SYBASE®

Getting Started

Replication Server®

15.1

Contents

About This Book

Audience
Getting Started with Replication Server is for users of Adaptive Server® Enterprise who are new to Replication Server®. It provides step-by-step instructions for installing, configuring, and setting up a sample Replication Server and a simple replication environment for replicating data from one Adaptive Server database to another. It describes only those tasks necessary to set up a simple replication system.

How to use this book
The information in this book is organized as follows:

- Chapter 1, "Before You Begin," describes the information you need and the preliminary tasks you must perform before installing Replication Server.

- Chapter 2, "Installing Replication Server," provides instructions for downloading the Replication Server components to your machine.

- Chapter 3, "Setting Up and Configuring the Replication Environment," provides instructions for creating a replication environment and configuring that environment so that you can replicate data.

- Chapter 4, "Managing Replication Server," provides instructions for other tasks such as starting and stopping Replication Server and viewing logs.

Related documents
In addition to this book, the Sybase® Replication Server documentation set consists of:

- The release bulletin for your platform - contains last-minute information that was too late to be included in the books.

  A more recent version of the release bulletin may be available on the World Wide Web. To check for critical product or document information that was added after the release of the product CD, use the Sybase Product Manuals at http://www.sybase.com/support/manuals/.

- *Installation Guide* for your platform – describes installation and upgrade procedures for all Replication Server and related products.

- *New Features Guide* – describes the new features in Replication Server versions 15.1, 15.0.1, 15.0, and 12.6.

- *Administration Guide* – contains an introduction to replication systems. This manual includes information and guidelines for creating and managing a replication system, setting up security, recovering from system failures, and improving performance.

- *Configuration Guide* for your platform – describes configuration procedures for all Replication Server and related products, and explains how to use the rs_init configuration utility.

- *Design Guide* – contains information about designing a replication system and integrating heterogeneous data servers into a replication system.

- *Getting Started with Replication Server* (this book) – provides step-by-step instructions for installing and setting up a simple replication system.

- *Heterogeneous Replication Guide* – describes how to use Replication Server to replicate data between databases supplied by different vendors.

- *Reference Manual* – contains the syntax and detailed descriptions of Replication Server commands in the Replication Command Language (RCL); Replication Server system functions; Sybase Adaptive Server commands, system procedures, and stored procedures used with Replication Server; Replication Server executable programs; and Replication Server system tables.

- *System Tables Diagram* – illustrates system tables and their entity relationships in a poster format. Available only in print version.

- *Troubleshooting Guide* – contains information to aid in diagnosing and correcting problems in the replication system.

- Replication Manager plug-in help, which contains information about using Sybase Central™ to manage Replication Server.

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 Click Certification Report.

3 In the Certification Report filter select a product, platform, and timeframe and then click Go.

4 Click a Certification Report title to display the report.

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

1 Point your Web browser to Availability and Certification Reports at http://certification.sybase.com/.

2 Either select the product family and product under Search by Base Product; or select the platform and product under Search by Platform.

3 Select Search to display the availability and certification report for the selection.

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

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

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

2 Click MySybase and create a MySybase profile.

Sybase EBFs and software maintenance

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

1 Point your Web browser to the Sybase Support Page at
   http://www.sybase.com/support.

2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.

3 Select a product.

4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

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

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

Conventions

This section describes the style conventions and RCL command formatting conventions used in this book.

• Examples that show the use of Replication Server RCL commands are printed as follows:

```
alter user louise
  set password somNIfic
  verify password EnnuI
```

• Command names, command option names, program names, program flags, keywords, functions, and stored procedures are printed as follows:

Use alter user to change the password for a login name.

- Variables, parameters, and user-supplied words are in italics in syntax and in paragraph text, as follows:

  The set password *new_passwd* clause specifies a new password.

- Names of database objects such as databases, tables, columns, and datatypes, are in italics.

- Names of replication objects, such as function-string classes, error classes, replication definitions, and subscriptions, are in italics.

Accessibility features

This document is available in an HTML version that is specialized for accessibility. You can navigate the HTML with an adaptive technology such as a screen reader, or view it with a screen enlarger.

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

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

For information about how Sybase supports accessibility, see Sybase Accessibility at http://www.sybase.com/accessibility. The Sybase Accessibility site includes links to information on Section 508 and W3C standards.

If you need help

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

CHAPTER 1 **Before You Begin**

This chapter provides information about system requirements and the tasks you must complete before you install Replication Server.

Topic	Page
Replication environment components	1
Pre-installation tasks	2
Planning your replication system	3
Checking system requirements	3
Creating the Sybase user account	5
Verifying your environment	5
Selecting an installation directory for Replication Server	5

Replication environment components

In addition to Replication Server, the replication environment includes the following components:

- Two databases: a primary database, which is the source of data for replication, and a replicate database, to which you replicate data.

  For setting up a test environment, install identical copies of the pubs2 or pubs3 databases that come with Adaptive Server. However, you can use your own identical databases.

- Two Adaptive Server Enterprise data servers. The primary Adaptive Server manages the primary database and the replicate Adaptive Server manages the replicate database.

- Sybase Central, the Sybase graphics-based management tool, and Replication Manager, the Replication Server plug-in to Sybase Central, Java Edition.

  Note Sybase Central and Replication Manager plug-in are available on a separate installer.

- The Embedded Replication Server System Database (ERSSD), which stores information about the replication environment.

- Replication Monitoring Services (RMS), a middle monitoring layer that provides monitoring services to a large and complex replication environment.

Pre-installation tasks

This section provides a checklist and description of the tasks that you perform before installing Replication Server. Detailed information for each of these tasks is described later in this chapter.

1   Planning your replication system**.** Identify the primary and replicate Adaptive Servers and the primary and replicate databases.

2   Checking system requirements**.** Make sure you are running a supported operating system and that you have sufficient space available to set up and run Replication Server.

3   Creating the Sybase user account, if one does not already exist.

4   Verifying your environment**.** Make sure that you have the proper user accounts and privileges.

5   Selecting an installation directory for Replication Server**.** It is important that you select an installation directory that is compatible with your existing Sybase software. This may involve installing Replication Server in an existing Sybase installation directory or in a completely new installation directory.

Planning your replication system

Identify the primary Adaptive Server and the replicate Adaptive Server. The primary Adaptive Server manages the primary database and the replicate Adaptive Server manages the replicate database. For setting up a test environment, install identical copies of either the pubs2 or the pubs3 database.

Make sure that both Adaptive Servers are up and running before you configure Replication Server.

Checking system requirements

Check requirements for the server and directory on which you will install Replication Server.

System requirements for Replication Server on Windows platforms

Sample Replication Server for Windows requires a computer with the system requirements described in Table 1-1.

Table 1-1: System requirements for Windows 2000 and Windows 2003

Item	Requirement
CPU	A Pentium processor.
RAM	A minimum of 512MB RAM.
Disk storage	A minimum of 450MB of available hard disk space:
	• 400MB for the Replication Server software, supporting files, and log files.
	• An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software.
	More disk space may be required, depending on your replication system application.
Operating system	Windows 2000 Service Pack 4 or later.
	Windows 2003 Service Pack 1 or later.
	Windows Vista Service.
Additional hardware	A network interface card. Sybase recommends a 32-bit card for improved performance.

System requirements for Replication Server on UNIX platforms (except Linux)

Sample Replication Server for UNIX requires a computer with the system configuration described in Table 1-2.

Table 1-2: System requirements for UNIX

Item	Requirement
RAM	A minimum of 512MB RAM.
Disk storage	A minimum of 870MB of available hard disk space: • 850MB for the Replication Server software, supporting files, and log files. • An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software. More disk space may be required, depending on your replication system application.
Operating system	One of the following UNIX platforms: • Sun - Solaris 8, 9, and 10 • Sun Solaris Opteron x64 10 • HP-UX 11.11 and 11.23 • HP Itanium 11.23 and 11.31 • IBM AIX 5.2, 5.3, and 6.1

System requirements for Replication Server on Linux platforms

Sample Replication Server for Linux requires a computer with the system configuration described in Table 1-3.

Table 1-3: System requirements for Linux

Item	Requirement
RAM	A minimum of 512MB RAM.
Disk storage	A minimum of 870MB of available hard disk space: • 850MB for the Replication Server and RepAgent software, supporting files, and log files. • An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software. More disk space may be required, depending on your replication system application.
Operating system	Intel Linux—Red Hat Enterprise Linux 3.0, 4.0, 5.0, SuSE 9.0, 10.0, and United Linux 1.0.

Creating the Sybase user account

To make sure that Sybase product files and directories are created with consistent ownership and privileges, one user (typically the Sybase System Administrator, who has read, write, and execute privileges) should perform all installation and configuration tasks.

To create a Sybase System Administrator account, choose an existing account, or create a new account and assign a user ID, group ID, and password for it. This account is sometimes called the "sybase" user account. See your operating system documentation for instructions on creating a new user account.

If you have already installed other Sybase software, the "sybase" user will exists. Verify that you can log in to the machine using this account.

Verifying your environment

This section describes basic administrative tasks that you must complete before beginning the installation process.

1   To free memory and system resources, close any open applications or utilities, including currently installed Sybase components.

2   Verify that the directory location for the Sybase installation has sufficient space.

3   Verify that your network software is configured.

Sybase software uses network software, even if Replication Server and Sybase client applications are installed on a machine that is not connected to a network.

Selecting an installation directory for Replication Server

You must choose carefully whether to install Replication Server in its own product directory or in a directory with your other Sybase products. In some cases, installing Replication Server on top of existing Sybase applications can adversely and irreversibly affect those applications.

Installing Replication Server in an existing directory

- You can install Replication Server 15.1 in an existing Sybase installation directory if that directory contains Adaptive Server version 15.0 or Open Client/Server™ version 15.0.

- *Do not* install Replication Server 15.1 in an existing Sybase installation directory if that directory contains these Sybase products:

  - Replication Server version 12.5 or earlier

  - Adaptive Server version 12.5.0.x or earlier

  - Open Client/Server version 12.5.0 or earlier

  - OpenSwitch version 12.5 or earlier

  - DirectConnect™ version 12.5 or earlier

Warning! Installing Replication Server 15.1 on top of any of these products incapacitates older versions of these products, and can also adversely affect other Sybase products.

You cannot reverse this with an uninstallation.

Installing Replication Server in a unique directory

To install Replication Server in a separate installation directory:

- On Windows platforms:

  Installing Replication Server in a unique directory may reset environment variables for other Sybase products and produce unpredictable results. To install Replication Server in a separate installation directory, you must follow instructions in "Installing Replication Server in a unique directory" in the *Release Bulletin for Replication Server version 15.1 for Windows*.

- On UNIX platforms:

You can install Replication Server in a unique directory without affecting existing Sybase environment variables. Follow the standard installation instructions in Chapter 2, "Installing Replication Server."

Note When you install Replication Server in a unique installation directory, you must maintain two interfaces files—one interfaces file for Replication Server components and another for your other Sybase applications. See "Using dsedit to add server entries to the interfaces files" on page 17 for post-installation task instructions.

CHAPTER 2   **Installing Replication Server**

This chapter describes how to install the Replication Server software
components from the CD using the InstallShield program.

Topic	Page
Introduction	9
Installing Replication Server	10
Post-installation tasks	15

Introduction

The InstallShield installation program:

*   Places all Replication Server software components in the Sybase
    installation directory.

*   Sets the environment variables and default parameters needed for
    sample Replication Server.

*   Starts sample Replication Server when the installation process is
    complete.

Before you install
*   Review the system requirements and follow the pre-installation
    instructions provided in Chapter 1, "Before You Begin."

*   Check your platform specific release bulletin for last-minute
    information about installing and running Replication Server.

    Printed release bulletins are included with your Sybase products
    shipment. Release bulletins are also available on the Web in the
    Sybase Product Manuals Web site at
    http://www.sybase.com/support/manuals.

After you install
Perform the necessary post-installation tasks before setting up your
replication environment. See "Post-installation tasks" on page 15.

Installing Replication Server

This section describes how to install Replication Server components.

1   Insert the Replication Server product CD in the CD drive.

2   *On all platforms*:

- Verify that the drive on which you are installing has sufficient space for Replication Server.

- Verify that you are logged in as the "sybase" user with read, write, and execute privileges.

On Windows:

- Set the TEMP environment variable to a temporary directory, such as *c:\temp*. InstallShield frees this space after the installation is complete.

For more information, refer to your operating system documentation or consult your operating system administrator.

3   Mount the CD. Follow directions for your platform.

On Windows:

The operating system mounts the CD automatically. Go to step 4.

On Solaris:

The operating system mounts the CD automatically. Go to step 4.

If you get CD-reading errors, check your operating system kernel to make sure that the ISO 9660 option is turned on.

If your CD shows up as anything other than *sybasecd* on your machine (for example, *sybasecd#1*), this means you have previously installed a Sybase CD on your system.

To install this CD, restart your system or delete the *sybasecd* file in */vol/dsk*.

For more information, refer to your operating system documentation or consult your operating system administrator.

On HP-UX:

a   Log out.

b   Log in as "root."

c   Enter the following command, where *device_name* is the name of the CD drive device and *cdrom* is the name of the directory where the CD is to be mounted:

```
mount -F cdfs -o ro device_name /cdrom
```

d   Log out.

e   Log in as "sybase."

On IBM AIX:

Enter the following or similar command, where *device_name* is the name of the CD drive device and *cdrom* is the name of the directory where the CD is to be mounted. The mount command is site-specific, so your mount syntax may differ from this example.

```
mount -v 'cdrfs' -r" device_name /cdrom
```

On Linux:

Enter this command at the # prompt:

```
mount -t iso9660 /dev/cdrom /mnt/cdrom
```

4   Invoke InstallShield to install Replication Server in GUI mode.

For more information, go to Chapter 2, "Installing Replication Server," in the *Replication Server Installation Guide* for your platform.

On Windows:

Windows automatically finds and opens the *setup* file. Go to step 5.

If InstallShield does not open, double-click *setup.exe* or select Start | Run and enter the following command, where *x* is the CD drive.

```
x: \setup.exe
```

On Solaris:

Enter the following command, where *cdrom* is the directory you specified when mounting the CD and *CD volume label* is the volume name in the /*cdrom* directory:

```
cd /cdrom/CD volume label
./setup
```

On IBM AIX:

Enter the following command, where *device_name* is the name of the CD drive device:

```
cd /device_name
```

```
./setup
```

On HP-UX:

Enter the following command, where *cdrom* is the directory you specified when mounting the CD:

```
cd /cdrom
./setup
```

On Linux:

Enter the following command at the # prompt:

```
cd /cdrom
./setup
```

5   Go to step 6 unless you see this 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.
```

Set the temporary directory to a directory with at least 100MB of disk space. Enter this command to set the temporary directory:

```
setup.exe -is:tempdir directory_name
```

For more information, go to Chapter 2, "Installing Replication Server," in the *Replication Server Installation Guide* for your platform.

6   InstallShield appears. Click Next.

7   Choose your geographic location in the license and copyright agreement window.

8   Read the Sybase license agreement and select "I agree." Click Next.

9   In the Install Directory window:

•   Click Next to accept the default installation directory, or

•   Enter a different installation directory name, and then click Next.

Warning! See "Selecting an installation directory for Replication Server" on page 5 before you select an installation directory. In some cases, installing Replication Server in an existing directory can irreversibly affect other Sybase software.

---

10 If the installation directory you selected does not exist, InstallShield displays this message:

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

Click Yes.

If the installation directory you selected exists, and contains a prior installation, InstallShield prompts you with this message:

```
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. Do you want to continue with
installation into this directory?
```

Click Yes if you wish to install on top of the previous installation.

11 Select the Typical installation.

Note Selecting Typical installation installs the Replication Server components considered to be useful for most customers.

---

12 Click Next.

InstallShield lists the installation directory, a summary of the features to be installed, and the total disk space required for the installation.

13 Click Next. InstallShield installs the components on your hard drive and displays a progress monitor.

14 Click Next after installation completes.

15 The SySAM License Server window opens and displays this prompt:

```
Will licenses be obtained from the License Server?
```

- Yes – select if you have a SySAM license server already installed, then enter the host name and the port number of the license server.

- No – select if you do not have a SySAM license server installed. A message displays, telling you to download the license file.

16 The sample Replication Server option window appears. Click Yes to configure and start the sample Replication Server.

17 Click Next.

InstallShield displays the configuration information for the sample Replication Server. This information is displayed in Table 2-1.

18　If the Adaptive Servers and Replication Server are not on the same machine, you must change the host name for Replication Server from "localhost" to the actual machine name.

Use the Replication Server dsedit utility to make the change.

For more information, go to "Using dsedit to change the Replication Server host name" on page 16.

19　Click Next if the configuration information for the sample Replication Server is correct.

The Configure New Replication Server window appears. InstallShield describes the configuration process and starts the Replication Server.

20　Click Finish. InstallShield closes.

You are now ready to create the replication environment.

For more information, go to Chapter 3, "Setting Up and Configuring the Replication Environment."

Table 2-1 displays default configuration information for sample Replication Server.

Table 2-1: Sample Replication Server default configuration information

Type of information	Location or description
Directory for all sample Replication Server files and log files	• On Windows: *%SYBASE%\%SYBASE_REP%\samp_repserver* • On UNIX: *$SYBASE/$SYBASE_REP/samp_repserver*
Configuration file used to configure sample Replication Server	• On Windows: *%SYBASE%\%SYBASE_REP%\samp_repserver\SAMPLE_RS.res* • On UNIX: *$SYBASE/$SYBASE_REP/samp_repserver/SAMPLE_RS.res*
Sample Replication Server information	• Sample Replication Server name – SAMPLE_RS • Port number – 11752 • Host name – localhost (see "Using dsedit to change the Replication Server host name" on page 16) • User – sa • User password – none (no password)
ERSSD information	• ERSSD name – SAMPLE_RS_ERSSD • Port number – 11751 • User – SAMPLE_RS_RSSD_prim • Password – SAMPLE_RS_RSSD_prim_ps

Type of information	Location or description
Run file to start sample Replication Server	On Windows: • *%SYBASE%\%SYBASE_REP%\samp_repserver\RUN_SAMPLE_RS.bat* On UNIX: • *$SYBASE/$SYBASE_REP/samp_repserver/RUN_SAMPLE_RS*
Sample Replication Server log file	On Windows: • *%SYBASE%\%SYBASE_REP%\samp_repserver\SAMPLE_RS.log* On UNIX: • *$SYBASE/$SYBASE_REP/samp_repserver/SAMPLE_RS.log*
Interfaces file information	• On Windows: InstallShield updates the *sql.ini* file. • On UNIX: InstallShield updates the *interfaces* file.

Post-installation tasks

After installing Replication Server, perform the post-installation tasks necessary for your site.

For all installations:

•   Choose the user names and passwords that Replication Server will use to log in to the primary Adaptive Server database and the replicate Adaptive Server database. These users must have sso_role and sa_role. You can use existing System Administrator or the equivalent accounts.

You will need these user names and passwords when you configure replication in "Defining the replication environment" on page 22.

If Replication Server and the primary and replicate Adaptive Servers are not on the same machine:

•   Enter the Replication Server host name in the interfaces file. See "Using dsedit to change the Replication Server host name" on page 16.

If Replication Server is installed in a unique directory:

•   Enter Replication Server information in the Adaptive Server interfaces file and enter Adaptive Server information in the Replication Server interfaces file. See "Using dsedit to add server entries to the interfaces files" on page 17.

Adding a login for Replication Manager
to the Adaptive Servers

Add a login name and password for Replication Manager to the primary database and to the replicate database. Grant each login name sso_role and sa_role. The Replication Manager plug-in to Sybase Central uses these names to log in to the data servers.

You can create the login names and passwords and grant the required privileges in the Adaptive Server plug-in to Sybase Central, Java Edition. Alternatively, you can use the sp_addlogin system procedure and grant command at the command line.

You will need these login names and passwords when you configure replication in "Defining the replication environment" on page 22.

For more information, see Chapter 14, "Managing Adaptive Server Logins, Users, and Client Connections," in the *Adaptive Server Enterprise System Administration Guide*.

Using *dsedit* to change the Replication Server host name

If either the primary or the target Adaptive Server is not on the Replication Server machine, you must change the default host name "localhost" in the Replication Server interfaces file to the actual server name.

To change the default host name in the Replication Server, perform the following steps:

1   Follow directions for your platform.

    On Windows:

    Navigate to *%SYBASE%\OCS-15_0\bin*.

    *On UNIX***:**

    Navigate to *$SYBASE/OCS-15_0/bin*.

2   On *Windows*:

    Double-click dsedit.exe.

    *On UNIX***:**

    Enter the following command:

```
dsedit <return>
```

The Select Directory Service window appears.

For more information on dsedit, see Chapter 5, "Using dsedit" in the *Adaptive Server Enterprise Utility Guide*.

3   Select InterfacesDriver and click OK. The InterfacesDriver window appears.

4   Select SAMPLE_RS in the left pane.

5   Double-click the Server Address line in the right pane. The Network Address Attribute window appears.

6   Click Edit.

7   In the Network Address field:

   •   Delete localhost.

   •   Add the name of the machine on which Replication Server will run.

8   Click OK.

9   Click OK.

10 Select File | Exit.

Using *dsedit* to add server entries to the interfaces files

When you install Replication Server in an existing Sybase installation directory, InstallShield adds Replication Server information to the existing interfaces file. When you install Replication Server in a unique installation directory, InstallShield creates a new interfaces file. In this instance, you will have two interfaces files—one for your existing Sybase applications and one for Replication Server.

To allow the Adaptive Servers and Replication Server to communicate, you must use the dsedit utility to:

•   Add an entry for Replication Server in the Sybase interfaces file used by the Adaptive Servers

•   Add entries for the primary and replication Adaptive Servers in the Replication Server interfaces file

You will need this information for each server:

•   The name of the server

•   The host name

• An unused port number on the host

To add an entry for Replication Server in the Adaptive Server interfaces file, See Chapter 5, "Using dsedit" in the *Adaptive Server Enterprise Utility Guide*.

To add entries for the primary and replicate Adaptive Server in the Replication Server interfaces file, perform the following steps:

1 Follow directions for your platform.

   On Windows:

   Navigate to *%SYBASE%\OCS-15_0\bin*.

   *On UNIX***:**

   Navigate to *$SYBASE/OCS-15_0/bin*.

2 *On Windows*:

   Double-click dsedit.exe.

   *On UNIX***:**

   Enter the following command:

   ```
   dsedit <return>
   ```

   The Select Directory Service window appears.

   For more information on dsedit, see Chapter 5, "Using dsedit" in the *Adaptive Server Enterprise Utility Guide*.

3 Select InterfacesDriver and click OK. The InterfacesDriver window appears.

4 Select Server Object | Add. The Input Server Name window appears.

5 Enter the name of the primary Adaptive Server. Click OK. The Input Network Address window appears.

6 Enter the host name and an unused port number.

   For example:

   ```
   chaucer, 35356
   ```

7 Click OK.

8 Select Server Object | Add. The Input Server Name window appears.

9 Enter the host name and an unused port number. Click OK. The Input Network Address window appears.

10 Enter the host name and an unused port number.

For example:

```
johnson, 9756
```

11 Click OK.

12 Click OK.

13 Select File | Exit.

CHAPTER 3

Setting Up and Configuring the Replication Environment

This chapter describes how to set up a replication environment and configure a sample Replication Server for replication.

To set up and configure Replication Server without using Replication Manager, see the *Replication Server Configuration Guide* for your platform.

Starting Sybase Central

This section describes how to start Sybase Central.

Note You must have a graphical user interface (GUI) such as X-Windows to run Sybase Central on UNIX platforms.

To start Sybase Central on Windows platforms use any of these methods:

• From the Start menu, select Start | Programs | Sybase | Sybase Central v6.0.

• Create a shortcut on your desktop for Sybase Central.

• Navigate to *%SYBASE%\Shared\Sybase Central 6.0.0\win32* and double-click *scjview.exe*.

To start Sybase Central on UNIX platforms:

• Source *$SYBASE/SYBASE.csh*.

- Execute the command:

    ```
    $SYBASE/Shared/sybcentral60/scjview.sh
    ```

The Sybase Central main window appears. The Replication Manager icon appears in the left and right panes.

Defining the replication environment

The replication environment is an object in Replication Manager that represents all servers that participate in replication. Your first step in setting up replication is to define the replication environment.

The Add Replication Environment wizard of the Replication Manager guides you through the steps necessary to add the Replication Server, the primary Adaptive Server, and the replicate Adaptive Server.

Record the user names and passwords that you define, as you will need this information later on.

❖ **Defining the replication environment**

This section uses the sample Replication Server named SAMPLE_RS created during installation. Be sure to start the sample Replication Server before working through the following steps:

1 From the Sybase Central main window, select the Replication Manager icon in the left pane.

2 In the right pane, double-click Add Replication Environment. The Add Environment wizard appears.

3 Enter a name for your replication environment.

Example: MY_RSENV

4 Click Next.

5 Enter a user name, password, and retype the password in the confirmation field to access the replication environment. Click Next.

- User name _____

- Password _____

- Confirm Password _____

6   Click Add. Select the type of server to add to the environment. To add the sample Replication Server, select Replication Server. Click Next.

7   Select SAMPLE_RS from the Servers drop-down list. Click Next.

8   Enter user name and password:

   • User name – sa

   • Password – none (no password)

   Click Next.

9   The Select RSSD Server window appears. Click Next.

10 Enter user name and password:

   • User name – SAMPLE_RS_RSSD_prim

   • Password – SAMPLE_RS_RSSD_prim_ps

   Click Next.

11 Click Finish.

12 Click Add to add Adaptive Server Enterprise containing the primary database to the environment. Select Adaptive Server Enterprise and click Next.

13 Select the primary Adaptive Server Enterprise from the Servers drop-down list. Click Next.

   Add a user name and password that Replication Manager can use to log in to the primary database. This user must be the System Administrator, or the equivalent, with sso_role and sa_role.

   • User name _____

   • Password _____

   Click Finish.

14 Click Add to add Adaptive Server Enterprise containing the replicate database to the environment. Select Adaptive Server Enterprise and click Next.

15 Select the replicate Adaptive Server Enterprise from the Servers drop-down list. Click Next.

   Add a user name and password that Replication Manager can use to log in to the replicate database. This user must be the System Administrator, or the equivalent, with sso_role and sa_role.

- • User name _____

- • Password _____

Click Finish.

16 Click Next.

Check the summary page to make sure the information is correct and complete.

If the information is not correct, click Back to return to previous pages and correct the information.

17 Click Finish.

18 Sybase Central redisplays. The new replication environment icon appears in the left pane beneath the Replication Manager icon, displaying the name you had specified for it.

Configuring replication

After you create the replication environment, use the Replication Manager Configure Replication wizard to create connections between servers, a database replication definition, and a database subscription.

The **database replication definition** describes the information that can be replicated from the primary database. The **database subscription** describes the replicated information that the replicate database can accept. In this instance, Replication Manager creates the database replication definition and the database subscription for you.

When you successfully complete this section, you are ready to replicate data.

❖ **Steps to configure the replication environment**

1 In the left pane of the Sybase Central main window, select the replication environment object you created.

2 In the right pane, double-click Configure Replication. The Configure Replication wizard displays.

3 Select the second option; Create an Environment Where the Primary Database is Replicated to Several Replicate Sites. Click Next.

4   Select the primary Adaptive Server and the primary database. For example, select the pubs2 or pubs3. Click Next.

5   Select SAMPLE_RS. Click Next.

6   Select the replicate Adaptive Server and the replicate database from the drop-down list. Click Add.

Replication Manager creates a connection between the sample Replication Server and the replicate data server and database. This connection, *target_server.database*, displays in the Connections list. Click Next.

7   Accept the default maintenance user name and password. Replication Manager creates the maintenance user. Click Next.

8   Accept the default RepAgent user name and password. Replication Manager creates the RepAgent user. Click Next. Replication Manager prompts you to select a materialization method.

9   Select Create Subscription Without Materialization.

This specifies that the primary and target databases are already synchronized. Click Next.

10   Review the summary of the replication environment.

11   If everything looks correct, click Finish. If not, click Back to return to earlier pages in the wizard and make the necessary changes. Click Finish when you are satisfied that the summary environment information is correct.

12   After Replication Manager finishes its configuration tasks, it displays a summary of steps performed. Review the summary to make sure each step was successful. Click Close.

You have installed a sample Replication Server, set up a replication environment, and configured that environment for replication. Congratulations! You are ready to replicate information from the primary to the replicate database.

Replicating data

Transact-SQL® is the language used in Adaptive Server databases for querying, adding new data, modifying existing data, and deleting existing data. Transact-SQL is described in the *Adaptive Server Enterprise Transact-SQL User's Guide* as pubs2 and pubs3 databases. You must use Transact-SQL commands in the following example.

To verify that replication is occurring:

1   Log in to the primary database, and, using Transact-SQL commands, add, alter, or delete information in one or more of the primary database tables.

2   Log in to the replicate database and confirm that your changes have been replicated.

An example

This section provides instructions for performing a simple update in the primary database, and then viewing the replicated changes in the replicate database.

1   Log in to the primary Adaptive Server using the isql utility. For example:

```
isql -Usa -P -SSAMPLE_PDS
```

The isql prompt appears:

```
>
```

2   Choose the primary database. For example, enter:

```
1> use pubs2
2> go
```

3   Grant the permission on authors table to public. For example, enter:

```
1> grant all on authors to public
2> go
```

4   Verify that Chastity Locksley is listed in the au_lname and au_fname columns of the authors table. To view all author names in the authors table, enter:

```
1> select au_fname, au_lname
2> from authors
3> go
```

Adaptive Server prints out the contents of the au_fname and au_lname columns.

5   Change the name of Chastity Locksley to Chastity Hilton in the authors table. Enter:

```
1> update authors
2> set au_lname = "Hilton"
3> where au_lname = "Locksley"
4> go
```

6   Verify that the change has taken place at the primary database. For example, enter:

```
1> select au_fname, au_lname
2> from authors
3> where au_fname = "Chastity"
4> go
```

The primary Adaptive Server prints out "Chastity Hilton."

7   Log in to the replicate Adaptive Server using the isql utility. For example:

```
isql -Usa -P -SSAMPLE_RDS
```

The isql prompt appears.

8   Choose the replicate database. For example, enter:

```
1> use pubs2
2> go
```

9   Verify that the change has replicated to the replicate database. Enter:

```
1> select au_fname, au_lname
2> from authors
3> where au_fname = "Chastity"
4> go
```

The replicate Adaptive Server prints out "Chastity Hilton."
Congratulations! You have a working replication system.

What's next?

You can create your own Transact-SQL statements to update the primary database and then view the updates at the replicate database. For example, using the database replication definition and database subscription created during configuration, you can perform these actions and watch the changes appear at the replicate database:

- Add information to a table using the insert command.

- Delete information from a table using the delete command.

- Create and populate a table using the create table and then the insert command.

- Depopulate a table using the truncate table command.

You can create your own database replication definitions that filter out specified tables, transactions, or data definition language (DDL) commands.

See Chapter 12, "Managing Replicated Objects Using MultiSite Availability," in the *Replication Server Administration Guide Volume 1* for more information about creating database replication definitions and subscriptions, and customizing your replication environment.

CHAPTER 4 **Managing Replication Server**

This chapter provides additional information and procedures that may help you use the sample Replication Server.

Topic	Page
Starting the sample Replication Server	29
Logging in to the sample Replication Server	30
Stopping the sample Replication Server	30
Viewing the sample Replication Server logs	30
Viewing database replication definitions	31
Viewing database subscriptions	31
Monitoring replication environment	32

Starting the sample Replication Server

InstallShield starts up the sample Replication Server after you complete the Replication Server installation. If Replication Server is shut down, you can start it up again. Follow the instructions for your platform:

For Windows:

1 Using Windows Explorer, navigate to *%SYBASE%\%SYBASE_REP%\samp_repserver*.

2 Double-click *RUN_SAMPLE_RS.bat*.

For UNIX:

1 Navigate to *$SYBASE/$SYBASE_REP/samp_repserver*.

2 Execute *RUN_SAMPLE_RS*.

Logging in to the sample Replication Server

You can log in to Replication Server from the command line using the isql utility with the sa user name. You use isql to execute Replication Server commands. Logging in to Replication Server is an easy way to find out if Replication Server is running.

Follow these instructions:

1   From the command prompt, enter:

```
isql -Usa -P -SSAMPLE_RS
```

2   If sample Replication Server is running, the isql prompt displays:

```
1>
```

3   To quit isql, enter:

```
1> exit
```

Stopping the sample Replication Server

To shut down the sample Replication Server:

1   Log in to the sample Replication Server.

See "Logging in to the sample Replication Server" on page 30.

2   Enter:

```
1> shutdown
2> go
```

Viewing the sample Replication Server logs

All log files for the sample Replication Server are located in the *samp_repserver* directory. Replication Server records its actions and notes failures in the *SAMPLE_RS.log* file. Use a text editor to open the *SAMPLE_RS.log* and view a record of Replication Server actions. Viewing the log can help you identify problems.

Viewing database replication definitions

To view a database replication definition in Replication Manager for Sybase Central:

1   In the right pane, drill down to

Replication Environment | *primary_Adaptive_Server_name* | *primary_dbase_name* | Database replication definitions.

2   In the left pane, double-click a database replication definition. You created the *database_name*-1 database database replication definition during configuration.

The Replication Definition Properties window opens for the database replication definition you selected.

Viewing database subscriptions

To view a database subscription in Replication Manager for Sybase Central:

1   In the right pane, go down to

Replication Environment | *replicate_Adaptive_Server_name* | *replicate_dbase_name* | Database subscriptions.

2   In the left pane, double-click a database subscription. You created the *database_name*-1 database subscription during configuration.

The Subscriptions Properties window opens for the database subscription you selected.

Monitoring replication environment

The Replication Manager (RM) can manage small and simple replication environments by directly connecting to the server in the replication environment. It identifies problems within the replication environment, and allows you to fix them. It also provides the ability to create, alter, and delete replication components in the environment.

However, to manage large and complex replication environments with more than ten servers, the RM requires the help of a monitoring component called Replication Monitoring Services (RMS). For such environments, the RM provides commands to create, modify, or delete replication components, while RMS provides the ability to monitor the replication environment.

For information on monitoring the replication environment using the RM and RMS, see Chapter 3, "Managing Replication Server with Sybase Central," in the *Replication Server Administration Guide Volume 1*.

Index

A

accounts, creating sybase user   5
Add Replication Environment wizard   22
adding a login for Replication Manager   16
administration tasks   5
audience for book   v

C

CD reading errors   10
configuration information, default   14
Configure Replication wizard   24
configuring replication   24
conventions used in book   viii
CPU requirements   3
creating sybase user accounts   5

D

database replication definitions   24, 28, 31
database replication definitions, filters   28
database subscriptions   24, 28
default configuration information   14
defining
    replication environment   22
disk storage requirements
    Linux   4
    UNIX   4
    Windows   3
dsedit utility   16, 17

E

Embedded Replication Server System Database
        (ERSSD)   2, 14
environment

verification   5
environment variable
    TEMP   10
example of replication   26

F

filters, database replication definitions   28

G

grant command   16

H

hardware requirements
    Windows   3
host name   14, 15, 16

I

installation directory
    existing   6
    selecting   2, 5
    unique   6
installing Replication Server   9
    steps   10
InstallShield
    tasks performed   9
interfaces file   7, 15
interfaces file information   15

U

V

X