SYBASE®

Installation and Configuration Guide

Sybase® IQ

12.7

[WINDOWS]

Contents

About This Book

Subject

This book, *Sybase IQ Installation and Configuration Guide for Windows*, provides instructions for:

- Installing Sybase® IQ and Sybase IQ ETL Server
- Installing Sybase IQ Network Client and Sybase IQ ETL Development
- Migrating Sybase IQ data
- Configuring Sybase IQ and your operating system

Audience

This guide is for system administrators, managers, or anyone who will be involved in setting up Sybase IQ.

How to use this book

Table 1: Guide to using this book

To do this...	See...
Perform preinstallation tasks	Chapter 1, "Preparing for Installation"
Install Sybase IQ Server	Chapter 2, "Installing Sybase IQ"
Install Sybase IQ ETL Server	Chapter 2, "Installing Sybase IQ"
Install Sybase IQ Network Client	Chapter 3, "Installing Sybase IQ Client Components"
Install Sybase IQ ETL Development (Windows only)	Chapter 3, "Installing Sybase IQ Client Components"
Migrate data to a new Sybase IQ version, from 32-bit to 64-bit systems, and across hardware platforms	Chapter 4, "Migrating Data"
Configure Sybase IQ after installation	Chapter 5, "Configuring Sybase IQ"

Related documents

The Sybase IQ documentation set includes the following documents:

- *Encrypted Columns in Sybase IQ*

  Covers the use of user encrypted columns within the Sybase IQ data repository. You need a separate license to install this product option.

- *Introduction to Sybase IQ*

  Includes hands-on exercises for those unfamiliar with Sybase IQ or with the Sybase Central™ database management tool.

- *Large Objects Management in Sybase IQ*

  Explains storage and retrieval of Binary Large Objects (BLOBs) and Character Large Objects (CLOBs) within the Sybase IQ data repository. You need a separate license to install this product option.

- *New Features in Sybase IQ 12.7*

  Lists new features and behavior changes.

- *Sybase IQ Error Messages*

  Lists Sybase IQ error messages (referenced by SQLCode, SQLState and message text) and SQL preprocessor errors and warnings.

- *ETL User's Guide for Sybase IQ*

  Describes how to transform data from data providers to data targets. Located on the Getting Started Sybase IQ 12.7 Extended Enterprise Edition CD.

- *Sybase IQ Performance and Tuning Guide*

  Explains query optimization, design, and tuning issues for very large databases.

- *Sybase IQ Reference Manual*

  Provides a full description of the SQL language, stored procedures, data types, and system tables supported by Sybase IQ.

- *Sybase IQ Release Bulletin*

  Provides an overview of new features and last minute changes to the product and documentation. Read for help if you encounter a problem.

- *Sybase IQ System Administration Guide*

  Covers administration issues such as database creation and load operations, data security and integrity, server start-up and connection, and multiplex operations.

- *Sybase IQ Troubleshooting and Recovery Guide*

  Explains how to solve problems, perform system recovery, and repair databases.

- *Sybase IQ Utility Guide*

    Provides Sybase IQ utility program reference material, such as available syntax, parameters, and options.

Sybase IQ and Adaptive Server Anywhere
Because Sybase IQ is an extension of Adaptive Server® Anywhere, a component of SQL Anywhere® Studio, IQ supports many of the same features as Adaptive Server Anywhere. The IQ documentation set refers you to SQL Anywhere Studio documentation where appropriate.

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

Other sources of information

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

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the SyBooks CD. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.

- The SyBooks CD contains product manuals and is included with your software. The Eclipse-based SyBooks browser allows you to access the manuals in an easy-to-use, HTML-based format.

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

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

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

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

- 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.

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.

Sybase EBFs and software maintenance

❖ **Finding the latest information on EBFs and software maintenance**

1 Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.

2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.

3 Select a product.

4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

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

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

Typographic conventions

Table 2 lists the typographic conventions used in this documentation.

Table 2: Typographic conventions

Item	Description
`Code`	SQL and program code is displayed in a mono-spaced (fixed-width) font.
`User entry`	Text entered by the user is shown in bold serif type.
emphasis	Emphasized words are shown in italic.
file names	File names are shown in italic.
database objects	Names of database objects, such as tables and procedures, are shown in bold, san-serif type in print, and in italic online.

The sample database

Sybase IQ includes a sample database used by many of the examples in the IQ documentation.

The sample database represents a small company. It contains internal information about the company (employees, departments, and financial data) as well as product information (products), sales information (sales orders, customers, and contacts), and financial information (fin_code, fin_data).

The sample database is held in a file named *asiqdemo.db*, located in the directory *$ASDIR/demo* on UNIX systems and *%ASDIR%\demo* on Windows systems.

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

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.

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

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.

For a Section 508 compliance statement for Sybase IQ, go to Sybase Accessibility at http://www.sybase.com/products/accessibility.

If you need help   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 cannot resolve a problem using the manuals or online help, please have the designated person contact Sybase Technical Support or the Sybase subsidiary in your area.

Preparing for Installation

About this chapter

This chapter describes preinstallation requirements and considerations.

Note All information in this document applies to installations on all supported Windows platforms unless noted otherwise.

Contents

Sybase IQ editions

Sybase IQ is available in the following editions:

Table 1-1: Sybase IQ editions

Name	Features	Installation instructions
Extended Enterprise Edition	Includes Sybase IQ plus ETL (extract, transform and load) capability	"Installing Sybase IQ Extended Enterprise Edition" on page 18
Enterprise Edition	Sybase IQ	"Installing Sybase IQ Enterprise Edition" on page 25
Developer's Kit	Contains all features of Enterprise Edition but is licensed for internal development and testing purposes only. Limited for use on 1 CPU by a miximum of 5 seats.	"Installing Sybase IQ Developer's Kit" on page 25

Sybase IQ components

Each Sybase IQ edition includes two sets of products:

- To install components required for *operation as* a network server, install the Sybase IQ *Server Components*. See Chapter 2, "Installing Sybase IQ.".

- To install components required for *connection to* a network server, see Chapter 3, "Installing Sybase IQ Client Components."

System requirements

You must install the correct operating system patches required to run Sybase IQ. Sybase recommends that you update your operating system with the latest maintenance release and the patch level recommended by the manufacturer.

Sybase IQ is tested with the latest patches available at build time. For *minimum* operating system and patch level requirements, see the *Sybase IQ Release Bulletin*.

Enabling 4GT | In order to use the full available process virtual memory, you need to modify the *boot.ini* file to enable 4GT. Only the following platforms support this capability:

- Windows 2000 Advanced Server

- Windows 2000 Datacenter Server

- Windows Server 2003, Standard Edition

- Windows Server 2003, Enterprise Edition

- Windows Server 2003, Datacenter Edition

- Windows XP Professional

Simply add the /3GB parameter to the start-up lines. For example:

```
[boot loader] timeout=5 default=multi(0)disk(0)rdisk(0)
partition(1)\WINNT
[operating systems] multi(0)disk(0)rdisk(0)
partition(1)\WINNT="Microsoft Windows 2000
Professional"
/fastdetect /3GB
```

Setting Sybase IQ cache sizes with 4GT support allows the size of the main and temporary caches to be increased up to a combined total of 2GB.

With Windows platforms that support 4GT, a Sybase IQ process can extend beyond the 2GB address space boundary, up to a total of 3GB. However, the total size of the two IQ buffer caches cannot exceed 2GB. This is due to the Windows restriction that prevents a single memory allocation from crossing the 2GB boundary.

Configuration recommendations

Before installing, check that your system has enough disk space and RAM. If you plan to use multiplex capability, you must also set up raw device access.

Note This table lists minimum requirements. Add more resources for larger numbers of active users.

Before you install Sybase IQ, make sure you have enough disk space and RAM for the installation.

Table 1-2 shows what you need to install and run Sybase IQ 12.7 on Windows:

Table 1-2: Configuration recommendations for Sybase IQ on Windows

System requirement	Recommendation
Disk space to install and run Sybase IQ Server	163MB free disk space on the drive where Sybase IQ system files will be located
Disk space to install and run Sybase IQ ETL Server	33MB free disk space
Disk space for Software Developer's Kit (Open Client) 15.0	119MB free disk space
Disk space for databases	Site dependent
RAM	At least 1GB dedicated to Sybase IQ

Note The tables list minimum requirements. For larger numbers of active users, you will need more resources.

Sybase Central Java Edition is a graphical administration tool for managing certain Sybase products, including IQ databases. When you install Sybase IQ, you also install the Sybase IQ plug-in, which enables Sybase Central to manage IQ databases.

To install and run the Sybase IQ plug-in and Sybase Central Java Edition as a Windows client, you need:

Table 1-3: Configuration recommendations for Sybase Central on Windows

System Requirement	Recommendation
Processor	Pentium 400Mhz or greater
Disk space for Sybase Central Java Edition	3MB free disk space
RAM for Sybase Central Java Edition	48MB
Resolution	800x600x256

Swap space

The recommended minimum swap space to run Sybase IQ is at least 1GB.

Certain operations may cause the memory used by Sybase IQ to grow dynamically. Changing the way Sybase IQ uses buffers can dramatically change the way it uses memory. See the chapter "Managing System Resources" in the *Sybase IQ Performance and Tuning Guide* for more information about buffers.

Depending upon the load on the system where the Sybase IQ executable is running, swap requirements may exceed space allotted. Insufficient swap space may result in the system supporting fewer users, and large processes that cannot acquire sufficient swap space may be prematurely killed by the operating system.

See your operating system documentation for information about extending swap space.

RAM

The recommended minimum RAM is 1GB.

Adjusting the operating system configuration

Installing kernel
patches

See the *Sybase IQ Release Bulletin* for a list of any patches required to run
Sybase IQ.

Setting up raw devices for multiplex access

This section applies only to users of multiplex capability. The Main IQ Store
of a multiplex database should occupy raw disks on a shared disk subsystem,
typically a fiber channel disk array. Make sure that raw disks are available with
enough space to store all persistent data in the IQ database.

Note Be sure to configure your shared disk subsystem so that all systems
where multiplex servers will reside can access the same physical disks as local
drives. This access must not use remote drive mapping.

Raw device setup on
Windows

On Windows systems, raw device access is restricted to user accounts with
Administrator privilege. To run the IQ servers using an account that lacks
Administrator privilege, you must enable new device access permissions for
that account after each system reboot. Use the rawaccedit utility to set
permissions for devices for the current session. (Set up read/write access for the
write server and read access for the query server(s).) You must run rawaccedit
again after each reboot by a user with Administrator privilege for the machine.

❖   **Setting up the raw device on Windows:**

1   Type the following at the Command Prompt:

        rawaccedit

2   The ASIQ Raw Device Access window opens. This window lists current
    devices and users.

3   In the dialog boxes below the display, type the name of the user and the
    device to which you wish to grant access. You can use Alt+N to tab to the
    User's Name box and Alt+D to tab to the Raw Device Name box.

    •   To specify a raw device that is not partitioned, simply type the
        physical drive number. Unpartitioned disks on a Windows system are
        named *\\.\PhysicalDriveN*, where *N* is a number starting with 0 and
        increasing as needed. To find the physical drive numbers, run
        Programs | Accessories | System Tools | System Information.

- • To specify a raw partition, use the letter assigned to that partition.

4   Click Add (Alt+A). The user name and device name appear in the top box.

5   Check the user name and device name display and correct any errors in spelling or device name specification format.

6   Click Update ACL and Exit (Alt+U).

Device access permissions remain until Windows is rebooted. After a reboot, the Administrator must run rawaccedit again to install the permissions.

To remove user access to a raw device, highlight the entry in the main window and click Remove. The rights are not revoked until the next reboot.

Choosing file locations

Before you install Sybase IQ, consider where to put your data.

Subsequent sections introduce file placement. For performance implications, see the chapter titled "Managing System Resources" in the *Sybase IQ Performance and Tuning Guide*.

Several types of files can be associated with each database:

- • Database files

- • Transaction log files

- • Message log files

Database files   For each database you create, Sybase IQ creates four files:

- • A file for permanent IQ data, called the IQ Store (*filename.iq* by default)

- • A file for temporary IQ data, for sorting and other internal uses (*filename.iqtmp*)

- • A file for system information and your database schema, called the Catalog Store (*filename.db*)

- • A message log file, (*filename.iqmsg*)

Each database file is called a **dbspace**. You may need to create additional dbspaces for your IQ data. Depending on your query needs, you may need more dbspaces for temporary data as well.

Make sure that you have enough disk space for your dbspaces. *Chapter 3, "Working with Database Objects"* in the *Sybase IQ System Administration Guide* includes a procedure for estimating the disk space you need for your IQ data. For the best performance, especially with larger databases, you should spread the dbspaces for your IQ data across multiple disks.

Consider carefully where you want to place your database files. To move a database file, you must do a full backup and restore of that database.

Placing databases in raw partitions

You can put a database file—that is, a dbspace—in either a file system file or a raw partition.

File systems simplify device management, but for multiplex databases, the Main IQ Store should be on a shared raw disk.

On Windows systems, raw device access is limited to user accounts with Administrator privileges.

If you want to run the IQ servers using an account that lacks Administrator privileges, you must enable new device access permissions for that account after each system reboot. Use the rawaccedit utility in Sybase IQ to set permissions for raw devices for the current session. (To run it, type rawaccedit at the Command Prompt from an account with Administrator privileges.) You must run rawaccedit again after each reboot by a user with administrator privileges for the machine.

Note To start IQ as a Windows Service when raw device access is required, you must run it from an account with Administrator privilege. For instructions on granting Administrator privilege, see "Granting Administrator privilege to the Sybase IQ service" on page 67.

To specify a raw device in rawaccedit:

- To specify a raw device that is not partitioned, simply type the physical drive number. Unpartitioned disks on a Windows system are named *PhysicalDriveN*, where *N* is a number starting with 0 and increasing as needed. To find the physical drive numbers, run Programs > Administrative Tools > Disk Administrator.

- To specify a raw partition, use the letter assigned to that partition. For example:

  ```
  \\.\f:
  ```

A raw partition can hold only one dbspace. The size of the dbspace is the size of the raw partition. However, you can add up to 2047 dbspaces, as long as each is stored on a different raw partition. You cannot store anything besides a main or temporary dbspace on the raw partition.

Transaction log   Sybase IQ records information it needs to recover from a system failure in the transaction log. The default file name extension for this file is *.LOG*. For the best security and performance, store the transaction log on a separate device from the database. A transaction log mirror on a separate device is also recommended for IQ databases.

Message log   The default file name extension for this file is *.iqmsg*. For a minor performance boost, store the IQ message log separately from the data files. The message log cannot be on a raw partition.

Before you install Sybase IQ Server

You must uninstall previous versions of Sybase IQ, jConnect, Sybase Central, and Open Client before you install Sybase IQ Server. Please read this section carefully before installing or uninstalling. This section does not apply to Sybase IQ ETL Server or Sybase IQ ETL Development.

Note Sybase strongly recommends that you install Adaptive Server Anywhere and Sybase IQ on different Windows machines. When you install them both on the same machine, the environment variables for the product installed last overwrite those of the product installed first, causing start-up problems for the first product.

Plug-in requirements   Sybase Central is installed on Windows with the Sybase IQ Server and is also available as a Windows or Linux client for use with the Windows server. For full Sybase Central functionality, this version of Sybase IQ Server requires a new version of the IQ plug-in, the IQ Agent (formerly ASIQ Agent), the Sybase Central Toolkit, and the Java Runtime Environment.

Check the following table before you install:

Table 1-4: Plug-in compatibility with Sybase IQ installed products

IQ Plug-in	Sybase IQ	Sybase Central Toolkit	Agent	JRE
12.7	12.5 and higher fully supported. Earlier IQ versions minimally supported.	4.3 or later required	12.7 Agent required	1.4.2 required
12.6	12.6 or 12.5 fully supported. Earlier IQ versions minimally supported.	4.3 or later required	12.6 Agent required	1.4.2 required
12.5	12.5 or earlier	3.2 required	12.5 Agent required	1.2.2 required (1.3.1 on Linux)

Running multiple IQ Agents

In general, you cannot install Sybase IQ 12.6 or higher server components on a Sybase IQ 12.5 server without first uninstalling Sybase IQ 12.5. The exception is that you *can* install a standalone 12.6 or higher IQ Agent on a 12.5 server to manage a multiplex containing both 12.5 and higher-version servers (mixed-version multiplex). See "Running a mixed-version multiplex" on page 50 for more information.

To install a standalone IQ Agent on a 12.5 Sybase IQ server, run setup.exe. The install procedure detects the existing version and displays the Optional Agent Install screen.

If desired, you can run a 12.5 IQ Agent and a higher version IQ Agent on the same machine, *as long as the agent version matches that of the connected server, and each has its own port number*.

To convert multiplex databases to Sybase IQ 12.7, you first must convert each query server to 12.7. After all query servers are converted, you must install the IQ Agent on the write server and convert the write server to 12.7. For details, see "Upgrading 12.6 multiplex databases to 12.7" on page 54.

Upgrading LONG BINARY columns

Sybase IQ 12.6 and higher versions *do not support* existing LONG BINARY columns created using any release prior to Sybase IQ 12.5 ESD8. You must explicitly drop LONG BINARY columns before installing 12.7, and recreate them after installing. For details, see the appendix "Upgrading existing LONG BINARY columns" in the manual *Large Objects Management in Sybase IQ*.

Preserving check constraints before database upgrade

Sybase IQ 12.6 and higher versions enforce previously unenforced column and table CHECK constraints on updates, inserts, and loads of new data. Existing data in databases created with previous versions of Sybase IQ may contain unsupported constraints that now generate errors. (Databases created with previous versions of Sybase IQ are not deleted when you uninstall Sybase IQ and install a new version, but you need to upgrade each database to use the features of each new version.)

To find existing table data that violates a given constraint, create a query. For example, to find data that violates the constraint C1 < 15, run the following query:

```
SELECT COUNT(*) FROM TABLE x WHERE NOT(C1 < 15)
```

Sybase provides two special stored procedures to help you remove and recreate constraints. These stored procedures are located in the *scripts* subdirectory of %ASDIR%:

- The sp_iqprintconstraints procedure creates a script that you can run to recreate constraints. Commands are written to the server log, in the file *servername.nnn.SRVLOG* (where *nnn* is the number of times the server has been started) in the directory specified by $ASLOGDIR).

- The sp_iqdropconstraints procedure drops all constraints on all IQ tables in database.

The steps that follow describe how to use these procedures.

Note You need only remove and recreate constraints once per upgrade to 12.6 or higher. You need not repeat this procedure for ESD releases and subsequent upgrades.

To avoid errors, follow these steps:

1 Install Sybase IQ 12.7. (Installing the product does not overwrite existing databases, which you must upgrade separately.)

2 Query the database to identify potential constraint violations.

3 Generate commands to recreate constraints in existing tables.

4 Run ALTER DATABASE UPGRADE as instructed in Chapter 4, "Migrating Data".

5 Recreate constraints in the upgraded database.

After you run ALTER DATABASE UPGRADE on each database, run the command script(s) to recreate constraints.

For example, the following commands create the table rental, with a check constraint to validate that the date_returned is later than the date borrowed.

```
CREATE TABLE rental (

date_borrowed DATE NOT NULL,

date_returned DATE,

title CHAR(20)

            REFERENCES titles (id_num),

CHECK( date_returned >= date_borrowed )

)
```

The sp_iqprintconstraints procedure returns the following:

```
ALTER TABLE rental ADD CHECK date_returned >=
date_borrowed
```

Interoperability with installed products

If your system already has a version of one of the products to be installed, the installation proceeds as follows:

- If the product already installed has a newer date or version than the product installed with IQ, the installation does not install any older files.

- If the product already installed is older than the one included with IQ, the installation only installs newer files.

- When an older product exists, the IQ installation assumes that it is in use and omits it from the uninstall list. This prevents changing existing applications if you uninstall IQ.

Uninstalling IQ

❖ **Modifying or removing the installed Sybase IQ**

1   Log into the Windows machine using an account with Administrator privileges.

2   Exit any Windows programs running on your machine.

3   Place the CD in the CD drive.

    If your system is equipped with autorun, the installation starts immediately and you can skip the next step.

4   Select Start > Run.

    Use Browse to select your CD drive letter, and, in the File Name box, type:

    ```
    setup.exe
    ```

5   Choose the option button to Modify, Repair, or Remove installed Sybase IQ components.

6   Click Next and follow the prompts on ensuing screens.

❖   **Removing Sybase IQ if Uninstall fails (Method 1)**

If Uninstall fails, reinstall, reboot, and then run Uninstall again.

When you reinstall in the same location, the creation of a new Uninstall log in the registry folder (including registry, menu, and files entries) verifies that everything was removed.

1   To reinstall easily, edit the registry (using regedit) and remove the tag that tells InstallShield that Sybase IQ is installed. The tag to remove is in the location:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Uninstall

2   Look through the entries similar to {A7337FCE-95DB-4AA1-9E1E-FBCE35AEACB9} and remove the one where "DisplayName" is "Sybase Adaptive Server IQ 12.7". Once you remove this entry, the installer will reinstall completely.

❖   **Removing Sybase IQ if Uninstall fails (Method 2)**

If you cannot remove Sybase IQ using Method 1, you can remove most of Sybase IQ from a system as follows.

1   Uninstall the Agent (if running):

a   Select Start > Run.

b   Type

```
ASIQagent -u SybASIQ-Agent12
```

c   `File not found` indicates that the file is already removed.

2   Clean up files, as follows:

a   In the DOS window, type

```
cd /D %ASDIR%
```

> **Note** If you created a database in the %ASDIR% directory, the database will be removed with all the log files.

b   Verify that you changed to the correct directory.

c   Delete the directory and its contents.

3   At the Command Prompt, type:

```
cd /D %ASLOGDIR%
```

If you have set this variable, the specified directory contains all log files.

   a   Verify that you changed to the correct directory.

   b   Delete the directory and its contents.

4   If you have installed no other Sybase products, you can uninstall Open Client also. *Remove Open Client only if you have no other Sybase products installed.*

   a   Change to the Sybase directory:

```
cd /D %SYBASE%
```

   b   Verify that you're in the correct directory.

   c   Delete the directory and its contents.

5   Clean up the registry:

   a   Select Start > Run.

   b   Type:

```
regedit
```

   c   Go to *HKEY_LOCAL_MACHINE\SOFTWARE\Sybase*

   d   Remove "Adaptive Server IQ" and all contents.

   e   Go to *HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services*

   f   Remove all entries that start with "SybASIQ"

   g   Go to *HKEY_CURRENT_USER\Sofware\ODBC\ODBC.INI*

   h   Remove "Adaptive Server IQ *" and all contents

6   Clean up the Program Group:

   a   Select Start > Programs > Sybase

   b   Right-click on "Adaptive Server IQ" and select "Delete"

   c   If you have no other Sybase products installed, you can remove the entire "Sybase" menu.

7   Clean up the environment, as follows:

      a   On your desktop, right-click My Computer and select Properties > Advanced > Environment.

      b   Find the ASDIR environment variable and record its value.

      c   Remove ASDIR and ASLOGDIR variables, if present.

8   Clean out the path by carefully removing each directory that refers to:

```
%ASDIR%\win32

%SYBASE%\%SYBASE_OCS%\dll

%SYBASE%\%SYBASE_OCS%\bin
```

Do this one at a time, and make sure you have the remaining directories separated by a semicolon ";".

Press "Apply" when done.

If you cannot remove the previous version for some reason, install the current version in a completely different directory. Note that you could still have some problems with the old version because of conflicts with registry entries or environment variables.

Replacing files or components

The installation procedure has Repair and Modify options that allow you to add, replace, or remove certain files or components. If you install/repair/modify Sybase IQ and the existing version of Open Client on your system is newer than the version to be installed by IQ, the installation does not overwrite the existing version. In general, the IQ installation procedure does not overwrite files that have a newer version number or creation date.

Updating SDK

The Sybase IQ installation CD contains the Sybase Software Developer's Kit (SDK), which includes Open Client.

Sybase IQ recommends Open Client 15.0, EBF 13563. If your system already has this version installed as part of Adaptive Server Enterprise, Replication Server, or other Sybase products, you can skip installing the Open Client supplied with IQ 12.7.

Sybase recommends that you install Sybase IQ 12.7 in a clean directory for easier version management. Environmental variables are local to the shell and the subdirectories are specific to the versions.

The SYBASE_OCS environment variable controls the version of the SDK used by Sybase products.

You can update Sybase SDK (Open Client) as future versions become available, provided that you set the INSTALL_ALL_PATCH environment variable before installing the update. To set the variable, enter the following in a DOS window:

```
set INSTALL_ALL_PATCH="Y"
```

Alternately, to add the variable through System in Control Panel, select Environment Variables on the Advanced tab and click New.

CHAPTER 2   **Installing Sybase IQ**

About this chapter   This chapter describes how to install the Sybase IQ server components.

Contents

There are two ways to install Sybase IQ:

* For *operation as* a network server, install the Sybase IQ *Server Components*, as described in this chapter.

* For *connection to* a network server, install the Sybase IQ *Client Components*. See Chapter 3, "Installing Sybase IQ Client Components."

Note If you have a previous 12.x version of Sybase IQ, you need to upgrade your databases as part of installation. See "Upgrading non-multiplex databases" on page 46 for important steps you must complete before installing.

Installation overview

For supported platform and operating system configurations and required service packs, see the *Sybase IQ Release Bulletin*.

The installation program installs:

* Sybase IQ Server 12.7

* Sybase IQ ETL Server 4.2.1. You may optionally install this if you have the Sybase IQ Extended Enterprise Edition.

- Sybase Central Java Edition viewer 4.3 (the graphical administration tool) and the latest plug-in for Sybase IQ. For details about using Sybase Central, see its online help.

- Software Developer's Kit (SDK) which provides Open Client connections for ASE servers.

- The Sybase jConnect JDBC Driver, version 5.5. The installation includes a recent EBF. If you install the jConnect driver, Java classes installed into a database can make JDBC calls to access and modify data. You need TCP/IP to use the jConnect driver.

  The Sybase jConnect JDBC Driver version 6.0 is optionally available, but Sybase IQ requires jConnect 5.5 in order to work with Sybase Central and other java components. If you install jConnect 6.0 without installing 5.5, Sybase IQ functionality will be incomplete.

- Java Runtime Environment 1.4.2.

You can choose products to install when you run the installation program on the product CD. The following steps start the program on the product CD for all editions of Sybase IQ.

❖ **Running the installation program**

1   Log in to the Windows machine using an account with Administrator privileges.

2   Exit any Windows programs running on your machine.

3   Place the CD in the CD drive.

    If your system is equipped with autorun, the installation starts immediately and you can skip the next step.

4   Select Start > Run.

    Use Browse to select your CD drive letter, and, in the File Name box, type:

    ```
    setup.exe
    ```

Installing Sybase IQ Extended Enterprise Edition

The Sybase IQ Extended Enterprise Edition CD contains two products:

- Sybase IQ ETL Server

- Sybase IQ Server

If you plan to install both products, install Sybase IQ ETL first because Sybase IQ Server requires a system reboot.

If you do not require ETL capability, skip to "Installing Sybase IQ Server" on page 20.

❖ **Installing Sybase IQ ETL Server**

Sybase IQ ETL Server provides Extract/Transform/Load capability for Sybase IQ.

1   In Task Manager, check for the process *GridNode.exe*. Make sure that the Show Processes From All Users box is selected. If this process is running on your system, stop it before installing Sybase IQ ETL Server.

2   Choose Sybase IQ ETL Server from the servers listed on the first screen and click Next.

3   Select a setup language and click OK to continue.

4   Read the welcome screen and click Next.

5   Read the license agreement. To continue the install, select "I accept the agreement," and click Next. To stop the procedure without installing Sybase IQ ETL Server, click Cancel.

    If you do not find a license agreement that matches your location, or if the license agreement is unreadable on your system, you can read all available license agreements at the Local Sybase Software Licenses Web site at http://www.sybase.com/softwarelicenses and rerun *setup.exe*.

6   The default location for Sybase IQ ETL Server is *C:\Program Files\SYBASE\IQETLServer421* and *C:\Program Files (x86)\SYBASE\IQETLServer421*. To install in the default location, click Next. Otherwise, click Browse to specify a new location. Sybase recommends that installation paths contain only alphanumeric characters.

7   The default location for the program shortcut is the Start Menu folder *Sybase*. To install in the default location, click Next. Otherwise, click Browse to specify a new location.

8   Click Next to register Sybase IQ ETL Server as a Windows System Service. This lets you use Services to start or stop Sybase IQ ETL Server. If you prefer not to register, click the Register as Windows System Service box to remove the checkmark before you click Next.

9   The installation procedure displays the installation locations, Start Menu folder, and additional tasks specified. To install, click Install. To change the locations or tasks, click Back. To exit without installing, click Cancel.

10   View the Readme file and click Next to continue.

11   Click Finish to exit Setup for Sybase IQ ETL Server.

12   The Setup wizard returns you to the Sybase IQ Extended Enterprise Edition Main Menu..

To exit, click Finish. To install Sybase IQ Server, see the next section, "Installing Sybase IQ Server."

Note Sybase strongly recommends that you check the online support Web site for software updates after you install the software. If a software update (EBF) has been released, it contains bug fixes made after this product shipped. For details, see "Finding the latest information on EBFs and software maintenance" on page ix.

To begin using Sybase IQ ETL, see *ETL User's Guide for Sybase IQ* (DC00608-01-0421-01). This document is available online and on the Getting Started Sybase IQ 12.7 Extended Enterprise Edition CD.

❖ **Installing Sybase IQ Server**

1   Choose Sybase IQ Server from the servers listed on the first screen and click Next.

2   On the Welcome screen, press Next to continue or Cancel to stop the installation. (If you have previously installed Sybase IQ, you may choose to modify, repair, or remove installed files.)

3   From the drop-down menu, select the location where you are installing the software.

If the country where you are located is not listed, select the most appropriate area, such as ("Americas (Mid/So.) and Asia Pacific — General" or "Europe, Middle East, and Africa — General").

If you do not find a license agreement that matches your location, or if the license agreement is unreadable on your system, you can read all available license agreements at the Local Sybase Software Licenses Web site at http://www.sybase.com/softwarelicenses and rerun *setup.exe* passing it the parameter -I_accept_sybase_license. For example:

```
H:\>start E:\setup.exe -I_accept_sybase_license
```

4   Read the License Agreement. To accept it and continue the install, select "I accept the terms of this agreement" and click Next. To stop the procedure without installing Sybase IQ, click Cancel.

5   On the Customer Information screen, enter your name and your company name in the text boxes and click Next.

6   On the Setup Type screen, choose Complete or Custom install. (This screen specifies the default installation location *C:\Program Files\Sybase*.) The Complete install is recommended for most users. For a Complete install, skip to step 15.

7   The Custom install lets you select components to install. Sybase IQ and related components are installed in separate folders. The defaults are:

   •   *C:\Sybase* for Software Developer's Kit

   •   *C:\Program Files\Sybase\Shared\Sybase Central 4.3* for Sybase Central Java Edition

   •   *C:\Program Files\Sybase* for other products

   Accept the default or click the Browse button (Alt+R) to select another destination folder. Click Next (Alt+N).

   Note If you move ahead in the install procedure and return to this screen, the installer resets target locations to their defaults. Check locations carefully.

8   For a Custom install, the Products Selection screen lists components. By default, all products are selected; click any component to deselect it. If a selected product requires a component, you cannot deselect that component.

   After choosing desired products, click Next (Alt+N).

9   The Customize Product screen displays destination folders beneath the feature list. To change the default installation location for any Sybase IQ product, use the Browse button (Alt+R). Click Disk Space (Alt+S) to examine space available on the selected destination disk.
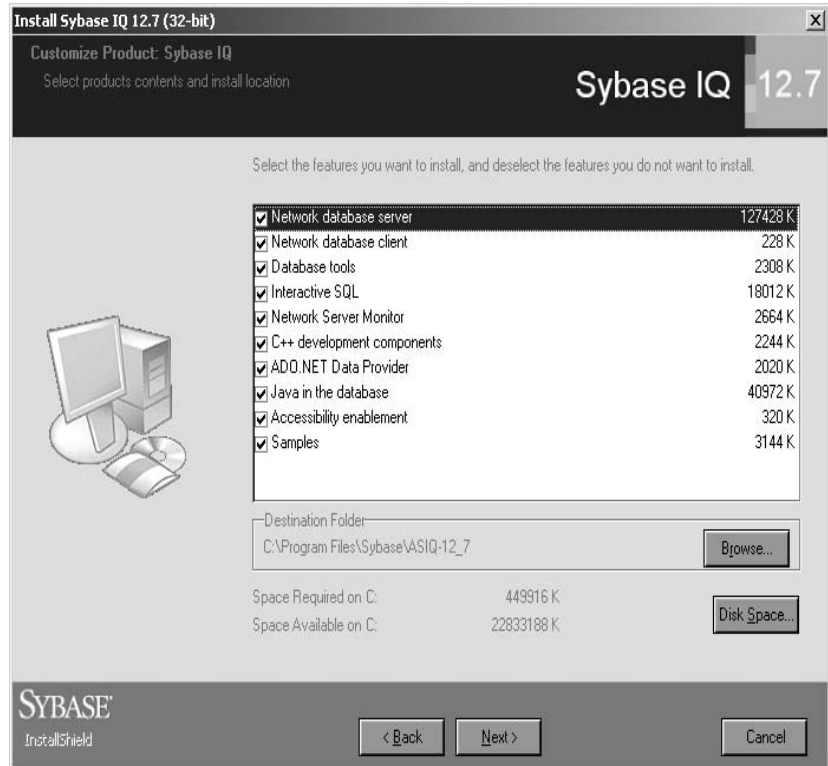
10   When satisfied with locations of IQ components, click Next.

11 To change the default installation location for any Software Developer's Kit (Open Client) component, use the Browse button.
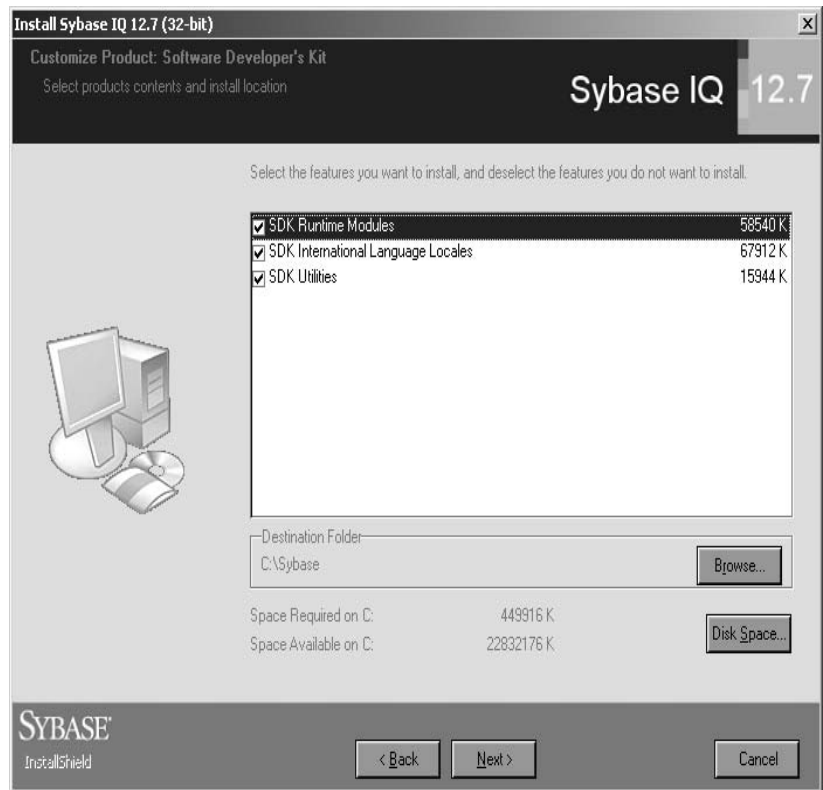

Click Disk Space to examine space available on the selected destination disk.

Note You must install Software Developer's Kit 15.0 or have 15.0 Open Client/Open Server installed on your system to run Sybase IQ.

12 When satisfied with locations of SDK components, click Next.

13 Examine the locations where the procedure will install the Sybase Central Java Edition components, and change them if desired, using Browse and Disk Space keys.
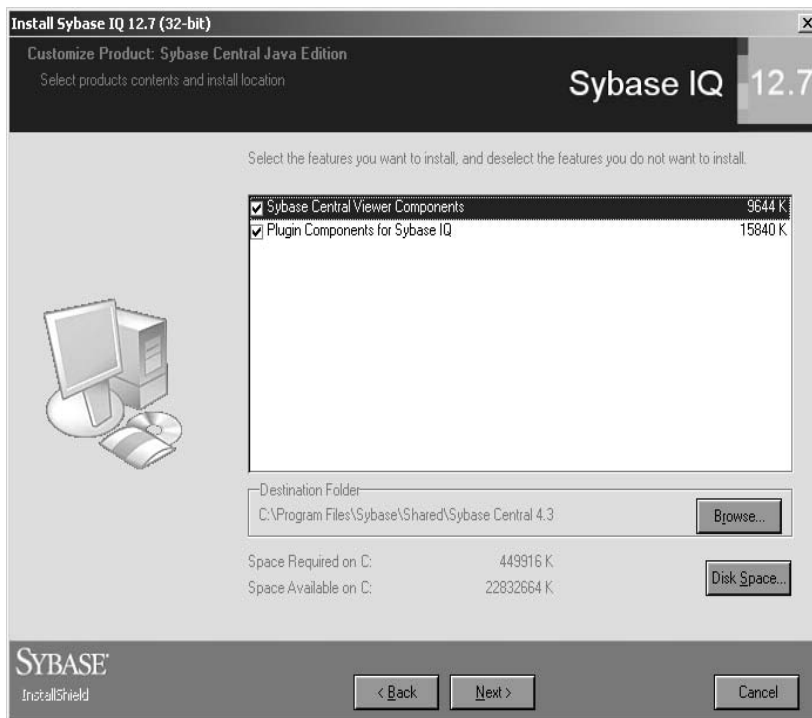
14 When satisfied with locations of Sybase Central components, click Next.

Note You must run the IQ Agent in order to use Sybase Central. See the *Sybase IQ System Administration Guide* for instructions on configuring and running the IQ Agent.

15 To keep the default login and password for the Utility Database, click Next on the Utility Database Access screen. To change them, type the new login and password, verify the password, then click Next.

16 If you have optional components to install, enter each component and its key on the Component menu. Type the installation key exactly as it appears on your installation key document. Click Register, then click Next. If you have no optional components to register, simply click Next.

17 The installation procedure displays a list of items to be installed and their locations. Click Next to install, or Back to change the items or locations. During installation, a gauge displays the percentage and names of files installed.

Note It is best to reboot after any program installation to ensure that registry and environment settings are correct.

18 When the installation procedure completes, it prompts you to reboot your system. To reboot your system now, remove the installation CD from the CD drive and click Finish. To reboot at a later time, click "No, I will restart my computer later," then click Finish.

Sybase strongly recommends that you check the online support Web site for software updates after you install the software. If a software update (EBF) has been released, it contains bug fixes made after this product shipped. For details, see "Finding the latest information on EBFs and software maintenance" on page ix.

Installing Sybase IQ Enterprise Edition

To install Sybase IQ Server from the Sybase IQ Enterprise Edition CD, follow the procedure "Installing Sybase IQ Server" on page 20.

Installing Sybase IQ Developer's Kit

To install Sybase IQ Server from the Sybase IQ Developer's Kit CD, follow the procedure "Installing Sybase IQ Server" on page 20.

Running Sybase IQ

Now you are ready to test your installation. This section tells how to start and stop the server.

Starting the sample
database

To start the sample database installed with the product, click Start on the Taskbar, and select Programs | Sybase | Adaptive Server IQ 12.7 | Start IQ Demo Database.

This command starts the *asiqdemo* database using the server name *<yourhost>_asiqdemo*, where *<yourhost>* is the name of the system where you are running Sybase IQ.

Note If Adaptive Server Anywhere is installed on the same subnet as Sybase IQ, you must change the default port number for IQ; both products use the default port of 2638. First, set a new port number in the *%ASDIR%\scripts\default.cfg* file. Then update each IQ database configuration file (for example, *%ASDIR%\demo\asiqdemo.cfg*) by changing the port number in the following line:

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

Change to an unused number, for example, 4444:

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

Running interactive
SQL queries

❖ **Starting DBISQL and running queries:**

1 Select Start > Programs > Sybase > Adaptive Server IQ 12.7 > Interactive SQL Java.

2 The Connect dialog box appears. Type "DBA" without the quotes for the User ID, then press <TAB> and type "SQL" for the Password.

3 On the Database tab, type "*<hostname>_dbname*:*<portnumber>*" as the Server name.

For example, if your host machine is fiona and you are using port number *1870*, use the following Server name for the sample database:

```
fiona_asiqdemo:2870
```

4 Tab to Database name and type the name of the database.

5 Tab to Database file and type the path to the *.db* file.

6 When you work with a database, all your requests and commands go through a driver to the database itself. Sybase Central and Interactive SQL support two main types of drivers: a JDBC driver (called jConnect) and an ODBC driver (called iAnywhere JDBC Driver). Both are included with Sybase IQ.

As a general rule, the jConnect driver cannot use ODBC data sources. However, Sybase Central and Interactive SQL are special cases. When you use the jConnect driver in either of them, you can specify an ODBC data source to establish a connection.

Sybase jConnect is a fully supported, fully featured JDBC driver. This driver is platform independent and offers better performance than iAnywhere JDBC Driver. It is enabled by default.

The iAnywhere JDBC Driver driver is a Sun product and is available solely as an alternative method of connecting. The jConnect driver is recommended over iAnywhere JDBC Driver.

Select jConnect or iAnywhere JDBC Driver and click OK to connect to the database.

7   The Interactive SQL window is split into 3 subwindows. In the top window (SQL Statements), type:

```
SELECT * FROM employee
```

8   Click the right-facing triangle button to execute.

Creating databases   To create your own databases, start and connect to the utility database, as described in the *Sybase IQ System Administration Guide*.

Starting your own databases   To start your own databases, use the start_asiq utility.

To run start_asiq, at the Command Prompt, change to a folder where you have write privileges and use the following command format:

start_asiq @*configuration_filename*.cfg *dbname*

This command starts the database and sets parameters named in the (optional) configuration (*.cfg*) file.

You can use a configuration file to specify options that you want to set whenever you start your server. A configuration file for the sample database is installed in the *%ASDIR%\demo* directory as an example. For details about configuration files, see "Configuring the Sybase IQ Server" on page 63.

Note The directory where the server is started becomes the default directory for all server files created by Sybase IQ.

For example, to start the demo database, use these commands:

```
C:\> cd %ASIQDIR%\demo
```

```
start_asiq @asiqdemo.cfg asiqdemo.db
```

Note The server name cannot start with a number.

Using defaults in *%ASDIR%\scripts\default.cfg*, the start_asiq utility sets any required environment variables that have not been set and sets parameters that govern Sybase IQ to the recommended defaults. (You may use a configuration file to override these defaults.) *If you start your server using any command other than start_asiq, or if your configuration file is encrypted, you must specify the following parameters:*

Table 2-1: Parameters set by start_asiq

Parameter	Value	Description
-c	32MB on 32-bit platforms 48MB on 64-bit platforms	Catalog store cache size
-gc	20	Checkpoint interval
-gd	all	Allows all users to start the database by connecting
-gl	all	Allows all users to load or unload tables
-gm	10	Default number of connections
-gp	4096	Catalog store page size
-ti	4400	Client time-out set to 72 hours. Prevents users with long queries from being logged off over a long weekend.

Note Do not discard this document after installing Sybase IQ. You may need these required parameters later.

For a complete list and description of start-up parameters, see "The database server" in Chapter 1 of the *Sybase IQ Utility Guide*.

If you have Sybase Central, you can use the Start Database Server wizard, as documented in the *Introduction to Sybase IQ*, instead of start_asiq.

The server process runs in the background. It sends output to a server log file, *%ASLOGDIR%\servername.NNN.srvlog*, where *NNN* is the number of times the server has been started. For example, *%ASLOGDIR%\fiona.123.srvlog*.

Stopping servers

To stop a server, click the Sybase IQ icon to open the server window, then click Shutdown. You can also stop a server using the STOP ENGINE command from DBISQL or any front-end client, or using the Stop utility, as documented in the *Sybase IQ Reference Manual*, Chapter 4, "Database Administration Utilities."

Note When you stop a server using the DBSTOP command, you need to specify the same parameters used to start that server.

Installing Sybase IQ Client Components

About this chapter

This chapter explains how to install Sybase IQ client components, available on two platforms.

Contents

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Installing client components on Linux

Note Sybase IQ ETL Development client is currently available only on Windows systems. Sybase IQ Network Client is available on both Linux and Windows.

Sybase IQ Network Client for Linux contains the components required for *connection to* a network server.The 32-bit client is compatible with IQ servers on all supported server platforms; there is no 64-bit client.

Sybase IQ Network Client for Linux is certified to run on:

- Red Hat Enterprise Linux 3.0 i86 or AMD64, Advanced Server or Workstation Edition:

    - kernel 2.4.21-27.0.2.ELsmp #1 SMP and glibc 2.3.2-95.30 on 32-bit systems

    - kernel 2.4.21-27.0.2.ELhugemem #1 SMP and glibc 2.3.2-95.30 on 64-bit systems

- Red Hat Enterprise Linux 2.1 x86, Advanced Server or Workstation, with kernel 2.4.9-e.40smp and glibc 2.2.4-32.8.

- SuSE Linux Enterprise Server (SLES) 8.0, kernel 2.4.9-e.57smp #1 SMP and glibc 2.2.4.-32.18

- SuSE Linux Enterprise Server (SLES) 9.0 for 32-bit systems, kernel 2.6.5-7.97-smp #1 SMP and glibc 2.3.3-98.28

Sybase IQ Network Client is also compatible with Red Flag Linux DB Server release 4.0, kernel 2.4.21-AS.2 smp on i686 and glibc 2.2.93.

Note Sybase IQ Network Client does not run on IBM Linux on POWER.

Table 3-1 demonstrates that you can run different versions of Sybase IQ on the same system.

Table 3-1: Linux client/server downward compatibility

Product and version to install	Product and version already installed	Compatibility
12.7 Server	12.5 Server	Standalone IQ Agent only
	12.5 Network Client	Allowed, provided that environment for each is set up for the appropriate version
	12.6 Network Client	Allowed as an upgrade
12.7 Network Client	12.5 Server	Allowed, provided that environment for each is set up for the appropriate version
	12.5 Network Client	Allowed. If one is uninstalled, user must repair remaining one.
	12.6 Server	Prohibited

Table 3-2 lists disk space required to install Sybase IQ Network Client for Linux.

Table 3-2: Sybase IQ Network Client disk space requirements on Linux

Product	Disk space
Sybase IQ 12.7 Network Client	275MB
Sybase Central Java Edition 4.3	4MB
jConnect 5.5	17MB
jConnect 6.0	6MB
Java Runtime Environment 1.4.2	60MB

The following procedures describe how to install the Sybase IQ Network Client for Linux. To install other Sybase IQ products or components, see the following sections:

- To install the Sybase IQ Network Client for Windows, see "Installing client components on Windows."

- To install Sybase IQ ETL Development (client components with data extraction, transformation, and load capabililty) see "Installing Sybase IQ ETL Development" on page 39.

- To install the Sybase IQ Server Components, see Chapter 2, "Installing Sybase IQ."

❖ **Mounting the product CD and setting up the *sybase* account**

1   If your CD has been set up for auto-mount, you must get the absolute pathname for this device from the System Administrator. In this case, change directory to this specified directory and skip to the procedure titled "To prepare the installation directory" on the following page. Otherwise follow all the steps to load the Sybase IQ software from a CD.

2   Log on as the user "root".

3   Place the CD into the CD drive.

4   Create a subdirectory of the root directory where you will mount the CD, if one does not already exist. For example:

```
% cd /
% mkdir /cdrom
```

5   If your system does not auto-mount, mount the CD with a command like the following:

```
% mount -o -ro -F hsfs device_name /cdrom
```

where *device_name* is the name of the CD drive and */cdrom* is the name of the directory where the CD will be mounted.

6   If there is no "sybase" account on your system, set one up to perform all unloading tasks. (Setting up this account requires "root" privileges.)

It is important to maintain consistent ownership and privileges for all files and directories. A single user with read, write, and execute permissions should perform all Sybase IQ unload, installation, upgrade, and setup tasks.

The "sybase" user must have permission privileges from the top (or root) of the disk partition or operating system directory down to the specific physical device or operating system file.

7   Log out as "root" and type "exit".

❖   **Preparing the installation directory**

1   Log on as the "sybase" user. This command logs into system *storm*:

```
% rlogin -l sybase storm
```

2   Identify or create a directory location for the Sybase installation directory, where you install the Sybase IQ product. The "sybase" user should be the owner of the directory. If you have other Sybase products installed, Sybase recommends that you install Sybase IQ in its own separate directory, not the $SYBASE directory used by another product. To create a directory, use a command like the following:

```
% mkdir cd-install;chmod 777 cd-install
```

3   Run the "disk free" command to verify that the directory location for the Sybase installation directory is in a UNIX file system with enough space to accommodate the software.

```
df -k .
```

Check the amount of free space against Table 3-2 on page 33.

4   Set the SYBASE environment variable to the path of the installation directory you have chosen for Sybase IQ, using the following formats. In these examples, the SYBASE installation directory is */work/server*

•   For the tcsh or C (csh) C shell, add this line to the *.cshrc* file:

```
setenv SYBASE /work/server
```

•   For the bash or Korn (ksh) shell, add this line to the *.profile* file:

```
SYBASE=/work/server;
```

```
export SYBASE
```

5   Use the ls -la command to verify that you have permission to read, write
     and execute in the Sybase installation directory.

❖   **Running the *sybinstall* utility**

     If this is the first Sybase product you have installed, see "Mounting the product
     CD and setting up the sybase account" on page 33and "Preparing the
     installation directory" on page 34.

     1   Change directory to the installation directory:

          ```
          % cd $SYBASE
          ```

     2   Start the install utility, sybinstall. You can run this utility as a series of
          menus with prompts, or bypass menus using the *sybinstall* command line
          parameters.

     Table 3-3: Command parameters for sybinstall utility

Parameter	Function
-add_agent	Install standalone 12.7 IQ Agent only
-autoinstall	Install all defaults
-help	Display all parameters and usage
-I_accept_sybase_license	Bypass license agreement prompt when using -autoinstall
-info|version	Display information about this product
-y	Assume "yes" to all questions, warnings, and errors

     The following command runs sybinstall with all menus and prompts, so
     that you can choose the components installed:

          ```
          % /cdrom/sybinstall
          ```

     The following command runs sybinstall so that it installs the default
     products:

          ```
          % /cdrom/sybinstall -autoinstall
          -I_accept_sybase_license
          ```

     The installation procedure log is created in $SYBASE/sybinstall.log.
     If the file cannot be created in the $SYBASE directory, it defaults to
     /tmp/sybinstall.log.

     Avoid installing Sybase IQ Network Client in the same directory as an IQ
     server. If you attempt to do this, an error like the following displays:

          ```
          WARNING
          ```

```
The directory '/olddev1/users/sybase_scr/ASIQ-12_7'
contains files for the ASIQ server. This install
contains only the network client files and should
never be installed in the same directory as an
existing server.
Please make sure that /remote/ase/linux is set to the
correct directory

Do you want to continue <Y/N>?
```

The following steps show the menus that *sybinstall* displays by default.

To enter a response, type the desired letter or number, then press Return.

3   On the Welcome screen, press Return to continue.

4   Type the number that corresponds to the location where you are installing.

If you find no license agreement that matches your location, or if the license agreement is unreadable on your system, you can read all available license agreements at the Sybase Web site at http://www.sybase.com, and rerun *sybinstall*, passing it the parameter -I_accept_sybase_license. For example:

```
% /cdrom/sybinstall -I_accept_sybase_license
```

The first screen of the Software Test and Evaluation License Agreement displays.

5   As you read, hold down the Return key until you reach the end of the agreement.

At the end of the agreement, a prompt appears.

6   Type "Y" to accept the license terms and continue the installation. If you disagree with the terms of the license, type "N."

The script next lists the amount of space available in your $SYBASE directory, and the amount of space required for the three components it installs.

7   To install all four products, type "S." To deselect or change any of the installed products, type the option number at the prompt. For example, to deselect Sybase Central Java Edition, type "2."

Deselected products are not installed. You can deselect only one product per screen. When you deselect a product, the screen displays again with the words "Not Selected" under the Install directory for that product.

Note Numbers 1 through 4 are toggle options. If you change your mind, type the number of a deselected product to reselect it.

8 After selecting products, type "S" to start the installation.

As the procedure installs each product selected, it displays a list of the files installed. This may take a few minutes. When the installation completes, a message lists environment setup files created.

❖ **Setting environment variables**

You must set certain environment variables to run Sybase IQ. Sybase IQ installs environment files that you can run to set variables.

1 bash or Korn (ksh) shell users should type:

```
% source $SYBASE/ASIQ-12_7/ASIQ-12_7.sh
```

2 tcsh or C (csh) shell users should type:

```
% source $SYBASE/ASIQ-12_7/ASIQ-12_7.csh
```

Installing client components on Windows

Client components are those required for *connection to* a network server. You can install:

- Sybase IQ Network Client – see "Installing Sybase IQ Network Client" on page 42.

- Sybase IQ ETL Development (Sybase IQ Extended Enterprise Edition only) – see "Installing Sybase IQ Extended Enterprise Client" on page 38.

Before you install Sybase IQ client components

Sybase IQ 12.7 ETL Development is certified to run on:

- Microsoft Windows 2003 (Service Pack 1)

- Microsoft Windows 2000 (Service Pack 4)

- Microsoft Windows XP Professional (Service Pack 2)

Sybase IQ 12.7 Network Client is certified to run on:

- Microsoft Windows 2003 (Service Pack 1)

- Microsoft Windows 2000 (Service Pack 4)

- Microsoft Windows 98 SE

- Microsoft Windows ME

- Microsoft Windows XP Professional (Service Pack 2)

Table 3-4: Windows client/server downward compatibility

Product and version to install	Product and version already installed	Compatibility
12.7 Server	12.5 Server	Standalone IQ Agent only
	12.5 Network Client	Prohibited
	12.6 Network Client	Prohibited
12.7 Network Client	12.5 Server	Prohibited
	12.5 Network Client	Prohibited
	12.6 Server	Prohibited

See Table 3-5 for disk space required to install and run Sybase IQ client components for Windows.

Table 3-5: Client configuration recommendations for Windows

System requirement	Recommendation
Disk space to install and run Sybase IQ 12.7 Network Client	83MB
Disk space to install Sybase IQ ETL Development	163MB
Disk space to install Sybase Central Java Edition 4.3	30MB
Disk space to install jConnect 5.5	17MB
Disk space to install jConnect 6.0	6MB

Installing Sybase IQ Extended Enterprise Client

The Sybase IQ Extended Enterprise Client CD contains two products:

- Sybase IQ ETL Development

- Sybase IQ Network Client

The following sections describe installation for each product.

Installing Sybase IQ ETL Development

The Sybase IQ Extended Enterprise Client CD can install both Sybase IQ ETL Development and Sybase IQ Network Client. If you plan to install both, install Sybase IQ ETL Development first. Otherwise, skip to "Installing Sybase IQ Network Client for Windows" on page 41.

❖ **Installing Sybase IQ ETL Development**

Sybase IQ ETL Development provides client components for Extract/Transform/Load capability, including the GridNode application. (For details, see the *ETL User's Guide for Sybase IQ* on the Getting Started CD.) If you do not require ETL capability, choose Sybase IQ Network Client and skip to "Installing Sybase IQ Network Client for Windows" on page 41. If you plan to install both products, install Sybase IQ ETL Development first.

1   Follow the steps in "Running the installation program" on page 18 using the Sybase IQ Extended Enterprise Client CD.

2   When prompted to select the component to install, choose Sybase IQ ETL Development and click Next.

3   Select a setup language and click OK to continue.

4   Read the welcome screen and click Next.

5   Read the license agreement. To accept it and continue the install, select "I accept the agreement," and click Next. To stop the procedure without installing Sybase IQ, click Cancel.

6   The default location for Sybase IQ ETL Development is *C:\Program Files\SYBASE\IQETLDevelop421*. To install in the default location, click Next. Otherwise, click Browse to specify a new location. Sybase recommends that installation paths contain only alphanumeric characters.

7   The default location for the program shortcut is the Start Menu folder *Sybase*. To install in the default location, click Next. Otherwise, click Browse to specify a new location.

8   If you run the installation using an Administrator account, you need to activate the "Install for all users" option. This allows you to launch the application on user accounts with restricted access rights.

Note When started the first time on a user account, all files requiring write privileges are copied to the user directory, typically *C:\Documents and Settings\<username>\Application Data\SYBASE\Sybase IQ ETL Development\421*

Note Depending on the "Install for all users" option, log files are located in the *log* subdirectory of either the user or the installation directory.

Select check boxes for any additional setup tasks desired. Click Next.

9   The installation procedure displays specified installation destinations, Start Menu folder selected, and additional tasks specified. Click Install to continue or Back to change the locations or tasks.

10   View the Readme file and click Next to continue.

11   The Launch Sybase IQ ETL Development box is selected by default. To avoid automatically launching Sybase IQ ETL Development, clear the box. Click Finish to exit Setup for Sybase IQ ETL Development.

Sybase IQ ETL Development Configuration settings

Sybase IQ ETL Development uses the Windows registry to store configuration settings.

`HKEY_CURRENT_USER\Software\JavaSoft\Prefs\sybase\iqetl` stores the preferences. See "Customizing preferences" in Chapter 2 in the *ETL User's Guide for Sybase IQ* for details.

`HKEY_CURRENT_USER\Software\JavaSoft\Prefs\sybase\iqetl\connection` stores Repository connection details. See "Administering the repository" in Chapter 2 in the *ETL User's Guide for Sybase IQ* for details)

Note To allow reusing the settings after upgrading to a new version of Sybase IQ ETL Development these registry keys are not removed when uninstalling the product. If required you need to remove them manually.

To install Sybase IQ Network Client for Windows, perform the following procedure.

❖ **Installing Sybase IQ Network Client for Windows**

Sybase IQ Network Client provides components required for *operation as a network client*.

Note You can install the Sybase IQ Network Client on many end-user machines, remotely, without displaying dialog boxes or requiring interactive responses. For directions, see "Performing a silent installation" on page 44.

---

1   Follow the steps in "Running the installation program" on page 18.

2   If installing from the Sybase IQ Extended Enterprise Client CD, choose Sybase IQ Network Client from the products listed and click Next, then click Next after reading the Welcome window.

If installing from the Sybase IQ Network Client CD, read the Welcome window and click Next.

3   Select the location where you are installing the software and click Next.

4   Read the License Agreement. To accept, select the I Accept the Terms of this Agreement check box and click Next. To return to a previous screen, click Back. To stop the procedure without installing, click Cancel.

5   Type your name and your company name in the text boxes on the Customer Information screen and click Next.

6   Choose Complete or Custom install. The Complete install is recommended for most users. The Custom install lets you select components of products to install.

7   Products are installed in separate folders under the folder you specify. You can accept the default (*C:\Program Files\Sybase*), or use the Browse button to select another folder.

Click Next.

8   For a Complete install, skip to step 10.

For a Custom install, choose products to install. The Products Selection screen lists names and descriptions of products. Required products are automatically selected. Click any checked product to deselect it. Required products vary depending on selections. Products are:

• Sybase IQ

• Sybase Central Java Edition

• Java Runtime Environment

• Sybase jConnect JDBC Driver

For Sybase IQ and Sybase Central, a Customize Product screen lets you select desired components. Click Browse to specify a new destination folder. Click Disk Space to calculate available space on other drives and to change the destination drive for installed products.

9   Click Next when satisfied with selected products.

10 Before copying the program files, the setup procedure lists the products selected and the target directories where they will be installed. Click Back to make changes or Next to install.

The installation procedure displays a gauge to show the percentage and names of files installed.

Note It is best to reboot after any program installation, to ensure that registry and environment settings are correct.

---

11 When the installation procedure completes, it prompts you to reboot your system. To reboot your system now, remove the Sybase IQ Extended Enterprise Client CD from the CD drive and click Finish. To reboot at a later time, click "No, I will restart my computer later," then click Finish.

After installing   If you installed Sybase Central, see the *Sybase IQ System Administration Guide* for instructions on configuring and running the IQ Agent. You must run the IQ Agent to use Sybase Central.

Installing Sybase IQ Network Client

Note You can install the Sybase IQ Network Client on many end-user machines, remotely, without displaying dialog boxes or requiring interactive responses. For directions, see "Performing a silent installation" on page 44.

Follow the steps in "Installing Sybase IQ Network Client for Windows" on page 41.

Installing without user interaction

You can use the silent installation feature to ensure a uniform Sybase IQ Network Client installation on Windows for a large number of end-user machines. By eliminating end-user input, the silent installation may reduce installation errors.

The silent installation uses a response file as input. The client CD includes a default response file, which automatically accepts all installation defaults. You can create a specialized version of the response file, for example, if you need to install in a nonstandard location, or do not want to reboot the client machine immediately after installing.

This procedure requires that you have a network machine that is visible to all client machines. This can be either the machine where you install IQ, or a separate machine.

❖   **Creating a response file**

Follow these steps only for nondefault silent installations on Windows.

1   Copy the installation CD contents onto a Windows machine in your network.

2   Log in to the machine where you will install IQ Client, using an account with Administrator privileges.

3   Exit any Windows programs running on your machine.

4   Change directory to the location of the *setup.exe* file.

5   Type the following command, which will record all of your responses to installation prompts as you make them:

```
setup -r
```

6   Install Sybase IQ Network Client.

Warning! When creating a response file, do not answer Yes to the dialog box question, "Would you like to restart your computer now?"

When the installation completes, it creates the response file *C:\WINDOWS\setup.iss*.

7   Copy the *C:\WINDOWS\setup.iss* file to the same location as the *setup.exe* file on each machine where you want to perform a silent install based on this response file.

❖ **Performing a silent installation**

Follow these steps to install using the default response file, or a specialized response file you have placed in the client's *setup.exe* directory.

1 Copy the installation CD contents onto the network machine if you have not already done so.

Perform the remaining steps on each machine where you will install IQ silently.

2 Log in to the machine where you will install IQ Client, using an account with Administrator privileges.

3 Exit any Windows programs running on the machine.

4 Open an MS-DOS window and change the drive and directory to the location of the *setup.exe* file on the network machine.

5 Type the following to run the silent installation:

```
setup -s -accept_sybase_license
```

All errors are written to the file *%temp%\Sybase_IQ.install.log*. The TEMP variable defaults to *C:\WINDOWS\Temp*.

Next steps

The next chapter, Chapter 4, "Migrating Data,"describes how to move your data from one version to the next, from a 32-bit to a 64-bit version, and from one hardware platform to another.

CHAPTER 4   **Migrating Data**

About this chapter

This chapter explains how to migrate data from one Sybase IQ version to the next, from 32-bit to 64-bit systems, and across hardware platforms.

> **Note** For information about migrating data between Sybase IQ and other databases, see the *ETL User's Guide for Sybase IQ* (DC00608-01-0421-01). This manual is on the Getting Started Sybase IQ 12.7 Extended Enterprise Edition CD.

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If you have a Sybase IQ version prior to 12.5, you must first upgrade to version 12.5. Refer to the 12.5 *Sybase IQ Installation and Configuration Guide*.

> **Note** Before you install Sybase IQ 12.7, you must upgrade LONG BINARY columns. For instructions, see the appendix, "Upgrading existing LONG BINARY columns" in the manual *Large Objects Management in Sybase IQ*.

Upgrading non-multiplex databases

Overview

Table 4-1 briefly lists the steps for upgrading servers and databases to Sybase IQ 12.7. Details follow the table.

Table 4-1: Upgrading non-multiplex databases

To do this ...	See ...
1. Shut down servers	"Shutting down servers" on page 46
2. Install IQ	"Installing IQ" on page 46
3. Start the server	"Starting the server" on page 47
4. Upgrade databases	"Upgrading databases" on page 47
5. Enforce referential integrity	"Enforcing referential integrity" on page 48
6. Verify after upgrade	"Verifying databases after upgrade" on page 49
7. Back up databases again (recommended)	"Backing up databases after upgrade" on page 49

Before you upgrade

You must have a recent backup before you upgrade to a major release of Sybase IQ.

If you have multiplex servers, instead of following the steps in this section follow those in "Upgrading 12.5 multiplex databases to 12.7" on page 51 or "Upgrading 12.6 multiplex databases to 12.7" on page 54.

Shutting down servers

Before installing Sybase IQ, you must shut down each server. Click the Sybase IQ icon to open the server window, then click Shutdown. You can also stop a server using the STOP ENGINE command from DBISQL or any front-end client.

Installing IQ

Install Sybase IQ, following the instructions in Chapter 2, "Installing Sybase IQ." If you find a software update on the online support Web site, install it before completing the remaining upgrade steps. *In a multiplex, install IQ on every query server before you upgrade the write server.*

Starting the server

To start the server, change to a directory where you have write privileges. Run the start_asiq utility, using the following command format:

start_asiq @*configuration_filename*.cfg -gm 1 -gd *dbname*.db

The *dbname* is the name of the database to upgrade. (You can also start the server using any of the start-up methods described in *Sybase IQ System Administration Guide*.)

Note If you run the utility from a directory that does not contain the database and configuration files, be sure to provide the full path name for the file or files.

Upgrading databases

Upgrading from 12.5 or higher

Run the ALTER DATABASE UPGRADE command against every existing Sybase IQ database to upgrade it to IQ 12.7. This makes the databases compatible with the new version of Sybase IQ.

Upgrading a database adds and modifies system tables, system procedures, and options to enable 12.7 options. It does *not* change the file format used to store and access data on a disk. It also does not remove preexisting options that have been eliminated in version 12.7.

❖   **Upgrading databases to version 12.7**

Performance optimizations in Version 12.7 depend on structural changes and option settings made by the ALTER DATABASE UPGRADE command. The format of the database files is the same as in Sybase IQ Version 12.6, but some system tables, stored procedures, and database options have changed.

To upgrade, follow these steps:

1   Make sure that you have performed the preceding steps in this chapter and installed any available EBFs. For details, see "Finding the latest information on EBFs and software maintenance" on page ix.

2   Disconnect from the database and reconnect to your database (again using an account with DBA privileges).

Be sure to start the server in a way that restricts user connections. Never allow other users to connect when ALTER DATABASE UPGRADE is running. 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')
```

just after you start the connection where you are performing 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.*

3   Start DBISQLC or DBISQL and execute the ALTER DATABASE UPGRADE statement. For example:

```
ALTER DATABASE UPGRADE
```

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

Note   The defaults for MAIN_RESERVED_DBSPACE_MB and TEMP_RESERVED_DBSPACE_MB were increased in version 12.5 for newly created databases. If these options are set to less than the 200MB in your database, set the options to 200MB or 50% of the size of the last dbspace before or immediately after upgrading your database.

Enforcing referential integrity

ALTER DATABASE UPGRADE does not upgrade any unenforced foreign keys defined prior to Sybase IQ version 12.5. See *Sybase IQ System Administration Guide* for details on how to identify existing unenforced foreign keys and enforce referential integrity with them.

Verifying databases after upgrade

Run sp_iqcheckdb to verify the consistency of the upgraded databases.

Note In this step, you run the IQ 12.7 version of sp_iqcheckdb, which uses input parameters, rather than database options, to specify the type of database consistency checking.

❖ **Running sp_iqcheckdb**

1 Issue a CHECKPOINT command.

2 Run sp_iqcheckdb in detailed check mode.

```
sp_iqcheckdb 'check database'
```

If you run the procedure from Interactive SQL, redirect output to a file by typing the following:

```
sp_iqcheckdb 'check database' >& filename
```

3 Issue a COMMIT statement.

Examine the sp_iqcheckdb report for errors. For information on interpreting the sp_iqcheckdb results and corrective action, refer to Chapter 2, "System Recovery and Database Repair," in *Sybase IQ Troubleshooting and Recovery Guide*. If you need to contact Sybase Technical Support, you must provide the output from sp_iqcheckdb.

Backing up databases after upgrade

Sybase recommends that you back up your databases again with the BACKUP statement. For complete syntax, see the *Sybase IQ System Administration Guide*.

This backup after the upgrade is recommended but not required. If you use the IQ BACKUP statement instead of a system-level backup, you can run backups and queries concurrently.

After you upgrade

Updating configuration files

Be sure to compare your existing *params.cfg* files with the new *default.cfg* file created by the installation. The installation does not update or overwrite existing *params.cfg* files. In each *params.cfg* file, update parameter defaults that differ from those in the *default.cfg* file, while maintaining any customized parameter settings appropriate for your system. Be sure that you add any new start-up parameters in *default.cfg* to your *params.cfg* file. The -gl parameter, for example, is required for server start-up in version 12.5 and above.

Checking new option settings

ALTER DATABASE UPGRADE changes many database option settings, including all performance options, to the new default. Some other settings retain their previous value. To see the effect of ALTER DATABASE UPGRADE on your database option settings, you can do any of the following:

• To list current settings for all database options, query the SYSOPTIONS system view:

```
SELECT *
FROM SYSOPTIONS
```

For other ways to list all option settings, see the chapter "Database Options" in the *Sybase IQ Reference Manual*.

• Run sp_iqcheckoptions. This stored procedure displays a list of database options that have been changed from the default value together with the current value of the option and the default value for the connected user. It also displays nondefault server start-up options. For more information, see sp_iqcheckoptions in the chapter "System Procedures" in the *Sybase IQ Reference Manual*.

Note that the Query_Plan option is ON by default, which can lead to a large IQ message file size.

Running a mixed-version multiplex

You can deploy new releases on one server of an existing multiplex without interrupting other servers, as long as the servers being upgraded are version 12.5 or higher. *Always upgrade the write server last.*

Any multiplex where all servers are not at the same version is **mixed-version multiplex**.

New features are completely available only after all databases are upgraded using ALTER DATABASE UPGRADE. If you upgrade databases on a query server, but leave the write server at 12.6, synchronization returns database versions on the query server to version 12.6, and you must repeat the ALTER DATABASE UPGRADE. Databases take their version from the write server.

Synchronizing affects database version, *not the installed software version* on a server. If you install 12.7 software on the query server, that software continues to be at version 12.7 after any synchronizations. Multiple database versions can exist on servers with installed software version 12.7, as shown in Table 1-4 on page 9. However, you must connect to each server using an IQ agent of the same version, and the appropriate agent port.

Be sure to back up the write server before an upgrade. Once you create an IQ Local Store on a query server, you must back up that query server as part of future upgrades.

If you have a mixed-version multiplex with a 12.5 write server, be aware that creating a local store succeeds on a 12.6 or 12.7 query server but is not recognized by the 12.5 write server, and is lost at the next synchronization. (Version 12.5 did not support local stores.)

Upgrading 12.5 multiplex databases to 12.7

Upgrade all multiplex databases to version 12.5 before following the instructions in this section.

Before upgrading
multiplex databases

Note Sybase Central uses default settings for server start-up switches from the *params.cfg* file. The default values of some start-up options, such as those that control cache sizes, may be insufficient for migrating large multiplex servers. For best results, create a configuration file with higher values for switches such as -c, -cl and -ch. Specify this file explicitly when starting the multiplex server for database upgrade. For details about configuration files, see "Configuring the Sybase IQ Server" on page 63.

To upgrade multiplex databases from 12.5 to 12.7, perform the steps in that follow on each server in the multiplex.

To upgrade 12.6 databases, see "Upgrading 12.6 multiplex databases to 12.7" on page 54.

Wherever backup is recommended, you should back up the write server and any query servers where you created an IQ Local Store.

❖ **Upgrading 12.5 multiplex databases**

Note On UNIX systems, you may optionally install 12.7 Sybase IQ software on all the servers in a separate directory from the previously installed version before starting the upgrade process. Once the separate directories are ready, follow the steps below.

---

1 Shut down all the servers.

2 Install Sybase IQ 12.7 on the write server's system. (See Chapter 1.) On UNIX, you can do this before shutting down the servers. On Windows, installation forces a system reboot.

3 If you plan to run only 12.7 servers, skip to Step 4. To run 12.5 servers in the same multiplex as 12.7, install a 12.7 agent on the write server. The 12.7 IQ plug-in is compatible with 12.5 servers, but you must start 12.5 servers with a 12.5 agent and 12.7 servers with a 12.7 agent.

To install the standalone IQ agent where Sybase IQ 12.5 is installed, run *setup.exe*. The install procedure detects the existing version and displays the Optional Agent Install screen.

Choose the option Install a standalone Sybase IQ 12.7 Agent (Alt+A), and click Next.

4 Remove any -n <*servername*> switch in a *params.cfg* file used to start a multiplex database.

5 (Mixed-version multiplex only) Edit the *params.cfg* file in the database directory on each query server to set the following switch(es):

   • Set -iqnomain 1

   • If the query server has local stores, set -iqnolocalreplay 1

   You must set these switches before you run ALTER DATABASE UPGRADE and they must still be set when you synchronize query servers.

6 Start the write server in single node mode using the -iqmpx_sn 1 switch. *If you use a server name different from the write server name, you must also use the override switch,* -iqmpx_ov 1.

Use a unique server name that you have not previously used, as follows:

```
start_asiq @params.cfg -n <upgrade_server>
```

```
-iqmpx_sn 1 -x 'tcpip{port=<writer_port>}' <dbfile>
```

You may use the write server's normal TCPIP port.

7   Disconnect Sybase Central and SQL Remote from the database.

8   **Note** Sybase IQ 12.6 and higher releases enforce column and table
CHECK constraints that were previously unenforced, but only on inserts,
updates, and loads of new data. Before you upgrade the database, Sybase
suggests that you follow the procedure in "Preserving check constraints
before database upgrade" on page 10 to record and recreate constraints.

Connect to the server to be upgraded with dbisqlc or dbisql as DBA. *Make
sure that no other users connect during the upgrade process*. See
"Upgrading databases" on page 47 for recommended syntax to restrict
users.

9   Make sure that you have performed the preceding steps in this chapter and
installed any available EBFs. For details, see "Finding the latest
information on EBFs and software maintenance" on page ix.

10   Upgrade the database by issuing the following command:

```
ALTER DATABASE UPGRADE
```

If the database you are upgrading was created with the Java options set off,
append the keywords JAVA OFF JCONNECT OFF to the preceding
command. For more about the ALTER DATABASE UPGRADE statement,
see the *Sybase IQ Reference Manual*.

Note The defaults for MAIN_RESERVED_DBSPACE_MB and
TEMP_RESERVED_DBSPACE_MB were increased in version 12.5 for
newly created databases. If these options are set to less than the 200MB in
your database, set the options to 200MB or 50% of the size of the last
dbspace before or immediately after upgrading your database.

11   *If your multiplex has a write server with no query servers,* issue the
following statement to convert to a non-multiplex database.

```
call sp_iqendmpx();
```

After you run sp_iqendmpx, you have a non-multiplex database. Skip the
remaining steps in this procedure, see "Enforcing referential integrity" on
page 48, and complete the remaining tasks in "Upgrading non-multiplex
databases" instead.

12 Reset the SQL Remote configuration by issuing the SQL statements:

```
call sp_iqmpxdroppublication()
call sp_iqmpxcreatepublication()
```

You can check the multiplex configuration by issuing:

```
call sp_iqmpxvalidate()
```

It should indicate that dbremote is not running for this server, but there should be no other errors.

13 Install Sybase IQ 12.7 on each query server system, if not done in advance. Windows systems reboot as part of software installation.

14 Start Sybase Central, connect, and run Synchronize from the write server.

15 (Mixed-version multiplex only) Edit the *params.cfg* file in the database directory on the upgraded query server as follows:

• Remove the -iqnomain 1 switch

• If the query server has local stores, remove the -iqnolocalreplay 1 switch

Restart the query server that you just upgraded.

16 Perform the ALTER DATABASE UPGRADE and subsequent steps on each query server in the multiplex.

All upgraded servers in the multiplex environment are now running version 12.7.

After upgrading multiplex databases   Because the shared top-level directory is not a good location for database files, you should move these files to directories local to each server in the multiplex environment. For instructions, see the section "Migration" in Chapter 14, "Data Backup, Recovery, and Archiving" in the *Sybase IQ System Administration Guide*. After you move all database files, you can remove the shared top-level directory from the server systems if desired.

See also "After you upgrade" on page 50 for other items you may want to check after upgrading.

Upgrading 12.6 multiplex databases to 12.7

To upgrade multiplex databases from 12.6 to 12.7, perform the following steps.

❖ **Upgrading 12.6 multiplex databases**

1   Shut down all the servers.

2   Install Sybase IQ 12.7 on the write server's system. (See Chapter 1.) On Windows, installation forces a system reboot.

3   If you plan to run only 12.7 servers, skip to Step 4. To run 12.6 servers in the same multiplex as 12.7, install a 12.7 agent on the write server. The 12.7 IQ plug-in is compatible with 12.6 servers, but you must start 12.6 servers with a 12.6 agent and 12.7 servers with a 12.7 agent.

    To install the a standalone 12.7 IQ agent where Sybase IQ 12.6 is installed, run *setup.exe*. The install procedure detects the existing version and displays the Optional Agent Install screen:

    Choose the option Install a standalone Sybase IQ 12.7 Agent (Alt+A) and click Next.

4   Remove any -n <*servername*> switch in a *params.cfg* file used to start a multiplex database.

5   (Mixed-version multiplex only) Edit the *params.cfg* file in the database directory on each query server to set the following switch(es):

    •   Set -iqnomain 1

    •   If the query server has local stores, set -iqnolocalreplay 1

    You must set these switches before you run ALTER DATABASE UPGRADE and they must still be set when you synchronize query servers.

6   Disconnect Sybase Central and SQL Remote from the database.

7   Start the write server in single node mode using the -iqmpx_sn 1 switch. *If you use a server name different from the write server name, you must also use the override switch,* -iqmpx_ov 1.

    Use a unique server name that you have not previously used, as follows:

    ```
    start_asiq @params.cfg -n <upgrade_server>
    -iqmpx_sn 1 -x 'tcpip{port=<writer_port>}' <dbfile>
    ```

    You may use the write server's normal TCPIP port.

Note

Sybase IQ 12.6 and higher releases enforce column and table CHECK constraints that were previously unenforced, but only on inserts, updates, and loads of new data. Before you upgrade the database, Sybase suggests that you follow the procedure in "Preserving check constraints before database upgrade" on page 10 to record and recreate constraints.

Connect to the server to be upgraded with dbisqlc or dbisql as DBA. *Make sure that no other users connect during the upgrade process*. For suggested syntax, see "Upgrading databases" on page 47.

8   Make sure that you have performed the preceding steps in this chapter and installed any available EBFs. For details, see "Finding the latest information on EBFs and software maintenance" on page ix.

9   Upgrade the database by issuing the following command:

```
ALTER DATABASE UPGRADE
```

If the database you are upgrading was created with the Java options set off, append the keywords JAVA OFF JCONNECT OFF to the preceding command. For more about the ALTER DATABASE UPGRADE statement, see the *Sybase IQ Reference Manual*.

10   Reset the SQL Remote configuration by issuing the SQL statements:

```
call sp_iqmpxdroppublication()
call sp_iqmpxcreatepublication()
```

To check the multiplex configuration, issue this statement:

```
call sp_iqmpxvalidate()
```

It should indicate that dbremote is not running for this server, but there should be no other errors.

11   Install Sybase IQ 12.7 on each query server system, if not done in advance. Windows systems reboot as part of software installation.

12   Start Sybase Central, connect, and run Synchronize from the write server.

13   (Mixed-version multiplex only) Edit the *params.cfg* file in the database directory on each query server as follows:

-   Remove the -iqnomain 1 switch

-   If the query server has local stores, remove the -iqnolocalreplay 1 switch

Restart the query server that you just upgraded.

14 Perform the ALTER DATABASE UPGRADE and subsequent steps on each query server in the multiplex.

All upgraded servers in the multiplex environment are now running version 12.7.

Migrating databases to a 64-bit system

This section describes how to migrate your database from a 32-bit to a 64-bit hardware platform.

Prerequisite   The procedures assume your database is already upgraded to Sybase IQ 12.7.

❖ **Migrating databases to a 64-bit machine**

1   Back up the database.

2   Shut down the server.

3   Install the Sybase IQ 64-bit software and any required ESDs.

4   If the current version of Sybase IQ is higher than the version on which you were previously running, start Interactive SQL and issue the database upgrade statement:

ALTER DATABASE UPGRADE

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

5   Start the server.

Sybase recommends that you perform regular backups.

Upgrading Sybase IQ ETL

To upgrade Sybase IQ ETL, follow the instructions in this section.

Upgrading Sybase IQ ETL Server version only

To upgrade Sybase IQ ETL Server to a higher version, you must install the new version in a different directory or uninstall the older version and install the new version.

If you decide to remove the older server directory, take care not to remove the ODBC or native connectivity files. This includes the *.odbc.ini* file or any ODBC or native drivers.

UNIX and Linux installation

On UNIX or Linux systems, follow these steps:

❖ **Upgrading Sybase IQ ETL Server on Linux or UNIX**

1 Install the new ETL server/grid engine in a different directory

2 Shut down the old GridNode, by entering the following at the command prompt:

```
./GridNode.sh -shutdown
```

3 Check that shutdown succeeded:

```
ps -e | grep GridNode
```

4 If GridNode is still running, kill the process.

5 Copy the files in the *licenses* directory from the old to the new installation.

6 Copy the *.ini* files in the *etc* directory from the old to the new installation.

7 Start the new ETL server/grid engine.

To start it directly, use

```
GridNode.sh
```

To start the ETL server as a service, use:

```
GridNode.sh -install
```

8 Check that startup succeeded:

```
ps -e | grep GridNode
```

9 If GridNode is running, you may delete the older ETL server by removing its install directory.

Be that sure the *.odbc.ini* file containing all defined data sources is not in the directory with the older ETL Server. If it is and you plan to delete the older server directory, move the *.odbc.ini* to a different directory.

Windows installation

Warning! The following steps do not apply to the ETL Server/grid engine installed with Sybase IQ ETL Development client. See "Upgrading Sybase IQ ETL Development" on page 59 for information about upgrading the ETL Server/grid engine installed with the ETL development client.

On Windows systems, you may leave the older version of the ETL server/grid engine and install the newer one in a different directory. You must shut down GridNode if it is running as a system service. To end a GridNode process running as a service, open the Windows Task Manager and display the Processes tab. Select the GridNode.exe process or processes, if more than one is running, and click End Process. (Do not use Control Panel > Administrative Tools > Services.) Make sure that no GridNode is running when you install a new version.

You may uninstall the older ETL server/grid engine using the Control Panel | Add/Remove Programs option and then install the new ETL server/grid engine.

Upgrading Sybase IQ ETL Development

Follow the procedures in this section to upgrade Sybase IQ ETL Development.

❖ **Preparing to upgrade Sybase IQ ETL Development**

1 Check for the process *GridNode.exe* in the Task Manager.

2 Make sure that the Show Processes From All Users box is selected.

3 If you find the GridNode.exe process, end this task.

4 If using MS Access repositories located in the application directories, copy the database files and make the ODBC Data Source point to the new location.

❖ **Upgrading Sybase IQ ETL Development**

1 Install the new version in a different directory.

2 Copy the *.ini* files (except for *components_*.ini*) in the *etc* directory from the old to the new installation.

3 Start the new Sybase IQ ETL Development version.

4 Connect to an existing repository.

5 Check whether the GridNode is running. (See "Preparing to upgrade Sybase IQ ETL Development".)

After successful installation:

*   Delete and recreate job schedules (if any). (For details, see *ETL User's Guide for Sybase IQ*.)

*   You may uninstall the older ETL Development version

Migrating across hardware platforms

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 and create a new data backup before migrating to another platform.

❖   **Migrating a database from one platform to another**

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" on page 46.

CHAPTER 5   **Configuring Sybase IQ**

About this chapter

This chapter explains how to configure Sybase IQ for access by client applications, for backups, and for security.

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Configuring the Sybase IQ Server

A configuration file lists options that you want to set whenever you start your server. Installing Sybase IQ creates a configuration file called *asiqdemo.cfg* for the sample database. When you start the sample database, IQ runs this configuration file.

For example, for an *asiqdemo* database on a system named *arches*, the *asiqdemo.cfg* file might look like this:

```
-n  arches_asiqdemo
-x tcpip{port=2638}
-c 32m
-gc 20
-gd all
-gl all
-gm 10
-gp 4096
-ti 4400
```

The *asiqdemo.cfg* file sets parameters that govern Sybase IQ to the following recommended defaults:

Table 5-1: Parameters set by asiqdemo.cfg

Parameter	Value	Description
-n	<HOSTNAME>_asiqdemo	Name of system followed by "_asiqdemo"
-c	32MB on 32-bit systems, 48MB on 64-bit systems	Catalog store cache size
-gc	20 minutes	Checkpoint interval
-gd	all	Users permitted to start a database
-gl	all	Users permitted to load a table
-gm	10	Default number of connections
-gp	4096	Catalog store page size
-ti	4400	Client timeout
-x	tcpip{port=xxxx}	Network connection protocol where xxxx=port number

You can use the *asiqdemo.cfg* file as a template to create configuration files for all of your databases, if you make sure to:

• Change the *asiqdemo.cfg* file name

• Replace the −n value with a unique server name

• Replace the −x port number with a unique port number for that server

When specifying network connections, you need a different *server name:port#* combination for each database server. When you connect to the server, you need to specify the same combination used to start the server.

Default configuration file

If required parameters are not supplied in the start-up command, the *asiqdemo.cfg* file uses the parameter values from *%ASDIR%\scripts\default.cfg*. This file is also the source of parameters for the Service Manager, and for the *params.cfg* file used by Sybase Central and in multiplex configurations. You can maintain consistency by editing parameters in *default.cfg*.

It may be necessary to adjust parameters if virtual memory is inadequate. You can address this by reducing use by other programs, adding swap space to machines, or reducing IQ memory demand (cache sizes, thread count, and/or thread stack size).

Security and
configuration files

To protect password information, you can encrypt your configuration files using the dbfhide (File Hiding) utility. For details see the *Adaptive Server Anywhere Database Administration Guide*. If you specify log file parameters (-o *logfile*) in encrypted files, the log is not available to the IQ Agent or start_asiq, which is unable to display server log information back to the database administrator. Sybase recommends that you put log file parameters and others that do not require encryption on the command line or in a separate configuration file. For example:

```
start_asiq @encrypt_params @other_params
```

or

```
start_asiq @encrypt_params -n myserv -c 400 -o
$ASDIR/logfile/myserv.log
```

Installing Sybase IQ as a Service

You can use the Add Service utility to install Sybase IQ as a Windows Service. This enables you to start a Sybase IQ server automatically whenever the machine is booted, or to start and stop previously installed IQ Services using the Services dialog from Control Panel. The Add Service utility is *ASIQservice.exe* under *%ASDIR%/win32*.

Note To use Sybase IQ as a Windows service when raw device access is required, the user must grant the service Administrator privilege. For instructions, see "Granting Administrator privilege to the Sybase IQ service" on page 67.

To run Add Service, use Start > Programs > Sybase > Adaptive Server IQ 12.6 > Sybase IQ Service Manager. You can also run it from Sybase Central by double-clicking Add Service in the Utilities folder.

❖ **Creating a new service**

1   Choose Create a New Service.

2   Type the name you want to assign your new service.

3   Type any start-up parameters you need. Be sure to include the full path in the database file name. The server cannot start without a valid database path name. For an example of start-up parameters, see *%ASDIR%\asiq12\demo\asiqdemo.cfg*.

4   Click Apply and then OK.

The next time you start the Add Service utility, the newly created service is listed. If there are any previously created IQ services, they are also listed. If you select any one of them, you can choose Modify an Existing Service or Delete an Existing Service. These options are dimmed if there is no existing service.

Note Copy input files for loading your databases into the directory where the service starts, not where the database files are. On most systems, the services start-up defaults to the *WINNT\system32* directory.

Starting multiplex servers

When you start multiplex servers, remember that for full data replication functionality they require the dbremote utility to run on the write server. Sybase provides shell scripts in the write server database directory to start dbremote for each server in the multiplex. There is currently no service mechanism to start these processes automatically; this is up to the user. For example, a DBA can add an entry in the Windows registry so that these processes start as soon as the DBA logs into the system, as described in the next section.

Note that dbremote is required only for version information replication and servers are still viable without it. The write server, however, will not drop old versions of tables in IQ Main because it will not know that query servers have stopped using them.

Setting up dbremote in the Registry Editor

Follow this procedure to start a dbremote process the next time the user (for example, the Administrator) logs in.

❖ **Starting a dbremote process automatically**

1   To run the Registry Editor, enter the following at the command prompt:

    regedit

2   Right-click *HKEY_Current_User\Software\Microsoft\Windows\CurrentVersion\Run*

3   From the drop-down menu, select New > String Value.

4   Type a name for your dbremote start-up process. For example:
    write_server_dbremote

5   Select the string value. Type Value data in the Edit String dialog box. For example:

```
m:\mpx_test\write_server54\start_dbr_write_server54.bat
```

Suppressing Windows event log messages

If you run the database server as a Windows service, you can suppress event log entries by setting a registry entry. The registry entry is *Software\Sybase\Adaptive Server Anywhere\9.0.*

To control event log entries, set the EventLogMask key, which is of type REG_DWORD. The value is a bit mask containing the internal bit values for the different types of event messages:

```
errors EVENTLOG_ERROR_TYPE 0x0001
warnings EVENTLOG_WARNING_TYPE 0x0002
information EVENTLOG_INFORMATION_TYPE 0x0004
```

For example, if the EventLogMask is set to zero, no messages appear at all. A better setting would be 1, so that informational and warning messages do not appear, but errors do. The default setting (no entry present) is for all message types to appear.

Granting Administrator privilege to the Sybase IQ service

To use Sybase IQ as a Windows service when raw device access is required, you need to grant the Sybase IQ service Administrator privilege.

❖ **Granting Administrator privilege to the Sybase IQ service**

1   Select Control Panel > Administrative Tools > Services.

2   Select the Sybase IQ service from the service list and click Startup.

3   On the Service dialog window, select the Automatic option under Startup Type, if not already selected.

4   Under Log On As, select the This account option button. Enter the user name to an account with Administrator privilege and type the password.

5   Click OK when you finish assigning the administrator.

6   Click Close inside the Services dialog to close the dialog window.

Configuring backup devices

Windows systems do not specify rewind or no rewind devices and support only fixed-length I/O operations to tape devices. Sybase IQ requires variable-length devices. It does additional processing to accommodate fixed-length tape I/O.

Whereas Windows supports tape partitioning, Sybase IQ does not use it, so do *not* use another application to format tapes for Sybase IQ backup or restore. Windows has a simpler naming strategy for its tape devices.

For more information about fixed-length I/O on Windows, see the *Sybase IQ Performance and Tuning Guide*.

For information on naming and specifying tape devices on Windows, see the chapter "Backup and Data Recovery" in the *Sybase IQ System Administration Guide*.

Configuring client connectivity

Sybase IQ supports ODBC and JDBC applications. It uses Adaptive Server Anywhere as the server for storing catalog information.

Sybase IQ versions prior to 12.0 used Adaptive Server Enterprise as catalog server. ODBC applications used as client front-end tools with older versions of Sybase IQ will continue to run in Sybase IQ 12.7, but third-party and customer-written Open Client™ DB-Library and Client-Library applications are unlikely to perform as expected.

The only Open Client applications that run with Sybase IQ *12.x are user-written or isql applications that use only catalog tables or system stored procedures supported by both Adaptive Server Enterprise and Adaptive Server Anywhere (ASA).*

Sybase IQ is compatible with clients (like Open Client-Library and DB-Library) that use TDS. Open Client version 11.1.1 supports TDS 5.x and applications would therefore work with Sybase IQ, but only if these applications use the system tables, views, and procedures that are found in Sybase IQ. System procedures, catalog tables, and views available in Sybase IQ are listed in the *Sybase IQ Reference Manual*. There are no restrictions to accessing data in the IQ Store through any supported interface.

Connecting using JDBC

JDBC provides a SQL interface for Java applications. Sybase Central and DBISQL can use either JDBC or ODBC. This section describes how to configure a JDBC connection for Sybase IQ. For an overview of using JDBC, see "Data Access Using JDBC" in the *Sybase IQ System Administration Guide*.

Note The jConnect driver is the default driver for the Sybase IQ plug-in to Sybase Central. The iAnywhere JDBC driver is the dbisql default driver. You must specify -jconnect on the dbisql command line to use the jConnect driver.

In order for Sybase IQ to access a server on your network using JDBC, you must supply the host name, port number, and database name when you connect.

For example, in Sybase Central, choose Connect from the Tools menu, and supply connection information. IQ supplies the host machine, port number, and database name from the last successful connection. If those are correct, you need only supply User ID and Password.

In the DBISQL Connect dialog, you can choose the iAnywhere JDBC driver using an option button on the Advanced tab.

Connecting using ODBC

Open Database Connectivity (ODBC) is a standard application programming interface (API) developed by Microsoft. It allows a single application to access a variety of data sources for which ODBC-compliant drivers exist. The application uses SQL as the standard data access language.

ODBC conformance

Sybase IQ supports ODBC 3.5.2.

Levels of ODBC support

ODBC drivers manufactured by different vendors may vary widely in the functions they provide. ODBC features are arranged according to a level of conformance. Features are either Core, Level 1, or Level 2, with level 2 being the most complete level of ODBC support. These features are listed in the *ODBC Programmer's Reference*, which is available from Microsoft Corporation as part of the ODBC software development kit or from the Microsoft Web site. Using your browser, go to the Microsoft Web site at http://www.microsoft.com.

Features supported by Sybase IQ

Sybase IQ ODBC 3.5.2 support is as follows:

- **Core conformance**   Sybase IQ supports all Core level features.

- **Level 1 conformance**   Sybase IQ supports all Level 1 features, except for asynchronous execution of ODBC functions.

  Sybase IQ does support multiple threads sharing a single connection. The requests from the different threads are serialized by Sybase IQ.

- **Level 2 conformance**   Sybase IQ supports all Level 2 features, except for the following:

  - Three-part names of tables and views. This is not applicable for Sybase IQ.

  - Asynchronous execution of ODBC functions for specified individual statements.

  - Ability to time out login request and SQL queries.

ODBC 3.5.x new features

Although you can use new ODBC 3.5.x features such as descriptors in your ODBC applications, ODBC 2.x applications will continue to work with Sybase IQ.

Installing ODBC drivers

You need to install the Sybase IQ Client Components on each client computer in your network.The Sybase IQ 32-bit ODBC Driver is shipped with Sybase IQ as part of the Network Client CD and installed automatically. For details, see "Installing Sybase IQ Enterprise Edition" on page 25.

The ODBC driver shipped with Sybase IQ connects clients on a Windows platform or the platform of the IQ server to the IQ server. To connect clients on UNIX or Linux platforms to your server, you must download and install a platform-specific Sybase IQ ODBC Driver. Check the EBF/Update information on the Web for the appropriate driver, following the steps in "Sybase EBFs and software maintenance" on page ix.

Using UNIX-based query tools through ODBC

Applications that use ODBC connect to a software component called a driver manager, which provides a standard interface and a variety of basic services. The driver manager then connects to the specific ODBC driver, which accesses the requested data source. On Windows, the driver manager is a standard part of the environment. On UNIX or Linux, no standard ODBC driver manager is provided.

There are several ways driver manager functionality can be presented to an application. It is easiest to use the driver manager emulation capabilities provided by the Sybase IQ ODBC driver. Many tools (like Brio) that do not require extensive driver manager services can use the symbolic links provided with Sybase IQ to connect directly to the driver.

Some tools require the presence of a driver manager. Some (like Whitelight) ship with a driver manager, others do not. For information and recommendations about compatible driver managers available, see the documentation for the application.

Third-party ODBC applications

Several popular PC applications have been tested in-house with Sybase IQ using the ODBC interface. Other front-end clients may work with Sybase IQ, but have not been tested.

For information on third-party vendor applications that are certified with Sybase IQ, refer to the section "Sybase certifications on the Web" in the *Sybase IQ Release Bulletin*.

The Sybase IQ ODBC Driver is shipped with Sybase IQ as part of the Network Client CD and installed automatically.

See "Creating ODBC data sources" on page 72 for information on how to set up an ODBC Data Source if you need to access a database or data file over a network using ODBC.

Usage notes for client applications

The following notes apply to third-party PC client applications certified with Sybase IQ:

- With BrioQuery, each query requires you to connect to the database. Be sure to close the query after processing to ensure that the connection to Sybase IQ is closed. If you leave multiple queries open, you could consume more connections than you realize, eventually preventing other users from connecting to Sybase IQ (since the number of configured connections would be exceeded).

- In order to create attribute tables for PowerBuilder properly, you need to run the *iqpb.sql* script located in the Server directory on the PowerBuilder product CD against Sybase IQ v.12.0.x using the provided Sybase IQ ODBC driver. Earlier versions of PowerBuilder (6.5 and below) do not include the script. In this case, obtain the script from the Sybase FTP Web site. Contact your PowerBuilder support representative if you need additional information or a newer version of PowerBuilder.

See the *Sybase IQ Release Bulletin* for problems that may affect using PC client applications with Sybase IQ.

Note The AUTOSTOP parameter is required in file data sources and *odbc.ini* files. It should always be set to NO.

Creating ODBC data sources

You need an ODBC data source on the client computer for each Windows database you want to access using ODBC. A data source describes how to get to data on a network. For example, a data source may include the name of a database, the server where it resides, and the network used to access the server.

Note The AUTOSTOP parameter is required in file data sources and *odbc.ini* files. It should always be set to NO.

On Windows XP and 2000, the ODBC Administrator adds new data sources for you. Each data source allows you to access a database over a network by means of ODBC.

❖ **Creating an ODBC data source**

1   To start the ODBC Administrator on your Windows client system, select Sybase > Data Access > ODBC Data Source Administrator.

2   In the ODBC Data Source Administrator, click Add on the User DSN tab.

3   In the Create New Data Source dialog box, select the Adaptive Server IQ driver and click Finish.

4   In the ODBC Configuration box, type the Data Source Name in the text box where your cursor is by default (Alt+s).
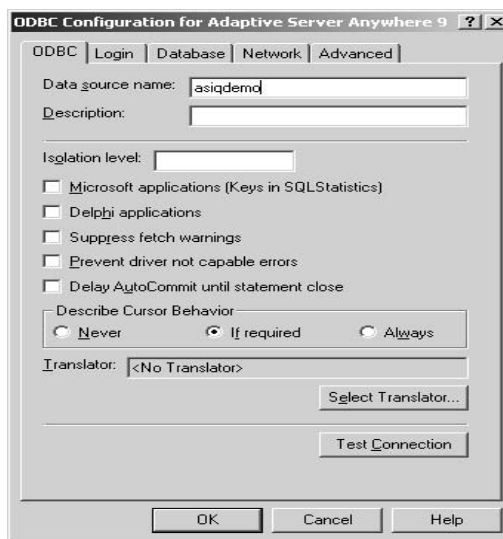
5 Now click the Login tab. Type the User ID and Password for your database. For the sample database used in this example, use "DBA" and "SQL".
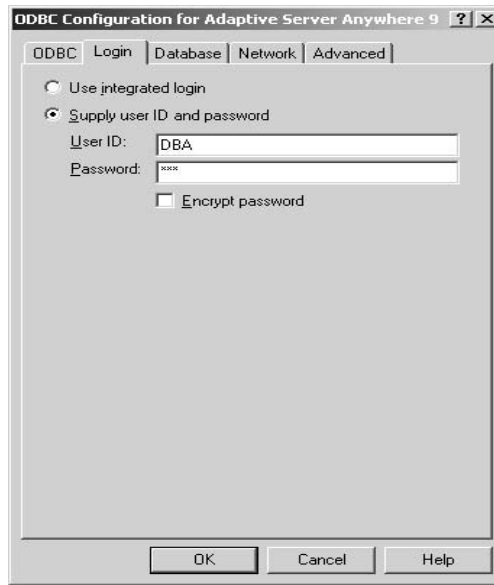
6   Click the Database tab. If the data source is on a remote machine, type the server name and database file name. (The database file is used only if the database is not started automatically on server start-up.)
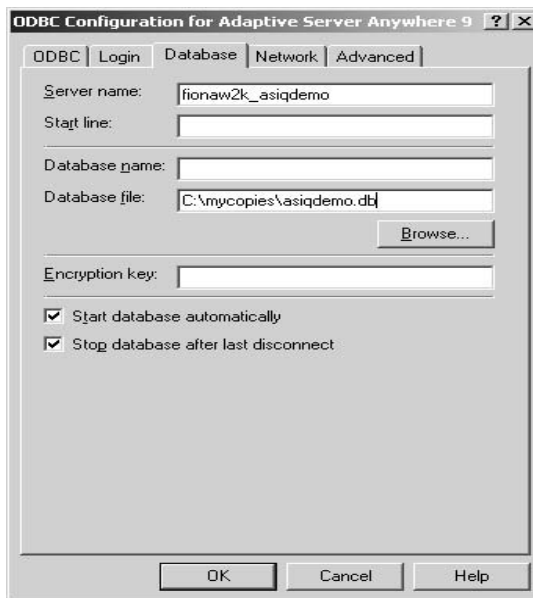
If the data source is on your local machine, type a start line and database name (without the *.DB* suffix) and skip to Step 8.

7   If the data source is on a remote system, click the Network tab. Click the box for the appropriate protocol and specify the options beside the box. For example, to connect to server on system fionaw2k using TCP/IP protocol and port 1870, you would click TCP/IP and type `host=fionaw2k:port=1870.`
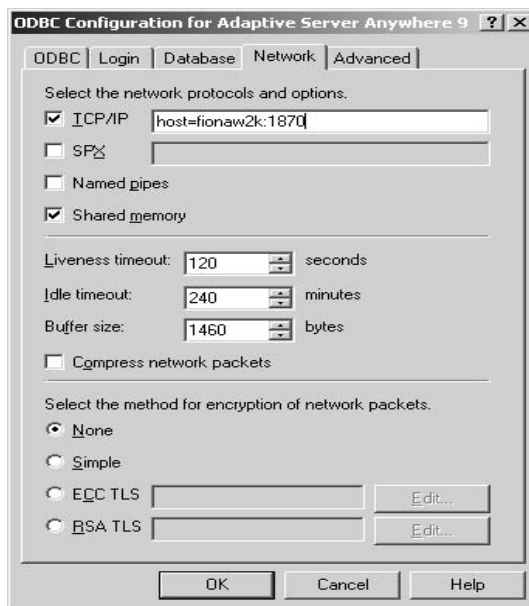
You could also use the host network address. For example:

```
host=157.133.66.75:1870
```

Note When specifying network connections, you need a different *systemname*:*port#* combination for each database server. The port number must match the one you use when you start the server.

8   Click OK when you have finished defining your data source.

9   The ODBC Data Source Administrator returns you to the User DSN tab.

Note You cannot connect to a Sybase IQ 12.7 server using an ODBC Data Source Name created for a 12.5 server, even if you specify the same server name, port number, and database name. Use the ODBC Data Source Administrator to remove DSNs created in 12.5 and add new DSNs.

You can use files as data sources instead of databases. File data sources are stored as files with the extension.*dsn*. For information about creating a file data source, see the *Sybase IQ System Administration Guide*.

❖ **Testing an ODBC data source**

1 Start the database. (To start the Sample Database, use Start > Programs > Sybase > Adaptive Server IQ 12.7 > Start Sybase IQ Demo Database.)

2 In the ODBC Data Source Administrator, select your new data source from the list of User Data Sources.

3 Click Configure.

4 On the ODBC Configuration dialog box, click Test Connection.

If you cannot access the data source, check that you have filled out the various tabs with correct file and path names.

Command-line connection to 32-bit applications

To connect to 32-bit applications without using a data source, enter an Interactive SQL command like the following at the command prompt:

```
dbisql -c "UID=DBA;PWD=SQL;AUTOSTOP=no;
DBF=C:\Program Files\Sybase\
Adaptive Server IQ 12\asiqdemo.db"
```

This dbisql command can have the following parameters:

UID — user ID
PWD — password
ENG — engine name
COMMLINKS — tcpip (port=*engine_port_number*)
AUTOSTOP — no
DBF — database file name with path

The DBF parameter is used only with embedded databases.

Note The AUTOSTOP parameter is required. It should always be set to NO.

Note When specifying network connections, you need a different *engine name*:*engine_port_number* combination for each database server. The port number must match the one you use when you start the server.

Connecting using OLE DB

OLE DB is a data access model from Microsoft. It uses the Component Object Model (COM) interfaces and, unlike ODBC, OLE DB does not assume that the data source uses a SQL query processor. Although it has been possible to access Sybase IQ via OLE DB using an OLE DB/ODBC bridge provided by Microsoft, this release of Sybase IQ includes an OLE DB provider. If you use the Sybase IQ OLE DB provider, ODBC is not required in your deployment.

OLE DB requires a Windows client. However, you can access both Windows and UNIX servers using OLE DB. For more information, see the *Adaptive Server Anywhere Programming Interfaces Guide*.

Sybase IQ support for certain features used with OLE DB differs from Adaptive Server Anywhere support. Be aware of these differences when using the Adaptive Server Anywhere documentation:

• Sybase IQ does *not* support Windows CE.

• Sybase IQ does *not* support remote updates through a cursor.

• Sybase IQ supports Dynamic (dynamic scroll), Static (insensitive), and and Forward only (no-scroll) cursors, but does *not* support Keyset (scroll) cursors.

• In Sybase IQ the isolation level is always 3, no matter what you specify.

For information on connecting to a database using OLE DB, see the *Sybase IQ System Administration Guide*.

Connecting using Open Client

If you need to insert from an Adaptive Server Enterprise database to a Sybase IQ database, or you want to connect using ISQL, each server must have an entry in the interfaces file on the client computer. Interfaces file entries, also called **server objects**, also simplify database start-up. Use DSEDIT (Directory Services Editor) to create entries in the interfaces file. You must be the owner of the Sybase home directory (%SYBASE%) to run DSEDIT.

Adding server objects also simplifies connections to servers from Sybase Central.

❖ **Adding a server object**

   1   Start Programs > Sybase > Open Client Directory Service Editor.

   2   Click OK.

   3   Select Server Object > Add from the menu bar.

   4   Type the server name. *The server name in your DSEDIT entry must be the same as the database name.*

   5   Click OK.

6   Select Server Address.
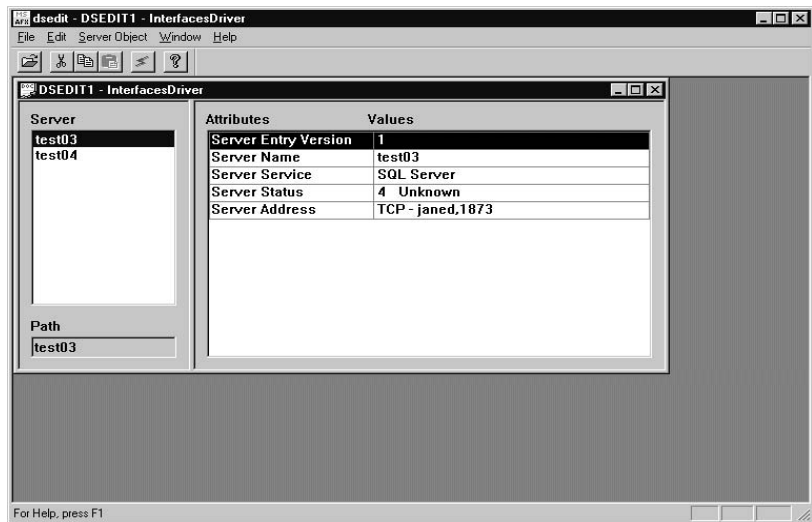
7   Right-click Server Address and select Modify Attribute.

8   Click Add.

9   Use the drop-down box to select the desired protocol. For example, TCP.

10   In the Network Address box, type the hostname and port number, separated by a comma. For example:

You can substitute the network address for the hostname (for example, "157.133.75.47,1234").

11   Click OK.

12   To test the server's availability, right-click on any of the Attributes and select Ping Server.

13   Click Ping to test the server.

14   Click OK and Done when finished.

Running client and server on the same system

Shared memory is the default communications mechanism when the client and server are on the same system. It is configured automatically, and starts up automatically, on both UNIX and Windows platforms. When the client and server are on the same machine and the -hs option is not used to start the server, Sybase IQ uses a shared memory segment and several semaphores for communication.

Network issues for IQ servers

Properly configured Sybase IQ database servers on Windows run on networks using the TCP/IP protocols.

The client library for each platform supports the same protocols as the corresponding server.

In order for Sybase IQ to run properly, the protocol stack on the client and server computers must be compatible at each layer.

Using Sybase IQ with TCP/IP

TCP/IP is a suite of protocols originally implemented by the University of California at Berkeley for BSD UNIX. TCP/IP is gaining widespread use with the expansion of the Internet and the World Wide Web. Different TCP/IP implementations rely on particular data link drivers to work correctly. For example, TCP/IP for OS/2 relies on NDIS drivers as the data link protocol, whereas TCP/IP for NetWare relies on ODI drivers for correct operation.

The TCP/IP protocol is not associated with any specific software vendor. There are many implementations of TCP/IP available from different vendors, and many different programming interfaces to TCP. Consequently, IQ supports only certain TCP/IP implementations on each platform. For details, see the subsections below for each platform. As all TCP/IP implementations do implement the same protocol suite, they are all compatible.

User Datagram Protocol

There are several entries into the TCP/IP protocol stack. IQ employs the User Datagram Protocol (UDP). Although it is called a transport protocol here and elsewhere, UDP provides little more than a user interface to the network layer IP. In particular, UDP is not a guaranteed transmission protocol.

Verified TCP/IP protocol stacks

Many vendors supply TCP/IP protocol stacks and associated software. IQ communications have been explicitly verified with the following TCP/IP implementations.

	• **Windows** Microsoft Winsock version 2.0.
Using TCP/IP with Windows	Windows NT 3.5 and later ship with TCP/IP software that uses NDIS network drivers. Install TCP/IP Protocol from Control Panel, Network Settings.
	This software allows an IQ server for Windows or an IQ client application to use Windows TCP/IP.
Tuning Sybase IQ performance under TCP/IP	Although the default packet size for TCP/IP is 512 bytes, a larger packet size may improve query response time, especially for queries transferring a large amount of data between a client and a server process. You can set the packet size using the -p parameter on both the IQ client and the database server command lines.

Connecting across a firewall

There are restrictions on connections when the client application is on one side of a firewall, and the server is on the other. Firewall software filters network packets according to network port. Also, it is common to disallow UDP packets from crossing the firewall.

When connecting across a firewall, you must use a set of communication parameters in the CommLinks connection parameter of your application's connection string.

- Set the UseUDP parameter to OFF to prevent UDP packets from being used to locate the server. You can use the short form UDP.

- Set the ClientPort parameter to a range of allowed values for the client application to use. You can then configure your firewall to allow these packets across. You can use the short form CPort.

- Set the HOST parameter to the host name on which the database server is running. You can use the short form IP.

- If your database server is not using the default port of 2638, you must specify the port it is using, in the ServerPort parameter. You can use the short form Port.

For more information on these parameters see the *Sybase IQ System Administration Guide*.

Example

The following connection string fragment restricts the client application to ports 5050 through 5060, disables UDP packets, and connect to a server named myiq running on the machine at address myhost using the server port 2020.

```
CommLinks=tcpip(UseUDP=OFF;ClientPort=5050-
5060;Host=myhost;Port=2020;Eng=myiq)
```

Additional networking
details

For more detailed information on networking and protocol stacks, refer to networking-specific documentation.

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