SYBASE®

Getting Started

Replication Server® 15.6

Contents

Conventions

Learn about the style and syntax conventions used in Sybase® documentation.

Style conventions

Key	Definition
`monospaced(fixed-width)`	• SQL and program code • Commands to be entered exactly as shown • File names • Directory names
italic monospaced	In SQL or program code snippets, placeholders for user-specified values (see example below).
italic	• File and variable names • Cross-references to other topics or documents • In text, placeholders for user-specified values (see example below) • Glossary terms in text
bold san serif	• Command, function, stored procedure, utility, class, and method names • Glossary entries (in the Glossary) • Menu option paths • In numbered task or procedure steps, user-interface (UI) elements that you click, such as buttons, check boxes, icons, and so on

If necessary, an explanation for a placeholder (system- or setup-specific values) follows in text. For example:

Run:

```
installation directory\start.bat
```

where *installation directory* is where the application is installed.

Syntax conventions

Key	Definition
{ }	Curly braces indicate that you must choose at least one of the enclosed options. Do not type the braces when you enter the command.
[ ]	Brackets mean that choosing one or more of the enclosed options is optional. Do not type the brackets when you enter the command.
( )	Parentheses are to be typed as part of the command.
|	The vertical bar means you can select only one of the options shown.
,	The comma means you can choose as many of the options shown as you like, separating your choices with commas that you type as part of the command.
...	An ellipsis (three dots) means you may repeat the last unit as many times as you need. Do not include ellipses in the command.

Case-sensitivity

- All command syntax and command examples are shown in lowercase. However, replication command names are not case-sensitive. For example, **RA_CONFIG**, **Ra_Config**, and **ra_config** are equivalent.
- Names of configuration parameters are case-sensitive. For example, **Scan_Sleep_Max** is not the same as **scan_sleep_max**, and the former would be interpreted as an invalid parameter name.
- Database object names are not case-sensitive in replication commands. However, to use a mixed-case object name in a replication command (to match a mixed-case object name in the primary database), delimit the object name with quote characters. For example: **pdb_get_tables** "*TableName*"
- Identifiers and character data may be case-sensitive, depending on the sort order that is in effect.
  - If you are using a case-sensitive sort order, such as "binary," you must enter identifiers and character data with the correct combination of uppercase and lowercase letters.
  - If you are using a sort order that is not case-sensitive, such as "nocase," you can enter identifiers and character data with any combination of uppercase or lowercase letters.

Terminology
Replication Agent™ is a generic term used to describe the Replication Agents for Adaptive Server® Enterprise, Oracle, IBM DB2 UDB, and Microsoft SQL Server. The specific names are:

- RepAgent – Replication Agent thread for Adaptive Server Enterprise

- Replication Agent for ODBC – Replication Agent for IBM DB2 UDB and Microsoft SQL Server
- Replication Agent for Oracle – Replication Agent for Oracle

Conventions

Introduction

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

Replication Environment Components

Become familiar with the various components of a replication environment.

In addition to Replication Server, the replication environment includes:

- A primary database, which is the source of data for replication, and a replicate database, to which you replicate data.
  To set up a test environment, either install identical copies of the pubs2 or pubs3 databases that come with Adaptive Server, or create copies of your own.
- 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 the 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), which is a middle monitoring layer that provides monitoring services to replication environments.

Before You Begin

Before installing Replication Server, learn about the system and licensing requirements, as well as other tasks you must complete.

Preinstallation Tasks

You need to perform some preinstallation tasks before installing Replication Server.

See the *Replication Server Release Bulletin* for your platform for the updated list of operating systems and platforms that Replication Server supports and for the latest operating system

patches, as well as for any last-minute information that was too late to be included in the document.

The preinstallation tasks include:

1. Planning your replication system – identify the primary and replicate Adaptive Servers and the primary and replicate databases.
2. Checking system requirements – verify that 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 – verify 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.
6. Obtaining a license – Sybase products, such as Replication Server, require valid license keys to use the product beyond a grace period.

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.

1. To set up a test environment, install identical copies of either the `pubs2` or `pubs3` database.
2. Verify that both Adaptive Servers are up and running before you configure Replication Server.

Check System Requirements

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

See the release bulletin for information such as, the latest system requirements and operating systems patches.

System Requirements for Replication Server on Windows Platforms

Verify that you are running a supported operating system and that you have sufficient space available to set up and run sample Replication Server for Windows.

Item	Requirement
CPU	A Pentium processor.
RAM	A minimum of 512MB RAM.

Item	Requirement
Disk storage	A minimum of 580MB of available hard disk space: • 450MB for the Replication Server software, supporting files, and log files. • 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software. • 30MB for temporary usage during installation. • 80MB for your SQL Anywhere® database, which serves as your ERSSD. The database directory, transaction log directory, and backup directory that make up the 80MB should each reside on different disks. More disk space may be required, depending on your replication system application. A minimum of 300MB on the hard disk for the directory you use as the temporary directory.
Platform and operating system	One of the following on either 32-bit or 64-bit platforms: • Windows XP Professional, Service Pack 2 or later • Windows 2003 R2, Service Pack 2 or later • Windows Vista Enterprise, Service Pack 1 • Windows Vista Business, Service Pack 1 • Windows Server 2008 R2 • Windows 7 You must install the relevant Microsoft Visual Studio 2005 patch for your x86 or x64 Windows platform before you start Replication Server. See Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package ATL Security Update at *http://www.microsoft.com/downloads/details.aspx?familyid=766a6af7-ec73-40ff-b072-9112bab119c2&displaylang=en*
Additional hardware	A minimum of 32-bit network card for better performance.
Supported protocols	TCP/IP, IPX/SPX, Microsoft Named Pipes.

System Requirements for Replication Server on UNIX Platforms

Verify that you are running a supported operating system and that you have sufficient space available to set up and run sample Replication Server for UNIX.

Item	Requirement
RAM	A minimum of 512MB RAM.

Item	Requirement
Disk storage	A minimum of 1,050MB of available hard disk space: • 950MB 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. • 80MB for your SQL Anywhere database, which serves as your ERSSD. The database directory, transaction log directory, and backup directory that make up the 80MB should each reside on different disks. More disk space may be required, depending on your replication system application. A minimum of 1GB on the hard disk for the tmp directory.

Item	Requirement

Platform and operating system	One of the following platforms:
	
	• HP Itanium (64-bit):
	    • HPUX 11.23
	    • HPUX 11.31
	  The installer requires the **gzip** utility. Ensure that the path to **gzip** is set in the $PATH environment variable.
	• IBM AIX (64-bit):
	    • AIX 5.3
	    • AIX 6.1
	  Before you start Replication Server, you must install the IBM XL C/C++ Runtime for AIX and the SMP Runtime Libraries for AIX that is suitable for your version of AIX. Obtain the libraries from your IBM AIX operating system installation media.
	  These libraries are also available from the IBM AIX Web site:
	    • IBM XL C/C++ Runtime for AIX – see "Latest updates for supported IBM C and C++ compilers."
	    • SMP Runtime Libraries – see "IBM XL C/C++ Enterprise Edition for AIX, Runtime Environment and Utilities."
	• Linux on x86 (32-bit and 64-bit):
	    • Linux x86 Red Hat Enterprise Linux 4.0 update 5
	        • kernel-2.6.9-55.EL
	        • glibc-2.3.4-2.36
	    • Red Hat Enterprise Linux 5.0 update 1
	        • kernel-2.6.18-53.1.13.el5
	        • glibc-2.5-18
	    • SuSE Linux Enterprise Server SLES 10
	        • kernel-smp-2.6.16.21-0.8
	        • glibc-2.4-31.2
	    • SuSE Linux Enterprise Server SLES 11
	        • kernel-*-2.6.27.19-5.1
	        • glibc-2.9-13.2
	• Linux on IBM p-Series (Linux on POWER) (64-bit):
	    • Linux x86 Red Hat Enterprise Linux 4.0 update: 5
	        • kernel-2.6.9-55.EL
	        • glibc-2.3.4-2.36
	    • Red Hat Enterprise Linux 5.0 update: 1
	        • kernel-2.6.18-53.1.13.el5

Item	Requirement
	- glibc-2.5-18 - SuSE Linux Enterprise Server SLES 10 - kernel-smp-2.6.16.21-0.8 - glibc-2.4-31.2 - Sun Solaris on Sun SPARC (64-bit): - Solaris 8 - Solaris 9 - Solaris 10 - Sun Solaris 10 x86-64 (64-bit) – to run Replication Server 15.6 with an ERSSD on Sun Solaris x86-64 machines, install these patches: 118345-03 and 119964-07
Supported protocols	TCP/IP

Creating the Sybase User Account

Create a Sybase user account to ensure that Sybase product files and directories are created with consistent ownership and privileges.

A user, such as the Sybase system administrator— who has read, write, and execute privileges —must perform all installation and configuration tasks. For Windows, the user must have the Administrator privilege.

1. 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 already exists.

2. Verify that you can log in to the machine using this account.

Verifying Your Environment

Verify your environment before starting the installation process.

1. Free memory and system resources by closing 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.

Installation Directory for Replication Server

You must choose carefully whether to install Replication Server in its own product directory or in a directory with other Sybase products.

In some cases, installing Replication Server on top of existing Sybase applications can adversely and irreversibly affect those applications.

Replication Server Installation in an Existing Directory

You can install Replication Server 15.6 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 15.6 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 15.6 on top of any of these products incapacitates older versions of these products, and can also adversely affect other Sybase products; you cannot reverse these effects by performing an uninstallation.

Replication Server Installation in a Unique Directory

Installing Replication Server in a unique directory on Windows platforms may reset environment variables for other Sybase products and produce unpredictable results.

To install Replication Server in a separate installation directory, follow the instructions in "Installing Replication Server in a Unique Directory" in the *Release Bulletin for Replication Server for Windows*.

On UNIX platforms, you can install Replication Server in a unique directory without affecting existing Sybase environment variables.

Note: When you install Replication Server in a unique installation directory, you must maintain two interfaces files—one for Replication Server components and one for your other Sybase applications.

See also
- *Adding Server Entries to the Interfaces Files* on page 19

Obtaining a License

Obtain valid SySAM licenses before you begin the installation. Sybase Software Asset Management (SySAM) performs license administration and asset management tasks for Sybase products.

Before installing your product, get license files from the Sybase Product Download Center (SPDC) at *https://sybase.subscribenet.com* using SPDC access information you receive from Sybase or your Sybase reseller.

Log in to SPDC by using the information in your SPDC welcome e-mail message.

Note: If you purchased your Sybase software from a Sybase reseller, you receive a Web key rather than an e-mail message.

See *Replication Server Installation Guide > Before You Begin > Preinstallation Tasks > Obtaining a License* to learn more about Replication Server product editions, and licensing options such sub-capacity licensing. For detailed instructions to configure SySAM licensing, see the *Sybase Software Asset Management Users Guide* on the SyBooks online bookshelf or on the Sybase Product Documentation Web site at *http://sybooks.sybase.com*.

Replication Server Installation

The Replication Server installation program places all Replication Server software components in the Sybase installation directory.

The installation program also sets the environment variables and default parameters needed for sample Replication Server and starts sample Replication Server when the installation process is complete.

Installing Replication Server

Install Replication Server components.

Prerequisites

- Review the system requirements and follow the preinstallation instructions provided in the preinstallation tasks section.
- 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 Documentation Web site at *http://www.sybase.com/support/manuals*.

See the *Replication Server Installation Guide* to uninstall Replication Server. For more information, refer to your operating system documentation or consult your operating system administrator.

Task

1. Insert the Replication Server product CD in the CD drive.
2. 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.
   For more information, refer to your operating system documentation or consult your operating system administrator.
3. Mount the CD.
   On Windows:

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

On HP Itanium:

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 /mnt/cdrom is the name of the directory where the CD is to be mounted:

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

d) Log out as "root".

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 /mnt/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 /mnt/cdrom
```

On Linux:

Enter this command at the # prompt, enter:

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

On Solaris:

The operating system automatically mounts the CD. 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.

4. Invoke the installer to install Replication Server in GUI mode.

On Windows:

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

If the installer does not open, double-click **setup.exe** or select **Start > Run** and enter the following command, where x is the CD drive and **-i swing** specifies the GUI installation mode..

```
x:\setup.exe -i swing
```

On all UNIX platforms:

Set the DISPLAY environment variable to point to a host with a graphical user interface such as X-Windows, otherwise, the installation starts in console mode.

On HP Itanium:

_____

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

```
cd /cdrom
./setup.bin -i swing
```

On IBM AIX:

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

```
cd /device_name
./setup.bin -i swing
```

On Linux:

Enter the following command at the # prompt:

```
cd /mnt/cdrom
./setup.bin -i swing
```

On Solaris:

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

```
cd /cdrom/volume label
./setup.bin -i swing
```

5. Go to step 6 unless you see a message warning that there is not enough disk space in the temporary disk space directory. Set the temporary directory to a directory with at least 1GB of disk space on UNIX and 300MB on Windows. To set the temporary directory on:

- Windows – set the TMP environment variable to the temporary directory.
- UNIX and Linux – set the IATEMPDIR environment variable to the temporary directory.

See "Installing Replication Server" in the *Replication Server Installation Guide*.

6. Shut down other programs and click **Next**.

7. In the Choose Install Folder window do one of:

- Accept the default installation directory and click **Next**.
  The UNIX default install directory is /opt/sybase and the Windows default directory is C:\Sybase.
- Enter a different installation directory name, and then click **Next**.
  You cannot enter spaces or double-byte characters in the directory name.
  The installer warns you if you choose to install in an existing Sybase product directory. See "Installation Directory for Replication Server" before you select an installation directory. In some cases, installing Replication Server in an existing directory can irreversibly affect other Sybase software.

8. In the Choose Install Set, select **Typical installation** and click **Next**.

> **Note:** A typical installation installs the Replication Server components considered to be useful for most customers.

9. Select your geographic location.

10. Read the Sybase license agreement. If you agree to the terms of the Sybase license, select **I agree to the terms of the Sybase license for the install location specified**. Click **Next**.

    You must agree to the license agreement to proceed with the installation.

11. If the installer does not detect any license it can use, you see the SySAM window. Select one of:

    - Specify License Keys – click **Browse** to select the license file or copy the license key directly into the pane, and then click **Next**. If you specify a served license key, the installer prompts you to install a new SySAM license server. Select:
        - Next – to install the new SySAM license server and follow the installation prompts.
        - Previous – and select **Use previously deployed license server** if you have an existing SySAM license server on the same host.
    - Use Previously Deployed License Server – if you have a SySAM license server already installed, then enter the host name and the port number of the license server. Click **Next**.
    - Continue Installation Without a License Key – if you do not have licenses for any of the Replication Server components. Click **Next** to proceed. You can install and use Replication Server components without a license for a grace period of 30 days. Click **Next**.

        > **Note:** Your grace period starts when you install the product.

        For more information on SySAM, see the *Sybase Software Asset Management Users Guide*.

12. Enter the information required in the SySAM Notification window and click **Next**.

13. The Preinstallation Summary window lists the installation directory, the features to be installed, the total disk space required for the installation, and the disk space available on your server.

14. Click **Install**. The installer installs the components on your hard drive and displays the progress of the installation.

15. Select **Yes** to start the sample Replication Server. Click **Next**.
    The installer displays the configuration information related to the sample Replication Server.

16. Click **Next**.
    You see a message confirming a successful installation.

17. Click **Done** to close the installer.

    You are now ready to create the replication environment.

Next
Perform the necessary postinstallation tasks before setting up your replication environment.

See also
- *The Replication Environment* on page 21
- *Installation Directory for Replication Server* on page 11
- *Replication Server Installation in a Unique Directory* on page 11

Postinstallation Tasks

After installing Replication Server, perform the postinstallation tasks necessary for your site.

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.

Create the login names and passwords and grant the required privileges using the Adaptive Server plug-in to Sybase Central, Java Edition.

Alternatively, use the **sp_addlogin** system procedure and grant command at the command line.

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

Changing the Replication Server Host Name Using dsedit

Modify the default host name "localhost" in the Replication Server interfaces file to the actual server name if either the primary or the replicate Adaptive Server is not on the Replication Server machine.

1. Shut down the sample Replication Server by executing **shutdown** at the isql prompt in `%SYBASE%\REP-15_5\samp_repserver` on Windows or `$SYBASE/REP-15_5/samp_repserver` on UNIX.
2. Navigate to `%SYBASE%\OCS-15_0\bin` (Windows), or `$SYBASE/OCS-15_0/bin` (UNIX).
3. On Windows, double-click **dsedit.exe**.

   On UNIX, enter:

   ```
   dsedit
   ```

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

4. Select **InterfacesDriver** and click **OK**.

5. In the left pane, select SAMPLE_RS.

6. In the right pane, double-click **Server Address**, then 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** twice, then select **File > Exit**.

9. Restart the sample Replication Server.

   On Windows, either:

   • Select **Control Panel > Administrative Tools > Services**, right-click **Sybase Rep_SAMPLE-RS**, and select **Start**.

   • Double-click **RUN_SAMPLE_RS.bat** or execute **RUN_SAMPLE_RS.bat** on the command line from `%SYBASE%\REP-15_5\samp_repserver`.

   On UNIX and Linux – execute RS_SAMPLE_RS on the command line from `$SYBASE/REP-15_5/samp_repserver`.

Server Entries to the Interfaces Files

When you install Replication Server in an existing Sybase installation directory, the installer adds Replication Server information to the existing interfaces file. When you install Replication Server in a unique installation directory, the installer 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:

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

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

For each server, you need:

• Server name

• Host name

• Port number

Adding Server Entries to the Interfaces Files

Use **dsedit** to add entries for the primary and replicate Adaptive Server in the Replication Server interfaces file.

1. Navigate to `%SYBASE%\OCS-15_0\bin` (Windows), or `$SYBASE/OCS-15_0/bin` (UNIX).

2. On Windows, double-click **dsedit.exe**.

    On UNIX, enter:

    ```
    dsedit
    ```

3. Select **InterfacesDriver** and click **OK**.

4. Select **Server Object > Add**.

5. Enter the name of the primary Adaptive Server. Click **OK**.

6. Enter the host name and port number of the primary Adaptive Server. For example:

    ```
    chaucer, 35356
    ```

7. Click **OK**.

8. Select **Server Object > Add**.

9. Enter the name of the replicate Adaptive Server. Click **OK**.

10. Enter the host name and port number of the replicate Adaptive Server. For example:

    ```
    johnson, 9756
    ```

11. Click **OK** twice, then select **File > Exit**.

Replication Server Installation

The Replication Environment

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

Start Sybase Central.

Perform any of these to start Sybase Central:

- Windows
    - 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` on 32-bit Windows platforms or the **win64** subdirectory on 64-bit platforms.
    - Double-click **scjview.exe**.
- UNIX
    - Source `$SYBASE/SYBASE.csh`.
    - Execute:
      ```
      $SYBASE/Shared/sybcentral60/scjview.sh
      ```

Note: To run Sybase Central on UNIX platforms, you must have a graphical user interface (GUI), such as X-Windows.

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

Defining the Replication Environment

Define the Replication Environment. A replication environment is an object in Replication Manager that represents all servers that participate in replication.

Prerequisites

Verify that you have started the sample Replication Server.

Use the wizard 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.

This task uses the sample Replication Server named SAMPLE_RS created during installation.

Task

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

2. In the right pane, double-click **Add Replication Environment**.

3. Enter a name for your replication environment; for example MY_RSENV. Click **Next**.

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

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

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

7. Enter:
   - User name – sa
   - Password – none (no password)

   Click **Next**.

8. Click **Next** to move past the Select RSSD Server window.

9. Enter:
   - User name – SAMPLE_RS_RSSD_prim
   - Password – SAMPLE_RS_RSSD_prim_ps

   Click **Next**.

10. Click **Finish**.

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

12. Select the primary Adaptive Server from the Servers 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" privileges.
    - User name
    - Password

    Click **Finish**.

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

14. Select the replicate Adaptive Server from the Servers 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" privileges.
    - User name
    - Password

Click **Finish**.

15. 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.

16. Click **Finish**.

In Sybase Central, the new replication environment icon using the name you specified appears in the left pane beneath the Replication Manager icon.

Configuring Replication

Create connections between servers, a database replication definition, and a database subscription.

Prerequisites

Verify that you have created the replication environment.

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. You are ready to replicate data once you successfully complete this task.

Task

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**.

3. Select **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. Click **Add**.
   Replication Manager creates a connection between the sample Replication Server and the replicate data server and database. This connection, target_server.database, appears 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**. 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.

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

11. 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 the environment for replication. You are ready to replicate information from the primary to the replicate database.

Verifying Data Replication

Use transact-SQL commands to verify that replication is occuring.

Transact-SQL® is 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 Users Guide*.

1. Log in to the primary database and use Transact-SQL commands to 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.

Example

This example shows how to perform a simple update in the primary database, and then view the replicated changes in the replicate database.

1. Log in to the primary Adaptive Server using:
   ```
   isql -Usa -P -SSAMPLE_PDS
   ```

   The isql prompt appears:
   ```
   >
   ```

2. Choose the primary database:
   ```
   1> use pubs2
   2> go
   ```

3. Grant the permission on authors table to public:
   ```
   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:

```
isql –Usa -P –SSAMPLE_RDS
```

The isql prompt appears.

8. Choose the replicate database:

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

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

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

The replicate Adaptive Server prints out "Chastity Hilton," which indicates that the replication system is working.

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.

Manage Replication Server

Manage Replication Servers and related components in the replication environment.

Starting the Sample Replication Server

Start the sample Replication Server manually if it is shut down. The Replication Server installer starts the sample Replication Server after you complete the installation.

1. For Windows:
   a) Using Windows Explorer, navigate to `%SYBASE%\%SYBASE_REP%\samp_repserver`.
   b) Double-click **RUN_SAMPLE_RS.bat**.
2. For UNIX:
   a) Navigate to `$SYBASE/$SYBASE_REP/samp_repserver`.
   b) Execute RUN_SAMPLE_RS.

Logging in to the Sample Replication Server

Log in to Replication Server from the command line using the **isql** utility with the **sa** user name.

Use **isql** to execute Replication Server commands. Logging in to Replication Server is an easy way to find out if Replication Server is running.

1. From the command prompt, enter:
   ```
   isql -Usa -P -SSAMPLE_RS
   ```
   If the sample Replication Server is running, you see:
   ```
   1>
   ```
2. To quit **isql**, enter:
   ```
   1> exit
   ```

Stopping the Sample Replication Server

Shut down the sample Replication Server.

1. Log in to the sample Replication Server.
2. Enter:

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

Viewing the Sample Replication Server Logs

View a record of Replication Server actions. Viewing the log can help you identify problems.

Use a text editor to open the SAMPLE_RS.log file.

All log files for the sample Replication Server are located in the samp_repserver directory. Replication Server records its actions and notes failures in SAMPLE_RS.log.

Viewing Database Replication Definitions

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

Viewing Database Subscriptions

View a database subscription in Replication Manager for Sybase Central.

1. In the right pane, select **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.

Replication Manager

The Replication Manager (RM) can manage small and simple replication environments by directly connecting to the servers 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.*

Obtaining Help and Additional Information

Use the Sybase Getting Started CD, Product Manuals site (SyBooks™ Online), and online help to learn more about this product release.

- The Getting Started CD (or download) – contains release bulletins and installation guides in PDF format, and may contain other documents or updated information.
- Product Manuals at *http://sybooks.sybase.com/* – is an online version of Sybase documentation that you can access using a standard Web browser. You can browse documents online, or download them as PDFs. In addition to product documentation, the Web site also has links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, Community Forums/Newsgroups, and other resources.
- Online help in the product, if available.

To read or print PDF documents, you need Adobe Acrobat Reader, which is available as a free download from the *Adobe* Web site.

Note: A more recent release bulletin, with critical product or document information added after the product release, may be available from the Product Manuals Web site.

Technical Support

Get support for Sybase products.

If your organization has purchased a support contract for this product, then one or more of your colleagues is designated as an authorized support contact. If you have any questions, or if you need assistance during the installation process, ask a designated person to contact Sybase Technical Support or the Sybase subsidiary in your area.

Downloading Sybase EBFs and Maintenance Reports

Get EBFs and maintenance reports from the Sybase Web site.

1. Point your Web browser to *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**. You see a list of EBF/Maintenance releases.

   Padlock icons indicate that you do not have download authorization for certain EBF/ Maintenance releases because you are not registered as an authorized 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.

Sybase Product and Component Certifications

Certification reports verify Sybase product performance on a particular platform.

To find the latest information about certifications:

* For partner product certifications, go to *http://www.sybase.com/detail_list?id=9784*
* For platform certifications, go to *http://certification.sybase.com/ucr/search.do*

Creating a MySybase Profile

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

1. Go to *http://www.sybase.com/mysybase*.
2. Click **Register Now**.

Accessibility Features

Accessibility ensures access to electronic information for all users, including those with disabilities.

Documentation for Sybase products is available in an HTML version that is designed for accessibility.

Vision impaired users can navigate through the online document with an adaptive technology such as a screen reader, or view it with a screen enlarger.

Sybase HTML documentation has been tested for compliance with accessibility requirements of Section 508 of the U.S Rehabilitation Act. 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 may 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 the Sybase Accessibility site: *http://www.sybase.com/products/accessibility*. The site includes links to information about Section 508 and W3C standards.

You may find additional information about accessibility features in the product documentation.

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