SYBASE®

Installation and Configuration Guide

Sybase® IQ

12.6

[WINDOWS]

Contents

About This Book

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

- Installing Sybase® IQ

- Migrating Sybase IQ data from older versions to this version

- 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. This guide assumes no technical knowledge of the Sybase products.

How to use this book

This book contains step-by-step instructions for installing and configuring Sybase IQ.

The following table shows which chapters fit a particular interest or need.

Table 1: Guide to using this book

To do this...	See...
Install Sybase IQ for the first time	Chapter 1
Install Sybase IQ 12.6 at a site with an existing version	Chapter 2
Install the Sybase IQ Network Client	Chapter 3
Configure Sybase IQ after installation	Chapter 4
Use a client front-end with Sybase IQ	Chapter 4

Related documents

Documentation for Sybase IQ:

- *Introduction to Sybase IQ*

  Read and try the hands-on exercises if you are unfamiliar with Sybase IQ, with the Sybase Central™ database management tool.

- *New Features in Sybase IQ 12.6*

  Read just before or after purchasing Sybase IQ for a list of new features.

- *Sybase IQ Performance and Tuning Guide*

Read to understand query optimization, design, and tuning issues for very large databases.

- *Sybase IQ Reference Manual*

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

- *Sybase IQ System Administration Guide*

  Read for a full description of administrative concepts and procedures and performance tuning recommendations supported by Adaptive Server IQ.

- *Sybase IQ Troubleshooting and Error Messages Guide*

  Read to solve problems, perform system recovery and database repair, and understand both IQ error messages which are referenced by SQLCode, SQLState and message text, and SQL preprocessor errors and warnings.

- *Sybase IQ Utility Guide*

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

- *Large Objects Management in Sybase IQ*

  Read to understand 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.

- *Sybase IQ Release Bulletin*

  Read just before or after purchasing Sybase IQ for an overview of new features and for last minute changes to the product and documentation. Read for help if you encounter a problem.

Note 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 Error Messages*

  This book lists all Adaptive Server Anywhere error messages with diagnostic information.

- *Adaptive Server Anywhere SQL Reference Manual*

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

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

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/.

- The Infocenter Web site is an online version of SyBooks manuals as Eclipse Online Help that you can access 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   Select Products from the navigation bar on the left.

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

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

5   Click a Certification Report title to display the report.

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

For information about accessibility support in the Sybase IQ plug-in for Sybase Central, see "Using accessibility features" in *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.

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

CHAPTER 1   Installing Sybase IQ

This booklet is your guide to installing Sybase IQ. It also describes configuration issues specific to your platform.

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

This chapter tells you how to install the following software products:

- Sybase IQ
- Sybase Central Java™ Edition
- SDK (Software Developer's Kit)
- Sybase jConnect JDBC Driver
- Java Runtime Environment

There are two sets of products:

- To install components required for *operation as* a network server, install the Sybase IQ *Server Components*. See "Installing Sybase IQ Server Components" on page 13.
- To install components required for *connection to* a network server, see Chapter 2, "Installing Sybase IQ Network Client."

Before you install

You must uninstall previous versions of products before you install Sybase IQ 12.6. Please read this section carefully before installing or uninstalling.

Note Sybase strongly recommends that you do not run Adaptive Server Anywhere and Sybase IQ on the same Windows machine. The environment variables for the product installed latest overwrite those of the product installed first, causing startup problems for the first product.

Plug-in requirements

For full Sybase Central functionality, this version of Sybase IQ 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 1-1: Plug-in compatibility with Sybase IQ installed products

Plug-in	Sybase IQ	Sybase Central Toolkit	Agent	JRE
IQ 126	12.6 or 12.5 fully supported. Earlier IQ versions minimally supported.	4.3 or later required	126 Agent required	142 required
IQ 125	12.5 or earlier	3.2 required	125 Agent required	122 required (131 on Linux)

Running multiple IQ Agents

In general, you cannot install Sybase IQ 12.6 server components on a Sybase IQ 12.5 server without first uninstalling Sybase IQ 12.5. The exception to this rule is that you *can* install a standalone 12.6 IQ Agent on a 12.5 server in order to manage a multiplex containing both 12.5 and 12.6 servers (mixed-mode multiplex).

To convert 12.5 multiplex databases to 12.6, you first must convert each query server to 12.6. After all query servers are converted, you must install the 12.6 IQ Agent on the write server and convert the write server to 12.6. (If desired, you may run a 12.5 IQ Agent and the 12.6 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 install a standalone 12.6 IQ Agent on a 12.5 Sybase IQ server, run setup.exe. For details, see "Step 3: Installing the standalone IQ Agent on the write server" on page 35.

Upgrading LONG BINARY columns

Sybase IQ 12.6 *does 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 12.6, 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 enforces 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.

To avoid errors:

1 Query the database to identify potential constraint violations.

2 Generate commands to recreate constraints in existing tables.

3 Install Sybase IQ 12.6.

4 Run ALTER DATABASE UPGRADE as instructed in Chapter 3, "Migrating Data from Previous Versions".

5 Recreate constraints in the upgraded database.

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. Run these procedures, if desired, before installing Sybase IQ 12.6:

• 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.SVRLOG* (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.

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 12.6". 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-Agent1260
```

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%
```

.

> **Warning!** 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.

Replacing Open Client
The Sybase IQ installation CD contains the Sybase Software Developer's Kit, also called the Sybase SDK and Sybase Open Client Developer's Kit.

Sybase IQ recommends Open Client 12.5.1. If your system already has this version installed as part of Open Client, Open Server, or Adaptive Server Enterprise, you can skip installing the Open Client supplied with IQ 12.6. Make sure that if you overwrite %SYBASE%, the Version and EBF are newer than those of the version overwritten.

To see the current version, enter this command:

```
isql -v
```

If you install the SDK included with Sybase IQ 12.6, the installation modifies the environmental variables %SYBASE%, %SYBASE_OCS%, and %PATH%. If other Sybase products depend on the version or location of Open Client formerly defined in these variables, problems could occur.

System requirements

Note *You must install the correct service pack required to run Sybase IQ.* See the *Sybase IQ Release Bulletin* for system requirements and required service packs.

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 startup 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 may 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 of not allowing a single memory allocation to cross the 2GB boundary.

Configuration recommendations

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

To install and run Sybase IQ 12.6 on Windows, you need:

Table 1-2: Configuration recommendations for Sybase IQ

System requirement	Recommendation
Disk space to install and run Sybase IQ	163MB free disk space on the drive where Sybase IQ system files will be located
Disk space for Software Developer's Kit (Open Client) 12.5.1	119MB free disk space
Disk space for databases	Site dependent
RAM	512MB
Swap space	At least 1GB dedicated to Sybase IQ

Note The table lists 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. Table 1-3 on page 9 lists requirements for installing and running Sybase Central Java Edition as a Windows client.

Table 1-3: Configuration recommendations for Sybase Central

System requirement	Recommendation
Processor	Pentium 200Mhz or greater
Disk space for Sybase Central Java Edition	89MB 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, the amount of system swap required may sometimes exceed the suggested minimum. 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.

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. If you wish 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 will not be 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 may 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 will 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. In order 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 wish 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 61.

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 in the transaction log information it needs to recover from a system failure. The default filename extension for this file is *.log*. You should store the transaction log on a separate device from the database for greater security, as well as for better performance. A transaction log mirror on a separate device is also recommended for IQ databases.

Message log   The default filename 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.

Installing Sybase IQ Server Components

This section describes how to install the Sybase IQ Server Components. To
install components required for *connection to* a network server, see Chapter 2,
"Installing Sybase IQ Network Client."

Enclosed is Sybase® IQ 12.6 is certified with the following platform and
operating system configurations:

- Microsoft Windows 2000

- Microsoft Windows 2003

- Windows XP Professional

See the *Sybase IQ Release Bulletin* for system requirements and required
service packs.

If you have a previous 12.x version of Sybase IQ, you need to upgrade your
databases as part of installation. See "Upgrading servers and databases to
12.6" on page 33 for important steps you must complete before installing.

To install Sybase IQ, you run the *setup.exe* program. This program, along with
other installation files, is on the product CD you receive from Sybase.

The program installs:

- Sybase IQ 12.6

- 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 or *Introduction to Sybase IQ*.

- Software Developer's Kit (SDK) version 12.5.1.

- 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.

- ODBC drivers and utilities.

- C/C++ development libraries and source files.

❖ **Installing Sybase IQ Server Components**

Sybase IQ Server Components are those required for *operation as a network server*.

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 Read the Welcome window and click Next.

6 Select the location where you are installing the software from the dropdown.

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

   If you don't 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 Sybase website at http://www.sybase.com and rerun *setup.exe* passing it the parameter -I_accept_sybase_license. For example:

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

7 Read the License Agreement. To accept it and continue the install, select the first option button and click Next. To stop the procedure without installing Sybase IQ, select the second option button and click Cancel.

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

9   On the Component Keys screen, type the Component name in the first box and its Key name in the second box. Click Register Component after entering each pair. When a component is registered, the text box displays `<Component> has been enabled.` When you have entered all components, click Next.

10   On the Setup Type screen, choose Complete or Custom install. The Complete install is recommended for most users. The Custom install lets you select components to install.

11   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

> **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.

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

12   For a Complete install, skip to step 20.

13   For a Custom install, the Customize Product 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).

14   Destination folders display beneath the component list. To change the default installation location for any Sybase IQ component, use the Browse button (Alt+R). Click Disk Space (Alt+S) to examine space available on the selected destination disk.
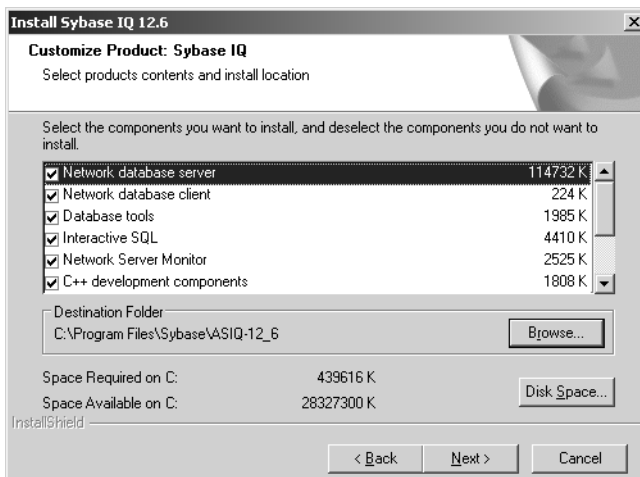
15   When satisfied with locations of IQ components, click Next.

16   To change the default installation location for any Software Developer's Kit (Open Client) component, use the Browse button.
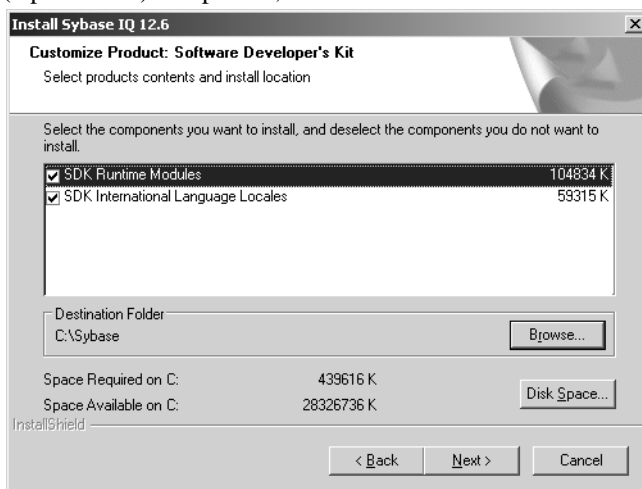
Click Disk Space to examine space available on the selected destination disk.

Note You must install Software Developer's Kit 12.5.1 or have 12.5.1 Open Client/Open Server installed on your system to run Sybase IQ.

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

18 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.
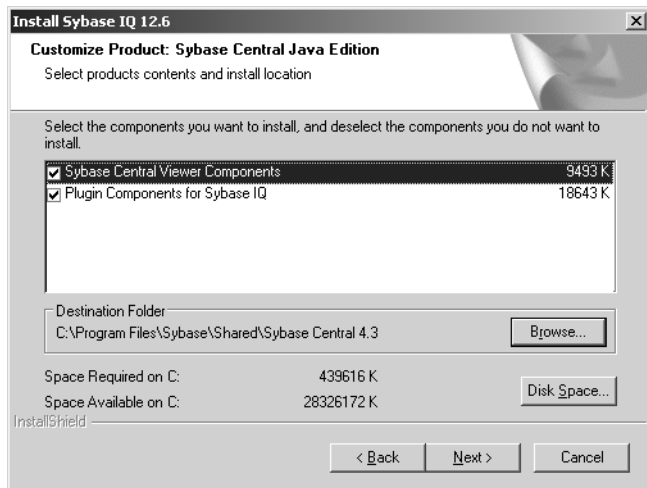
19 When satisfied with locations of Sybase Central components, click Next.

20 The default location for log files is *C:\Program Files\Sybase\ASIQ-12_6\logfiles*. To install log files for the server and the IQ Agent in the default location, click Next. Otherwise, click Browse to specify a new location.

21 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.

22   The installation procedure displays a list of components to be installed and their locations. Click Next to install, or Back to change the components 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.

23   When the installation procedure completes, it prompts you to reboot your system. To reboot your system now, remove the Network Server Components 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.

To test Sybase IQ, see "Running Sybase IQ" on page 19.

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 in order to use Sybase Central.

> **Note** After installing the software, Sybase strongly recommends that you check the online support Web site for software updates. If a software update (EBF) has been released, it contains bug fixes made after this product shipped.

❖   **Accessing the latest information on EBFs and Updates:**

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

2   Select EBFs/Maintenance. Enter user name and password information, if prompted (for existing Web accounts) or create a new account (a free service).

3   Specify a time frame.

4   Select a product.

5   Click GO!

6   Click the document icon under the Info column to the left of a Description to display the report.

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 > Start IQ Demo Database.

This command starts the *asiqdemo* database using the servername *<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 12.6 > 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 press 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 *Sybase IQ System Administration Guide*.

Starting your own databases

To start your own databases, use the start_asiq utility.

To run start_iq, 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 "Setting server configurations" on page 61.

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 may not 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 1-4: 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 startup parameters, see "The database server" in Chapter 1 of *Sybase IQ Utility Guide*.

If you have Sybase Central, you may use the Start Database Server wizard, as documented in *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.

CHAPTER 2

Installing Sybase IQ Network Client

This chapter tells how to install Sybase IQ Network Client, available on two platforms. See the appropriate section:

- "Installing Sybase IQ Network Client for Linux" on page 23
- "Installing Sybase IQ Network Client for Windows" on page 27

Installing Sybase IQ Network Client for Linux

Sybase IQ Network Client for Linux, which can be purchased separately, contains the components required for *connection to* a network server. It is compatible with IQ servers on all supported server platforms. Sybase IQ Network Client for Linux is certified to run on:

- Red Hat Enterprise Linux 2.1 x86 AS and WS Editions
- Red Hat Enterprise Linux 3.0 AS and WS Editions

Table 2-1: Linux client/server downward compatibility

Product and version to install	Product and version already installed	Compatibility
12.6 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
12.6 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

The following procedure describes how to install the Sybase IQ Network Client for Linux. To install Sybase IQ Network Client for Windows, see "Installing Sybase IQ Network Client for Windows". To install the Sybase IQ Server Components, see Chapter 1, "Installing Sybase IQ."

❖ **Running the *sybinstall* utility**

If this is the first Sybase product you have installed, see, "Choosing file locations" on page 11.

1   Change directory to the installation directory:

```
% cd $SYBASE
```

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

Table 2-2: Command parameters for sybinstall utility

Parameter	Function
-add_agent	Install standalone 12.6 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_5'
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 don't 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 Sybase website at http://www.sybase.com, and rerun *sybinstall* passing it the parameter -I_accept_sybase_license. For example:

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

5   The first screen of the Software Test and Evaluation License Agreement displays. As you read, hold down the Return key to scroll until you reach the end of the agreement.

At the end of the agreement, a prompt appears. To accept the license terms and continue the installation, enter "Y." If you disagree with the terms of the license, enter "N."

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

```
┌─────────────────────────────────────────────────────────────────┐
│ ─                          Terminal                        ▲ □   │
├─────────────────────────────────────────────────────────────────┤
│ Window  Edit  Options                                     Help   │
│ ┌─────────────────────────────────────────────────────────────┐ │
│ │              Sybase IQ Network Client 12.6                   │ │
│ │                                                             │ │
│ │                    Select Products                          │ │
│ │                                                             │ │
│ │ Destination Directory ($SYBASE)              Free Space(k)  │ │
│ │ ---------------------------------------------- ----------   │ │
│ │ /linusdev1/users/janed/sybase                    2129060    │ │
│ │                                                             │ │
│ │ #  Product                      Size(k)  Install Directory  │ │
│ │ -- -------------------------    -------  ----------------   │ │
│ │ 1) Sybase IQ Network Client      281556  $SYBASE/ASIQ-12_6          │ │
│ │ 2) Sybase Central Java Edition 4.3  4320  $SYBASE/shared/sybcentral43│ │
│ │ 3) jConnect 5.5                   16980  $SYBASE/shared     │ │
│ │ 4) Java Runtime Environment 1.4.2 60248  $SYBASE/shared/jre-1_42    │ │
│ │                                                             │ │
│ │        Options                                              │ │
│ │        ------------------------------------------          │ │
│ │        1..4) De/Select Product for Installation            │ │
│ │           C) Change Target Directory                       │ │
│ │           S) Selection Completed                           │ │
│ │           Q) Quit the Install                              │ │
│ │                                                             │ │
│ │ Please enter (1..4, C, S or Q ) ▮                           │ │
│ └─────────────────────────────────────────────────────────────┘ │
└─────────────────────────────────────────────────────────────────┘
```

7   To install all four products, enter "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, enter "2."

Deselected product(s) are not installed. You can only deselect 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.

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

After selecting products, enter "S" to start the installation.

9   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.

•   bash or Korn (ksh) shell users should enter:

```
%source $SYBASE/ASIQ-12_6/ASIQ-12_6.sh
```

tcsh or C (csh) shell users should enter:

```
%source $SYBASE/ASIQ-12_6/ASIQ-12_6.csh
```

Installing Sybase IQ Network Client for Windows

Sybase IQ Network Client contains the components required for *connection to a network server*. Sybase IQ 12.6 Network Client is certified to run on:

• Microsoft Windows NT 4.0 (Service Pack 6)

• Microsoft Windows 2003

• Microsoft Windows 2000 Advanced Server 5.0.2195 (Service Pack 2)

• Microsoft Windows 98 SE

• Microsoft Windows ME

• Microsoft Windows XP Professional (Service Pack 2)

Table 2-3: Windows client/server downward compatibility

Product and version to install	Product and version already installed	Compatibility
12.6 Server	12.5 Server	Standalone IQ Agent only
	12.5 Client	Prohibited
	12.6 Client	Prohibited
12.6 Client	12.5 Server	Prohibited
	12.5 Client	Allowed. If one is uninstalled user must repair remaining one.
	12.6 Server	Prohibited

The following procedure describes how to install the Sybase IQ Network Client. To install Sybase IQ Network Client for Linux, see "Installing Sybase IQ Network Client for Linux". To install the Sybase IQ Server Components, see Chapter 1, "Installing Sybase IQ."

Note You can install the 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 31.

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

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

2 Exit any Windows programs running on your machine.

3 Place the Network Client CD in the CD drive.

Note You only need to perform the next step when restarting the installation after interrupting it. If your system is equipped with autorun, the installation starts automatically the first time you place the CD in the drive.

---

4 Select Start > Run.

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

```
setup.exe
```

5 Read the Welcome window and click Next.

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

7 Read the License Agreement and click Yes if you accept it, or Back to return to a previous screen. To stop the procedure without installing Sybase IQ, click No.

8 Enter your name and your company name in the text boxes on the Customer Information screen and click Next.

9   Choose Complete or Custom install. The Complete install is
    recommended for most users. The Custom install lets you select
    components of products to install.
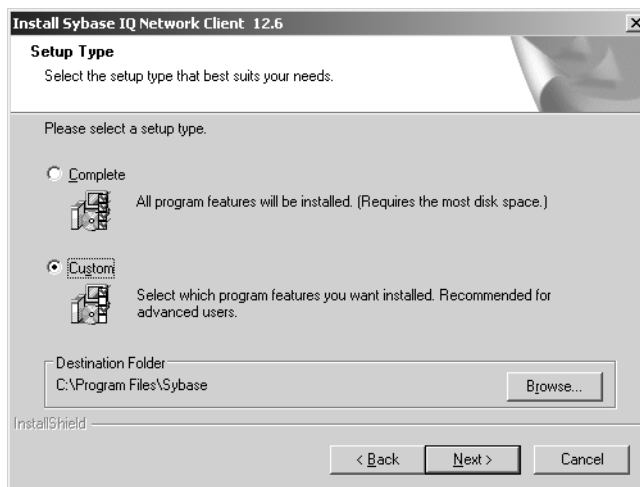
10 Products are installed in separate folders under the folder you specify. You
    can accept the default, or use the Browse button to select another folder.

    Click Next.

11 For a Complete install, skip to step 13.

    For a Custom install, choose products to install. The Products Selection
    screen shows names, descriptions and space requirements 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

    •   Java2 Runtime Environment

    •   Sybase jConnect JDBC Driver

    For each product, 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.

12 Click Next when satisfied with selected products.

13   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.

14   When installation procedure completes, it prompts you to reboot your
      system. To reboot your system now, remove the Network 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 in order to use Sybase Central.

Installing without user interaction

You can use the silent installation feature to ensure a uniform Network Client
installation 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 non-standard 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 non-default silent installations.

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

2   Log into 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 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:\winnt\setup.iss*.

7   Copy the *C:\winnt\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 into 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 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*.

Migrating Data from Previous Versions

This chapter tells how to:

- Upgrade Sybase IQ servers and databases from version 12.4.3 or 12.5 to 12.6

- Restore to version 12.4.3 or 12.5 after upgrade, if necessary

If you have a 12.x version prior to 12.4.3, you must first upgrade to version 12.4.3. Refer to the 12.4.3 *Sybase IQ Installation and Configuration Guide*.

Note Before you install Sybase IQ 12.6, 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 servers and databases to 12.6

Overview   The upgrade process includes these steps:

Table 3-1: Upgrading 12.x databases to 12.6

Step	Related information
1. Shut down servers	"Step 1: Shutting down servers" on page 34
2. Install IQ	"Step 2: Installing IQ" on page 35
3. Install the standalone IQ Agent (multiplex only)	"Step 3: Installing the standalone IQ Agent on the write server" on page 35
4. Start the IQ Agent (multiplex only)	"Step 4: Starting the Sybase IQ Agent" on page 36
5. Start the server	"Step 5: Starting the server" on page 36
5. Upgrade databases	"Step 6: Upgrading databases" on page 36
6. Enforce referential integrity	"Step 7: Enforcing referential integrity" on page 37
7. Restart after upgrading	"Step 8: Restarting after upgrading" on page 37

Step	Related information
8. Verify after upgrade	"Step 9: Verifying databases after upgrade" on page 38
9. Back up databases again (recommended, not required)	"Step 10: Backing up databases after upgrading" on page 38

Before you upgrade

You must have a recent backup before you upgrade.

Different IQ versions on multiplex servers

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.*

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).

New 12.6 features are only completely available after all databases are upgraded to version 12.6 using ALTER DATABASE UPGRADE. If you upgrade databases on a query server, but leave the write server at 12.5, synchronization returns database versions on the query server to version 12.5 and you will need to 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 12.6 software on the query server, that software continues to be 12.6 after any synchronizations. Multiple database versions may exist on servers with installed software version 12.6, as shown in Table 1-1 on page 2. However, you must connect to each server using an IQ Agent of the same version and the appropriate agent port.

Upgrading multiplex databases

To upgrade 12.5 databases to 12.6, perform the steps that follow on each server in the multiplex. Note that, wherever backup is recommended, you need only back up the write server.

To upgrade 12.4.3 multiplex databases to 12.6, see "Upgrading 12.4.3 multiplex databases to 12.6" on page 39.

Step 1: 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.

Step 2: Installing IQ

Install Sybase IQ, following the instructions in Chapter 1, "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.*

Step 3: Installing the standalone IQ Agent on the write server

If you plan to run only 12.6 servers, skip to step 5. To run 12.5 and 12.6 servers in the same multiplex, install a 12.6 IQ Agent on the write server. While the 12.6 IQ plug-in is compatible with 12.5 or 12.6 servers, you must start 12.5 servers with a 12.5 agent and 12.6 servers with a 12.6 agent.

To install the 12.6 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:
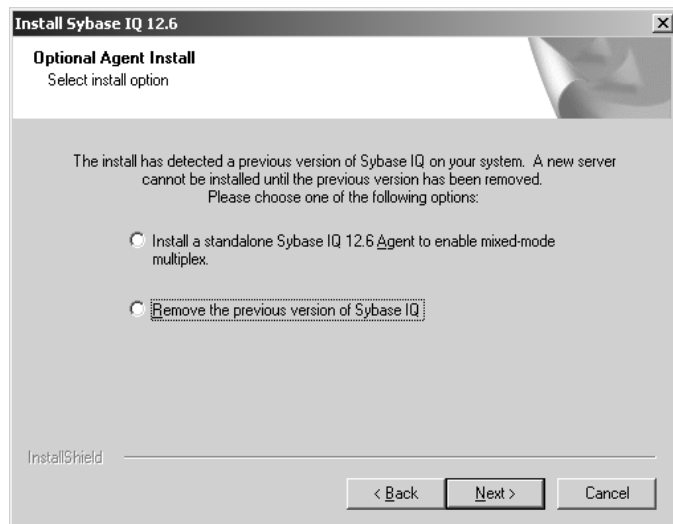
Choose the option Install a standalone Sybase IQ 12.6 Agent (Alt+A) and click Next.

Step 4: Starting the Sybase IQ Agent

If you have installed Sybase Central, you now need to start the Sybase IQ Agent. If you plan to run a mixed-mode multiplex, start the IQ Agent only on the query server(s). Be sure to specify the correct IQ Agent port for each connection. For details, see *Sybase IQ System Administration Guide*.

Step 5: Starting the server

To start the 12.6 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 *dbname*.db

The *dbname* is the name of the 12.4.3 or 12.5 database that you wish to upgrade. (You may also start the server using any of the startup 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 pathname for the file(s).

Step 6: Upgrading databases

Upgrading from 12.4.3 or 12.5 to 12.6

Run the ALTER DATABASE UPGRADE command against every existing Sybase IQ database to upgrade it to IQ 12.6. 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 12.6 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 12.6.

❖ **To upgrade databases to Version 12.6:**

Performance optimizations in Version 12.6 depend on structural changes and option settings made by the ALTER DATABASE UPGRADE statement. The format of the database files is the same as in Sybase IQ Version 12.4.3 or 12.5, 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 viii.

2   Disconnect from the database and reconnect to your database (again using an account with DBA privileges). This must be the only connection to the database.

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.

Step 7: 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.

Step 8: Restarting after upgrading

After upgrading, Sybase recommends that you shut down the database and restart it.

Step 9: Verifying databases after upgrade

Run sp_iqcheckdb to verify the consistency of the upgraded databases. This may produce errors if Step 8 has not been fully completed.

Note In this step, you run the IQ 12.6 version of sp_iqcheckdb, which uses input parameters, rather than database options, to specify the type of database consistency checking.

❖ **To run 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 entering 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 the "System Recovery and Database Repair" chapter in the IQ version 12.6 *Sybase IQ Troubleshooting and Error Messages Guide*. If you need to contact Sybase Technical Support, you must provide the output from sp_iqcheckdb.

Step 10: Backing up databases after upgrading

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 startup parameters in *default.cfg* to your *params.cfg* file. The -gl parameter, for example, is required for server startup in version 12.4.3 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 *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 non-default server startup options. For more information, see sp_iqcheckoptions in the chapter "System Procedures" in *Sybase IQ Reference Manual*.

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

Upgrading 12.4.3 multiplex databases to 12.6

You must upgrade all multiplex databases to version 12.4.3 before you can follow the instructions in this section.

Upgrading 12.4.3 databases

To upgrade 12.4.3 multiplex databases to 12.6, use the following procedure:

❖ **Upgrading 12.4.3 multiplex databases to 12.6**

Note On UNIX systems, you may optionally install 12.6 Sybase IQ software on all the servers in a separate directory from the previously installed version before starting the upgrade process.

Once the new directories are ready, follow these steps:

1   Shut down all the servers.

2   Install Sybase IQ 12.6 on the write server's system. On UNIX, you can do this before shutting down the servers. On Windows, installation forces a system reboot.

3   On UNIX systems only, stop the IQ Agent on the write server's system and restart it using the 12.6 installation environment. (On Windows, this is not needed because the IQ Agent starts automatically during reboot.)

    First, use the ps command to locate the java process for the IQ Agent:

```
ps -ef | grep jre
fionat 5795 5705 0 17:46:49 pts/8 0:00 grep jre
fionat 5781 5755 0 17:46:49 pts/8 0:00
/wrk/sybcentral/java/jre2/bin/../bin/sparc/native_threads/java -ms8m -m
```

    To determine if the process is the IQ Agent or the client process for the Sybase Central viewer, repeat the command with the parent process's ID:

```
ps -fp 5755
UID    PID    PPID C STIME    TTY    TIME CMD
fionat 5755 1    0 17:45:09  pts/8  0:00 /bin/ksh /work ASIQ-
12_5/bin/scjview -mainclass sybase.scf.ro.SCAgent -1
```

    At the end of the line, *sybase.scf.ro.SCAgent* indicates the IQ Agent. (If the parent process ends with *scjview*, it is the client process for the Sybase Central viewer, not the Agent.)

    To stop the Agent in the preceding example, enter:

        kill -HUP 5781

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

5   Start the write server in single node mode using the -iqmpx_sn 1 switch. *Note that 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 enforces 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 "Before you install" on page 2 to record and recreate
constraints.

Connect to the server with dbisqlc or dbisql as DBA. *Make sure that no
other users connect during the upgrade process*. 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 viii. Upgrade the database to 12.6 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.

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.

---

6   Reconfigure the database definitions, as follows.

Issue the following SQL statement:

```
call sp_iqmpxdropserverdbspaces('<write_server>')
```

Note The <write_server> specified for sp_iqmpxdropserverdbspaces must
be the original multiplex write server name, not the <upgrade_server>
name used to start the server in Step 4.

If your multiplex has a write server and no query servers, also issue the
following statement to convert to a non-multiplex database:

```
call sp_iqendmpx();
```

Now that you have a non-multiplex database, continue at step 7 in "Upgrading servers and databases to 12.6" and skip the remaining steps in this procedure.

7   Stop the upgrade server. Start Sybase Central and use it to start the write server.

8   Connect to the server as DBA with dbisqlc or dbisql.

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

```
call sp_iqmpxsetpublisher()
call sp_iqmpxaddremoteusers()
```

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.

10   Install Sybase IQ 12.6 on each query server system, if not done in advance. Windows systems will reboot as part of software installation.

11   (UNIX only) Stop and restart the IQ Agent in the 12.6 environment on each query server.

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

All servers in the multiplex environment are now running version 12.6.

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 titled "Migration" in *Sybase IQ System Administration Guide* chapter "Backup and Data Recovery." 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 39 for other items you may want to check after upgrading.

CHAPTER 4   **Configuring Sybase IQ**

This chapter explains how to:

- Configure Sybase IQ so that you can access its databases using client applications

- Configure devices for backup

- Install Sybase IQ as a Windows service

- Maintain a secure environment

Running client applications

Sybase IQ Version 12.x 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 IQ version 12.x, 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 may 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).

ASA 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 ASA, but only if these applications use the system tables, views and procedures that are found in ASA. System procedures, catalog tables, and views available in ASA are listed in the *Sybase IQ Reference Manual*. There are no restrictions 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 that is correct, you need only supply User ID and Password:

In the DBISQL Connect dialog, you can choose the iAnywhere JDBC driver via 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

While 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 Server Components" on page 13.

The ODBC Driver shipped with Sybase IQ connects Sybase IQ servers with clients on an NT platform or the platform of the IQ server. To connect clients on UNIX or Linux platforms to your server, you will need to 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 viii.

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. The easiest approach is to use the driver manager emulation capabilities provided by the Sybase IQ ODBC driver. Many tools (like Brio) which 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, almost always the Merant Driver Manager. Other tools need the driver manager but do not ship with one. These tools require special attention. The most popular tool in this category is SAS, which does not ship a driver manager in the base product. The simple solution for SAS users is to get the SAS Access module for Microsoft SQL Server. This module includes the SAS support software, the Merant Driver Manager, and the Merant ODBC Driver for Microsoft SQL Server (which can be deleted because it is not used). For products that do not have an option, the best solution is to purchase the Merant Data Direct ODBC kit, which is supported to work with the driver, but is expensive.

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 47 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, you may 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.

If you use 16-bit client applications, an *odbc.ini* file in *<WINDIR>\system* stores the information used to access each database.

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 wish 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.

If you use 16-bit client applications, an *odbc.ini* file in *<WINDIR>\system* stores the information used to access each database.

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

On Windows NT 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.

❖ **To create an ODBC data source:**

1 Start the ODBC Administrator on your Windows client system. On Windows 2000, ODBC Administrator is in the Sybase program group.

To configure a 32-bit ODBC Driver, select Settings > Control Panel > ODBC Data Sources. (This runs odbcad32.exe.)

To configure a 16-bit ODBC Driver, open a command window and type:

```
odbcadm.exe
```

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).
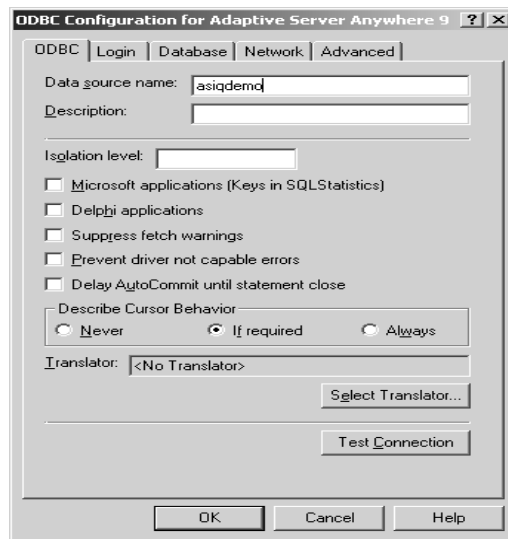
5   Now click the Login tab. Type the User ID and Password for your database. For the sample database used in this example, use "DBA" and "SQL".
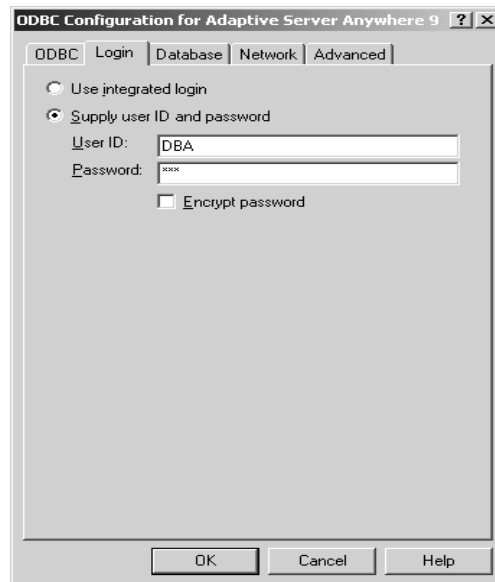
6 Click the Database tab. If the data source is on a remote machine, type the server name and database file name.
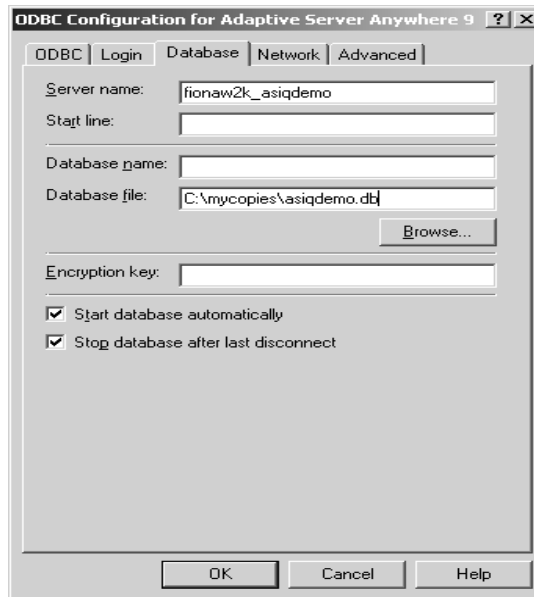
If the data source is on your local machine, type a start line and database name (without the *.DB* suffix) and skip to Step 8.

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=fionaw2k1870`.
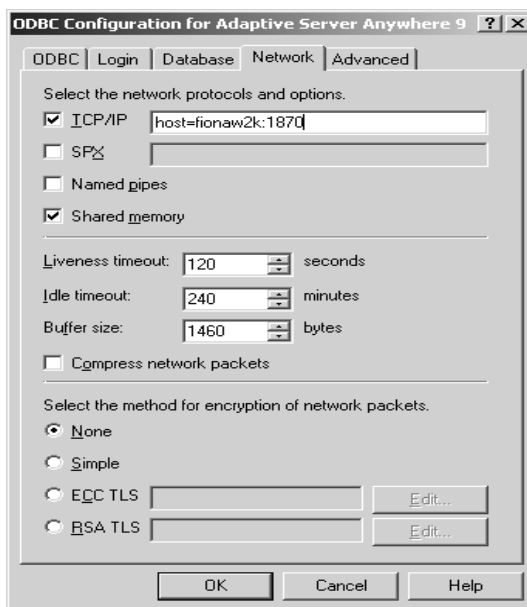
You could also use the host network address. For example,

```
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.

You may 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 *Sybase IQ System Administration Guide*.

❖ **To test an ODBC data source:**

1   Start the database. (To start the Sample Database, use Start > Programs > Sybase > Adaptive Server IQ 12.6 > 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 pathnames.

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 only used 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 starting 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. While 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 *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 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 *Sybase IQ System Administration Guide*.

Creating interfaces file entries

If you need to insert from an Adaptive Server Enterprise database to an 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 startup. Use DSEDIT (Directory Services Editor) to create entries in the interfaces file. You must be the owner of the Sybase home directory (%SYBASE%) in order to run DSEDIT.

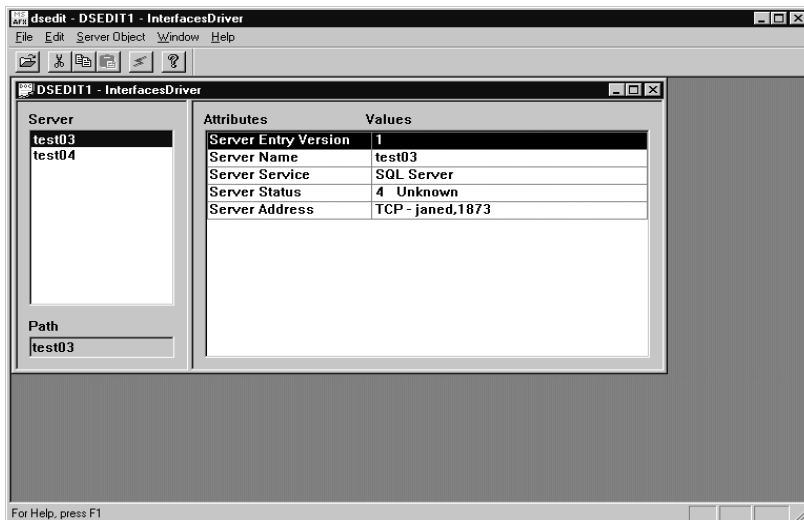Adding server objects also simplifies connections to servers from Sybase Central.

❖ **To add a server object:**

1   Start Programs > Sybase > Open Client Directory Service Editor.
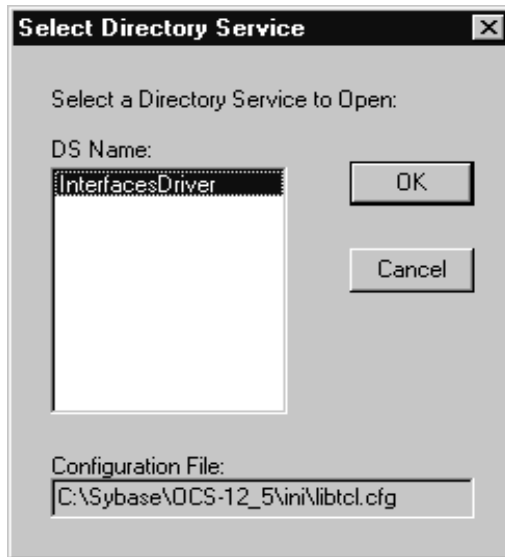
2   Click OK.

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.* Click OK.

5   Select Server Address.

6   Right-click Server Address and select Modify Attribute.

7   Click Add.

8   Use the dropdown box to select the desired protocol. For example, TCP.

9   In the Network Address box, type the hostname and port number, separated by a comma, for example:
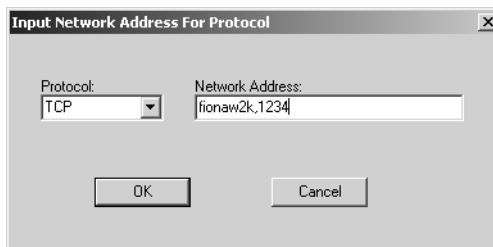
You can substitute the network address for the hostname (for example, "157.133.75.47,1234").

10 Click OK.

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

12   Click Ping to test the server.

13   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 NetBIOS or TCP/IP protocols.on networks using the NetBIOS or TCP/IP protocols.under the following networks and 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 NetBIOS

NetBIOS is an interface for interprocess communications, not a protocol specification. Programs written to the NetBIOS interface should operate over a variety of protocol stacks. For instance, implementations of the NetBIOS interface exist for OS/2 using TCP/IP—that is, TCP/IP is used as the communication mechanism for the NetBIOS interface for the OS/2 operating system.

As Windows for Workgroups and IBM networking software both use NetBIOS with NetBEUI as a standard protocol, configuration of the NetBIOS protocol stack for these environments is carried out by the network software installation.

| NetBIOS session support in Sybase IQ | Within NetBIOS, communications can take place using a NetBIOS session or using the datagram service. NetBIOS sessions, or virtual circuits, are the default NetBIOS link for IQ. In a NetBIOS session, all communication between the client and server applications takes place in the context a reliable two-way connection between the two applications. Broadcast messages are not required in a session, so that network traffic outside the two communicating computers is affected less than when the datagram service is used. |

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 in order 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). While 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 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.

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 61.

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.

❖ **To create a new service:**

1 Choose Create a New Service.

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

3 Type any startup parameters you need. Be sure to include the full path in the database filename. The server cannot start without a valid database pathname. For an example of startup 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 startup defaults to the *WINNT\system32* directory.

Starting multiplex servers

When you start multiplex servers, remember that they require the dbremote utility to run on the write server for full data replication functionality. 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 may 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 only required 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.

❖ **To start 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 dropdown menu, select New → String Value.

4　Type a name for your dbremote startup 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.

❖ **To grant 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.

Setting server configurations

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 4-1: 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 startup 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 *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 will be 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
```

Configuring backup devices

Windows systems do not specify rewind or no rewind devices and only support 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.

While 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 *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*.

Requirements for a secure environment

To maintain a secure environment when using Sybase IQ, system administrators must:

• Be aware that Sybase IQ relies on the provided Adaptive Server Anywhere database engine to provide the database functionality.

- Be non-hostile, appropriately trained, and follow all administrative guidance.

- Ensure that the IT environment provides support commensurate with Sybase IQ expectations.

- Ensure that the IT environment provides a time source that creates reliable timestamps. Generally, the hardware provides this.

- Ensure that the IT environment protects Sybase IQ and its assets from external interference or tampering.

- Provide authorized administrators with the necessary information for secure management of Sybase IQ.

- Install, configure, manage, and maintain Sybase IQ according to its technical manuals and support publications.

- Follow applicable security policies and Sybase IQ system administration guidelines to establish and maintain security.

- Ensure that general-purpose computing capabilities are unavailable on Sybase IQ servers, except for those services needed to operate, administer, and support the data warehouse.

- Provide physical security within the domain for the value of the IT assets protected by Sybase IQ and the value of the stored, processed, and transmitted information.

- Protect the IT environment and its assets from external interference, tampering, and unauthorized disclosure.

- Install, configure, manage, and maintain each IT entity Sybase IQ relies on for security functions in a manner appropriate to the entity and consistent with the security policy of Sybase IQ and the relationship between them.

- Ensure that sessions are never left unattended.

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