



Installation Guide

# **Enterprise Connect™ Data Access**

12.6

[ Linux and UNIX ]

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# About This Book

This book describes how to install Sybase® DirectConnect™ products on the following platforms:

- HP 9000(800)
- IBM RISC System/6000 AIX (RS/6000 AIX)
- Sun Solaris 2.x (SPARC)
- Linux RedHat 2.1

## Audience

This book is for System Administrators or other qualified persons familiar with their system environment, resources, and devices.

## How to use this book

See the following chapters for information about installing, setting up connectivity, and configuring the DirectConnect Enterprise products.

| See   | To   |
|---|--|
| Chapter 1, “Introducing DirectConnect”                | Learn more about the Enterprise Connect Data Access Integrated Product Set, as well as the environment and capabilities of each product. |
| Chapter 2, “Sybase Software Asset Management (SySAM)” | Understand the licensing concepts that you need to know before you begin installing DirectConnect.                                       |
| Chapter 3, “Installation and Configuration Overview”  | Learn about the installation and configuration process.  |
| Chapter 4, “Getting Ready to Install”                 | Identify all the tasks required to get ready for installing DirectConnect.   |
| Chapter 5, “Installing DirectConnect”                 | Install DirectConnect using the installation program called InstallShield.   |
| Chapter 6, “Installing DirectConnect for Oracle”      | Install DirectConnect for Oracle using the Studio Installer.   |
| Chapter 7, “Installing DirectConnect Manager.”        | Install and use DirectConnect Manager.   |
| Chapter 8, “After Installation”                       | Perform a number of server and client post-installation tasks.   |
| Chapter 9, “Setting Up the DirectConnect TDS Driver”  | Set up the DirectConnect Tabular Data Stream (TDS) front-end driver.   |

---

|   |   |
|---|---|
| Chapter 10, “Troubleshooting”               | Identify and resolve problems that can occur when you install a DirectConnect product.                |
| Appendix A, “Installation Worksheets”       | Access worksheets and instructions for recording installation information for DirectConnect products. |
| Appendix B, “Using DirectConnect Utilities” | Identify utilities to simplify the execution of DirectConnect on multiple platforms.                  |
| Glossary                                    | Find definitions of technical terms used in this guide.   |

## Related documents

For more information about configuring and administering DirectConnect products, use the following guides:

- Enterprise Connect Data Access *User’s Guide for Access Services*
- Enterprise Connect Data Access and Mainframe Connect *Server Administration Guide* for DirectConnect
- Enterprise Connect Data Access Option for Oracle *Server Administration and User’s Guide*

For ODBC information, use the following document:

- *Microsoft ODBC 3.5 Programmer’s Reference and SDK Guide*

For additional references, use the following documents:

- Open Client™ *Client-Library/C Reference Manual*
- Open Server™ *Server-Library/C Reference Manual*
- Open ClientConnect™ and Open ServerConnect™ *Messages and Codes*
- *Component Integrated Services User’s Guide* for Adaptive Server® Enterprise
- *Adaptive Server Enterprise Reference Manual*
- *Sybase Adaptive Server Reference Manual*, volumes 1 and 2

To install and administer DirectConnect using DirectConnect Manager, use InstallShield and the DirectConnect Manager online help.

## Other sources of information

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



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

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

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

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

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

### 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.

---

## Sybase EBFs and software maintenance

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

### ❖ 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.

## Syntax conventions

Syntax statements that display options for a command look like this:

```
COMMAND [object_name, [ {TRUE | FALSE} ] ]
```

The following table explains the syntax conventions used in this guide.

**Table 1: Syntax conventions**

| Symbol | Convention  |
|--------|---|
| ( )    | Include parentheses as part of the command.   |
| { }    | Braces indicate that you must choose at least one of the enclosed options. Do not type the braces when you type the option.             |
| [ ]    | Brackets indicate that you can choose one or more of the enclosed options, or none. Do not type the brackets when you type the options. |
|        | The vertical bar indicates that you can select only one of the options shown. Do not type the bar in your command.                      |
| ,      | The comma indicates that you can choose one or more of the options shown. Separate each choice by using a comma as part of the command. |

**Style conventions**

The following table explains the style conventions used in this guide.

**Table 2: Style conventions**

| This type of information   | Looks like this                            |
|--|--|
| Gateway-Library function names   | TDINIT, TDCANCEL                           |
| Client-Library™ function names   | CTBINIT, CTBCANCEL                         |
| Other executables (DB-Library™ routines, SQL commands) in text                 | the dbrpcparam routine, a select statement |
| Directory names, path names, and file names                                    | <i>/usr/bin directory, interfaces file</i> |
| Variables  | <i>n bytes</i>                             |
| SQL Server® datatypes  | datetime, float                            |
| Sample code  | <code>01 BUFFER PIC S9(9) COMP SYNC</code> |
| User input   | <i>01 BUFFER PIC X(n)</i>                  |
| Client-Library and Gateway-Library function argument names                     | <i>BUFFER, RETCODE</i>                     |
| Names of objects stored on the mainframe                                       | SYCTSAA5                                   |
| Symbolic values used with function arguments, properties, and structure fields | CS_UNUSED, FMT_NAME, CS_SV_FATAL           |
| Client-Library property names  | CS_PASSWORD, CS_USERNAME                   |
| Client-Library and Gateway-Library datatypes                                   | CS_CHAR_TYPE                               |

**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.



# Introducing DirectConnect

This chapter introduces basic DirectConnect concepts and describes the process that provides access to distributed data.

This chapter contains the following topics:

| Topic  | Page |
|--|------|
| Product name changes                           | 1    |
| DirectConnect data access product descriptions | 2    |

## Product name changes

Before Sybase introduced Enterprise Connect Data Access 12.5, its options were sold as individual DirectConnect™ products named “DirectConnect for [target].” Other than in the installer, you will see the name “DirectConnect” used in the software and in documents. This document uses the old product names except for the title page. Past and current option names are as follows:

**Table 1-1: DirectConnect and ECDA names**

| Old product name                       | Current option name  |
|--|--|
| DirectConnect for DB2 UDB              | Enterprise Connect Data Access Option for DB2 UDB                              |
| DirectConnect for Informix             | Enterprise Connect Data Access Option for Informix                             |
| DirectConnect Manager                  | Part of each Enterprise Connect Data Access Option and still called DC Manager |
| DirectConnect for Microsoft SQL Server | Enterprise Connect Data Access Option for Microsoft SQL Server                 |
| DirectConnect for ODBC                 | Enterprise Connect Data Access Option for ODBC                                 |
| DirectConnect for Oracle               | Enterprise Connect Data Access Option for Oracle                               |

For more information regarding the name changes, see the Enterprise Connect Data Access *Overview Guide*.

## DirectConnect data access product descriptions

Following are descriptions of the DirectConnect data access products that are covered in this guide. In particular, they provide access management, copy management, and remote systems management. Each access service product contains one or more access services that contain specific sets of configuration properties relating to the target to be accessed.

- DirectConnect for DB2 UDB
- DirectConnect for Informix
- DirectConnect for Microsoft SQL Server
- DirectConnect for ODBC
- DirectConnect for Oracle

---

**Note** For information about DirectConnect for z/OS, see the Mainframe Connect DirectConnect for z/OS Option *Installation Guide*.

---

The following subsections provide descriptions of each DirectConnect product.

### DirectConnect for DB2 UDB

DirectConnect for DB2 UDB provides access to DB2 UDB databases using the Distributed Relational Database Architecture (DRDA) protocol. Sybase provides a DRDA-to-ODBC driver that you can use to access the DB2 UDB target databases.

DRDA is IBM's wire protocol for access to DB2 UDB. DirectConnect for DB2 UDB supports access to DB2 UDB on z/OS, AS/400, Microsoft Windows, and UNIX platforms.

DirectConnect for DB2 UDB consists of a DirectConnect server, DirectConnect for DB2 UDB service libraries, and DirectConnect for DB2 UDB access services. The DirectConnect for DB2 UDB access service library accesses DB2 UDB databases.

## DirectConnect for Informix

DirectConnect for Informix provides basic connectivity to Informix data sources. DirectConnect for Informix consists of a DirectConnect server, DirectConnect for Informix access service libraries, and DirectConnect for Informix access services.

## DirectConnect for Microsoft SQL Server

DirectConnect for Microsoft SQL Server provides basic connectivity to Microsoft SQL Server data sources. It consists of a DirectConnect server, DirectConnect for Microsoft SQL Server access service libraries, and DirectConnect for Microsoft SQL Server access services.

## DirectConnect for ODBC

DirectConnect for ODBC provides basic connectivity to ODBC-accessible data sources. DirectConnect for ODBC consists of a DirectConnect server, DirectConnect for ODBC access service libraries, and DirectConnect for ODBC access services.

The DirectConnect for ODBC access service library accesses ODBC-accessible data.

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**Note** The ODBC driver for DirectConnect for ODBC (the backend driver to the target) is not provided by Sybase; you must select, install, and maintain it.

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For access to additional databases such as Microsoft Access, Teradata, and others, you must obtain and install the necessary ODBC driver separately, on the same server as DirectConnect for ODBC, and configure DirectConnect for ODBC to use that ODBC driver for access to the database. It is important when working with non-Sybase provided, third-party ODBC drivers to carefully integrate and test them to be sure they meet your needs.

## DirectConnect for Oracle

DirectConnect for Oracle is a Sybase product that provides access to Oracle databases.

Only the initial installation of DirectConnect for Oracle is described in Chapter 6, “Installing DirectConnect for Oracle.” For more detailed information, see the DirectConnect for Oracle *User’s Guide*.

## DirectConnect Manager

DirectConnect Manager is a graphical user interface (GUI) systems management tool that you can use to administer all DirectConnect products. DirectConnect Manager provides the capability to:

- Manage DirectConnect servers on multiple platforms.
- Change configuration properties of DirectConnect servers, service libraries, and services.
- Create and copy services by copying an existing service and giving it a unique name.
- Designate a new server using DCDirector.
- Start and stop existing servers using DCDirector.
- Start, stop, and delete services remotely.
- Test the availability of all your data sources.
- Retrieve a DirectConnect server log file or a subset of the log, and view log file messages.
- Update DirectConnect server connection information.
- View the status of a service and data source.

The interface provided by DirectConnect Manager allows you to easily configure and manage all of the data access services directly from your Windows or UNIX platform. As a result, you greatly increase your ability to respond and manage a distributed environment.

You can install DirectConnect Manager and its required components from the DC Client CD.

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**Note** When you install a DirectConnect product on a Windows or UNIX platform or machine, you may install DirectConnect Manager on a separate platform or machine. This allows you to control any DirectConnect from any machine.

---



# Sybase Software Asset Management (SySAM)

This chapter describes licensing concepts that you need to know before you install DirectConnect. It contains the following topics:

| Topic                   | Page |
|-------------------------|------|
| SySAM overview          | 5    |
| How SySAM works         | 7    |
| Adding feature licenses | 9    |
| SySAM administration    | 10   |

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**Note** Sybase recommends that you read this entire chapter before installing DirectConnect.

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## SySAM overview

Sybase Software Asset Management (SySAM) is a licensing mechanism that:

- Provides System Administrators with a means to monitor their site's use of Sybase products and optional features
- Records the Sybase software being used and licensed

SySAM verifies that a valid license exists for a desired DirectConnect product or feature.

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**Note** For purposes of licensing, DirectConnect products are referred to as DirectConnect features.

---

The basic components of SySAM are:

- One or more DirectConnect features

- A license file
- The SySAM software, which consists of a license manager and management utilities

When you install DirectConnect, a SySAM license manager is automatically installed. However, after installation, you have two choices:

- You can run the license manager on your local machine.
- You can run the license manager on a remote machine and then point to it from your local machine. To accomplish this, you enter the host name and port number of the remote machine on the License Host Request window. Then, you enter the licenses on the remote machine that will be checking them. For more information about SySAM during installation, see Chapter 5, “Installing DirectConnect.”

Sybase recommends that you have one license manager and have all remote machines point to that license manager. You can have many license managers (only one for each machine) on many different machines, but you must be sure that you have connectivity pointers to the remote machines, and that the licenses are entered on whichever machine the license manager is running on.

## DirectConnect licenses

Which licenses that SySAM checks depends on the DirectConnect components that are being started:

- For DirectConnect for ODBC, one license is required for any other ODBC targets when Sybase does not supply the driver.
- For DirectConnect for DB2 UDB, DirectConnect for Informix, DirectConnect for Microsoft SQL Server, and DirectConnect for Oracle, one license is required for any Sybase-supplied ODBC driver.

You must register the DirectConnect license through the license manager in SySAM.

## DirectConnect license files

A license file contains a set of information that enables a set of features of a Sybase product set. The *LM\_LICENSE\_FILE* environment variable is used to point to a license file.

Following are the license identifiers for the DirectConnect features that are licensed through SySAM:

- DC\_DRDA (to be used for DirectConnect for DB2 UDB)
- DC\_INFORMIX
- DC\_MSSQL
- DC\_ODBC (to be used with any target that supports ODBC)
- DC\_ORACLE
- DC\_2PC (enables Global Transaction support, DirectConnect for Oracle only)

## SySAM licenses

Sybase products are licensed individually as features. *Individual licenses* are licenses that must be purchased for each feature.

## Required license information

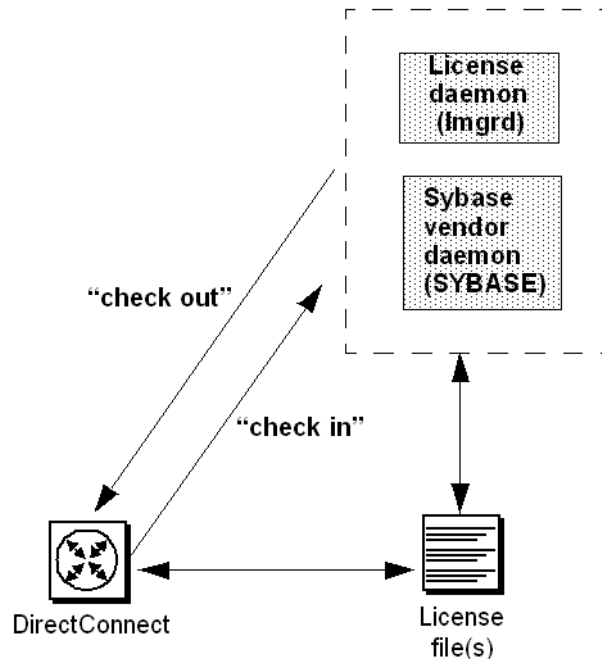
When you purchase your DirectConnect product, Sybase provides a Sybase Software Asset Management certificate with the following information, which is required and must be entered for each license. When you configure the SySAM License Manager, it prompts you for the following information for each license:

- Order number – the order number of your software purchase.
- Feature name – the feature name from the certificate package or bundle license.
- Feature count – the number of licenses you purchased for the feature package or bundle.
- Software version – the version number specified on the license certificate.
- Authorization code – the authorization code shown on your license certificate for DirectConnect.

## How SySAM works

SySAM consists of two utilities, called `lmgr` and `lmutil`, which manage licensing activities, and two daemons: the license management daemon, `lmgrd`, and the SYBASE daemon. The SySAM `lmgrd` daemon contains a pointer that locates the license file for verification and can reside either on the primary server, known as the local license host, or on a remote license host. The daemons handle requests to validate licensed features, as shown in Figure 2-1.

**Figure 2-1: How SySAM interacts with DirectConnect**



Using information in the license file, DirectConnect connects to the SySAM daemon and attempts to check out a license for the base DirectConnect feature. If the DirectConnect license is checked out successfully (a license exists in the license file), DirectConnect continues to operate.

If a license does not check out successfully (a license is not found), DirectConnect continues to operate, but it does record this discrepancy in the log.

## Adding feature licenses

### ❖ To add features for which you have licenses

- 1 Verify that the license manager software is running. See “SySAM administration” on page 10.
- 2 Log on to the machine where the license manager is installed (license host).
- 3 Launch the license manager:

```
$SYBASE/$SYBASE_SYSAM/bin/lmgr
```

- 4 You should see the following prompt:

```
Do you have Sybase Software Asset Management  
Certificates to register?
```

Click Yes.

- 5 The SySAM License Manager window that appears prompts you for:
  - Order Number
  - Feature Name
  - Feature Count
  - Software Version
  - Authorization Code
- 6 Click More until you have entered all licenses.
- 7 Click Done.
- 8 Because you are adding licenses to an existing configuration, you must notify the license daemons of the changes by issuing a reread command. Run the license management utility `lmutil lmreread` from the `$SYBASE/$SYSAM/bin` directory:

```
$SYBASE/$SYBASE_SYSAM/bin/lmutil lmreread
```

- 9 The new license is appended to the end of the `license.dat` file.

If you encounter problems with new licenses, check the `lmgrd.log` file in the `$SYBASE/$SYBASE_SYSAM/log` directory to verify that they were properly appended to the license file.

## SySAM administration

This section describes how to verify the installation and how to start SySAM manually. It also provides additional information for administering SySAM.

### Verifying that the License Manager is running

Sybase supplies utilities with license manager to check the status of the license manager.

❖ **To verify that the license manager software is running**

1 Enter the following:

```
$$SYBASE/SYSAM-1_0/bin/lmutil lmstat -c
```

2 Verify that both lmgrd and SYBASE are running before you run DirectConnect.

If the SySAM software is not running, you see a message similar to the following:

```
lmgrd is not running: Cannot connect to license server
```

If the license manager is not running, you must start the license manager manually.

❖ **To start the License Manager**

• Enter the following command:

```
$$SYBASE/$$SYBASE_SYSAM/bin/lmgrd -c $LM_LICENSE_FILE -l  
  $$SYBASE/$$SYBASE_SYSAM/log/lmgrd.log &
```

---

**Note** If you need help, enter `lmgrd -h`

---

# Installation and Configuration Overview

This chapter presents an overview of the installation and configuration process for a DirectConnect server. It also describes DirectConnect Manager, a client application that you can use to create and configure a DirectConnect server and services.

This chapter contains the following topics:

| Topic                         | Page |
|-------------------------------|------|
| Installation process overview | 11   |
| Directory information         | 14   |

---

**Note** This chapter pertains to all DirectConnects except DirectConnect for Oracle. See Chapter 6, “Installing DirectConnect for Oracle,” for installation information for DirectConnect for Oracle.

---

## Installation process overview

Sybase uses the InstallShield installation program to simplify the installation process, and DirectConnect Manager to manage and configure the servers and services.

The following table lists the major installation steps for DirectConnect.

**Table 3-1: Installation steps for DirectConnect**

| Step |   | Resource   |
|------|---|--|
| 1    | Set up connectivity   | Chapter 4  |
| 2    | Complete the pre-installation tasks.  | Chapter 4  |
| 3    | Install DirectConnect and DirectConnect Manager using InstallShield.  | <ul style="list-style-type: none"> <li>• Chapter 5</li> <li>• Chapter 6</li> <li>• Chapter 7</li> <li>• Appendix A</li> <li>• ECDA CD</li> <li>• PC Client CD</li> </ul> |
| 4    | Create a new server: <ul style="list-style-type: none"> <li>• Edit the <i>sql.ini</i> file.</li> <li>• Issue the <code>AddServer</code> command.</li> <li>• Use DirectConnect Manager to configure the server and service.</li> </ul>   | <ul style="list-style-type: none"> <li>• Chapter 5</li> <li>• Chapter 6</li> <li>• Chapter 7</li> <li>• Appendix B</li> </ul>  |
| 5    | Create a new access service: <ul style="list-style-type: none"> <li>• Configure DSN.</li> <li>• Use DirectConnect Manager to create and configure the access service.</li> </ul>  | <ul style="list-style-type: none"> <li>• Chapter 5</li> <li>• Chapter 6</li> <li>• Chapter 7</li> </ul>  |
| 6    | Perform post-installation tasks: <ul style="list-style-type: none"> <li>• Test connectivity.</li> <li>• Setup the <i>locales</i> files (Windows NT and Windows 2000).</li> <li>• Configure client connectivity to the DirectConnect access services.</li> <li>• Set up the DirectConnect TDS driver</li> <li>• Start SySAM and enter product and feature licenses.</li> </ul> | <ul style="list-style-type: none"> <li>• Chapter 2</li> <li>• Chapter 8</li> <li>• Chapter 9</li> </ul>  |
| 9    | Install your applications.  | Specific documentation for your application  |

## Using InstallShield

InstallShield is a Java-based installation program that uses XML input. It unloads and installs all Sybase components using a consistent installation interface across all platforms. Depending upon your platform, you can use



this program to install and uninstall a DirectConnect server.

The InstallShield program performs the following functions:

- Creates a directory and directory structure, including an Open Server directory
- Copies all DirectConnect programs, utilities, and support files from the distribution media to the appropriate directories
- Confirms that necessary system resources are present to install and support DirectConnect programs
- Provides a utility that you can use to remove DirectConnect servers

## Using DirectConnect Manager

DirectConnect Manager is a Java program plug-in for Sybase Central (Java Edition) that provides systems management for the DirectConnect family of data access servers.

DirectConnect Manager offers several features:

- Integrated management with other Sybase products through Sybase Central (Java Edition)
- The ability to list and terminate specific user connections on any DirectConnect
- Full management of DirectConnect servers, services, and libraries

The DirectConnect Manager interface allows you to easily configure and manage all of the data access services directly from your Windows or UNIX platform. As a result, you can increase your ability to respond and manage a distributed environment.

You can install DirectConnect Manager and its required components from the DC Client CD.

---

**Note** When you install a DirectConnect product on a Windows or UNIX platform or machine, you may install DirectConnect Manager on a separate platform or machine. This allows you to control any DirectConnect from any machine.

---

## Directory information

If you install more than one DirectConnect on a machine, you need to take certain precautions. See the following section for more information.

### Criteria for creating directories

During installation, the installation program checks the \$SYBASE environment variable for any existing Sybase directory that was created for another Sybase product. For example, this might be a directory created for Adaptive Server.

---

**Note** Sybase recommends that you install all products in the same directory.

---

The following rules apply:

- If the InstallShield installation program locates the Sybase directory, it installs DirectConnect subdirectories under this directory. However, before installation begins, you can specify a different location.
- If InstallShield cannot locate such a directory, it creates one. The program creates only what it needs to install the product.
- If InstallShield detects a conflict between new and existing files, you are prompted to choose whether to overwrite the file. At any point, you can cancel the installation.

# Getting Ready to Install

This chapter describes the tasks you must complete before you install DirectConnect products.

This chapter covers the following topics:

| Topic   | Page |
|---|------|
| Gather your installation team                 | 15   |
| Prepare the environment                       | 16   |
| Complete the installation worksheet           | 18   |
| Perform special connectivity tasks for AS/400 | 19   |

## Gather your installation team

To install DirectConnect, you need a team with specific skills and experience— as well as the authority to carry out the variety of tasks in the installation process. At your site, identify the people who have the following skill sets and keep them informed of any changes.

**Table 4-1: DirectConnect team skill requirements**

| Role                           | Skill set  |
|--------------------------------|--|
| Operating system administrator | <ul style="list-style-type: none"> <li>• Understanding of the operating systems for your site's platforms</li> <li>• Knowledge of standards and conventions at the installation site</li> </ul>  |
| Communications administrator   | <ul style="list-style-type: none"> <li>• Understanding of connectivity products used at your site</li> <li>• Ability to design, establish, test, and troubleshoot remote physical communications between DirectConnect and the mainframe host for DB2 UDB DirectConnect access</li> <li>• Understanding of your network configuration</li> </ul> |
| DirectConnect Administrator    | <ul style="list-style-type: none"> <li>• Understanding of the DirectConnect environment</li> <li>• DirectConnect Server Administrator privileges</li> </ul>  |
| Target database administrator  | <ul style="list-style-type: none"> <li>• Knowledge of the target database</li> <li>• Knowledge of target environment, including security operations</li> <li>• Database administrator privileges</li> </ul>  |

| Role              | Skill set  |
|-------------------|--|
| LAN administrator | <ul style="list-style-type: none"> <li>• Understanding of LAN communications at your site</li> <li>• Ability to design, establish, test, and troubleshoot remote physical communications between the client and the DirectConnect server</li> <li>• Understanding of the site's network configuration</li> </ul> |

## Prepare the environment

Before you begin, you must build the foundation that will support your DirectConnect installation and the subsequent access services that you create. If you complete these tasks first, the installation process should be successful.

This section describes the following:

- Hardware and software requirements
- Connectivity tasks
- Critical administrative tasks

## Hardware and software requirements

The following table shows the minimum system requirements for the UNIX-based platforms.

Hardware and software requirements for Oracle are described in Chapter 6, “Installing DirectConnect for Oracle.”

**Table 4-2: System requirements for UNIX platforms**

| Item                                     | HP 9000(8xx)  | RS/6000 AIX  | Sun Solaris  |
|--|---|--|--|
| CPU                                      | An HP 9000/800  | An IBM RISC System/6000  | A Sun Solaris (SPARC) system   |
| RAM                                      | Minimum of 64MB   | Minimum of 64MB  | Minimum of 64MB  |
| Storage                                  | A minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support. | Minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support | Minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support |
| <b>Software requirements, by product</b> |   |  |  |
| All DirectConnect products               | Production release of HP 9000/800 and 900 HP-UX 11.23                               | Production release of AIX 5.3  | Production release of Sun Solaris 2.9  |

| Item                      | HP 9000(8xx)   | RS/6000 AIX  | Sun Solaris  |
|---------------------------|--|--|--|
| DirectConnect for ODBC    | ODBC 3.5-compliant driver to access the targeted database, on the same platform where you are using DirectConnect for ODBC | ODBC 3.5-compliant driver to access the targeted database, on the same platform where you are using DirectConnect for ODBC | ODBC 3.5-compliant driver to access the targeted database, on the same platform where you are using DirectConnect for ODBC |
| DirectConnect for DB2 UDB | <b>Note</b> Only TCP/IP connectivity is currently supported to DB2 UDB on UNIX platforms.                                  |  |  |

## Connectivity tasks

Before you begin installation, you must have some preliminary network connections in place and operational.

Following are some recommended tasks you should perform before you set up connectivity. This is not a complete list; your team should prepare a list that is pertinent to your site and connectivity setup.

- Set up connectivity to the target database
- Check the system requirements
- Research connectivity parameters

### Set up connectivity to the target database

To set up connectivity to the target database, you need to refer to vendor documentation for connectivity protocols that your site supports.

### Check the system requirements

Verify that you have the platform and operating system components listed in “Hardware and software requirements” on page 16. Also, be sure to determine whether any new release levels or bug fixes of Sybase or vendor connectivity protocol products are required.

### Research connectivity parameters

You need the data source name (DSN) values for each ODBC target when you set up connectivity for DirectConnect.

Be sure to record the DSN values on your installation worksheet.

---

**Note** Do not continue installation until connectivity is running successfully between the machine that will host the DirectConnect server and the target database.

---

## Critical administrative tasks

Complete the following administrative tasks:

- Read the release bulletin for DirectConnect version 12.6. This document provides product information that might not be included in this DirectConnect guide, as well as information about known issues or problems.
- Make a backup copy of your current Sybase software, particularly if you plan to keep DirectConnect versions that were previously installed.
- Make a copy of the installation worksheet for your platform for each server that you will install.
- Verify that you have authority to sign in as user `sybase` or other user having administrative privileges on the machine on which DirectConnect is being installed.
- Verify that the host server is connected to the LAN and that network protocols are configured correctly. For instructions, see your LAN administrator documentation.
- Verify previously installed Sybase products. When you install DirectConnect into an existing directory structure, be aware of any previously installed Sybase software and the version of that software.

## Complete the installation worksheet

Use the installation worksheet for the target database in Appendix A, “Installation Worksheets,” to record information relating to installation and connectivity tasks for DirectConnect. The worksheet covers the following:

- Information from products that must be installed before and after installing DirectConnect, both Sybase and non-Sybase
- Information that is requested during installation, connectivity setup, and configuration of DirectConnect access service configuration files

## Perform special connectivity tasks for AS/400

The DirectConnect product that accesses AS/400 is DirectConnect for DB2 UDB. It uses TCP/IP for connectivity. To set up the AS/400 to communicate with these DirectConnect products, you must perform the connectivity tasks described in the following sections.

---

**Note** SNA/APPC connectivity is no longer supported.

---

## Set up the AS/400 to communicate with DirectConnect access services

To set up the AS/400 to communicate with the DirectConnect access service you create, you must perform the following tasks after logging on to the target AS/400 server as the System Administrator:

- Enable DRDA capability of AS/400
- Set security levels
- Change the CCSID
- Create the Sybase collection on the AS/400 (DC for DB2 UDB)

---

**Note** Use the F4 key to obtain a window in which you can enter commands.

---

### Enable DRDA capability of AS/400

To use an AS/400 service, you must enable the Distributed Relational Database Architecture (DRDA) capability of the AS/400. The service communicates with the AS/400 through a TCP/IP connection to DB2 UDB.

To confirm that your AS/400 has DRDA capability:

- Verify that you are using OS/400 V5R2 or higher.
- Be sure that you define the local relational database using the add relational database directory entry ADDRDBDIRE command.

Enter this name on the worksheet for the appropriate platform as the Database Name. The Database Name is requested during installation and is the DatabaseName property in the service library configuration file called *dcany.cfg*, which is located in the *ServerName\cfg* subdirectory.

## Set security levels

The AS/400 has four security levels, each of which is described in the following table.

---

**Note** Sybase recommends that you use AS/400 security level 20 or higher.

---

**Table 4-3: AS/400 security levels**

| Level | Description  |
|-------|--|
| 10    | Requires only a user ID. If you enter a user ID that does not exist, AS/400 automatically creates it. You can access all system resources.   |
| 20    | Requires a user ID and password. The user ID must already exist in AS/400. Once you sign on to AS/400, you have access to all system resources.  |
| 30    | Requires a user ID and password and includes further measures to secure objects on the system. Objects are secured by a user's class (*SECOFR, *SECADM, *PGMR, *SYSOPR, AND *USER) by default.   |
| 40    | Requires a user ID and password, and includes further measures to secure objects on the system. Objects are secured by a user's class (*SECOFR, *SECADM, *PGMR, *SYSOPR, AND *USER) by default. Unsupported interfaces cannot access the system. |

The access service enforces security only through level 20. It returns an error only if the user ID and password do not exist on the AS/400.

Error messages relating to higher security levels on the AS/400 are returned from the AS/400. If your AS/400 security is set at a level higher than 20 and you experience problems with the access service, please have the designated person at your site contact Sybase Technical Support or the Sybase subsidiary in your area.



❖ **To check the AS/400 security settings**

1 Log on to the AS/400 at the main console, a 5250 terminal, or a 5250 terminal emulator.

2 At the Main menu, enter the following:

```
WRKSYSVAL QSECURITY
```

The Work With System Value window appears.

3 Enter the following to display your security settings:

```
DSPSYSVAL QSECURITY
```

❖ **To change the security settings**

1 Be sure you have System Security Officer (QSECOFR) authority.

2 From the Work with System Values menu, enter the following:

```
CHGSYSVAL QSECURITY
```

3 Enter the value.

4 Restart the AS/400 to make the change effective.

## Change the CCSID

The CCSID (coded character set ID) designates the binary code page in which the AS/400 returns data. The default is 65535. If you do not change the CCSID, the access service returns character data from the AS/400 in binary form. When mapped to ASCII format, this data appears as hexadecimal characters.

Changing the CCSID does not affect how the AS/400 stores data. AS/400 programs set the CCSID to a value appropriate to its function. The DirectConnect access service does not require a specific CCSID. For English installations, use code page 37 or 500.

Changing the CCSID  
at the User Profile  
level

To change the CCSID at the user profile level, your user ID must have QSECOFR authority.

❖ **To change the CCSID at the user profile level**

1 Log on to the AS/400 at the main console, a 5250 terminal, or a 5250 emulator.

2 To display the Work with User Profile window, enter the following:

```
WRKUSRPRF USER_ID
```

where *USER\_ID* is a valid user ID for the AS/400 with QSECOFR authority.

- 3 Select option 2.
- 4 Press F10 to view additional parameters. Page down until you find the CCSID setting.
- 5 Change the CCSID and press Enter.

Any physical file that is created with this user profile has the new CCSID assigned to the file character fields.

## Create the Sybase collection on the AS/400 (DC for DB2 UDB)

The access service requires certain files on the AS/400. DirectConnect for DB2 UDB access service looks for these files in a collection called “SYBASE.” You must create this collection and name it “SYBASE” before installing the access service.

---

**Note** The owner of the SYBASE collection must have QSECOFR privileges.

---

The SYBASE collection contains a package for the DC DB2 UDB driver that is created when the drivers are installed. Once you create the packages, you need to grant permissions to PUBLIC for the end users to access the Sybase collection located on the target AS/400. This can be done with `isql` (which comes with the DirectConnect installation), or directly on the AS/400 machine.

### ❖ To grant permissions from `isql`

- Issue the following command:

```
GRANT EXECUTE ON PACKAGE SYBASE.DEF000x TO PUBLIC
```

The DirectConnect service used to issue this command must be in `sybase` mode for SQL transformation (SQL transformation is an access service property with one of two settings, `passthrough` or `sybase`). To ensure this, enter the following command in the `isql` session before you issue the `GRANT EXECUTE` command:

```
set sqltransformation sybase
```

Because the AS/400 allows you to change security levels and ownership of objects, you can use another user ID to create the SYBASE collection. For example, you can use one ID to create the SYBASE collection, then grant other users create and execute authorization for the collection and its objects.

You can create the SYBASE collection in one of two ways:

- If you have DB2 (or DB2/400) Query Manager and SQL Development Kit (SDK) installed on the AS/400, you can run the SQL utility using a 5250 session.
- If not, you need to use the AS/400 SEU utility program to create the SYBASE collection.

❖ **To grant permissions directly on the AS/400**

1 Log on to the AS/400 at the main console, a 5250 terminal, or a 5250 terminal emulator, using the user ID that will be the owner of the SYBASE collection.

2 To display the Sybase packages, on the command line, enter:

```
WRKOBJOWN SYBASE
```

3 On the Work with Object by Owner window, locate and select a package from the attribute column and in the corresponding OPT column, enter the following:

```
2
```

4 On the Edit Object Authority window, in the User column, locate \*PUBLIC, and in the corresponding Object Authority column, enter:

```
ALL
```

5 Press F12 to return to the Work with Object by Owner window, and repeat steps 2 and 3 until all packages are completed. To exit, press F3 repeatedly, followed by 90.

Creating the SYBASE collection through the AS/400 SEU utility

The user ID for creating the SYBASE collection must have a valid CCSID for your language installation. For more information, see "Change the CCSID" section.

❖ **To create the SYBASE collection through the AS/400 SEU utility**

1 Log on to the AS/400 at the main console, a 5250 terminal, or a 5250 terminal emulator, using the user ID that is to be the owner of the SYBASE collection.

2 Start the SEU program by entering the following command:

```
STRSEU
```

3 Press F4 to display the Work With Members Using SEU window.

4 Provide the following information:

- In the Source File field, enter:

QQMQRYSRC

- In the Source Member field, enter:

\*SELECT

- In the Library File field, enter:

QGPL

If the source file does not exist, you must create it using the CRTSRCPF command.

5 Press Enter to list the members of the source file.

6 Build the query that creates the collection by creating a source member for the query:

- In the New Member field, enter:

SYBASE

- In the Type for New Member field, enter:

TXT

7 Press Enter to display the Edit window.

8 Create the query member by entering the following in the first line of the source file:

```
CREATE COLLECTION SYBASE
```

9 Press F3, and verify that the Change/Create Member field is set to Y, and the Member field is SYBASE. Press Enter to exit the editor.

Now you can work with the query you created.

10 Press F3 to exit and return to the Main menu.

❖ **To build the query that creates the SYBASE collection**

1 Enter the following on the command line:

```
CRTQMORY QMORY (QGPL/SYBASE) SRCFILE (QGPL/QQMORYSRC)
```

2 Press Enter. The AS/400 utility creates the query.

You might receive a warning message that the source length exceeds 79 characters. Disregard this message, as it does not affect the access service.

3 To run the query that creates the SYBASE collection, enter the following on the command line:

```
STRQMORY QMORY (QGPL/SYBASE)
```

- 4 Press Enter. The SYBASE collection is created.

Building the collection might take a few minutes. During this time, you will receive messages indicating the status of the operation.

Creating the SYBASE collection through DB2 or DB2/AS400 Query Manager and SDK

The user ID for creating the SYBASE collection must have a valid CCSID for your language installation. For more information, see "Change the CCSID" section in the *Installation Guide*.

❖ **To create the SYBASE collection through SQL/400**

- 1 Log on to the AS/400 at the main console, a 5250 terminal, or a 5250 terminal emulator, using the ID that you want to own the collection (usually SYBASE).
- 2 On the command line, enter:

```
STRSQL
```

- 3 On the SQL command line, enter:

```
CREATE COLLECTION SYBASE
```

The collection process requires a few minutes to complete. You can create other collections by using this same syntax and substituting the name of the collection for "SYBASE."

Authorizing users for the SYBASE collection

You must have the following minimum authorizations to access the AS/400 through the access service:

- USE authorization to the service package in the SYBASE collection
- CHANGE authorization to:
  - Journal object QSQJRN
  - Journal receivers QSQJRN0001, QSQJRN002, and any other additional journal receivers

❖ **To confirm that authorizations are set properly**

- 1 Verify that the \*SQLPKG objects in SYBASE are set to \*PUBLIC, \*USE, or higher authorization level.
- 2 Verify that the journal objects are set to \*PUBLIC, \*CHANGE, or higher authorization level.



# Installing DirectConnect

This chapter describes how to install DirectConnect, configure one or more data source names, create a server and services, and uninstall DirectConnect. It contains the following topics:

| Topic                      | Page |
|----------------------------|------|
| Installing DirectConnect   | 27   |
| Uninstalling DirectConnect | 56   |

---

**Note** Installing DirectConnect for Oracle is described in Chapter 6, “Installing DirectConnect for Oracle.”

---

## Installing DirectConnect

This section describes the steps to install DirectConnect:

- Pre-installation instructions
- Using InstallShield for installation
- Installing DirectConnect in GUI mode
- Configuring the data sources to connect to targets
- Creating a new DirectConnect server
- Creating a new DirectConnect access service
- Starting a DirectConnect access service
- Verifying a DirectConnect access service
- Stopping a DirectConnect access service
- Stopping a DirectConnect server
- Setting up service name redirection (optional)

## Pre-installation instructions

Before you attempt to install DirectConnect, you must complete the following pre-installation tasks.

❖ **To perform pre-installation tasks**

- 1 Read Chapter 4, “Getting Ready to Install,” to identify the hardware and software requirements and to perform the identified critical administrative tasks.
- 2 Complete the installation worksheet for your platform in Appendix A, “Installation Worksheets.”
- 3 (Optional) Set the environment variable to point to the location where DirectConnect will be installed.

## Using InstallShield for installation

This section describes how to install DirectConnect using InstallShield. These procedures assume that:

- The target computer meets the requirements outlined in Chapter 4, “Getting Ready to Install.”
- You have completed the list of tasks for DirectConnect in “Pre-installation instructions.”

The installation program creates the target directory (if necessary) and loads all of the selected components into that directory.

### Installation options

You have three options for installing Sybase components from the distribution media using the installation program:

- GUI (graphical user interface) mode, which allows you to install the components using the InstallShield interface.
- Console mode, which allows you to install components using a command line interface.
- Response file mode, which allows you to record or create a response file. Using a response file, you can install DirectConnect two different ways:
  - Silent, which lets you install the product without any interaction required on your part. This is convenient if you are performing identical installations on multiple machines.



- Interactive installation using response file, which lets you install interactively, but with all the responses already filled in, so that you can accept or change the default values and install DirectConnect according to the responses in the response file. This can be convenient if several sites are installing DirectConnect and must conform to a standard installation.

Each of these options is described in the following sections.

---

Note Sybase recommends that you use the GUI mode for installing DirectConnect.

---

## Installing DirectConnect in GUI mode

The following describes the DirectConnect installation process in GUI mode.

---

Note If you are *only* installing DirectConnect for Oracle, follow the instructions in Chapter 6, “Installing DirectConnect for Oracle.”

---

### ❖ To install in GUI mode

- 1 Verify that the drive on which you will install the products has enough free disk space for the products being installed, and at least 10MB extra disk space for the installation program. The program frees this extra space after the installation is complete.
- 2 Insert the Enterprise Connect Data Access (ECDA) CD-ROM into the CD-ROM drive.

If auto-mount is not available on your machine, follow local procedures for mounting the CD-ROM.

Enter the following, depending on the platform:

- For AIX:  

```
./setupAIX
```
- For HP11:  

```
./setupHP11
```
- For Solaris:  

```
./setupSolaris
```

The Welcome window appears. Click Next to proceed with the installation.

You may see the following error message:

```
Error writing file = There may not be enough
temporary disk space. Try using -is:tempdir to use a
temporary directory on a partition with more disk
space.
```

If so, set the temporary directory to another directory that has more disk space by entering the following at the command line:

```
./setup<platform> -is:tempdir <directory_name>
```

where *directory\_name* is the name of the temporary directory to which the installation program will write its temporary files.

- 3 Read the License and Copyright Agreement. Using the drop-down list at the top of the window, select the geographic location where you are installing DirectConnect to display the agreement appropriate to your region. Select “I agree” and click Next.

You must agree to the license and copyright agreement before you can continue.

---

**Note** In certain cases when DirectConnect is installed with other Sybase products, you may see warnings about overwriting newer versions of files. In these cases, simply instruct the installer to overwrite these files and proceed with the installation by selecting Yes to All.

---

- 4 In the installation directory window, click Next to accept the default directory for the installation, or enter a different directory where you want to install DirectConnect. One of the following occurs:

- If the installation directory you chose does not exist, InstallShield prompts:

```
The directory does not exist. Do you want to
create it?
```

Click Yes.

- If the installation directory exists and contains files, the software prompts:

```
You have chosen to install into an existing
directory. Any older versions of the products you
choose to install that are detected in this
```

directory will be replaced.

---

**Note** You will not see this message if the directory exists but is empty.

---

If you are prompted to overwrite any files, select Yes *only* if the version of the new files is later than the one you are attempting to overwrite.

- 5 Select one of the two installation types:

---

**Note** Sybase recommends that you select the Custom install.

---

- Full, which installs all DirectConnect products and components from the CD, including DirectConnect for Oracle.
- Custom, which allows you to select the DirectConnect options and components to install.

Click Next.

- 6 When you select Custom install, the next window displays all the ECDA options “unchecked” and all the components “checked” or selected. You must select at least one option from the following list and “uncheck” or deselect the components that you do *not* want to install:

- ECDA Option for DB2 UDB
- ECDA Option for Informix
- ECDA Option for Microsoft SQL Server
- ECDA Option for ODBC
- ECDA Option for Oracle

---

**Note** Be aware that if you deselect a component that is required, it is automatically installed if it is needed to run other selected components.

---

After you have selected the options and selected the desired components, click Next.

- 7 Before proceeding to the next window, InstallShield verifies the selections, and checks for dependencies and available disk space. The Product Summary window displays every component that is to be installed and the total disk space required for all the selected components.

---

**Note** If the target directory does not have enough free space, the space-required and the space-available information is displayed. If you click Next without sufficient hard disk space, an error occurs that stops the installation.

---

Verify that you have selected the correct type of installation, and that you have enough disk space to complete the process. Click Next to continue the installation.

- 8 The installation program unloads all the components from the CD and displays a progress indicator. When the installation is complete, a message appears indicating that the InstallShield wizard has completed installing your product. Click Next.

If your installation does *not* include DirectConnect for Oracle, proceed to the next step.

However, if you selected a Full install or a Custom install that includes DirectConnect for Oracle, the next window that appears will request whether you want to configure the DirectConnect for Oracle server.

- If you choose not to configure DirectConnect for Oracle at this time, uncheck the box and proceed to the next step.
  - If you choose to configure DirectConnect for Oracle at this time, follow the instructions for configuring DirectConnect for Oracle starting with step 10, located in Chapter 6, “Installing DirectConnect for Oracle.”
- 9 A window displays a message indicating that the installation was successful and advising you to check for software updates. You are also advised to enter Software Asset Management Certificates by running the tool, `$(SYBASE)/$SYSAM-1_0/bin/lmgr`. Click Finish to clear the window.

## Installing DirectConnect in console mode

If you want to run the installer without the graphical user interface (GUI), you can launch InstallShield in console mode. In cases where InstallShield launches automatically, click Cancel to cancel the GUI installation and then launch the setup program from a terminal or console.

### ❖ To install in console mode

The steps for installing components in console mode are the same as those described in “Installing DirectConnect in GUI mode” on page 29, except that you execute the InstallShield installation program from the command line using the `setup -console` command, and you enter text to select the installation options, as follows:

1 Enter the following at the command line depending on the platforms:

- For AIX:

```
./setupAIX -console
```

- For HP11:

```
./setupHP11 -console
```

- For Solaris:

```
./setupSolaris -console
```

---

**Note** The setup command will be identified as `setup<platform>` for the remaining entries in this chapter. Enter the appropriate platform identifier in place of the `<platform>` entry.

---

The installation program starts and displays a Welcome message.

2 The flow of the installation is identical to a regular GUI installation, except that the display is written to a terminal window, and you enter the responses using the keyboard. Follow the remaining prompts to install DirectConnect.

## Installing using a response file

A silent installation (sometimes referred to as an unattended install) is done by running InstallShield and providing a response file that contains answers to all of InstallShield’s questions.

## Creating a response file

There are two methods of generating a response file for InstallShield:

- *Record* mode: In this mode, InstallShield performs an installation of the product, and records all of your responses and selections in the specified response file. You must complete the installation to generate a response file. To create a response file, enter the following:

```
./setup<platform> -options-record <responseFileName>
```

---

**Note** There should be no space between *-options* and *-record*.

---

where *responseFileName* is a name you choose for the response file.

The following are the results:

- An installation of DirectConnect on your computer
- A response file containing all of your responses from the installation

If this response file is used for a silent installation, the resulting installation is identical to the one from which the response file was created: the same installation location, same feature selection, and all the same remaining information. The response file is a text file that you can edit to change any responses prior to using it in any subsequent installations.

- *Template* mode: In this mode, InstallShield creates a response file containing commented-out values for all required responses and selections. However, you do not need to install the product, and you can cancel the installation after the response file has been created. To create this template file, enter the following:

```
./setup<platform> -console -options-template <responseFileName>
```

where *responseFileName* is the absolute file name you chose for the response file, for example:

```
/sybase/DC/OptionsTemplate.txt
```

If run in console mode, as shown in the previous example, InstallShield provides a message indicating that the template creation was successful. If run in GUI mode, no message is provided.

Then, if you use this response file for a silent installation, the default values for all responses are used. Edit the template with the values you want to use during installation.

---

**Warning!** If you created a response file using a Custom installation, you need to edit the response file to allow the custom selections to be chosen correctly during installation. The following is a workaround for an installer issue when using a response file.

Use a text editor and delete the word "Custom" in the setup type in the following line

```
-W setupTypes.selectedSetupTypeId=Custom
```

The resultant line should look similar to the following:

```
-W setupTypes.selectedSetupTypeId=
```

Failure to delete the "Custom" setup type results in a Full installation of the product.

---

**Interactive installation using a response file** An interactive installation using a response file allows you to accept the default values obtained from the response file that you have set up, or to change any of those values for the specific installation. This is useful when you want multiple similar installations but with some minor differences that you want to change at installation time.

At the command line, execute the following command (enter the command all on one line):

```
./setup<platform> -console -options <responseFileName>  
-W SybaseLicense.agreeToLicense=true
```

**Installing in silent mode** A silent mode installation, sometimes referred to as an unattended installation, allows you to install the product with all responses being taken from the response file that you have set up. There is no user interaction. This is useful when you want multiple identical installations or when you want to automate the installation process.

At the command line, execute the following command (enter the command all on one line):

```
./setup<platform> -silent -options /<responseFileName>  
-W SybaseLicense.agreeToLicense=true
```

where *responseFileName* is the name of the file containing the installation options you chose. The `-W` option specifies that you agree with the Sybase License Agreement text.

Except for the absence of the GUI screens, all actions of InstallShield are the same, and the result of an installation in silent mode is exactly the same as one done in GUI mode with the same responses.

## Configuring the data sources to connect to targets

You must create and configure the data source name (DSN) for each DirectConnect component to connect to the following targets:

- DirectConnect for DB2 UDB
- DirectConnect for Informix
- DirectConnect for Microsoft SQL Server
- DirectConnect for ODBC

---

**Note** For DirectConnect for Oracle, refer to Chapter 6, “Installing DirectConnect for Oracle.”

---

This file is a plain text file called *odbc.ini*. Using the attributes listed in the section for each DirectConnect product, use a text editor to define the data source entries. The *odbc.ini* file is installed in `$$SYBASE/$SYBASE_ECON`.

---

**Note** The DSN templates contain additional parameters that you should remove.

---

### For DirectConnect for DB2 UDB

In the UNIX environment, the ODBC driver allows you to establish a centralized ODBC system information file that you can control. To do so, set the environment variable `ODBCINI` by executing the DirectConnect environment script to point to the qualified path name of the centralized file, provided by DirectConnect install. For example:

For C shell:

```
DC_SYBASE.csh
```



For Bourne or Korn shell:

```
DC_SYBASE.sh
```

Executing the script sets ODBCINI to `$$SYBASE/$$SYBASE_ECON/odbcini`.

Remember, there must be an [ODBC] section in the system information file that includes the InstallDir keyword. Be sure that the keyword value is the path to the directory `$$SYBASE/$$SYBASE_ECON`.

### To define data source entries

To create and configure data source entries for DRDA, edit the `odbc.ini` file using the attributes in each of these categories, or sections:

- *General*, which defines connectivity parameters
- *Advanced*, which contains optional fields that affect performance and use of resources
- *Bind*, which defines parameters for package creation in the DB2 system

Each of these sections is delimited with comments.

As you edit the `odbc.ini` file, be sure you have the following parameters available on your worksheet. For all others, you can accept the default or provide a value appropriate for your site.

#### General parameters

The following table contains the General parameters; the required parameters are indicated by an asterisk (\*).

**Table 5-1: General parameters for DB2 UDB**

| Parameter           | Comments  |
|---------------------|---|
| * <i>Driver</i>     | The fully qualified path to the driver.   |
| * <i>Ip address</i> | The IP (Internet Protocol) address of the machine where the catalog tables are stored. Specify the address using the machine's numeric address (for example, 123.456.78.90) or its host name. |
|                     | <b>Warning!</b> For Solaris systems, use the numeric IP address, not the host name.   |
|                     | If you enter a host name, the driver must find this name (with the correct address assignment) in the <code>HOSTS</code> file on the workstation or in a DSN server.                          |

| Parameter  | Comments   |
|--|--|
| <i>*TcpPort</i>  | <p>The port number that is assigned to the DB2 server on the machine where the catalog tables are stored. Specify either this port's numeric address or its service name. The default numeric port address varies, depending on the OS of the DB2 server machine. For DB2, the default may be 50000. For AS/400, the default is 446.</p> <p>If you specify a service name, the driver must find this name (with the correct port assignment) in the <i>SERVICES</i> file on the workstation.</p> |
| <i>*Location</i><br>(Required for DB2 UDB on AS/400 and z/OS only)       | <p>This field is valid only if you are connecting to a DB2 database running on z/OS or AS/400. Type the DB2 location name, using the name defined during the local DB2 installation.</p> <hr/> <p><b>Note</b> This parameter is not applicable if the Database Name field is populated.</p>  |
| <i>*Collection</i><br>(Required for DB2 UDB on AS/400 and z/OS only)     | <p>A field that is valid only if you are connecting to a DB2 database running on z/OS or AS/400. Enter the name that identifies a group of packages that include the DirectConnect DC DB2 DRDA driver packages. The default for DB2 and AS/400 is the user ID.</p> <hr/> <p><b>Note</b> This field is not applicable if the Database Name field is populated.</p>  |
| <i>*Database</i><br>(Required for connecting to DB2 on Windows and UNIX) | <p>The name of the database to which you want to connect to, by default.</p> <hr/> <p><b>Note</b> This parameter is not used for AS/400 and z/OS.</p>  |
| <i>*IANAAppCodePage</i><br>(Required for UNIX platforms)                 | <p>A driver code page configuration property for the DB2 UDB driver. The following are a few examples; 3, 4, 2004, and 2250. For a complete list of the values and their descriptions, go to the following URL at <a href="http://www.iana.org/assignments/character-sets">www.iana.org/assignments/character-sets</a>.</p>  |
| <i>WorkArounds2</i>  | <p>The name of the string key to allow the driver to pad the DB2 char for bit data field with spaces. The value is <i>131072</i>.</p>  |

After entering these parameters, use the odbct tool (see Chapter 10, “Troubleshooting,”) to test connectivity to the DirectConnect for DB2 UDB source.

Advance parameters

The default values for the Advanced parameters described in the following table should be sufficient for most DirectConnect for DB2 UDB installations.

**Table 5-2: Advanced parameters for DB2 UDB**

| Parameter                      | Comments   |
|--------------------------------|--|
| <i>AlternateID</i>             | A value that is substituted at connect time for the current schema. This sets the default qualifier for unqualified object names in SQL statements. If the attempt to change the current schema fails, the connection fails with "Invalid value for Alternate ID." DB2 permissions should be set to SYSADM. (Not valid for AS/400 V5R1.)   |
| <i>WithHold</i>                | The cursor behavior for the application used with this data source—either DB2 closes all open cursors (Delete cursors) after a commit or rollback, or leaves them open (Preserve cursors). <ul style="list-style-type: none"> <li>• When this option is <i>1</i> (the default), the cursor behavior is Preserve. Sybase recommends this option.</li> <li>• When this option is <i>0</i>, the cursor behavior is Delete.</li> </ul> |
| <i>AddStringToCreate Table</i> | Use this parameter if you want to append the in tablespace clause to create table commands.  |

To define data source entries

The following table contains the Bind parameters, with the required parameters, indicated by an asterisk (\*).

**Table 5-3: Bind parameters for DB2 UDB**

| Parameters           | Comments  |
|----------------------|---|
| <i>*GrantExecute</i> | An indicator to grant privileges on the package that you are creating.  |
| <i>*GrantAuthid</i>  | The ID of the person to whom the GrantExecute privileges were assigned. The default value is Grant Execute privileges on the package to PUBLIC. |

| Parameters               | Comments   |
|--------------------------|--|
| * <i>IsolationLevel</i>  | <p>The Isolation Level method by which locks are acquired and released by the system. Valid values are:</p> <ul style="list-style-type: none"> <li>• ALL – prevents any other process from accessing data that your application has read or modified. All read or modified data is locked until the end of the transaction.</li> <li>• CHANGE – allows other processes to read from the database. Only modified data is locked until the end of the transaction</li> <li>• Cursor_Stability (the default) – allows other processes to change a row that your application has read if the cursor is not on the row you want to change. Prevents other processes from changing records that your application has changed until your program commits them or terminates. It prevents your program from reading a modified record that has not been committed by another process.</li> <li>• No_Commit – allows your program to read modified records even if they have not been committed by another person.</li> <li>• Repeatable_Read – prevents other processes from changing records that are read or changed by your application (including phantom records) until your program commits them or terminates. It prevents the application from reading modified records that have not been committed by another process. If your program opens the same query during a single unit of work under this isolation level, the results table will be identical to the previous table; however, it can contain updates made by your program.</li> </ul> |
| * <i>DynamicSections</i> | <p>The number of statements that the DB2 Wire Protocol driver package can prepare for a single user. The default is 64. This value determines the maximum cursors or dynamic statements that a single connection may have open simultaneously.</p>   |

---

**Note** For version 12.6, packages are created automatically on the initial connection to the DB2 UDB server. The Bind utility is only needed to modify the package settings.

---

Use the bind20 utility included in the *bin* subdirectory to create packages. The bind20 utility will use the bind options defined in your DRDA DSN to configure the package and grant proper ownership. The bind20 syntax is:

```
bind20 db2-dsn
```

The utility will prompt for a DB2 user ID and password, create the packages, and then report a final status.

A separate package is not needed for each DirectConnect for DRDA access service; however, if an access service has different characteristics in its parameters that suit it for a specific solution, you can create other packages for other solutions.

The following examples identify the DSN parameters required and used for DRDA to the following targets:

- DB2 UDB on AS/400
- DB2 UDB on z/OS
- DB2 UDB on Windows
- DB2 UDB on UNIX

#### Example of an `odbc.ini` file for DB2 UDB on AS/400

Following is an example of the contents of an `odbc.ini` file for DB2 UDB AS/400, with comments added:

```

;; DB2 Driver for DB2 UDB AS/400
;;
;; Use values from installation worksheet.
;;
;; Data Source Name
[dcdb2udbas400]
Driver=/sybase/DC-12_6/lib/MVdb220.so
IPAddress=
TcpPort=
Location=
Collection=
SecurityMechanism=0
WorkArrounds2=131072
;;
;; Advanced options
;;
AddStringToCreateTable=
AlternateID=
CatalogSchema=
IsolationLevel=CURSOR_STABILITY
CharsetFor65535=0
ReportCodePageConversionErrors=0
ApplicationUsingThreads=1
UseCurrentSchema=1
WithHold=1
;;
;; Bind options - for DSNs used with bind20 utility

```

```
;;
GrantExecute=1
GrantAuthid=PUBLIC
DynamicSections=64
;;
;; Optional Failover options
;;
LoadBalancing=0
AlternateServers=
ConnectionRetryCount=0
ConnectionRetryDelay=3
```

### Example of an `odbc.ini` file for DB2 UDB on z/OS

Following is an example of the contents of an `odbc.ini` file for DB2 UDB on z/OS, with comments added:

```
;; DB2 Driver to DB2 UDB z/OS
;;
;; Use values from installation worksheet.
;;
;; Data Source Name
[dcdb2udbosz/OS]
Driver=/sybase/DC-12_6/lib/MVdb220.so
IPAddress=
TcpPort=
Location=
Collection=
SecurityMechanism=0
WorkArounds2=131072
;;
;; Advanced options
;;
AddStringToCreateTable=
AlternateID=
CatalogSchema=
IsolationLevel=CURSOR_STABILITY
CharsetFor65535=0
ReportCodePageConversionErrors=0
ApplicationUsingThreads=1
UseCurrentSchema=1
WithHold=1
;;
;; Bind options - for DSNs used with bind20 utility
;;
GrantExecute=1
GrantAuthid=PUBLIC
```

```

DynamicSections=64
;;
;; Optional Failover options
;;
LoadBalancing=0
AlternateServers=
ConnectionRetryCount=0
ConnectionRetryDelay=3

```

### Example of an `odbc.ini` file for DB2 UDB on Windows

Following is an example of the contents of an `odbc.ini` file for the DB2 UDB for Windows, with comments added:

```

;; DB2 Driver for DB2 UDB Windows
;;
;; Use values from installation worksheet.
;;
;; Data Source Name
[dcdb2udbwin]
Driver=/sybase/DC-12_6/lib/MVdb220.so
IPAddress=
TcpPort=
Database=
SecurityMechanism=0
WorkArounds2=131072
;;
;; Advanced options
;;
AddStringToCreateTable=
AlternateID=
CatalogSchema=
IsolationLevel=CURSOR_STABILITY
CharsetFor65535=0
ReportCodePageConversionErrors=0
ApplicationUsingThreads=1
UseCurrentSchema=1
WithHold=1
;;
;; Bind options - for DSNs used with bind20 utility
;;
GrantExecute=1
GrantAuthid=PUBLIC
DynamicSections=64
;;
;; Optional Failover options
;;

```

```
LoadBalancing=0
AlternateServers=
ConnectionRetryCount=0
ConnectionRetryDelay=3
```

### Example of an `odbc.ini` file for DB2 UDB on UNIX

Following is an example of the contents of an `odbc.ini` file for DB2 UDB on UNIX, with informational comments added:

```
;; DB2 Driver to DB2 UDB UNIX
;;
;; Use values from installation worksheet.
;;
;; Data Source Name
[dcdb2udbunix]
Driver=/sybase/DC-12_6/lib/MVdb220.so
IPAddress=
TcpPort=
Database=
SecurityMechanism=0
WorkArrounds2=131072
;;
;; Advanced options
;;
AddStringToCreateTable=
AlternateID=
CatalogSchema=
IsolationLevel=CURSOR_STABILITY
CharsetFor65535=0
ReportCodePageConversionErrors=0
ApplicationUsingThreads=1
UseCurrentSchema=1
WithHold=1
;;
;; Bind options - for DSNs used with bind20 utility
;;
GrantExecute=1
GrantAuthid=PUBLIC
DynamicSections=64
;;
;; Optional Failover options
;;
LoadBalancing=0
AlternateServers=
ConnectionRetryCount=0
```



```
ConnectionRetryDelay=3
```

## For DirectConnect for Informix (wire protocol driver)

In the UNIX environment, the ODBC driver allows you to establish a centralized ODBC system information file that you can control. To do so, set the environment variable ODBCINI by executing the DirectConnect environment script to point to the qualified path name of the centralized file, provided by DirectConnect install. For example:

For C shell:

```
DC_SYBASE.csh
```

For Bourne or Korn shell:

```
DC_SYBASE.sh
```

Executing the script sets ODBCINI to `$$SYBASE/$$SYBASE_ECON/odbcini`

Remember, there must be an [ODBC] section in the system information file that includes the InstallDir keyword. Be sure that the keyword value is the path to the directory `$$SYBASE/$$SYBASE_ECON`.

## To define data source entries

To define data source entries, edit the `odbc.ini` file, entering values for the parameters on your worksheet.

## Descriptions of data source parameters

The following table provides descriptions of the parameters that you can provide in the `odbc.ini` file. Asterisks(\*) identify the required parameters.

**Table 5-4: Descriptions of data source parameters**

| Parameter                     | Description   |
|-------------------------------|---|
| * <i>Driver</i>               | The full qualified path to the driver.  |
| <i>Description</i>            | An optional long description of a data source name.   |
| * <i>Hostname</i>             | Name of the machine or IP address on which the Informix server resides.   |
| * <i>PortNumber</i>           | Port number of the server listener.   |
| * <i>Server Name</i>          | Name of the server that contains the database you want to access.   |
| * <i>Database</i>             | Name of the database to which you want to connect by default.   |
| <i>WorkArounds</i> (optional) | Name of the WorkArounds string key to support DirectConnect bulk transfers. The value is <code>536870912</code> . |

### Example of an `odbc.ini` file

Following is an example of the contents of the `odbc.ini` file for DirectConnect for Informix:

```
;; Informix Wire Protocol Driver (Informix 9.x)
;;
;; Use values from installation worksheet.
;;
;; Data Source Name
[dcinfxwp]
Driver=/sybase/DC-12_6/lib/MVifcl20.so
Description=Informix Wire Protocol
HostName=
PortNumber=
ServerName=
Database=
;;
;; Advanced options
;;
CancelDetectInterval=0
ApplicationUsingThreads=1
TrimBlankFromIndexName=1
;;
;; Optional Failover options
;;
LoadBalancing=0
AlternateServers=
ConnectionRetryCount=0
ConnectionRetryDelay=3

[ODBC]
IANAAppCodePage=4
InstallDir=/sybase/DC-12_6
Trace=0
TraceFile=odbctrace.out
TraceDll=/sybase/DC-12_6/lib/odbctrac.so
```

### For DirectConnect for Microsoft SQL Server

In the UNIX environment, the ODBC driver allows you to establish a centralized ODBC system information file that you can control. To do so, set the environment variable `ODBCINI` by executing the DirectConnect environment script to point to the qualified path name of the centralized file, provided by DirectConnect install. For example:

For C shell:

DC\_SYBASE.csh

For Bourne or Korn shell:

DC\_SYBASE.sh

Executing the script sets ODBCINI to `$$SYBASE/$SYBASE_ECON/odbcini`.

Remember, there must be an [ODBC] section in the system information file that includes the InstallDir keyword. Be sure that the keyword value is the path to the directory `$$SYBASE/$SYBASE_ECON`.

### To define data source entries

To define data source entries, edit the `odbc.ini` file, setting the attributes listed in the following table.

As you edit the `odbc.ini` file, be sure you have the necessary information available. For all others, you can accept the default or provide a value appropriate for your site.

**Table 5-5: Descriptions of data source parameters**

| Parameter          | Description  |
|--------------------|--|
| <i>*Driver</i>     | The full path to the driver.   |
| <i>Description</i> | An optional long description of the data source name.  |
| <i>*QuotedID</i>   | Parameter that allows quoted identifiers; that is, identifiers in the SQL Server that you can quote using a quoting character. |
| <i>*Database</i>   | Name of the database to which you want to connect by default.  |
| <i>*Address</i>    | Parameter that contains a 4-part IP address and the port number that it is listening on.                                       |

### Example of an odbc.ini file

Following is an example of the contents of the `odbc.ini` file for DirectConnect for Microsoft SQL Server, you must edit the section of the file that applies to your site. The following is an example:

```

; MS SQLServer 7 and 2000
;;
;; Use values from installation worksheet.
;;
;; Data Source Name
[dcssql]
Driver=/sybase/DC-12_6/lib/MVmsss20.so
QuotedId=Yes
Database=

```

```
;; Address: Enter numbers from your install worksheet
;; In the form: AAA.BBB.CCC.DDD,PPPP
;; Where AAA.BBB.CCC.DDD is the 4 part IP Address
;; and PPPP is the port number it is listening on.
Address=
;;
;; Optional Failover options
;;
LoadBalancing=0
AlternateServers=
ConnectionRetryCount=0
ConnectionRetryDelay=3
```

### Diagnosing ODBC connectivity problems

After entering these parameters, use the `odbc` tool (see Chapter 10, “Troubleshooting,”) to test connectivity to the DRDA source.

### For DirectConnect for ODBC

In the UNIX environment, the ODBC driver allows you to establish a centralized ODBC system information file that you can control. To do so, set the environment variable `ODBCINI` by executing the `DirectConnect` environment script to point to the qualified path name of the centralized file, provided by `DirectConnect` install. For example:

For C shell:

```
DC_SYBASE.csh
```

For Bourne or Korn shell:

```
DC_SYBASE.sh
```

Executing the script sets `ODBCINI` to `$SYBASE/$SYBASE_ECON/odbcini`.

Remember, there must be an `[ODBC]` section in the system information file that includes the `InstallDir` keyword. Verify that the keyword value is the path to the directory `$SYBASE/$SYBASE_ECON`.

### To define data source entries

To define data source entries, edit the `odbc.ini` file using the attributes in each of the categories, or sections, of the file. Each of these sections is delimited by comments.

As you edit the *odbc.ini* file, be sure you have the necessary parameters available. For all others, you can accept the default or provide a value appropriate for your site.

For more detailed definitions of data source parameters in the *odbc.ini* file, see the documentation for your site's ODBC driver.

### Example of an *odbc.ini* file

For DirectConnect for ODBC, you must edit the section of the file that applies to your site. The following example contains the required sections. Add DSN definitions based on driver documentation:

```
[ODBC Data Sources]
::
ODBC Data Source definitions
::

[ODBC]
Trace=0
TraceFile=odbctrace.out
TraceDll=/sybase/DC-12_6/lib/odbctrac.so
InstallDir=/sybase/DC-12_6
```

To help you diagnose ODBC connectivity problems, the Sybase *odbct* tool verifies that your system configuration and *odbc.ini* are configured correctly by attempting to make a simple connection to the target. See the configuration problems section in Chapter 10, "Troubleshooting," for more information.

## Creating a new DirectConnect server

At this point, InstallShield has automatically created the subdirectories and files needed for DirectConnect. Now, you must perform a number of tasks to create a new server and access services. The first step is to create a new server by running the utility *AddServer.bat* from *\$\$SYBASE/DC-12\_6/bin* using the syntax in the following example:

```
cd $SYBASE/DC-12_6/bin
AddServer srvname 1234
```

where:

- *srvname* is the name of the new server.
- *1234* is the port that it will listen on.
- *AddServer* is the utility that will:

- Set the environment
- Create the server
- Start the server
- Insert server name in the Sybase *interfaces* file

---

**Note** You must be in the `$$SYBASE/$SYBASE_ECON/bin` directory for this C shell script to work properly.

---

## Set up and verify your environment

---

**Note** DirectConnect has created utilities that will allow you to create and start a DirectConnect server. Refer to Appendix B, “Using DirectConnect Utilities.”

---

Sybase provides scripts to set the following variables, which DirectConnect requires in order to run:

- SYBASE
- SYBASE\_ECON
- SYBASE\_OCS
- SHLIB\_PATH (HP-UX), LIB\_PATH (AIX),  
LD\_LIBRARY\_PATH (Sun Solaris)

Set the environment variables from a command line prompt by running one of the following environment scripts, as appropriate for your platform:

```
DC_SYBASE.csh or DC_SYBASE.sh
```

To verify that the environment script ran successfully, execute the following:

```
echo $$SYBASE
```

The response should match the directory for your installation.

```
echo $$SYBASE_ECON
```

The response should match the `$$SYBASE_ECON` home directory on your worksheet: DC-12\_6.

```
echo $$SYBASE_OCS
```

The response should match the `$$SYBASE_OCS` home directory on your worksheet:

- For HP:

```
echo $SHLIB_PATH
```

- For AIX:

```
echo $LIB_PATH
```

- For Solaris:

```
echo $LD_LIBRARY_PATH
```

This variable (shown for HP) should equal the following:

```
$$SYBASE/$SYBASE_ECON/lib:
```

```
$$SYBASE/$SYBASE_OCS/lib
```

---

**Note** `$$SYBASE`, `$$SYBASE_ECON`, and `$$SYBASE_OCS` will be expanded to their actual values.

---

## Creating a new DirectConnect access service

You create DirectConnect access services by editing the service library configuration file in one of two ways:

- Using DirectConnect Manager
- Using a text editor

### Using DirectConnect Manager

You can use DirectConnect Manager to configure, start, and stop DirectConnect servers and access services. For instructions on how to use DirectConnect Manager, refer to Chapter 7, “Installing DirectConnect Manager.”

### Using a text editor

You can use a text editor to configure the access service library configuration files, which reside in the `cfg` subdirectory under the `ServerName` directory.

❖ **To configure the access service using a text editor**

- 1 Navigate to the `$$SYBASE/$SYBASE_ECON/svrname/cfg` subdirectory of the `ServerName` directory.
- 2 At the end of the configuration file, enter a name for the access service in brackets, for example, for Microsoft SQL Server:  

```
[mss_acs]
```
- 3 Enter the required parameters and their values from your worksheet, as well as other values for parameters you might need.

For more information about access service configuration properties, see the Enterprise Connect Data Access Options *User's Guide for Access Services*.

## Adding a new service to the interfaces file

To allow an Open Client application, such as `isql`, to connect to the Open Client installation that will be used by your client application. Add the new service to the *interfaces* file as a Server Object using the `dsedit` utility, specifying the same connectivity information for this Server Object as specified in the `sql.ini` file for the DirectConnect server.

To preserve a unique directory structure and environment for Sybase applications, each Sybase product must have a unique user or start-up script for each application. The key file for maintaining this uniqueness is the Open Server network address file. On UNIX-based systems, this is the *interfaces* file, which resides in the `$$SYBASE` directory.

The network address file configures the Open Server application listening network address. On UNIX systems, it configures the network type and TCP/IP values, plus the operating system type and network.

❖ **To modify the *interfaces* file, using the *dsedit* utility**

- 1 Right-click the server object.
- 2 From the menu, click Add to display the Input Server Name window.
- 3 Enter the server object and modify its attributes.
- 4 On the Network Address window that appears, enter protocol information for your site.
- 5 Enter the machine name on which you installed the DirectConnect server and the connectivity parameter.



6 Click OK twice. Exit dsedit.

Defaults are provided for the server configuration parameters. For additional information, see the *DirectConnect Server Administration Guide*.

## Starting a DirectConnect access service

The only way you can start the new access service without stopping and restarting DirectConnect is by using DirectConnect Manager.

To start your new service without using DirectConnect Manager, be sure that the `EnableAtStartup=Yes` property is set in the service configuration (`.cfg`) file, which starts the service automatically when the server is started, and then restart the server.

## Verifying a DirectConnect access service

Verify that the access service is connecting to its target data source and working properly by using one of the SQL utilities.

## Using isql from a command line

---

**Note** If you are using `isql` on the same machine on which you installed DirectConnect, you must add an access service entry to the *interfaces* file that points to the access service you are testing.

---

### ❖ To verify the access service configuration using *isql*

1 On the client machine, use `dsedit` to create an *interfaces* file entry for the access service.

Be sure to enter the access service name exactly as you defined it in the configuration file or using DirectConnect Manager.

2 Set the environment variables from a command line prompt by running one of the following environment scripts, as appropriate for your platform:

```
DC_SYBASE.csh or DC_SYBASE.sh
```

3 Run `isql` from the command line by entering the following:

```
isql -SServiceName -Userid -Ppassword
```

where:

- *ServiceName* is the name of the access service exactly as you defined it in the *interfaces* file.
- *userid* is a valid user ID for the target database.
- *password* is a valid password for the user ID in the target database.

If the connection is successful, a 1> prompt appears.

---

**Note** If you cannot connect, the access service might not be running. Start the access service with DirectConnect Manager or edit the configuration file, and then verify that the Enable at Startup parameter is set to Yes. This starts the access service automatically when the server is started.

---

4 At the 1> prompt, query a table in the target database by entering a select statement and pressing Return.

5 At the 2> prompt, enter:

```
go
```

Press Return.

The query should run and return a result set, followed by a >1 prompt.

6 To exit isql, enter the following at the 1> prompt:

```
exit
```

Press Return.

A regular operating system command appears.

---

**Note** At this point, you can stop the DirectConnect server using the stopsvr utility, which shuts down the server and terminates all client connections. However, if you plan to perform post-installation tasks for the client and server, leave both the DirectConnect access service and server up and running.

---

## Stopping a DirectConnect access service

You can stop the access service only through DirectConnect Manager. The procedure is described in *Chapter 7, “Installing DirectConnect Manager.”*

## Stopping a DirectConnect server

At this point, you can stop the DirectConnect server using the `stopsrvr` utility, which shuts down the server and ends all client connections.

Set the environment variables from a command line prompt by running one of the following environment scripts, as appropriate for your platform:

```
DC_SYBASE.csh or DC_SYBASE.sh
```

The `stopsrvr` format is as follows:

```
stopsrvr [-v|-?|-h] -Sserver_name [-ddelay]
```

where:

- `-v` displays the program version only.
- `-?` or `-h` displays help screen.
- `-S` defines the name of the server to be shut down.
- `-d` is the delay, in seconds, before client connections are terminated. The default is 3.

## Setting up service name redirection (optional)

If you intend to use the service name redirection feature, you must modify the `snrf.tbl` default file or create a new redirection file. The file is located in the `SYBASE/SYBASE_ECON/ServerName/cfg` directory. Or, you can use DirectConnect Manager to modify the file.

You must also define the configuration property called `ServiceRedirectionFile=snrf.tbl` that is in the `server.cfg` file, in the Client Interaction section. If the `snrf.tbl` file is not identified, then service name redirection is disabled.

For directions on setting up and using service name redirection, see the DirectConnect *Server Administration Guide*.

## Uninstalling DirectConnect

To uninstall a DirectConnect installation, use the InstallShield uninstall feature. This removes all servers, all common files, and all required components. After the uninstall runs, you may need to delete any remaining files and directories in the directory where DirectConnect was installed.

---

**Note** You may need to stop the SySAM daemon first; otherwise, you will not be able to delete certain files and directories. Also, before uninstalling Sybase software, shut down all Sybase applications and processes.

---

You can invoke the uninstall procedure using either the GUI or the console method. Sybase recommends that you use the GUI method.

Log in to your machine using an account with “administrator” privileges, then shut down all other processes for the components you are uninstalling.

### ❖ To uninstall in GUI mode

- 1 Proceed to the uninstall directory:
  - 1 Go to the directory where your application is installed.
  - 2 Go to the uninstall directory.
  - 3 Go to the directory for your application that you want to uninstall.
  - 4 Enter `uninstall` from the command line. The wizard appears.
- 2 The Welcome window appears.
- 3 Click Next to display the list of selected products and components that were installed.
- 4 All the products and components that were installed are displayed and already checked to allow you to remove the total installation. If you do not want to remove a product or component, deselect or “uncheck” that product or component. Click Next.
- 5 A summary of all the products and components is displayed. Click Next.
- 6 A message indicating that an uninstall of z/OS is in progress. When this is completed, a message is displayed indicating a successful uninstall. Click Next to end the uninstall.

### ❖ To uninstall in console mode

- 1 To uninstall the products in console mode, execute the following at the command line:

```
$SYBASE/uninstall/uninstall -console
```

The uninstall program starts.

- 2 Choose the DirectConnect software product you want to uninstall.

The DirectConnect software product you chose is uninstalled.



# Installing DirectConnect for Oracle

This chapter explains how to install DirectConnect for Oracle using InstallShield. For a detailed reference on configuration, refer to the Enterprise Connect Data Access Option for Oracle *Server Administration and User's Guide*.

This chapter contains the following topics:

| <b>Topic</b>                                      | <b>Page</b> |
|---|-------------|
| Introducing DirectConnect for Oracle              | 59          |
| Getting ready to install DirectConnect for Oracle | 60          |
| Installing DirectConnect for Oracle               | 62          |
| Configuring DirectConnect for Oracle              | 70          |
| After installation                                | 71          |
| Uninstalling DirectConnect for Oracle             | 71          |

## Introducing DirectConnect for Oracle

DirectConnect for Oracle provides Open Client access to Oracle databases. It operates in conjunction with the Adaptive Server Enterprise Component Integration Services feature (ASE/CIS) and as a standalone gateway. This combination offers clients a Transact-SQL® interface to external Oracle data.

When used with Adaptive Server, DirectConnect for Oracle transforms the Transact-SQL generated by Adaptive Server to Oracle's native SQL. DirectConnect for Oracle also handles datatype mapping between Sybase datatypes and Oracle datatypes. DirectConnect for Oracle provides many of the features of a distributed database system when used in combination with Adaptive Server. This combination allows location transparency, distributed query optimization, copy transparency, transaction transparency, and distributed joins.

Using Adaptive Server, you can join Oracle tables with tables in Adaptive Server, DB2 UDB, or other database servers. Access to these objects through Adaptive Server is transparent to the application.

In standalone mode, DirectConnect for Oracle provides client applications with an Open Client interface to Oracle databases. To the client, DirectConnect for Oracle appears as an Open Server application that understands Oracle SQL.

## Getting ready to install DirectConnect for Oracle

This section contains the necessary background to prepare for installing DirectConnect for Oracle. It includes the following sections:

- Hardware and software requirements
- Disk requirements
- Oracle requirements

### Hardware and software requirements

The following are minimum hardware and software configurations are compatible with DirectConnect for Oracle version 12.6.

**Table 6-1: Hardware and software minimum requirements**

| Item                  | HP 9000(8xx)  | RS/6000 AIX  | Sun Solaris  | Linux  |
|-----------------------|---|--|--|--|
| CPU                   | An HP 9000/800  | An IBM RISC System/6000  | A Sun Solaris (SPARC) system   | Linux Red Hat 2.1  |
| RAM                   | Minimum of 64MB   | Minimum of 64MB  | Minimum of 64MB  | Minimum of 64MB  |
| Storage               | Minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support. | Minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support | Minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support | Minimum of 300MB, plus at least 500KB for each <i>locale</i> you plan to support |
| Platform requirements | HP 9000/800 and 900 HP-UX 11.23   | AIX 5.3  | Sun Solaris 2.9  | Linux Red Hat 2.1  |



## Disk requirements

DirectConnect for Oracle requires approximately 377MB of disk space, depending on the platform.

## Oracle requirements

Unlike previous versions of DirectConnect for Oracle, version 12.6 is already linked with the Oracle libraries. Therefore, it does not require any Oracle software on the machine where it is installed. However, there must be a *tnsnames.ora* file accessible to DirectConnect for Oracle.

The *tnsnames.ora* file is an Oracle connectivity file for all Oracle version 9.0.1 products. You can obtain it from the Oracle administrator for the database that you are connecting to. This file needs to be copied to a temporary location, so that it is available if you want to configure at installation time.

## Installing DirectConnect

This section describes how to install DirectConnect using InstallShield:

- Pre-installation instructions
- Using InstallShield for installation
- Installing DirectConnect for Oracle

## Pre-installation instructions

Before you attempt to install DirectConnect, you must complete the following pre-installation tasks.

### ❖ To prepare for installation

- 1 Complete the installation worksheet for your platform in Appendix A, “Installation Worksheets.”
- 2 (Optional) Set the environment variable `$$YBASE` to point to the location where DirectConnect will be installed.

## Using InstallShield for installation

This section describes how to install DirectConnect using InstallShield. These procedures assume that:

- The target computer meets the hardware and software requirements.
- You have completed the list of tasks for DirectConnect in “Pre-installation instructions.”

The installation program creates the target directory (if necessary) and loads all the selected components into that directory.

### Installation options

You have three options for installing Sybase components from the distribution media using the installation program:

- GUI (graphical user interface) mode, which allows you to install the components using the InstallShield interface.
- Console mode, which allows you to install components in a command line environment.
- Response file, which allows you to record or create a response file. Using a response file, you can install DirectConnect two different ways:
  - Silent, which lets you install the product without any interaction required on your part. This is convenient if you are performing identical installations on multiple machines.
  - Interactive, which lets you install interactively but with all the responses already filled in, so that you can accept all the default values and install DirectConnect according to the responses in the response file. This can be convenient if several sites are installing DirectConnect and must conform to a standard installation.

Each of these options is described in the following sections.

## Installing DirectConnect for Oracle

This section describes how to use InstallShield to install DirectConnect for Oracle.

---

**Note** Sybase recommends that you use the GUI mode for installing DirectConnect for Oracle.

---

## Installing in GUI mode

### ❖ To install DirectConnect

- 1 Verify that the drive on which you install the products has enough free disk space for the products being installed, and at least 10MB extra disk space in your default temporary directory for the installation program. The program frees this space after the installation is complete.
- 2 Insert the Enterprise Connect Data Access (ECDA) CD-ROM into the CD-ROM drive. If auto-mount is not available on your machine, follow local procedures for mounting the CD-ROM.

Enter the following, depending on the platform:

- For AIX:

```
./setupAIX
```

- For HP11:

```
./setupHP11
```

- For Solaris:

```
./setupSolaris
```

- For Linux:

```
./setupLinux
```

You might see the following error message:

```
Error writing file = There may not be enough
temporary disk space. Try using -is:tempdir to use a
temporary directory on a partition with more disk
space.
```

If so, set the temporary directory to another directory that has more disk space by entering the following at the command line:

```
./setup<platform> -is:tempdir <directory_name>
```

where *directory\_name* is the name of the temporary directory to which the installation program will write its temporary files.

- 3 The Welcome window appears. Click Next to proceed with the installation.
- 4 Read the License and Copyright Agreement. Using the drop-down list at the top of the window, select the geographic location where you are installing to display the agreement appropriate to your region. Select “I agree” and click Next.

You must agree to the license and copyright agreement before you can continue.

---

**Note** In certain cases when DirectConnect is installed with other Sybase products, you may see warnings about overwriting newer versions of files. In these cases, simply instruct the installer to overwrite these files and proceed with the installation.

---

- 5 In the installation directory window, click Next to accept the default directory for the installation, or enter a different directory where you want to install DirectConnect. One of the following occurs:

- If the installation directory you chose does not exist, InstallShield prompts:

```
The directory does not exist. Do you want to
create it?
```

Click Yes.

- If the installation directory exists, the software prompts:

```
You have chosen to install into an existing
directory. Any older versions of the products you
choose to install that are detected in this
directory will be replaced.
```

If you are prompted to overwrite any files, select *Yes only* if the version of the new file is later than the one it is attempting to overwrite.

- 6 Select one of the two types of installation:

---

**Note** Sybase recommends that you use the Custom install and select ECDA for Oracle from the options list.

---

- Full, which installs all DirectConnect products and components from the CD. The components that will be installed, and the total disk space required is displayed prior to installation.
- Custom, which allows you to select the product and components for DirectConnect to install. Select the ECDA Option for Oracle.

Click next.

- 7 When you select Custom install, the next window displays all the ECDA options “unchecked” and all the components “checked” or selected. You must select the ECDA Option for Oracle and “uncheck” or deselect the components that you do not want installed.

---

**Note** Be aware that if you deselect a component that is required, it is automatically installed if it is needed to run other selected components.

---

After you have selected (unchecked) the desired components, click Next.

- 8 Before proceeding to the next window, InstallShield verifies the selections, and checks for dependencies and available disk space. The Product Summary window displays every component that is to be installed and the total disk space required for all the selected components.

---

**Note** If the target directory does not have enough free space, the space-required and the space-available information is displayed. If you click Next without sufficient hard disk space, an error occurs that stops the installation.

---

- 9 Verify that you have selected the correct type of installation, and that you have enough disk space to complete the process. Click Next to continue the installation.
- 10 The installation program unloads all the components from the CD and displays a progress indicator. When the installation is complete, a message appears indicating that the InstallShield wizard has completed installing your product. Click Next.
- 11 Do one of the following:
  - If you choose to configure the Enterprise Connect Data Access Options listed, select the servers you want to configure and click Next. Proceed to step 13.
  - If you do not choose to configure the servers, deselect all servers, click Next, and proceed to step 14.

---

**Note** If you are not configuring at this time, you can use DCOConfig after the completion of the installation.

---

- 12 Enter the following options in the configuration window:
  - Servername – the name of the server in the *interfaces* file.

- Port number – an unused port number that the server will use.
  - DCO Admin Account name – the name of a valid Oracle account that will be used to administer the DirectConnect for Oracle. It is usually the *SYSTEM* account.
  - Oracle Password for DCO Admin Acct – the password for the account named previously to administer the DirectConnect for Oracle server. The password is not written into any configuration file, but it will appear in the *log.txt* file if the installer was invoked with the *-is:debug* argument.
  - Confirm Oracle Password for the DCO Admin Acct – a confirmation of the password for the account named previously to administer the DirectConnect for Oracle server. The password is not written into any configuration file, but it will appear in the *log.txt* file if the installer was invoked with the *-is:debug* argument.
  - ORACLE Connect String – the name of the entry for the Oracle instance in the *tnsnames.ora* file.
  - Enter location (including file name) of the existing *tnsnames.ora* file – usually located in the *network/admin* directory under the *ORACLE\_HOME* directory. The *tnsnames.ora* identified must be accessible to this machine. If the file is not available locally, then it must be copied onto a local drive before configuring DirectConnect for Oracle. DirectConnect for Oracle copies the existing *tnsnames.ora* file into its directory.
  - Click Next.
- 13 A window displays a message indicating DirectConnect for Oracle configuration and start up was successful. Click Next.

If unsuccessful, one or more of the following needs to be verified and entered correctly, after the install and configuration process:

- DCO Admin Account Name is not an Oracle user.
- Oracle password for DCO Admin Account is not valid.
- Oracle connection string is incorrect.
- Oracle connection string is not in the *tnsnames.ora* file or is invalid.
- DCO did not start. Check *\$\$SYBASE/log.txt* for possible error messages.

- 14 A window displays a message indicating that the installation was successful and advising you to check for software updates. You are also advised to enter Software Asset Management Certificates by running the following script:

```
$SYBASE/$SYSAM-1_0/bin/lmgr
```

Click Finish.

## Installing in console mode

If you want to run the installer without the graphical user interface (GUI), you can launch InstallShield in console mode. In cases where InstallShield launches automatically, click Cancel to cancel the GUI installation and then launch the setup program from a terminal or console.

### ❖ To install in console mode

The steps for installing components in console mode are the same as those described in “Installing in GUI mode” on page 63, except that you execute the InstallShield program from the command line as follows:

- 1 Enter the following at the command line depending on the platforms:

- For AIX:

```
./setupAIX -console
```

- For HP11:

```
./setupHP11 -console
```

- For Solaris:

```
./setupSolaris -console
```

- For Linux:

```
./setupLinux -console
```

---

**Note** The setup command will be identified as setup<platform> for the remaining entries in this chapter. Enter the appropriate platform identifier in place of the <platform> entry.

---

The installation program starts and displays the Welcome window.

- 2 The flow of the installation is identical to a regular GUI installation, except that the display is written to a terminal window, and responses are entered using the keyboard. Follow the remaining prompts to install DirectConnect for Oracle.

## Installing using a response file

A silent installation (sometimes referred to as an unattended install) is done by running InstallShield and providing a response file that contains answers to all of InstallShield's questions.

### Creating a response file

There are two methods of generating a response file for InstallShield:

- *Record* mode: In this mode, InstallShield performs an installation of the product, and records all of your responses and selections in the specified response file. You must complete the installation to generate a response file. To create a response file, enter:

```
./setup<platform> -options-record  
<responseFileName>
```

---

**Note** Do not leave a space between *-options* and *-record*.

---

where *responseFileName* is a name you choose for the response file.

The following are the results:

- An installation of DirectConnect on your computer
- A response file containing all of your responses from the installation



If this response file is used for a silent installation, the resulting installation is identical to the one from which the response file was created: the same installation location, same feature selection, and all the same remaining information. The response file is a text file that you can edit to change any responses before you use it in any subsequent installations.

---

**Note** Do not put the response file in your target installation directory.

---

- *Template* mode: In this mode, InstallShield creates a response file containing commented-out values for all required responses and selections. However, you do not need to install the product, and you can cancel the installation after the response file has been created. To create this template file, enter:

```
./setup<platform> -console -options-template
<responseFileName>
```

where *responseFileName* is the absolute file name you choose for the response file, for example:

```
/sybase/DC/OptionsTemplate.txt
```

If run in console mode, as shown in the previous example, InstallShield provides a message indicating that the template creation was successful. If run in GUI mode, no message is provided. However, you can click Cancel immediately and a response file is created.

If you use this response file for a silent installation, the default values for all responses are used. Edit the template with the values you want to use during installation.

**Interactive installation using a response file** An interactive installation using a response file allows you to accept the default values obtained from the response file that you have set up or to change any of those values for the specific installation. This is useful when you want multiple similar installations but with some minor differences that you want to change at installation time.

At the command line, execute the following command:

```
./setup<platform> -console -options <responseFileName>
-W SybaseLicense.agreeToLicense=true
```

**Installing in silent mode** A silent mode installation, sometimes referred to

as an unattended installation, allows you to install the product with all responses being taken from the response file that you have set up. There is no user interaction. This is useful when you want multiple identical installations or when you want to automate the installation process.

At the command line, execute the following command:

```
./setup<platform> -console -options responseFileName  
-W SybaseLicense.agreeToLicense=true
```

where *responseFileName* is the name of the file containing the installation options you chose. The *-W* option specifies that you agree with the Sybase License Agreement text.

Except for the absence of the GUI screens, all actions of InstallShield are the same, and the result of an installation in silent mode is exactly the same as one done in GUI mode with the same responses.

## Configuring DirectConnect for Oracle

If DirectConnect for Oracle was not configured at installation time, you can use the *DCOConfig* script to configure and start the server. The *DCOConfig* script can be found at *\$\$SYBASE/DCO-12\_6/install/DCOConfig*. Before starting the configuration, you should have the following available:

- A copy of the existing *tnsnames.ora* file currently being used to connect to Oracle, which you will copy to a temporary file location
- The Oracle connect string
- The name for a valid Oracle account, which will be the administrator for DirectConnect for Oracle
- The number of an unused port to be used by DirectConnect for Oracle

❖ **To invoke the configuration utility**

- 1 Change directories to *\$\$SYBASE/DCO-12\_6/install*.
- 2 Execute *DCOConfig*.
- 3 Enter the server name for DirectConnect for Oracle.
- 4 Enter an unused port on the machine that DirectConnect for Oracle will be listening on.
- 5 Enter a valid DirectConnect for Oracle Administrator Name.

- 6 Enter the Oracle connection string as previously defined in the *tnsnames.ora* file.
- 7 Enter the path (including the file name) to the previously defined temporary location of the *tnsnames.ora* file.
- 8 DirectConnect for Oracle is now started in a separate window.

---

**Note** In the window where the DirectConnect for Oracle is started, the following informational message appears. It appears when the DirectConnect for Oracle is started from DCOConfig and can be ignored.

```
Option [traceflags] not found in configuration file
'<path to configuration file>'. Generating new
configuration file.
```

---

## After installation

To reconfigure DirectConnect for Oracle or make changes at a later time, refer to the DirectConnect for Oracle *User's Guide*. To use DirectConnect Manager to configure or start and stop a service, refer to Chapter 7, "Installing DirectConnect Manager."

## Uninstalling DirectConnect for Oracle

To uninstall a DirectConnect installation, use the InstallShield uninstall program. This removes all servers, all common files, and all required components. After the uninstall runs, you may need to delete any existing files and directories in the directory where DirectConnect was installed.

---

**Note** You may need to stop the SySAM service first; otherwise, you will not be able to delete certain files and directories. Also, before uninstalling Sybase software, shut down all Sybase applications and processes.

---

You can invoke the uninstall procedure using either the GUI or the console method. Sybase recommends that you use the GUI method.

Log in to your machine using an account with “administrator” privileges, then shut down all other processes for the components you are uninstalling.

### ❖ To uninstall in GUI mode

- 1 Proceed to the uninstall directory:
  - 1 Go to the directory where your application is installed.
  - 2 Go to the uninstall directory.
  - 3 Go to the directory for your application that you want to uninstall.
  - 4 Enter “uninstall” from the command line. The wizard appears.
- 2 The Welcome window appears.
- 3 Click Next, to display the list of selected products and components that were installed.
- 4 All the products and components that were installed are displayed and already checked to allow you to remove the total installation. If you do not want to remove a product or component, deselect or “uncheck” that product or component. Click Next.
- 5 A summary of all the products and components is displayed. Click Next.
- 6 A message indicating that an uninstall is in progress. When this is completed, a message is displayed indicating a successful uninstall. Click Next to end the Uninstall.

### ❖ To uninstall in console mode

- 1 To uninstall the products in console mode, execute the following at the command line:

```
$SYBASE/uninstall/uninstall -console
```

The uninstall program starts.

- 2 Choose the DirectConnect software product you want to uninstall.  
The DirectConnect software product you chose is uninstalled.

# Installing DirectConnect Manager

This chapter describes how to install and use DirectConnect Manager to create a server and service, and how to start a server and service.

This chapter contains the following topics:

| Topic                            | Page |
|----------------------------------|------|
| Installing DirectConnect Manager | 73   |
| Using DirectConnect Manager      | 75   |

## Installing DirectConnect Manager

This section describes the DirectConnect Manager installation requirements and the installation process.

### Installation requirements

To install DirectConnect Manager, you must have, at a minimum, the system requirements in the following table.

**Table 7-1: DirectConnect Manager requirements for UNIX and Linux platforms**

| Item                  | HP 9000(8xx)                               | RS/6000 AIX             | Sun Solaris                  | Linux                      |
|-----------------------|--|-------------------------|------------------------------|----------------------------|
| CPU                   | An HP 9000/800                             | An IBM RISC System/6000 | A Sun Solaris (SPARC) system | Linux Red Hat 2.1          |
| RAM                   | Minimum of 64MB                            | Minimum of 64MB         | Minimum of 64MB              | Minimum of 64MB            |
| Storage               | Minimum of 300MB,                          | Minimum of 300MB        | Minimum of 300MB             | Minimum of 300MB           |
| Platform requirements | HP 9000/800 and 900 HP-UX 11.11, and 11.23 | AIX 5.2, and 5.3        | Sun Solaris 2.8, and 2.9     | Linux Red Hat 2.1, and 3.0 |

## Installing DirectConnect Manager

The following describes how to install DirectConnect Manager using InstallShield. (DirectConnect Manager is on the PC client CD.)

### ❖ To install DirectConnect Manager

- 1 Insert the PC client CD into the CD drive.
- 2 Go to the DirectConnect Manager directory.
- 3 Execute the following, depending on the platform:
  - For AIX:  

```
setupaix.bin
```
  - For Solaris:  

```
setupsolarisSparc.bin
```
  - For HP-UX:  

```
setuphp11x.bin
```
  - For Linux:  

```
setuplinux.bin
```
- 4 The Welcome window appears. Click Next to proceed with the installation.
- 5 Read the License and Copyright Agreement. Using the drop-down list at the top of the window, select the geographic location where you are installing to display the agreement appropriate to your region. Select “I agree” and click Next.
- 6 On the Choose Directory dialog box, enter the directory path for the installation, and click Next.  
  
You must agree to the license and copyright agreement before you can continue.
- 7 Select one of the two types of installation:
  - Install a new version of Sybase Central and render the other install invalid. Click Next.

This type of installation will install DirectConnect Manager as well as all the other necessary components and create a new set of icons and Registry entries.

---

**Note** This option will make your current Sybase Central installation invalid.

---

- Register with existing Sybase Central. Click Next.

This type of installation will install the DirectConnect Manager plug-in and register it with the existing Sybase Central Application.

- 8 A Summary window appears and lists all the features that you are going to install. Click Next.
- 9 The installation process begins and a Setup window appears.  
  
The Setup window shows the percentage (%) of installation that is complete, and monitors the decompressing and installing of the DirectConnect Manager files. The installation will register the plug-in with Sybase Central.
- 10 When installation is completed, a DirectConnect Manager *README* file appears. After reading the file, click Finish to clear the window.

## Using DirectConnect Manager

Before you can use DirectConnect Manager to start a server, or create and start an access service, you must identify and establish a connection between the server and DirectConnect Manager.

## Configuring servers and access services

After you create a DirectConnect server or a DCDirector, you can configure the server through DirectConnect Manager. For a description of all the properties, refer to the following:

- For the DirectConnect server, refer to the Enterprise Connect Data Access and Mainframe Connect *Server Administration Guide* for DirectConnect.
- For the DirectConnect access service, refer to the Mainframe Connect DirectConnect Option *User's Guide for DB2 Access Services*.

## Creating a new DirectConnect access service

For instructions on how to use DirectConnect Manager to create a service, go to the DirectConnect Manager online Help and select Managing Access Services | Creating a New Service or Copying a Service.

---

**Note** If you use service name redirection, the connectivity parameters must match the connectivity parameters or the default, and the access service name must map through the redirection file to the DirectConnect server.

---

For more information about service name redirection, see Enterprise Connect Data Access Mainframe Connect *System Administration Guide* for DirectConnect.

## Starting a DirectConnect access service

The only way you can start the new access service without stopping and restarting DirectConnect is by using DirectConnect Manager. For instructions on how to use DirectConnect Manager to start a service, go to the DirectConnect Manager online Help and select Managing Access Services | Starting a Service.

## Stopping a DirectConnect access service

For instructions on how to use DirectConnect Manager to stop a service, go to the DirectConnect Manager online Help and select Managing Access Services | Stopping a Service.

## Configuring servers and access services

After you create a DirectConnect server or an access service, you can use DirectConnect Manager to configure them:

- To identify the configuration properties and to configure the DirectConnect server, refer to the Enterprise Connect Data Access Mainframe Connect *System Administration Guide* for DirectConnect.



- To identify the access service properties and to configure a service, refer to the Mainframe Connect DirectConnect z/OS Option *User's Guide for DB2 Access Services*.

## Uninstalling DirectConnect Manager

To uninstall DirectConnect Manager, use the InstallShield uninstall feature.

---

**Warning!** Some files will not be uninstalled during this process. Please review and delete manually.

---

### ❖ To uninstall

- 1 Go to the *<DCManager installation directory>*
- 2 Enter the following:

```
uninstall_DCM.bin
```



After you install DirectConnect, you must configure the client connectivity to DirectConnect.

---

**Note** Be sure that both the DirectConnect server and the access services are running.

---

This chapter contains the following topics:

| Topic  | Page |
|--|------|
| Configuring client connectivity to DirectConnect | 79   |

## Configuring client connectivity to DirectConnect

---

**Note** If you verified the DirectConnect access service in the previous section using `isql`, you have already created an entry in the *interfaces* file on that machine.

---

The following procedure ensures that the client environment is properly connected to the LAN and to the DirectConnect server.

❖ **To add, edit or delete entries in the *interfaces* and *libtcl.cfg* files on client machines**

- 1 In `dsedit`, verify that the service name and port number match the entry for the DirectConnect access service. To add a DirectConnect server use the `AddServer` utility.

---

**Note** Be sure to use the DirectConnect access *service* name, not the DirectConnect server name.

---

If you use service name redirection, refer to the ECDA and Mainframe Connect *Server Administration Guide* for DirectConnect.

- 2 Configure the *libtcl.cfg* configuration file that contains information for each installed Net-Library driver.

Use `dsedit` to view a list of the drivers installed on your machine. You can view a description of any driver by selecting it from the list.

Client applications use the information in this file, along with information in the *interfaces* file, to connect to a DirectConnect server using the correct file.

# Setting Up the DirectConnect TDS Driver

This chapter contains the following topics:

| Topic                         | Page |
|-------------------------------|------|
| Description                   | 81   |
| Configuring the data source   | 82   |
| Connecting to the data source | 87   |
| ODBC conformance level        | 88   |

---

**Note** This chapter does not apply to DirectConnect for Oracle.

---

## Description

The client DirectConnect ODBC driver allows applications to access ODBC data using SQL. You can use it to develop, compile, and ship an application without targeting a specific type of data source. ODBC clients must use this “front-end” driver to connect with DirectConnect access services.

---

**Note** Do not confuse this driver with the *target* ODBC driver that sets up connections between DirectConnect and the target data source.

---

This ODBC driver enables ODBC-based applications to access DirectConnect services.

## Configuring the data source

Sybase assumes that you already have the latest MDAC version installed on your system. For issues regarding MDAC and to get the latest version, see the Microsoft Web site at <http://www.microsoft.com/data/download.htm>.

### ❖ To configure a DirectConnect ODBC data source

- 1 Start the ODBC Administrator by selecting the ODBC icon from the Windows control panel.
- 2 Do one of the following:
  - If you are configuring an existing data source, select the data source name and click OK.
  - If you are configuring a new data source, choose Add to view the list of installed drivers, then select DirectConnect and click OK.
- 3 Specify values for the data source using the information in the following table.

**Table 9-1: Required data source configuration properties**

| Property        | Description  |
|-----------------|--|
| DataSourceName  | A string that identifies this DirectConnect data source.   |
| Description     | An optional long description of a data source name, for example, "My Accounting Database."   |
| ServerName      | The name of the server containing the DirectConnect tables that you want to access.  |
| Network address | The machine name (or IP address) and port number of the DirectConnect service to which this data source name will connect, for example, <i>&lt;host name&gt;,&lt;port number&gt;</i> |
| Service name    | Name of the DirectConnect access service that is listening on the network address, to which this data source name will connect.  |

- 4 Specify values for any optional properties that you require. The properties are listed in the following table.

**Table 9-2: Optional data source configuration properties**

| Property              | Description  |
|-----------------------|--|
| ServerList            | The list of servers that appear in the logon dialog box. Use commas to separate the server names.  |
| DatabaseName          | The name of the database to which you want to connect by default. If you do not specify a value, the default is the default database defined for each user.  |
| DatabaseList          | The databases that appear in the logon dialog box. Use commas to separate the database names.  |
| DefaultLogonID        | The default logon ID used to connect to your database. This ID is case sensitive. A logon ID is required only if security is enabled for the database to which you are connecting. Your ODBC application can override this value, or you can override this value in the logon dialog box or in the connection string.  |
| InterfacesFile        | The path name of the interfaces file. The default is the Sybase <i>sql.ini</i> file.   |
| Initialization String | A string of SQL Server commands that execute when the data source connection initializes. Use semicolons to separate multiple commands.  |
| ModifySQL Statement   | An instruction to the driver to convert a single- or two-part table name to a three-part format for create table SQL statements. Valid values are: <ul style="list-style-type: none"> <li>• 0 instructs the driver to treat all SQL statements as being in passthrough transformation mode and to not modify them.</li> <li>• 1 instructs the driver to modify the SQL statements, and to convert table names to three-part format and change NULL and NOT NULL statements.</li> </ul> |
| Password Encryption   | A number that determines whether password encryption can be performed from the Open Client Library to the server. Valid values are: <ul style="list-style-type: none"> <li>• 0 prevents encryption from being performed.</li> <li>• 1 allows encryption to be performed.</li> </ul>  |
| Charset               | The name of a character set corresponding to a <i>charsets</i> subdirectory. The default is the setting on the DirectConnect server.   |
| WorkstationID         | The workstation ID used by the client.   |
| Language              | The national language corresponding to a locales subdirectory. The default is U.S. English.  |

| Property        | Description  |
|-----------------|--|
| ApplicationName | The name used by the DirectConnect server to identify your application.  |
| YieldProc       | <p>A numeric value that determines whether you can work in other applications when the DirectConnect server is busy. Valid values are:</p> <ul style="list-style-type: none"><li>• 0 (peek and dispatch) causes the driver to check the Microsoft Windows message queue and send any messages to the appropriate application.</li><li>• 1 (no yielding; the default) prevents you from working in other applications.</li><li>• 3 (dispatch through Windows Yield function) gives control to the Windows kernel, which checks the message queue and sends messages to the appropriate applications.</li></ul> <p>Sybase recommends that you use value 1.</p> |
| OptimizePrepare | <p>A value that determines whether stored procedures are created on the Server for every call to SQLPrepare. Valid values are:</p> <ul style="list-style-type: none"><li>• 0 causes stored procedures to be created for every call to SQLPrepare. This setting can decrease performance.</li><li>• 1 causes the driver to create stored procedures only if the statement contains parameters. Otherwise, the statement is cached and executed directly at SQLExecute time. This is the initial default value.</li><li>• 2 prevents the driver from creating stored procedures.</li></ul>   |
| ArraySize       | The number of rows the driver retrieves from the server for each fetch. This is not the number of rows given to the user. The default is 10 rows.  |



| <b>Property</b>   | <b>Description</b>  |
|-------------------|---|
| SelectMethod      | <p>A value that determines whether database cursors are used for select statements. Valid values are:</p> <ul style="list-style-type: none"><li>• 0 allows database cursors to be used. This is the initial default. In some cases, performance degradation can occur when large numbers of sequential select statements execute because of the large amount of overhead associated with creating the cursors.</li><li>• 1 allows select statements to execute directly without database cursors. The data source is limited to one active statement and one active connection.</li></ul> |
| ReuseFailedCursor | <p>A value that determines whether the server attempts to reuse a cursor that contains an error. Valid values are:</p> <ul style="list-style-type: none"><li>• 0 causes the server to deallocate a cursor that contains an error and force the application to start over.</li><li>• 1 causes the server to attempt to reuse a cursor containing an error. This is the default value.</li></ul>  |

| Property   | Description   |
|------------|---|
| PacketSize | <p>A number that determines the number of bytes per network packet transferred from the database server to the client. The correct setting of this attribute can improve performance. Valid values are:</p> <ul style="list-style-type: none"> <li>• 0 directs the driver to use the default packet size as specified in the DirectConnect server configuration. This is the initial default configuration.</li> <li>• -1 directs the driver to compute the maximum allowable packet size on the first connect to the data source and save the value in the <i>odbc.ini</i> file.</li> <li>• <i>x</i> (an integer from 1 to 10) directs the driver to set the packet size to <i>x</i> times 512 bytes. For example, a value of 6 sets the packet size at six times 512, or 3072 bytes.</li> </ul> <p>To use this connection attribute, you must configure the DirectConnect server for a maximum network packet size greater than or equal to the value of this property.</p> <p>The ODBC specification specifies a connect option <code>sql_packet_size</code> that offers this same functionality. To avoid conflicts with applications that can set both the connection string attribute and the ODBC connect option, both functions are defined as mutually exclusive.</p> <p>If <code>PacketSize</code> is specified, you receive the message “Driver Not Capable” when you attempt to call <code>sql_packet_size</code>. If you do not set <code>PacketSize</code>, the driver accepts application calls to <code>sql_packet_size</code>.</p> |
| Translate  | <p>An instruction that displays the Select Translator dialog box, from which you can perform a data translation from one character set to another.</p> <p>Choose the INTERSOLV OEM ANSI translator to translate data from the IBM PC character set to the ANSI character set.</p>   |

- 5 Choose OK to write these values to the ODBC data source configuration. The values are now the default values when you connect to this data source.
- 6 To change the values, do one of the following:
  - Change the defaults by reconfiguring the data source

- Override the defaults by connecting to the data source using a connection string with alternate values

## Connecting to the data source

You can use either of two methods to connect to the data source: a logon dialog box or a connection string.

### Using a logon dialog box

Some ODBC applications display a logon dialog box when you attempt to connect to a data source. In such cases, the data source name already is specified.

To use the logon dialog box, enter the information shown in the following table.

**Table 9-3: Logon dialog box information**

| Entry       | Instructions  |
|-------------|---|
| Server Name | Enter the case-sensitive name of the server containing the DirectConnect database tables you want to access, or select the name from the Server Name drop-down list, which displays the name you specified when you configured the data source. |
| Login ID    | If required, enter your login ID (case sensitive).  |
| Password    | If required, enter your system password (case sensitive).   |
| Database    | Enter the name of the database you want to access (case sensitive), or select the name from the Database drop-down list, which displays the name you specified when you configured the data source.   |

### Using a connection string

If your application requires a connection string to connect to a data source, you must specify the data source name that tells the ODBC driver the ODBC data source section to use for the default connection information. Optionally, you can specify attribute=value pairs in the connection string to override the ODBC data source default values. The override values are not written to the ODBC data source file.

You can specify either long or short names in the connection string. The connection string has the following form:

```
DSN=data_source_name{;attribute=value [;attribute=value];...}
```

An example of a DirectConnect connection string is as follows:

```
DSN=SYBDC TABLES; SRVR=QESRVR;DB=PAYROLL;UID=JOHN;PWD=XYZZY
```

Long and short names for each attribute are shown in the following table.

**Table 9-4: Connection string long and short names**

| Attribute long name  | Short name |
|----------------------|------------|
| DataSourceName       | DSN        |
| ServerName           | SRVR       |
| LoginID              | UID        |
| Password             | PWD        |
| Database             | DB         |
| Language             | LANG       |
| Charset              | CS         |
| HostName             | HOST       |
| ApplicationName      | APP        |
| InterfacesFile       | IFILE      |
| ArraySize            | AS         |
| YieldProc            | YLD        |
| InitializationString | IS         |
| ModifySQLStatement   | MSS        |

## ODBC conformance level

The DirectConnect ODBC driver supports the minimum SQL grammar and the Level 2 API function conformance. (See the following lists.)

### Core functions

- SQLAllocHandle
- SQLBindCol
- SQLBindParameter
- SQLCancel
- SQLCloseCursor

- SQLColumnPrivileges
- SQLColAttribute
- SQLColumns
- SQLConnect
- SQLCopyDesc
- SQLDataSources
- SQLDescribeCol
- SQLDisconnect
- SQLDriverConnect
- SQLDrivers
- SQLEndTran
- SQLExecDirect
- SQLExecute
- SQLFetch
- SQLFetchScroll
- SQLFreeHandle
- SQLFreeStmt
- SQLGetConnectAttr
- SQLGetCursorName
- SQLGetData
- SQLGetDescField
- SQLGetDescRec
- SQLGetDiagField
- SQLGetDiagRec
- SQLGetEnvAttr
- SQLGetFunctions
- SQLGetInfo
- SQLGetStmtAttr

- SQLGetTypeInfo
- SQLNativeSql
- SQLNumParams
- SQLNumResultsCols
- SQLParamData
- SQLPrepare
- SQLPutData
- SQLRowCount
- SQLSetConnectAttr
- SQLSetCursorName
- SQLSetDescField
- SQLSetDescRec
- SQLSetEnvAttr
- SQLSetStmtAttr
- SQLSpecialColumns
- SQLStatistics
- SQLTables
- Level 1 Functions
  - SQLBrowseConnect
  - SQLBulkOperations
  - SQLMoreResults
  - SQLPrimaryKeys
  - SQLProcedureColumns
  - SQLProcedures
  - SQLSetPos
- Level 2 functions
  - SQLColumnPrivileges
  - SQLDescribeParam
  - SQLForeignKeys
  - SQLTablePrivileges

# Troubleshooting

This chapter tells you how to identify and resolve problems that occur when you install a DirectConnect product. Also, it describes several diagnostic tools that you can use.

This chapter covers the following topics:

| Topic  | Page |
|--|------|
| General problems                                     | 91   |
| ODBC-specific problems                               | 92   |
| DirectConnect problems                               | 94   |
| Using ivtestlib tool for UNIX configuration problems | 97   |

If you try the suggested methods described in this chapter and still have problems, notify your company's contact person for Sybase. Each Sybase installation that has purchased a support contract has one or more designated people who are authorized to contact Sybase Technical Support or the Sybase subsidiary in your area.

## General problems

In general, there are several sources from which error messages can be generated, including:

- DirectConnect
- Open Client and Open Server
- The network
- The target database
- ODBC drivers

For error information about DirectConnect, Open Client and Open Server, and messages related to your target, see the DirectConnect *Error Message Guide*.

For problems that are connectivity-related, see the documentation for your network protocol or “Connectivity problems” on page 96 in this chapter.

For problems related to ODBC drivers, see the following section.

## ODBC-specific problems

This section describes the following types of problems:

- ODBC driver errors
- ODBC data source errors
- ODBC driver manager errors

### ODBC driver errors

An error reported on an ODBC driver has the following format:

*[vendor] [ODBC\_component] message*

where:

- *vendor* is the name of the ODBC vendor.
- *ODBC\_component* is the component in which the error occurred.
- *message* is the content of the error message.

For example, an error message from the DataDirect SQL Server driver looks like this:

```
[DataDirect] [ODBC SQL Server driver] Invalid  
precision specified.
```

If you receive this type of error, check the last ODBC call made by your application for possible problems, or contact your ODBC application vendor.

### ODBC data source errors

This type of error occurs in the data source and includes the data store name, as shown in the following format:



```
[vendor] [ODBC_component] [data_store] message
```

where:

- *vendor* is the name of the ODBC vendor.
- *ODBC\_component* is the component that received the message from the data store indicated.
- *data\_store* is the name of the location in the data source where the error occurred.
- *message* is the content of the error message.

For example, you might receive the following message from an Oracle data store:

```
[DataDirect] [ODBC Oracle driver] [Oracle] ORA-0919:  
specified length too long for CHAR column.
```

If you receive this type of error, something is incorrect regarding the database system. Check your database system documentation for more information, or consult your database administrator. In this example, you need to check your Oracle documentation.

## ODBC driver manager errors

The driver manager is a DLL that establishes connections with drivers, submits requests to drivers, and returns results to applications. An error that occurs in the driver manager has the following format:

```
[vendor] [ODBC XXX] message
```

where:

- *vendor* is the name of the ODBC vendor.
- *ODBC XXX* is the driver manager and its version number.
- *message* is the content of the error message.

For example, an error from the Microsoft driver manager might look like this:

```
[Microsoft] [ODBC Driver Manager] Driver does not  
support this function.
```

If you receive this type of error, consult the *Programmer's Reference* for the Microsoft ODBC Software Development Kit, available from Microsoft.

## DirectConnect problems

If your system does not work properly after you install DirectConnect, and if you already performed the connection steps in Chapter 4, “Getting Ready to Install,” try the following:

- Confirm the release number of Open Server software. DirectConnect is compatible with the Open Server release and Adaptive Server release identified in the release bulletin.
- Check the log and trace files in the *log* file of the *ServerName* for more information. Following is an example of an error message that can occur:

```
Error: 16029 Severity: 20 State: 0 OS Error: -1:  
Failed to start any network listeners OS Error Text:  
<srv-lib>
```

One of the following causes is possible:

- One of the specified port numbers is in use. Change the port number to one that is not in use and try again.
- The wrong machine name or IP address was specified. Enter the machine name or the IP address running the DirectConnect server.

Refer to the DirectConnect *Error Message Guide* for errors that occur.

If the server fails before the log files initialize, error messages can be written to either the console or the Windows event log. If this occurs, see the DirectConnect *Server Administration Guide* for explanations of these “pre-log” messages.

## DirectConnect server fails to start after installation

If the DirectConnect server fails to start after installation and the SNA library files are listed in error in the DirectConnect log, one of the following messages appears, depending on the platform.

Messages for Sun Solaris

```
LoadLibrary failed : ../dc12621ss/  
DC-12_6/svclib/db2.so : ld.so.1: direct: fatal:  
libappc.so: open failed: No such file or directory  
  
LoadLibrary failed : ../dc12621ss/  
DC-12_6/svclib/db2.so : ld.so.1: direct: fatal:  
libcsv.so: open failed: No such file or directory
```

```

LoadLibrary failed : ../dc12621ss/
DC-12_6/svclib/db2.so : ld.so.1: direct: fatal:
libmgr.so: open failed: No such file or directory

LoadLibrary failed : ../dc12621ss/
DC-12_6/svclib/db2.so : ld.so.1: direct: fatal:
libsna_r.so: open failed: No such file or directory

Messages for HP-UX
usr/lib/dld.sl: Can't find path for shared library:
libmgr.sl

/usr/lib/dld.sl: Can't find path for shared library:
libappc.1

/usr/lib/dld.sl: Can't find path for shared library:
libcsv.1

Messages for RISC/6000
AIX
LoadLibrary failed : ../dc12621aix/
DC-12_6/svclib/db2.so : No such file or directory

Could not load service library: ../dc12621aix/
DC-12_6/svclib/db2.so

LoadLibrary failed : ../dc12621aix/
DC-12_6/svclib/trslu62.so : No such file or
directory

Could not load service library: ../dc12621aix/
DC-12_6/svclib/trslu62.so

```

## Error conditions and fixes

Error condition #1           SNA software does not exist on the UNIX machine, and during installation the response to the question about SNA software existing on the machine was "yes."

Fix for error #1

### ❖ To correct error condition #1

1 Go to the following directory:

```
cd $SYBASE/$SYBASE_ECON/bin
```

2 Execute the following script:

```
DConfig
```

3 Respond **NO** to the following question,

```
Is SNA installed on your system.
```

This creates the softlinks to the *SNA stub* libraries as a substitute for the actual libraries.

Error #2

SNA software does exist on the UNIX machine. The LD\_LIBRARY\_PATH (for Sun Solaris and HP-UX) or LIBPATH (for RISC/6000 AIX) environment variable is missing in the directory where the *SNA* libraries reside.

Fix for error #2

To fix error #2, change your LD\_LIBRARY\_PATH or LIBPATH to include the */opt/sna/...* (for Sun Solaris and HP-UX), or */usr/lib/sna/...* (for AIX) directory, or the custom directory where your SNA software is installed on your UNIX machine. The SNA libraries are now in the DirectConnect library path.

## Connectivity problems

This section describes some tools you can use to diagnose connectivity problems.

### Using the odbct tool for ODBC problems

To help you diagnose ODBC connectivity problems, the odbct tool verifies that your system configuration is by attempting to make a simple connection to the target.

---

**Note** Be sure to run the odbct tool in the same environment in which you plan to use DirectConnect for Microsoft SQL Server, DRDA, or Informix targets by executing the DC\_SYBASE.csh.

---

The odbct tool has three parameters: a data source name (DSN), user ID, and password. The following example shows a connection to the *dcmssql* DSN using the user ID "joe" and password "joe21".

```
odbct <DSN> <USERID> <PASSWORD>
odbct dcmssql joe joe21
> Would you also like the output saved to a file?
(Y/N) : y
      Attempting Connection
-----
---
```

```
> Allocating Environment
> Allocating Connection
> Attempting Connection
      DSN      : dcmssql
      USER    : joe
      PASSWORD: joe21

> CONNECTION SUCCEEDED
> Allocating Statement
> Connection succeeded, would you like to proceed
with
      datasource and datatype reporting? (Y/N): n

                        Connection Cleanup
-----
---
> Free Statement
> Attempting Disconnection
      + Disconnection succeeded
> Free Connection
> Free Environment
belford [ 23 ]
```

## Using `ivtestlib` tool for UNIX configuration problems

This section describes the `ivtestlib` tool, which you can use to find and diagnose configuration problems in the UNIX environment. This command attempts to load a specific ODBC driver and prints out all error information if the load fails.

For example, if a driver is installed on HP-UX in `/$SYBASE/DC-12_6/lib`, the following command attempts to load the driver:

```
ivtestlib /$SYBASE/$SYBASE_ECON/lib/MV<driver library>20.sl
```

If the driver cannot be loaded, ivtestlib returns an error message with an explanation.

---

**Note** Unlike HP-UX, the Solaris and AIX versions of ivtestlib do not require you to specify a full path.

---

# Installation Worksheets

This appendix provides worksheets and instructions for recording information you will need to complete installation and connectivity tasks. You are prompted for this information during installation.

This appendix contains the following topics:

| <b>Topic</b>                                     | <b>Page</b> |
|--|-------------|
| How to use the worksheets                        | 99          |
| DirectConnect for DB2 UDB worksheet              | 100         |
| DirectConnect for Informix worksheet             | 102         |
| DirectConnect for Microsoft SQL Server worksheet | 103         |
| DirectConnect for ODBC worksheet                 | 104         |
| DirectConnect for Oracle worksheet               | 105         |

## How to use the worksheets

Fill out one of these worksheets for each DirectConnect server that you plan to install. Keep it with you for each step of the installation process.

The worksheets cover:

- Information from Sybase and non-Sybase products that must be installed before and after installing DirectConnect
- Information that is requested during installation, connectivity setup, and configuration of DirectConnect access service configuration files

The worksheets present the list of parameters you will be prompted for during installation, give you a place for you to write down the parameter values to use, and provide a short description of the parameter.

## DirectConnect for DB2 UDB worksheet

Use the following worksheet to identify information that you should designate and record prior to installing DirectConnect for DB2 UDB. You are prompted for this information during installation.

Much of the DirectConnect for DB2 UDB installation process is accomplished when you configure the DRDA data sources to set up connectivity, and create and bind packages to the DRDA system. You use a text editor to define DSNs in the *odbc.ini* file.

---

**Note** Be sure to have the IP address of the machine on which you are installing DirectConnect for DB2 UDB.

---

**Table A-1: DirectConnect for DB2 UDB worksheet**

| <b>Your installation information</b> | <b>Description</b>  |
|--------------------------------------|---|
| <i>DIRECTORY NAME:</i>               | <i>DirectConnect Directory Name:</i><br>The home directory for DirectConnect for DRDA.  |
| <i>SERVER NAME:</i>                  | <i>DirectConnect Server Name:</i><br>Name of the DirectConnect Server you want to create or update.   |
| <i>DSN:</i>                          | <i>DSN:</i><br>ODBC Data Source Name (DSN) for DRDA access.   |
| <i>LOCATION NAME:</i>                | <i>Location Name:</i><br>Name defined when the local DB2 subsystem was installed on z/OS.   |
| <i>COLLECTION:</i>                   | <i>Collection:</i><br>Record the collection name, which identifies a group of packages. These packages include the DRDA driver packages. The database administrator for your site will provide this name for you. |



| Your installation information                  | Description  |
|--|--|
| <p><i>IP ADDRESS:</i><br/><i>TCP PORT:</i></p> | <p><i>TCP/IP Connectivity:</i><br/>Record the following:</p> <ul style="list-style-type: none"> <li>• <i>IP Address:</i> address of the mainframe. Record the address using the machine's numeric address (for example, 123.456.78.90) or type its address name. If you enter an address name, the driver must find this name (with the correct address assignment) in the <i>HOSTS</i> file on the workstation or in a DNS server.</li> <li>• <i>TCP Port:</i> port number assigned to the DRDA server on the machine where catalog tables reside. Record this port's numeric address or its name (8898 is the default). If you enter a port name, the driver must find this name (with the correct port assignment) in the <i>SERVICES</i> file on the workstation.</li> </ul> |
| <i>MAX. NUMBER OF CLIENTS:</i>                 | <p><i>Maximum Number of Clients:</i><br/>Maximum number of clients that the service will support.</p>  |
| <i>DYNAMIC SECTIONS:</i>                       | <p><i>Dynamic Sections:</i><br/>Determines the maximum concurrent cursors that can be opened.</p>  |
| <i>PACKAGE OWNER:</i>                          | <p><i>Package Owner:</i><br/>AuthID who will execute all SQL in the package.</p>   |

## DirectConnect for Informix worksheet

Use the following worksheet to identify information that you should designate and record prior to installing DirectConnect for Informix. You are prompted for this information during installation.

**Table A-2: DirectConnect for Informix worksheet**

| <b>Your installation information</b>           | <b>Description</b>  |
|--|---|
| <i>DIRECTORY NAMES:</i><br>DC-12_6<br>OCS-12_5 | <i>DirectConnect Home Directory Name:</i><br>Record the \$SYBASE_ECON and \$SYBASE_OCS home directory for DirectConnect for MSS (sets to DC-12_6 and OCS-12_5). |
| <i>DSN:</i>                                    | <i>DSN:</i><br>Name that defines this Informix data source configuration in the system information, such as "INFXSRV2."   |
| <i>DATABASE NAME:</i>                          | <i>Database Name:</i><br>Name of the database to which you want to connect by default.  |
| <i>HOST NAME:</i>                              | <i>Host Name:</i><br>Name of the machine on which the Informix server resides.  |
| <i>SERVER NAME:</i>                            | <i>Server Name:</i><br>Name of the DirectConnect server that you want to create or update.  |

## DirectConnect for Microsoft SQL Server worksheet

Use the following worksheet to identify information that you should designate and record prior to installing DirectConnect for Microsoft SQL Server. You are prompted for this information during installation.

**Table A-3: DirectConnect for Microsoft SQL Server worksheet**

| <b>Your installation information</b>           | <b>Description</b>  |
|--|---|
| <i>DIRECTORY NAMES:</i><br>DC-12_6<br>OCS-12_5 | <i>DirectConnect Directory Name:</i><br>Record the \$SYBASE_ECON and \$SYBASE_OCS home directory for DirectConnect for Microsoft SQL Server (sets to DC-12_6 and OCS-12_5).           |
| <i>DSN:</i>                                    | <i>DSN:</i><br>The ODBC Data Source Name for Microsoft SQL Server access.   |
| <i>DATABASE NAME:</i>                          | <i>Database Name:</i><br>Specify the name of the database to which you want to connect by default. If you do not specify a value, the default database defined by SQL Server is used. |
| <i>IP ADDRESS:</i>                             | <i>Address for Connectivity:</i><br><i>IP Address:</i> Specifies the IP address.  |
| <i>TCP PORT:</i>                               | <i>TCP Port:</i> Specifies the port number.   |

## DirectConnect for ODBC worksheet

Use the following worksheet to identify information that you should designate and record prior to installing DirectConnect for ODBC. You are prompted for this information during installation.

**Table A-4: DirectConnect for ODBC worksheet**

| <b>Your installation information</b>          | <b>Description</b>  |
|---|---|
| <i>DIRECTORY NAME:</i><br>DC-12_6<br>OCS-12_5 | <i>DirectConnect Directory Name:</i><br>Record the \$SYBASE_ECON and \$SYBASE_OCS home directory for DirectConnect for ODBC (sets to DC-12_6 and OCS-12_5).   |
| <i>DSN:</i>                                   | <i>DSN:</i><br>ODBC data source name.   |
| <i>CONNECTIVITY:</i>                          | <i>Connectivity:</i><br>Record the parameters for the connection protocol at your site. For example, if TCP/IP is the protocol, you record the IP address and port number. Check with your administrator for these parameter values |

## DirectConnect for Oracle worksheet

Use the following worksheet to identify information that you should designate and record prior to installing DirectConnect for Oracle. You are prompted for this information during installation.

**Table A-5: DirectConnect for Oracle worksheet**

| Your installation information                      | Description  |
|--|--|
| <i>SERVER NAME:</i>                                | <i>DirectConnect Server Name:</i><br>Name of the DirectConnect server in the interface file that you want to create or update.   |
| <i>PORT NUMBER:</i>                                | <i>DirectConnect Port Number:</i><br>Name of the DirectConnect port number you are using.  |
| <i>DCO ADMIN ACCOUNT NAME:</i>                     | <i>DCO Admin Account Name:</i><br>The name of a valid Oracle account that can be used to administer DirectConnect for Oracle. It is usually the system account name.   |
| <i>ORACLE PASSWORD FOR DCO ADMIN ACCT:</i>         | <i>Password for DCO account:</i><br>The Oracle password for the DCO administrative account. This password is not written into any configuration file, but appears in the <i>config.log</i> file if the configurator was invoked with the <i>-trace</i> argument. This is not be true if the configuration is done during installation. |
| <i>CONFIRM ORACLE PASSWORD FOR DCO ADMIN ACCT:</i> | <i>Confirm password for DCO account:</i><br>The same password as entered for the DCO administrative account.   |
| <i>ORACLE CONNECT STRING:</i>                      | <i>Oracle connect string:</i><br>The entry for the Oracle instance of the <i>tnsnames.ora</i> file.  |

| <b>Your installation information</b>            | <b>Description</b>   |
|---|--|
| <i>ENTER LOCATION OF<br/>TNSNAMES.ORA FILE:</i> | <i>Location of the tnsnames.ora file:</i><br>Full path (including filename) of the existing <i>tnsnames.ora</i> file – usually located in the network <i>admin</i> directory under the ORACLE_HOME directory. The <i>tnsnames.ora</i> identified must be accessible to this machine. If the file is not available, then it must be copied on to a local drive before configuring DirectConnect for Oracle. DirectConnect copies the existing <i>tnsnames.ora</i> into its directory. |

# Using DirectConnect Utilities

To simplify the execution of DirectConnect on multiple platforms, Sybase provides utilities to start a server, create and start a new server, and migrate files from one server to another.

These utilities are cshell scripts that can be found in the `$$SYBASE/$SYBASE_ECON/bin` directory, where they should be kept to run properly. It is from this directory that the utilities can derive the paths to the other files they need to perform their tasks.

---

**Note** These utilities cannot be used for DirectConnect for Oracle.

---

This appendix contains the following topics:

| Topic                                     | Page |
|---|------|
| Creating and starting a DCDirector server | 107  |
| Creating a new DirectConnect server       | 108  |
| Starting a DirectConnect server           | 109  |

## Creating and starting a DCDirector server

DirectConnect 12.6 provides a new feature that allows DirectConnect Manager to connect to a “directing” server, called a DCDirector, that is capable of creating, starting, and stopping DirectConnect servers. To create a new DCDirector for an installation, use the *DCDirector* script.

This script creates a new server with the default name “DCDirector” and sets the port number it listens on to a default port of 7711. The script then starts the server. No parameters are required or allowed, just enter:

```
DCDirector
```

You may change the default server name and default port number. If you need to use different values to identify the directors, you can use a text editor to modify the DCDirector script by assigning different values.

## DCDirector utility

This utility creates a default DCDirector server in the installation area. This script does not accept any parameters and uses the server name “DCDirector,” and the port 7711 by default. You can change these values by using a text editor, if you prefer to use different values.

Usage

```
DCDirector
```

Example

```
DCDirector
```

Once created, DCDirector will be able to start, stop, and provide other server functions.

## Creating a new DirectConnect server

The AddServer utility creates the necessary entries in the *interfaces* file before starting the DirectConnect server. AddServer requires two parameters to identify the name of the new server and to provide the port number for the server to listen on. One important limitation of AddServer: It does not check the *interfaces* file for duplicate server names or ports in the same way that DCDirector does.

## AddServer utility

This utility provides a way to create a server entry in the *interfaces* file. It makes changes to the *interfaces* file, but it does not verify that the *servername* or the *port number* are already being used.

Usage

```
AddServer [servername] [port number]
```

Example

```
AddServer srvname 1133
```



## Starting a DirectConnect server

In the past, you started a DirectConnect server using a command that used the `direct` executable itself. For example, the command, `direct -Ssrvname`, was the standard way to start an existing DirectConnect server. This method is still supported, but it has some limitations: For this command to work, all of the appropriate environment variables need to be set properly before the command is executed. Also, if multiple installations of DirectConnect exist on a single machine, each installation will need its own environment.

To provide some help with this, a shell script is provided with DirectConnect version 12.6 that sets the installation-specific variables before executing the `direct -Ssrvname` command. This script, called `DCStart`, requires that all the non-Sybase variables be set properly (such as paths to environment variables pointing to Informix specific elements), and ensures that the environment variables that are specific to a DirectConnect installation are all correctly set.

To start a server, see “Starting the DirectConnect server” section in Chapter 7, “Installing DirectConnect Manager.”

### DCStart utility

This utility is similar to using the `direct` executable. `DCStart` will automatically “source” the appropriate `DC_SYBASE.csh` file to ensure that all the appropriate Sybase-specific environment variables are set properly. This is the required method to start a DirectConnect server, for one or multiple versions, since DirectConnect no longer sets the system environment.

Usage

`DCStart [Parameters]`

Syntax

`DCStart -Ssrvname`



# Glossary

|  |  |
|--|--|
| <b>access service</b>                          | The named set of properties, used with a DirectConnect Access Service Library, to which clients connect. Each DirectConnect Server can have multiple services.   |
| <b>access service library</b>                  | A component of DirectConnect. A service library that provides access to non-Sybase data contained in a database management system or other type of repository. Each such repository is called a “target.” Each access service library interacts with exactly one target and is named accordingly. See also <b>service library</b> .  |
| <b>Adaptive Server (formerly SQL Server)</b>   | <p>The server in the Sybase Client-Server architecture. It manages multiple databases and multiple users, tracks the actual location of data on disks, maintains mapping of logical data description to physical data storage, and maintains data and procedure caches in memory. Also called Adaptive Server Enterprise.</p> <p>Any reference to Adaptive Server applies to SQL Server version 10.5 or earlier, unless otherwise specified.</p> |
| <b>administrative service library (ADMLIB)</b> | A service library that provides remote management capabilities and server-side support. It supports a number of remote procedures (invoked as RPC requests) that enable remote DirectConnect management. See also <b>remote procedure call, service library</b> .  |
| <b>application program interface (API)</b>     | A functional interface, supplied by an operating system or other licensed program, that allows an application program written in a high-level language to use specific data, functions of the operating system, or the licensed program.   |
| <b>ASE/CIS</b>                                 | The CIS component of Adaptive Server Enterprise (ASE), formerly called OmniConnect. See also <b>Adaptive Server</b> .  |
| <b>bulk copy transfer</b>                      | A transfer method in which multiple rows of data are inserted into a table in the target database. See also <b>transfer</b> . Compare with <b>destination-template transfer</b> .  |
| <b>catalog stored procedure</b>                | A stored procedure that provides information about tables, columns, and authorizations. It is used in SQL generation and application development.  |

|  |   |
|--|---|
| <b>character set</b>                     | A set of specific (usually standardized) characters with an encoding scheme that uniquely defines each character. ASCII is a common character set.  |
| <b>Client-Library</b>                    | A library of routines that is part of the Sybase Open Client product. See also <b>Open Client</b> .   |
| <b>client/server</b>                     | An architecture in which the client is an application that handles the user interface and local data manipulation functions, while the server provides data processing access and management for multiple clients. See also <b>client, server, client application</b> .   |
| <b>collection</b>                        | An AS/400 library that contains views of AS/400 global catalog tables and journals.   |
| <b>code page</b>                         | An assignment of graphic characters and control function meanings to all code points.   |
| <b>connection</b>                        | A network between two systems. For SNA, the path connects an LU on one machine to an LU on another machine. For TCP/IP, the path connects TCP modules on separate machines.   |
| <b>CSP</b>                               | See <b>catalog stored procedure</b> .   |
| <b>CT-Library</b>                        | See <b>Client-Library</b> .   |
| <b>database management system (DBMS)</b> | A computer-based system for defining, creating, manipulating, controlling, managing, and using databases.   |
| <b>DB-Library</b>                        | A Sybase and Microsoft API that allows client applications to interact with ODS applications.   |
| <b>destination-template transfer</b>     | A transfer method in which source data is briefly put into a template where the user can specify that some action be performed on it before execution against a target database. See also <b>transfer</b> . Compare with <b>bulk copy transfer</b> .  |
| <b>DirectConnect</b>                     | A Sybase Open Server application that provides access management for non-Sybase databases, copy management, and remote systems management. Each DirectConnect consists of a server and one or more service libraries to provide access to a specific data source. DirectConnect replaces the MDI Database Gateway and OmniSQL Access Module. Compare with <b>Enterprise Connect</b> . |
| <b>DirectConnect Manager</b>             | A Sybase Windows application that provides remote management capabilities for DirectConnect products. These capabilities include starting, stopping, creating, and copying services. Formerly called DirectConnect Configuration Tool.  |

|                                       |  |
|---------------------------------------|--|
| <b>DirectConnect Server</b>           | The component that provides general management and support functions (such as log file management) to service libraries.   |
| <b>DirectConnect Service</b>          | The named set of properties, used with a DirectConnect Service Library, to which clients connect. Each DirectConnect can have multiple services.   |
| <b>DirectConnect Service Library</b>  | The component that provides a set of functions within the DirectConnect Server environment.  |
| <b>dynamic link library (dll)</b>     | A file containing executable code and data bound to a program at load time or run time, rather than during linking. The code and data in a dynamic link library can be shared by several applications simultaneously.  |
| <b>Enterprise Connect</b>             | The encompassing architecture upon which Sybase implements heterogeneous data integration. Compare with <b>DirectConnect</b> .   |
| <b>environment variable</b>           | A variable that describes how an operating system runs and the devices it recognizes.  |
| <b>graphical user interface (GUI)</b> | A type of computer interface consisting of a visual metaphor of a real-world scene, often of a desktop. Within that scene are icons, representing actual objects, that the user can access and manipulate with a pointing device.                            |
| <b>GUI</b>                            | See <b>graphical user interface</b> .  |
| <b>host</b>                           | The mainframe or other machine on which a database, an application, or a program resides. In TCP/IP, this is any system that is associated with at least one Internet address. See also <b>Transmission Control Protocol/Internet Protocol</b> .             |
| <b>interfaces file</b>                | An operating system file that determines how the host client software connects to a Sybase product. The file must be available on each machine that connects to DirectConnect or other Sybase products.  |
| <b>library</b>                        | A named disk area that can contain programs and related information. A library consists of different sections, called library members.   |
| <b>libtcl file</b>                    | A file containing a list of installed Net-Library drivers. Client applications use information in this file and the <i>sql.ini</i> file to connect to Adaptive Servers (formerly known as SQL server) or Open Server applications. See also <b>sql.ini</b> . |
| <b>license host</b>                   | Primary server on which the SySAM lmgrd and SYBASE daemons reside.   |

|                                      |  |
|--------------------------------------|--|
| <b>localization</b>                  | The process of preparing an extracted module for a target environment, in which messages are displayed and logged in the user's language; numbers, money, dates, and time are represented using the user's cultural convention; and documents are displayed in the user's language. See also <b>globalization</b> . Compare with <b>internationalization</b> .                     |
| <b>ODBC</b>                          | See <b>Open Database Connectivity</b> .  |
| <b>Open Client</b>                   | A Sybase product that provides customer applications, third-party products, and other Sybase products with the interfaces required to communicate with Open Client and Open Server applications.   |
| <b>Open Server</b>                   | A Sybase product that provides the tools and interfaces required to create a custom server.  |
| <b>remote license host</b>           | Remote machine or server on which SySAM license files and daemons reside.  |
| <b>remote procedure call (RPC)</b>   | A stored procedure executed on a different DirectConnect Server from the one onto which a user is logged or on which the initiating application resides.   |
| <b>RPC</b>                           | See <b>remote procedure call</b> .   |
| <b>server</b>                        | A functional unit that provides shared services to workstations over a network. See also <b>client/server</b> . Compare with <b>client</b> .   |
| <b>service</b>                       | A functionality available to DirectConnect applications. It is the pairing of a service library and a set of specific configuration properties.  |
| <b>service library</b>               | A set of configuration properties that determine service functionality. Examples of service libraries include access service libraries, administrative service libraries, and transaction router service libraries. See also <b>access service library</b> , <b>administrative service library</b> , <b>Transaction Router Service library</b> , <b>transfer service library</b> . |
| <b>service name redirection</b>      | A type of service name resolution that allows a system administrator to map alternative connections to services. See also <b>service name resolution</b> . Compare with <b>direct resolution</b> .   |
| <b>service name redirection file</b> | The default name of the file used for the service name redirection feature. See also <b>service name redirection</b> .   |
| <b>SNRF</b>                          | See <b>service name redirection file</b> .   |
| <b>sql.ini</b>                       | The interfaces file containing definitions for each DirectConnect Server to which a workstation can connect. The file must be on every client machine that connects to Adaptive Servers. See also <b>interfaces file</b> , <b>libtcl file</b> .  |

|   |  |
|---|--|
| <b>system administrator</b>                                     | The user in charge of server system administration. For DirectConnect, the user responsible for installing and maintaining servers and service libraries.                          |
| <b>TCP/IP</b>   | See <b>Transmission Control Protocol/Internet Protocol</b> .   |
| <b>transfer</b>   | A DirectConnect feature that allows users to move data or copies of data from one database to another. See also <b>bulk copy transfer</b> , <b>destination-template transfer</b> . |
| <b>Transmission Control Protocol/Internet Protocol (TCP/IP)</b> | A set of communication protocols that supports peer-to-peer connectivity functions for both local and wide area networks. See also <b>host</b> .                                   |





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