair modes.
- The sp_iqrebuildindex stored procedure supports rebuilding a WD index over a LONG VARCHAR (CLOB) column.

Note that Chinese text or documents in a binary format still require ETL pre-processing to locate and transform the words into a form that can be parsed by the WD index.

See "Documentation updates and clarifications" on page 84 for documentation changes related to this feature.

CONTAINS predicate support

Using the CONTAINS predicate, you can now search for string constants of maximum length 255 characters on a LONG VARCHAR (CLOB) column, in addition to CHAR and VARCHAR columns.

Note that the CONTAINS predicate is not supported on LONG BINARY (BLOB) columns. If you attempt to search for a string in a LONG BINARY column using a CONTAINS predicate, an error is returned.

For more information on CONTAINS string searches, see "CONTAINS conditions" in Chapter 3, "SQL Language Elements" of the *Sybase IQ Reference Manual*.

See "Documentation updates and clarifications" on page 84 for documentation changes related to this feature.

4.6.6 New database option WD_DELETE_METHOD [CR 415547]

Sybase IQ 12.7 ESD #3 provides the ability to specify the algorithm used during a delete operation from a WD index using the new database option WD_DELETE_METHOD.

WD_DELETE_METHOD option

Function	Specifies the algorithm used during a delete in a WD index.
Allowed values	0 – 3
Default	0
Scope	DBA permissions are not required to set this option. Can be set temporary, for an individual connection, or for the PUBLIC group. Takes effect immediately.
Description	This option chooses the algorithm used during a delete operation in a WD index. When this option is not set or is set to 0, the delete method is selected by the cost model. The cost model considers the CPU related costs as well as I/O related costs in selecting the appropriate delete algorithm. The cost model takes into account: • Rows deleted • Index size

- Width of index data type
- Cardinality of index data
- Available temporary cache
- Machine related I/O and CPU characteristics
- Available CPUs and threads

Allowed values for WD_DELETE_METHOD:

- 0: The delete method is selected by the cost model. Cost model only selects either mid or large method for deletion.
- 1: Forces small method for deletion. Small method is useful when the number of rows being deleted is a very small percentage of the total number of rows in the table.
- 2: Forces large method for deletion. Large method is useful when the number of rows being deleted is a high percentage of the total number of rows in the table.
- 3: Forces mid method for deletion. Mid method is a variation of the small method and is generally faster than the small method.

Example

The following statement forces the large method for deletion from a WD index:

```
SET TEMPORARY OPTION WD_DELETE_METHOD = 2
```

See also

For more details about these delete methods, see "New database option WD_DELETE_METHOD [CR 415547]" on page 143.

4.6.7 LIKE predicate for character large object (CLOB) columns [CR 415546]

Sybase IQ 12.7 ESD #3 includes support of the LIKE predicate on LONG VARCHAR (CLOB) columns. Formerly, LIKE predicates were supported only on CHAR and VARCHAR columns.

Using the LIKE predicate, you can now search for a pattern on a LONG VARCHAR column. All patterns of 126 characters or less are supported. Patterns of length greater than 254 characters are not supported. Some patterns of length between 127 and 254 characters are supported, depending on the contents of the pattern.

Note that LIKE predicates are not supported on LONG BINARY (BLOB) columns. If you attempt to search for a pattern in a LONG BINARY column using a LIKE predicate, the error `"Invalid data type comparison in predicate..."` is returned.

4.6.8 String search functions for large object columns [CR 415543]

Sybase IQ 12.7 ESD #3 provides string search capabilities on large objects. Sybase IQ now includes support of string search functions for LONG VARCHAR (CLOB) and LONG BINARY (BLOB) data. The string search functions CHARINDEX and LOCATE have been enhanced to allow a LONG VARCHAR or a LONG BINARY column as the argument for the string expression to be searched and now return a 64 bit value for the position of the string in the LONG VARCHAR or LONG BINARY column.

The PATINDEX function has been enhanced to allow a LONG VARCHAR column as the argument for the string expression to be searched and now returns a 64 bit value for the position of the string in the LONG VARCHAR column.

Users must be specifically licensed to use the Large Objects Management functionality. For details on the Large Objects Management option, see *Large Objects Management in Sybase IQ*.

See "Documentation updates and clarifications" on page 84 for documentation changes related to this feature.

The following sections describe the string search functions that support LONG VARCHAR and LONG BINARY data types.

CHARINDEX function

The CHARINDEX function returns a 64 bit signed integer containing the position of the first occurrence of the specified string in a LONG VARCHAR column. CHARINDEX returns a 32 bit signed integer position for CHAR and VARCHAR columns.

The CHARINDEX function also supports searching LONG BINARY columns.

Syntax:

CHARINDEX(*string-expression*, *long-varchar-column*)

Parameters:

string-expression The string for which you are searching. This string is limited to 255 bytes.

long-varchar-column The name of the LONG VARCHAR column.

Usage:

- All the positions or offsets, returned or specified, in the CHARINDEX function are always character offsets and may be different from the byte offset for multibyte data.

- If the LONG VARCHAR cell being searched contains more than one instance of the string, CHARINDEX returns only the position of the first instance.
- If the column does not contain the string, the CHARINDEX function returns zero (0).
- Searching for a string longer than 255 bytes returns NULL.
- Searching for a zero-length string returns 1.
- If any of the arguments is NULL, the result is NULL.

For a full description and an example of the CHARINDEX function, see "CHARINDEX function [String]" in Chapter 5, "SQL Functions" of the *Sybase IQ Reference Manual*.

LOCATE function

The LOCATE function returns a 64 bit signed integer containing the position of the specified string in a LONG VARCHAR column. LOCATE returns a 32 bit signed integer position for CHAR and VARCHAR columns.

The LOCATE function also supports searching LONG BINARY columns.

Syntax:

LOCATE(*long-varchar-column*, *string-expression*
[, *numeric-expression*])

Parameters:

long-varchar-column The name of the LONG VARCHAR column to search.

string-expression The string for which you are searching. This string is limited to 255 bytes.

numeric-expression The character position or offset at which to begin the search in the string. The *numeric-expression* is a 64 bit signed integer for LONG VARCHAR and LONG BINARY columns and is a 32 bit signed integer for CHAR, VARCHAR, and BINARY columns. The first character is position 1. If the starting offset is negative, LOCATE returns the last matching string offset, rather than the first. A negative offset indicates how much of the end of the string to exclude from the search. The number of characters excluded is calculated as (-1 * offset) - 1.

Usage:

- All the positions or offsets, returned or specified, in the LOCATE function are always character offsets and may be different from the byte offset for multibyte data.

- If the LONG VARCHAR cell being searched contains more than one instance of the string:
  - If *numeric-expression* is specified, LOCATE starts the search at that offset in the string.
  - If *numeric-expression* is not specified, LOCATE returns only the position of the first instance.
- If the column does not contain the string, the LOCATE function returns zero (0).
- Searching for a string longer than 255 bytes returns NULL.
- Searching for a zero-length string returns 1.
- If any of the arguments is NULL, the result is NULL.

For a full description and examples of the LOCATE function, see "LOCATE function [String]" in Chapter 5, "SQL Functions" of the *Sybase IQ Reference Manual*.

PATINDEX function

The PATINDEX function returns a 64 bit unsigned integer containing the position of the first occurrence of the specified pattern in a LONG VARCHAR column. PATINDEX returns a 32 bit unsigned integer position for CHAR and VARCHAR columns.

The PATINDEX function does not support searching LONG BINARY columns.

Syntax:

PATINDEX('*%pattern%*', *long-varchar-column*)

Parameters:

pattern The pattern for which you are searching. This string is limited to 126 bytes. If the leading percent wildcard is omitted, PATINDEX returns one (1) if the pattern occurs at the beginning of the column value, and zero (0) if the pattern does not occur at the beginning of the column value. Similarly, if the trailing percent wildcard is omitted, the pattern should occur at the end of the column value. The pattern uses the same wildcards as the LIKE comparison.

long-varchar-column The name of the LONG VARCHAR column.

Usage:

- All the positions or offsets, returned or specified, in the PATINDEX function are always character offsets and may be different from the byte offset for multibyte data.

- If the LONG VARCHAR cell being searched contains more than one instance of the string pattern, PATINDEX returns only the position of the first instance.
- If the column does not contain the pattern, the PATINDEX function returns zero (0).
- Searching for a pattern longer than 126 bytes returns NULL.
- Searching for a zero-length pattern returns 1.
- If any of the arguments is NULL, the result is zero (0).

For a full description and examples of the PATINDEX function, see "PATINDEX function [String]" in Chapter 5, "SQL Functions" of the *Sybase IQ Reference Manual*.

For more information on LIKE comparisons, see "LIKE conditions" in Chapter 3, "SQL Language Elements" of the *Sybase IQ Reference Manual.*

For information on a known issue related to the PATINDEX function, see "PATINDEX returns 0 for zero-length search string [CR 475209]" on page 76.

4.6.9 Using query plans with Interactive SQL for Java [338070]

In Sybase IQ 12.7 ESD #3, authorized users can display query plans in the Java-based Interactive SQL (dbisql) plan window. You can also save and print query plans from dbisql instead of accessing the *.iqmsg* file or query plan files on the server.

Sybase IQ supports SQL functions GRAPHICAL_PLAN and HTML_PLAN, which return IQ query plans in XML and HTML format, respectively, as a string result set. The behavior of these functions is controlled by database options QUERY_PLAN_TEXT_ACCESS and QUERY_PLAN_TEXT_CACHING.

Users can view query plans from the dbisql plan window in the following ways:

- Execute the query and open the plan window. Depending on the plan type you selected from the Plan option (Tools > Options > Plan), the appropriate plan displays in the plan window.

  The IQ query plan displays only if the GRAPHICAL_PLAN option is selected. Other plans return the error message, "Plan type is not supported."

- Enter the query in the SQL statements window and select from the menu SQL > Get Plan. Depending on the plan type you selected from the Plan option (Tools > Options > Plan), the appropriate plan displays in the plan window.

  The IQ query plan displays only if the GRAPHICAL_PLAN option is selected. Other plans return the error message, "Plan type is not supported."

- Use the SQL functions, GRAPHICAL_PLAN and HTML_PLAN, to return the query plan as a string result.

To access query plans, use the SQL functions, GRAPHICAL_PLAN and HTML_PLAN, for the following queries: SELECT, UPDATE, DELETE, INSERT SELECT, and SELECT INTO.

To save the query plans from Interactive SQL, use GRAPHICAL_PLAN or HTML_PLAN to retrieve the query plan and save the output to a file using the OUTPUT statement.

See "GRAPHICAL_PLAN function [String]" on page 54 and "HTML_PLAN function [String]" on page 57 for details.

To view saved plans, select File > Open from the Interactive SQL client menu and navigate to the directory where you saved your plan. You can also print plans displayed on the plan window by selecting File > Print.

GRAPHICAL_PLAN function [String]

Function — Returns the graphical query plan to Interactive SQL in XML format string.

Syntax — **GRAPHICAL_PLAN** (*string-expression*)

Parameters — **string-expression** SQL statement for which the plan is to be generated. It is generally a SELECT statement, but it can be an UPDATE or DELETE, INSERT SELECT, and SELECT INTO statement.

If the user does not provide an argument to the GRAPHICAL_PLAN function, the query plan is returned to the user from the cache. If there is no query plan in the cache, then the message "Plan not available" is returned.

The behavior of GRAPHICAL_PLAN function is controlled by database options QUERY_PLAN_TEXT_ACCESS and QUERY_PLAN_TEXT_CACHING. If QUERY_PLAN_TEXT_ACCESS is OFF (the default), the following message displays in the error dialog box:

```
Plan not available. The database option
QUERY_PLAN_TEXT_ACCESS is OFF
```

If a user needs access to the plan, the DBA must set option QUERY_PLAN_TEXT_ACCESS ON for that user.

If QUERY_PLAN_TEXT_ACCESS is ON, and the query plan for the string expression is available in the cache maintained on the server, the query plan is returned to the user from the cache.

If the query plan is not available in the cache and the user is authorized to view plans on the client, then a query plan with optimizer estimates (query plan with NOEXEC option ON) is generated and displays on the dbisql client plan window.

Note Sybase IQ does not support NOEXEC plan generation for SELECT, UPDATE, DELETE, INSERT SELECT, and SELECT INTO queries.

When a user requests a query plan that has not yet been executed, the query plan will not be available in the cache. Instead, a query plan with optimizer estimates is returned without QUERY_PLAN_AFTER_RUN statistics.

Query plans for stored procedures are not accessible using the GRAPHICAL_PLAN function. The error message, “The plan for this statement cannot be retrieved” is returned.

Users can view the query plan for cursors opened for IQ queries. A cursor is declared and opened using DECLARE CURSOR and OPEN CURSOR commands. Use the following query to obtain the query plan for the most recently opened cursor:

```
SELECT GRAPHICAL_PLAN ( );
```

With the QUERY_PLAN_AFTER_RUN option OFF, the plan can be displayed after OPEN CURSOR or CLOSE CURSOR. However, if QUERY_PLAN_AFTER_RUN is ON, then CLOSE CURSOR must be executed before the user requests the plan.

When Interactive SQL users select the option Short plan, Long plan, or Show UltraLite Plan from the Plan tab under Tools > Options, the following message displays on the plan window.

```
Plan not available. Plan type is not supported for
Sybase IQ queries.
```

The user must change the plan option to Graphical plan before requesting the plan for an IQ query.

When Interactive SQL users request plans for UPDATE, DELETE, SELECT INTO, and INSERT SELECT queries, the NOEXEC plan is not supported. Set AUTO_REFETCH option OFF to view the plan for the last executed UPDATE, DELETE, SELECT INTO, and INSERT SELECT queries. To access the query plan, explicitly execute the query first and then request the plan.

Examples

The following SQL example passes a SELECT statement as a string parameter and returns the plan for executing the query. It saves the plan in the file *gplan.xml*.

Note If you use the OUTPUT statement's HEXADECIMAL clause set to ASIS to get formatted plan output, the values of characters are written without any escaping — even if the value contains control characters. ASIS is useful for text that contains formatting characters such as tabs or carriage returns.

```
SELECT GRAPHICAL_PLAN ('SELECT * FROM t1');
OUTPUT to 'c:/gplan.xml' hexadecimal ASIS quote '';
```

The following SQL example returns the query plan from the cache, if available.

```
SELECT GRAPHICAL_PLAN ( );
```

Standards and compatibility

- **SQL92** Vendor extension.
- **SQL99** SQL/foundation feature outside of core SQL.
- **Sybase** Not supported by Adaptive Server Enterprise.

See also

"HTML_PLAN function [String]" on page 57

"QUERY_PLAN_TEXT_ACCESS option" on page 58

"QUERY_PLAN_TEXT_CACHING option" on page 59

"AUTO_REFETCH option [DBISQL]," "NOEXEC option," "QUERY_PLAN_AFTER_RUN option," and "OUTPUT statement" in the *Sybase IQ Reference Manual*

PLAN function [Miscellaneous], EXPLANATION function, [Miscellaneous], GRAPHICAL_ULPLAN function [Miscellaneous], LONG_ULPLAN function [Miscellaneous], and SHORT_ULPLAN function [Miscellaneous] in *Adaptive Server Anywhere SQL Reference Manual*.

HTML_PLAN function [String]

Function

Returns query plans in HTML format string.

Syntax

HTML_PLAN (*string-expression*)

Parameters

string-expression SQL statement for which the plan is to be generated. It is primarily a SELECT statement but can be an UPDATE or DELETE statement.

If the user does not provide an argument to the HTML_PLAN function, the query plan is returned to the user from the cache. If there is no query plan in the cache, then message "No plan available" is returned.

The behavior of the HTML_PLAN function is controlled by database options QUERY_PLAN_TEXT_ACCESS and QUERY_PLAN_TEXT_CACHING. If QUERY_PLAN_TEXT_ACCESS is OFF (the default), the following message displays in the error dialog box:

```
Plan not available. The database option
QUERY_PLAN_TEXT_ACCESS is OFF
```

If QUERY_PLAN_TEXT_ACCESS is ON, and the query plan for the string expression is available in the cache maintained on the server, the query plan is returned to the user from the cache.

The HTML_PLAN function can be used to return query plans to Interactive SQL using SELECT, UPDATE, DELETE, INSERT SELECT, and SELECT INTO.

Users can view the query plan for cursors opened for IQ queries. A cursor can be declared and opened using DECLARE CURSOR and OPEN CURSOR commands. Use the following query to obtain the query plan for the most recently opened cursor:

```
SELECT HTML_PLAN ( );
```

With QUERY_PLAN_AFTER_RUN option OFF, the plan can be displayed after OPEN CURSOR or CLOSE CURSOR. However, if QUERY_PLAN_AFTER_RUN is ON, then CLOSE CURSOR must be executed before the user requests the plan.

When the Interactive SQL user selects the option Short plan, Long plan, or Show Ultralite Plan from the Plan tab under Tools > Options, the following message displays on the plan window.

```
Plan not available. Plan type is not supported for
Sybase IQ queries.
```

The user must change the plan option to Graphical plan before requesting the plan for an IQ query.

When Interactive SQL users request plans for UPDATE, DELETE, SELECT INTO, and INSERT SELECT queries, the NOEXEC plan is not supported. Set AUTO_REFETCH option OFF to view the plan for the last executed UPDATE, DELETE, SELECT INTO, and INSERT SELECT queries. To access the query plan, explicitly execute the query first and then request the plan.

When the user requests an HTML_PLAN for a SQL Anywhere query or for an OMNI/CIS decomposed query, the following message is returned:

```
No plan. HTML_PLAN function is not supported for this
type of statement or database.
```

Example

The following SQL example passes a SELECT statement as a string parameter and returns the HTML plan for executing the query. It saves the plan in the file *hplan.html*.

```
SELECT HTML_PLAN ('SELECT * FROM t1');OUTPUT to
'c:/hplan.html';
```

The following SQL example returns the HTML query plan from the cache, if available.

```
SELECT HTML_PLAN ( );
```

Standards and compatibility

- **SQL92** Vendor extension.
- **SQL99** SQL/foundation feature outside of core SQL.
- **Sybase** Not supported by Adaptive Server Enterprise.

See also

"GRAPHICAL_PLAN function [String]" on page 54

"QUERY_PLAN_TEXT_ACCESS option" on page 58

"QUERY_PLAN_TEXT_CACHING option" on page 59

"AUTO_REFECT option [DBISQL]," "NOEXEC option," "QUERY_PLAN_AFTER_RUN option," and "OUTPUT statement" in the *Sybase IQ Reference Manual*

PLAN function [Miscellaneous], EXPLANATION function, [Miscellaneous], GRAPHICAL_ULPLAN function [Miscellaneous], LONG_ULPLAN function [Miscellaneous], and SHORT_ULPLAN function [Miscellaneous] in *Adaptive Server Anywhere SQL Reference Manual*.

QUERY_PLAN_TEXT_ACCESS option

Function

Enables or prevents users from accessing query plans from the Interactive SQL (dbisql) client or from using SQL functions to get plans.

Allowed values

ON, OFF

Default	OFF
Scope	DBA permissions are required to modify this option. Can be set temporary for an individual connection or for the PUBLIC group. Takes effect immediately.
Description	When QUERY_PLAN_TEXT_ACCESS option is ON, users can view, save, and print query plans from the dbisql client. When the option is OFF, query plans are not cached, and other query plan-related database options have no affect on the query plan display from the dbisql client. The following error message displays: `No plan available. The database option QUERY_PLAN_TEXT_ACCESS is OFF.`
See also	"GRAPHICAL_PLAN function [String]" on page 54" "HTML_PLAN function [String]" on page 57 "QUERY_PLAN_TEXT_CACHING option" on page 59 "QUERY_DETAIL option," "QUERY_PLAN_AS_HTML option," "QUERY_PLAN_AFTER_RUN option," and "OUTPUT statement" in the *Sybase IQ Reference Manual*. PLAN function [Miscellaneous], EXPLANATION function, [Miscellaneous], GRAPHICAL_ULPLAN function [Miscellaneous], LONG_ULPLAN function [Miscellaneous], and SHORT_ULPLAN function [Miscellaneous] in *Adaptive Server Anywhere SQL Reference Manual*.

QUERY_PLAN_TEXT_CACHING option

Function	Allow users to specify whether or not Sybase IQ generates and caches IQ plans for queries executed by the user.
Allowed values	ON, OFF
Default	OFF
Scope	DBA permissions are not required to modify this option. Can be set temporary for an individual connection. Takes effect immediately.
Description	IQ query plans vary in size and can become very large for complex queries. Caching plans for display on the dbisql client can have high resource requirements. The QUERY_PLAN_TEXT_CACHING option gives users a mechanism to control resources for caching plans. If the user turns this option OFF, the query plan is not cached for that user connection.

If QUERY_PLAN_TEXT_ACCESS is turned OFF for a user, the query plan is not cached for the connections from that user, no matter how QUERY_PLAN_TEXT_CACHING is set.

See also

"GRAPHICAL_PLAN function [String]" on page 54"

"HTML_PLAN function [String]" on page 57

"QUERY_PLAN_TEXT_ACCESS option" on page 58

"QUERY_DETAIL option," "QUERY_PLAN_AS_HTML option," "QUERY_PLAN_AFTER_RUN option," and "OUTPUT statement" in the *Sybase IQ Reference Manual*.

PLAN function [Miscellaneous], EXPLANATION function, [Miscellaneous], GRAPHICAL_ULPLAN function [Miscellaneous], LONG_ULPLAN function [Miscellaneous], and SHORT_ULPLAN function [Miscellaneous] in *Adaptive Server Anywhere SQL Reference Manual*.

4.7 Security enhancements

This section contains new features and changes related to security.

4.7.1 Login management changes in Sybase Central [CR 442651, CR 448480]

The following Sybase Central changes for ESD #2 affect login management. (For an overview of this functionality, see Chapter 2 of the *Sybase IQ Reference Manual* and "Managing User IDs and Permissions" in Chapter 12 of the *Sybase IQ System Administration Guide*.)

For an IQ database, the Allowed to connect check box in the User Property Sheet, General tab is renamed to Enable Password. It continues to function in the General tab as before: checking the Enable Password checkbooks sets the password to non-null.

If login management is disabled, the Login Management tab is displayed but not enabled, while viewing the user/group properties.

If login management is enabled:

- Create Group and Create User wizards contain an additional page that allows the user to lock the new user/group being created out of the current database. The page also lets you lock out the user or group on specific servers in a multiplex.
- The Login Management tab in the user/group properties sheet is enabled based on two factors:

- Passwords must be enabled by checking the “Enable Password” checkbooks in the General tab.
- Login management is enabled via the Database Property sheet Login Management tab.

4.7.2 Sample code for password verification function [CR 440216]

Added for Sybase IQ 12.7 ESD #1, this example defines a number of procedures and functions which together implement advanced password rules, including requiring certain types of characters in the password, disallowing password reuse, and expiring passwords. These procedures and functions are called by the server using the VERIFY_PASSWORD_FUNCTION option and the LOGIN_PROCEDURE option when a User ID is created or a password is changed, and when a user connects. The application can call the procedure specified by the POST_LOGIN_PROCEDURE option to report that the password should be changed before it expires.

For more information on the POST_LOGIN_PROCEDURE option, see “POST_LOGIN_PROCEDURE option” on page 70.

For more information on the VERIFY_PASSWORD_FUNCTION and the LOGIN_PROCEDURE options, see Chapter 2, “Database Options” in the *Sybase IQ Reference Manual*.

Sample code

```
-- only DBA should have permissions on this table

CREATE TABLE DBA.t_pwd_history(
pk INT DEFAULT AUTOINCREMENT PRIMARY KEY,
change_date TIMESTAMP DEFAULT CURRENT TIMESTAMP,
                 -- when pwd set
grace_date DATE, -- a day after password expires to
                 -- allow user to log in
user_name CHAR(128), -- the user whose password is set
pwd_hash CHAR(32) ); -- hash of password value to detect
                     -- duplicate passwords

-- called on every GRANT CONNECT TO ... IDENTIFIED BY...
-- statement to verify that the password conforms to
-- the password rules

CREATE FUNCTION DBA.f_verify_pwd( uid VARCHAR(128),
                                  new_pwd VARCHAR(255) )
RETURNS VARCHAR(255)
BEGIN
-- a table with one row per character in new_pwd
```

```
DECLARE local temporary table pwd_chars(
pos INT PRIMARY KEY, -- index of c in new_pwd
c CHAR( 1 CHAR ) ); -- character
-- new_pwd with non-alpha characters removed
DECLARE pwd_alpha_only CHAR(255);
DECLARE num_lower_chars INT;

-- enforce minimum length (can also be done with
-- min_password_length option)
IF length( new_pwd ) < 6 THEN
RETURN 'password must be at least 6 characters long';
END IF;

-- break new_pwd into one row per character
INSERT INTO pwd_chars SELECT row_num, substr(
new_pwd, row_num, 1 )
FROM dbo.RowGenerator
WHERE row_num <= length( new_pwd );

-- copy of new_pwd containing alpha-only characters
SELECT LIST( c, '' ORDER BY pos ) INTO pwd_alpha_only
FROM pwd_chars
WHERE c BETWEEN 'a' AND 'z' OR c BETWEEN 'A' AND 'Z';

-- number of lower case characters IN new_pwd
SELECT COUNT(*) INTO num_lower_chars
FROM pwd_chars
WHERE CAST( c AS BINARY ) BETWEEN 'a' AND 'z';

-- enforce rules based on characters contained in
-- new_pwd
IF ( SELECT count(*) FROM pwd_chars
WHERE c BETWEEN '0' AND '9' ) < 1 THEN
RETURN 'password must contain at least one numeric
digit';
ELSEIF length( pwd_alpha_only ) < 2 THEN
RETURN 'password must contain at least two letters';
ELSEIF num_lower_chars = 0
OR length( pwd_alpha_only ) - num_lower_chars = 0
THEN
RETURN 'password must contain both upper- and
lowercase characters';
END IF;

-- not the same as any user name
-- (this could be modified to check against
```

```
-- a disallowed words table)
IF EXISTS( SELECT * FROM SYS.SYSUSER
WHERE lower( user_name ) IN ( lower( pwd_alpha_only ),
lower( new_pwd
) ) ) THEN
RETURN 'password or only alphabetic characters in
password ' || 'must not match any user name';
END IF;

-- not the same as any previous password for this user
IF EXISTS( SELECT * FROM t_pwd_history
WHERE user_name = uid
AND pwd_hash = hash( uid || new_pwd, 'md5'
) ) THEN
RETURN 'previous passwords cannot be reused';
END IF;

-- save the new password
INSERT INTO t_pwd_history( user_name, pwd_hash )
VALUES( uid, hash( uid || new_pwd, 'md5' ) );
RETURN( NULL );
END;

ALTER FUNCTION DBA.f_verify_pwd SET HIDDEN;
GRANT EXECUTE ON DBA.f_verify_pwd TO PUBLIC;
SET OPTION PUBLIC.verify_password_function =
'DBA.f_verify_pwd';

-- called on every connection to check for password
-- expiry

CREATE PROCEDURE DBA.p_login_check()
BEGIN
DECLARE uid CHAR(128);
DECLARE INVALID_LOGON EXCEPTION FOR SQLSTATE '28000';
DECLARE last_pwd_change DATE;
DECLARE grace_date DATE;
DECLARE is_dba CHAR;
DECLARE msg_str CHAR(255);
SET uid = connection_property( 'Userid' );
IF ( EXISTS( SELECT * FROM t_pwd_history
WHERE user_name = uid
) ) THEN
SELECT FIRST t.change_date, t.grace_date
INTO last_pwd_change, grace_date
FROM t_pwd_history t WHERE t.user_name = uid
```

```
ORDER BY t.change_date DESC;
END IF;

IF last_pwd_change IS NULL THEN
-- no password change in t_pwd_history, so create one
-- now
INSERT INTO t_pwd_history( user_name, pwd_hash )
VALUES( uid, 'unknown' );
COMMIT WORK;
ELSE
IF EXISTS( SELECT * FROM SYS.SYSUSERAUTHORITY a,
SYS.SYSUSER u
WHERE u.user_name = uid AND u.user_id =
a.user_id AND
a.auth = 'DBA' ) THEN
SET is_dba = 'Y';
ELSE
SET is_dba = 'N';
END IF;

-- remove any locks on t_pwd_history and
-- SYSUSERAUTHORITY
ROLLBACK WORK;

-- check if last password change was over five
-- months ago
IF CURRENT DATE > dateadd( month, 5, last_pwd_change )
THEN
-- never expire DBA accounts so that the database
-- does not get locked out by all users
IF CURRENT DATE < dateadd( month, 6, last_pwd_change
) OR
is_dba = 'Y' OR
( grace_date IS NOT NULL AND grace_date = CURRENT
DATE ) THEN
SET msg_str = 'The password for user ' || uid ||
' expires on ' ||
CAST( dateadd( month, 6, last_pwd_change )
AS DATE ) || '. Please change it before it expires.';
MESSAGE msg_str;

-- The post_login_procedure option is set to
-- p_post_login_check, which will cause a dialog to be
-- displayed notifying the user their password will
-- expire soon. dbisql and dbisqlc will display this
-- dialog, and user applications can call the
```

```
-- post_login_procedure and display this dialog.
-- May want to use xp_send_mail to notify user and/or
-- administrator.

ELSEIF grace_date IS NULL THEN

-- Allow one grace login day. The first login on
-- the grace day fails to ensure the user knows
-- their password has expired.

UPDATE t_pwd_history t SET t.grace_date = CURRENT DATE
WHERE t.grace_date IS NULL AND t.user_name = uid;
COMMIT WORK;
SET msg_str = 'The password for user ' || uid || '
has expired, but future logins will ' ||
'be allowed today only so that the password ' ||
'can be changed.';
MESSAGE msg_str;
RAISERROR 28000 msg_str;
RETURN;
ELSE
SET msg_str = 'The password for user ' || uid ||
' has expired and must be reset by your DBA.';
MESSAGE msg_str;
-- may want to use xp_send_mail to notify administrator
RAISERROR 28000 msg_str;
RETURN;
END IF;
END IF;
END IF;

CALL sp_login_environment;
END;

GRANT EXECUTE ON DBA.p_login_check TO PUBLIC;
SET OPTION PUBLIC.login_procedure =
'DBA.p_login_check';

-- called by dbisql, dbisqlc and some user applications
-- on every successful connection to check for warnings
-- which should be displayed

CREATE PROCEDURE DBA.p_post_login_check()
RESULT( warning_text VARCHAR(255), warning_action INT )
BEGIN
DECLARE uid CHAR(128);
```

```
DECLARE last_pwd_change DATE;
DECLARE warning_text CHAR(255);
DECLARE warning_action INT;
SET uid = connection_property( 'Userid' );
SELECT FIRST t.change_date
INTO last_pwd_change
FROM t_pwd_history t WHERE t.user_name = uid
ORDER BY t.change_date DESC;
IF CURRENT DATE > dateadd( month, 5, last_pwd_change )
THEN
SET warning_text = 'Your password expires on ' ||
CAST( dateadd( month, 6, last_pwd_change )
AS DATE ) || '. Please change it before it expires.';
SET warning_action = 1;
ELSE
-- There is no warning
SET warning_text = NULL;
SET warning_action = 0;
END IF;
-- return the warning (if any) through this result set
SELECT warning_text, warning_action;
END;

GRANT EXECUTE ON DBA.p_post_login_check TO PUBLIC;
SET OPTION PUBLIC.post_login_procedure =
'DBA.p_post_login_check';
```

4.7.3 sp_iqmpxcreatewriterlogin procedure [CR 421148]

Function — An ESD #1 enhancement includes a stored procedure that adds an external login for DBA to write server.

Syntax1 — **call sp_iqmpxcreatewriterlogin** ('*remote_user*', '*remote_password*')

Syntax2 — **sp_iqmpxcreatewriterlogin** '*remote_user*', '*remote_password*'

Syntax3 — **sp_iqmpxcreatewriterlogin** *remote_user*, *remote_password*

Permissions — DBA authority required.

Usage

remote_user User's login name on the write server, which acts as the external login of DBA from the query server.

remote_password User's password on the write server, which acts as the external login of DBA from the query server.

Description

In order to propagate passwords from a query server to a write server and subsequently other nodes, Sybase IQ calls an RPC on the write server from the query server. The RPC uses user 'DBA' account to establish a connection to the write server. If you modify the user 'DBA' password on the query server or set the 'DBA' password to NULL, the RPC can no longer connect to the write server.

You must execute sp_iqmpxcreatewriterlogin on the reader so that it can use an alternate account for the remote connection to the write server. The created external login is local to each query server and is deleted after the Multiplex synchronization unless a post synchronization script ('DBA.sp_mpxcfg_' + @@servername) is defined and called to restore it.

Errors

The following errors might occur. Causes are listed after each error.

```
"Permission denied: you do not have permission to
execute the procedure "sp_iqmpxcreatewriterlogin"
```

Cause: A user without DBA privilege tried to execute the sp_iqmpxcreatewriterlogin procedure.

```
RAISERROR executed: The stored procedure is not called
from a query server. Sybase error code=17823,
SQLState="WW012"
```

Cause: This procedure can only be called from a query server.

```
"RAISERROR executed: Userid "iqremoter" is not found or
could not be set as a login for write server. Sybase
error code=17824, SQLState="WW012"
```

Causes: The passed in value to procedure parameter *remote_password* is null, the remote user does not exist or not have the DBA privilege, or the DBA's password is null.

```
"ASA Error -110: Item 'DBA' already exists Sybase error
code = 12006, SQLState = "52010"
```

Cause: The external login already exists for DBA to writer server. You can drop it first by calling sp_iqmpxdropwriterlogin, and then call the sp_iqmpxcreatewriterlogin procedure.

4.7.4 sp_iqmpxdropwriterlogin procedure [CR 421148]

Function — An ESD #1 enhancement includes a stored procedure that drops existing external login for DBA to writer server.

Syntax1 — **call sp_iqmpxdropwriterlogin**

Syntax2 — **sp_iqmpxdropwriterlogin**

Permissions — DBA authority required.

Description — Used to drop an existing external login for DBA to write server. To change the external login, call sp_iqmpxcreatewriterlogin before calling the sp_iqmpxcreatewriterlogin procedure.

Errors — The following errors might occur. Causes are listed after each error.

```
"Permission denied: you do not have permission to
execute the procedure "sp_iqmpxdropwriterlogin"
```

Cause: A user without DBA privilege tried to execute the sp_iqmpxdropwriterlogin procedure.

```
"RAISERROR executed: The stored procedure is not called
from a query server. Sybase error code=17823,
SQLState="WW012"
```

Cause: This procedure can only be called from a query server.

```
"ASA Error -712: External login for server
'SYBIQ_MpxRemoteWriter' could not be found Sybase Error
code=11221, SQLState="WO013"
```

Cause: The external login does not exist or has already been dropped.

4.7.5 Password expiration warning [CR 420080]

The new password expiration warning feature in Sybase IQ 12.7 ESD #1 provides a simple method of notifying users when a password is about to expire. A warning message is delivered to the client application after the user successfully logs in. The new system stored procedure, sp_iq_process_post_login, and the new database option, POST_LOGIN_PROCEDURE, provide this enhancement to the current IQ Login Management facility.

Users who log in using dbisql, dbisqlc, or the Sybase Central Plug-in for Sybase IQ now see a password expiration warning, when appropriate, if Sybase IQ Login Management is enabled.

sp_iq_process_post_login procedure

Function	Sends a warning message to the client application for a user whose password is about to expire.
Syntax	**sp_iq_process_post_login**
Permissions	None.
Usage	If Sybase IQ Login Management is enabled and a user logs in using dbisql, dbisqlc, or the Sybase Central Plug-in for Sybase IQ, the sp_iq_process_post_login stored procedure runs immediately after a successful login. This procedure runs automatically, as the database option POST_LOGIN_PROCEDURE is set equal to sp_iq_process_post_login by default. Setting the POST_LOGIN_PROCEDURE option requires DBA authority. The password expiration warning is sent to the client application for a user whose password expires in 10 days or less. The password expiration warning procedure applies only to users added by the sp_iqaddlogin procedure.
See also	"POST_LOGIN_PROCEDURE option" on page 70 "sp_iq_process_login procedure" in Chapter 10, "System Procedures" in the *Sybase IQ Reference Manual* "LOGIN_PROCEDURE option" in Chapter 2, "Database Options" in the *Sybase IQ Reference Manual* "Login procedures and IQ User Administration" in Chapter 3, "Sybase IQ Connections" in the *Sybase IQ System Administration Guide* "Managing IQ user accounts and connections" in Chapter 12, "Managing User IDs and Permissions" in the *Sybase IQ System Administration Guide*
Description	After a user successfully logs in, the client application calls the stored procedure specified by the database option POST_LOGIN_PROCEDURE. The default setting of the POST_LOGIN_PROCEDURE option is DBA.sp_iq_process_post_login. When Sybase IQ Login Management is enabled, sp_iq_process_post_login returns a password expiration warning message to the client application, if the password of the user is about to expire. When Sybase IQ Login Management is disabled, the password expiration warning is not issued.

The sp_iq_process_post_login procedure supports the client applications dbisql, dbisqlc, and the IQ plug-in for Sybase Central. dbisql, dbisqlc, and the IQ plug-in for Sybase Central display the warning `"Your password will expire in n days! Please change your password as soon as possible."` In addition, dbisql and the IQ plug-in for Sybase Central also display a Reset Password dialog with the warning message, a request that the user change the password, and text boxes to supply and confirm a new password.

POST_LOGIN_PROCEDURE option

Function	Specifies a login procedure whose result set contains messages that are displayed by the client application immediately after a user successfully logs in.
Allowed values	String
Default	DBA.sp_iq_process_post_login
Scope	Can be set for an individual connection or the PUBLIC group. Requires DBA permissions to set the option. Takes effect immediately.
Description	The default post login procedure, sp_iq_process_post_login, executes immediately after a user successfully logs in. If you have DBA authority, you can customize the post login actions by creating a new procedure and setting POST_LOGIN_PROCEDURE to call the new procedure. *Do not* edit sp_iq_process_post_login. The customized post login procedure must be created in every database you use. The post login procedure supports the client applications dbisql, dbisqlc, and the IQ plug-in for Sybase Central.
See also	"Sample code for password verification function [CR 440216]" on page 61 "sp_iq_process_post_login procedure" on page 69 "sp_iq_process_login procedure" in Chapter 10, "System Procedures" in the *Sybase IQ Reference Manual* "LOGIN_PROCEDURE option" in Chapter 2, "Database Options" in the *Sybase IQ Reference Manual* "Login procedures and IQ User Administration" in Chapter 3, "Sybase IQ Connections" in the *Sybase IQ System Administration Guide* "Managing IQ user accounts and connections" in Chapter 12, "Managing User IDs and Permissions" in the *Sybase IQ System Administration Guide*

4.8 Sybase IQ ETL enhancements

The features summarized in the following sections are new for Sybase IQ ETL 4.2.1. For more information about these features, see the *Sybase IQ ETL User's Guide*.

4.8.1 Project simulation changes

Sybase IQ ETL 4.2.1 includes enhancements to project simulation, trace, and execution.

4.9 Sybase IQ documentation on CD

In Sybase IQ 12.7, a SyBooks CD replaces the Technical Library CD. The SyBooks browser software runs on Windows and Linux platforms. Users with non-Linux UNIX platforms must use Acrobat Reader to open PDF files on the SyBooks CD.

The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. To access the Sybase Product Manuals Web site, go to Product Manuals at http://www.sybase.com/support/manuals/.

5. Product compatibilities

This section describes the compatibility of Sybase IQ with other products. Certification with client and partner products is an ongoing process. For the latest information on versions of Sybase products and client application tools that have been certified with Sybase IQ 12.7, refer to the Sybase Web site. See the section "Sybase certifications on the Web" on page 148 for instructions on accessing online certification information.

5.1 Sybase products

The following Sybase products are certified with Sybase IQ 12.7:

- Adaptive Server Anywhere
- Adaptive Server Enterprise
- InfoMaker
- jConnect for JDBC

- Open Client
- PowerBuilder
- PowerDesigner
- Replication Server

Refer to the section “Sybase certifications on the Web” on page 148 for instructions on accessing the latest online certification information.

For information about product interoperability and known issues, see the following:

- *Sybase IQ Installation and Configuration Guide* section “Updating SDK” in Chapter 1, “Installing Sybase IQ”, and section “Running client applications” in Chapter 4, “Configuring Sybase IQ.”
- *New Features in Sybase IQ 12.7* sections “Integer data type support changes,” and “SYBASE_OCS behavior changes.”
- *Sybase IQ Reference Manual* section “SYBASE_OCS environment variable” in Chapter 1, “File Locations and Installation Settings.”

5.2 Client applications

The following third-party client application tools have been certified with Sybase IQ 12.7. An asterisk (*) indicates that certification is ongoing. Refer to the section “Sybase certifications on the Web” on page 148 for instructions on accessing the latest online certification information.

- Ascential DataStage
- Brio/Hyperion
- Business Objects
- Macromedia ColdFusion
- Cognos
- Crystal Reports
- Informatica
- Microsoft Access
- MicroStrategy
- SAS
- SPSS Clementine *

5.3 EMC Symmetrix and Hitachi certification

EMC Symmetrix and Hitachi are certified with Sybase IQ and are supported on all platforms. For details about the EMC Symmetrix certification, refer to the white paper “Configuring and Performance Tuning EMC Symmetrix for Sybase IQ Multiplex,” available on the Sybase Web site.

6. Restrictions

Read this section! Your system may produce unexpected results if you ignore the restrictions and other instructions listed below.

The information in this section applies to version 12.7 servers and databases that have been upgraded from any earlier version of Sybase IQ, unless specified otherwise.

6.1 String comparisons on encrypted text [CR 436993]

If data is case insensitive, or uses a collation other than ISO_BINENG, you must decrypt ciphertext columns in order to perform string comparisons.

When performing comparisons on strings, the distinction between equal and identical strings is important for many collations and depends on CASE option of CREATE DATABASE. In a database set to CASE RESPECT and the ISO_BINENG collation, the defaults for Sybase IQ, equality, and identity questions are resolved the same way.

Identical strings are always equal, but the reverse may not be true. Strings are only identical if they are represented using the same byte values. When data is case insensitive or uses a collation where multiple characters must be treated as equal, the distinction between equality and identity is significant. ISO1LATIN1 is such a collation.

For example, the strings 'ABC' and 'abc' in a case insensitive database are not identical but are equal. In a case sensitive database, they are neither identical nor equal.

The ciphertext created by the Sybase encryption functions preserves identity but not equality. In other words, the ciphertext for 'ABC' and 'abc' will never be equal.

6.2 Dbspace management and file placement

When you allocate file system files for dbspaces (System, IQ Main or IQ Temporary), do not place the files on a file system that is shared over a local area network. Violating this rule can lead to poor I/O performance and other problems, including overloading the local area network. On UNIX and Linux platforms, avoid Network File System (NFS) mounted file systems. On Windows, do not place dbspace files on network drives owned by another server.

Dbspace management should be performed by a single database administrator on a single connection to avoid conflicts.

6.3 Query restrictions

By default, Sybase IQ cursors are scrollable, meaning that Sybase IQ keeps all the query results in a buffer so that you can scroll backwards. If the query returns very large numbers (millions) of rows of output, you can improve performance by issuing the following command before running the query:

```
SET TEMPORARY OPTION Force_No_Scroll_Cursors = 'ON'
```

Some front-end applications make use of scrolling cursor operations, however, and require this option to be set "OFF".

If scrolling cursors are never used in your application, you should make this option a permanent public option. It will reduce memory usage and make a modest improvement in query performance.

6.4 User-defined functions and query results

In very few cases, differences in semantics between Adaptive Server Anywhere and Sybase IQ can produce different results if a query is issued in a user-defined function or functions in selects that have no FROM clause. For example, Sybase IQ treats the CHAR and VARCHAR data types as distinct and different, and Adaptive Server Anywhere treats CHAR data as if it were VARCHAR.

6.5 Interactive SQL restrictions

Sybase recommends that you use the Java edition of DBISQL, rather than DBISQLC or isql, unless instructed otherwise for specific tasks. Note that although dbisqlc is supported, dbisqlc does not contain all the features of the Java version dbisql.

- Do not use the Import option in the DBISQL Data menu (or Command > Options > Input Format in DBISQLC). This option is not supported for use with IQ databases. Use the LOAD TABLE statement or the INSERT statement to load data into IQ tables.
- If you run DBISQL (Interactive SQL Java) with the -q (quiet mode) option, and the data extraction commands (primarily setting the option TEMP_EXTRACT_NAME1 to an output file) are in a command file, you must first set and make permanent the DBISQL option "Show multiple result sets." If you do not set this option, the output file is not created.

  To set the "Show multiple result sets" option, click Tools > Options in the DBISQL window, then check the box "Show multiple result sets" and click "Make permanent."
- In DBISQL and DBISQLC, if you click the Help button or the Online Books button, the error "`Cannot open the file`" or "`Cannot open help`" is returned. Online help is not available for DBISQL and DBISQLC. [CR 370040]
- The query plan in the DBISQL Plan tab is an Adaptive Server Anywhere style query plan. For a Sybase IQ query plan, refer to the IQ *.iqmsg* file.
- If you set the terminal type on UNIX and Linux systems to "dumb" or "unknown" and then start DBISQLC, Sybase IQ returns an error. For example:

  ```
  % setenv TERM dumb
  % DBISQLC
  Error at line 1
  Unable to initialize screen routines
  ```

  To avoid problems, run DBISQL (Interactive SQL Java) instead, or use an xterm window to run DBISQLC on UNIX and Linux systems. For example, you can start an xterm window with a scroll bar as follows:

  ```
  % xterm -sb
  ```

6.6 SQL command line length is restricted

A current restriction limits the SQL command line length to the Catalog page size (not IQ page size) of the connected database. Because the default Catalog page size is 4KB, this is only a problem when the connection is to a database such as utility_db, which has a page size of 1024. This restriction may cause RESTORE commands that reference numerous dbspaces to fail.

To avoid the problem, make sure the length of SQL command lines is less than the Catalog page size.

Alternatively, start the engine with `-gp 32768` to increase Catalog page size.

7. Known problems

For a description of known issues in Sybase IQ 12.7, see the following sections. If there is a workaround for a problem, it is provided. Change request numbers appear in brackets, as in [CR 235449].

See also “Restrictions” on page 73 for more information.

“Documentation updates and clarifications” on page 84 contains details that were not documented in time for this release.

7.1 Data manipulation

This section reports known issues with data manipulation.

7.1.1 ROUND function truncates [CR 461126]

The ROUND function truncates rather than rounds.

7.2 Sybase IQ operations

This section reports workarounds for issues with Sybase IQ operations.

7.2.1 PATINDEX returns 0 for zero-length search string [CR 475209]

The PATINDEX function should return 1 for a zero-length pattern. PATINDEX, however, returns 0.

7.2.2 CIS returns “No Suitable Driver” error [CR 436095]

When you use Component Integration Services (CIS) in certain geographic regions, connection attempts return the error No Suitable Driver. Java Development Kits (JDKs) used with Sybase IQ 12.7 support a specific set of time zone codes.

JDKs 1.3 and prior provide limited support for time zones and daylight savings time. If you encounter the No Suitable Driver error, use a TZ variable with GMT+nnn to avoid interactions between named time zones (for example, Asia/Seoul) and daylight savings time.

- For databases using default JDK 1.1.8:

  Substitute GMT+9 for unsupported time zone KST:

  ```
  setenv TZ GMT+9
  ```

- For databases using JDK 1.3:

  Substitute GMT+9 for named time zone Asia/Seoul:

  ```
  setenv TZ GMT+9
  ```

After you set the time zone environment variable to a supported setting and start the server, CIS works as expected. To ensure that the correct setting is always used, you can set the time zone in the start_asiq script.

See section "TZ environment variable" in Chapter 1, "File Locations and Installation Settings," in the *Sybase IQ Reference Manual* for the supported time zone codes.

7.2.3 Creating very large databases

Attempting to create extremely large Sybase IQ databases on certain Windows configurations may fail with an exception occurring in the module hos_bion.cxx at or near line 182.

If you require a database that exceeds 100 GB, create a database of that size now to see if your system configuration exhibits the problem. If you create a smaller database and later try to add dbspaces, correcting the problem could be more difficult and time consuming.

This problem is intermittent but tends to occur when you have approximately 180GB of open files. Changing the setting of the OS_File_Cache_Buffering database option could trigger the problem. In some cases you might see an INSUFFICIENT_RESOURCES Windows error message.

The best way to avoid this problem is to create on a raw device any databases that may become larger than 180GB.

If you create a very large database on a file system, and either the CREATE DATABASE statement fails as described above or you see the INSUFFICIENT_RESOURCES message, apply Microsoft corrections. The problem is caused by a bug in the Windows kernel. The fix for Windows 2000, and information on editing the registry, is available on the Microsoft support Web site:

- Microsoft Knowledge Base Article - 304101 at http://support.microsoft.com/default.aspx?scid=kb;en-us;304101
- Microsoft Knowledge Base Article - 317249 at http://support.microsoft.com/default.aspx?scid=kb;en-us;317249
- Microsoft Knowledge Base Article - 192409 at http://support.microsoft.com/support/kb/articles/q192/4/09.asp
- Microsoft Knowledge Base Article - 236964 at http://support.microsoft.com/support/kb/articles/Q236/9/64.ASP
- Microsoft Knowledge Base Article - 171458 at http://support.microsoft.com/support/kb/articles/Q171/4/58.asp

7.3 Sybase IQ queries

This section reports workarounds for query issues.

7.3.1 Query with derived table returns error [CR 427346]

A query with a derived table that executed without error in Sybase IQ 12.5 now returns `an item already exists` error when run against a Sybase IQ server or with a SQL Anywhere server using a remote proxy table.

The error occurs in a query like the following where the derived table uses a column alias for a constant ('2' as import_item) and the outer query block has a column by the same name (import_item):

```
SELECT TB.dept_item, TB.import_item
INTO #t_Test_table1
FROM (
SELECT '2' AS dept_item,
'2' AS import_item
FROM Test_Table A
) TB
GROUP by TB.dept_item, TB.import_item
```

The workaround is to specify column aliases, for example:

```
SELECT TB.dept_item AS dept_item, TB.import_item
AS import item
```

7.4 Sybase IQ ETL

This section reports issues with Sybase IQ ETL Server and Sybase IQ ETL Development software. See “Documentation updates and clarifications” on page 84 for ETL documentation issues.

7.4.1 ODBC connectivity for IQ ETL Server running as a Windows Service [CR 456470]

If you install the IQ ETL Server on a 64-bit Windows 2003 Enterprise Edition platform as a Windows service and you plan to use ODBC connectivity, you may encounter the following issues.

The IQ ETL Server (Grid Engine) Windows service may only be able to detect system data sources defined using the ODBC Data Source Administrator executable located in the *C:\WINDOWS\SysWOW64* directory (*odbcad32.exe*, file size 32 KB). If you installed the IQ Extended Enterprise Edition Sybase IQ Server, you can access this version of the ODBC Data Source Administrator under the Start > All Programs > Sybase > Data Access (32-bit) menu. Note that the IQ ETL Server Windows service is unable to detect system or user data sources defined using the ODBC Administrator executable located in the *C:\WINDOWS\System32*\directory (*odbcad32.exe*, file size 34 KB). This version may be available under the Start > All Programs > ODBC menu.

The IQ ETL Server (Grid Engine) Windows service may not be able to detect ODBC data sources defined as user data sources. If the IQ ETL Development client is installed on the same machine with the IQ ETL Server and you want to run the ETL Demo jobs, stop the IQ ETL Server running as a Windows service. (Use the Windows Task Manager Processes tab to be sure no GridNode.exe processes are running.) Then launch the IQ ETL Development client. The IQ ETL Development client will start a GridNode.exe process and this process will be able to run the ETL demo jobs.

The IQ ETL Server is a 32-bit application, even thought the Sybase IQ Server available with it in the IQ Extended Enterprise Edition release is a 64-bit application. The IQ ETL Server requires a 32-bit ODBC driver to connect to a server, regardless of whether the server is 32-bit or 64-bit. The 64-bit Sybase IQ Server includes both ODBC 32-bit and 64-bit drivers. These two ODBC drivers have the same file name (*DBODBC9.DLL*) but are installed in different directories. The 32-bit ODBC driver is installed in *C:\Program Files\Sybase\ASIQ-12_7\win32* directory. The 64-bit driver is installed in the *C:\Program Files\ASIQ-12_7\x64* directory. When you install Sybase IQ on a Windows 2003 EE 64-bit platform and accept the defaults, the different drivers are available from the Start menu. The 32-bit Sybase IQ ODBC driver is available under Start > All Programs > Sybase > Data Access (32-bit) > ODBC Data Source Administrator. The 64-bit Sybase IQ ODBC driver is available under Start > All Programs > Sybase > Data Access (64-bit) > ODBC Data Source Administrator.

7.4.2 File Content display in Text Data Provider [CR 456431]

When entering the configuration window of a text provider component the file content is read with the current (default is ISO-8859-1) encoding setting. It is not reread when a different encoding is selected. The preview section of the configuration window displays data correctly (according to the current settings) and the functionality of the component is not affected.

To read and display the file content with a specific encoding, do *one* of the following and then reopen the configuration window:

- Select the encoding in the configuration window and click Save.
- Select the encoding in the Property section.

7.4.3 Initialization file settings for Sybase IQ ETL Server on UNIX [CR 456080]

On UNIX installations of Sybase IQ ETL Server, initialization (*.ini*) file settings are not read by the GridNode application unless you have a *GridNode.ini* in place.

❖ **Specifying settings for the GridNode application:**

1 Make a copy of the *Default.ini* file named *GridNode.ini* in the *etc* subdirectory of your installation path.

2 Specify general settings (to be shared by all applications) in *Default.ini*.

3 Specify exclusive settings for the GridNode application in *GridNode.ini*.

4 Disable (remove or comment) the keys for general settings in *GridNode.ini*.

7.4.4 Project execution might hang when database runs out of space [CR 455779]

When a database involved in a data transfer runs out of space, the execution of a project might hang. This happens because the database driver does not return with an error message but waits until space is available to continue. Ensure that sufficient space is available before running a project or job.

7.4.5 Special characters in Sybase IQ ETL installation paths [CR 454526]

Special characters in the installation path of Sybase IQ ETL Development or Server may lead to problems in accessing databases.

For example, connecting to an Oracle database client returns the following error when Sybase IQ ETL Server is installed in a path containing parentheses, such as *C:\Program Files (x86)\Sybase*:

```
ORA-12154: TNS:could not resolve the connect
identifier specified
```

Sybase recommends selecting installation paths that contain only alphanumeric characters. To avoid parentheses issues, remove "(x86)," which is added by the Windows 2003 EE 64-bit operating system, from the default target directory during installation.

7.4.6 Recommended settings for IQ database options [CR 447096, CR 447097]

The IQ database option FORCE_NO_SCROLL_CURSORS should be at the default setting (OFF) or a fetch error may occur while moving data via ETL.

To adjust database option settings, use the SET OPTION command in dbisql or, in Sybase Central, right-click the database and choose Set Options from the submenu.

7.5 Multiplex operations

This section reports workarounds for issues with multiplex operations.

7.5.1 Problem with “\n” in server names [CR 236627, CR 226713]

When you create multiplex databases or query servers, Sybase IQ treats the backslash before the letter “n” or “t” or certain other letters as an escape character in the pathname. To avoid the problem, double the backslash before any leading “n” or other escape character.

For example:

```
I. 03/29 12:50:41. Starting database "mpxdb"
(c:\mpx\new_server\mpxdb\mpxdb.db)
at Thu Mar 29 2001
E. 03/29 12:50:42 Eror: Filename does not exist.
File: c:\mpx
```

You should type the pathname as follows:

```
c:\\mpx\\new_server\\mpxdb\\mpxdb.db
```

8. Documentation for this version

All documentation for version 12.7 is included with your product shipment on CD:

- The Sybase IQ 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. The Getting Started Sybase IQ 12.7 Extended Enterprise Edition CD also includes *Sybase IQ ETL User’s Guide*, part number DC00608-01-0421-01.

  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 IQ Getting Started CD also contains release bulletins and installation guides in an HTML format 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.

- The Sybase IQ 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.

Note The SyBooks browser software runs on Windows and Linux platforms. Users with non-Linux UNIX platforms must use Acrobat Reader to open PDF files on the SyBooks CD.

Table 10 lists documentation on the Sybase IQ 12.7 Sybooks CD.

Table 10: Sybase IQ Sybooks contents

Part Number	Book Title
DC00171-01-1270-01	*New Features in Sybase IQ 12.7*
DC38159-01-1270-01	*Introduction to Sybase IQ*
DC00170-01-1270-01	*Sybase IQ System Administration Guide*
DC00169-01-1270-01	*Sybase IQ Performance and Tuning Guide*
DC38151-01-1270-01	*Sybase IQ Reference Manual*
DC00462-01-1270-01	*Sybase IQ Error Messages*
DC36584-01-1270-01	*Sybase IQ Troubleshooting and Recovery Guide*
DC00168-01-1270-01	*Sybase IQ Utility Guide*
DC00172-01-1270-01	*Large Objects Management in Sybase IQ*
DC00467-01-1270-01	*Encrypted Columns in Sybase IQ*

A print copy edition of the Sybase IQ documentation set, 48200-01-1270-01, can be ordered separately.

You may also need to refer to the documentation for Adaptive Server Anywhere:

- *Adaptive Server Anywhere Programming Guide* – Intended for application developers writing programs that directly access the ODBC, Embedded SQL™, or Open Client™ interfaces, this book describes how to develop applications for Adaptive Server Anywhere.
- *Adaptive Server Anywhere Database Administration Guide* – Intended for all users, this book covers material related to running, managing, and configuring databases and database servers.

- *Adaptive Server Anywhere SQL Reference Manual* – Intended for all users, this book provides a complete reference for the SQL language used by Adaptive Server Anywhere. It also describes the Adaptive Server Anywhere system tables and procedures.

You can also refer to the Adaptive Server Anywhere documentation in the SQL Anywhere Studio 9.0.1 collection on the Sybase Product Manuals Web site. To access this site, go to Product Manuals at http://www.sybase.com/support/manuals/.

9. Documentation updates and clarifications

This section contains information omitted from documentation and new information that needs emphasis.

See *New Features in Sybase IQ 12.7* for a description of changes to the Sybase IQ documentation set in version 12.7.

9.1 Customer issues

The *CustomerIssues.txt* file lists customer issues resolved in Sybase IQ 12.7. Issues resolved in a subsequent software update (ESD or EBF) are documented in the cover letter for that update. *CustomerIssues.txt* is installed in the following directories:

- *$SYBASE/ASIQ-12_7* on UNIX
- *%SYBASE%/ASIQ-12_7* on Windows

For more information, see “Sybase EBFs and software maintenance” on page 149.

9.2 Message and error logging

This section contains changes to error messages and log files.

9.2.1 System log file shows “ODBC seriously misbehaves” [CR 447093]

The message “ODBC seriously misbehaves” may appear in the system log file. This message is generated when the Sybase IQ ETL component DB Full Load specifies a large block size. Reducing the block size removes the printing of this message and could also increase performance.

9.2.2 Named pipes permissions [CR 447092]

When sending data to IQ via a named pipe, the error “Permission denied” or “File cannot be found” may result when executing a job. Make sure that both the Sybase IQ server and the Sybase IQ ETL Server have access to and read/write permissions on the named pipe.

9.2.3 ETL logs UTC (Coordinated Universal Time) [CR 446767]

The GridNode process logs its timestamp in the *system.log* in UTC (Coordinated Universal Time), not the host machine time.

9.2.4 New and changed messages for LOCK TABLE [CR 444921, 472791]

The following changes to Sybase IQ error messages support the 12.7 ESD #3 LOCK TABLE feature described in “LOCK TABLE support [CR 480880, CR 472791, CR 463196, 444921]” on page 24.

The LOCK TABLE command returns errors as follows.

- When the specified table does not exist, you see the message:

  ```
  Table '%1' not found (SQLCODE -141, SQLSTATE 42W33)
  ```

  '%1' is the name of the first user-specified table-name that does not exist.

- If you specify an invalid time interval on the WAIT option, you see the ASA error message:

  `Cannot convert %1 to a %2` (SQLCODE -157, SQL STATE 53018)

  In the preceding messages, ‘%1’ is the invalid time-string and ‘%2’ is “timestamp.”

The LOCK TABLE for WRITE mode returns the following errors:

- When the table name appears more than once in the table-list, you see the message:

  ```
  Item '%1' already exists (Constant
  SQLE_NAME_NOT_UNIQUE,
  SQLCODE -110, SQLSTATE 52010)
  ```

  '%1' is the name of the first user-specified table-name that is duplicate.

- When the table-list contains both IQ and SA tables, you see the ASA error message:

  ```
  Table '%1' not found (SQLCODE 141, SQLSTATE 42W33)
  ```

'%1' is the name of the first SA table in the list.

- When lock(s) cannot be acquired during the specified time interval, you see the message:

  ```
  Unable to acquire table locks in specified time
  (LOCK_TIMEOUT, SQLCODE -1175L, SQLSTATE 42WC4)
  ```

- If the command is interrupted, you see the ASA error message:

  ```
   Statement interrupted by user (SQLCODE -299,
  SQLSTATE 57014)
  ```

- If any table is not an IQ base table, you see the following ASA error messages.

  For temporary tables, join virtual tables, or Adaptive Server Anywhere tables, you see the ASA error:

  ```
  Table '%1' not found (SQLCODE 141, SQLSTATE 42W33).
  ```

  %1 is the name of the first non-IQ base table in the list.

- When attempting to lock a read-only table, you see this ASA error:

  ```
  Permission denied: you do not have permission
  to use the %1 (SQLCODE –121, SQLSTATE 42501)
  ```

  In the preceding statement, %1 is the LOCK TABLE WRITE statement.

  Examples of a locking a read-only table include, but are not limited to, locking a table owned by the multiplex write server on a query server or locking a table when the database is read-only.

- When the WITH HOLD option is specified, you see the error message:

  ```
  Syntax error near '%1', %2 (SQLCODE -131, SQLSTATE
  42W04)
  ```

- If the WAIT option is not specified, you see the message:

  ```
  Syntax error near '%1', %2 (SQLCODE -131, SQLSTATE
  42W04)
  ```

- If the user does not have at least one of the required permissions necessary to either insert, load, update, delete or truncate on all the table(s), you see the ASA error:

  ```
  Permission denied: you do not have permission to use
  the %1 (SQLCODE –121, SQLSTATE 42501)
  ```

  In the preceding statement, %1 is the LOCK TABLE WRITE statement.

The LOCK TABLE READ/EXCLUSIVE statement returns the following error.

- If the statement fails, even with WAIT option specified, you see the ASA error:

  ```
  -210, User '%1' has the row in '%2' locked.
  ```

  '%1' is the name of the user who owns the lock. '%2' is the user-specified table name.

DML update commands return the same error when a write-write conflict occurs.

9.2.5 New and changed messages for LOAD TABLE FORMAT BCP [CR 437332]

The following changes to Sybase IQ error messages support the 12.7 ESD #2 LOAD TABLE FORMAT BCP feature described in "LOAD TABLE supports BCP files as input [CR 437332]" on page 35.

- The message `"Only ASCII and BINARY are supported LOAD formats."` (SQLCODE -1000188L, SQLSTATE QDB88, Sybase error code 20848) is now `"Only ASCII, BCP and BINARY are supported LOAD formats."`
- The message `"Delimiter '%2' must be 1 to 4 characters in length."` (SQLCODE -1013054L, SQLSTATE QCA54, Sybase error code 20624) is now `"Delimiter '%2' must be 1 to %3 characters in length."`, where %3 is the maximum allowable length of the column delimiter or row terminator.
- A new error message has been added: `"Invalid load specification for LOAD ... FORMAT BCP."` (SQLCODE -1000296L, SQLSTATE QDC78, Sybase error code 21124).

9.3 Interactive SQL (DBISQL) online help

Online help is not available for the utilities Interactive SQL (DBISQLC) and Interactive SQL Java (DBISQL).

9.4 New Features in Sybase IQ 12.7

This section contains updates to *New Features in Sybase IQ 12.7*.

9.4.1 Perl interface (DBD::ASAny) not supported by Sybase IQ [CR 443439]

Under "Miscellaneous enhancements," the paragraph stating "The new DBD::ASAny driver for the Perl DBI module allows you to access and modify Adaptive Server Anywhere databases from Perl scripts," is incorrect.

Perl interface (DBD:ASAny) not supported by Sybase IQ.

9.4.2 Encryption function name errors [CR 441789]

In Chapter 1, the "Sybase IQ Encrypted Column Option" section contains errors. The ENCRYPT and DECRYPT functions should read AES_ENCRYPT and AES_DECRYPT, respectively. These functions are listed correctly in *Encrypted Columns in Sybase IQ*.

9.4.3 Superscript display error [CR 437840]

In Chapter 1, "Limits changed," number of rows per table appears as 248 in the PDF version, when it should appear as 2^{48} (2 to the 48th power). This display issue did not affect the HTML version on Infocenter or Chapter 2, "Physical Limitations" in the *Sybase IQ Reference Manual*.

9.4.4 Setting DBISQL options TEMPORARY [CR 435977]

Replace the section "DBISQL options can no longer be set TEMPORARY" in the section "Data load, update, and extraction changes" in Chapter 1, "New Features in Sybase IQ 12.7" with the following section:

DBISQL options can no longer be set TEMPORARY in BEGIN...END
Options that control how DBISQL interacts with the database can no longer be set TEMPORARY between the BEGIN and END keywords of a compound statement. For a list of affected options, see "DBISQL options" in Chapter 2, "Database Options," in the *Sybase IQ Reference Manual*.

9.4.5 ASAODBC support on 64-bit platforms [CR 430313, CR 441021]

In Chapter 1, the "Start-up and connection changes" section incorrectly states that ASAODBC is the only server class supported for 64-bit platforms. This is not true. ASAODBC is the only *ODBC* server class supported for 64-bit platforms. Other non-ODBC server classes are supported on 64-bit platforms. In addition to the error, this support was not a new feature for 12.7.

9.4.6 Errors in New Features in Sybase IQ 12.7

Certain sections in *New Features in Sybase IQ 12.7* are incorrect and should be disregarded.

In Chapter 1, "New Features in Sybase IQ 12.7," disregard:

- Query timeout value added to plug-in preferences
- Validate Database wizard added
- Sun Solaris error initializing raw device
- SNMP Agent

In Chapter 2, "New Features in Sybase IQ 12.6 ESDs," disregard:

- New start_asiq utility switches
- Domain names are case insensitive

9.5 User's Guide for Sybase IQ ETL

This section contains updates to the *Sybase IQ ETL User's Guide*.

9.5.1 Accessing the Sybase ETL Demo Repository

Sybase IQ ETL includes a demo repository with predefined projects and jobs designed to familiarize users with the product. The *Sybase IQ ETL User's Guide* refers to that demo repository in Chapter 3, "Getting Started", and Chapter 6, "Components".

Starting Sybase IQ ETL Development displays the Repository window.

The default login data to access the demo repository is:

Connection: Repository
Client: transformer
Client user:TRANSFORMER
Password: transformer

These values are preset on initial login. On subsequent logins, you might need to select or enter this information.

❖ **Setting up a user account on the demo repository**

1 Enter a new Client user name and a password. (Note: do not change the Client.)

2 Activate the Register new user and the Show all objects option.

3 Click Logon.

4 Confirm your password and click OK.

Note If you enter a different Client or do not activate Show all objects you will not get access to the predefined transformation objects.

The default login information to the demo repository is automatically set up during Sybase IQ ETL Development installation. Use the following information to correct or restore the settings.

❖ **Configuring the ODBC User Data Source**

1 Configure the ODBC User Data Source:

Driver: Microsoft Access
Name: DEMO_Repository
Database: <*datadir*>*\Demodata\IQETLDEMO_REP.MDB*

2 Set up the repository connection in the Repository window:

a Select Repository from the Connection list and choose *one* of the following:

- Edit
- Add and type a name for the connection

b Select dbodbc from the Interface list.

c Select DEMO_Repository from the Host list.

d Click Save.

<*datadir*> is either the installation or the user data directory, see *Sybase IQ Installation and Configuration Guide* for details.

See also “Administering the repository” in Chapter 2 of the *Sybase IQ ETL User’s Guide* for details.

The projects in the demo repository require these additional ODBC User Data Sources:

Driver: Microsoft Access
Name: ETLDEMO_DWH; Database: DEMO_DWH.MDB
Name: ETLDEMO_GER; Database: DEMO_GER.MDB
Name: ETLDEMO_US; Database: DEMO_US.MDB

The database files are located in *<datadir>\Demodata* where *<datadir>* is either the installation or the user data directory, see *Sybase IQ Installation and Configuration Guide* for details.

9.5.2 Sybase IQ ETL Demonstrations

Sybase IQ ETL provides flash demonstrations for nearly all components and some general functionality.

There are three ways to view the demos:

- Select Demonstration from a component popup menu in the Component Store.
- Choose either an Introduction or a Component Demonstration from the Help menu.
- View a demonstration directly from the training subdirectory of the installation path.

Note These demonstrations show general functionality of Sybase ETL products. Some of the features might not be available in your product edition.

9.5.3 Stopping the Sybase IQ ETL Server process [CR 460724]

The Windows service control fails to stop the Sybase IQ ETL Server process. If a Sybase IQ ETL Server instance, which appears as GridNode.exe in the Task Manager, is running as a Windows service, attempts to stop the service using the service control will start another GridNode.exe process.

To end these processes, open the Windows Task Manager, display the Processes tab, and select the GrideNode.exe process (or processes, if several are running).

9.5.4 Unicode support for Sybase IQ ETL [CR 447098]

The level of Unicode support for Sybase IQ ETL is:

- Unicode characters can be extracted, transformed, and loaded.
- Unicode characters in component properties are not supported. This includes:
    - File or directory names

- Metadata like table or attribute names
- Connection settings like database, schema, user, or password

- Unicode characters in ETL object names or descriptions are not supported.

9.6 System Administration Guide

This section contains updates to the *Sybase IQ System Administration Guide*.

9.6.1 Login auditing capability

The following information will be added to the *Sybase IQ System Administration Guide*.

Sybase IQ 12.7 provides the ability to log connection details for a given user in the transaction log file, then use your own scripts to extract information such as who logged in, how long they were logged in, and what operations were performed.

For details, see:

- "Auditing database activity" in Chapter 1, "Keeping Your Data Secure" in the *SQL Anywhere Studio Security Guide*. (Note that Sybase IQ does not support the -sf or -sk server option, and uses the sample database asiqdemo.db.)
- "The transaction log file" in Chapter 5, "Managing System Resources" in the *Sybase IQ Performance and Tuning Guide*.
- "AUDITING option [database]" in *Sybase IQ Reference Manual*.
- "Connection parameters" in Chapter 4, "Connection and Communication Parameters" in *Sybase IQ System Administration Guide*.
- "Log Translation utility (dbtran)" in Chapter 3, "Database Administration Utility" in the *Sybase IQ Utility Guide*.
- "sa_audit_string system procedure" in Chapter 8, "System Procedures" in *Sybase IQ Reference Manual*.

Auditing example

This example shows how the auditing feature records attempts at unauthorized information.

1 As database administrator, turn on the auditing option in the database.

You can do this from Sybase Central as follows:

- Connect using the Adaptive Server IQ Demo data source. This connects you as a DBA user.
- Select the asiqdemo database and from the File menu, choose Options.
- Select Auditing from the list of options, and type the value On in the Public Setting box. Click Set Permanent Now to set the option and Close to exit.

Alternatively, you can use Interactive SQL, as follows:

- Connect to the sample database from Interactive SQL as the DBA user.
- Execute the following statement:

```
SET OPTION PUBLIC.AUDITING = 'ON'
```

2 To enable auditing, you must also specify the type of events to audit, as follows. In Interactive SQL, enter:

```
sa_enable_auditing_type('Connect')
```

3 Add a user to the sample database, named AuditedUser, with password AuditedUser. You can do this from Sybase Central. Alternatively, you can use Interactive SQL and enter the following statement:

```
GRANT CONNECT TO AuditedUser
IDENTIFIED BY 'AuditedUser'
```

4 Use Interactive SQL to connect to the sample database as AuditedUser and attempt to access confidential information in the employee table with the following query:

```
SELECT emp_lname, salary
FROM employee
```

This returns the error: `Permission denied: you do not have permission to select from "employee".`

5 At a command prompt, execute the following command:

```
dbtran -g asiqdemo.log asiqdemo.sql
```

or, to run against the server:

```
dbtran -c "DSN=Adaptive Server IQ Demo"
-g asiqdemo.sql
```

Either command produces a file named *asiqdemo.sql*, which contains the transaction log information and a set of comments holding audit information. The lines that indicate the unauthorized AuditedUser attempt to access the Employees table are included in the file as follows:

```
----AUDIT-1010-0000936326 -- 2007/06/06
10:34:06.164 Checking Select permission on
DBA.employee - Failed

----AUDIT-1010-0000936365 -- 2007/06/06
10:34:06.164 Checking Select permission on
DBA.employee(salary) - Failed
```

6 Restore the sample database to its original state so that other examples you try in this documentation give the expected results.

Connect as a DBA user, and perform the following operations:

- Revoke Connect privileges from the user ID AuditedUser.
- Set the PUBLIC.AUDITING option to OFF.

9.6.2 Explicit table lock acquisition [CR 444921]

As of 12.7 ESD #3, the LOCK TABLE statement supports acquiring WRITE locks on a set of tables instead of a single table. See “LOCK TABLE support [CR 480880, CR 472791, CR 463196, 444921]” on page 24 and “New and changed messages for LOCK TABLE [CR 444921, 472791]” on page 85.

The following information augments the section “How Locking Works,” in Chapter 10, “Transactions and Versioning.”

You can reserve WRITE locks on a set of tables within a new transaction using the LOCK TABLE statement. LOCK TABLE commits the current transaction and allows transactions to enqueue until the locks are available. For syntax, see “LOCK TABLE” in Chapter 6, “SQL Statements,” in the *Sybase IQ Reference Manual*.

For example, suppose that you are executing a critical transaction and you want to prevent update operation failure. Reserve WRITE locks on all the corresponding tables in advance, using commands like the following:.

```
CREATE PROCEDURE test_lock()
BEGIN
lbl:
LOOP
   LOCK TABLE t1, t2, t3 IN WRITE MODE WAIT “30:00:00”;
   IF SQLCODE <> 0 THEN
```

```
      PRINT 'Lock not yet acquired';
      ELSE
      LEAVE lbl;
   END IF;
END LOOP lbl;
UPDATE t1 set c1=5;
INSERT INTO t2 values(10,10);
TRUNCATE table t3;
COMMIT;
END;
```

In the case of deadlocks, the last LOCK TABLE statement that became blocked is rolled back and an error returns to that transaction about the form of deadlock that occurred.

9.6.3 Files located relative to Catalog Store [CR 469000]

The information in "Example 2 — Moving the Catalog Store" in the "Moving database files" section of the "The RESTORE statement" section under "Restoring your databases" in Chapter 14, "Data Backup, Recovery and Archiving" is not correct regarding the directory in which a file is restored.

- In the second bullet, the sentences "Files originally created relative to the IQ_SYSTEM_MAIN dbspace, which holds the main IQ Store file, are restored relative to the main IQ Store file." will be replaced with the following:

  "Files originally created relative to the Catalog Store are restored relative to the Catalog Store."

- The sentence "Relative pathnames in the RENAME clause work as they do when you create a database or dbspace: the main IQ Store dbspace, Temporary Store dbspaces, and Message Log are restored relative to the location of *db_file* (the Catalog Store); user-created IQ Store dbspaces are restored relative to the directory that holds the main IQ dbspace." will be replaced with the following:

  Relative pathnames in the RENAME clause work as they do when you create a database or dbspace: the main IQ Store dbspace, Temporary Store dbspaces, and Message Log are restored relative to the location of *db_file* (the Catalog Store); user-created IQ Store dbspaces are restored relative to the directory that holds the Catalog Store."

9.6.4 Creating global or base tables affects other users [CR 466160]

The following warning replaces the warning currently in "Using table and column constraints" in Chapter 9, Ensuring Data Integrity," in the *Sybase IQ System Administration Guide*.

Warning! Altering or creating global or base tables can interfere with other users of the database. For large tables, ALTER or CREATE TABLE can be a time-consuming operation. CREATE TABLE processing delays execution of other IQ processes until the statement completes. Although you can execute ALTER TABLE statements while other connections are active, you cannot execute them while any other connection uses the table to be altered. ALTER TABLE processing excludes other requests referencing the table being offered while the statement processes.

9.6.5 Configuring Open Client [CR 461831]

The following information was omitted from "Open Client applications and Sybase IQ" in Chapter 16, "Accessing Remote Data".

When connecting to Sybase IQ using Open Client or when using the INSERT...LOCATION syntax, you can set various Open Client configuration parameters via an Open Client runtime configuration (*.cfg*) file. For example, you may change the maximum default number of connections, which is controlled by the value of the CS_MAX_CONNECT option.

The application name for INSERT...LOCATION is Sybase IQ. (The space between the words is required.) This application name is set at the Open Client connection level, not at the Open Client context level. For details about using an Open Client runtime configuration file and the options available, see the Open Client *Client-Library C Reference Manual*.

To have the *.cfg* take effect, stop and restart the Sybase IQ server. You may also specify certain configuration parameters in the INSERT...LOCATION command line. Parameters set in INSERT...LOCATION are superseded by parameters set in the configuration file.

9.6.6 Unique table names on a connection [CR 455684]

In Sybase IQ 12.7 ESD #3, an attempt to create a base table or a global temporary table will fail, if a local temporary table of the same name exists on that connection, as the new table cannot be uniquely identified by *owner.table*.

The information in the section “Unique table names on a connection [CR 455684]” on page 24 will be added in Chapter 5, “Working with Database Objects,” to the “Types of tables” section in “Creating tables” in the “Working with tables” section.

9.6.7 LOAD TABLE statement requires column specifications [CR 453567]

The simple LOAD TABLE example in Chapter 7, “Moving Data In and Out of Databases” is incorrect, because it contains no column specifications. The following example is correct:

```
LOAD TABLE department
( dept_id, dept_name, dept_head_id )
FROM '/d1/MILL1/dept.txt'
```

9.6.8 INSERT...LOCATION supports 20MB large object (LOB) data [CR 453439]

Sybase IQ 12.7 ESD #3 increases the limit on the length of large object data (LOB) that can be retrieved from a remote database using INSERT...LOCATION from 32767 bytes to 20MB (20971520 bytes). In Chapter 7, “Moving Data In and Out of Databases,” the last sentence in the first paragraph in the section “Loading ASE text and images” should be changed so that the paragraph says:

“Sybase IQ does not support the Adaptive Server Enterprise data type TEXT, but you can execute INSERT...LOCATION from an ASE database column of data type TEXT. Also note that INSERT...LOCATION does not support the use of variables in the SELECT statement. Text and image data inserted is silently right truncated at 20971520 bytes.”

9.6.9 Implicit conversion between BIT and CHAR/VARCHAR data types supported [CR 451862]

Sybase IQ 12.7 ESD #2 supports implicit conversion between BIT and CHAR and BIT and VARCHAR data types for arithmetic, comparison, INSERT, and UPDATE operations.

In Chapter 7, “Moving Data In and Out of Databases,” the tables in the section “Data conversions in IQ” should be updated as follows:

- In Table 7-6: “IQ conversions for comparison operations,” the conversion in the rows From: bit To: ch (CHARACTER data type) and From: bit to vc (VARCHAR data type) should be “I” (implicit) instead of “E” (explicit).

- In Table 7-6: “IQ conversions for comparison operations,” the conversion in the rows From: char To: bt (BIT data type) and From: varchar to bt should be “I” (implicit) instead of “E” (explicit).
- In Table 7-7: “IQ conversions for arithmetic operations,” the conversion in the rows From: bit To: ch (CHARACTER data type) and From: bit to vc (VARCHAR data type) should be “I” (implicit) instead of “E” (explicit).
- In Table 7-7: “IQ conversions for arithmetic operations,” the conversion in the rows From: char To: bt (BIT data type) and From: varchar to bt should be “I” (implicit) instead of “E” (explicit).
- In Table 7-8: “IQ conversions for INSERT and UPDATE,” the conversion in the rows From: bit To: ch (CHARACTER data type) and From: bit to vc (VARCHAR data type) should be “I” (implicit) instead of “E” (explicit).
- In Table 7-8: “IQ conversions for INSERT and UPDATE,” the conversion in the rows From: char To: bt (BIT data type) and From: varchar to bt should be “I” (implicit) instead of “E” (explicit).

9.6.10 Enabling ODBC trace output [CR 442772]

The following was omitted from the section “Using ODBC Data Sources on UNIX” in Chapter 3, “Sybase IQ Connections.”

To create an ODBC trace file, you must set the environment variables ASA_ODBCTRACE_VERBOSE and ASA_ODBCTRACE_FILE, for example:

```
$ setenv ASA_ODBCTRACE_VERBOSE ALL
$ setenv ASA_ODBCTRACE_FILE
/bluesun/fiona/odbctrace.out
$ dbisql -c "dsn=J123456" -nogui
```

On UNIX and Linux systems, use the *libdbodbc9.so* driver and leave it up to the driver to choose the multi-threaded or non-threaded driver. Tracing capability exists in the switch (*libdbodbc9.so*), not in the individual drivers (*libdbodbc9_n.so* or *libdodbc9_r.so*). If you change the driver to point to the _r version, you are taking the switch out of the call sequence, preventing the tracing.

9.6.11 LOAD TABLE FORMAT syntax correction [CR 445737]

In the section “Bulk loading data using the LOAD TABLE statement” in Chapter 7, “Moving Data In and Out of Databases,” the syntax for the FORMAT option of the LOAD TABLE statement should not contain single quotes. The correct syntax is:

LOAD TABLE [*owner*.]*table-name*
[(*load-specification*, …)]
FROM '*filename-string*', …
[**FORMAT** { **ascii** | **binary** }]
…[**DELIMITED BY** *string*]
…[**STRIP** { **ON** | **OFF** }]
…[**QUOTES** { **ON** | **OFF** }]
…[**ESCAPES** { **ON** | **OFF** }]
…[**ESCAPE CHARACTER** character]
…[**WITH CHECKPOINT ON** | **OFF**]
…[*load-options*]

9.6.12 Group permissions cannot be revoked for a specific user [CR 444928]

When users are assigned membership in a group, they inherit all the permissions on tables, views, and procedures associated with that group. If you do not want a specific user to access a particular table, view, or procedure, then do not make that user a member of a group that has permissions on that object. You cannot revoke permissions for a specific user within a group.

9.6.13 Minimum IQ page size corrected [CR 443231]

The section “Creating databases” in Chapter 1, “Overview of Sybase IQ System Administration” contains an error.

For very large databases, you need an IQ page size of 128KB or larger.

9.6.14 INSERT…LOCATION supports additional ASE data types [CR 442348]

12.7 ESD #2 supports inserting data from an Adaptive Server Enterprise database column of data type UNSIGNED SMALLINT, NCHAR, NVARCHAR, DATE, or TIME using the INSERT...LOCATION syntax of the INSERT statement.

Note The Adaptive Server Enterprise data type UNSIGNED SMALLINT is not supported by Sybase IQ INSERT...LOCATION on Linux 32-bit systems, but is supported by INSERT...LOCATION on all other Sybase IQ supported platforms.

The following additions document the support of these ASE data types with INSERT...LOCATION.

In Chapter 7, “Moving Data In and Out of Databases,” the third bullet under “Note the following” in the section “Unsupported Adaptive Server Enterprise data types” should now say:

- Sybase IQ does not support the Adaptive Server Enterprise data types TEXT or unsigned smallint, but you can insert data from an ASE database column of data type TEXT or unsigned smallint using the LOCATION syntax of the INSERT statement.

Add the following row to Table 7-14: Integer data types in Chapter 7, "Moving Data In and Out of Databases."

Adaptive Server Enterprise data type	Sybase IQ data type	Notes
unsigned smallint	Not supported	Sybase IQ does not support the Adaptive Server Enterprise data type unsigned smallint, but you can insert data from an ASE database column of data type unsigned smallint using INSERT...LOCATION.

Add the following row to Table 7-16: Character data types in Chapter 7, "Moving Data In and Out of Databases."

Adaptive Server Enterprise data type	Sybase IQ data type	Notes
nchar	Not supported	Sybase IQ does not support the Adaptive Server Enterprise data type nchar, but you can insert data from an ASE database column of data type nchar using INSERT...LOCATION to character type columns.
nvarchar	Not supported	Sybase IQ does not support the Adaptive Server Enterprise data type nvarchar, but you can insert data from an ASE database column of data type nvarchar using INSERT...LOCATION to character type columns.

Add the following rows to Table 7-18: DATE/TIME data types in Chapter 7, "Moving Data In and Out of Databases."

Adaptive Server Enterprise data type	Sybase IQ data type	Notes
date	date	You can insert data from an ASE database column of data type date using INSERT...LOCATION.

Adaptive Server Enterprise data type	Sybase IQ data type	Notes
time	time	The Sybase IQ data type is the Time of day, containing hour, minute, second, and fraction of a second. The fraction is stored to 6 decimal places. A time value requires 8 bytes of storage. The Adaptive Server Enterprise data type time is between 00:00:00:000 and 23:59:59:999. You can use either military time or 12AM for noon and 12PM for midnight. A time value must contain either a colon or the AM or PM signifier. AM or PM may be in either uppercase or lowercase. A time value requires 4 bytes of storage. You can insert data from an ASE database column of data type time using INSERT...LOCATION.

9.6.15 ASE data type XML not supported [CR 442348]

In the section "Unsupported Adaptive Server Enterprise data types" in Chapter 7, "Moving Data In and Out of Databases," the list of Adaptive Server Enterprise data types that are not supported by Sybase IQ in this version should include xml data type.

9.6.16 TIME to DATE conversion unsupported for INSERT and UPDATE [CR 442348]

In Table 7-8: "IQ conversions for INSERT and UPDATE" in Chapter 7, "Moving Data In and Out of Databases," the conversion in the row From: time To: dt (DATE data type) should be changed to "U" (unsupported) from "E" (explicit).

9.6.17 Dbspace creation and raw devices [CR 441162]

The following clarification was omitted from "Adding dbspaces" in Chapter 1, "Overview of Sybase IQ System Administration."

In the Create DBSpace wizard, on the Path screen, the raw device option is selected by default. Sybase recommends that you create main stores on raw devices.

When you specify a raw device for a new dbspace, Sybase IQ determines its size automatically and allocates the whole device for use as an IQ store. This may have unpredictable results if the device is actually a file device and Sybase does not recommend this practice.

If you indicate that the device is not raw, then the wizard enables a field where the size may be specified. The wizard also verifies that the given path exists before moving to the next page.

9.6.18 ESCAPE_CHARACTER option for system use only [CR 440545]

The ESCAPE_CHARACTER option is reserved for system use only. Do not change the setting of this option.

In Chapter 5, "Working with Database Options," the paragraph following Table 5-2 should not refer to the ESCAPE_CHARACTER option. The paragraph should say:

"On Windows systems, when you specify device names that include a backslash, you must double the backslash to keep the system from mistaking a backslash/letter combination for an escape sequence such as tab or newline command."

9.6.19 LOAD TABLE supports BCP files as input [CR 437332]

Sybase IQ 12.7 ESD #2 supports using a BCP character file as input to the LOAD TABLE command. For syntax and usage updates to the LOAD TABLE information in Chapter 7, "Moving Data In and Out of Databases" of the *Sybase IQ System Administration Guide*, see "LOAD TABLE supports BCP files as input [CR 437332]" on page 35.

The LOAD TABLE FORMAT BCP feature in Sybase IQ 12.7 ESD #2 eliminates the need for special handling of dates in Adaptive Server Enterprise BCP OUT files. The section "Ensuring accurate dates" in the section "Matching Adaptive Server Enterprise data types" in Chapter 7, "Moving Data In and Out of Databases" can be ignored and has been removed from the chapter for future releases.

9.6.20 Replacing a write server with intact files [CR 424433]

In the section "Replacing write servers," in Chapter 14, "Data Backup, Recovery, and Archiving," Step 2 in "Replacing a write server with intact files" should read as follows:

Use FTP or some other system facility to copy the write server's SYSTEM dbspace files (*dbname.db*, typically, is the only one) to the new write server's directory.

You must copy *dbname.db* to the query server directory that will be promoted. This cannot be a new directory and must be the query server directory. The file cannot be copied to any other directory. If the write server's database or log file has a name that is different from the query server's database or log file, then the name must be changed when it is copied over. For example:

```
cp /writesvr_dir/w1.db /querysvr_dir/q1.db
cp /writesvr_dir/w1.log /querysvr_dir/q1.log
```

9.6.21 Clarification on using ODBC data sources on UNIX [CR 422223]

In Chapter 3, "Sybase IQ Connections," the following correction applies to "Using ODBC data sources on UNIX."

After the statement "References to ODBC functions are resolved at run time," the section should read as follows:

To connect with ODBC data sources, the location of your *.odbc.ini* file must be referenced by the $ODBCINI or the $ODBCHOME variable. Sybase IQ searches the directories specified by the variables below in the following order:

1 *$ODBCINI* – must contain the exact full pathname of the *.odbc.ini* file.

2 *$ODBCHOME* – must be set to the directory that contains the *.odbc.ini* file.

9.6.22 WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]

Sybase IQ 12.7 ESD #3 provides support for WORD (WD) indexes on LONG VARCHAR character large object (CLOB) columns and support of the CONTAINS predicate on LONG VARCHAR (CLOB) columns with a WD index.

The following documentation updates will be made to Chapter 6, "Using Sybase IQ Indexes" for this feature.

- In the section "Overview of indexes," the bullet regarding the WD index in the section "Sybase IQ index types" will be changed to say:

  "WD Used to index keywords by treating the contents of a CHAR, VARCHAR, or LONG VARCHAR column as a delimited list."

- In the section "Choosing an index type," the following row will be added to Table 6-2 "Query type/index" in the section "Types of queries":

Type of Query Usage	Recommended Index Type
In a CONTAINS predicate	WD

- In the section “Choosing an index type,” the following phrase will be added to the third bullet regarding other factors in the section “Types of queries”:

  LONG VARCHAR data can only be used in the default and WD index types;

- In the section “Choosing an index type,” the following row will be added to Table 6-4 “Indexes supported for data types” in the section “Data types in the index”:

Data type	Supported indexes	Unsupported indexes
long varchar	WD	CMP, HG, HNG, LF, DATE, TIME, DTTM

- Several changes will be made to the section “The Containment (WD) index type” in the section “Sybase IQ index types.”
  - The description of the Containment (WD) index will include the LONG VARCHAR data type:

    “The Containment (WD) index allows you to store words from a column string of CHAR, VARCHAR, and LONG VARCHAR data.”

  - Three of the bullets in the “Recommended use” section will be modified as follows:
    - The column-name must identify a CHAR, VARCHAR, or LONG VARCHAR column in a base table.
    - The minimum permitted column width is 3 bytes and the maximum permitted column width is the maximum width for a LOB column. (The maximum length is equal to 4GB multiplied by the database page size.)
    - The sp_iqcheckdb (DBCC consistency checker) allocation, check, verify, and repair modes support the WD index on CHAR, VARCHAR, and LONG VARCHAR columns.
  - The third item in the Disadvantages column of Table 6-9 “WD advantages/disadvantages” will be changed to say:

    “Can only use this index if data in your columns is CHAR, VARCHAR, or LONG VARCHAR.”

9.6.23 JDBC and debugger documentation

Appendix B, “Data Access Using JDBC,” and Appendix C, “Debugging Logic in the Database,” have not been updated for version 12.7.

9.7 Reference Manual

This section contains updates to the *Sybase IQ Reference Manual*.

9.7.1 SELECT statements can operate on stored procedure result sets [CR 475130]

The following was omitted from the SELECT statement in Chapter "SQL Statements":

In SELECT statements, a stored procedure call can appear anywhere a base table or view is allowed. Note that CIS functional compensation performance considerations apply. For example, a SELECT statement can also return a result set from a procedure. For syntax and an example, see the FROM clause documentation in the *SQL Anywhere Server SQL Reference*.

9.7.2 sp_iqsysmon syntax correction [CR 474858]

In Chapter 10, "System Procedures," the sp_iqsysmon buffer manager report section abbreviation in the "Batch mode usage" section should be "bufman," not "bufnam." The correct sentence is:

"If you specify "mbufman tbufman" or "bufman", both the Main and Temporary Store buffer managers are monitored."

In Table 10-42 the abbreviation for Buffer manager should be "(m/t)bufman."

9.7.3 Change to sp_iqlocks output [CR 472791]

For Sybase IQ ESD #3, make the following changes to the Description column of table 10-32, "sp_iqlocks columns:"

- Add to the list of character strings: EW – exclusive and write, SW – share and write.
- Change to the list of character strings: S – share and exclusive.
- Change the first sentence of the second paragraph to "All locks listed have either S, E, EW, or SW. They may also have P, A, or both."
- Add the line "Sybase IQ obtains a share lock before a write lock. If a connection has exclusive lock, share lock is not displayed. For write locks, if a connection has all-exclusive, share, and write locks, EW is displayed, else SW."

9.7.4 Results returned in a case insensitive database [CR 472049]

In some cases, an optimization in Sybase IQ 12.7 causes the results of a comparison returned in a case insensitive database to be different from the results returned in previous releases of IQ. You cannot expect case sensitive results in a database that is case insensitive (CASE IGNORE). This has always been true for Sybase IQ.

To clarify the results expected from a case insensitive database, the information in the section “Results returned in a case insensitive database [CR 472049]” on page 45 will be added to the description of the CASE clause in the “Usage” section of the “CREATE DATABASE statement” section in Chapter 6, “SQL Statements.”

9.7.5 INSERT...LOCATION PACKETSIZE limitation for TDS [CR 470047]

When INSERT...LOCATION is transferring data between a Sybase IQ server and a remote Sybase IQ or Adaptive Server Anywhere server, the value of the INSERT...LOCATION TDS PACKETSIZE parameter is always equal to 512 bytes, even if you specify a different value for PACKETSIZE.

The following sentence will be added to the PACKETSIZE description in the “Usage” section of the “INSERT statement” section in Chapter 6, “SQL Statements”:

“When INSERT...LOCATION is transferring data between a Sybase IQ server and a remote Sybase IQ or Adaptive Server Anywhere server, the value of the INSERT...LOCATION TDS PACKETSIZE parameter is always equal to 512 bytes, even if you specify a different value for PACKETSIZE.”

9.7.6 Page size clarification [CR 468276]

Added the following statement to the end of the PAGE SIZE section under the CREATE DATABASE statement: “A larger page size might also be needed to execute queries involving large numbers of tables or views.”

This clarification will appear in the next release of the Sybase IQ documentation set.

9.7.7 CASE statement syntax correction [CR 467835]

The CASE statement syntax should end with END, not END CASE, as documented.

CASE *value-expression*
…WHEN [*constant* | NULL] THEN *statement-list* …
… [WHEN [*constant* | NULL] THEN *statement-list*] …
…ELSE *statement-list*
… END

This correction will appear in the next release of the Sybase IQ document set.

9.7.8 Added missing ALL syntax [CR 466582]

Syntax for the ALL condition was missing in the section, "Search conditions," topic "ALL or ANY conditions." The following syntax will appear in the next release of the Sybase IQ document set:

The syntax for ALL conditions is:

expression compare **ALL** (*subquery*)

where *compare* is a comparison operator.

9.7.9 LOCK TABLE access clarification [CR 463204]

The following information will be added to the "Usage" section of the "LOCK TABLE statement" section in Chapter 6, "SQL Statements":

LOCK TABLE statements run on tables in the IQ main store on the write server do not affect access to those tables from connections on query servers. For example:

On a write server connection, issue the command:

```
LOCK TABLE wrt1 WITH HOLD IN EXCLUSIVE MODE
```

sp_iqlocks on the write server confirms that the table wrt1 has an exclusive (E) lock.

The result of sp_iqlocks run on a connection on a query server does not show the exclusive lock on table wrt1. The user on this connection can see updates to table wrt1 on the write server.

Other connections on the write server can see the exclusive lock on wrt1 and attempting to select from table wrt1 from another connection on the write server returns the error `"User DBA has the row in wrt1 locked."`

9.7.10 SELECT statements missing a FROM clause [CR 462007]

This CR requests a note be added to the Sybase IQ documentation, which states that when constant values are in SELECT statements using UNION ALL views but omitting the FROM clause, use iq_dummy to avoid errors.

If you omit the FROM clause, or if all tables in the query are in the SYSTEM dbspace, Adaptive Server Anywhere processes the query, instead of Sybase IQ, and might behave differently, especially with regard to syntactic and semantic restrictions and the effects of option settings.

If you have a query that does not require a FROM clause, you can force Sybase IQ to process the query by adding the clause "FROM iq_dummy," where iq_dummy is a one-row, one-column table that you create in your database.

This information is already described in the Sybase IQ documentation. See the "Overview" section in Chapter 5, "SQL Functions" and the "FROM clause" section in Chapter 6, "SQL Statements."

9.7.11 LOCK TABLE support [CR 444921]

As of 12.7 ESD #3, the LOCK TABLE statement supports acquiring WRITE locks on a set of tables. The LOCK TABLE statement also allows enqueuing for READ, WRITE, and EXCLUSIVE locks for a specified time period. For updates to LOCK TABLE syntax and usage in Chapter 6, "SQL Statements," see "LOCK TABLE support [CR 480880, CR 472791, CR 463196, 444921]" on page 24.

9.7.12 Multiple dbspaces and sp_iqindexinfo [CR 471137]

The following sentence was omitted from the Function section for sp_iqindexinfo in Chapter 10, "System Procedures:"

If the object resides on several dbspaces, sp_iqindexinfo returns the space used in all dbspaces, as shown in the example.

9.7.13 Index limit correction [CR 471124]

Table 8-1 in Chapter 8, "Physical Limitations," shows a limit of 32,767 indexes per table. The correct limit is 2^32 (approximately 4,000,000) indexes per table.

Corrections to the *Sybase IQ Reference Manual* will be available in the next GA release.

9.7.14 Evaluation order of conditions with logical operator OR [CR 469968]

In the section "Conditions with logical operators" in Chapter 3, "SQL Language Elements," the description of combining conditions using OR will be changed as follows:

Conditions are combined using OR as follows:

condition1 **OR** *condition2*

The combined condition is TRUE if either condition is TRUE, FALSE if both conditions are FALSE, and UNKNOWN otherwise. There is no guaranteed order as to which condition, *condition1* or *condition2*, will be evaluated first.

9.7.15 GARRAY_FILL_FACTOR_PERCENT clarifications [CR 469543]

The function and description of the GARRAY_FILL_FACTOR_PERCENT option have been clarified in Sybase IQ 12.7 ESD #3. Corrections to the *Sybase IQ Reference Manual* will be available in the next GA release.

Function	Specifies the percent of space on each HG garray pages to reserve for future incremental inserts into existing groups.
Allowed values	0 – 1000
Default	25
Scope	DBA permissions are not required to set this option. Can be set temporary for an individual connection or for the PUBLIC group. Takes effect immediately.
Description	An HG index can reserve storage on a per-group basis (where group is defined as a group of rows with identical values). Reserving space consumes additional disk space but can help the performance of incremental inserts into the HG index. If future plans include incremental inserts into an HG index, and the new rows have values that are already present in the index, a nonzero value for the GARRAY_FILL_FACTOR_PERCENT option may improve incremental insert performance. If you do not plan to incrementally update the index, you can reduce this option to save disk space.

9.7.16 GARRAY_PAGE_SPLIT_PAD_PERCENT option [CR 469513]

This option was implemented in Sybase IQ 12.7 but not documented Corrections to the *Sybase IQ Reference Manual* will be available in the next GA release.

Function	Specifies the percent of space on each HG garray pages to reserve for future incremental inserts. This space can be used for rows added to both new and existing index groups.
Allowed values	0 – 1000
Default	25
Scope	DBA permissions are not required to set this option. Can be set temporary for an individual connection or for the PUBLIC group. Takes effect immediately.
Description	An HG index can reserve storage at the page level that can be allocated to new or existing groups when additional rows are inserted. Reserving space consumes additional disk space but can help the performance of incremental inserts into the HG index. If future plans include incremental inserts into an HG index, and the new rows have values that are already present in the index, a nonzero value for the GARRAY_PAGE_SPLIT_PAD_PERCENT option may improve incremental insert performance. If you do not plan to incrementally update the index, you can reduce this option to save disk space.

9.7.17 LOAD TABLE syntax missing ON PARTIAL INPUT ROW [CR 469027]

In Chapter 6, “SQL Statements,” the “Syntax” section of the “LOAD TABLE statement” section is missing the ON PARTIAL INPUT ROW parameter. The following line will be added to the LOAD TABLE syntax:

```
[ ON PARTIAL INPUT ROW { ROLLBACK | CONTINUE } ]
```

9.7.18 Files located relative to Catalog Store [CR 469000]

The information in the “Usage” section of the “CREATE DBSPACE statement” section in Chapter 6, “SQL Statements” contains incorrect information regarding the directory in which a dbspace is created, if an explicit directory is not specified.

The sentences “A filename without an explicit directory is created in the same directory as the initial dbspace of that store. Any relative directory is relative to that initial dbspace.” will be replaced with the following:

“A filename without an explicit directory is created in the same directory as the Catalog Store of the database. Any relative directory is relative to the Catalog Store.”

9.7.19 TOP_NSORT_CUTOFF_PAGES option [468580]

This option, added in 12.6 ESD #8, was not documented.

Function	Sets the result size threshold for TOP N algorithm selection.
Allowed values	1 – 1000
Default	1
Description	The TOP_NSORT_CUTOFF_PAGES option sets the threshold, measured in pages, where evaluation of a query that contains both a TOP clause and ORDER BY clause switches algorithms from ordered list-based processing to sort-based processing. Ordered list processing performs better in cases where the TOP N value is smaller than the number of result rows. Sort-based processing performs better for large TOP N values. In some cases, increasing TOP_NSORT_CUTOFF_PAGES can improve performance by avoiding sort-based processing.
See also	"SELECT Statement" in *Sybase IQ Reference Manual*.

9.7.20 Clarify TEMP_EXTRACT_DIRECTORY option [CR 468430]

The TEMP_EXTRACT_DIRECTORY option controls not only whether a user is allowed to use the data extraction facility but the directory into which temp extract files are placed. It can also override a directory path specified in the TEMP_EXTRACT_NAMEn options.

If the TEMP_EXTRACT_DIRECTORY option is set to the string FORBIDDEN (case insensitive) for a user, then that user is not allowed to perform data extracts. An attempt by this user to use the data extraction facility results in an error: "You do not have permission to perform Extracts".

If TEMP_EXTRACT_DIRECTORY is set to FORBIDDEN for the PUBLIC group, then no one can run data extraction.

If TEMP_EXTRACT_DIRECTORY is set to a valid directory path, temp extract files are placed in that directory, overriding a path specified in the TEMP_EXTRACT_NAMEn options.

If TEMP_EXTRACT_DIRECTORY is set to an invalid directory path, an error occurs: "Files does not exist File: <invalid path>"

If TEMP_EXTRACT_DIRECTORY is blank, then temp extract files are placed in directories according to their specification in TEMP_EXTRACT_NAMEn. If no path is specified as part of TEMP_EXTRACT_NAMEn, the extract files are by default placed in the server startup directory.

The Sybase IQ manuals will be updated to reflect these changes in the next GA release.

9.7.21 Incorrect value listed for ON_TSQL_ERROR [CR 467582]

An incorrect value was listed for the ON_TSQL_ERROR option in Chapter 2, “Database Options.” It should be CONTINUE, not CONDITION. This correction will appear in the next version of the documentation.

9.7.22 Determining version using sp_iqstatus output [CR 463635]

To display space that can be reclaimed by dropping connections, use sp_iqstatus and add the results from the two returned rows:

```
(DBA)> select * from sp_iqstatus() where name like
'%Versions:%'
Execution time: 6.25 seconds
Name                 Value
---------------------------
Other Versions: 2 = 1968Mb
Active Txn Versions: 1 = C:2175Mb/D:2850Mb

(First 2 rows)
```

The above example output shows that 1 active write transaction created 2175MB and destroyed 2850 MB of data. The total data consumed in transactions and not yet released is 4818MB, or 1968MB + 2850MB = 4818MB.

If sp_iqstatus shows a high percentage of main blocks in use on a multiplex server, run sp_iqversionuse to find out which versions are being used and the amount of space that can be recovered by releasing versions. See sp_iqversionuse in the *Sybase IQ Reference Manual*.

You can also display version information by using sp_iqtransaction to see total amount of MainTableKBCreated and MainTableKBDropped over transactions. See sp_iqtransaction in the *Sybase IQ Reference Manual* for details.

9.7.23 Correction to ASA NUMERIC data type default precision [CR 461147]

The default precision of Adaptive Server Anywhere NUMERIC and DECIMAL data types is incorrect in the “Compatibility” section of the “Numeric data types” section in Chapter 4, “SQL Data Types”. The default precision of the Adaptive Server Anywhere NUMERIC and DECIMAL data types is 30, not 3.

9.7.24 IDENTITY_INSERT option errors [CR 456339, CR 440042, CR 439496, CR 418760]

In Table 2-1, the VALUES column for the option IDENTITY_INSERT contains an error. The value *string* is followed by a single quotation mark where none should appear.

The following changes apply to Chapter 2, “Database Options.”

In the section “IDENTITY_INSERT option,” the final example should read:

To turn the option off, specify the equals sign and an empty string:

```
SET TEMPORARY OPTION IDENTITY_INSERT = "
```

The following note was omitted from the Scope section.

Note If you set a user level option for the current option, the corresponding temporary option is also set. For details, see “Scope and duration of database options” in Chapter 2, “Database Options.”

The following note was omitted from the Example section.

To illustrate the effect of user level options on temporary options (see note above), if you are connected to the database as DBA, and issue:

```
SET OPTION IDENTITY_INSERT = 'customer'
```

the value for the option is set to customer for the user DBA and temporary for the current connection. Other users who subsequently connect to the database as DBA find their option value for IDENTITY_INSERT is customer also.

9.7.25 Using correct syntax when creating stored procedures [CR 456307]

There are two ways to create stored procedures: T-SQL and SQL92. BEGIN TRANSACTION, for example, is T-SQL specific when using CREATE PROCEDURE syntax. Do not mix syntax when creating stored procedures.

9.7.26 Unique table names on a connection [CR 455684]

In Sybase IQ 12.7 ESD #3, an attempt to create a base table or a global temporary table will fail, if a local temporary table of the same name exists on that connection, as the new table cannot be uniquely identified by *owner.table*.

The information in the section “Unique table names on a connection [CR 455684]” on page 24 will be added to the following chapters and sections:

- In Chapter 6, “SQL Statements,” the “Usage” section in “DECLARE LOCAL TEMPORARY TABLE statement”
- In Chapter 6, “SQL Statements,” the “Usage” section in “CREATE TABLE statement”

9.7.27 UNION ALL view performance impacted by SORT DESC [CR 454910]

Certain optimizations, such as pushing a DISTINCT operator into a UNION ALL view, are not applied when the ORDER BY is DESC because the optimization that evaluates DISTINCT below a UNION does not apply to DESC order. For example, the following query would impact performance:

```
SELECT DISTINCT state FROM testVU ORDER BY state DESC;
```

To work around this performance issue, queries should have the DISTINCT operator evaluated before the ORDER BY, where the sort order is ASC and the optimization can be applied:

```
SELECT c.state FROM (SELECT DISTINCT state
   FROM testVUA) c
ORDER BY c.state DESC;
```

See “SELECT statement” in *Sybase IQ Reference Manual*.

9.7.28 INSERT...LOCATION supports 20MB large object (LOB) data [CR 453439]

Sybase IQ 12.7 ESD #3 increases the limit on the length of large object data (LOB) that can be retrieved from a remote database using INSERT...LOCATION from 32767 bytes to 20MB (20971520 bytes). In Chapter 6, “SQL Statements,” in the “Usage” section of the “INSERT statement” section, the last sentence in the paragraph describing inserting Adaptive Server Enterprise TEXT and IMAGE data should be changed, so that the paragraph says:

“Sybase IQ does not support the Adaptive Server Enterprise data type TEXT, but you can execute INSERT...LOCATION (Syntax 3) from both an IQ CHAR or VARCHAR column whose length is greater than 255 bytes, and from an ASE database column of data type TEXT. ASE TEXT and IMAGE columns can be inserted into columns of other Sybase IQ data types, if Sybase IQ supports the internal conversion. All data inserted is silently right truncated at 20971520 bytes.”

9.7.29 Approximate numeric data type clarification [CR 452284]

Replace the section “Approximate numeric data types” in Appendix A, “Compatibility with Other Databases” with the following section.

Approximate numeric data types

Adaptive Server Enterprise differs from Adaptive Server Anywhere and Sybase IQ in how the FLOAT(precision) data type is interpreted: that is, when to create a 4-byte data type and when to create an 8-byte data type. When a precision is not specified, the Adaptive Server Anywhere and Sybase IQ option FLOAT_AS_DOUBLE makes the FLOAT keyword behave like the Adaptive Server Enterprise FLOAT keyword.

For Adaptive Server Enterprise, the precision specified in FLOAT(precision) means decimal precision. For Adaptive Server Anywhere and Sybase IQ, precision is an integer expression that specifies the number of bits used in the mantissa of the floating point number.

For more information on the Sybase IQ FLOAT data type, see "Numeric data types" in Chapter 4, "SQL Data Types" of the *Sybase IQ Reference Manual*. For more information on the Sybase IQ FLOAT_AS_DOUBLE option, see "FLOAT_AS_DOUBLE option [TSQL]" in Chapter 2, "Database Options" of the *Sybase IQ Reference Manual*.

9.7.30 Implicit conversion between BIT and CHAR/VARCHAR data types supported [CR 451862]

Sybase IQ 12.7 ESD #2 supports implicit conversion between BIT and CHAR and BIT and VARCHAR data types for arithmetic, comparison, INSERT, and UPDATE operations. The following section will be added to the chapter "SQL Data Types" in the *Sybase IQ Reference Manual*.

Conversion between BIT and CHAR/VARCHAR data types

Sybase IQ supports implicit conversion between BIT and CHAR and BIT and VARCHAR data types for comparison operators, arithmetic operations, and INSERT and UPDATE statements.

BIT to CHAR, BIT to VARCHAR, CHAR to BIT, and VARCHAR to BIT conversion examples These examples illustrate both implicit and explicit conversions between BIT and CHAR and BIT and VARCHAR data types.

Given the following tables and data:

```
CREATE TABLE tchar(c1 CHAR(9))
CREATE TABLE tvarchar(c2 VARCHAR(9))
CREATE TABLE tbar(c2 BIT)
CREATE TABLE tbit(c2 BIT)

INSERT tbar VALUES(1)
INSERT tbar VALUES(0)
```

Implicit conversion of BIT to CHAR / CHAR to BIT and implicit conversion of BIT to CHAR:

```
INSERT tchar SELECT c2 FROM tbar
SELECT c1, char_length(c1) FROM tbar

c1,char_length(tchar.c1)
------------------------
'1',9
'0',9
```

Implicit conversion of CHAR to BIT:

```
INSERT tbit SELECT c1 FROM tchar
SELECT c2 FROM tbit

c2
--
true
false
```

Implicit conversion of BIT to VARCHAR / VARCHAR to BIT and implicit conversion of BIT to VARCHAR:

```
INSERT tvarchar SELECT c2 FROM tbar
SELECT c2, char_length(c2) FROM tvarchar

c2,char_length(tvarchar.c2)
---------------------------
'1',1
'0',1
```

Implicit conversion of VARCHAR to BIT:

```
INSERT tbit SELECT c2 FROM tvarchar
SELECT c2 FROM tbit

c2
--
true
false
```

Explicit conversion of BIT to CHAR / CHAR to BIT and explicit conversion of BIT to CHAR:

```
INSERT tchar SELECT CONVERT (CHAR(9), c2) FROM tbar
SELECT c1, char_length(c1) FROM tchar

c1,char_length(tchar.c1)
------------------------
'1',9
'0',9
```

Explicit conversion of CHAR to BIT:

```
INSERT tbit SELECT CONVERT (BIT, c1) FROM tchar
SELECT c2 FROM tbit

c2
--
true
false
```

Explicit conversion of BIT to VARCHAR / VARCHAR to BIT and explicit conversion of BIT to VARCHAR:

```
INSERT tvarchar SELECT CONVERT(VARCHAR(9), c2)
  FROM tbar
SELECT c2, char_length(c2) FROM tvarchar

c2,char_length(tvarchar.c2)
---------------------------
'1',1
'0',1
```

Explicit conversion of VARCHAR to BIT:

```
INSERT tbit SELECT CONVERT (BIT, c2) FROM tvarchar
SELECT c2 FROM tbit

c2
--
true
false
```

9.7.31 VARCHAR and trailing blanks correction [CR 451561, CR 450225]

Appendix A, "Compatibility with Other Sybase Databases" incorrectly states in the section "Character data types" that Adaptive Server Enterprise trims trailing blank spaces from VARCHAR values, but Sybase IQ does not. The correct statement is:

Adaptive Server Enterprise trims trailing blank spaces from VARCHAR values. Sybase IQ trims trailing blanks from VARCHAR values depending on the form of the data and the operation. For details, see "Character data types" in Chapter 4, "SQL Data Types."

The following information has been added to the section "Character data types" in Chapter 4, "SQL Data Types":

VARCHAR data and trailing blanks

Data inserted via INSERT, UPDATE, or LOAD TABLE can be in one of the following forms:

- Enclosed in quotes
- Not enclosed in quotes
- Binary

For a column of data type VARCHAR, trailing blanks within the data being inserted are handled as follows:

1 For data enclosed in quotes, trailing blanks are never trimmed.

2 Data not enclosed in quotes:

- Trailing blanks are always trimmed on insert and update.
- For a LOAD statement, you can use the STRIP ON/OFF LOAD option to specify whether to have the trailing blanks trimmed. The STRIP ON/OFF option applies only to variable-length non-binary data. For example, assume the following schema:

```
CREATE TABLE t( c1 VARCHAR(3) );
LOAD TABLE t( c1 ',' ) ... STRIP ON        // trailing blanks trimmed

LOAD TABLE t( c1 ',' ) ... STRIP OFF       // trailing blanks not trimmed

LOAD TABLE t( c1 ASCII(3) ) ... STRIP ON   // trailing blanks not trimmed
LOAD TABLE t( c1 ASCII(3) ) ... STRIP OFF  // trailing blanks trimmed

LOAD TABLE t( c1 BINARY ) ... STRIP ON     // trailing blanks trimmed
LOAD TABLE t( c1 BINARY ) ... STRIP OFF    // trailing blanks trimmed
```

3 For binary data, trailing blanks are always trimmed.

You should not depend on the existence of trailing blanks in VARCHAR columns, when you write your applications. If an application relies on trailing blanks, a CHAR column should be used instead of a VARCHAR column

9.7.32 sa_checkpoint_execute fails to copy .db and .log files [CR 450484]

When using sa_checkpoint_execute to copy *asiqdemo.** files to another directory, all files are copied except the *.db* and *.log* files. ASA error -910 is returned.

This error is not a product defect but a Windows limitation; the Windows copy command cannot copy catalog files while they are open by the database.

9.7.33 sa_checkpoint_execute revised example [CR 450192]

The example for the sa_checkpoint_execute system procedure has been revised as follows:

Assuming you have created a subdirectory named *backup*, the following statement issues a checkpoint, copies all of the asiqdemo database files to the backup subdirectory, and completes the checkpoint:

```
sa_checkpoint_execute 'cp asiqdemo.* backup/'
```

9.7.34 xp_cmdshell supported by Sybase IQ [CR 449977]

xp_cmdshell is a system extended procedure that allows a database server to execute external shell commands. This functionality was available in Sybase IQ 12.7 and prior versions.

For details, see *Adaptive Server Anywhere SQL Reference Manual* on the Sybase Infocenter at http://infocenter/help/index.jsp.

Note In Chapter 7 of *Adaptive Server Anywhere SQL Reference*, the section "System extended stored procedures" states that users must be granted EXECUTE permission or have DBA authority. Several of the subsequent procedures, however, show permissions listed as none, including xp_cmdshell.

xp_cmdshell requires DBA authority.

9.7.35 TOP range modification [CR 448015]

In Chapter 6, "SQL Statements," SELECT statement, the TOP range listed in "FIRST or TOP number-of-rows" has been modified. The range is 1–2147483647 (not 1-32767).

Also, removed a clause and sentence from the fourth paragraph in the same section: "except that the maximum number of rows returned for TOP is 32767. ROW_COUNT does not have an upper limit for the number of rows returned."

9.7.36 Corrections for new stored procedures permissions [CR 447961]

Several of the new 12.7 stored procedures have incorrect information for permissions in Chapter 10, "System Procedures." The correct permission information for each stored procedure is listed in the following table.

Procedure name	*Permissions*
sp_iqdatatype	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqevent	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqhelp	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqjoinindex	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqpkeys	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqprocedure	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqprocparm	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqshowpsexe	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqsysmon	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqversionuse	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.
sp_iqwho	DBA authority required. Users without DBA authority must be granted execute permission in order to run the stored procedure.

9.7.37 ALTER SERVER CONNECTION CLOSE syntax [CR 447958, CR 429434]

The syntax for the ALTER SERVER CONNECTION CLOSE clause was omitted from the *Sybase IQ Reference Manual*. The following information should be added to the "ALTER SERVER statement" section in Chapter 6, "SQL Statements."

- Add the following clause to the ALTER SERVER syntax:

  [CONNECTION CLOSE [CURRENT | ALL | *connection-id*]]

- Add the following examples to the “Examples” section:

  The following example closes all connections to the remote server named rem_test.

  ```
  ALTER SERVER rem_test
  CONNECTION CLOSE ALL
  ```

  The following example closes the connection to the remote server named rem_test that has the connection ID 142536.

  ```
  ALTER SERVER rem_test
  CONNECTION CLOSE 142536
  ```

- Add the following information to the “Usage” section:

  CONNECTION CLOSE clause When a user creates a connection to a remote server, the remote connection is not closed until the user disconnects from the local database. The CONNECTION CLOSE clause allows you to explicitly close connections to a remote server. You may find this useful when a remote connection becomes inactive or is no longer needed.

  The following SQL statements are equivalent and close the current connection to the remote server:

  ```
  ALTER SERVER server-name CONNECTION CLOSE
  ```

  ```
  ALTER SERVER server-name CONNECTION CLOSE CURRENT
  ```

  You can close both ODBC and JDBC connections to a remote server using this syntax. You do not need DBA authority to execute either of these statements.

  You can also disconnect a specific remote ODBC connection by specifying a connection ID, or disconnect all remote ODBC connections by specifying the ALL keyword. If you attempt to close a JDBC connection by specifying the connection ID or the ALL keyword, an error occurs. When the connection identified by *connection-id* is not the current local connection, the user must have DBA authority to be able to close the connection.

9.7.38 INFER_SUBQUERY_PREDICATES option default is ON [CR 447453]

The default value of the INFER_SUBQUERY_PREDICATES database option is ON in Sybase IQ 12.7. (This is a change from Sybase IQ version 12.6, in which the default value of this option is OFF.)

In Chapter 2, “Database Options,” the default value of INFER_SUBQUERY_PREDICATES in Table 2-1should be changed to ON.

In Chapter 2, “Database Options,” the default value of INFER_SUBQUERY_PREDICATES in the section “INFER_SUBQUERY_PREDICATES option” should be changed to ON.

9.7.39 Column heading inconsistent when calling sp_iqrelocate using isql vs. dbisql [CR 446968]

In ESD #2, the following procedures were modified to make their SELECT clause column headings consistent with the result clause column headings:

```
sp_iqcontext
    ConnOrCursor        char(22),
    ConnHandle          unsigned bigint,
    Name                varchar(255),
    Userid              varchar(255),
    numIQCursors        unsigned int,
    IQthreads           unsigned int,
    TxnID               unsigned bigint,
    ConnOrCurCreateTime datetime,
    IQconnID            unsigned bigint,
    IQGovernPriority    char(14),
    CmdLine             varchar(4096)

sp_iqdbspaceinfo
    DbspaceName         char(128),
    Object              varchar(128),
    MinBlk              unsigned bigint,
    MaxBlk              unsigned bigint,
    ObjSize             varchar(5),
    DbspaceSize         varchar(5)

sp_iq_process_post_login
    warning_text        varchar(255),
    warning_action      int

sp_iqindexadvice
    Advice              varchar(1024),
    NInst               unsigned bigint,
    LastDT              datetime
```

```
sp_iqindexinfo
    Object              varchar(128),
    DbspaceName         char(128),
    ObjSize             varchar(5),
    DBSpPct             smallint,
    MinBlk              unsigned bigint,
    MaxBlk              unsigned bigint

sp_iqrelocate
    Object              varchar(128),
    "Blocks Relocated"  bigint,
    Status              char(10)

sp_iqshowcompression
    Column              char(128),
    Compression         char(3)

sp_iqspaceinfo
    Name                varchar(128),
    NBlocks             unsigned bigint,
    DbspaceName         char(128)

sp_iqtransaction
    Name                varchar(256),
    Userid              varchar(256),
    TxnID               unsigned bigint,
    CmtID               unsigned bigint,
    VersionID           unsigned bigint,
    State               char(12),
    ConnHandle          unsigned bigint,
    IQConnID            unsigned bigint,
    MainTableKBCr       unsigned bigint,
    MainTableKBDr       unsigned bigint,
    TempTableKBCr       unsigned bigint,
    TempTableKBDr       unsigned bigint,
    TempWorkSpaceKB     unsigned bigint,
    TxnCreateTime       char(26),
    Dbremote            bit,
    CursorCount         unsigned bigint,
    SpCount             unsigned bigint,
    SpNumber            unsigned bigint
```

9.7.40 Updatable cursor text error [CR 446647]

The following paragraph was incorrectly included in the DECLARE CURSOR statement [ESQL] [SP] and has been removed for the next release:

This information should be added to "Updatable cursor limitations" in the "Usage" section for the DECLARE CURSOR statement description in the "SQL Statements" chapter.

9.7.41 LOAD TABLE FORMAT syntax correction [CR 445737]

In the section "LOAD TABLE statement" in Chapter 6, "SQL Statements," the syntax for the FORMAT option should not contain single quotes. The correct syntax is:

LOAD [**INTO**] **TABLE** [*owner*.]*table-name*
…(*load-specification* [, …])
…**FROM** { '*filename-string*' | *filename-variable* } [, …]
…[**CHECK CONSTRAINTS** { **ON** | **OFF** }]
…[**DEFAULTS** { **ON** | **OFF** }]
…**QUOTES OFF**
…**ESCAPES OFF**
…[**FORMAT** { **ascii** | **binary** }]
…

In the "Usage" section of the "LOAD TABLE statement" section, the fifth paragraph in the description of the QUOTES option should be replaced with the following paragraph, which does not have single quotes in the FORMAT option:

"The data extraction facility provides options for handling quotes (TEMP_EXTRACT_QUOTES, TEMP_EXTRACT_QUOTES_ALL, and TEMP_EXTRACT_QUOTE). If you plan to extract data to be loaded into an IQ table and the string fields contain column or row delimiter under default ASCII extraction, use the TEMP_EXTRACT_BINARY option for the extract and the FORMAT binary and QUOTES OFF options for LOAD TABLE."

9.7.42 Description of TDS in error [CR 443108]

In Chapter 2, "Database Options," the description for TDS is incorrect. The paragraph should read:

Connections to Sybase IQ can be made through the TDS (tabular data stream) protocol (Open Client and jConnect™ for JDBC™ connections) or through the Sybase IQ protocol (ODBC, Embedded SQL).

9.7.43 sp_iqclient_lookup procedure [CR 443012]

The sp_iqclient_lookup procedure was added in Sybase IQ 12.7 ESD #2.

Function

Allows a client application to determine the Sybase IQ user account responsible for a particular data stream, as observed in a network analyzer originating from a specific client IP address/port.

Syntax

sp_iqclient_lookup [*IPaddress*], [*Port*], [*UserID*]

Parameters

IPaddress Specifies the IP address of the originating client application

Port Specifies the port number of the originating client application

UserID Specifies the Sybase IQ user ID

Remarks

The sp_iqclient_lookup procedure takes the client IP address and port number and returns a single row containing Number (the connection ID), IPaddress, Port, and UserID.

```
1> sp_iqclient_lookup 158.76.235.71,3360
2> go

Number   IPaddress       Port    UserID
------   ---------       ----    ------
15       158.76.235.71   3360    rdeniro
```

An optional third argument can be passed to select just the UserID. If no arguments are passed then the procedure returns all current logins with their IP addresses and port numbers. For example:

```
sp_iqclient_lookup

Number   IPaddress         Port    UserID
------   ---------         ----    ------
11       162.66.131.36     2082    mbrando
21       162.66.100.233    1863    apacino
22       162.66.100.206    8080    jcaan
23       162.66.100.119    6901    rduvall
24       162.66.100.125    7001    dkeaton
25       162.66.100.124    6347    jcazale

(6 rows affected)
(return status = 0)
```

If a client application is not using TCP/IP or for internal connections, the address appears as 127.0.0.1.

Note This information is available for logged on users only. No historical login data is kept on the server for this purpose.

Permissions

DBA.

Side effects

The sp_iqclient_lookup stored procedure may impact server performance, which will vary from one installation to another. Finding the login name entails scanning through all current active connections on the server; therefore, the impact may be greater on servers with large numbers of connections. Furthermore this information cannot be cached as it is dynamic — sometimes highly dynamic. It is, therefore, a matter for the local system administrator to manage the use of this stored procedure, as well as monitor the effects on the server, just as for any other client application that uses server facilities.

Examples

Shows IP addresses for UserID jcazale:

```
sp_iqclient_lookup null, null, jcazale

Number   IPaddress         Port    UserID
------   ----------        ----    ------
11       162.66.131.36     2082    jcazale
15       164.66.131.36     1078    jcazale
```

Shows IP addresses from client IP 162.66.131.36:

```
sp_iqclient_lookup '162.66.131.36'

Number   IPaddress         Port    UserID
------   ----------        ----    ------
11       162.66.131.36     2082    jcazale
12       162.66.131.36     1078    jcaan
```

Note The result is empty when the user specifies an incorrect argument.

9.7.44 OFF not an option for CLOSE_ON_ENDTRANS [CR 444249]

In Chapter 6, “SQL Statements,” “Set statement [T-SQL],” OFF is not an option for CLOSE_ON_ENDTRANS and has been removed from table 6-14.

In the subsequent bulleted list, CLOSE_ON_ENDTRANS should read as follows:

SET CLOSE_ON_ENDTRANS { ON } When CLOSE_ON_ENDTRANS is set to ON (the default and only allowable value), cursors are closed at the end of a transaction. With the option set ON, CLOSE_ON_ENDTRANS provides Transact-SQL-compatible behavior.

9.7.45 ESCAPE_CHARACTER option for system use only [CR 440545]

The ESCAPE_CHARACTER option is reserved for system use only. Do not change the setting of this option.

Chapter 2, "Database Options" requires the following changes:

- Table 2-1: Remove the ESCAPE_CHARACTER option and its values.
- Table 2-3: Remove the value and default of the ESCAPE_CHARACTER option.
- Add the following sentence to the note that follows Table 2-3:

  The ESCAPE_CHARACTER option is reserved for system use only. Do not change the setting of this option.

9.7.46 Unowned LVC cells message clarification [CR 439550]

Three "LVC cells" messages were added to the output of sp_iqcheckdb in Sybase IQ 12.6 ESD #2, but descriptions were not included in the manuals. An example message:

```
sp_iqcheckdb 'check index index_name'
-----------------------------------
Index Statistics:
** Inconsistent Index:
kjws.KM02KRJ.ASIQ_IDX_T208_C504_FP ****** FP
Indexes Checked: 1
** Unowned LVC Cells: 212 ******
```

The sp_iqcheckdb messages include:

- Unowned LVC cells
- Duplicate LVC cell rows
- Unallocated LVC cell rows

These messages indicate inconsistencies with a VARCHAR or CLOB column. Unowned LVC cells represent a small amount of unusable disk space and can safely be ignored. Duplicate and Unallocated LVC cells are serious errors that can only be resolved by dropping the damaged columns.

To drop a damaged column, create a new column from a copy of the old column, then drop the original column and alter rename the new column to the old column.

Note LVC is a VARCHAR column with a width greater than 255. CLOB also uses LVC.

9.7.47 ALTER TABLE column-modification syntax [CR 438076]

In Chapter 6, "SQL Statements," the ALTER TABLE statement "Parameters" section should contain the following syntax:

column-modification:
SET DEFAULT *default-value*
| **DROP DEFAULT**
| **ADD** [**CONSTRAINT** *column-constraint-name*] **CHECK** (*condition*)
| { **DELETE** | **DROP** } **CONSTRAINT** *column-constraint-name*
| { **DELETE** | **DROP** } **CHECK**
| **SET COMPUTE** (*expression*)
| **DROP COMPUTE**

9.7.48 LOAD TABLE supports BCP files as input [CR 437332]

Sybase IQ 12.7 ESD #2 supports using a BCP character file as input to the LOAD TABLE command. For syntax and usage updates to the "LOAD TABLE statement" section in Chapter 6, "SQL Statements" of the *Sybase IQ Reference Manual*, see "LOAD TABLE supports BCP files as input [CR 437332]" on page 35.

9.7.49 Setting DBISQL options TEMPORARY [CR 435977]

In Chapter 2, "Database Options," Syntax 1 in the section "DBISQL options" should contain the keyword TEMPORARY:

SET [**TEMPORARY**] **OPTION**
... [*userid*. | **PUBLIC**.]*option-name* = [*option-value*]

Also the following sentence belongs at the beginning of the "DBISQL options" Description section:

"Syntax 1 with the TEMPORARY keyword cannot be used between the BEGIN and END keywords of a compound statement."

9.7.50 IQGovernPriority value of -1 [CR 435854]

In Chapter 10, "System Procedures," the complete description of the IQGovernPriority column in Table 10-6 of the sp_iqcontext stored procedure is:

"A value that indicates the order in which the queries of a user are queued for execution. In the range of allowed values, 1 indicates high priority, 2 (the default) medium priority, and 3 low priority. A value of -1 indicates that IQGovernPriority does not apply to the operation.This value is set per user with the database option IQGOVERN_PRIORITY. For details, see "Setting query priority" in Chapter 3, "Optimizing Queries and Deletions" of the *Sybase IQ Performance and Tuning Guide*."

9.7.51 NEWID() function in column default values [CR 435215]

In Chapter 5, "SQL Functions," the last sentence in the "Usage" section of the section "NEWID function [Miscellaneous]" should be replaced with the sentence:

"You can use a value generated by the NEWID function as a column default value in a Sybase IQ table."

This change is a Sybase IQ 12.7 ESD #1 enhancement.

9.7.52 INSERT … LOCATION example correction [CR 432896]

In Chapter 6, "SQL Statements," replace the third example in the "Examples" section of the "INSERT statement" section with the following example:

- Inserts data from the l_shipdate and l_orderkey columns of the lineitem table from the Sybase IQ database asiqdet on the remote server detroit into the corresponding columns of the lineitem table in the current database:

```
INSERT INTO lineitem
    (l_shipdate, l_orderkey)
    LOCATION 'detroit.asiqdet'
    PACKETSIZE 512
    ' SELECT l_shipdate, l_orderkey
FROM lineitem '
```

9.7.53 INSERT … LOCATION statement clarification [CR 432896]

In Chapter 6, "SQL Statements," replace the first three paragraphs of the Syntax 3 description in the "Usage" section of the "INSERT statement" section with the following four paragraphs:

"Syntax 3 INSERT...LOCATION is a variation of Syntax 2 that allows you to insert data from an Adaptive Server Enterprise or Sybase IQ database. The *servername.dbname* specified in the LOCATION clause identifies the remote server and database for the table in the FROM clause. To use Syntax 3, the Adaptive Server Enterprise or Sybase IQ remote server to which you are connecting must exist in the Sybase Open Client *interfaces* or *sql.ini* file on the local machine.

The following Open Client restrictions apply to queries using Syntax 3: You can insert a maximum of 2147483647 rows.

The SELECT statement can be delimited by either curly braces or straight single quotation marks. (Curly braces represent the start and end of an escape sequence in the ODBC standard, and might generate errors in the context of ODBC.)

The local Sybase IQ server connects to the server and database you specify in the LOCATION clause. The results from the queries on the remote tables are returned and the local server inserts the results in the current database. If you do not specify a server name in the LOCATION clause, Sybase IQ ignores any database name you specify, since the only choice is the current database on the local server."

9.7.54 Message log wrapping enabled automatically [CR 431841]

The second paragraph of the description in "IQMSG_LENGTH_MB option" in Chapter 2, "Database Options" should read as follows:

Initially, message log wrapping is disabled (IQMSG_LENGTH_MB is 0); messages are always appended to the end of the file, and the file continues to grow. If the disk fills, Sybase IQ enables log wrapping automatically.

9.7.55 More information on LOAD_MEMORY_MB [CR 426783]

The amount of virtual memory used by load command is a function of the total number of bytes (as defined by the table schema) for all columns being loaded. For example, consider the following schema:

```
CREATE table xx(c1 integer, c2 varchar(300), c2 double)
```

The total number of bytes is 312:

```
integer       4 bytes
varchar(300)  300 bytes
double        8 bytes
----------------------
total         312 bytes
```

Using this example, the load would require approximately 140MB:

```
312 * 45 * 10000 => 140MB
```

The amount of virtual memory used can become quite large if many columns (such as in a very wide table) are loaded at once. The wider the table, the more the load memory. The more users doing loads, the more heap/load memory is allocated outside IQ.

There are several courses of action you can take if you encounter the following error:

```
"All available virtual memory has been used ..."
```

You can set an upper limit on the amount of virtual memory a LOAD command can use by setting LOAD_MEMORY_MB to a non-zero value, with 2000MB the maximum allowed value.

You can also adjust BLOCK FACTOR or BLOCK SIZE LOAD command options. These command options default to 10000 and 500000, respectively, but you can set them to any number. Setting them lower forces the load to use less virtual memory.

You can also resort to loading a subset of the columns at a time, which is referred to as a partial-width load.

9.7.56 Subquery support in CREATE VIEW statement [CR 426715]

In Chapter 6, “SQL Statements,” the CREATE VIEW statement omits a subquery restriction. In the “Usage” section, the AS option should read as follows:

AS The SELECT statement on which the view is based must not contain an ORDER BY clause, a subquery in the SELECT list, or a TOP or FIRST qualification. It may have a GROUP BY clause and may be a UNION.

9.7.57 Result data type of a REPLACE function [CR 417507]

In Chapter 5, “SQL Functions,” the REPLACE function included a new Usage section as follows:

The result data type of a REPLACE function is a LONG VARCHAR. If you use REPLACE in a SELECT INTO statement, you must have a Large Objects Management option license or use CAST and set REPLACE to the correct data type and size.

There are two ways to work around this issue:

- Declare a local temporary table and then do an INSERT:

```
DECLARE local temporary table #mytable
    (name_column char(10)) on commit preserve rows;
INSERT INTO #mytable SELECT REPLACE(name,'0','1')
    FROM dummy_table01;
```

- Use CAST:

```
SELECT CAST(replace(name, '0', '1') AS Char(10))
into #mytable from dummy_table01;
```

In ESD #1, this usage also applies to the CONVERT function and string concatenation operators.

The result data type of an AES_ENCRYPT function may be a LONG VARBINARY. If you use AES_ENCRYPT in a SELECT INTO statement, you must have a Large Objects Management option license or use CAST and set AES_ENCRYPT to the correct data type and size.

9.7.58 WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]

Sybase IQ 12.7 ESD #3 provides support for WORD (WD) indexes on LONG VARCHAR character large object (CLOB) columns and support of the CONTAINS predicate on LONG VARCHAR (CLOB) columns with a WD index.

The following sentence will be added to the “Description” section of the “sp_iqrebuildindex procedure” section in Chapter 10, “System Procedures”:

“sp_iqrebuildindex will rebuild a WD index on a column of data type LONG VARCHAR (CLOB).”

The first sentence following the syntax in the “CONTAINS conditions” section in the “Search conditions” section in Chapter 3, “SQL Language Elements” will be changed to say:

“The *column-name* must be either a CHAR, VARCHAR, or LONG VARCHAR (CLOB) column in a base table and must have a WD index.”

The following sentence will be added to the “Data types” section under “Notes” in the “CREATE INDEX statement” section in Chapter 6, “SQL Statements”:

Only the default and WD index types can be created on LONG VARCHAR data.

9.7.59 New database option WD_DELETE_METHOD [CR 415547]

Sybase IQ 12.7 ESD #3 provides the ability to specify the algorithm used during a delete operation from a WD index using the new database option WD_DELETE_METHOD. The description of the new option will be added to Chapter 2, “Database Options.” See “New database option WD_DELETE_METHOD [CR 415547]” on page 48 for details.

9.7.60 Views and procedures not supported by sp_iqrename [CR 408049]

The sp_iqrename procedure does not support renaming views or procedures.

9.7.61 ASE_BINARY_DISPLAY option setting incorrect

In Chapter 2, “Database Options,” the setting for the ASE_BINARY_DISPLAY option is incorrect. The default setting for the option is OFF.

9.7.62 ENABLE_THREAD_ALLOWANCE option setting incorrect

The default setting for the ENABLE_THREAD_ALLOWANCE option is incorrect in Chapter 2, “Database Options.” The default setting is ON.

9.7.63 INSERT … LOCATION syntax error

An error appears in the INSERT statement in Chapter 6, “SQL Statements.”

Braces should appear in the example, as follows:

```
INSERT INTO foo
LOCATION 'ase.database'
QUOTED_IDENTIFIER ON {select "c1" from xxx};
```

9.7.64 UUIDTOSTR function syntax correction

In Chapter 5, “SQL Functions,” the syntax of the UUIDTOSTR function should be changed to:

UUIDTOSTR (*uuid-expression*)

9.7.65 NEWID, STRTOUID, and UUIDTOSTR are native IQ functions

In Appendix A, “Compatibility with Other Sybase Databases,” the last bullet in the section “SQL functions” should be:

- Adaptive Server Anywhere supports the NEWID, STRTOUID, and UUIDTOSTR functions; Adaptive Server Enterprise does not. These are native functions in Sybase IQ, so CIS functional compensation performance considerations do not apply.

9.7.66 IQ_USER_LOGIN_INFO_TABLE system table column descriptions

In Chapter 9, “System Tables,” the IQ_USER_LOGIN_INFO_TABLE system table column descriptions should be changed as follows:

- Remove the description of the column password_warning_days.
- Add the description:
  password_created Date and time of password creation.

9.8 Introduction to Sybase IQ

This section contains updates to *Introduction to Sybase IQ*.

9.8.1 WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]

Sybase IQ 12.7 ESD #3 provides support for WORD (WD) indexes on LONG VARCHAR character large object (CLOB) columns and support of the CONTAINS predicate on LONG VARCHAR (CLOB) columns with a WD index.

Table 5-1 “Sybase IQ column index types” in Chapter 5, “Indexing and Loading Data” will be modified, so that the Purpose column for the WD index says:

“Used to index keywords by treating the contents of a CHAR, VARCHAR, or LONG VARCHAR column as a delimited list.”

9.9 Installation and Configuration Guide

For updates about installation and migration, including database upgrades, see “Special installation and migration instructions” on page 11.

9.10 Large Objects Management in Sybase IQ

This section contains updates to *Large Objects Management in Sybase IQ*.

9.10.1 INSERT...LOCATION supports 20MB large object (LOB) data [CR 453439]

Sybase IQ 12.7 ESD #3 increases the limit on the length of large object data (LOB) that can be retrieved from a remote database using INSERT...LOCATION from 32767 bytes to 20MB (20971520 bytes).

In Chapter 2, "Binary Large Object (BLOB) data," in the section "Large Object data types LONG BINARY and BLOB," the paragraph that describes inserting Adaptive Server Enterprise IMAGE data should be changed to say:

"An Adaptive Server Enterprise IMAGE column can be inserted into a LONG BINARY column using the INSERT...LOCATION command. All IMAGE data inserted is silently right truncated at 20971520 bytes."

In Chapter 3, "Character Large Object (CLOB) data," in the section "Large Object data types LONG VARCHAR and CLOB," the paragraph that describes inserting Adaptive Server Enterprise TEXT data should be changed to say:

"An Adaptive Server Enterprise TEXT column can be inserted into a LONG VARCHAR column using the INSERT...LOCATION command. All TEXT data inserted is silently right truncated at 20971520 bytes."

9.10.2 LOAD TABLE FORMAT syntax correction [CR 445737]

In the section "Loading large object data" in Chapter 6, "Moving Large Object Data," the syntax for the FORMAT option of the LOAD TABLE statement should not contain single quotes. The correct syntax is:

LOAD [**INTO**] **TABLE** [*owner*.]*table-name*
… (*column-name load-column-specification* [, …])
... **FROM** '*filename-string*' [, ...]
…[**QUOTES** { **ON** | **OFF** }]
…**ESCAPES OFF**
…[**FORMAT** { **ascii** | **binary** }]
…[**DELIMITED BY** '*string*']
…

9.10.3 LOAD TABLE supports BCP files as input [CR 437332]

Sybase IQ 12.7 ESD #2 supports using a BCP character file as input to the LOAD TABLE command. For syntax and usage updates to the LOAD TABLE information in Chapter 6, "Moving Large Object Data" of the *Large Objects Management in Sybase IQ*, see "LOAD TABLE supports BCP files as input [CR 437332]" on page 35.

For LOAD TABLE FORMAT BCP, the load specification may contain only column names, NULL, and ENCRYPTED. This means that you cannot use secondary files when loading LONG BINARY and LONG VARCHAR columns using the LOAD TABLE FORMAT BCP option.

9.10.4 WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]

Sybase IQ 12.7 ESD #3 provides support for WORD (WD) indexes on LONG VARCHAR character large object (CLOB) columns and support of the CONTAINS predicate on LONG VARCHAR (CLOB) columns with a WD index.

The paragraph describing index usage in the "Large Object data types LONG VARCHAR and CLOB" section in Chapter 3, "Character Large Object (CLOB) data" will be replaced with the following paragraph:

"A WORD (WD) index can be created on a LONG VARCHAR column. Other non-FP index types and join indexes cannot be constructed on a LONG VARCHAR column."

9.10.5 LIKE predicate for character large object (CLOB) columns [CR 415546]

Sybase IQ 12.7 ESD #3 includes support of the LIKE predicate on LONG VARCHAR (CLOB) columns.

The following sentence will be added to the section "LONG VARCHAR columns in queries" in Chapter 3, "Character Large Object (CLOB) data":

"You can use the LIKE predicate to search for a pattern on a LONG VARCHAR column. All patterns of 126 characters or less are supported. Patterns of length greater than 254 characters are not supported. Some patterns of length between 127 and 254 characters are supported, depending on the contents of the pattern."

The following paragraph will be added to the section "LONG BINARY columns in queries" in Chapter 2, "Binary Large Object (BLOB) data":

"LIKE predicates are not supported on LONG BINARY (BLOB) columns. If you attempt to search for a pattern in a LONG BINARY column using a LIKE predicate, the error `"Invalid data type comparison in predicate..."` is returned."

The following error will be added to Chapter 8, "Error and Warning Messages":

Error 1001013

Message text

Invalid data type comparison %1

Item	Value
SQLCode	-1001013L
Constant	EMSG_TYPECOMPAREERROR
SQLState	QFA13
ODBC 2 State	ERROR
ODBC 3 State	ERROR
Sybase Error Code	20522
Severity Code	14
Parameter 1	location of the exception

Probable cause

This error is reported if you attempt to search for a pattern in a LONG BINARY column using a LIKE predicate. LIKE predicates are not supported on LONG BINARY (BLOB) columns.

9.10.6 String search functions for large object columns [CR 415543]

Sybase IQ 12.7 ESD #3 provides string search capabilities on large objects. Sybase IQ now includes support of string search functions for LONG VARCHAR (CLOB) and LONG BINARY (BLOB) data. The string search functions CHARINDEX and LOCATE have been enhanced to allow a LONG VARCHAR or a LONG BINARY column as the argument for the string expression to be searched and now return a 64 bit value for the position of the string in the LONG VARCHAR or LONG BINARY column.

The PATINDEX function has been enhanced to allow a LONG VARCHAR column as the argument for the string expression to be searched and now returns a 64 bit value for the position of the string in the LONG VARCHAR column.

For the descriptions of the enhanced string search functions that will be added to Chapter 4, "Function Support" of *Large Objects Management in Sybase IQ*, see "LOAD TABLE supports BCP files as input [CR 437332]" on page 35.

The first sentence in the section “LONG BINARY columns in queries” in Chapter 2, “Binary Large Object (BLOB) data” will be modified to say:

“In WHERE clauses of the SELECT statement, LONG BINARY columns can only be used in IS NULL and IS NOT NULL expressions, in addition to the BYTE_LENGTH64, BYTE_SUBSTR64, BYTE_SUBSTR, BIT_LENGTH, OCTET_LENGTH, CHARINDEX, and LOCATE functions.”

The first sentence in the section “LONG VARCHAR columns in queries” in Chapter 3, “Character Large Object (CLOB) data” will be modified to say:

“In WHERE clauses of the SELECT statement, LONG VARCHAR columns can only be used in IS NULL and IS NOT NULL expressions, in addition to the BIT_LENGTH, OCTET_LENGTH, CHAR_LENGTH, CHAR_LENGTH64, SUBSTRING64, SUBSTRING, CHARINDEX, LOCATE, and PATINDEX functions.”

9.11 Troubleshooting and Recovery Guide

This section contains updates to the *Sybase IQ Troubleshooting and Recovery Guide*.

9.11.1 Multiplex and single-node modes [CR 330391]

The following information replaces the section titled “Single-node mode” in the section “Recovering multiplex databases” in Chapter 2, “System Recovery and Database Repair.”

In multiplex mode, query servers continue to run while the write server issues DDL operations. The table version log (TLV log) stores information about DDL operations and communicates information about new table versions to the query servers. The write server preserves older table versions for as long as needed.

In single-node mode, no version logging takes place. Query servers shut down automatically and must be synchronized to restart.

The -iqmpx_sn 1 server start-up option starts the server in single-node mode. For syntax, see Chapter 1, “Running the Database Server” in *Sybase IQ Utility Guide*.

Warning! You must specify the override start-up switch (-iqmpx_ov 1) and start in single-node mode (-iqmpx_sn 1) when starting a multiplex write server after any failure. Never use multiplex mode (the default) for recovery.

If a server runs out of space during a checkpoint operation, try restarting in single-node mode. For example, if a server ran out of space and was killed, it could precipitate a rare situation where normal recovery failed. Suppose that many versions were created at the server and they were all retained because the query server used an older version or there was a dbremote delay. If the write server had too many recovered transactions to checkpoint, it could run out of space during the recovery checkpoint. Subsequently, users could not connect or add dbspaces. Starting in single-node mode deallocates retained versions and allows checkpoints to succeed.

In order to resume multiplex operations, you must stop the write server, restart it in multiplex mode, and synchronize the query servers. For details, see "Synchronizing query servers" and "Using scripts to synchronize servers" in Chapter 5, "Working with Database Objects," in the *Sybase IQ System Administration Guide*.

9.12 Utility Guide

This section contains updates to the *Sybase IQ Utility Guide*.

9.12.1 Backing up the transaction log during database use [CR 477499]

The second example in "Backup utility (dbbackup)" in Chapter 3, "Database Administration Utilities," in the *Sybase IQ Utility Guide* is incorrect. Please replace it with the following example.

The following example truncates the log of a live server, renames the old log prior to truncation, and creates a exact copy of the log in the target directory:

```
dbbackup -t -r -o dbbackup.out -c
"eng=taj_asiqdemo;dbn=asiqdemo;uid=DBA;pwd=SQL"
logbackup
```

9.12.2 Maximum Catalog page size clarification [CR 468276]

The section on "Server command-line switches" instructs users to set the maximum Catalog page size to 4MB. This is incorrect. It should instruct users to set the maximum Catalog page size to 4096 bytes.

In the description of the -gp parameter, the sentence "Sybase highly recommends that you set the -gp switch to 4096" has been changed to "Sybase highly recommends that you set the -gp switch to at least 4096."

These corrections will appear in the next release of the Sybase IQ documentation set.

9.12.3 Correction to -iqlocalreplay server switch description [CR 464167]

In Chapter 1, “Running the Database Server,” the iqlocalreplay server switch description in the section “Starting the database server” contains errors. The last sentence should read, “IQ tables and user-defined data types must always be enabled for replay.”

The description of -iqlocalreplay none should read “No actions that affect grants, procedures or views are replayed.”

The following was omitted from the description of -iqlocalreplay userandpwd:

The userandpwd value must be used with the keyword all or grants to take effect. For example, set `-iqlocalreplay "all+userandpwd"` for the log to replay all DDL commands and actions for userandpwd. Set `-iqlocalreplay "grants+userandpwd"` for the log to replay GRANT and REVOKE commands and actions for userandpwd.

9.12.4 Correction to value of -iqro server switch [CR 461571]

In Chapter 1, “Running the Database Server,” the value of the -iqro server switch is incorrect in the section “Starting the database server.” The correct value is -iqro 1.

9.12.5 No master database in iq_bcp [CR 447965]

In Chapter 3, “Database Administration Utilities,” section “Bulk Copy utility (iq_bcp),” database_name in “Options” contains an error. It should read as follows:

database_name Is optional if the table being copied is in your default database. Otherwise, you must specify a database name.

The words, “or in master,” have been removed from the first sentence.

9.12.6 Using ping utility to test connection [CR 463766]

In the Chapter 3 section “Ping utility (dbping)”, the following information should be appended to the description of the Load specified library (-l) option.

You can use dbping to verify connectivity with the ODBC Driver Manager on UNIX systems. Unlike dbisql or other tools, dbping allows you to explicitly test the components as you would with a third-party tool. For example:

```
dbping -m -c "dsn=dsnname" -l /full/path/to/libodbc.so
```

where *libodbc.so* is the third-party tool's ODBC driver.

Note This CR was formerly listed as 442804.

9.12.7 Ping utility is threaded [CR 442796]

Chapter 3, "Database Administration Utilities," contains an error in the section "Ping utility (dbping)." The statement that you must use *dbping_r* in order to use a threaded connection library on UNIX is incorrect. The dbping utility is threaded by default, and *dbping_r* is not required or installed by Sybase IQ.

9.12.8 LOAD TABLE supports BCP files as input [CR 437332]

Add the following note to the description of the iq_bcp utility in the section "Bulk Copy utility (iq_bcp)" in Chapter 3, "Database Administration Utilities" of the *Sybase IQ Utility Guide*:

Note The LOAD TABLE FORMAT BCP feature is an alternative to the iq_bcp in utility and will perform better than iq_bcp in all cases. For more information on LOAD TABLE FORMAT BCP, see "LOAD TABLE statement" in Chapter 1, "SQL Statements" of *Reference: Statements and Options.*

9.12.9 Effect of start_asiq -ti on connection to local server using shared memory [CR 422369]

The start_asiq -ti server switch, which specifies the client idle time before shutdown, has no effect on connections to a local server using shared memory.

This information will be added to the -ti switch description in Chapter 1, "Running the Database Server" section "Starting the database server" under "Usage."

9.12.10 Loading a NULL value into VARCHAR using iq_bcp

The following information will be added to the "Constraints" section of the "Bulk Copy utility (iq_bcp)" section in Chapter 3, "Database Administration Utilities":

"If you load a NULL value into a VARCHAR column that does not accept NULL values, iq_bcp transforms the NULL into a ". This transformation is consistent with Adaptive Server Enterprise behavior."

9.13 Performance and Tuning Guide

This section contains updates to the *Sybase IQ Performance and Tuning Guide*.

9.13.1 Incorrect function listed in OLAP chapter [CR 479239]

Table 4-3, incorrectly lists LENGTH (*string-expression*) where it should list LN (*numeric-expression*).

The corrections will appear in the next release of the Sybase IQ documentation.

9.13.2 Corrections to OLAP chapter [CR 447363]

Chapter 4 “Using OLAP,” contains documentation errors, which are corrected in the next version of the *Sybase IQ Performance and Tuning Guide*:

- In “Windowing” under “Analytic functions,” the following syntax is repeated in two locations:

  ```
  OLAP_FUNCTION() OVER (PARTITION BY col1, col2...)
  ```

  The redundant paragraph and syntax will be removed in the next version.
- In “An OLAP window’s three essential parts,” the first line of the syntax contains a repeated word, WINDOW, in the window definition list. The second instance will be removed in the next version.
- In “Ascending and descending order for value-based frames” the syntax is incorrect and should be ordered by DESC instead of ASC. The corrected syntax should read as follows:

  ```
  ORDER BY year DESC range BETWEEN CURRENT ROW and 1
  FOLLOWING
  ```
- In “Windowing aggregate functions,” “Windowing aggregate example 1” contains two errors. Column head Year should be Y, and the dates in the discussion output should match the syntax; 1993 should be 2000 and 1994 should be 2001.
- In “Windowing aggregate functions,” “Windowing aggregate example 2” contains incorrect column headings. Employee should say E_name and Salary should say Sal.

9.13.3 Restricting concurrent queries with -iqgovern [CR 432651]

In Chapter 5, “Managing System Resources,” the description for -iqgovern under “Restricting concurrent queries,” is incorrect. It has been corrected in the next version of the manual to read as follows:

The -iqgovern switch lets you specify the number of concurrent queries on a particular server. This is not the same as the number of connections, which is controlled by your license. By specifying the -iqgovern switch, you can help IQ optimize paging of buffer data out to disk, and avoid overcommitting memory. The default value of -iqgovern is (2 x the number of CPUs) + 10. You may need to experiment to find an ideal value. For sites with large numbers of active connections, try setting -iqgovern slightly lower.

9.13.4 Estimating temporary cache size [CR 425940]

The following was omitted from “Managing buffer caches” in Chapter 5, “Managing System Resources” in the *Sybase IQ Performance and Tuning Guide*.

For guidelines about estimating temporary cache size, see the Hardware Sizing Guide for Sybase IQ 12.6 and 12.7 at http://www.sybase.com/detail?id=1050862. This technical white paper describes the relationship between hardware configuration and Sybase IQ memory management.

9.13.5 New database option WD_DELETE_METHOD [CR 415547]

The following section will be added to “Optimizing delete operations” in Chapter 3, “Optimizing Queries and Deletions” to supplement the information on the WD_DELETE_METHOD database option introduced in Sybase IQ 12.7 ESD #3.

For more information on the WD_DELETE_METHOD database option, see “New database option WD_DELETE_METHOD [CR 415547]” on page 48.

WD delete operations

Sybase IQ chooses one of three algorithms to process delete operations on columns with a WD (Word) index:

- **Small delete** Small delete for WD provides optimal performance when the rows deleted contain few distinct words, so that not many WD pages need to be visited. The WD small delete algorithm performs an ordered access to the WD. Worst case I/O is bounded by the number of index pages. Small delete incorporates the cost of sorting the words and record IDs in the records to delete.
- **Mid delete** Mid delete for WD is a variation of WD small delete, and is useful under the same conditions as small delete, that is, when the rows deleted contain few distinct words. Mid delete for WD sorts only words in the records to delete. This sort is parallel, with parallelism limited by the number of words and CPU threads available. For Word index, the mid delete method is generally faster than small delete.
- **Large delete** Large delete for WD provides optimal performance when the rows deleted contain a large number of distinct words, and therefore need to visit a large number of "groups" in the index. The large delete scans the WD in order, until all rows are deleted. Worst case I/O is bounded by the number of index pages. Large delete is parallel, but parallelism is limited by the internal structure of the index and the distribution of groups from which to delete.

WD delete costing

The WD delete cost model considers many factors including I/O costs, CPU costs, available resources, index metadata, and parallelism.

You can use the WD_DELETE_METHOD database option to control WD delete performance.

Using WD delete performance option

The value of the parameter specified with the WD_DELETE_METHOD option forces the use of the specified delete algorithm as follows:

- 0 = Mid or large delete as selected by the cost model
- 1 = Small delete
- 2 = Large delete
- 3 = Mid delete

9.14 IQ plug-in for Sybase Central

This section contains updates to the IQ plug-in for Sybase Central.

9.14.1 WORD index and CONTAINS predicate support for character large object (CLOB) columns [CR 415547]

Sybase IQ 12.7 ESD #3 provides support for WORD (WD) indexes on LONG VARCHAR character large object (CLOB) columns and support of the CONTAINS predicate on LONG VARCHAR (CLOB) columns with a WD index.

The table “Sybase IQ column index types” in Lesson 5 in the Sybase Central tutorial and in the “Managing indexes” topic will be modified, so that the Purpose column for the WD index says:

“Used to index keywords by treating the contents of a CHAR, VARCHAR, or LONG VARCHAR column as a delimited list.”

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.

Before you contact Technical Support

Technical Support needs information about your environment to resolve your problem. Before contacting Technical Support, run the getiqinfo script to collect as much information as possible automatically. You may also need to collect some information manually. Providing this information helps expedite the resolution of your problem.

In the following list, * indicates items collected by getiqinfo:

- Type of hardware, amount of memory, number of CPUs*
- Operating system and version (for example, Red Hat Linux 2.4.9-e.40smp)*
- Operating system patch level*
- Front-end tool used (for example, Brio Query)
- Connectivity protocol used (for example, ODBC, JDBC, TDS)
- Open Client version
- Configuration type (single user or multiuser)
- Message log file* (*very important*)

  Named *dbname.iqmsg*, located by default in the directory where you started the database server

- Stack trace file for the date and time this problem occurred

  Named *stktrc-YYYYMMDD-HHMMSS_#.iq*, located in the directory where you started the database server*
- Command or query that produced the error
- Query plan* (recorded in *.iqmsg* file)

Note The query plan is collected automatically by getiqinfo. If you collect information manually, you must type the following commands and then rerun the command that produced the error:

```
SET TEMPORARY OPTION Query_Plan = 'ON'
SET TEMPORARY OPTION Query_Detail = 'ON'
```

The plan will be in the message log file.

If you have performance problems, set the following option:

```
SET TEMPORARY OPTION Query_Plan_After_Run = 'ON'
```

This enables Technical Support to see which steps in the query processing used the time.

- Server logs
  - For UNIX and Linux, *ASIQ-12_7/logfiles/<servername>.00n.stderr* and *ASIQ-12_7/logfiles/<servername>.00n.srvlog**
  - On Windows platforms, *ASIQ-12_7\logfiles\<servername>.00n.srvlog**
- Start-up and connection option settings, from the configuration file (by default, *dbname.cfg*)*
- Database option settings and output from sa_conn_properties* (if the server is still running)
- Schema and indexes for the database
- Output from sp_iqstatus and sp_iqcheckdb
- On multiplex databases, you must execute getiqinfo on the write server and/or query servers, and the following information is also collected:
  - *servername.out* on query servers
  - *write_server_name/repDirs/logfiles/servername.dbrlog*

A checklist for recording this information for Technical Support is provided at the end of this release bulletin.

For more information on getiqinfo, see "Collecting diagnostic information using getiqinfo" in the *Sybase IQ Troubleshooting and Recovery Guide*.

Online support

You can find additional help from the Sybase online support Web site at http://www.sybase.com/support/. MySybase, a link at the top of the page, is a free service that allows you to search through closed support cases, the latest software bulletins, and resolved and known problems, using a view customized for your needs. You can even open a Technical Support case online.

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.

Note The SyBooks browser software runs on Windows and Linux platforms. Users with non-Linux UNIX platforms must use Acrobat Reader to open PDF files on the SyBooks CD.

- 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/.

- Infocenter is an online version of SyBooks that you can view using a standard Web browser. To access the Infocenter Web site, go to Sybooks Online Help at http://infocenter.sybase.com/help/index.jsp.

11.1 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 Certification Report.
3. In the Certification Report filter select a product, platform, and timeframe and then click Go.
4. Click a 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.

11.2 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, type 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.

11.3 IQ Newsgroup

Sybase newsgroups provide a means for users to exchange information over the Internet. The newsgroup for Sybase IQ is sybase.public.iq.

For information on subscribing to Sybase newsgroups, configuring your newsreader or Web browser, and for guidelines on posting, go to Newsgroups at http://www.sybase.com/support/newsgroups.

Note Sybase newsgroups are moving to a new, more fault-tolerant environment. If you already subscribe to Sybase newsgroups, you need to replace your existing newsgroup headers with the new ones using the steps that follow.

❖ **Replacing existing newsgroup information**

1 Remove the forums.sybase.com account from your newsreader.

2 Add the forums.sybase.com account again.

All headers will be marked as unread.

3 Resubscribe to your newsgroups, following the instructions at Newsgroups at http://www.sybase.com/support/newsgroups.

4 Download headers into those newsgroups.

11.4 IQ User's Group

The IQ User's Group provides a forum for any IQ users to exchange information on IQ. To have your name added to the IQ User's Group list, send e-mail to iqug@odscompanies.com.

12. 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.

Sybase IQ 12.7 and the HTML documentation have 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.

For Section 508 compliant core documentation, see your Sybooks CD or the Infocenter Web site at http://infocenter.sybase.com/help/index.jsp.

For Section 508 compliant installation guides and release bulletins, see the HTML files on your Getting Started CD.

The online help for this product is also provided as HTML-based JavaHelp, which you can navigate using a screen reader.

For information about accessibility support in the Sybase IQ plug-in for Sybase Central, see “Using accessibility features” in the *Introduction to Sybase IQ*. The online help for this product, which you can navigate using a screen reader, also describes accessibility features, including Sybase Central keyboard shortcuts and using this product without a mouse.

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, and Section 508 compliance statements for Sybase IQ and other Sybase products.

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, or to pronounce certain characters or punctuation such as underscore. Consult the documentation for your tool. See the following table for pronunciation guidelines for important terms.

Table 11: ABBR and ACRONYM values

Term	Element value
$ASDIR/bin	dollar A S D I R slash bin
asiqdemo	A S I Q demo
ASIQPlugin.jar	A S I Q plug in dot jar
DBISQL	D B I sequel
dbname.db	D B name dot D B
dbname.log	D B name dot log
dbname.iqtmp **Note** You can apply this technique to other file names with extensions.	D B name dot I Q T M P
dbspace	D B space
DSEDIT	D S edit
IDs	I deez
I/O	I O
iq_dummy	I Q underscore dummy

Term	Element value
IQ_SYSTEM_MAIN	I Q underscore system underscore main
libtcl.cfg	L I B T C L dot C F G
start_asiq	start underscore A S I Q
start_asiq.exe	start underscore A S I Q dot e x e
SQL	sequel (not S Q L, except when explaining how to pronounce SQL, or when it is what you type, like a password. JAWS reads SQL as S Q L by default.)
®	registered trademark
™	trademark
→	right arrow

13. Checklist: information for Technical Support

You can run the getiqinfo script to collect much of this information.

Information requested	Value
type of hardware	
amount of memory	
number of CPUs	
operating system name and version (for example, Win XP Professional (x86) SP 2)	
operating system patch level	
front end tool used (for example, Brio Query)	
connectivity protocol used (for example, ODBC, JDBC, TDS)	
Open Client version	
configuration type (single or multiuser)	
message log file (dbname.iqmsg)	
log file (*.svrlog* and *.stderr*)	
stack trace file (stktrc-YYYYMMDD-HHNNSS_#.iq)	
command or query that produced the error	
start-up option settings	
connect option settings	
database option settings	
schema and indexes for the database	
sp_iqstatus output	
query plan: set options (Query_Plan, Query_Detail, Query_Plan_After_Run), rerun command or query	