# SYBASE<sup>®</sup>

Installation and Configuration Guide

# $Sybase^{\mathbb{R}}$ IQ

12.6

[ HP-UX ]

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# **About This Book**

This book, <i>Sybase IQ Installation and Configuration Guide</i> provides instructions for:		ration Guide for HP-UX,		
	Installing Sybase <sup>®</sup> IQ			
	• Migrating Sybase IQ data from older vers	ions to this version		
	• Configuring Sybase IQ and your operating	g 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 <sup>TM</sup> database management tool.			
	• New Features in Sybase IQ 12.6			
	Read just before or after purchasing Sybas features.	se IQ for a list of new		
	• 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<sup>TM</sup>, or Open Client<sup>TM</sup> 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:
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	• 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.
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	Refer to the <i>SyBooks Installation Guide</i> on the Getting Started CD, or the <i>README.txt</i> file on the SyBooks CD for instructions on installing and starting SyBooks.
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		•	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		Tec	chnical documentation at the Sybase Web site is updated frequently.
	*	Fin	ding 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.
	*	Cre pag	eating a personalized view of the Sybase Web site (including support ges)
		Set a po	up a MySybase profile. MySybase is a free service that allows you to create ersonalized 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			
	*	Fin	ding 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.

Table 2 lists the typographic conventions used in this documentation.

	rubic 2. Typogr				
	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 include documentation.	s a sample database used by many of the examples in the IQ			
	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 databa directory <i>\$ASDIR</i> / systems.	ase is held in a file named <i>asiqdemo.db</i> , located in the / <i>demo</i> on UNIX systems and %ASDIR%\demo on Windows			
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.				

Table 2: Typographic conventions

Typographic conventions

	For information about accessibility support in the Sybase IQ plug-in for Sybase Central, see "Using accessibility features" in <i>Introduction to Sybase IQ</i> . The online help for this product, which you can navigate using a screen reader, also describes accessibility features, including Sybase Central keyboard shortcuts.
	<b>Note</b> 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 <i>Introduction to Sybase IQ</i> .
	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.
lf 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.

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

- Sybase IQ
- Sybase Central Java<sup>TM</sup> Edition
- SDK (Open Client)
- 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* on your HP-UX system. See "Installing Sybase IQ Server Components" on page 11.
- To install components required for *connection to* a network server, see Chapter 2, "Installing Sybase IQ Network Client."

### Before you install

 Plug-in requirements
 Read this section carefully and follow the procedures that affect your configuration.

 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:

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)

Table 1-1: Plug-in compatibility	with Sybase IQ	installed product	S
1		i i	

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, use the sybinstall parameter -add\_agent. See "Step 3: Installing the standalone IQ Agent on the write server" on page 37.

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 (

Sybase IQ requires a minimum of Open Client 12.5.1. If your system already has this minimum 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.

Sybase recommends that you install Sybase IQ 12.6 in a clean directory for easier version management. Environmental variables are local to the shell and the subdirectories are specific to the versions.

You can update the Sybase SDK (Open Client) as future versions become available, provided that you set the INSTALL\_ALL\_PATCH environment variable before installing the update.

To set the variable using the C shell (csh):

setenv INSTALL\_ALL\_PATCH "Y"

To set the variable using Bourne shell (sh):

INSTALL\_ALL\_PATCH="Y" export INSTALL\_ALL\_PATCH

# System requirements

**Note** *You must install the correct operating system patches required to run* Sybase IQ. See the Sybase IQ *Release Bulletin* for supported operating system versions, system requirements, and lists of required patches.

Before you install Sybase IQ, make sure you have enough disk space, RAM, and swap space for the installation. If you plan to use multiplex capability, you must also set up raw device access.

To install and run Sybase IQ 12.6 on HP-UX, you need:

Table 1-2: Configuration recommendations

System Requirement	Recommendation for HP-UX 11.0 and HP-UX 11.i	HP-UX 11.23 Itanium suggested value
Disk space to install and run Sybase IQ	315MB	370MB
Disk space to install Open Client Developer's Kit 12.5.1	435MB	505MB

System Requirement	Recommendation for HP-UX 11.0 and HP-UX 11.i	HP-UX 11.23 Itanium suggested value
Disk space to install Sybase Central Java Edition 4.3	4MB	4MB
Disk space to install jConnect 5.5	17MB	17MB
Disk space to install jConnect 6.0	6MB	6MB
Disk space to install Java Runtime Environment 1.4.2	109MB	151MB
Disk space for databases	Site dependent	Site dependent
RAM	At least 1GB dedicated to Sybase IQ	At least 1GB dedicated to Sybase IQ
Swap space	1GHz, either 1CPU or SMP	1GHz, either 1CPU or SMP

**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. To install and run the Sybase IQ plug-in and Sybase Central Java Edition as a Windows client, you need the following on your Windows system:

Table 1-3: Configuration recommendations for Sybase Central

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

### **Disk space**

Use the bdf command to display the space available in kilobytes. Compare the available disk space information from your machine to the required disk space requirements.

Here is sample output from a bdf command on an HP-UX system:

Filesystem	kbytes	used	avail	%used
Mounted on				

/dev/vg00/lvol1	59797	27071	26746	50%	/
/dev/vg00/lvol3	299157	9	269232	0%	/home
/dev/vg00/lvol4	299157	92583	176658	34%	/opt
/dev/vg00/lvol5	53653	21011	27276	44%	/tmp
/dev/vg00/lvol6	498645	325027	123753	72%	/usr
/dev/vg00/lvol7	288157	50620	208721	20%	/var
/dev/vg01/LVM1	1294257	570472	2 5943	59 49	8
/work1					
/dev/vg02/LVM2	2035601	1599385	5 2326	55 87	00
/work2					
/dev/vg03/LVM3	2035601	1464104	4 36793	36 80	8
/work3					

The "avail" column shows the amount of disk space available on each file system.

### RAM

The recommended minimum RAM is 1GB.

The following command gives the RAM available. This example shows 946116KB, which is 946.116MB of RAM.

grep "Physical" /var/adm/syslog/syslog.log Sep 1 10:57:17 chong vmunix: Physical: 1048576 Kbytes, lockable: 903392 Kbytes, available: 946116 Kbytes

### Swap space

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 entitled "Managing System Resources" in the *Sybase IQ Performance and Tuning Guide* for more information about buffers.

Depending upon the load on the system where Sybase IQ 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<br/>UNIXOn UNIX systems, system administrators should use the chmod command to<br/>give each user who runs the IQ server read/write access to the raw devices.

If your configuration includes Windows systems, see the *Sybase IQ Installation and Configuration Guide for Windows* for raw device setup instructions for those systems.

# Adjusting the operating system configuration

This section provides instructions for adjusting your environment before you begin a new installation of Sybase IQ. Refer to *Sybase IQ Release Bulletin* for the latest information.

To configure the operating system correctly, you must:

- Install any required operating system patches
- Adjust system-wide parameters (such as shared memory parameters)

Installing kernel patches

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

### Adjusting kernel parameters

You also need to adjust certain HP-UX kernel parameters to run Sybase IQ. The HP System Administration Manager (SAM) allows verification and setting of these parameters. Generally superuser or "root" privileges are needed to run SAM. Use the Kernel Configuration submenu to change the parameters listed in the following table.

	HP-UX 11.0 and	HP-UX 11.23
<b>D</b>	HP-UX 11.i	Itanium
Parameter	suggested value	suggested value
STRMSGSZ	65000	0
bufpages	2048	n/a
max_thread_proc	4096	4096
maxfiles	2048	2048
maxfiles_lim	2060	2060
maxswapchunks	16384	n/a
maxusers	512	n/a
nfile	20000	20000
nkthread	4096	8416
sema	1	n/a
semmap	7084	n/a
semmni	7082	7082
semmns	14164	14164
shmmax	2147483647	2147483647
	(0X7FFFFFFF)	(0X7FFFFFFF)
swapmem_on	0	0
unlockable_mem	10240	10240
maxdsiz_64bit	17179869184	17179869184
	(0x40000000)	(0x40000000)
maxrsessiz_64bit	n/a	1073741824
maxssiz_64bit	268435456	1073741824
	(0x1000000)	
maxtsiz_64bit	4294967296	4294967296
	(0x10000000)	(0x10000000)

Table 1-4: HP-UX parameters

After setting these parameters as required, reboot your system.

#### Notes

- The swapmem\_on parameter is set to 0 because setting it to 1 increases paging and deactivation activity.
- The maxswapchunks parameter is increased to raise the limit of configurable swap space beyond the default.
- For HP-UX 11.23 Itanium, set the nkthread value greater than (nproc + 100).

## Using large dbspaces

To use dbspaces larger than 2GB, the file system must be enabled for large files.

Use the HP System Administration Manager (SAM) to enable the file system. Choose Disks and File Systems  $\rightarrow$  File Systems  $\rightarrow$  Select the file system to enable  $\rightarrow$  Actions  $\rightarrow$  Modify, then check "Allow large files."

### Verifying network functionality

Sybase IQ uses networking software whenever the client and server components are installed on different systems.

1 Verify that the network is configured properly by using this command:

```
% telnet host
```

where *host* is the computer you are currently using. For example, if the host is called "tahoe", enter:

% telnet tahoe

This should give you a login prompt for the same machine you are currently using, for example:

tahoe>

**Note** If telnet does not allow you to log in, there is a problem with your network. Ask your vendor technical support organization for assistance.

- 2 Check that you can log in over the network, then log out.
- 3 Use either remsh to open a remote shell or ping the system from another machine. For example, to check the system "tahoe":
  - % remsh tahoe
    % ping tahoe

# **Choosing file locations**

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

Subsequent sections introduce file placement. For details about where to place files for the best possible performance, see the chapter entitled "Managing System Resources" in the *Sybase IQ Performance and Tuning Guide*.

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*)

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

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. The chapter "Working with Database Objects" in the <i>Sybase IQ System Administration</i> <i>Guide</i> 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.
	In a production environment, for some applications that use databases on UNIX servers, raw partition installations may provide increased processing performance. File systems, on the other hand, make it easier to manage your devices.
	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 <i>.LOG</i> . 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 the IQ message log is <i>.iqmsg</i> . For a minor performance boost, store the 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."

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 35 and "Upgrading 12.4.3 multiplex databases to 12.6" on page 41 for important steps you must complete before installing.

To install Sybase IQ, run the installation program on the product CD. For UNIX systems, the program is called sybinstall.

By default, 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, which provides Open Client connections for ASE servers.
- The Sybase jConnect JDBC Driver, version 5.5. The installation includes a recent EBF. If you install the jConnect driver, Java classes installed into a database can make JDBC calls to access and modify data. You need TCP/IP to use the jConnect driver.

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

• Java Runtime Environment 1.4.2.

You may deselect unneeded components before installing.

**Warning!** If you have an existing version of Open Client on your system, installing the Open Client libraries will add missing Open Client files and overwrite older files.

To install the Server Components, you must:

- 1 Mount the CD and set up the sybase account
- 2 Prepare the installation directory
- 3 Run the sybinstall utility
- 4 Set environment variables
- 5 Unmount the CD

The sections that follow describe each of these tasks.

#### To mount the CD and set up the sybase account:

- 1 If your CD has been set up for auto-mount, you must get the absolute pathname for this device from the System Administrator. In this case, change directory to this specified directory and skip to the section titled "To prepare the installation directory" on the following page. Otherwise follow all the steps below to load the Sybase IQ software from a CD.
- 2 Log on as the user "root".
- 3 Place the CD into the CD drive.
- 4 Create a subdirectory of the root directory where you will mount the CD, if one does not already exist. For example:

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

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

% mount -o ro device\_name /cdrom

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

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

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

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

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

#### To prepare the installation directory:

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

% rlogin -l sybase storm

2 Identify or create a directory location for the Sybase installation directory, where you install the Sybase IQ product. The "sybase" user should be the owner of the directory. If you have other Sybase products installed, Sybase recommends that you install Sybase IQ in its own separate directory, not the \$SYBASE directory used by another product. % mkdir cd-install;chmod 777 cd-install

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

df -k .

Check the amount of free space against "System requirements" on page 4.

- 4 Set the SYBASE environment variable to the path of the installation directory you have chosen for Sybase IQ, using the following formats. In these examples, the SYBASE installation directory is */work/server* 
  - For the C shell (csh), add this line to the .*cshrc* file:

setenv SYBASE /work/server

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

SYBASE=/work/server; export SYBASE

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

#### ✤ To run the sybinstall utility:

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.

Parameter	Function
-autoinstall	Install all defaults.
-help	Display all parameters and usage.
-I_accept_sybase_license	Bypass license agreement prompt.
-info -version	Display information about this product.
-у	Assume "yes" to all questions, warnings, and errors.

Table 1-5: Command parameters for sybinstall utility

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.

To enter a response on a *sybinstall* screen, type the desired letter or number and press Return.

- 3 On the Welcome screen, press Return to continue.
- 4 If you have previously installed Sybase IQ 12, the script displays information about any servers currently running. This screen ends with the message:

The above IQ servers have been found running on this system. Please check that all IQ servers running in \$SYBASE directory have been shut down before continuing. Do you want to continue <Y/N>?

- 5 If any of the listed servers are running in the \$SYBASE directory, exit the install and make sure the server(s) are shut down before you continue. If the servers are not running in the \$SYBASE directory, enter "Y."
- 6 Type the number that corresponds to the location where you are installing.

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

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 -l\_accept\_sybase\_license. For example:

% /cdrom/sybinstall -I\_accept\_sybase\_license

7 The first screen of the License Agreement for your location displays. As you read, hold down the Return key to scroll until you reach the end of the agreement.

When you have read the complete agreement, you will see a prompt. To accept the license terms and continue the installation, enter "Y." If you disagree with the terms of the license, enter "N," which exits the installation procedure.

- 8 The script next lists the amount of free space available in your \$SYBASE directory, and the amount of space required for the products it installs.
- 9 To accept the default, enter "S."

*By default, all six products are installed.* You *must* install SDK (Open Client) 12.5.1 (or have it already installed) in order to start Sybase IQ.

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 "3." Deselected product(s) will not be installed.

If Adaptive Server Enterprise is on the same system as Sybase IQ, you must maintain the environment for each product separately and correctly.

- 10 You can only deselect one product per screen. The screen displays again with the words "Not Selected" under the Install directory for each deselected product.
- 11 Numbers 1 through 6 are toggle options. If you change your mind, type the number of a deselected product to reselect it.
- 12 Check the Install Directory listed *for each product to be installed*. If the installation does not default to the desired directory, enter "C" and type the target directory you prefer at the Enter new target directory prompt.
- 13 After selecting products, enter "S" to start the installation.
- 14 Before installing files, sybinstall displays the Setup Utility Database screen. The utility database (*utility\_db*) never holds data. It is used in special cases when the server needs a connected database but either no database exists or none should be running, for example, when restoring a database. Connecting to utility\_db allows you only a narrow range of specialized file manipulation statements: CREATE DATABASE, DROP DATABASE, and RESTORE DATABASE. For more information, see "Utility database server security" in *Sybase IQ System Administration Guide*.

The ascii file that holds the login and password for this database is *\$ASDIR/bin/util\_db.ini*. By default, the login is "DBA" and the password is "SQL". You can change the login and password by responding to the prompt:

Do you want to change the default user/password now  $<\!Y/N\!>$  ?

To change the login and password, type "Y". The installation procedure prompts you for a new login, then a password. If you do not wish to change the default login or password, type "N".

- 15 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.
- 16 After installing the required components, the install procedure prompts for optional components or licenses:

Do you have any components and licenses to enter at the time <Y/N>?

If you do, enter "Y". The installation procedure prompts you for the key. Type the installation key exactly as it appears on your installation key document. Entering the key returns the message <Component> enabled!.

If you have no optional components, enter "N". When the installation completes, a message lists environment setup files created.

#### To set environment variables:

You must set certain environment variables to run the Open Client Developers Kit and Sybase IQ. Sybase IQ installs environment files that you can run to set variables.

1 If you plan to run Open Client and Sybase IQ on the same system, skip to Step 2.

To run Open Client Developers Kit on a standalone system, perform this step.

Bourne shell users should enter:

%. \$SYBASE/OCS-12\_5/OCS-12\_5.sh

C shell users should enter:

%source \$SYBASE/OCS-12\_5/OCS-12\_5.csh

2 The environment files that set Sybase IQ variables also set the variables needed by Open Client.

Bourne shell users should enter:

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

C shell users should enter this command:

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

#### \* To complete the installation:

- 1 Print and read \$ASDIR/readme.txt.
- 2 Log in as the "root" user and unmount the CD:

% umount /cdrom

- 3 Remove the CD from the drive.
- 4 If you installed Sybase Central, see the *Sybase IQ System Administration Guide* for instructions on configuring and running the IQ Agent. You must configure and run the IQ Agent in order to manage multiplex databases with Sybase Central.

**Note** Do not discard this document after installing Sybase IQ. "Starting the server" on page 19 lists required parameters for starting the product.

5 Log out.

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

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

#### Finding the latest information on EBFs and software updates

- 1 Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.
- 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 Select a product.
- 4 Specify a time frame and click Go.
- 5 Click the Info icon to display the EBF/Maintenance report, or click the product description to download the software.

# **Running Sybase IQ**

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

#### Starting the server

To start the server, change to a directory where you have write privileges and run the start\_asiq utility at the command prompt, using the following command format:

start\_asiq @configuration\_filename.cfg dbname.db

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

**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}

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 59.

**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 sample database installed with the product, you could use these commands:

% cd \$ASDIR/demo

% start\_asiq @asiqdemo.cfg asiqdemo.db

Note The server name may not start with a number.

Startup information, which includes the version of Open Client Libraries in use, is saved in the *stderr* log. Output from start\_asiq ends with this line:

```
Server started successfully
```

For more information, see Sybase IQ System Administration Guide.

**Note** If you run the start\_asiqutility from \$*ASDIR/bin*, the script changes directory to "./.." to avoid creating database files in the */bin* directory.

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. *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 1-6: Parameters set by start\_asiq

Parameter	Value	Description
-C	48MB	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

For a complete list and description of parameters, see "The database server" in Chapter 2 of *Sybase IQ Reference Manual*.

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

If you have Sybase Central, you may use the Start Database Server wizard, as documented in *Introduction to Sybase IQ*, instead of start\_asiq.

**Note** On UNIX systems, always run Sybase Central Java and dbisql using the default colors of the Common Desktop Environment. Running these products under Open Windows or changing the default colors may cause display problems.

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*.

**Note** On the start\_asiq command line, the last option specified takes precedence, so if you want to override your configuration file, list any options you want to change *after* the configuration file name. For example:

```
start_asiq @asiqdemo.cfg -x 'tcpip{port=1870}'
asiqdemo.db
```

The –x parameter here overrides connection information in the *asiqdemo.cfg* file.

### **Creating databases**

A sample database, *asiqdemo*, is installed in the \$ASDIR/demo directory.

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

### **Running queries**

Follow the "Quick start" directions in the *readme.txt* file to run Interactive SQL queries in the sample database.

### Stopping the server

To stop a server, run the stop\_asiq command, for example:

stop\_asiq

```
Checking system for IQ 12 Servers ...
The following 2 server(s) are owned by 'kthayer'
##
       Owner
                  PID
                        Started CPU Time
__ ____
              ____
                      _____
                                   _____
                       10:34:42
1:
     kthayer
                4378
                                        0:04
start_asig @asigdemo.cfg asigdemo.db -o /c
_ _
                 4726 10:41:09
2:
     kthayer
                                       0:04
start_asiq @jd_banking.cfg jd_banking.db -o /c
___
Please note that 'stop_asiq' will shutdown a server completely
without regard for users connections or load processes status.
For a finer level of detail the utility 'dbstop' has the options
to control whether a server is stopped based on active
connections.
Enter the server to shutdown ('1'...'2') or 'Q' to Quit:
                       2
Shutting down server ...
Checkpointing server .....
Server shutdown.
Managing processes
                      The stop_asig -agent command lets you stop the IQ Agent on your Unix or
                      Linux system. This is compatible with Sybase IQ 12.5 if you have ESD8 or
                      above installed.
Stopping servers in
                      To use stop_asig in a cron or at job, specify the utility with the appropriate -stop
cron or at jobs
                      option:
                          stop_asig -stop one
                      Setting -stop one shuts down a single server, when exactly one running server
                      was started by the user ID that starts the cron or at job. This prevents
                      accidentally shutting down the wrong server if several are running.
                          stop_asig -stop all
                      Setting -stop all shuts down all servers that were started by the user ID that
                      starts the cron or at job.
                      You can specify both options on the same command, for example:
```

stop\_asiq -agent -stop all

**Note** You must specify the full pathname to the stop\_asiq executable in the cron statement.

Other ways to stop servers

There are other ways to stop an IQ database server:

- Run the Interactive SQL (DBISQL) STOP ENGINE command
- Select the server name and choose Stop from the dropdown in Sybase Central. For details, see *Introduction to Sybase IQ*.
- Run the Stop utility, documented in the *Sybase IQ Reference Manual*, Chapter 4, "Database Administration Utilities."

### Controlling syslog messages

By default, Sybase IQ logs messages to the "user" syslog facility on UNIX. On most UNIX systems, the user syslog facility is not logged, however, on HP-UX systems, the default syslog configuration places the messages sent to the user facility in the syslog files. As a result, these files may fill up, causing the file system on which they reside to become full.

You can solve this problem in either of two ways:

1. Turn off the user facility in syslog.conf, or

2. Use the -s IQ server switch to redirect the server's syslog output to a different facility, and turn off that different facility.

Method 1:

The following example shows how you might edit the *syslog.conf* file on an HP-UX system.

Original syslog.conf file

```
# @(#) $Revision: 74.1 $
# syslogd configuration file.
#
# See syslogd(1M) for information about the format of
this file.
#
mail.debug /var/adm/syslog/mail.log
*.info;mail.none /var/adm/syslog/syslog.log
*.alert /dev/console
```

```
*.alert root
*.emerg *
```

syslog.conf file after modification

```
# @(#) $Revision: 74.1 $
#
# syslogd configuration file.
#
# See syslogd(1M) for information about the format of
this file.
#
mail.debug /var/adm/syslog/mail.log
*.info;mail.none;user.none /var/adm/syslog/syslog.log
*.alert;user.none /dev/console
*.alert;user.none root
*.emerg;user.none *
```

See UNIX man pages syslog(1) and syslog(1) for more information.

# 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 25
- "Installing Sybase IQ Network Client for Windows" on page 29

# 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

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	

Table 2-1: Linux client/server	<sup>,</sup> downward	compatibility
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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 "To mount the CD and set up the sybase account:" on page 13 and "To prepare the installation directory:" on page 13.

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.
Parameter	Function
-add_agent	Install standalone 12.6 IQ Agent only
-autoinstall	Install all defaults.
-help	Display all parameters and usage.
-l_accept_sybase_license	Bypass license agreement prompt when using -autoinstall
-info version	Display information about this product.
-у	Assume "yes" to all questions, warnings, and errors.

Table 2-2: Command parameters for sybinstall utility

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 -l\_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	•			
<u>W</u> indow <u>E</u> dit <u>O</u> ptions	<u>H</u> elp			
Sybase IQ Network Client 12.6				
Select Products				
Destination Directory (\$SYBASE) Free Spa	ace(k)			
/linusdev1/users/janed/sybase 21	29060			
# 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/sybcen           3) jConnect 5.5         16980         \$SYBASE/shared/ipe-12_6           4) Java Runtime Environment 1.4.2         60248         \$SYBASE/shared/ipe-12_6	 1tral43 _42			
Options				
14) De/Select Product for Installation C) Change Target Directory S) Selection Completed Q) Quit the Install				
Please enter (14, 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)

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

Table 2-3: Windows client/server	downward	compatibility
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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 33.

### \* 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.

Install Sybase I	Q Network Client 12.6		×
Setup Type Select the se	tup type that best suits your need:	S.	
Please select	a setup type.		
	All program features will be insta	alled. (Requires the most dia	sk space.)
	Select which program features advanced users.	you want installed. Recomr	nended for
- Destination	Folder		
C:\Program	Files\Sybase		Browse
InstallShield —			
		< <u>B</u> ack <u>N</u> ext :	Cancel

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

		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.
		<b>Note</b> 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 in <i>Guide</i> for the IQ A		tou installed Sybase Central, see the <i>Sybase IQ System Administration</i> <i>ide</i> for instructions on configuring and running the IQ Agent. You must run IQ Agent in order to use Sybase Central.

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## 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*.

# Restoring to your previous version after upgrading

If you anticipate the need to return data to the version of Sybase IQ being used before the upgrade, follow the guidelines in this section to ensure that IQ files are saved before you upgrade.

**Note** Sybase recommends that you install Sybase IQ 12.6 to a separate location from the directory where you installed previous Sybase IQ software.

Do the following before the upgrade to ensure that you can restore:

- Perform an IQ backup, as described in Chapter 13, "Backup and Data Recovery" in *Sybase IQ System Administration Guide*.
- When you install Sybase IQ, install it in another directory, and follow the upgrade steps.

If, after you upgrade, you need to go back to the previous version, then:

- Ensure that the environment variables are changed to point at the older installation directories.
- Start the utility database and restore the backup that was done prior to the upgrade.
- Stop the utility database and start the database that was restored.

### CHAPTER 3

# 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** If you are running a 64-bit version of Sybase IQ for the first time, and have existing databases created using a 32-bit version, no special migration steps are necessary. As always, Sybase recommends that you have a stable backup for databases before making significant changes in the environment.

**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 37	
2. Install IQ	"Step 2: Installing IQ" on page 37	

Step		Related information	
3. Install the standalone IQ Agent (multiplex only)		"Step 3: Installing the standalone IQ Agent on the write server" on page 37	
4. Start the IQ Agent (mult	tiplex only)	"Step 4: Starting the Sybase IQ Agent" on page 38	
5. Start the server		"Step 5: Starting the server" on page 38	
5. Upgrade databases		"Step 6: Upgrading databases" on page 38	
6. Enforce referential integrity		"Step 7: Enforcing referential integrity" on page 39	
7. Restart after upgrading		"Step 8: Restarting after upgrading" on page 39	
8. Verify after upgrade		"Step 9: Verifying databases after upgrade" on page 40	
9. Back up databases agair not required)	(recommended,	"Step 10: Backing up databases after upgrading" on page 40	
Before you upgrade	You must have	a recent backup before you upgrade.	
If you anticipat the upgrade, re page 45 before		te a need for restoring to a previous version of Sybase IQ after ad "Restoring to your previous version after upgrading" on you begin the upgrade process.	
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. <i>Always upgrade the write server last.</i>		
	Be sure to back Local Store on future upgrades	t up the write server before an upgrade. (Once you create an IQ a query server, you must back up that query server as part of s).	
	New 12.6 featu upgraded to ve upgrade databa synchronization and you will ne take their versi	ares are only completely available after all databases are rsion 12.6 using ALTER DATABASE UPGRADE. If you sees on a query server, but leave the write server at 12.5, n returns database versions on the query server to version 12.5 eed to repeat the ALTER DATABASE UPGRADE. Databases on from the write server.	
	Synchronizing server. If you in to be 12.6 after servers with ins However, you version and the	affects database version, <i>not the installed software version</i> on a astall 12.6 software on the query server, that software continues any synchronizations. Multiple database versions may exist on stalled software version 12.6, as shown in Table 1-1 on page 2. must connect to each server using an IQ Agent of the same appropriate agent port.	
Upgrading multiplex databases To upgrade 12.5 databases to 12.6, perform the steps that follow on each in the multiplex. Note that, wherever backup is recommended, you nee back up the write server.		5 databases to 12.6, perform the steps that follow on each server x. Note that, wherever backup is recommended, you need only ite server.	

To upgrade 12.4.3 multiplex databases to 12.6, see "Upgrading 12.4.3 multiplex databases to 12.6" on page 41.

### Step 1: Shutting down servers

Before installing Sybase IQ, you must shut down each server. At the command prompt, issue a stop\_asiq command 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. *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.

Use the following command:

sybinstall -add\_agent

After this install, you will have two IQ Agents:

- the 12.5 IQ Agent, S99SybaseIQAgent, which runs on the default port
- the 12.6 IQ Agent, S99SybaseIQAgent1260, which requires its own port

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*.)

Run start\_asiq only from a session where you have previously set the environment variables. For information about setting the variables, see Chapter 1.

**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 <i>params.cfg</i> files with the new <i>default.cfg</i> file created by the installation. The installation does not update or overwrite existing <i>params.cfg</i> files. In each <i>params.cfg</i> file, update parameter defaults that differ from those in the <i>default.cfg</i> file, while maintaining any customized parameter settings appropriate for your system. Be sure that you add any new startup parameters in <i>default.cfg</i> to your <i>params.cfg</i> 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 <i>Sybase IQ Reference Manual</i> .
	• 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 <i>Sybase IQ Reference Manual</i> .
	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 1 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 41 for other items you may want to check after upgrading.

# Restoring to your previous version after upgrading

If you anticipate the need to return data to the version of Sybase IQ being used before the upgrade, follow the guidelines in this section to ensure that IQ files are saved before you upgrade.

**Note** Sybase recommends that you install Sybase IQ 12.6 to a separate location from the directory where you installed previous Sybase IQ software.

Do the following before the upgrade to ensure that you can restore:

- Perform an IQ backup, as described in Chapter 13, "Backup and Data Recovery" in *Sybase IQ System Administration Guide*.
- When you install Sybase IQ, install it in another directory, and follow the upgrade steps.

If, after you upgrade, you need to go back to the previous version, then:

- Ensure that the environment variables are changed to point at the older installation directories.
- Start the utility database and restore the backup that was done prior to the upgrade.
- Stop the utility database and start the database that was restored.

# CHAPTER 4 Configuring Sybase IQ

This chapter explains how to:

- Configure Sybase IQ so that you can access its databases using client applications
- Set up configuration files to standardize server startup parameters
- 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<sup>TM</sup> DB-Library and Client-Library applications are unlikely to perform as expected.

When developing Open Client applications to run with Sybase IQ 12.x, avoid using catalog tables or system stored procedures supported by Adaptive Server Enterprise but not Sybase IQ. See Appendix A, "Compatibility with Other Sybase Databases," in the Sybase IQ Reference Manual.

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*.

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, type F11 or 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 on the Identification tab. On this tab, Alt-U activates the User ID text box and Alt-P activates the Password text box.

In the DBISQL Connect dialog, you can choose the iAnywhere JDBC Driver via a radio button on the Advanced tab.

The IQ Agent can only use jConnect with JDBC to connect to a multiplex server. The jConnect JDBC drivers have been certified with multiplex and non-multiplex servers.

# **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 ODBC 3.5.2 support is as follows: Sybase IQ **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 While you can use new ODBC 3.5.x features, such as descriptors, in your features ODBC applications, ODBC 2.x applications will continue to work with Sybase IO.

### Installing ODBC drivers

When you install Sybase IQ on your UNIX or Linux server, the installation procedure also installs the ODBC driver, which can be directly accessed by applications. If you are using an ODBC application that uses *libodbc.so* (*libodbc.so.1*) or *libodbcinst.so* (*libodbcinst.so.1*), simply create symbolic links to that point to *\$SYBASE/ASIQ-12\_6/lib/dbodbc9\_r.so.1* for single threaded or *\$SYBASE/ASIQ-12\_6/lib/dbodbc9\_r.so*. *1*. If you are creating an ODBC applications and *dbodbc9\_r.so* for threaded applications. References to ODBC functions are resolved at run time.

**Note** The filenames cited above have platform-specific suffixes. The *so* suffix shown is specific to the Sun Solaris system. See "Linking ODBC applications on UNIX" in Chapter 7 of the *Adaptive Server Anywhere Programming Guide* for a list of files included in the driver managers for supported UNIX platforms.

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.

	If you are using ODBC with UNIX or Linux, see "Using ODBC without the driver manager" in Chapter 4 of the <i>Adaptive Server Anywhere Programming Interfaces Guide</i> to ensure that you are using the correct driver.		
	The ODBC Driver shipped with Sybase IQ connects Sybase IQ servers with clients on a Windows platform or the platform of the IQ server. To connect clients on UNIX or Linux platforms to your server, 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.		
32-bit and 64-bit drivers	UNIX 64-bit applications, including many third party tools, can use 64-bit ODBC drivers to connect to 64-bit IQ servers.		
	32-bit applications can use 32-bit ODBC drivers to connect to 64-bit IQ servers. (32-bit applications <i>cannot</i> use 64-bit ODBC drivers to connect to 64-bit IQ servers.)		
	The Sybase IQ Network Client CD supplied with all platforms contains a 32- bit ODBC driver for connecting from Windows-based ODBC applications. The Sybase IQ CD contains a 64-bit ODBC driver.		
	To connect via ODBC from 32-bit UNIX client applications, you need to download and install the 32-bit ODBC driver kit. Check the EBF/Update information on the Web for the appropriate driver, following the steps in the procedure "Sybase EBFs and software maintenance" on page viii.		

### Using UNIX or Linux-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" 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 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.

### **Creating ODBC data sources**

You need an ODBC data source on the client computer for each UNIX or Linux 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.

On UNIX or Linux, ODBC data sources are held in a file named *.odbc.ini*. You can edit this file with any text editor to specify data sources. For details, see "Using ODBC data sources on UNIX," in the *Sybase IQ System Administration Guide*.

You can also use the cross-platform dbdsn utility to create data sources. See "The Data Source utility" in the *Sybase IQ Utility Guide*.

On Windows, 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  $\rightarrow$  Control Panel  $\rightarrow$  ODBC Data Sources. (This runs odbcad32.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 Sybase IQ 12 driver and click Finish.

The Configuration dialog box appears.

4 Type the Data Source Name in the appropriate text box, Type a Description of the data source in the Description text box if desired. Do not click OK yet.

- 5 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 a server name and database file name (with the .DB suffix) in the appropriate text boxes.
- 7 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.
- 8 If the data source is on a remote system, click the Network tab. Click the checkbox for the appropriate protocol and type the options in the adjacent text box. For example, to connect to server on system janed-pc using TCP/IP protocol and port 1870, you would click TCP/IP and type host=janed-pc:1870

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

host=157.133.66.75:1870

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

- 9 Click OK when you have finished defining your data source.
- 10 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  $\rightarrow$  Programs  $\rightarrow$  Sybase  $\rightarrow$  Adaptive Server IQ 12.6  $\rightarrow$  Start ASIQ 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.

### Storing connection information

If you are running a UNIX client, an *.odbc.ini* file on your system stores the information used to access each database. (Note that the filename begins with a period.)

To connect with ODBC data sources, your *.odbc.ini* file must be located in one of the following directories. Sybase IQ searches the directories in the order listed:

- Current directory
- \$ODBCINI
- Directory specified by the \$ODBCHOME environment variable
- Directory specified by the \$HOME environment variable

Sybase IQ ignores the following environment variables:

- \$ODBC\_HOME
- \$ODBC\_INI

You need to edit the *.odbc.ini* file with any text editor to add entries for your data sources.

Each entry in the .*odbc.ini* file should have the following format:

[an\_entry\_name] Userid — the user ID Password — the password EngineName — desired engine CommLinks — tcpip(port=engine\_port\_number) AutoStop — no (Required parameter - must be set to no) DatabaseFile — desired database with path. Used with embedded databases.

For example:

```
[sample_dsn]
Driver=/s3/mysybasel2.4.3/ASIQ-12_6/lib/dbodbc9_r.so.l
Userid=DBA
Password=SQL
EngineName=test_server1
CommLinks=tcpip(port=1870)
AutoStop=no
DatabaseName=asiqdemo
DatabaseFile=asiqdemo.db
```

Once you have created a data source entry, you can connect to your database, by entering the dbisql command at the command prompt and specifying the data source entry name in a connection string. Sybase IQ finds the rest of the connection information in the *.odbc.ini* file. For example:

```
% dbisql -c "dsn=sample_dsn"
```

For more information about dbisql and its options, see Sybase IQ Utility Guide.

**Note** For Sybase IQ Version 12.5 and higher, by default any server that is started from a connection string is *stopped* when there are no more connections to it, and any database that is loaded from a connection string is *unloaded* as soon as there are no more connections to it. (This does not apply in the case of multiplex IQ databases, which are started with Sybase Central.)

To have the database continue running after connections disconnect, as in Sybase IQ releases prior to 12.5, you must specify the connection parameter AutoStop=No in your connection string or data source.

For example, the following data source fragment instructs the client library to keep the database loaded after the connection is dropped:

```
[dbcli7 Connection Parameters]
ServerName=testsrv
Autostop=No
UserID=DBA
Password=SQL
```

If you want to connect without using *.odbc.ini*, you can enter an Interactive SQL command that specifies the entire entry, like the following. While it is shown here on multiple lines, you must enter the entire command at the command prompt on one line.

```
dbisql -c
"UID=DBA;PWD=SQL;AutoStop=no;DBF=$ASDIR/demo/asiqdemo.
db"
```

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

**Note** 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.

## **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.

#### To add a server object:

The dsedit utility lets you view and edit server entries in the interfaces file using a GUI based on X11/Motif in UNIX platforms.

1 Start the Open Client Directory Service Editor.

% \$SYBASE/\$SYBASE\_OCS/bin/dsedit

2 The default interfaces file and configuration file display.

Click OK to continue or Exit to quit.

- 3 Select "Add new server entry."
- 4 Type the server name and click Add new network transport. *The server name in your DSEDIT entry must be the same as the database name.*
- 5 Select the tcp transport and enter the host name and port number. (The defaults are usually sufficient.) Click OK.
- 6 Click OK.
- 7 The server is now listed under "Available servers."
- 8 Click Close session to make new server entries usable.
- 9 Click Exit to close dsedit.
- 10 Click Yes to "Are you sure you want to exit dsedit?"

### 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. Sybase IQ uses a shared memory segment and several semaphores for communication between the client and server on the same machine.

### Network issues for IQ servers

Properly configured Sybase IQ UNIX servers run under the TCP/IP protocol, which enables non-UNIX clients to communicate with a UNIX database server.

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

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

- **NetWare** TCP/IP For NetWare.
- Windows Microsoft Winsock version 2.0.

There are several entries into the TCP/IP protocol stack. Sybase 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.

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 option on both the client and the database server command lines. This option may be used with either the start\_asiq or the asiqsrv12 command. For more information about server startup options, see the *Sybase IQ Utility Guide*.

### **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.

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)
```

# Setting server configurations

Example

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. You can start the sample database using this configuration file as follows:

```
% cd $ASDIR/demo
```

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

For example, for an *asiqdemo* database on a system named *arches* on a 64-bit system, the *asiqdemo.cfg* file might look like this:

```
-n arches_asiqdemo
-c 48MB
-gc 20
-gd all
-gl all
-gm 10
-gp 4096
-ti 4400
-x tcpip(port=5555)
```

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

Parameter	Value	Description
-n	<hostname>_ asiqdemo</hostname>	Name of system followed by "_asiqdemo"
-c	32MB on 32-bit systems 48MB on 64-bit systems	Catalog store cache size in MB
-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. Sybase strongly recommends that you change the default port number from 2638 to another number.

Table 4-1: Parameters set by asiqdemo.cfg

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.

If you use the same parameters to start all your databases, you could create a generic configuration file. Simply delete the –n and –x lines and supply these parameters on the command line at startup.

**Note** On the start\_asiq command line, the last option specified takes precedence, so if you want to override your configuration file, list any options you want to change *after* the configuration file name. For example:

```
start_asiq @asiqdemo.cfg -n myserver
-x 'tcpip{port=1870}' asiqdemo
```

The –x parameter here overrides connection information in the *asiqdemo.cfg* file.

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.

You can add comments to configuration files by preceding each comment line with the #symbol. For example:

```
#These are the protocols:
-x tcpip(port=3333)
```

Default configuration file The *asiqdemo.cfg* file gets default parameter values from \$*ASDIR/scripts/default/default.cfg*. This file is also the source for the *params.cfg* file used in start\_asiq, by Sybase Central, and in multiplex configurations. You can maintain consistency by editing parameters in *default.cfg*, although you should keep a copy and avoid changing recommended default values.

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
```

# **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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