

SYBASE®

Getting Started

**Replication Server®**

15.5

DOCUMENT ID: DC10114-01-1550-01

LAST REVISED: March 2010

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# Contents

<b>About This Book .....</b>	<b>v</b>	
<b>CHAPTER 1</b>	<b>Before You Begin .....</b>	<b>1</b>
	Replication environment components .....	1
	Pre-installation tasks .....	2
	Planning your replication system.....	3
	Checking system requirements .....	3
	System requirements for Replication Server on Windows platforms .....	4
	System requirements for Replication Server on UNIX platforms .....	5
	Creating the Sybase user account .....	7
	Verifying your environment .....	7
	Selecting an installation directory for Replication Server .....	8
	Installing Replication Server in an existing directory .....	8
	Installing Replication Server in a unique directory .....	8
	Obtaining a license.....	9
<b>CHAPTER 2</b>	<b>Installing Replication Server.....</b>	<b>11</b>
	Introduction .....	11
	Installing Replication Server.....	12
	Post-installation tasks .....	16
	Adding a login for Replication Manager to the Adaptive Servers .....	17
	Using dsedit to change the Replication Server host name.....	18
	Using dsedit to add server entries to the interfaces files.....	19
<b>CHAPTER 3</b>	<b>Setting Up and Configuring the Replication Environment.....</b>	<b>21</b>
	Starting Sybase Central .....	21
	Defining the replication environment.....	22
	Configuring replication .....	24
	Replicating data .....	26
	An example .....	26

	What's next?.....	27
<b>CHAPTER 4</b>	<b>Managing Replication Server .....</b>	<b>29</b>
	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 the replication environment .....	32
<b>Index .....</b>		<b>33</b>

# 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.

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- *Configuration Guide* for your platform – describes configuration procedures for Replication Server and related products.
  - *Getting Started with Replication Server* (this book) – provides step-by-step instructions for installing and setting up a simple replication system.
  - *ASE-to-ASE Replication Quick Start Guide* – provides information for Adaptive Server users who want to set up a Replication Server to replicate data from one Adaptive Server database to another.
  - *New Features Guide* – describes the new features in Replication Server.
  - *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.
  - *Design Guide* – contains information about designing a replication system and integrating heterogeneous data servers into a replication system.
  - *Heterogeneous Replication Guide* and the Replication Server Options documentation set – 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 and the Sybase Product Manuals Web site to learn more about your product:

- The Getting Started CD is included with your software and contains release bulletins, installation guides in PDF format, and other documents or updated information. 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.

You can also access the documents available on the Getting Started CD from the Sybase Product Manuals Web site.

- The Sybase Product Manuals Web site, which can be accessed using a standard Web browser, includes the Replication Server documents that are not included in the Getting Started CD. 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 Partner Certification Report.
- 3 In the Partner Certification Report filter select a product, platform, and timeframe and then click Go.
- 4 Click a Partner 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.

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## 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.

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**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.

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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.



# 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	7
Verifying your environment	7
Selecting an installation directory for Replication Server	8

## 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.

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

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- 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. More information for each of these tasks is described later in this chapter.

See the Replication Server release bulletin for your platform for the updated list of operating systems and platforms that Replication Server supports and for any last-minute information that was too late to be included in the books.

- 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 if you want 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. For setting up a test environment, install identical copies of either the pubs2 or the pubs3 database.

Verify 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. See the *Release Bulletin* for information such as, the latest system requirements and operating systems patches.

## 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 platforms**

Item	Requirement
CPU	A Pentium processor.
RAM	A minimum of 512MB RAM.
Disk storage	<p>A minimum of 580MB of available hard disk space:</p> <ul style="list-style-type: none"> <li>• 450MB for the Replication Server software, supporting files, and log files.</li> <li>• 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software.</li> <li>• 30MB for temporary usage during installation.</li> <li>• 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.</li> </ul> <p>More disk space may be required, depending on your replication system application.</p> <p>A minimum of 300MB on the hard disk for the directory you use as the temporary directory.</p>
Platform and operating system	<p>One of the following on either 32-bit or 64-bit platforms:</p> <ul style="list-style-type: none"> <li>• Windows XP Professional, Service Pack 2 or later</li> <li>• Windows 2003, Service Pack 2 or later</li> <li>• Windows Vista Enterprise, Service Pack 1</li> <li>• Windows Vista Business, Service Pack 1</li> <li>• Windows Server 2008 R2</li> <li>• Windows 7</li> </ul> <p>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 <a href="http://www.microsoft.com/downloads/details.aspx?familyid=766a6af7-ec73-40ff-b072-9112bab119c2&amp;displaylang=en">http://www.microsoft.com/downloads/details.aspx?familyid=766a6af7-ec73-40ff-b072-9112bab119c2&amp;displaylang=en</a>.</p>
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

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	<p>A minimum of 1,050MB of available hard disk space:</p> <ul style="list-style-type: none"> <li>• 950MB for the Replication Server software, supporting files, and log files.</li> <li>• An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software.</li> <li>• 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.</li> </ul> <p>More disk space may be required, depending on your replication system application.</p> <p>A minimum of 1GB on the hard disk for the <i>tmp</i> directory.</p>
Platform and operating system	<p>One of the following platforms:</p> <ul style="list-style-type: none"> <li>• HP Itanium (64-bit): <ul style="list-style-type: none"> <li>• HPUX 11.23</li> <li>• HPUX 11.31</li> </ul> <p>The installer requires the gzip utility. Ensure that the path to gzip is set in the \$PATH environment variable.</p> </li> <li>• IBM AIX (64-bit): <ul style="list-style-type: none"> <li>• AIX 5.3</li> <li>• AIX 6.1</li> </ul> <p>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.</p> <p>These libraries are also available from the IBM AIX Web site:</p> <ul style="list-style-type: none"> <li>• IBM XL C/C++ Runtime for AIX – see “Latest updates for supported IBM C and C++ compilers”.</li> <li>• SMP Runtime Libraries – see “IBM XL C/C++ Enterprise Edition for AIX, Runtime Environment and Utilities”.</li> </ul> </li> </ul>

Item	Requirement
	<ul style="list-style-type: none"> <li>• Linux on x86 (32-bit and 64-bit):                             <ul style="list-style-type: none"> <li>• Linux x86 Red Hat Enterprise Linux 4.0 update 5                                     <ul style="list-style-type: none"> <li>• kernel-2.6.9-55.EL</li> <li>• glibc-2.3.4-2.36</li> </ul> </li> <li>• Red Hat Enterprise Linux 5.0 update 1                                     <ul style="list-style-type: none"> <li>• kernel-2.6.18-53.1.13.el5</li> <li>• glibc-2.5-18</li> </ul> </li> <li>• SuSE Linux Enterprise Server SLES 10                                     <ul style="list-style-type: none"> <li>• kernel-smp-2.6.16.21-0.8</li> <li>• glibc-2.4-31.2</li> </ul> </li> <li>• SuSE Linux Enterprise Server SLES 11                                     <ul style="list-style-type: none"> <li>• kernel-*-2.6.27.19-5.1</li> <li>• glibc-2.9-13.2</li> </ul> </li> </ul> </li> </ul> <hr/> <p>Linux on IBM p-Series (Linux on POWER) (64-bit):</p> <ul style="list-style-type: none"> <li>• Linux x86 Red Hat Enterprise Linux 4.0 update: 5                             <ul style="list-style-type: none"> <li>• kernel-2.6.9-55.EL</li> <li>• glibc-2.3.4-2.36</li> </ul> </li> <li>• Red Hat Enterprise Linux 5.0 update: 1                             <ul style="list-style-type: none"> <li>• kernel-2.6.18-53.1.13.el5</li> <li>• glibc-2.5-18</li> </ul> </li> <li>• SuSE Linux Enterprise Server SLES 10                             <ul style="list-style-type: none"> <li>• kernel-smp-2.6.16.21-0.8</li> <li>• glibc-2.4-31.2</li> </ul> </li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Sun Solaris on Sun SPARC (64-bit):                             <ul style="list-style-type: none"> <li>• Solaris 8</li> <li>• Solaris 9</li> <li>• Solaris 10</li> </ul> </li> <li>• Sun Solaris 10 x86-64 (64-bit)</li> </ul>
Supported protocols	TCP/IP



## Creating the Sybase user account

To ensure that Sybase product files and directories are created with consistent ownership and privileges, one user, such as the Sybase system administrator—who has read, write, and execute privileges—should perform all installation and configuration tasks. For Windows, the user should have the Administrator privilege.

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 already exist. 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 15.5 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 15.5 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

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**Warning!** Installing Replication Server 15.5 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.

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### 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 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.”

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**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 19 for post-installation task instructions.

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## Obtaining a license

Replication Server works for a 30-day grace period without a license. You can use the Sybase Software Asset Management (SySAM) system that comes with Replication Server to register your Replication Server product.

Before you begin the installation, Sybase recommends that you get your license files from the Sybase Product Download Center (SPDC) at <https://sybase.subscribenet.com>, to which you are automatically enrolled in when you purchase a Sybase product. Log in to SPDC by using the information in your SPDC welcome e-mail.

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

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For information about SySAM 2, see the *Sybase Software Asset Management Users Guide*.



# Installing Replication Server

This chapter describes how to install the Replication Server software components from the media using the Replication Server installer.

Topic	Page
Introduction	11
Installing Replication Server	12
Post-installation tasks	16

## Introduction

The Replication Server 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 preinstallation 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 16.

## Installing Replication Server

This section describes how to install Replication Server components.

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.

- 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. Follow directions for your platform.

*Windows:*

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

*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.”

*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
```

*Linux:*

Enter this command at the # prompt:

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

*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*.

- 4 Invoke the installer 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.

*-i swing* specifies the GUI installation 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.

```
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 you 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 Chapter 2, “Installing Replication Server,” in the *Replication Server Installation Guide*.

- 6 The Introduction window appears to remind you to shut down all other programs. Shut down other programs and click Next.
- 7 The Choose Install Folder window appears. You can select 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 “Selecting an installation directory for Replication Server” on page 8 before you select an installation directory. In some cases, installing Replication Server in an existing directory can irreversibly affect other Sybase software.

- 8 The Choose Install Set window appears. Select Typical installation and click Next.

---

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

---

- 9 The End-user License Agreement window appears. 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 if you want to proceed with the installation.
- 11 The Sybase Software Asset Management License(SySAM) window appears if the installer does not detect any license it can use. You can select one of:
  - Specify License Keys – click Browse to select the license file or copy the license key directly into the panel, and then click Next. If you specify a served license key, the installer prompts you to install a new SySAM license server. Click one of:
    - Next – to install the new SySAM license server and follow the installation prompts.
    - Previous – and select the “Use previously deployed license server” option if you have an existing SySAM license server on the same host.
  - Use Previously Deployed License Server – select 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 – select if you do not have licenses for any of the Replication Server components, and 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 After installing the components, the Start Sample Replication Server window appears. 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. The Install Complete window confirms if installation is successful.
- 17 Click Done to close the installer.

You are now ready to create the replication environment.

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

## 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 18.

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 19.

## **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 using 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 replicate 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 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 Follow directions for your platform.

*On Windows:*

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

*On UNIX:*

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

- 3 *On Windows:*

Double-click `dsedit.exe`.

*On UNIX:*

Enter the following command:

```
dsedit
```

The Select Directory Service window appears.

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

- 4 Select `InterfacesDriver` and click OK. The `InterfacesDriver` window appears.
- 5 Select `SAMPLE_RS` in the left pane.
- 6 Double-click the `Server Address` line in the right pane. The `Network Address Attribute` window appears.
- 7 Click `Edit`.
- 8 In the `Network Address` field:
  - Delete `localhost`.
  - Add the name of the machine on which Replication Server will run.

- 9 Click OK.
- 10 Click OK.
- 11 Select File | Exit.
- 12 Restart the sample Replication Server:
  - On Windows by one of:
    - 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`.

## Using *dsedit* to add 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 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 replicate Adaptive Servers in the Replication Server interfaces file

You will need this information for each server:

- Server name
- Host name
- Port number.

Use *dsedit* to add an entry for Replication Server in the Adaptive Server interfaces file. See the *Adaptive Server Enterprise Utility Guide* for instructions.

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
```

The Select Directory Service window appears.

- 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 port number of the primary Adaptive Server. For example:

```
chaucer, 35356
```

- 7 Click OK.

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

- 9 Enter the name of the replicate Adaptive Server. Click OK. The Input Network Address window appears.

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

```
johnson, 9756
```

- 11 Click OK.

- 12 Click OK.

- 13 Select File | Exit.

# 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.

Topic	Page
Starting Sybase Central	21
Defining the replication environment	22
Configuring replication	24
Replicating data	26

## 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 on 32-bit Windows platforms or the *win64* subdirectory on 64-bit platforms.
- 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

A 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 a 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\_psClick 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 redisplay. 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 the 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*. 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.

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 the replication environment	32

## Starting the sample Replication Server

The Replication Server installer 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 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, 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.

## Monitoring the replication environment

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*.

# Index

## A

- accounts, creating sybase user 7
- Add Replication Environment wizard 22
- adding a login for Replication Manager 17
- administration tasks 7
- audience for book v

## C

- CD reading errors 13
- Configure Replication wizard 24
- configuring replication 24
- conventions used in book viii
- CPU requirements 4
- creating sybase user accounts 7

## D

- database replication definitions 24, 28, 31
- database replication definitions, filters 28
- database subscriptions 24, 28
- defining
  - replication environment 22
- disk storage requirements
  - UNIX 5
  - Windows 4
- dsedit** utility
  - adding server entries to interfaces file 19
  - changing Replication Server host name 18

## E

- Embedded Replication Server System Database (ERSSD) 2, 4, 5
- environment
  - verification 7

- example of replication 26

## F

- filters, database replication definitions 28

## G

- grant command 17
- gzip utility, for HP 5

## H

- hardware requirements
  - Windows 4
- host name 17, 18

## I

- IATEMPDIR environment variable 14
- installation directory
  - existing 8
  - selecting 2, 8
  - unique 8
- installer
  - tasks performed 11
- installing Replication Server 11
  - steps 12
- interfaces file 9, 17

## L

- libraries
  - SMP runtime 5

## Index

licenses 9  
login, adding to Adaptive Server 17

## M

maintenance user 25  
materialization method 25  
Microsoft Visual Studio 4  
monitoring  
    Replication Manager 32  
    Replication Monitoring Services 32

## O

operating system requirements  
    UNIX 5  
    Windows 4  
organization of book v  
overview  
    SySAM licensing 9

## P

planning the replication system 2, 3  
post-installation tasks 11, 16  
pre-installation tasks 2, 11  
primary Adaptive Server 1, 25  
primary database 1, 26  
pubs2 database 3  
pubs3 database 3

## R

RAM requirements  
    UNIX 5  
    Windows 4  
related documents v  
replicate Adaptive Server 1, 25  
replicate database 1, 23, 24, 27  
replicating data 26  
replication environment 1  
    defining 22

    setting up 21  
replication environment components 1  
Replication Manager 2  
Replication Monitoring Services 2  
Replication Server  
    licenses 9  
replication system planning 3  
replication, configuring 24  
requirements  
    disk storage 4, 5  
    hardware 4  
    operating system 4, 5  
    RAM 4, 5  
    system 4, 5  
RMS  
    See Replication Monitoring Services 2  
runtime libraries 5

## S

sa\_role permission 17  
sample Replication Server  
    logging in 30  
    logs 30  
    run file 29  
    starting 29  
    stopping 30  
**sp\_addlogin** command 17  
sso\_role permission 17  
starting sample Replication Server 29  
steps  
    installing Replication Server 12  
supported protocols 4, 6  
Sybase Central 2  
Sybase Central, starting 21  
Sybase license agreement 15  
sybase user account 2, 7  
SySAM 15  
    licensing instruction overview 9  
system requirements 2, 4, 5  
    UNIX 5  
    Windows 4

## T

- tables
  - system requirements 4, 5
- tasks
  - administration 7
  - post-installation 16
  - pre-installation 2
- temp space
  - UNIX 5
  - Windows 4
- temporary disk space 14
- TMP environment variable 14

## U

- user account
  - sybase 2, 7
- user accounts and privileges 2

## V

- verifying environment 7
- verifying replication 26
- viewing database replication definitions 31
- viewing database subscriptions 31
- viewing logs 30

## X

- X-Windows 21

