SYBASE®

Installation and Configuration Guide

Risk Analytics Platform

1.0

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Contents

About This Book

Audience

Installation and Configuration Guide Risk Analytics Platform is intended for Sybase® Professional Services, Customer IT/Back Office engineers, and other technical personnel who need to install and configure the components of Sybase Risk Analytics Platform. Familiarity with Sybase Adaptive Server® Enterprise, Sybase Replication Server®, Sybase IQ, data warehousing, and other related topics is assumed.

How to use this book

Before following the instructions in this book to install and configure Risk Analytics Platform, refer to the *Release Bulletin Risk Analytics Platform* for any last minute information regarding this product.

Related documents

Refer to the following documents for more information:

- *Release Bulletin Risk Analytics Platform*
- *User's Guide Risk Analytics Platform*
- Sybase IQ 12.6 product documentation
- PowerDesigner 11.0 product documentation
- Adaptive Server Enterprise 12.5.3 product documentation
- Replication Server 12.6 product documentation

Other sources of information

Use the Sybase Getting Started CD and the Sybase Infocenter Web site to learn more about your product:

- The Getting Started CD contains the release bulletin, installation guide, and user's guide in PDF format. It is included with your software. To read or print documents on the Getting Started CD, you need Adobe Acrobat Reader, which you can download at no charge from the Adobe Web site using a link provided on the CD.
- The Sybase Infocenter Web site is an online version of the product manuals 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

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

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

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

❖ **Finding the latest information on product certifications**

1. Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.
2. Select Products from the navigation bar on the left.
3. Select a product name from the product list and click Go.
4. Select the Certification Report filter, specify a time frame, and click Go.
5. Click a Certification Report title to display the report.

❖ **Creating a personalized view of the Sybase Web site (including support pages)**

Set up a MySybase profile. MySybase is a free service that allows you to create a personalized view of Sybase Web pages.

1. Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.
2. Click MySybase and create a MySybase profile.

Sybase EBFs and software maintenance

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

1. Point your Web browser to the Sybase Support Page at http://www.sybase.com/support.
2. Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.
3. Select a product.
4. Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

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

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

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.

The Risk Analytics Platform 1.0 documentation complies with U.S. government Section 508 Accessibility requirements. Documents that comply with Section 508 generally also meet non-U.S. accessibility guidelines, such as the World Wide Web Consortium (W3C) guidelines for Web sites.

For information about accessibility support in the Sybase IQ plug-in for Sybase Central, see "Using accessibility features" in Chapter 1, "Introducing Sybase IQ" in *Introduction to Sybase IQ*. The online help for Sybase IQ, which you can navigate using a screen reader, also describes accessibility features, including Sybase Central keyboard shortcuts.

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

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.

If you need help

Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support. If you cannot resolve a problem using the manuals or online help, please have the designated person contact Sybase Technical Support or the Sybase subsidiary in your area.

CHAPTER 1

Sybase Risk Analytics Platform

About this chapter

This chapter provides an overview of Sybase Risk Analytics Platform version 1.0 and describes installing the Risk Analytics components from the product CDs.

Contents

Overview

Sybase Risk Analytics Platform is a consolidated data repository for customers who use financial market data to monitor trading activity. By incorporating historical time series, reference, and streaming TAQ data in one scalable data store, Risk Analytics provides access to real-time trading activity and significantly reduces reliance on batch processing.

Risk Analytics Platform relies on an infrastructure of existing Sybase products.

- Sybase IQ version 12.6 serves as the market data repository. Sybase IQ meets the challenge of near real-time query performance requirements on large volumes of data.
- Sybase Replication Server version 12.6 may be used to capture and process transactions on a source database and transfer them to the target IQ database.
- Sybase Replication Server Manager version 12.6 manages the replication environment and is used to configure replication between the source and target databases.
- Sybase Adaptive Server Enterprise version 12.5.3 (ASE) may serve as the source database and the Replication Server System Database (RSSD). Transactions executed on ASE tables can be replicated to the Sybase IQ database.
- Sybase Replication Manager version 12.6 (RepMgr) manages the Multiple Site Availability database replication. Multiple Site Availability enables the replication of an entire database and its table DDL.

What's in the package?

The Risk Analytics Platform package contains the following components:

- **Sybase IQ 12.6** is designed specifically for reporting, data warehousing, and analytics. Sybase IQ delivers unsurpassed query performance and storage efficiency for structured and unstructured data.
- **Power Designer 11.0** provides a unique set of modeling tools that combines several standard modeling techniques: application modeling through UML, Business Process Modeling techniques and traditional database modeling techniques.

- **Risk Analytics Platform** which includes a data model, configuration scripts, sample data, and sample queries.

Note
Adaptive Server Enterprise 12.5.3, Replication Server 12.6, and Replication Manager 12.6 are not included in the Risk Analytics Platform package and must be purchased separately.

Installation

Default locations during installation may differ for some components. For example, the default root directory may display as *c:\sybase* or as *c:\Program Files\Sybase*, depending on the component. In this document, the installation directory is referred to as *$SYBASE* (UNIX) or *%SYBASE%* (Windows).

Before you begin

- Read the release bulletin

  The release bulletin contains important information about installing and upgrading Replication Server software. Your Risk Analytics Platform package includes a printed release bulletin, which is also available on the Sybase Product Manuals Web page.

- Review the system requirements

  Knowing the requirements for each product included in this package. can make installation and configuration tasks easier.

- Locate your license keys

  Some of the products distributed with the Risk Analytics Platform require a license key to install. License keys are included as separate printed documents in your product package.

- Accept the license agreement

  During installation, you must accept the Sybase license agreement to install Sybase software.

If, for any reason, you cannot read the license agreement, go to the Sybase Software Licenses web site at http://www.sybase.com/softwarelicenses and follow the instructions for your geographical location.

After you read the License Agreement, return to the installation screen and click **Yes** to agree to the terms and conditions of the license.

Installing package components

This section summarizes installation procedures for each component included in your package.

Risk Analytics 1.0

To install Risk Analytics 1.0 from the CD included with your Risk Analytics package:

1 Insert the Risk Analytics Platform product CD into your CD drive.

If Risk Analytics Setup does not start automatically:

- Click Start, choose Run.
- Browse to select your CD drive letter, choose *setup.exe*.

2 Follow the instructions on your screen to install Risk Analytics.

The Risk Analytics Platform installation directory structure

The default installation directory for Risk Analytics Platform is *c:\Program File\Sybase/Risk Analytics Platform 1.0* on Windows. There are four major subdirectories within the installation directory:

- *\Data* contains additional folders which store the comma separated value (**.csv*) data files, the load scripts you need to load the sample data into your Sybase IQ database, and the script to create the Sybase IQ indexes.
- *\Scripts* contains additional folders which store the SQL scripts for the sample historical market and tick queries and scripts to set IQ database options.
- *\Documentation* contains Risk Analytics Platform documentation for this release in Adobe Acrobat PDF format and Microsoft Excel format.
- *\Model* contains the data model, or PowerDesigner Model (*.pdm*) file, required for Risk Analytics Platform.

PowerDesigner 11.0

To install PowerDesigner 11.0 from the CD included with your Risk Analytics package:

1 Insert the PowerDesigner 11.0 product CD into your CD drive.

If PowerDesigner Setup does not start automatically:

- Click Start, choose Run.
- Browse to select your CD drive letter, choose *setup.exe*.

2 Follow the instructions on your screen to install PowerDesigner. See the PowerDesigner product documentation for additional information.

Sybase IQ 12.6

To install Sybase IQ 12.6 from the CD included with your Risk Analytics package.

Windows

See the *Sybase IQ 12.6 Installation and Configuration Guide for Windows.* This document tells you how to install the following software components:

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

Step by step

1 Log into Windows with an Administrator account.

2 Insert the Sybase IQ 12.6 product CD into your CD drive.

If Sybase IQ Setup does not start automatically:

- Click Start, choose Run.
- Browse to select your CD drive letter, choose *setup.exe*.

3 Follow the instructions on your screen to install Sybase IQ 12.6.

See the *Sybase IQ 12.6 Installation and Configuration Guide for Windows* for additional information.

Installation options

Refer to the following sections for the type of components you want to install:

- To install components required for operation as a network server, install the Sybase IQ Server Components on Windows. See “Installing Sybase IQ Server Components” in Chapter 1, “Installing Sybase IQ.”
- To install components required for connection to a network server, see Chapter 2, “Installing Sybase IQ Network Client.”

Sun Solaris

See the *Sybase IQ 12.6 Installation and Configuration Guide for Sun Solaris*. This document tells you how to install the following software components:

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

Installation options

Refer to the following sections for the type of components you want to install:

- To install components required for operation as a network server, install the Sybase IQ Server Components on your Sun Solaris system. See “Installing Sybase IQ Server Components” in Chapter 1, “Installing Sybase IQ.”
- To install components required for connection to a network server, see Chapter 2, “Installing Sybase IQ Network Client.”

Red Hat Linux

See the *Sybase IQ 12.6 Installation and Configuration Guide for Linux*. This document tells you how to install the following software components:

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

Installation options

Refer to the following sections for the type of components you want to install:

- To install components required for operation as a network server, install the Sybase IQ Server Components on your Linux system. See “Installing Sybase IQ Server Components” in Chapter 1, “Installing Sybase IQ.”
- To install components required for connection to a network server, see Chapter 2, “Installing Sybase IQ Network Client.”

CHAPTER 2

Database Setup for Risk Analytics Platform

About this Chapter

This chapter describes the process of creating, starting, connecting to, and loading the Sybase IQ database. The chapter also describes the process of using Sybase PowerDesigner to generate DDL scripts from the Risk Analytics data model to create tables in a Sybase IQ database and an Adaptive Server Enterprise database.

Contents

Overview

Risk Analytics Platform 1.0 uses Sybase IQ 12.6 as a consolidated market trading and risk data repository. This database is used to store large amounts of historical, reference and real-time data from corporate sources, market data vendors, and securities exchanges for fast access by automated trading applications and various user communities in customer organizations.

This chapter takes you through the steps you need to perform to create, start, connect to, and load a Sybase IQ sample database. The chapter also includes instructions for generating DDL scripts to create matching Sybase IQ and Adaptive Server Enterprise database schemas, if you are using Replication Server to transfer data from an Adaptive Server Enterprise source database.

Where to find additional information about Sybase IQ
To find additional information about Sybase IQ, see *Introduction to Sybase IQ*, the *Sybase IQ System Administration Guide*, or the *Sybase IQ Performance and Tuning Guide*, especially if you are using IQ on a UNIX platform.

Baseline requirements for Sybase IQ

The system on which the IQ sample database is created requires both the Sybase IQ 12.6 server software and a minimum of 3.0 GB of disk space for the sample database. You must have a copy of the Sybase IQ 12.6 client tools loaded on the machine from which you install the database. Both the Sybase IQ client and server can be on the same machine.

The names of the database, user, and ODBC Data Source Name (DSN) are required when you set up a Sybase IQ database. The examples in this section use RAPIQ as the database name, and DBA as the user name. Specify appropriate values when you set up your own database.

Creating a Sybase IQ database with Sybase Central

Sybase Central is a graphical management tool for Sybase products, which connects to and manages Sybase products running on any Sybase-supported platform. You can use Sybase Central to start a Sybase IQ server and to create the database.

❖ **Creating the sample database and database server using Sybase Central**

1 On Windows, click Start, point to Programs | Sybase | Adaptive Server IQ 12.6 | Sybase Central Java Edition.

To start Sybase Central on UNIX, enter the command

```
% scjview
```

2 In Sybase Central, click Sybase IQ, click the Utilities tab, and double-click Create Database.

A dialog box prompts you for the server options.

3 Click Next.

The next dialog box prompts you for the Connection Parameters.

4 Specify an appropriate user account with DBA authority and connection parameters for the server. These values represent the IQ system defaults:

- *Username – DBA*
- *Password – SQL*
- *Port Number – 2638*

Host machine name identifies the machine where IQ is installed and where you want to create the database.

5 Click Next.

A dialog box prompts you for the name and location of the sample database and IQ files.

6 Specify a path and filename for the sample database, for example, *<path>\RAPIQ.db*

Note The Sybase IQ server and the IQ database must have identical names, if you are using IQ as a target database for Replication Server. This is a requirement of Replication Server.

This path should exist locally on the given host. If you omit the path, Sybase Central creates the database relative to the directory where the server was started.

7 Type a path and filename for the IQ Store, which contains the IQ data, for example, *<path>\RAPIQ.iq*

8 If your sample database is on disk, deselect the *This is a raw device* checkbox, then click Next.

9 On the next dialog box, enter an IQ Store Size of 2 GB (2000 MB) and accept the defaults for IQ_Page_Size and Database Page Size.

10 Click Next.

A dialog box prompts you for the temporary store path and size.

11 If you database is on disk, deselect *This is a raw device*.

This step creates a temp file that IQ uses as work space during processing. In the Specify the path for the temporary dbspace field, add the full path and file name you want to use. This file must have an *.iqtmp* extension. Specify 1000 (1 GB) for File Size in MB. Accept the defaults for all remaining parameters, check Skip to last page, then click Next.

12 On the Create Database - Summary screen, confirm your choices and click Finish to create the database.

Creating a Sybase IQ database in Interactive SQL

As an alternative to Sybase Central, you can use Interactive SQL to connect to your Sybase IQ server, and create a database using the CREATE DATABASE statement. For example, the following command creates a Sybase IQ database called RAPIQ on a raw device in UNIX:

```
CREATE DATABASE 'RAPIQ'
 IQ PATH '/dev/rdsk/c2t6d0s3'
```

See the Sybase IQ documentation for details.

Note To create an IQ database with multiplex capability, you must use Sybase Central. See the Sybase IQ documentation for details.

Editing the IQ configuration file

The easiest way to start Sybase IQ is with a configuration file. You can make a copy of the *\Sybase\ASIQ-12_6\demo\asiqdemo.cfg* configuration file that is created during IQ installation, rename it, and edit it for use with your sample database. The default *asiqdemo.cfg* file sets these Sybase IQ 12.6 startup options:

```
-n <hostname>_asiqdemo
-c 32m
-gc 20
-gd all
–gl all
-gm 10
-gp 4096
-ti 4400
-x tcpip(port=2638)
```

Use any text editor to change the following values:

- Set the -n parameter to the system and server of your sample IQ database. For example, if your hostname is RAP, set -n RAP_RAPIQ
- Set the port to an available port number for that server, if port number 2638 is already in use. The default port number for IQ is 2638.
- Include the host name, if you intend to start IQ from a remote server. For example,

  ```
  -x tcpip(host=IQ_server;port=1234)
  ```

- Add the following parameters:

  ```
  -iqmc 256
  -iqtc 128
  ```

  The -iqmc parameter specifies 256 MB for IQ Main buffer cache and the -iqtc parameter specifies 128 MB for IQ Temp buffer cache.

- Rename the file, keeping the *.cfg* suffix, for example, *RAP_RAPIQ.cfg*

Note
This *.cfg* file must be in the same location as the **.db* and **.iq* files.

These should be the only changes required to use the configuration file with your sample database. For more information on startup options and configuration files, see the Sybase IQ documentation.

Creating an ODBC connection to the sample IQ database

Open Database Connectivity (ODBC) is a standard interface for connecting client applications to database management systems in a Windows environment. Connections are made by specifying connection parameters stored in an ODBC data source. This section tells you how to create an ODBC Data Source Name (DSN) to connect to the sample database.

Sybase recommends creating System DSNs
You need a System DSN because it is visible to all users on the machine, while a User DSN is only visible to that user. If you create System DSNs, you can share them with all users on the network. Users will not need to create the data sources on their own machines.

❖ **Creating an ODBC DSN for Sybase IQ 12.6**

1 Click Start, point to Settings | Control Panel.

2 Click Administrative Tools, choose Data Sources (ODBC).

3 On the ODBC Data Source Administrator, click the System DSN tab, click Add, choose Adaptive Server IQ, click Finish.

4 On the ODBC Configuration dialog, click the ODBC tab, type a connection name in the Data source name box.

5 Click the Login tab, and in the User ID and Password boxes, type the user ID and password you want to use to connect to the database.

The default user ID is DBA, and default password SQL. The DBA user ID automatically has DBA authority within the database. This permission level grants a user the right to carry out any activity in the database.

6 Click the Database tab. In the Server name box, type the Sybase IQ server name. In the Database name box, type the name of the IQ database.

7 In the Database file box, type the full path and name of the IQ database. You can also click the Browse button to locate the file.

8 Click OK to create the data source and OK to close the dialog box.

Starting and connecting to the sample IQ database

Although there are several ways to start a Sybase IQ server and connect to a database, these procedures give you some simple ways to get started.

❖ **Starting the sample IQ database from the command line**

1 On the system where you created the Sybase IQ database, start the IQ server with the sample database.

For example, to start the server from the command line using the edited configuration file, change directory to the directory containing the *.cfg* and *.db* files and enter:

```
start_asiq @RAP_RAPIQ.cfg RAP_RAPIQ.db
```

Be sure to use the -n switch to name the server, either in the configuration file, or on the command line when you start the server.

2 Connect to the sample IQ database with the user ID DBA and password SQL.

For example, to connect using Interactive SQL from the machine where the Sybase IQ server RAPIQ and the database RAPIQ are running, you can enter on the command line:

```
dbisql -c "uid=DBA;pwd=SQL;eng=RAPIQ_RAPIQ;
dbn=RAP_RAPIQ;dbf=RAP_RAPIQ.db;
links=tcpip{port=2638;host=IQ_server}"
```

❖ **Starting the sample IQ database from Sybase Central**

In Windows, you can also use Sybase Central to start the server and connect to the sample database.

1 Click Start, point to Programs | Sybase | Adaptive Server IQ 12.6 | Sybase Central Java Edition.

2 In Sybase Central, click Sybase IQ, click the Utilities tab, and double-click Start Server.

A dialog box prompts you for the start-up options.

3 Select Single server and click Next.

4 On the Connection Parameters dialog, type the appropriate connection parameters. See the following table for system defaults.

Field name...	Value
Server Name	*server_name*

Field name...	Value
Host machine	*host_name*
Port number	*port_number*
Database Name	*database_name*
Username	DBA
Password	SQL

5 Click Next.

6 Specify the full path to the database file, then click Next.

7 Click Finish to start the server.

Other startup and connection options
If you are a UNIX user, see the *Sybase IQ Installation and Configuration Guide* for more information.

Creating the schema for the Sybase IQ database

Before you load the sample data, use PowerDesigner to produce a set of data definition language (DDL) statements from the data model. PowerDesigner saves the DDL in a SQL script you can run to generate the tables and other objects for the target Sybase IQ database.

Generating the DDL involves the following steps:

- Opening the model in PowerDesigner
- Changing the name of the default database user (RAP_USER) to the IQ user
- Generating the script that creates a schema for the new IQ database
- Logging into the sample database and running the script

Note
You need to install Sybase PowerDesigner 11.0 before you create the DDL for the sample database. You can also use PowerDesigner to view and update the data model.

Changing the default database owner in PowerDesigner

This step transfers ownership of the sample database from the default Risk Analytics owner, RAP_USER, to the Sybase IQ user who owns the target database. Before you can transfer ownership, however, you must add the name of this IQ user to the list of users in PowerDesigner.

1 With the model open in PowerDesigner, select Model | Users and Roles | Users.

2 In the List of Users dialog, click on the row with the default user name RAP_USER and type the new Sybase IQ user in the Name Column, for example, DBA. PowerDesigner also adds the new user name in the Code column.

   Overwriting the default user name globally changes ownership of database objects from the default owner to the new owner.

3 Click Apply to assign the new user ID to all tables.

4 Click OK to return to the PowerDesigner desktop.

Producing DDL from the data model in PowerDesigner

This step shows you how to use PowerDesigner to generate DDL directly from the data model and save the results in a SQL script that you use to generate the tables and other objects for the target database.

1 Click Database | Change Current DBMS.

2 In the Change the Target DBMS dialog, check that the current DBMS is Sybase AS IQ 12.6. If the current DBMS is *not* Sybase AS IQ 12.6, choose Sybase AS IQ 12.6 in the DBMS drop-down list and click OK.

3 Click Database | Generate Database.

4 On the Database Generation dialog, click the browse button, and choose the directory where you want to store the script. Click OK.

5 In the File name box, type a name for the SQL script. You will use this script in the next procedure.

6 On the Tables & Views, Keys & Indexes, Database, and Options tabs, set options as listed in the following table:

On this tab...	In this panel...	Set these options...
Tables & Views	Tables	Create table

On this tab...	In this panel...	Set these options...
Keys & Indexes	Primary keys	Create primary key Inside Table
Keys & Indexes	Foreign keys	Create foreign key Outside Declarative Integrity
Database		turn all options off
Options		accept all defaults

7 Click the Selection tab. The Selection tab includes two drop-down boxes: the drop-down box on the left is used to choose the RAP model to generate and the drop-down box on the right is used to choose the database owner.

8 From the drop-down box on the right, choose the IQ database owner, for example DBA.

9 On the Tables tab, click the Select All button, which is to the right of the database owner drop-down box.

10 On the Domains tab, choose the IQ database owner, click the Select All button, click Apply, then click OK.

PowerDesigner checks the model for any errors, builds a result list, and generates the DDL. The Result dialog appears, which identifies the name and location of the generated file. You can click the Edit button on the Result dialog to view the generated script. Close the Result dialog.

The Result List dialog appears in the background and may include several warnings, for example, `"Existence of index"` and `"Existence of reference."` These warnings normally occur during generation.

11 Close the Result List dialog, then exit PowerDesigner.

If PowerDesigner prompts you to save the current workspace, click No.

If PowerDesigner prompts you to save the model, click Yes only if you want to save the modified model. Otherwise, click No.

Executing the DDL script

At this point the DDL script is ready to execute and create objects in the sample database.

1 Click Start, point to Programs | Sybase | Adaptive Server IQ 12.6 | Interactive SQL Java.

If the Sybase IQ server is not running, start the server as described in "Starting and connecting to the sample IQ database" on page 15.

2 Use the ODBC DSN you created to connect to the sample database.

3 Click File, choose Open.

4 On the Open dialog, using the Look in drop-down menu, go to the directory where the DDL script was saved after you generated it from the PDM. Select the *.sql* script file and open it.

5 Click the Execute SQL statement icon on the toolbar to execute the script and create the sample database tables and other database objects.

Applying indexes to the IQ database tables

Unlike most traditional relational database management systems, Sybase IQ encourages heavy indexing of columns in a database. Additional indexes usually improve query performance and usually do not reduce load performance.

Depending on site-specific issues such as limits on the available load time and the actual queries in the database, you may want to add or remove indexes from the create index script file *\Data \RAP_Index\indexes_rap.sql*. For detailed information on IQ indexes, refer to the Sybase IQ product documentation.

Before loading the sample data, run the SQL script *\Data \RAP_Index\indexes_rap.sql* in Interactive SQL Java to create the Sybase IQ indexes. See "Executing the DDL script" for details on running a script in Interactive SQL Java.

Loading the IQ sample data

Risk Analytics Platform provides sample data as a set of *.csv* files, which you can load on both UNIX and Windows systems.

To run the data load script files, you must have the Sybase IQ 12.6 client tools on your system. You can run the *.bat* and *.tst* files (discussed in the following sections) on your client system. Note that the client and server can be on the same machine.

All of the files needed to complete the IQ database setup and load the sample data are located in subfolders of the *\Data* and *\Scripts* folders.

Some of the *.csv* files are contained in WinZip *.zip* files. You must unzip these files, then copy all of the *.csv* files to the server machine. If you are creating the IQ database on a UNIX server, copy the *\Data\RAP_Output* folder and its contents to the UNIX directory where you start the IQ server. You can FTP these files from Windows to the UNIX machine.

Note
The *.csv* files, which contain the sample data, **must** be transferred in an ASCII format to the UNIX server machine.

The *.csv* files must be in the same location (folder or directory) as the Sybase IQ database files and the directory from which the Sybase IQ server is started.

You use four types of files to complete the database setup, load the sample data, and create the IQ indexes.

- The first file type is *.bat*. These scripts are used to start the database setup and data loading processes. The *.bat* files are in the *\Data\RAP_Load* and *\Scripts\RAP Setup* folders.
- The second file type is *.tst*. This script is called by a *.bat* file and performs the loading process of the *.csv* files. The *.tst* file is in the *\Data\RAP_ Load* folder.
- The third file type is *.csv*. These files are simply comma-delimited data files containing all of the necessary data for the sample database. The *.csv* files are in the *\Data\RAP_Output* folder.
- The fourth file type is *.sql*. These files contain the commands to complete the database setup and to create the Sybase IQ indexes on the tables in the sample database. The *.sql* files are in the *\Data\RAP_Index* and the *\Scripts\RAP Setup* folders.

Before you can run any of the scripts, you must edit both the *.bat* and *.tst* files to correspond to the sample database you created.

Editing the .bat files

There are three *.bat* files. The *.bat* file in the *\Scripts\RAP Setup* folder starts the processes that complete the database setup. The *.bat* files in the *\Data\RAP_Load* folder start the processes that load the sample data.

Folder	Filename
\Scripts\RAP Setup	*rap_setup.bat*
\Data\RAP_Load	*load_rap_tables.bat* *load_unix_rap_tables.bat*

Use a text editor to make the following changes in the *.bat* files:

Change this...	To your value for this...
<USER_NAME>	User ID created for the target database
<PASSWORD>	Corresponding password
<ENG_NAME>	Server name
<DB_NAME>	Database name
<DB_FILE>	Database file name
<PORT_NUMBER>	Port number
<HOST_NAME>	Host name

Editing the .tst file

There are two *.tst* files located in the *\Data\RAP_Load* folder. Use a text editor on the files *load_rap_tables.tst* and *load_unix_rap_tables.tst* to globally change <path> to the full path of the *\Data\RAP_Load* folder of your installation directory or to the location of the *.csv* files. The path must reflect the location of *.csv* files as the server sees them and the files must be accessible to the server.

Running the IQ database setup and load sample data scripts

After you make these changes, run the *rap_setup.bat* and the *load_rap_tables.bat* files (in this order) either from a command window, or using the Windows Start | Run option on the machine that hosts the Sybase IQ database. Run the *load_unix_rap_tables.bat* file on Linux and UNIX instead of *load_rap_tables.bat*. These batch files start the processes that complete the database setup and load the sample data.

Note
The scripts executed by *rap_setup.bat* create global temporary tables and set Sybase IQ database options for best performance.

To check the status of the data loads, review the log file for the Sybase IQ database, <*database_name*>.*iqmsg*. The default location of the IQ log file is the directory where the IQ database file (<*database_name*>.*db*) is located.

Next step

You have completed the sample IQ database creation process. You now have a fully loaded and accessible Sybase IQ database with sample data for running the sample historical market queries and the sample tick queries.

The process of using Sybase PowerDesigner to generate DDL scripts from the Risk Analytics data model to create tables in an Adaptive Server Enterprise database is similar to the process for Sybase IQ. The next step is to generate the DDL scripts and set up the ASE database.

Adaptive Server Enterprise database setup

If you are using Adaptive Server Enterprise as your replication source database, follow these database setup instructions. Otherwise, you can skip this section.

Adaptive Server Enterprise 12.5.3 is not included in the Risk Analytics Platform package and must be purchased separately. See the *Release Bulletin Risk Analytics Platform* for the specific version requirements of Adaptive Server Enterprise.

Install Adaptive Server Enterprise as described in the ASE product documentation. Sybase strongly recommends that you always check the online support Web site for the latest software updates (ESD or EBF). See “Sybase EBFs and software maintenance” on page vi for more information.

For Risk Analytics Platform, you need to create the ASE source database in which tables will be marked for replication to the Sybase IQ database.

Preliminary steps

You must have appropriate administrative tools installed on your machine and authority to perform the tasks outlined in this section.

You need to create a user with DBA authority and an empty database that identifies that user as the database owner. You should also establish an appropriate ODBC DSN or other connection to the database.

Creating the schema for the ASE database

PowerDesigner includes all of the resources you need to generate a set of data definition language (DDL) statements in a SQL script directly from the data model. You can run this script to generate a schema for your ASE database. The ASE database schema must match the Sybase IQ schema, as Sybase IQ is the Replication Server target database in Risk Analytics.

The process of using PowerDesigner to create the DDL scripts for ASE is the same as creating the script for Sybase IQ. Follow the steps in "Creating the schema for the Sybase IQ database" on page 16 with the following differences for Adaptive Server Enterprise:

- Change the default Risk Analytics owner RAP_USER to the name of the Adaptive Server Enterprise database owner.
- In the Change the Target DBMS dialog, choose Sybase AS Enterprise 12.5.2 as the target database.
- Generate the DDL as described in the section "Producing DDL from the data model in PowerDesigner" on page 17.
- Follow the instructions in the next section to execute the DDL script on your Adaptive Server Enterprise database. Do not execute the DDL script as described in "Executing the DDL script" on page 18, as this procedure is for Sybase IQ only.

Executing the DDL script

Now the DDL script you generated from the PDM is ready to be executed. Log into your ASE target database and execute the DDL script to create the database tables and other database objects.

Note Risk Analytics Platform does not include indexes for Adaptive Server Enterprise.

CHAPTER 3

Data Replication

About this Chapter

This chapter tells you how to configure Replication Server to replicate data from an Adaptive Server Enterprise database to a Sybase IQ target database.

Contents

Overview

The Sybase Risk Analytics Platform relies on Sybase Replication Server 12.6 to replicate transactions between the Adaptive Server Enterprise <*source database*> and Sybase IQ <*target database*>.

Although Sybase Replication Server is not packaged as part of the Sybase Risk Analytics platform, the instructions in this section assume that you purchased a copy separately and are familiar with the Replication Server 12.6 environment.

Replication environment

- Sybase Adaptive Server Enterprise version 12.5.3 (ASE) serves as the source database and the Replication Server System Database (RSSD).
- Sybase IQ version 12.6 serves as the target database.
- Sybase Replication Server version 12.6 (RepServer) captures and processes transactions on the source database and transfers them to the Sybase IQ target database.
- Sybase Replication Server Manager version 12.6 (RSM) manages the replication environment and is used to configure replication between the ASE source and Sybase IQ target databases.
- Sybase Replication Manager version 12.6 (RepMgr) manages the Multiple Site Availability database replication. Multiple Site Availability enables the replication of entire databases and its table DDL.

Sybase Central

With this configuration, there are three different versions of Sybase Central available because different products install their own version. The information below should help clarify each version of Sybase Central and its use:

1 To manage IQ, start Sybase Central Java Edition version 4.3 under Adaptive Server IQ 12.6 from the Windows Start menu.

2 To manage the RepServer using RSM, start Sybase Central version 3.2 under Sybase from the Windows Start menu. RSM enables the creation of connections, replication definitions, subscriptions and publications to configure a replication environment.

3 To manage Multiple Site Availability within RepServer using RepMgr, start Sybase Central Java Edition version 4.1.1 under Sybase, from the Windows Start menu. RepMgr enables the configuration of replication for entire databases, including table DDL, which is called Multiple Site Availability. Additionally, this version of Sybase Central will manage the ASE server and databases.

Replication Server Configuration

Risk Analytics relies on Sybase Replication Server 12.6 to replicate transactions between the Adaptive Server Enterprise <*source database*> and Sybase IQ <*target database*>.

Configuration tasks

This section summarizes that tasks you use to install and configure Replication Server. For specific installation instructions, see the *Replication Server Installation and Configuration Guide* for your platform.

1 Install and configure Replication Server version 12.6 according to the product documentation.

2 Install the RepServer Client for Windows, which installs the required files for Replication Server Manager (RSM). The RSM Client is a plug-in to Sybase Central is available only on Microsoft Windows platforms.

- If setup asks you whether you want to over-write any Open Client/Open Server DLLs older than those currently installed on your system, choose No.
- Do not use the *SAMPLE_RS* that can be configured during the RepServer installation. *SAMPLE_RS* uses an ASA database, which is not currently supported by RSM.

3 Use *rs_init* to create a RepServer instance. *rs_init* is a utility used to configure Replication Server and add databases to a replication system. Although specific configuration steps are the outside the scope of this document, Sybase recommends that you use the following parameters:

4 From the Windows Services management console, start the new RepServer service. This service will be named *Sybase REP_ <server name>*, where *<server name>* is the name you gave to your server.

RSM configuration

This section summarizes that tasks you use to configure Replication Server Manager. For specific installation instructions, see the *Replication Server 12.6 Configuration Guide* for your platform.

1 Configure Replication Server Manager, according to the product documentation. For specific configuration instructions, see the *Configuration Guide Replication Server 12.6* for your platform.

2 Verify that the *%SYBASE%\ini* directory includes a *sql.ini* file that contains an entry for each server you want RSM to manage, as well as an entry for the RSM Server.

   Use *dsedit* to create RSM server entry and an entry for the Sybase IQ server in the SQL.INI file. Define the RSM port as any available port number; the Sybase IQ port should be the actual port that the server is using. See the *Replication Server Administration Guide* and the *Replication Server Installation Guide* for Windows for more information

3 Run RSM Server Setup from the Sybase group on the Windows Programs menu. This creates a Windows service for RSM named *Sybase RSMServer_<server name>*, where *<server name>* is the RSM server name. You will need to enter a valid Windows login and password. This user id will be used to stop and start the new RSM service.

4 From the Windows Services management console, start the new RSM service. This service will be named *Sybase RSMServer__<server name>*, where *<server name>* is the named you used to define the RSM server.

Target database configuration

Replication Server uses a data server maintenance user for each local data server database that contains replicate tables. This allows Replication Server to maintain and update the replicate tables in the database.

The Database Owner or the System Administrator must create and grant appropriate privileges to the maintenance user in the Sybase IQ server for the RepServer connection definition.

Creating a maintenance user

This procedure creates a maintenance user called *ruser* in the Sybase IQ database. All procedures are performed in Interactive SQL. Separate startup procedures for Windows and UNIX are provided below.

1 To start *dbisql* do one of the following:

- In Windows, click Start | Programs | Sybase | Adaptive Server IQ 12.6 | Interactive SQL.
- In UNIX, open a command shell, type the following command at a system prompt: *dbisql*.

2 Run the following commands:

```
grant connect to rsuser identified by rsuser
grant membership in group rs_systabgroup to rsuser
```

Granting maintenance access to system tables and procedures

The Database Owner or the System Administrator must grant to the maintenance user the permissions required to insert, delete, and update rows in replicated tables and to execute replicated stored procedures.

Procedure permissions

Grant execute permissions for each of the following procedures:

```
rs_getlastcommit
rs_initialize_threads
rs_maker
rs_update_lastcommit
rs_update_threads
```

All procedures are performed in Sybase Central. Separate. Follow instructions for Windows or UNIX.

1 To start Sybase Central, do this:

- In Windows, click Start | Programs | Sybase | Adaptive Server IQ 12.6 | Sybase Central Java Edition.
- In UNIX, open a command shell, change directory to *$SYBASE/sybcentral* and type: *% scjview*

If you have added *$SYBASE/ASIQ-12_6/bin or $SYBASE/bin* to your path, as instructed at the end of the installation, you can issue the *scjview* command from any directory.

2 In Sybase Central, right-click on Sybase IQ, choose Connect.

3 Add the appropriate connection information, click OK.

4 Expand Sybase IQ | *Sybase IQ <target database>* | Procedures & Functions.

5 Right-click on a procedure, choose Properties, click Permissions | Grant.

6 On the Grant Permissions dialog, choose *rs_systabgroup*, click OK.

The *rs_systabgroup* group on the properties dialog appears with a check mark in the Execute column. Click OK.

7 Repeat steps 5 – 6 for each procedure in the list.

Table permissions

This procedure grants Insert, Update, and Delete Permissions for the `rs_lastcommit` and `rs_threads` tables in the Sybase IQ data server. `rs_lastcommit` commits a transaction; `rs_threads` detects deadlocks and perform transaction serialization between parallel DSI threads.

1 Expand Sybase IQ | *Sybase IQ <target database>* | Tables.

2 Right-click on the appropriate table, choose Properties, click Permissions | Grant.

3 On the Grant Permissions dialog, choose *rs_systabgroup*, click OK.

4 On the Permissions tab, choose Select, Insert, Update, and Delete permissions. Click OK.

5 Repeat steps 2 – 4 for each table in the list.

Replication table permissions

This procedure grants all permissions on the Sybase IQ target replication tables to either the maintenance user or *rs_systabgroup* group.

1 Expand Sybase IQ | *<target database>* | Tables.

2 Right-click the replicate table, choose Properties, click Permissions | Grant.

3 On the Grant Permissions dialog, choose *rsuser* (maintenance user) *or rs_systabgroup*, click OK.

4 Close Sybase Central.

Replication Server Manager

Replication Server Manager (RSM) allows you to manage, monitor, and troubleshoot most replication system components, including primary and replicate data servers in Replication Server. Replication Server Manager is a client application and is available only in Windows.

Defining Servers within RSM

This section tells you how to use Replication Server Manager to add the following servers to the RSM <*server name*> domain:

- ASE (source database) as Adaptive Server Enterprise (ASE) Server Type
- RepServer as Replication Server Server Type
- IQ (target database) as Adaptive Server Anywhere (ASA) Server Type

This procedure requires the Replication Server 12.5 Sybase Central 3.2 plug-in for Windows.

1 Click Start | Programs | Sybase | Sybase Central.

2 Click Connect, and log onto the RSMServer.

3 Click the RSMServer name | Add Server. The Add Server wizard starts.

4 Choose the appropriate server type, then follow the instructions on the screen for the type of server you chose.

5 Click Finish.

6 Repeat steps 3 – 5 until you add each server in the list.

Creating source and target connections

This procedure tells you how to define the Sybase IQ <*target database*> as the target connection and the ASE source as a primary and target connection. You must perform this procedure twice - once for the target Sybase IQ <*target database*> and once for the ASE database.

Replication Server communicates directly with all of the data servers using Open Client connectivity. Replication Server database connections are configured as either replicate-only, or primary-and-replicate (bidirectional) in a Sybase-only replication system.

1 Click Rep Server | Connections | Add Database Connection. The Add Database Connection Wizard starts.

2 Choose the server name and database for the new connection. Click Next.

3 Enter the user name and password for the maintenance user. Click Next.

4 Identify the connection type. Choose one of these options, then click Next.

- Replicate Only (Use this option for Sybase IQ).
- Primary and Replicate (Use this option for ASE).

5 Review the wizard summary. If all options are correct, click Next.

6 Repeat these steps until you define the Sybase IQ <*target database*> and the ASE database

Notes

- The maintenance user in the connection definition must match the user defined in Sybase IQ <*target database*>. For example, if you create a maintenance called *ruser*, you must create a maintenance user called *ruser* as part of the connection definition.
- The maintenance user for the ASE connection must differ from the IQ maintenance user in order for replication to work properly.
- See “Troubleshooting” on page 35 for information on problems that may be encountered after creating the IQ connection.

Creating replication definitions

Replication definitions identify specific tables for replication and, in some cases, specify a subset of the columns you want to replicate. This procedure shows you how to create one or more replication definitions for an ASE source table.

1 Expand ASE <*server name*> | <*database name*> | Tables.

2 Click on the table where you want to create a replication definition, and double-click Add Replication Definition. A property sheet for the replication properties appears.

3 Click the Columns tab and define a key for the source table.

To do this, click on the column icon for the column you want to use as the key. The image changes to a key icon. If the scripts were created in PowerDesigner with the primary key option the key should already be defined.

4 Click the Advanced tab and add the target table owner, if necessary. If you created the Sybase IQ database with the default owner, this value should be DBA.

5 Click OK.

Note
When you create a replication definition, RSM may display an error message that is similar to this message: `"Replication definition <table name> requires at least one column in the primary key."`

Every replication definition requires one column be defined as a key. Within the replication definition, select the Columns tab and click on the column name that should be defined as the key for the table. The icon should change to the image of a key.

Creating subscriptions within RSM

Subscriptions identify the replication definition or publication to which you are subscribing, the source and destination databases and data servers, and the materialization method by which the initial information is to be copied. This procedure tells you how to add a subscription to the Replication Definition you created in the previous section.

1 Expand Replication Definition | *Replication Definition <name>* | Table Subscriptions.

2 Right-click Add Subscription, choose Open. A property sheet for the new subscription appears.

3 In the Name box, type a name for the new subscription.

4 In the Replication Information Group, click Browse, choose the target database server and database.

5 Choose the appropriate Owner id and password. For a replicate database on ASE, the owner is typically defined as *sa* with no password.

6 Choose the appropriate materialization Method.

7 Click OK. RSM adds the new subscription to the Subscription folder.

Replicating test data

The following commands reference assume that you set up the MARKET_INDEX table for replication.

1 Using *isql* from a command prompt, insert data into the ASE source table:

```
insert into MARKET_INDEX values
  (10,'Test1','Test1','Test1','2005-02-18')
go
         insert into MARKET_INDEX values
  (20,'Test2','Test2','Test2','2005-02-18')
go
         insert into MARKET_INDEX values
  (30,'Test3','Test3','Test3','2005-02-18')
go
```

2 Log into the target IQ database using Interactive SQL to select data from the target table using the following SQL statement. Verify that the data was replicated properly:

```
                Commit;
select * from MARKET_INDEX
```

3 Using *isql* from a command prompt, insert data into the ASE source table:

```
Update MARKET_INDEX
Set INDEX_NAME='Update Test'
       Where MARKET_INDEX_ID=20
go
Delete MARKET_INDEX
       Where MARKET_INDEX_ID=30
Go
```

4 Using Interactive SQL for IQ and select data from the target table using the following SQL statement. Verify the data was replicated properly:

```
                    Commit;
select * from MARKET_INDEX
```

Troubleshooting

This section contains some basic trouble shooting information.

Data fails to replicate

If no data was replicated, check the connection to the Sybase IQ *<target database>*. Then check the RSM, RepServer, ASE and IQ logs for error messages.

We also recommend the Sybase *Replication Server Troubleshooting Guide* and the *Multi-Vendor Replication with Sybase Replication Technology* white paper for more information on troubleshooting replication problems.

While trying to replicate data from an ASE table to an IQ table owned by DBA, the connection to IQ comes DOWN

Symptom

After inserting data into the source ASE table, the connection the Sybase IQ *<target database>* database comes down and replication does not occur. The RS log reports the following error:

```
T. 2004/11/08 11:06:52. (28): Command(s) to
'asiqsample.asiqsample':
T. 2004/11/08 11:06:52. (28): 'insert into test2 (id,
fname) values (1, 'George')'
E. 2004/11/08 11:06:52. ERROR #1028 DSI EXEC(115(1)
asiqsample.asiqsample) -
dsiqmint.c(3034)Message from server: Message: 2706,
State 0, Severity 11 --
 'ASA Error -141: Table 'test2' not found'.
H. 2004/11/08 11:06:52. THREAD FATAL ERROR #5049 DSI
EXEC(115(1) asiqsample.
asiqsample) - dsiqmint.c(3041)The DSI thread for
```

```
database 'asiqsample.asiqsample'
is being shutdown. DSI received data server error #2706
which is mapped to STOP_
REPLICATION. See logged data server errors for more
information. The data server
error was caused by output command #1 mapped from input
command #1 of the failed transaction.
I. 2004/11/08 11:06:52. The DSI thread for database
'asiqsample.asiqsample'
```

is shutdown.

Solution

When the target table owner is anyone other than the connection maintenance user *rsuser*, the replication definition must specify the appropriate Replicate Table Owner for the replicate (target) table.

Once the replication definition has been updated appropriately, right-click the target database connection within RSM and select Resume. Check the Resume DSI and Skip first transaction boxes and select OK.

The Target database connection should return to an UP state within RSM. The RSM may need to be refreshed to reflect the state change.

Creating Publications within RSM

Publications are used to quickly replicate multiple source tables as a group. The process creates replication definitions for multiple source tables quickly. Below are the steps for creating a publication.

1 Using the RepServer's Sybase Central (3.2), connect to RSM with the *sa* user.

2 Locate the Publication folder within the source database and select Add Publication.

3 Enter a publication name at the top and highlight the desired source tables from the Available Items list and select Add for each table.

4 Highlight each table within the Selected Items list and select Edit to modify the replication definition parameters.

5 Modify the replication definition name if desired and specify the Replicate Table Owner if necessary.

6 Define a primary key within the replication definition.

7 Select the Column tab, highlight the desired primary key column from Selected Columns, and select the Column Properties button.

8 Check off the Primary Key box and select OK to save.

9 The graphic for the primary key column will be a key image as above.

IQ connection remains in a DOWN state upon creation.

Symptom

RepServer log reports the following errors:

```
T. 2004/11/05 16:36:37. (36): 'execute
rs_update_lastcommit @origin = 0, @origin_qid =
0x00000000000000000000000000000000000000000000000000000000000000000000000000000000, @secondary_qid =
0x00000000000000000000000000000000000000000000000000000000000000000000000000000000, @origin_time = '19000101
00:00:00:000''
E. 2004/11/05 16:36:37. ERROR #1028 DSI(116
asiqdemo.asiqdemo) - \dsioqid.c(2028)
    Message from server: Message: 201, State 0, Severity
16 -- 'ASA Error -615: Parameter '' not found in
procedure '???''.
E. 2004/11/05 16:36:37. ERROR #5046 DSI(116
asiqdemo.asiqdemo) - \dsioqid.c(2042)
    When executing the rs_get_lastcommit function in
database 'asiqdemo.asiqdemo', received data server
errors. See
logged data server errors for more information.
I. 2004/11/05 16:36:37. The DSI thread for database
'asiqdemo.asiqdemo' is shutdown.
```

Solution

The maintenance user (*rsuser*) must be a member of the rs_systabgroup group. To accomplish this, the IQ administrator must execute the following from an Interactive SQL or *isql* session:

```
grant membership in group rs_systabgroup to rsuser
```

Or the IQ administrator may use IQ's Sybase Central Java Edition. Highlight the maintenance user (*rsuser*) and select File | New | Memberships from the menu. Then select the *rs_systabgroup* group for the rsuser to join.

Enabling RepServer transact SQL tracing

Log into RepServer using the ISQL utility from a command prompt, and execute the following:

```
trace "ON", DSI, DSI_BUF_DUMP
```

This will trace the SQL transactions within the RepServer and write them to the RepServer log.

Enabling IQ tracing

Add the following parameters to the IQ startup command line:

```
-zr all -zo
```

Where is the path and name for the trace log file. This will turn on extensive tracing within the Sybase IQ server. Additionally, the standard Sybase IQ database log can be checked. This is located in the *.iqmsg* file.

Rounding with the FLOAT datatype

Minor rounding occurs after replicating FLOAT datatypes from ASE to Sybase IQ. See the example below:

```
0222222 was replicated as .022222199999999997
```

Defining a new connection using RSM might fail with error

If this error occurs grant execute permission on the *rs_configure* stored procedure within the ASE RSSD database. This can be done via Sybase Central or manually via *isql*.

If IQ stops processing transactions and the IQ session log (console) reports the following error:

You have run out of IQ STORE dbspace in database *d:\Sybase\ASIQ-12_6\demo\asiqdemo.db.* In another session, please issue a `CREATE DBSPACE...IQ STORE` command and add a dbspace of at least 8 MB.You need to add more dbspace.

To add more dbspace, execute the following command in Interactive SQL:

```
CREATE DBSPACE asiqdemo4 AS 'd:\sybase\asiqdemo4.iq'IQ
STORESIZE 500
```

This adds 500 MB to the dbspace.

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