

# Sybase® IQ Quick Start

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## Introduction

This document describes how to create and query an IQ demo database. You can create any number of copies of the database in any directory that you choose, and can re-create it at any time.

You can also use the demo database to create and use an IQ multiplex. An IQ multiplex is multiple IQ servers that access the same IQ store by way of a shared disk cluster. For demonstration purposes, you can use a file system file that is shared by multiple IQ servers. This setup simulates an IQ multiplex environment.

To query or update the database, you can use either Interactive SQL (dbisql) or Sybase Central™, both of which are provided with the IQ server installation.

Sybase suggests that you do not cut and paste the commands directly from this document; extra characters have been added for formatting. Either manually type the command, or cut and paste it to Notepad or vi, edit it to remove any formatting characters, then copy and paste it to the command line.

## Demo database

The demo data supports an imaginary sporting goods company. The database, called iqdemo by default, is updated for Sybase® IQ 15.2.

## Table names

If you are upgrading from an earlier version, see the following table for a list of current table names in the iqdemo database. Use this table to update scripts or applications.

**Table 1: Demo database table names**

12.7 name	15.2 name	15.2 table owner
contact	Contacts	GROUPO
customers	Customers	GROUPO
department	Departments	GROUPO
empl	empl	DBA
employee	Employees	GROUPO
fin_code	FinancialCodes	GROUPO
fin_data	FinancialData	GROUPO
product	Products	GROUPO
sale	sale	DBA
sales_order_items	SalesOrderItems	GROUPO
sales_order	SalesOrders	GROUPO

## Creating and using an IQ demo database

- 1 Install Sybase IQ Server. See the *Sybase IQ Installation and Configuration Guide*.
- 2 Create the demo database.
  - **On UNIX –**
    - Change to the IQ install directory:
      - `cd <IQ install directory>/IQ-15_2`
    - Source the IQ environment.
      - For bash or Korn (ksh) shell, enter: `. IQ-15_2.sh`
      - For tcsh or C (csh) shell, enter: `source IQ-15_2.csh`
    - If it has not been created already, create the directory to hold the new database. Following the convention of this demo, the directory is */myiqdemo*.
    - Change to the directory where you want to create the database:
      - `cd /myiqdemo`
    - Run the following command:
      - `$IQDIR15/demo/mkiqdemo.sh`

- **On Windows –**
  - Open a command window:
    - **Start | Programs | MS-DOS Prompt** or **Start | Run** and enter `cmd`.
  - If it has not been created already, create the directory to hold the new database. Following the convention of this demo, the directory is `C:\myiqdemo`.
  - Change to the directory where you want to create the database, using either of the following:
    - `c:`
    - `cd C:\myiqdemo`
  - Run:  
`"%ALLUSERSPROFILE%\SybaseIQ\demo\mkiqdemo"`
  - To create the demo database in a predetermined location, click:  
**Start | Programs | Sybase | Sybase IQ 15.2 | Start Sybase IQ Demo Database.**
- To list all the options to customize database creation, execute:
  - **On UNIX –**  
`$IQDIR15/demo/mkiqdemo.sh -help`
  - **On Windows –**  
`"%ALLUSERSPROFILE%\SybaseIQ\demo\mkiqdemo" -help`

An IQ database consists of multiple stores. The paths to an IQ store can be relative or absolute.

You can create the demo database using either relative or absolute paths. If you want to copy or move your demo database around, it is easier to use a relative path. This is the default option for `mkiqdemo`.

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**Note** IMPORTANT: To convert your demo database to a multiplex, you must use absolute paths.

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- **On UNIX –**
  - Change to the directory where you want to create the database:  
`cd /myiqdemo`

- Use the `-absolute` switch:

```
$IQDIR15/demo/mkiqdemo.sh -absolute
```

- **On Windows –**

- Open a command window:
  - Select **Start | Programs | MS\_DOS Prompt** or **Start | Run** and enter **cmd**.
  - Change to the directory where you want to create the database
 

```
c:
cd \myiqdemo
```
  - **Run:** `"%ALLUSERSPROFILE%\SybaseIQ\demo\mkiqdemo" -absolute`

- 3 If SQL Anywhere® or an earlier version of Sybase IQ resides on the same machine or subnet as Sybase IQ 15.2, edit the *iqdemo.cfg* configuration file. By default, both products use the default port 2638; therefore, you must change the port for your IQ Server.

In addition, to avoid confusion on shared systems, add your user name to the server name to make it unique. For example, if your user name is *jsmith*, you might use *jsmith\_iqdemo* as the server name for the demo database.

The *iqdemo.cfg* file is created in the same directory as the demo database. You can edit this file and change the startup parameters. You can also copy this file and change the startup parameters to make configuration files for any of your databases.

- 4 Start the IQ server. Change to a directory where the configuration and database files reside and issue a command in this format:

```
start_iq @configuration_file.cfg dbname.db
```

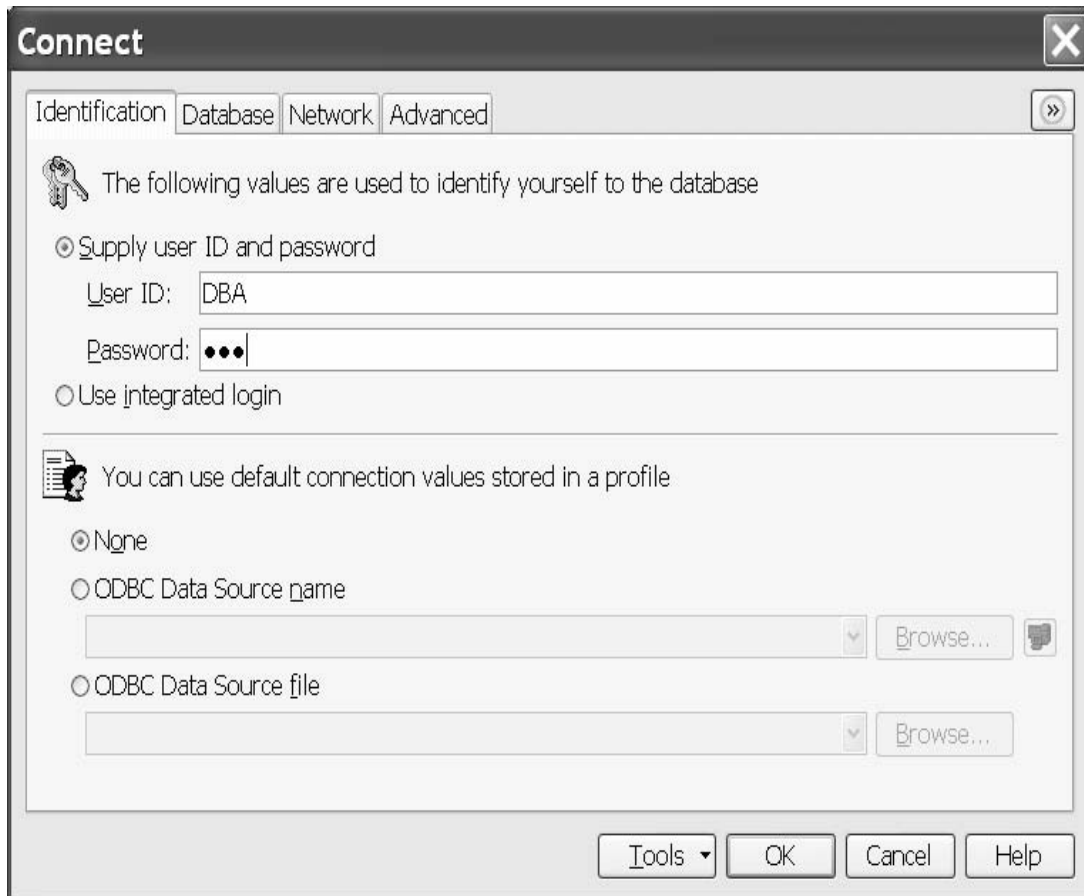
For example, to start the demo database, enter:

```
start_iq @iqdemo.cfg iqdemo.db
```

- 5 Start Interactive SQL, the query tool.
  - On UNIX, type `dbisql` at the system prompt.
  - On Windows, click **Start | Programs | Sybase | Sybase IQ 15.2 | Interactive SQL**, enter `dbisql` in a command shell, or select **Start | Run** and enter `dbisql`.

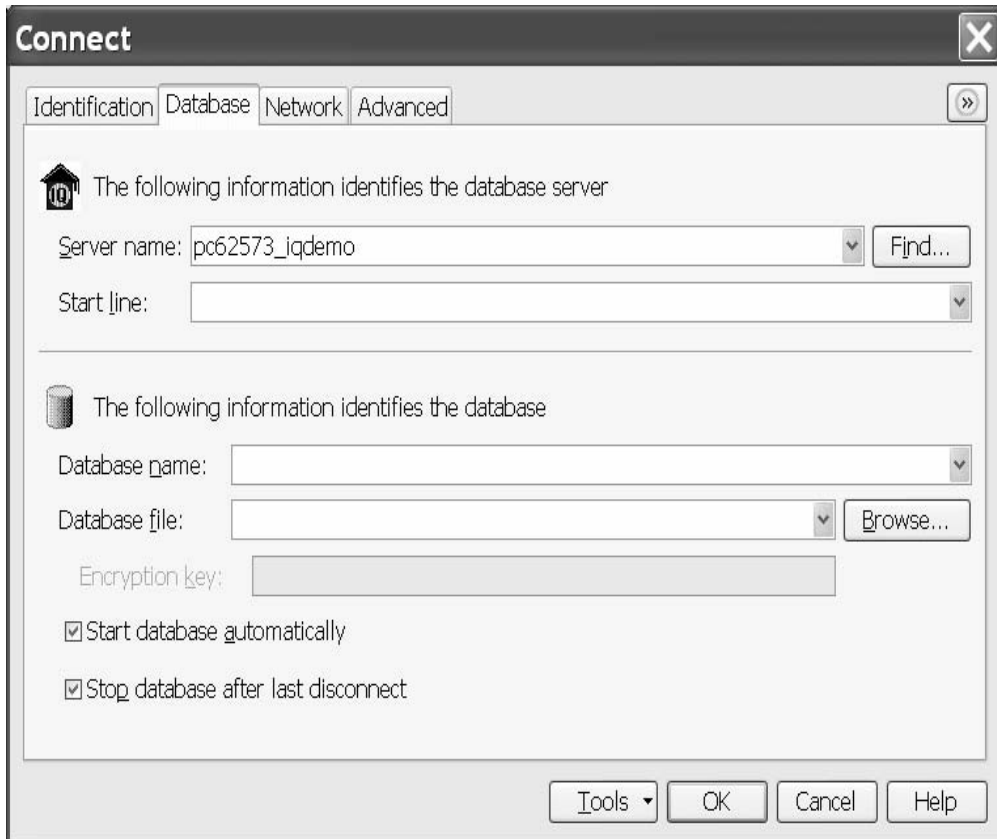
- 6 Connect to the demo database:
  - In the Connect dialog, enter **DBA** for the User ID and **sql** for the Password. (This example shows Windows output.)

**Figure 1: Connect dialog**



- On the Database tab, click **Find** and select the server name. If the server name is not listed, type the server name, and then click **OK**.

**Figure 2: Finding the server**

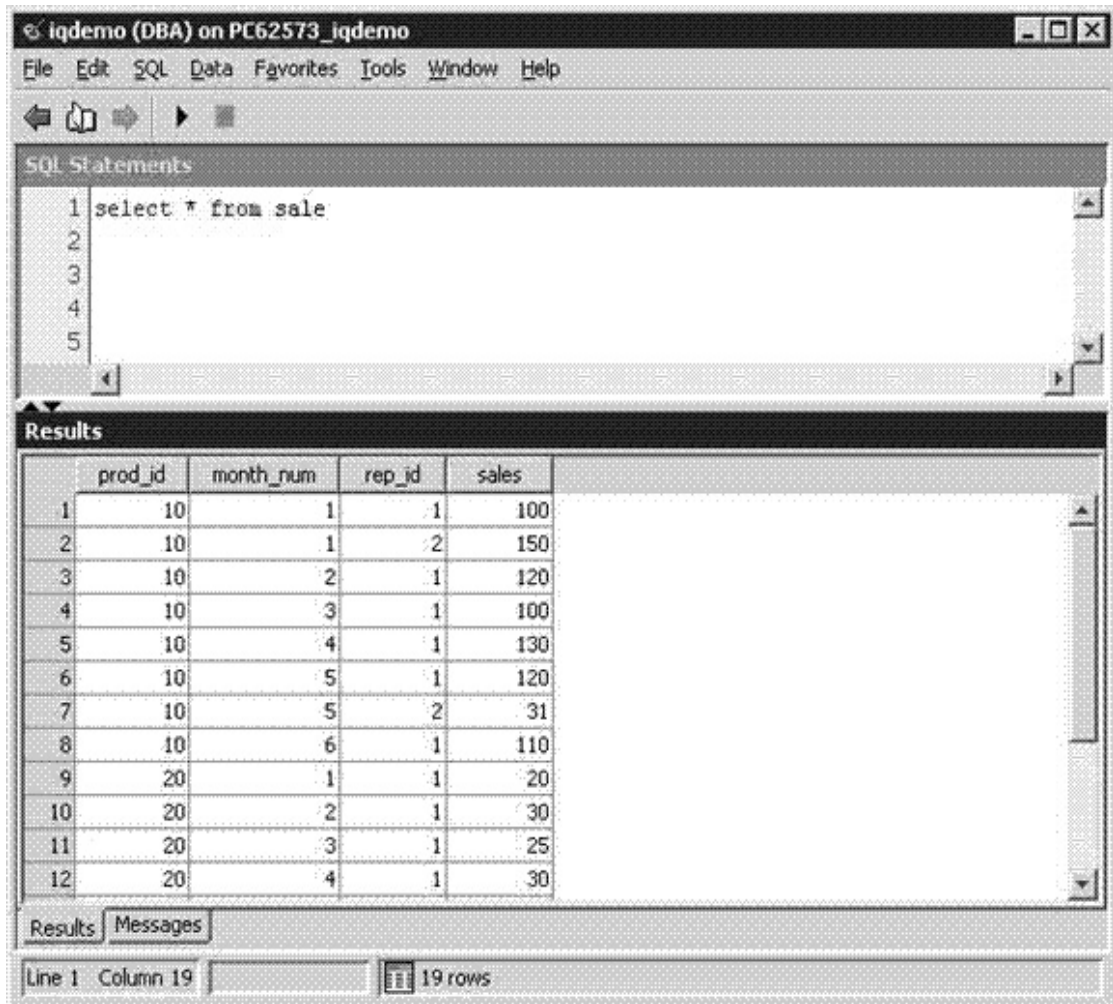


- 7 Run a test query to view columns in the sale table. In the top window (SQL Statements), type:

```
SELECT * FROM sale
```

Click **Execute** (right-facing triangle in the button bar) or use the F5 key.

Figure 3: Running a test query



- 8 To exit Interactive SQL, select **File | Exit** or enter `quit` and click **Execute** or use the **F5** key.



## Converting the IQ demo database to multiplex

Verify that the demo database was created using absolute paths (–absolute option). If the demo database uses relative paths, the multiplex creation fails.

A single server (IQ demo database) is converted to a multiplex server by adding a secondary server; you can do this using Sybase Central. After the conversion, you can use Sybase Central to manage the multiplex. All servers in the multiplex appear in a single Multiplex folder.

### Starting the IQ Agent

Before you start Sybase Central, start the IQ Agent on the machines where the IQ servers will be running.

#### On UNIX

On UNIX, start the agent using the `S99SybaseIQAgent15` script.

- Command `S99SybaseIQAgent15` starts the agent at default port 1099.
- Command `S99SybaseIQAgent15 –port 3871` starts the agent at port 3871.

To verify the agent is running

Execute:

- `stop_iq -agent`

For example, the following agent is owned by user ‘smith’

```
##owner      PID      Started      CPU Time      Additional Information
-----
1: smith     15549     Feb. 18     10:38         PORT:2008
java -Diq.agent=/sun625742/users/smith/sybase/IQ-15_2/java/IQAgent1520.jar -D
```

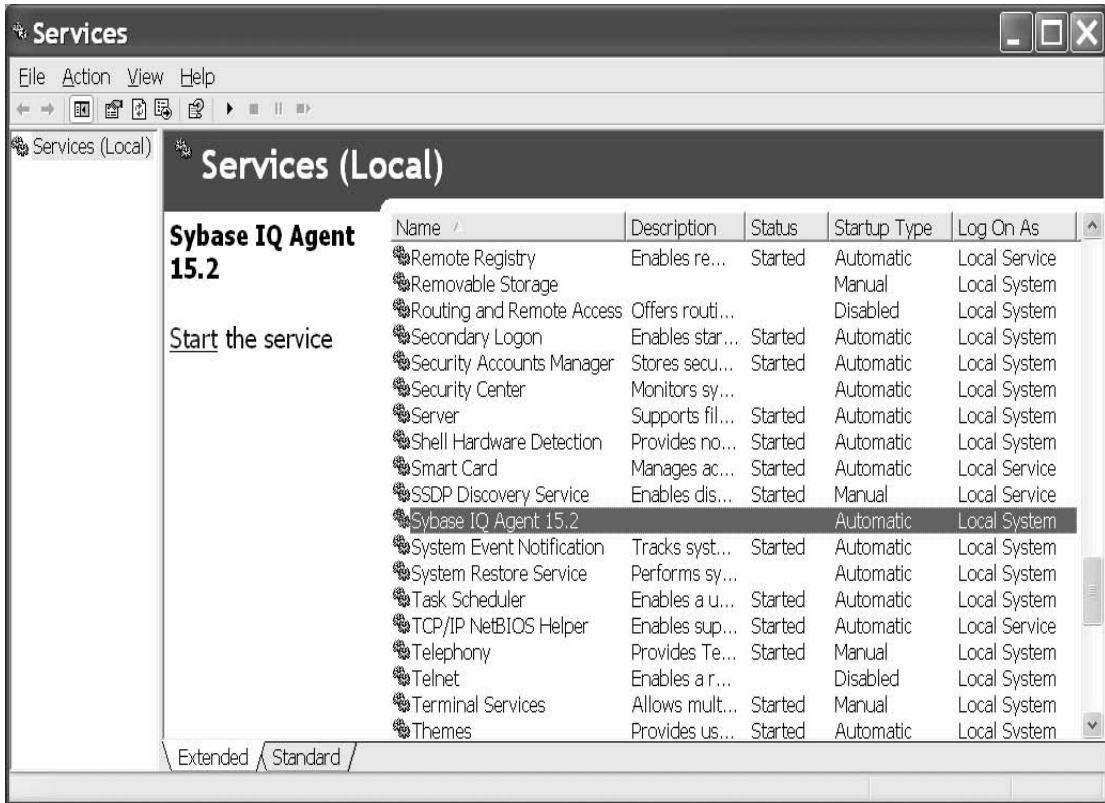
To verify the agent log

The agent log file is `$IQDIR15/logfiles/SybaseIQAgentNNNN.MMM.log` where `NNNN` is the port number and `MMM` is a sequential number. If the environment variable `IQLOGDIR15` is set, the agent log files are in the `$IQLOGDIR15` directory.

#### On Windows

On Windows, the agent is configured to run as a service. Start the Services Manager application to verify the agent is running.

Figure 4: Services Manager



To verify the agent log:

If you rebooted after installing Sybase IQ, the agent log file is `%ALLUSERSPROFILE%\SybaseIQ\logfiles\SybaseIQAgent.NNN.log` where `NNN` is a sequential number. If you did not, the agent log file is in `%SYBASE%\IQ-15_2\logfiles`. If the environment variable `IQLOGDIR15` is set, the agent log files are in the `%IQLOGDIR15%` directory.

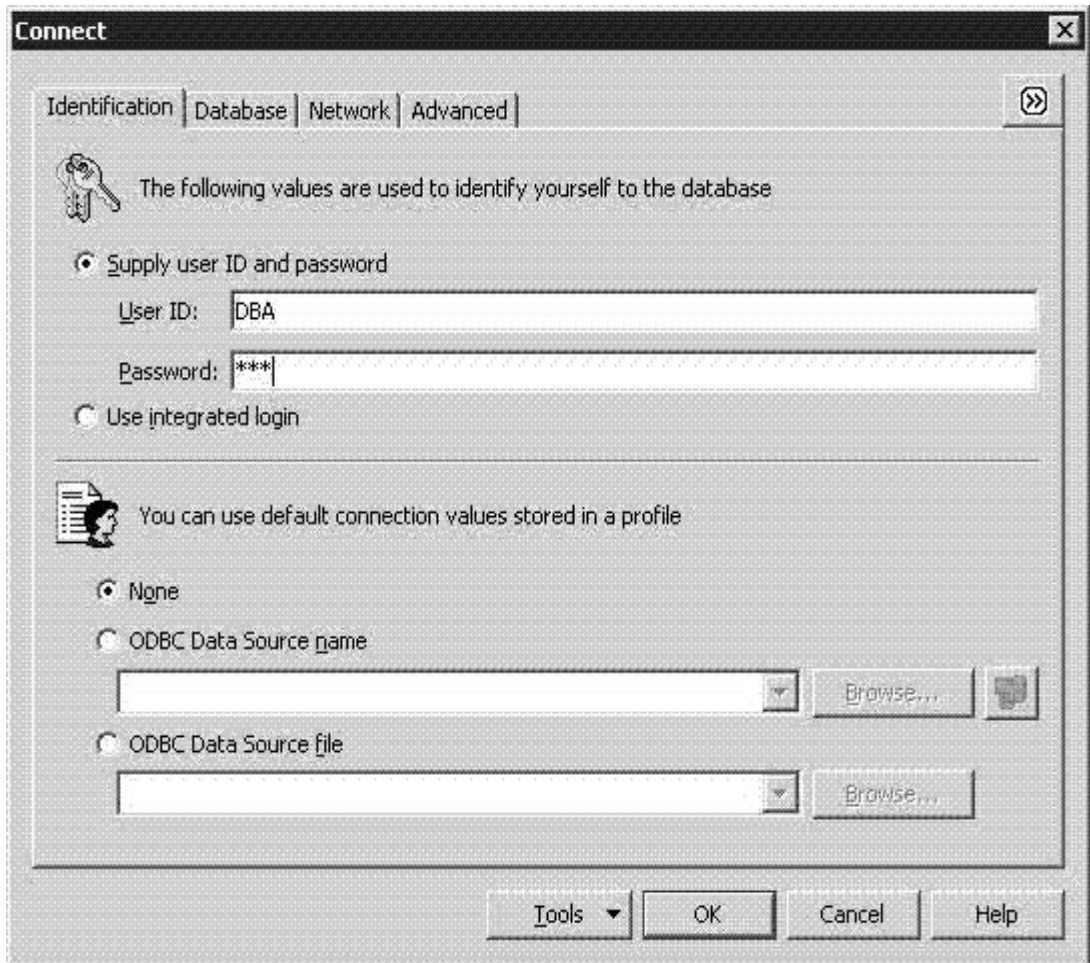
## Converting to multiplex

### ❖ Converting the IQ demo database to multiplex

- 1 Launch Sybase Central.
  - On UNIX, type `scjview` at the system prompt.

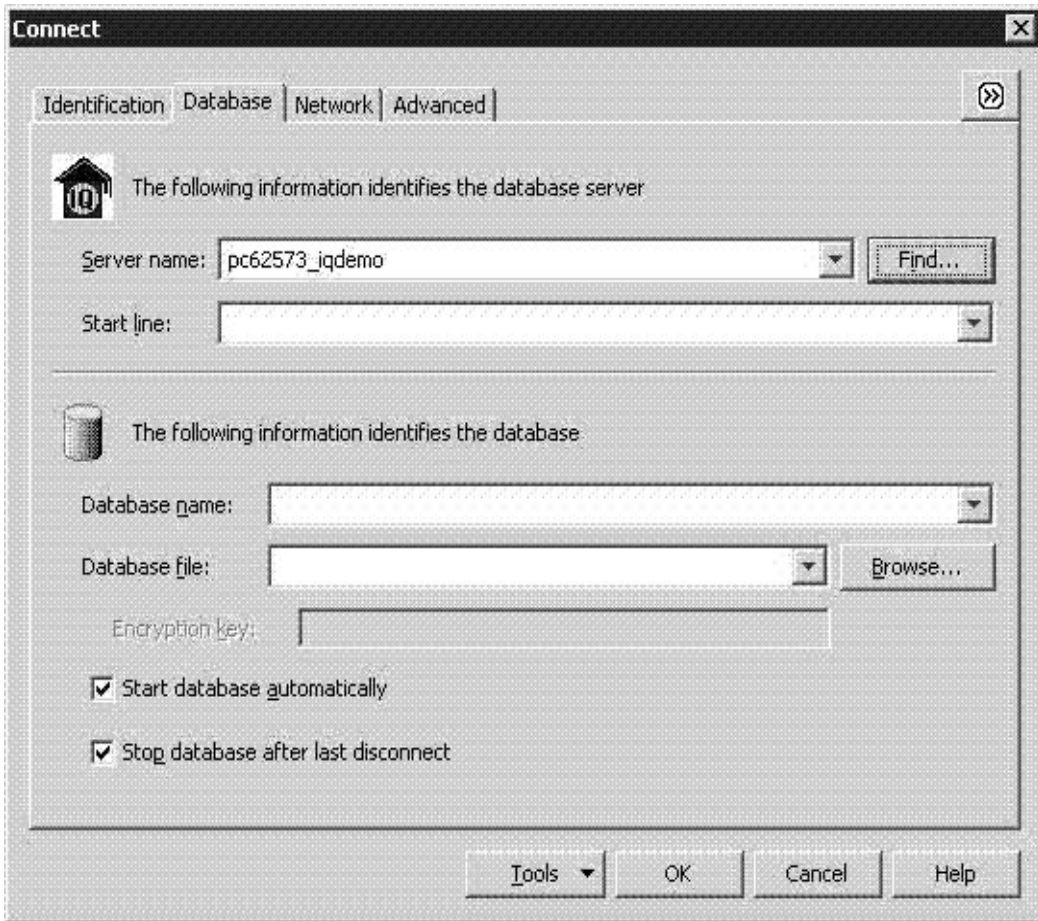
- On Windows, click **Start | Programs | Sybase | Sybase IQ 15.2 | Sybase Central**.
- 2 Click **Connections | Connect with Sybase IQ 15**. In the Connect dialog, type **DBA** for the User ID and **sql** for the Password.

**Figure 5: Connecting, ID tab**



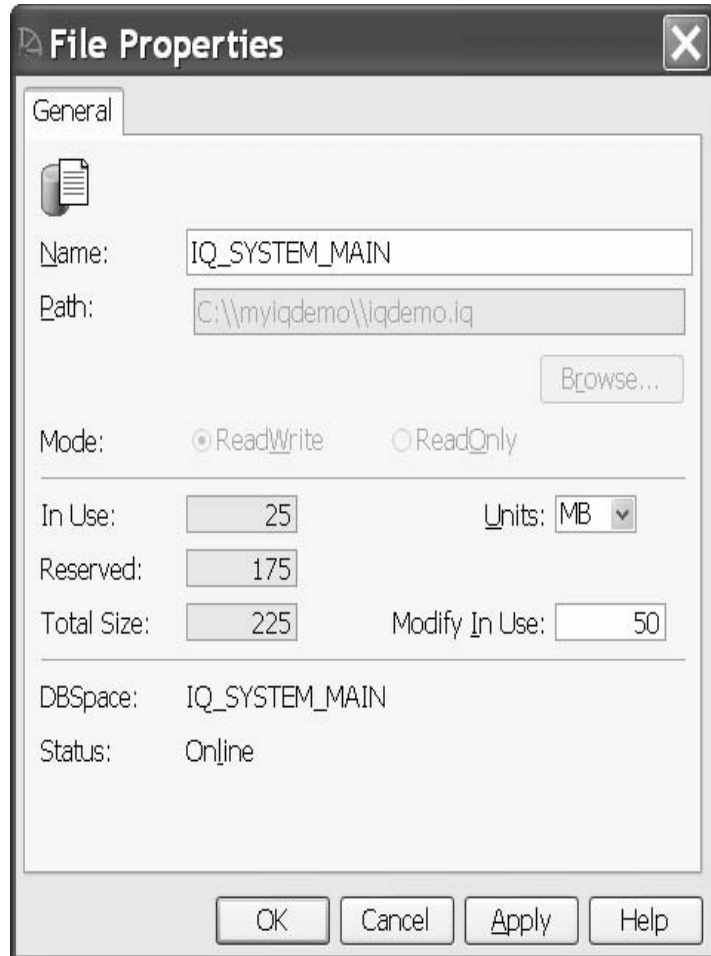
On the Database tab, click **Find** and select the server name. If the server name is not listed, type the server name, then click **OK**.

**Figure 6: Connecting, database tab**



- 3 Increase the file size in IQ\_SYSTEM\_MAIN:  
 In the folders view, double-click the DBSpaces folder. Then select the IQ\_SYSTEM\_MAIN folder. On the Files tab, right-click the file IQ\_SYSTEM\_MAIN and select **Properties**. In the Properties dialog, enter 50 in **Modify In Use**. This increases the IQ\_SYSTEM\_MAIN space to 50MB.

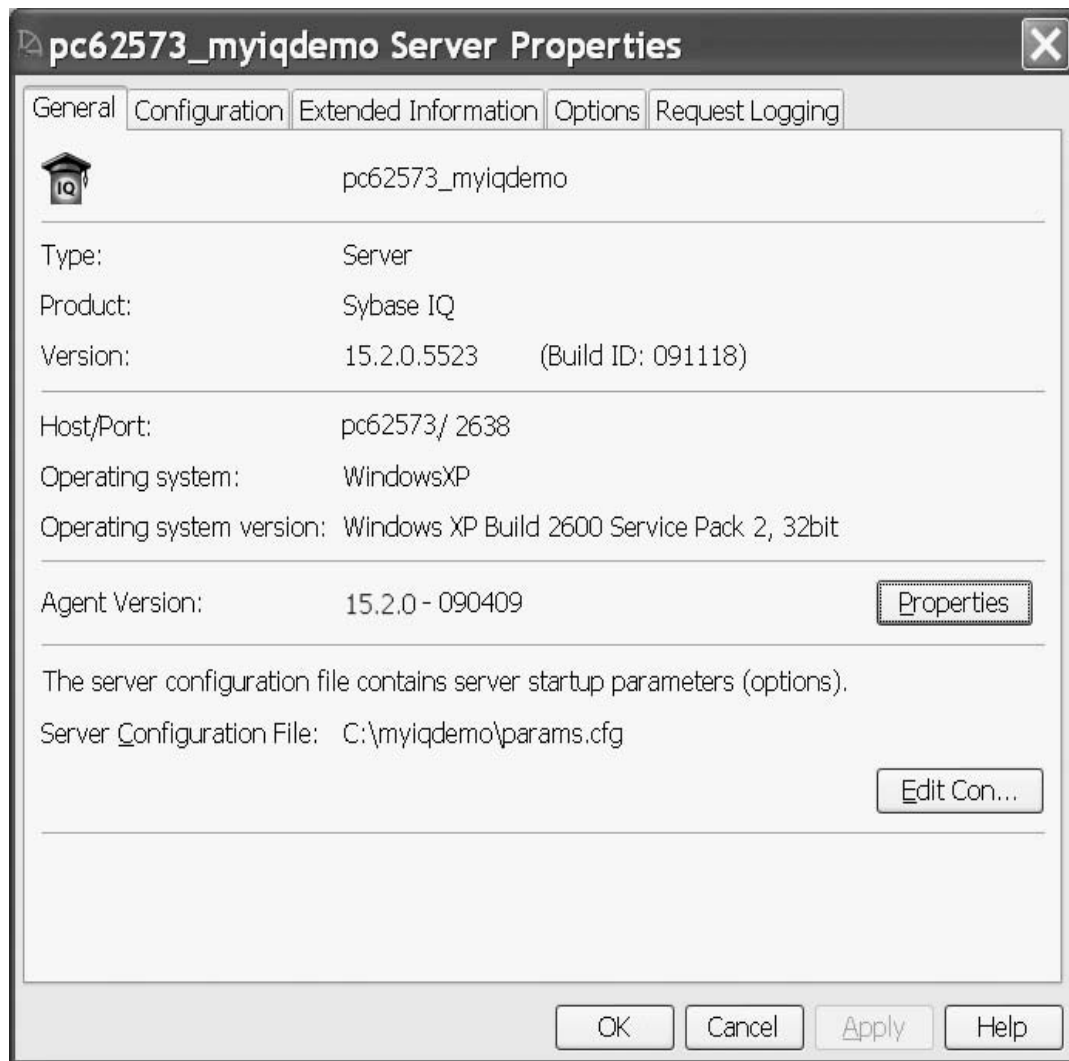
**Figure 7: File properties**



- 4 Click **OK**.

- 5 To confirm the agent port in the folders view, under the Servers folder, right-click the **iqdemo** server icon and click **Properties**.

**Figure 8: iqdemo server properties**



Click the **Properties** button next to Agent Version.

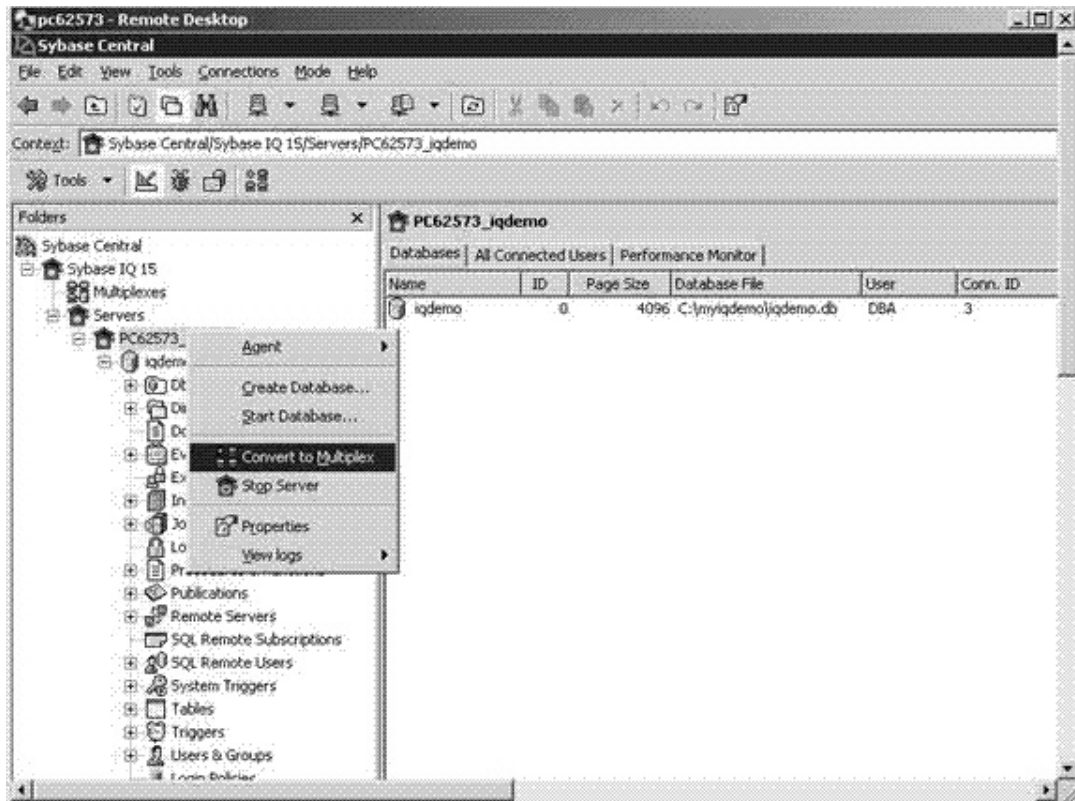
**Figure 9: Agent properties**



Verify that the agent port is the one on which you started the agent.

- 6 In the folders view, under the Servers folder, right-click the **iqdemo** server icon and choose **Convert to Multiplex**.

**Figure 10: Folders view**





7 This starts the Create Server wizard.

**Figure 11: Create Server wizard**

**Create Server Wizard**

**Node Configuration**

Specify configuration information for the new multiplex node. On a host with multiple network cards, unique names and ports may be specified for each card.

Specify the name for this new multiplex:

Specify the new secondary server's information:

Connection Profile:

Server Name:

Host Information:

Hostname	Port Number
PC62573	2639

Agent Port:

Mode:  Reader  **Writer**

Register new node as the designated fail-over node.

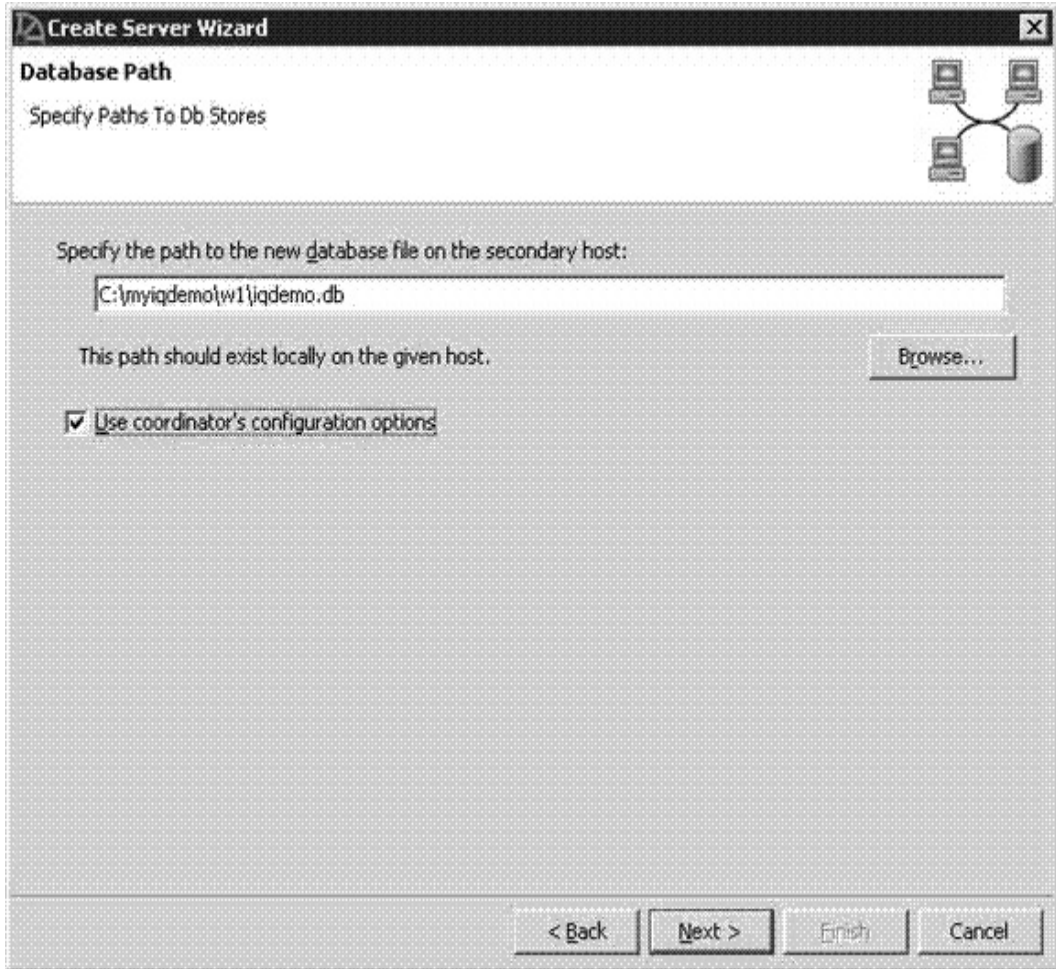
Create administrative shell scripts.

Fill all fields as shown.

- Multiplex Name:
  - Defaults to the original single server name.
  - This is a logical name of the multiplex used to uniquely identify the multiplex within Sybase Central.
- Server Name:
  - Name of the first secondary server.

- Must be different from the original server, which becomes the coordinator server for the multiplex.
  - Host Information:
    - Host name – For the demonstration, use the same host as the original server. This sets up the multiplex with multiple servers on the same host. In a production setup, use different hosts for each multiplex server.
    - Port Number – Specify a unique port number for the secondary server. This Port Number defaults to the original server port number + 1.
    - You can add multiple host and port pairs here, to configure a single server with multiple network addresses. In most cases, a multiplex server only has a single network address.
  - Agent Port – enter the port where the agent is started. The default port is 1099.
  - Mode – select **Writer** (the default is Reader). Later, you will load data from this node.
  - Select **Create administrative shell scripts**.
- 8 Click Next. Choose the path for the catalog database. This should be a different directory than where you created the IQ demo database. You can create a subfolder under the directory where the demo database was created.

Figure 12: Database path

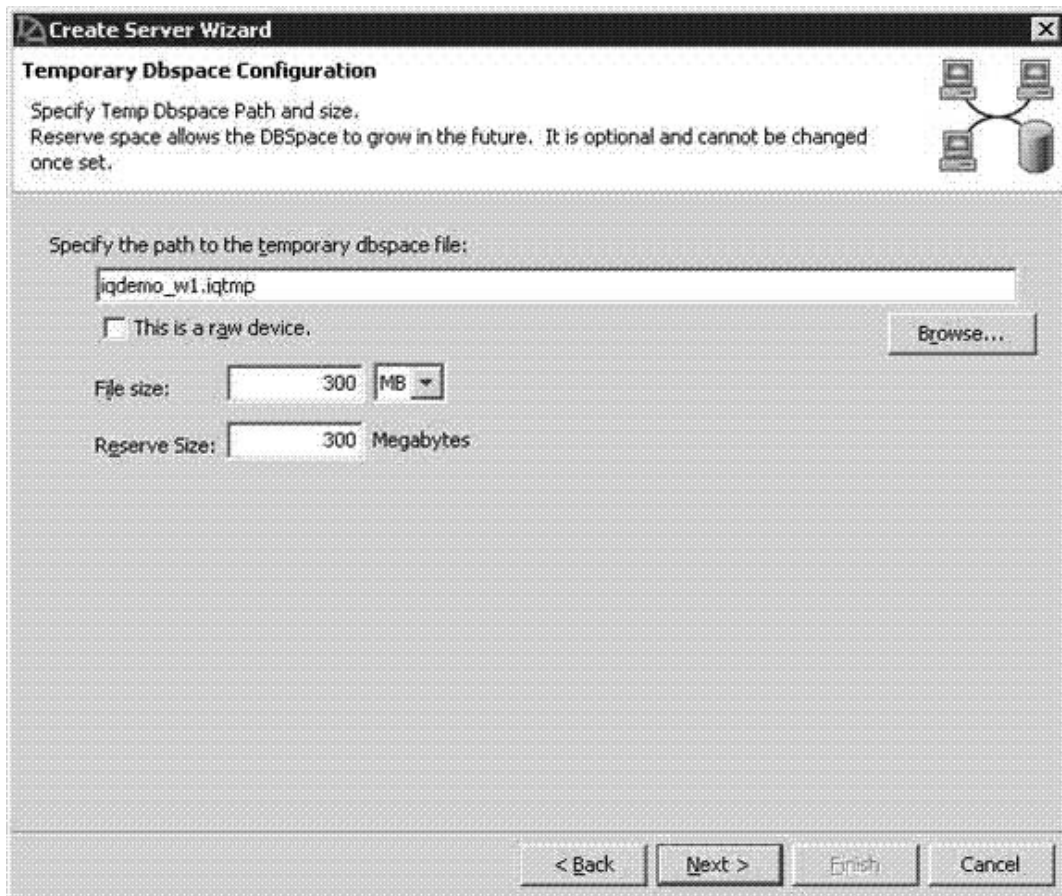


Complete the information on the Database Path page:

- Database path
  - The database path is an absolute path to the *db* file for the new multiplex secondary server.
  - This path must be different from the existing database's *db* file path. Sybase suggests that you use *iqdemo.db* as the file name; typically you can use any name you want.

- Select **Use coordinator's configuration options**. This option copies the `params.cfg` options used for the existing database to the new multiplex server's `db` directory.
- 9 Click Next. If the directory does not exist, click **Yes** when you are asked if you want to create it. The Temporary Dbspace Configuration page appears.

**Figure 13: Temporary dbspace configuration**

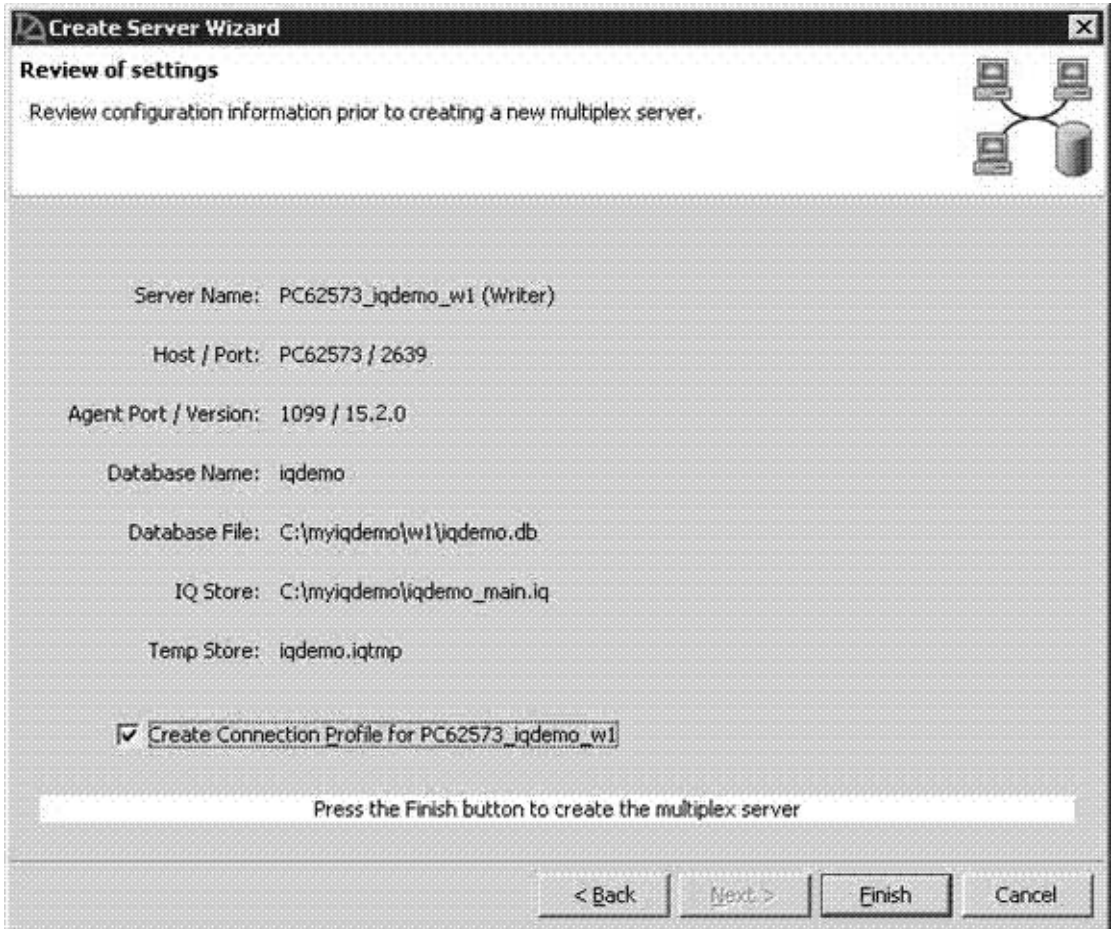


Complete the information on the Temporary Dbspace Configuration page.

- Temporary dbspace file path: `iqdemo_w1.iqtmp`. The temporary *dbspace* file path may be absolute or relative to the database *.db* file path. Choose a unique file name.

- This is a raw device – leave unselected.
  - The file size is 300MB.
  - The reserve size is 300.
- 10 Click **Next**. Review your settings.

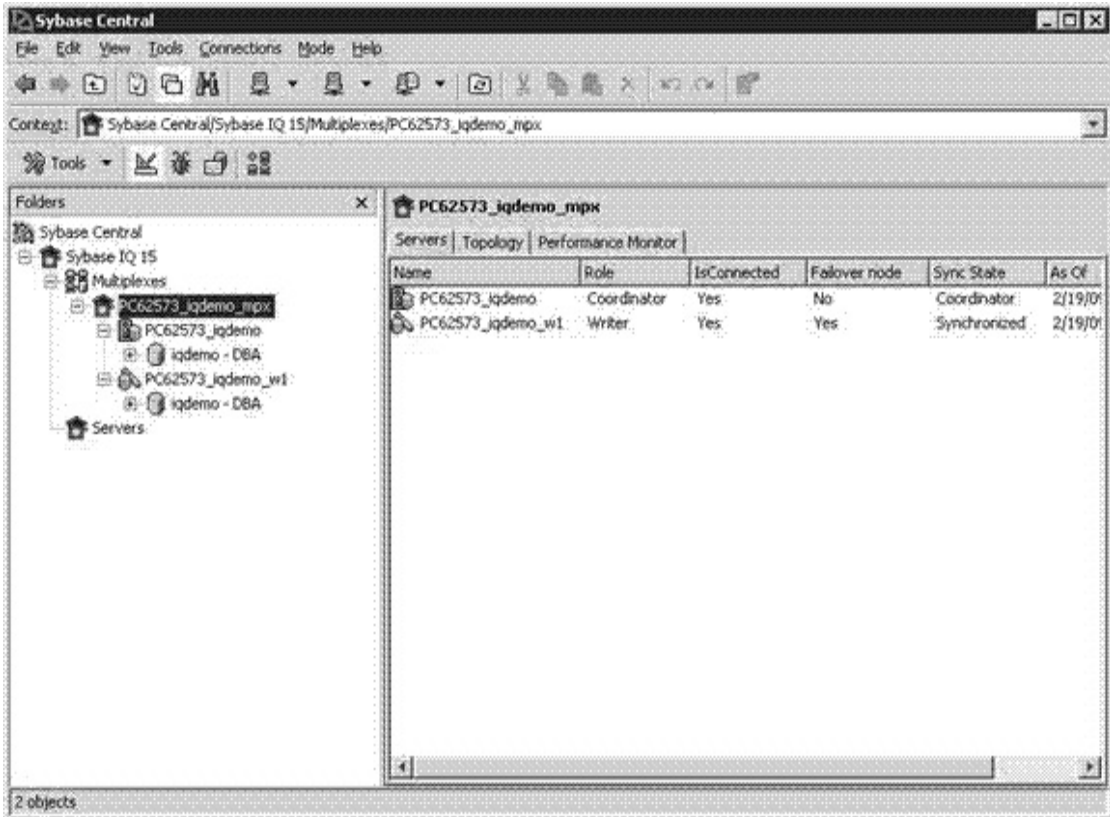
**Figure 14: Review of settings**



- 11 Click **Finish**. This creates the new multiplex secondary server files and configures the database for multiplex. This operation may take several minutes.

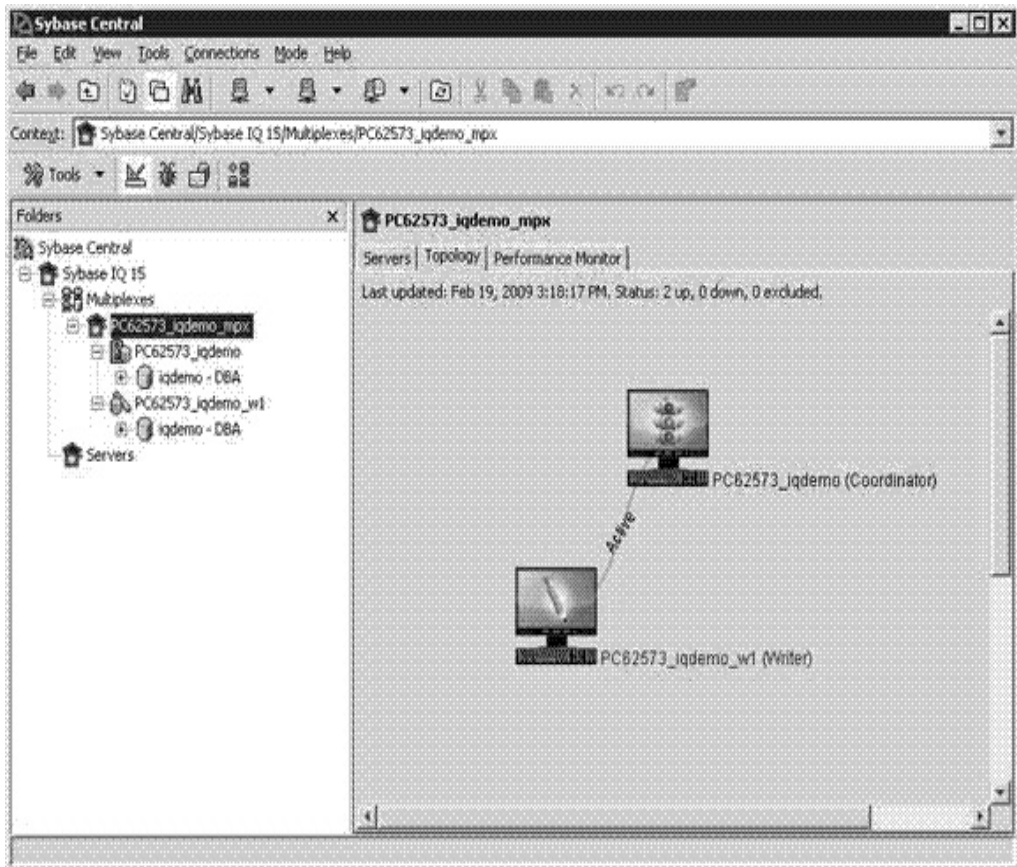
In the Sybase Central Folders view, note that the multiplex name has been inserted into the Multiplexes folder. Expand the multiplex name to view the servers in the multiplex.

**Figure 15: Sybase Central multiplex servers**



- 12 In the Sybase Central main window, click the **Topology** tab to display the multiplex topology view. This is a graphical view of the multiplex configuration, which displays the status of each server and the communication links between servers. You can execute most multiplex operations either from this view or from the Servers view.

**Figure 16: Topology tab**



## Adding a multiplex server (manual method)

The current multiplex configuration contains two servers: the coordinator server and one multiplex writer server. Use the instructions in this section to manually add a second server in the reader role. The new server is called PC62573\_iqdemo\_r2.

Open Interactive SQL. Alternatively, you can launch the Create Server wizard in Sybase Central by selecting **File | Add Server**.

The following steps are required when you are manually creating a multiplex server; if you are using the Create Server wizard, these steps are automatically performed by Sybase Central.

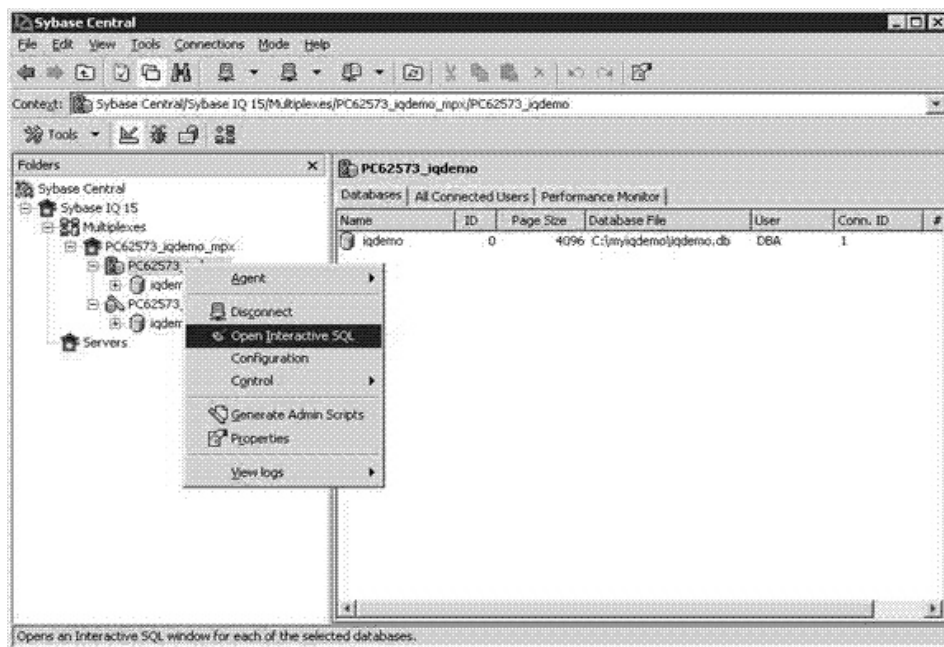
## Creating the multiplex server definition

Define the multiplex server in the database system table SYSIQMPXSERVER.

### ❖ Defining the multiplex server manually

- 1 From the Sybase Central Folders view, launch Interactive SQL.

*Figure 17: Launching Interactive SQL*





2 In Interactive SQL, type the following command, providing the following:

- DATABASE
  - A full *db* file path in a local directory to contain the PC62573\_iqdemo\_r2 server's files
  - A correct path, as an incorrect path is not detected until it is time to synchronize the new multiplex server.
- HOST – the name of the local host
- PORT – a unique port number on the local host. Following the conventions of this demo, use port 2640.

**On UNIX –**

```
CREATE MULTIPLEX SERVER SUN62574_iqdemo_r2
DATABASE '/myiqdemo/r2/iqdemo.db' ROLE READER
HOST 'SUN62574' PORT 2640
```

**On Windows –**

```
CREATE MULTIPLEX SERVER PC62573_iqdemo_r2
DATABASE 'C:\myiqdemo\r2\iqdemo.db' ROLE READER
HOST 'PC62573' PORT 2640
```

- 3 Click the Play icon or press F5 to execute the command.
- 4 To view the new multiplex configuration for all servers, execute the `sp_iqmpxinfo` stored procedure, which produces the following output:

Figure 18: iqdemo (DBA)

server_id	server_name	connection_info	db_path	role	status	mpx_mode	inc_state
1	PC62573_iqdemo	host=10.18.60.119:2638	C:\myiqdemo\iqdemo.db	coordinator	included	coordinator	N/A
2	PC62573_iqdemo_w1	host=PC62573:2639	C:\myiqdemo\w1\iqdemo.db	writer	included	writer	active
3	PC62573_iqdemo_r2	host=PC62573:2640	c:\myiqdemo\r2\iqdemo.db	reader	included	unknown	timed out

## Synchronizing and starting the multiplex server (manual method)

Generate a *db* file from the coordinator's catalog store and copy it to the newly created reader server's directory, then start the new server.

Alternatively, you can do this in Sybase Central by right-clicking the multiplex server icon and selecting **Control | Synchronize**.

### ❖ Manually starting the multiplex server

- 1 If it has not been created already, create the multiplex server directory. Following the convention of this demo, the multiplex directory is:
  - **On UNIX** – `/myiqdemo/r2`
  - **On Windows** – `C:\myiqdemo\r2`
- 2 Change to the newly created multiplex server directory:
  - **On UNIX** – `cd /myiqdemo/r2`
  - **On Windows** – `cd C:\myiqdemo\r2`
- 3 If it does not exist, copy the *params.cfg* from the coordinator directory to the reader's directory.

- 4 If a previous transaction log file exists in the directory (for example, *mpx.log*), remove it. Leaving old transaction logs in a multiplex server directory after synchronizing may stop the server from starting.
- 5 From the command line, run the following commands, substituting the appropriate path name, host name, and server name for the new multiplex server. Type each command below on a single line.

- **On UNIX –**

```
dbbackup -y -d -c
'uid=DBA;pwd=sql;eng=SUN62574_iqdemo;links="tcp
ip{host=SUN62574;port=2638}"' .
```

```
rm -rf "iqdemo.log"
```

```
dblog -r -t "iqdemo.log" "iqdemo.db"
```

```
start_iq @params.cfg
-n SUN62574_iqdemo_r2
-x "tcpip{host=SUN62574;port=2640}" iqdemo.db
```

- **On Windows –**

```
dbbackup -y -d -c
"uid=DBA;pwd=sql;eng=PC62573_iqdemo;links=tcPIP
{host=PC62573;port=2638}" .
```

```
erase /F /Q "iqdemo.log"
```

```
dblog -r -t "iqdemo.log" "iqdemo.db"
```

```
start_iq @params.cfg
-n PC62573_iqdemo_r2
-x "tcpip{host=PC62573;port=2640}" iqdemo.db
```

Generally, you would use ODBC DSN for dbbackup, and edit the configuration file, add the links information, and the server name in the configuration file to start the server.

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**Note** A delay of 60 minutes or more between Step 3 and Step 5 may cause a problem starting the server. This is because the default value of `MPX_AUTOEXCLUDE_TIMEOUT` is 60 minutes.

To correct the problem, connect to the coordinator and include the new server using `ALTER MULTIPLEX SERVER <new-server> STATUS INCLUDED`. After that, synchronize again (run dbbackup and dblog) and restart the server.

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- 6 Confirm that the server is running by connecting to it using Interactive SQL.

## Adding a temporary store file (manual method)

This procedure adds a temporary store file for the secondary node. You cannot perform queries on IQ data until you add a temporary store file. You can repeat this step as needed to add additional temporary store files if you require more temporary storage. Both the coordinator node and the secondary node must be running to perform this operation.

### ❖ Adding a temporary store

- 1 Use Interactive SQL to connect to the reader.
- 2 Run the following command, substituting the appropriate file path. The temporary store file path must be a unique path for each server or host. The path may be absolute or relative, as long as the path resolves to a separate physical file for each multiplex server.

- **On UNIX –**

```
ALTER DBSPACE IQ_SYSTEM_TEMP ADD FILE
iqdemo_r2_temp 'iqdemo_r2_temp.iqtmp'
SIZE 300 RESERVE 300
```

- **On Windows –**

```
ALTER DBSPACE IQ_SYSTEM_TEMP ADD FILE
iqdemo_r2_temp 'iqdemo_r2_temp.iqtmp'
SIZE 300 RESERVE 300
```

Execute `sp_iqdbspace 'IQ_SYSTEM_TEMP'` to confirm that reader now has free temporary space.

## Loading data

In this section, you load data into the multiplex database using the coordinator and a writer. This is the most efficient use of multiplex resources because it distributes the workload to multiple servers. In this demonstration, different servers are used in serial to load data. In a production environment, you can perform loads on separate tables in parallel from multiple servers.

This demonstration uses the `Contacts` and `SalesOrderItems` tables using the load files that ship with IQ 15.2.

On UNIX, these files are in `$IQDIR15/demo/adata`.

On Windows, these files are in  
`%ALLUSERSPROFILE%\SybaseIQ\demo\adata`.

Substitute the appropriate path to these input files in the `LOAD` statements below.

### ❖ Loading data from the coordinator

- 1 Use Interactive SQL to connect to the coordinator server  
`PC62573_iqdemo`.
- 2 Truncate the `Contacts` table because it gets loaded with the same data during the creation of the demo database.
- 3 Load the `Contacts` table. (Type file path on a single line, not as shown.)

#### On UNIX –

```
TRUNCATE TABLE Contacts;

LOAD TABLE Contacts (ID, Surname, GivenName,
Title, Street, City, State, Country, PostalCode,
Phone, Fax, CustomerID)
USING FILE '/sun62574/users/userid/
/syb_install_dir/IQ-15_2/demo/adata/contact.dat'
ROW DELIMITED BY '|'
ESCAPES OFF;

COMMIT;
```

### On Windows –

```
TRUNCATE TABLE Contacts;

LOAD TABLE Contacts (ID, Surname, GivenName,
Title, Street, City, State, Country,
PostalCode, Phone, Fax, CustomerID)
USING FILE
'C:\Documents and Settings\All Users
\SybaseIQ\demo\adata\contact.dat'
ROW DELIMITED BY '|'
ESCAPES OFF;

COMMIT;
```

### ❖ Loading data from the writer

- 1 Use Interactive SQL to connect to the writer server PC62573\_iqdemo\_w1 server.
- 2 Truncate the SalesOrderItems table, as it gets loaded with the same data during the creation of the demo database.
- 3 Load the SalesOrderItems table. (Type file paths on a single line, not as shown.)

### On UNIX –

```
TRUNCATE TABLE SalesOrderItems;

LOAD TABLE SalesOrderItems (ID, LineID,
ProductID, Quantity, ShipDate)
USING FILE '/sun62574/users/userid/
/syb_install_dir/IQ-15_2/demo
/adata/sales_oi.dat'
ROW DELIMITED BY '|'
ESCAPES OFF;

COMMIT;
```

### On Windows –

```
TRUNCATE TABLE SalesOrderItems;

LOAD TABLE SalesOrderItems (ID, LineID,
ProductID, Quantity, ShipDate)
USING FILE 'C:\Documents and Settings\All Users\
SybaseIQ\demo\adata\sales_oi.dat'
ROW DELIMITED BY '|'
ESCAPES OFF;
```

```
ESCAPES OFF;
```

```
COMMIT;
```

Now that data has been loaded into the database, you can execute queries against the data from any server in the multiplex. You can use this base multiplex for further experimentation. You can also explore how to perform additional operations on this data by adapting the iqdemo scripts.

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**Note** If you have questions about installing or running the software, contact Sybase Technical Support or the Sybase subsidiary in your area.

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