SYBASE®

Installation Guide

Replication Server®

12.6

UNIX

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Contents

About This Book

Audience

This book is for System Administrators and other qualified installers who are familiar with their system's environment, networks, disk resources, and media devices.

How to use this book

Before you use this book, you can read Chapter 1, "Preparing to Install and Configure Replication Server" in the *Replication Server Configuration Guide for UNIX* to help you plan your installation. The step is unnecessary if you plan to install a sample Replication Server.

When you have completed the instructions in Chapter 1, follow the instructions in this book to install Replication Server® on your system.

This guide contains the following chapters:

- Chapter 1, "Introduction," provides an overview of the installation process.
- Chapter 2, "Installing Replication Server," describes how to prepare your system for Replication Server software installation and how to load the Replication Server software from CD onto your system.
- Appendix A, "Sybase Software Asset Management (SySAM)," provides additional information about licensing concepts that you need to know before you begin installing additional copies of Replication Server, setting up the license manager in a network environment, or setting up redundant servers for high availability and failover.

Related documents

The Sybase® Replication Server documentation set consists of the following:

- 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 Word Wide Web. To check for critical product or document information that was added after the release of the product CD, use the Sybase Technical Library.

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

- *What's New in Replication Server?* – describes the new features in Replication Server version 12.6 and the system changes added to support those features.
- *Administration Guide* – contains an introduction to replication systems. This manual includes information and guidelines for creating and managing a replication system, setting up security, recovering from system failures, and improving performance.
- *Configuration Guide* for your platform – describes configuration procedures for all Replication Server and related products, and explains how to use the rs_init configuration utility.
- *Design Guide* – contains information about designing a replication system and integrating heterogeneous data servers into a replication system.
- *Getting Started with Replication Server* – provides step-by-step instructions for installing and configuring a sample Replication Server, and creating a replication environment that replicates data.
- *Heterogeneous Replication Guide* – describes how to use Replication Server to replicate data between databases supplied by different vendors.
- *Reference Manual* – contains the syntax and detailed descriptions of Replication Server commands in the Replication Command Language (RCL); Replication Server system functions; Sybase Adaptive Server® commands, system procedures, and stored procedures used with Replication Server; Replication Server executable programs; and Replication Server system tables.
- *System Tables Diagram* – illustrates system tables and their entity relationships in a poster format. Available only in print version.
- *Troubleshooting Guide* – contains information to aid in diagnosing and correcting problems in the replication system.
- Replication Server plug-in help, which contains information about using Sybase Central™ to manage Replication Server.

Other sources of information

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

- The Getting Started CD contains release bulletins and installation guides in PDF format, and may also contain other documents or updated information not included on the Technical Library CD. It is included with your software. To read or print documents on the Getting Started CD you need Adobe Acrobat Reader (downloadable at no charge from the Adobe Web site, using a link provided on the CD).

- The Technical Library CD contains product manuals and is included with your software.

  Not available for Mac – The DynaText reader (included on the Technical Library CD) allows you to access technical information about your product in an easy-to-use format.

  Refer to the *Technical Library Installation Guide* in your documentation package for instructions on installing and starting the Technical Library.

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

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

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

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

1. Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.
2. Select Products from the navigation bar on the left.
3. Select a product name from the product list and click Go.
4. Select the Certification Report filter, specify a time frame, and click Go.
5. Click a Certification Report title to display the report.

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

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

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

Sybase EBFs and software maintenance

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

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

2 Select EBFs/Maintenance. Enter user name and password information, if prompted (for existing Web accounts) or create a new account (a free service).

3 Select a product.

4 Specify a time frame and click Go.

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 stylistic and syntactic conventions used in this book.

Style conventions Syntax statements (displaying the syntax and options for a command) are printed as follows:

alter user *user*
set password *new_passwd*
[verify password *old_passwd*]

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

```
alter user louise
 set password hFE5t
 verify password hFE5t
```

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

- Use alter user to change the password for a login name.
- Variables, parameters to functions and stored procedures, 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 san serif font in paragraph text, as follows:

  The base_price column in the Items table is a money datatype.

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

Syntax conventions Syntax formatting conventions are summarized in Table 1. Examples combining these elements follow.

Table 1: Syntax formatting conventions

Key	Definition
variable	Variables (words standing for values that you fill in) are in italics.
{ }	Curly braces mean you must choose at least one of the enclosed options. Do not include braces in the command.
[ ]	Brackets mean you may choose or omit enclosed options. Do not include brackets in the command.
|	Vertical bars mean you may choose no more than one option (enclosed in braces or brackets).
,	Commas mean you may choose as many options as you need (enclosed in braces or brackets). Separate your choices with commas, to be typed as part of the command. Commas may also be required in other syntax contexts.
( )	Parentheses are to be typed 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.

Obligatory choices

- Curly braces and vertical bars – choose only one option.

```
{red | yellow | blue}
```

- Curly braces and commas – choose one or more options. If you choose more than one, separate your choices with commas.

```
{cash, check, credit}
```

Optional choices

- One item in square brackets – choose it or omit it.

```
[anchovies]
```

- Square brackets and vertical bars – choose none or only one.

```
[beans | rice | sweet_potatoes]
```

- Square brackets and commas – choose none, one, or more options. If you choose more than one, separate your choices with commas.

```
[extra_cheese, avocados, sour_cream]
```

Repeating elements An ellipsis (...) means that you may repeat the last unit as many times as you need. For the alter function replication definition command, for example, you can list one or more parameters and their datatypes for either the add clause or the add searchable parameters clause:

```
alter function replication definition function_rep_def
    {deliver as 'proc_name' |
    add @parameter datatype[, @parameter
        datatype]... |
    add searchable parameters @parameter
        [, @parameter]... |
    send standby {all | replication definition}
        parameters}
```

If you need help

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

CHAPTER 1

Introduction

Replication Server consists of the following components:

- Replication Server
- RepAgent™ for Adaptive Server Enterprise
- Replication Server support files (for example, scripts and configuration files)
- Replication Server Manager (RSM) Server
- The Replication Server administration tool, which consists of:
  - Sybase Central, Java Edition, version 4.1 and the Replication Server Manager plug-in to Sybase Central.
  - Sybase Central, Windows Edition, version 3.2 and the Replication Server Manager plug-in to Sybase Central, Windows Edition.

Note The Replication Server Manager plug-in to Sybase Central, Windows Edition, is available only on Windows 2000 and Windows 2003 platforms. The Windows versions are provided to customers on other platforms on separate media.

Installation task overview

The *Replication Server Installation Guide for UNIX* explains how to unload the Replication Server software from the distribution media to your hard disk.

The *Replication Server Configuration Guide for UNIX* explains how to:

- Gather the information you need and prepare your system for the installation.

- Install Replication Servers and add databases to your replication system.
- Upgrade existing Replication Server System Databases (RSSDs).
- Downgrade existing RSSDs and then reinstall an earlier version of the software.
- Enable password encryption for a Replication Server or RepAgent.
- Start and stop Replication Server or RepAgent.

CHAPTER 2

Installing Replication Server

This chapter describes how to prepare your system for Replication Server software installation and how to install the Replication Server software from CD using InstallShield.

Note When you have completed the installation instructions in this chapter, return to the *Replication Server Configuration Guide for UNIX* to begin customizing your newly installed Replication Server.

Introduction

When you first install a Sybase product, InstallShield creates a Sybase installation directory, if it does not already exist, which contains the support files for all Sybase products.

When you install Replication Server using InstallShield, its software and support files are stored in the Sybase installation directory. You can install all Sybase software in the same installation directory.

InstallShield is Java-based, so the installation process is similar on both UNIX-based and Windows-based computers.

InstallShield enables you to:

- Install all Replication Server components. You can choose the installation option that works best for you:

  - Typical – installs the components recommended for most users.
  - Full – installs all components that are in the installation image. During installation, you can overwrite existing components.
  - Custom – allows you to select the components to install. Recommended for advanced users. Certain components are automatically installed if they are required to run other selected components.
- Easily view software release version and properties for components on the installation CD.
- Uninstall all Replication Server 12.6 components.

  Note You cannot use InstallShield to uninstall versions of Replication Server earlier than 12.6. For example, if you installed Replication Server 12.5 using Studio Installer, you must use Studio Installer to uninstall it.

  To use InstallShield in GUI (graphical user interface) mode, you must install a windowing package.

In addition, InstallShield:

- Creates the *SYBASE.csh* or *SYBASE.sh* script files. You can later use these files to reset environment variables after exiting InstallShield and before configuring Replication Server. See “Setting environment variables” on page 31.
- *Not available for HP Tru64 UNIX, Mac OS X, and SGI* – starts the sample Replication Server when the installation process is complete, if you installed the defaults.

  You must manually start other components, such as RSM, Replication Manager, and the license manager, if needed.

  If you did not install the defaults, follow the instructions in the *Replication Server Configuration Guide for UNIX* to start, then configure Replication Server.

Before you begin

Before you install Replication Server, follow the steps outlined in this section.

Reading the release bulletin

The release bulletin contains important information about installing and upgrading Replication Server software.

Your Sybase products shipment includes printed release bulletins. They are also available on the Product Manuals Web page at http://www.sybase.com/support/manuals.

Planning your replication system

The *Replication Server Configuration Guide for UNIX* includes information that will help you plan your replication system, including an installation worksheet and a database setup worksheet. Become familiar with Chapter 1, "Preparing to Install and Configure Replication Server" and the requirements of your replication system before continuing with installation.

Reviewing system requirements

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

Table 2-1: System requirements for UNIX

Item	Requirement

Disk storage	A minimum of 650MB of available hard disk space:
	• 500MB for the Replication Server software, supporting files, and log files.
	• 50MB for the RSM Server.
	• An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software.
	• One of the following:
	  • Disk space for your Adaptive Server Enterprise database, which will serve as your Replication Server System Database (RSSD) if you are not using the Embedded RSSD. See your Adaptive Server Enterprise documentation for system requirements.
	  • *Not available for Compaq Tru64 UNIX, Mac OS X, or SGI* – 80MB for your Adaptive Server Anywhere database, which will serve as your Embedded Replication Server System Database (ERSSD). The database directory, transaction log directory, and backup directory that make up the 80MB should each reside on different disks.
	• *Windows 2000 or 2003* – 20MB for Sybase Central and the Replication Server plug-in for Sybase Central.
	More disk space may be required, depending on your replication system application.

Item	Requirement
Operating system	One of the following platforms: • HP-9000 Series – HP-UX 11.0 and 11.11(11.i) • HP – Tru64 UNIX 5.0, 5.1, 5.1(a), 5.1(b), formerly Digital UNIX • HP Itanium – HP IA • IBM – AIX 4.3.3, 5.1, 5.2 • Mac OS X version 10.3.x • SGI – IRIX 6.5 • Sun – Solaris 2.8, Solaris 9 For Sybase Central for Windows – Intel Windows (Windows 2000, Windows Server 2003)

Reviewing operating system patch requirements

Contact your operating system provider for any patches recommended for your installation, or check "Product Summary," in the Replication Server release bulletin for your platform.

If your operating system requires patches, install them before you install Replication Server components.

Note Do not use a patch that is earlier than the version suggested for your operating system. If a patch has been superseded by a newer patch, use the most recent one.

Solaris: To list all currently installed patches and display the operating system version level, enter:

```
showrev -p
```

Increasing operating system threads

HP-UX only – beginning with version 12.5, Replication Server uses operating system threads instead of Open Client/Server™ threads. This requires the operating system kernel to allocate many more threads per process than before. However, because many HP-UX systems have relatively low default limits on the number of threads per process and total number of threads per kernel, Replication Server may report the following error message:

```
F. 2002/05/28 12:23:37. FATAL ERROR #1030 ?(?) - /errhand.c(730)
Open Server error: Error: 16361, State: 0, Severity 20 --
'CreateEvent() failed in srv__spawn_thread'.
T. 2002/05/28 12:23:37. (2): Exiting due to a fatal error
```

To prevent this error message, increase the value of max_thread_proc to 256, and the value of nkthread to 2048 in your operating system with the following:

1 Log in as the superuser (SU), and go to the root directory.

2 Start sam.

3 In sam, select “Kernel configuration.”

4 Select “Configurable parameters.”

5 Scroll down to “max_thread_proc.”

6 Increase the value of max_thread_proc.

7 Select Actions | Process New Kernel to rebuild the kernel.

8 Reboot the system.

Understanding the installation directory structure

Most components of Replication Server are installed in their own subdirectories, with the executable program, installation and configuration tools, and display-related files needed by the component. The naming convention for subdirectories includes a component identifier, such as REP (for Replication Server) or OCS (for Open Client™ and Open Server™), and the software release version, such as 12_6 or 1_0. If you are familiar with Replication Server 12.5, version 12.6 retains almost the same installation directory structure.

Warning! Do not install Replication Server version 12.6 on top of the following 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 – Mac OS X includes only the OCS runtime files.
- *Not available for Mac* – OpenSwitch version 12.5 or earlier
- *Not available for Mac* – DirectConnect™ version 12.5 or earlier

Doing so incapacitates older versions of these products, and can also adversely affect other Sybase products.

You cannot reverse this with an uninstallation, as an uninstallation may remove required components of the older Sybase products updated by Replication Server version 12.6. Sybase recommends that you back up your current directory before installing Replication Server version 12.6.

Shared components are installed in separate subdirectories than component subdirectories. For example, the Replication Server subdirectory is *$SYBASE/REP-12_6*; however, Open Client (Mac OS X includes only the OCS runtime files) is installed in *$SYBASE/OCS-12_5*; and the Replication Manager plug-in for Sybase Central, Java Edition, *RMPlugin.jar* and its associated files are installed in *$SYBASE/RMP-12_6*. The exception is Adaptive Server Anywhere (ASA), which is installed in *$SYBASE/REP-12_6/ASA8*. As a result, the directory structure enables you to install into an existing *$SYBASE* directory structure, as well as to install and use multiple versions of some components.

Note If your earlier installation includes custom applications or scripts that refer to *$SYBASE* (UNIX) or *%SYBASE%* (Windows for Sybase Central) subdirectories, change them to reflect the new installation directory structure.

Three diagnostic servers, *REP-12_6/bin/repserver.diag*, *REP-12_6/bin/ltm.diag*, and *RSM-12_6/bin/rsmsrvr.diag*, are installed to capture and display information about internal processes. Do not delete these programs; you may need to use them, at the direction of Sybase Technical Support, to diagnose and resolve Replication Server, Replication Server Manager, or Log Transfer Manager (LTM) problems.

Note The directory structure listed in this section is a partial directory structure. Your actual directory structure may differ depending on the components you choose to install.

On the Mac, the default installation directory for:

- Adaptive Server Enterprise is */Applications/Sybase*
- Replication Server is */Applications/Sybase/ReplicationServer126*

Note On the Mac, do not install Replication Server in */Applications/Sybase/System*.

Reviewing the Sybase installation directory contents

The section lists the contents of the Sybase installation directory in alphabetical order.

Installation directory after installation from the Server CD

The following items are installed on your machine.

Components of Replication Server

Within $SYBASE:

- *charsets* – character sets and sort order.
- *collate* – Unicode.
- *config* – configuration files.
- *installed* – not installed on the Mac. XML files needed for version control when you subsequently install or uninstall Sybase software with an installer other than InstallShield.
- *interfaces* – interfaces file.
- *jConnect-5_5* – jConnect™ directories including *classes*, *gateway2*, *sp*, and *tools*.
- *locales* – localization files.
- *log.txt* – the log of the installation process.
- *OCS-12_5* – Open Client and Open Server files, including *bin*, *config*, *devlib*, *include*, *lib*, *lib3p*, *sample*, *sybhelp*, and *xappdefaults*. Mac OS X includes only the OCS runtime files.
- *REP-12_6* – Replication Server 12.6 files, including *bin*, *certificates*, *doc*, *init*, *install*, *samp_repserver*, *scripts*, *upgrade*, and *ASA8* (not available for HP Tru64, Mac OS X, and SGI).
- *RSM-12_6* – Replication Server Manager (RSM) Server files and directories, including *admin*, *bin*, *doc*, *install*, *sample*, and *scripts*.
- *SYBASE.csh*, *SYBASE.sh*, *SYBASE.env* – files created by InstallShield that you use to reset environment variables.
- *SYSAM-1_0* – software license manager files, including *bin*, *log*, *lib*, and *licenses*.
- *_jvmrep* – not installed on the Mac. Files used by InstallShield.
- *uninstall* – files used by InstallShield to uninstall Replication Server software.

- *vpd.properties* – file used by InstallShield to keep track of version of installed and uninstalled software.

Warning! Do not modify or remove *vpd.properties*. Modifying or removing this file prevents InstallShield from accurately managing installed component versions when you install or uninstall Sybase software subsequent to this installation.

Components of Replication Manager plug-in to Sybase Central, Java Edition

- *RMP-12_6* – files and directories for Replication Manager plug-in to Sybase Central, Java Edition, including *bin*, *help*, *lib*, and *scripts*.
- *sybcent41* – files and directories for Sybase Central 4.1, Java Edition, including *bin*, *help*, and *lib*.
- *shared-1_0* – common components shared across products, including the Java runtime environments.

Installation directory after installation from the PC-Client CD

Note Replication Server includes a CD that installs Sybase Central and the Replication Server plug-in for Sybase Central on a Windows-based PC. This is optional. If you use the Java version of Sybase Central on your UNIX machine instead, you can skip this section.

The following items are installed on your PC.

Components of Replication Server plug-in to Sybase Central, Windows Edition

Within *%SYBASE%*:

- *RSP-12_6* – Replication Server plug-in for Sybase Central, Windows Edition, files and directories, including *install*, *screpsrv.dll*, *scrslgen.dll*, *scrsen.cnt*, and *scrsen.hlp*.
- *Sybase Central 3.2* – Sybase Central version 3.2 files, including *doc*, *Meta-inf*, and *win32*.

Components of Replication Manager plug-in to Sybase Central, Java Edition

- *RMP-12_6* – files and directories for Replication Manager plug-in to Sybase Central, Java Edition, including *bin*, *help*, *lib*, and *scripts*.
- *sybcent41* – files and directories for Sybase Central 4.1, Java Edition, including *bin*, *help*, and *lib*.
- *shared-1_0* – common components shared across products, including the Java runtime environments.

Components of both plug-ins

- *OCS-12_5* – Open Client and Open Server directories and files. Only OCS runtime files on the Mac.

- *installed* – XML files needed for version control in the future when you install or uninstall Sybase software.

Setting the required environment variable for *dsedit* utility

The Replication Server installation also includes a utility called dsedit, which lets you configure the *interfaces* file (not available on Mac OS X). The dsedit utility requires the following environment variables to be set:

- **Solaris, HP Tru64, Linux, and SGI:** LD_LIBRARY_PATH
- **HP-UX, HP Itanium:** SHLIB_PATH
- **IBM AIX:** LIBPATH

Set the environment variable as follows:

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

If you do not set this environment variable, dsedit does not start, and an error message reports that a shared library cannot be found. All libraries needed to run dsedit are in the *$SYBASE/$SYBASE_OCS/lib* directory. Use the *SYBASE.csh* and *SYBASE.sh* files to set this environment variable. See "Setting environment variables" on page 31 for more information.

See the *Replication Server Configuration Guide for UNIX* for information about dsedit.

Installing Adaptive Server for the Replication Server System Database

Note The Embedded Replication Server System Database is not available for HP Tru64 UNIX, Mac OS X, and SGI platforms.

If you are using the default Embedded Replication Server System Database (ERSSD), which is stored on Adaptive Server Anywhere, go to “Reviewing system requirements” on page 5 . Otherwise, to use the Replication Server System Database (RSSD) stored on Adaptive Server Enterprise, install the Adaptive Server Enterprise database, if you have not done so already. See the *Adaptive Server Enterprise Installation Guide* for your platform for instructions.

Note If you are upgrading to a later version of Adaptive Server Enterprise and you have replicated databases, read Appendix B, “Upgrading Servers with Replicated Databases,” in the *Adaptive Server Enterprise Installation Guide* for your platform.

Performing administrative tasks

This section describes several administrative tasks that you must complete before you begin the installation process.

1 Back up your current replication system.

2 Create the “sybase” user account and make sure it has read, write, and execute permissions. See “Creating the “sybase” user account” on page 13 for more information.

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

4 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.

5 If you are using an RSSD, verify that Adaptive Server Enterprise is up and running.

Creating the “sybase” user account

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

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

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

Installing Replication Server

Follow the procedures in this section to install Replication Server components.

Note This procedure installs Replication Manager, the plug-in to Sybase Central, Java Edition. However, it does not install the Replication Server plug-in to Sybase Central, Windows Edition. To install the Replication Server plug-in to Sybase Central, Windows Edition, see "Installing Sybase Central on Windows" on page 32.

❖ **Installing Replication Server components**

1 Choose one of the following installation modes:

- Graphical user interface (GUI) – which lets you install the components using the InstallShield interface.
- Console – which lets you install components in a command line environment.
- Response file – which lets you record or create a response file. You can install Replication Server in two different ways using a response file:
  - Silent – which lets you save the installation settings in a response file and install the product without any interaction required on your part. This is convenient if you are performing identical installations on multiple machines.

- Console installation using response file – which lets you install in console mode but with all the responses already filled in, so that you can accept all the defaults and install Replication Server according to the responses in the response file. This can be convenient if several sites are installing Replication Server in a nongraphical user interface environment and must conform to a standard installation with minor changes.

Note If you encounter problems during installation, check the installation log file to see a record of the installation process. The file is located in *$SYBASE/log.text*, where *$SYBASE* is the Replication Server installation directory.

2 Mount the Replication Server CD:

- **Mac:** The operating system mounts the CD automatically.

  If you do not see the CD in the */Volumes* directory:

  a Enter the following command in a terminal window to identify the location of the CD drive:

  ```
  /usr/sbin/disktool -l
  ```

  You see the following output, where the CD drive is "cd9660," the CD is called "RS126 MAC," and the drive's location is "disk1s0":

```
***Disk Appeared ('disk0',Mountpoint = '', fsType = '', volName = '')
***Disk Appeared ('disk0s1',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s2',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s3',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s4',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s5',Mountpoint = '/', fsType = 'hfs', volName
= 'macxase2')
***Disk Appeared ('disk1',Mountpoint = '', fsType = '', volName = '')
***Disk Appeared ('disk1',Mountpoint = '', fsType = '', volName = '')
***Disk Appeared ('disk1s0',Mountpoint = '', fsType = 'cd9660',
volName = 'RS126 MAC')
```

  b Enter the following command, using the CD drive's location:

  ```
  /usr/sbin/disktool -m disk1s0
  ```

You see the following output:

```
disk1s0 device will attempt to be mounted ...
***Disk Appeared ('disk0',Mountpoint = '', fsType = '', volName = '')
***Disk Appeared ('disk0s1',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s2',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s3',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s4',Mountpoint = '', fsType = '', volName =
'')
***Disk Appeared ('disk0s5',Mountpoint = '/', fsType = 'hfs', volName
= 'macxase2')
***Disk Appeared ('disk1',Mountpoint = '', fsType = '', volName = '')
***Disk Appeared ('disk1s0',Mountpoint = '', fsType = 'cd9660',
volName = 'RS126 MAC')
Disk Mounting Completed
```

- **Solaris:** The operating system mounts the CD automatically. If you get CD-reading errors, check your operating system kernel to make sure the ISO 9660 option is turned on.

  Note If your CD shows up as anything other than *RS126SOLARIS*, this means you previously installed a Sybase CD on your system. Perform either of these two options to install your current CD:

  - Restart your system.
  - Delete the *sybasecd* file in */vol/dsk.*

- **Tru64 UNIX:** Enter the following command, where *RS126HPTru64* is the CD drive device name, and */cdrom* is the name of the directory where the CD is to be mounted:

```
/sbin/mount -r -t cdfs -o noversion -o rrip RS126HPTru64/cdrom
```

- **HP-UX:**

  a Log out.

  b Log on as “root.”

  c Enter the following, where *RS126HP* is the CD drive device name, and */cdrom* is the name of the directory where the CD is to be mounted:

  ```
  /etc/mount -F cdfs -o ro RS126HP/cdrom
  ```

d Log out as “root.”

e Log in as “sybase.”

- **HP Itanium:**

  a Log out.

  b Log on as “root.”

  c Enter the following, where */cdrom* is the name of the directory where the CD is to be mounted:

  ```
  mount -F cdfs -o ro /dev/dsk/c1t3d0 /cdrom
  ```

  d Log out as “root.”

  e Log in as “sybase.”

- **IBM AIX:** Mount the CD using the following command, where *RS126 IBM* is the CD drive device name, and */cdrom* is the name of the directory where the CD is to be mounted:

```
/usr/sbin/mount -v 'cdrfs' -r" device_name RS126IBM/cdrom
```

The location of the mount command is site-specific and may differ from what is shown in these instructions.

- **SGI:** The operating system mounts the CD automatically. If you get CD-reading errors, check your operating system kernel to make sure the ISO 9660 option is turned on.

If you cannot mount the CD drive, consult your operating system documentation or contact your operating system administrator.

3 Verify that you are logged in as the “sybase” user with “root” privileges.

❖ **Installing in GUI mode**

Mac:

1 Insert the Replication Server CD in the CD drive.

2 Double-click the CD icon, then double-click the Setup icon.

If you have a “headless” Mac that lacks a monitor, install Replication Server in command line mode. See “Installing in console mode” on page 21.

At the UNIX prompt, enter the following, where *cdrom* is the directory you specified when mounting the CD drive, and *./setup* unloads the components in GUI mode:

- **HP Tru64, IBM AIX, and SGI:**

```
cd /device_name
./setup -is:javahome JVM
```

- **HP Itanium, HP-UX:**

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

- **Solaris:**

```
cd /cdrom/rs126solaris
./setup
```

4 You might see the following error message:

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

If so, set the temporary directory to another directory that has more disk space by entering the following at the command line, where *directory_name* is the name of the temporary directory to which InstallShield will write its temporary files:

```
setup -is:tempdir <directory_name>
```

This directory should have at least 100MB of disk space.

5 Select Next to proceed.

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

7 Read the Sybase license agreement and select “I agree.” Click Next.You must agree to the license and copyright before you can continue.

8 In the install directory window, click Next to accept the default directory for the installation (*$SYBASE* or */opt/sybase*), or enter a different directory name.

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

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

10 Click Yes. If the installation directory exists, InstallShield prompts:

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

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

If you click Yes, and:

- The products were installed with Studio Installer (for example, if you installed a version of Replication Server earlier than 12.6 or a version of Adaptive Server earlier than 12.5.1), InstallShield overwrites common components.
- The products were installed with InstallShield, InstallShield determines the correct course of action without prompting you.

Warning! Do not install into an existing Adaptive Server Enterprise 12.x (64-bit) directory. If you do, localization (*.loc* files) will be overwritten, and Adaptive Server Enterprise will not start.

11 Select the type of installation:

- If you choose Typical, InstallShield displays the following default components:
  - Sybase Servers
  - Replication Server Administration Tools – Sybase Central, Java Edition, and Replication Manager plug-in to Sybase Central, Java Edition
  - Connectivity
  - Language Modules for Replication Server
  - Language Modules-Connectivity
  - jConnect
  - Shared
  - Sybase Software Asset Management – SySAM

  Note *Not available for HP Tru64 UNIX, Mac OS X and SGI* – to start a sample Replication Server automatically after installation, select Typical installation and then select the defaults.

- If you choose Full, InstallShield installs every component on the CD.

- If you choose Custom, select the components to install. Certain components are automatically installed if they are required to run your selected components.

Note To install the Replication Server plug-in to Sybase Central, Windows Edition, use the PC-Client CD and follow the instructions in "Installing Sybase Central on Windows" on page 32.

12 Click Next. InstallShield installs the components on the hard drive and displays a progress indicator.

If you do not have enough disk space for the installation, InstallShield displays an error message. In this case, exit InstallShield, remove any programs or files that you do not need, and clean out temporary directories. Then, restart InstallShield.

13 *Not available for HP Tru64 UNIX, Mac OS X and SGI* – on the sample Replication Server option window, click:

- Yes – to configure and start a sample Replication Server. InstallShield displays the configuration information for the sample Replication Server. Write this information down.
- No – to complete the installation and configure a fully-featured Replication Server manually.

  If you click No, you can configure and start a sample Replication Server after installation. See "Starting the sample Replication Server" on page 30 for more information.

14 *Not available for HP Tru64 UNIX, Mac OS X, and SGI* – click Next. If you chose to configure and start a sample Replication Server, InstallShield displays the configuration information related to the sample Replication Server:

```
This page contains detailed information regarding the sample Replication
Server. Please record this information.

The sample Replication Server will be configured using the file
$SYBASE/REP-12_6/samp_repserver/SAMPLE_RS.res.

All files and logs associated with the sample Replication Server will be
located in the directory $SYBASE/REP-12_6/samp_repserver.

The sample Replication Server will be called SAMPLE_RS and will run on
port 11752. It will be configured with a user of sa and no password.
```

```
The sample Replication Server will use an embedded RSSD called
SAMPLE_RS_ERSSD that runs on port 11751. It will be configured with a
user of SAMPLE_RS_RSSD_prim and a password of SAMPLE_RS_RSSD_prim_ps.

The installer has updated the appropriate interfaces file or sql.ini
file.
```

15 *Not available for HP Tru64 UNIX, Mac OS X, and SGI* – click Next. If you chose to start a sample Replication Server, the Configure New Replication Server window displays the progress of the server configuration.

16 Click Next. The Installation Completed window displays, verifying that the Replication Server software is now installed.

If you chose to start a sample Replication Server, Replication Server is started automatically. If you did not choose to start a sample Replication Server, you must configure and then start your Replication Server manually.

See the *Replication Server Configuration Guide for UNIX* for information about how to configure your new Replication Server.

17 Click Finish. The InstallShield wizard closes.

18 Run the license tool to enter your Sybase Software Asset Management Certificates. See "Using the SySAM license manager" on page 26 for more information.

19 Check the Sybase downloads Web site at http:/www.sybase.com/downloads for updates.

❖ **Installing in console mode**

The steps for installing components in an interactive text mode are the same as those described in "Installing in GUI mode" on page 17, except that you execute InstallShield from the command line using the setup -console command, and you enter text to select installation options.

1 At the command line, enter:

- **HP Itanium, HP-UX and Solaris:** `./setup -console`
- **HP Tru64, IBM AIX, and SGI:**

```
./setup -console -is:javahome JVM
```

- **Mac:** In a terminal window, enter:

```
java -Djava.awt.headless=true -cp /Volumes/"RS126 MAC"/suite.jar \
    run -console
```

InstallShield starts and displays the welcome window as follows:

```
------------------------------------------------

Welcome to the InstallShield Wizard for Sybase
Replication Server Software, Version 12.6.

The InstallShield Wizard will install Replication
Server Software, Version 12.6 on your computer.

To continue, choose Next.

Press 1 for Next, 3 to Cancel or 4 to Redisplay [1]

------------------------------------------------
```

2 Follow the remaining prompts to install Replication Server software.

Installing in command line mode

This section discusses the various installation methods that use command lines.

Warning! You must either set your SYBASE environment variable to the install directory, or unset it altogether. If you do not do this, you misplace the *vpd.properties* file, and you cannot perform subsequent installations or uninstallations of Replication Server.

Installing with a response file

You can install Replication Server using a response file in combination with a console or silent installation. You must first create the response file.

To create a response file, do one of the following at the command line:

- Enter the following command, where *REP.response* is name you choose for the response file.
  - **HP Itanium, HP-UX and Solaris:**

    ```
    ./setup -options-template REP.response
    ```

  - **HP Tru64, IBM AIX, and SGI:**

```
./setup -options-template REP.response -is:javahome JVM
```

- **Mac:** In a terminal window, enter:

```
java -Djava.awt.headless=true -cp /Volumes/"RS126 MAC"/suite.jar \
    run -options-template REP.response
```

InstallShield creates an options template called *REP.response*. Edit the template with the values you want to use during installation.

- Enter the following command at the command line, where *REP.response* is a name you choose for the response file:
  - **HP Itanium, HP-UX and Solaris:**

```
./setup -options-record REP.response
```

  - **HP Tru64, IBM AIX, and SGI:**

```
./setup -options-record REP.response -is:javahome JVM
```

  - **Mac:** In a terminal window, enter:

```
java -Djava.awt.headless=true -cp /Volumes/"RS126 MAC"/suite.jar \
    run -options-record REP.response
```

InstallShield runs the installation in GUI mode and captures all user choices to a file called *REP.response*. You can also specify the -console option to get the same results.

You can use *REP.response* for future installations of Replication Server, either as is or edited for the new installation.

❖ **Editing the response file**

1 Specify the installation location, where *path* is the full path and filename:

```
-P installLocation=path
```

Do not use special characters for the path name, such as blanks or periods.

2 Specify the setup type, where *installation_type* specifies the type of installation (full, typical, or custom):

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

If you specify either the Full or Typical installation, you do not need to uncomment the individual features. InstallShield has predefined which features are installed with either the full or typical installation.

If you choose the Custom installation, you must uncomment the desired features and set their values to “true.”

3 *Not on HP Tru64 UNIX, Mac OS X, or SGI* – The last line in the response file allows you to specify if you want to start a sample Replication Server. You must uncomment this line and specify either “yes” or “no” (case sensitive; use all lower case):

```
-W ConfigureReplicationServer.Yes-or-No="no"
```

Installing in console mode with a response file

A console mode installation using a response file lets you accept all defaults as you move through an interactive text installation, because the values come from a response file that you have set up.

Follow the same steps as you would for a regular console installation, but at the command line, enter:

Follow the same steps as you would for a regular console installation, but at the command line, enter:

- **HP Itanium, HP-UX and Solaris:**

```
./setup -console -options REP.response -W SybaseLicense.agree=true
```

- **HP Tru64, IBM AIX, and SGI:**

```
./setup -console -options REP.response -is:javahome JVM \
    -W SybaseLicense.agree=true
```

- **Mac:** In a terminal window, enter:

```
java -Djava.awt.headless=true -cp /Volumes/"RS126 MAC"/suite.jar run \
    -console -options REP.response -W SybaseLicense.agree=true
```

Installing in silent mode

A silent mode installation, sometimes referred to as an unattended installation, allows you to install the product with a response file to set default values, without any interaction required on your part.

Follow the same steps as you would for a console installation, but at the command line, enter:

- **HP Itanium HP-UX and Solaris:**

```
./setup -silent -options Rep.response -W SybaseLicense.agree=true
```

- **HP Tru64, IBM AIX, and SGI:**

```
./setup -silent -options Rep.response -is:javahome JVM \
    -W SybaseLicense.agree=true
```

- **Mac:** In a terminal window, enter:

```
java -Djava.awt.headless=true -cp /Volumes/"RS126 MAC"/suite.jar run \
    -silent -options -W SybaseLicense.agree=true
```

Where:

- *REP.response* – is the name of the file containing the installation options you chose.
- -W SybaseLicense.agree=true – specifies that you agree with the Sybase License Agreement text.

Checking for a valid installation

1. Edit the *$SYBASE/log.txt* file and check for errors.
2. Verify that the *vpd.properties* file has been written in the *$SYBASE* directory.
3. Check that the date of the *vpd.properties* file reflects the date of this current installation.

Troubleshooting installation

For troubleshooting during GUI, console, or silent mode installation using an option file, enter the following at the command line where *ERROR.log* is the name of the log that will capture events specific to the console or silent mode installation:

- **HP Itanium, HP-UX and Solaris:**

```
./setup -silent -options Rep.response -W SybaseLicense.agree=true \
    -is:log Error.log -is:javaconsole
```

- **HP Tru64, IBM AIX, and SGI:**

```
./setup -silent -options Rep.response -is:javahome JVM \
    -W SybaseLicense.agree=true -is:log ERROR.log -is:javaconsole
```

- **Mac:**

```
java -Djava.awt.headless=true -Dis.debug=1 \
    -cp /Volumes/"RS126 MAC"/suite.jar run -silent -options \
    -W SybaseLicense.agree=true
```

Not available for the Mac – The -is:log parameter creates an *ERROR.log* log file, and the -is:javaconsole parameter causes errors to be written to the screen.

Note If you encounter errors during installation, check the installation log file to see a record of the installation process. The log file is located in *$SYBASE/Iog.txt*.

If this is the first time you have installed a Sybase product on this machine, InstallShield creates a Sybase installation directory. This directory contains the support files for all Sybase products.

When you have finished installing

This section describes some of the post-installation tasks that you need to perform after installation, but before using Replication Server. For more information, see the *Replication Server Configuration Guide for UNIX*.

Using the SySAM license manager

Note This option is not available for HP Itanium.

If you install Replication Server without the appropriate license information, Replication Server reports a license error message during start-up.

To register your product correctly, you should read and understand the SySAM licensing information in Appendix A, “Sybase Software Asset Management (SySAM)” before you start this portion of the installation.

Note The following license manager instructions are for the installation of your first Sybase product that uses SySAM. Instructions differ based on your needs. See Table 2-2 for a list of your options.

Table 2-2: Setting up Replication Server for use with SySAM

To install	Follow these instructions
A single copy of Replication Server, and you have never used SySAM to register a Sybase product	“Running SySAM” on page 27.

To install	Follow these instructions
Replication Server, and you already have SySAM on your system from an earlier installation of a Sybase product, such as Replication Server version 12.5, or Adaptive Server Enterprise version 12.5.1	"SySAM in the network environment" on page 43.
Multiple copies of Replication Server in one session	1 "Running SySAM" on page 27 for your first copy of Replication Server, and 2 "Installing multiple copies of Replication Server" on page 48 for additional copies.
Additional copies of Replication Server after a previous installation of Replication Server of the same version	"Installing multiple copies of Replication Server" on page 48 for additional copies.

Running SySAM

If you install any components without the appropriate license information, only Replication Server, without licensed features, is enabled.

Warning! The following SySAM license manager instructions are for the installation of Replication Server on the primary license host.

❖ **Registering your first license certificate in SySAM**

1 Source *SYBASE.csh*.

2 Go to *$SYBASE/SYSAM-1_0/bin* and run lmgr.

Mac: If you are using a "headless" Mac without a monitor, specify lmgr -l.

3 The license manager prompts: "Do you have a Sybase Software Asset Management Certificate to register?"

Click Yes.

Mac: In the command line, the license manager prompts: "Which license scheme do you wish to use?" Select "L" to indicate that the SySAM server is on your current machine.

4 Enter information from the Sybase License Certificate for each Replication Server feature you have purchased.

- Order Number – enter your Sybase order number.
- Feature Name – enter the name of the Replication Server feature. Valid Replication Server feature names include REP_SERVER and REP_SSL.
- Feature Count – enter your license count number.

- Software Version – enter the Replication Server software version.
- Authorization Code – enter the license key for the purchased feature.

Note Entries are case-sensitive. Enter the values exactly as they appear on your Sybase Software Asset Management Certificate. See Appendix A, "Sybase Software Asset Management (SySAM)" on page 39 for detailed information about using the license manager.

The lmgr program records the information for the current feature in the license file and prompts you to enter information for an additional feature.

5 Click "More. . ." if you have purchased additional licensed features. The installer records the information for the current feature in the license file and prompts you to enter information for an additional feature.

6 After entering the license key information the lmgr program automatically stops and then restarts the license daemon.

If you have multiple copies of Replication Server to use in a network environment, see "Installing multiple copies of Replication Server" on page 48 in Appendix A, "Sybase Software Asset Management (SySAM)."

SySAM license manager scripts

The SySAM license manager runs in four modes:

- GUI mode – this is the default, and corresponds to the parameter -G.
- Interactive console mode – use -I (the capital letter "i") to use this mode.
- Console (command line) mode – use -C to use this mode, which is the same as interactive mode, but takes only one entry and quits.
- Silent mode – use -S to use this mode, which is best suited for a silent installation, when updating multiple machines at a single time which use networked SYSAM.

Use the LicenseManager with the following options and arguments:

Options:

- -H – displays help files.
- -V – prints version and copyright.
- -G – run application in GUI mode.
- -I – run application in interactive console mode.

- -S – run application in silent mode.
- -C – run application in console mode.

Arguments are applicable only with the -C or -S options:

- *sybase*=sybase directory
- *host*=host name
- *port*=port number
- *feature*=feature name
- *count*=feature count
- *order*=order number
- *version*=software version
- *code*=authorization code

Reviewing the log files

Information about the configuration of Replication Server is stored in the following log files:

- InstallShield error log file:

  $SYBASE/log.txt

- *Not available for HP Tru64 UNIX, Mac OS X, and SGI* – Adaptive Server Anywhere error logs:

  $SYBASE_REP/samp_repserver/errorlog/

- rs_init log file:

  $SYBASE/$SYBASE_REP/init/logs/log<mmdd.xxx>

  For example: *$SYBASE/$SYBASE_REP/init/logs/log1106.001*

- Replication Server:

  $SYBASE/$SYBASE_REP/install/<rs_name>.log

  For example: *$SYBASE/$SYBASE_REP/install/REP_redtail.log*

Starting the sample Replication Server

Note The following is not available for HP Tru64 UNIX, Mac OS X, and SGI.

During installation, InstallShield asks you if you want to configure and start a sample Replication Server. InstallShield creates a resource file, *$SYBASE/REP-12_6/samp_repserver/SAMPLE_RS.res*, for the sample Replication Server and updates the *interfaces* file regardless of your choice. If you click No at that point during installation, you can still configure and start the sample Replication Server after installation using this resource file.

To create and start the sample Replication Server after installation, at the command prompt, enter:

```
$SYBASE/REP-12_6/install/rs_init -r
    $SYBASE/REP-12_6/samp_repserver/SAMPLE_RS.res
```

The rs_init utility displays commands as it executes them, and writes this output to its log.

If you encounter errors during configuration and startup of the sample Replication Server, read this log file, *$SYBASE/REP-12_6/init/logs/logmmdd.xxx*

Where:

- *mm* – is the month.
- *dd* – is the day.
- *xxx* – is the number of that instance of the log on that day.

The sample Replication Server is configured using the *SAMPLE_RS.res* resource file. All files and logs associated with the sample Replication Server will be located in the directory *$SYBASE/REP-12_6/samp_repserver*.

Table 2-3 contains the sample Replication Server configuration information. Keep this information in a safe place for later reference.

Table 2-3: Sample Replication Server configuration information

Sample Replication Server item	Definition
Name	*SAMPLE_RS*
Port	11752
User name	*sa*
Password	None
ERSSD server name	*SAMPLE_RS_ERSSD*
ERSSD server port	11751
ERSSD user name	*SAMPLE_RS_RSSD_prim*
ERSSD password	*SAMPLE_RS_RSSD_prim_ps*

For more information about rs_init, see Chapter 2, "Configuring Replication Server and Adding Databases with rs_init," in the *Replication Server Configuration Guide for UNIX*.

Configuring RSM Server

To configure RSM Server, you must run the Replication Server configuration utility rsmgen, then start your new RSM Server by executing the RUN file. See Chapter 6, "Configuring the RSM Server," in the *Replication Server Configuration Guide for UNIX* for more information.

Setting environment variables

InstallShield automatically sets system environment variables that are needed by InstallShield. InstallShield installs three files that contain these environment variables:

- *$SYBASE/SYBASE.sh*
- *$SYBASE/SYBASE.csh*
- *$SYBASE/SYBASE.env*

After you exit InstallShield, you may need to reset environment variables, for example, if someone other than the sybase administrator must use the software.

To set these environment variables, you can either:

- Use the source command to source *SYBASE.sh* or *SYBASE.csh* and update the component's RUN environment immediately for your current session, before invoking any component, or

- Modify the component's RUN environment permanently using the environment variable values from the shell files.

Table 2-4 describes the environment variables.

Table 2-4: Environment variables for UNIX

Environment variable	Description
Solaris, and SGI: *$LD_LIBRARY_PATH* **AIX:** *$LIBPATH* **HP:** *$SHLIB_PATH*	*Not available on Mac OS X* – the subdirectory path to the Open Client and Open Server runtime shared library.
$LM_LICENSE_FILE	The subdirectory path to the *license.dat* file, which SySAM needs to run the license manager.
$PATH	The directory path to Replication Server files.
$SYBASE	The home directory where you install all Sybase products.
$SYBASE_JRE	The subdirectory path to the Java Runtime Environment (JRE).
$SYBASE_OCS	The subdirectory path to Open Client files.
$SYBASE_REP	The subdirectory path to Replication Server.
$SYBASE_RSM	Set to the subdirectory of the Replication Server Manager.
$SYBASE_RMP	The subdirectory path to the Replication Manager plug-in to Sybase Central, Java Edition.
$SYBASE_SYSAM	The subdirectory path to SySAM license manager.
%SYBASE_RSP%	The subdirectory path to the Replication Server plug-in to Sybase Central, Windows Edition, if you install it from the PC-Client CD.

After all Replication Server environment variables are set, you can:

- Configure RSM Server using the instructions in "Configuring RSM Server" on page 31.
- Install the Replication Server plug-in 12.6 for Sybase Central or the Replication Manager plug-in for Sybase Central, Java Edition, from the PC-Client CD on to your client machine using the instructions in "Installing Sybase Central on Windows" on page 32.

Installing Sybase Central on Windows

Both Sybase Central management tools—the Replication Server plug-in to Sybase Central, Windows Edition, and the Replication Manager plug-in to Sybase Central, Java Edition—can be installed on your Windows client machines using InstallShield. The PC-Client CD contains both plug-ins.

You can also install the Replication Manager plug-in to Sybase Central, Java Edition, on your UNIX machine from the Server CD using InstallShield. Follow the instructions in "Installing Replication Server" on page 14.

You cannot install software from the PC-Client CD on your UNIX machine. Instead, install Sybase Central, Java Edition, from the Server CD.

Warning! If any Sybase executables or DLLs are loaded into memory, the installation program tries to overwrite any of the files that are in use. To prevent this, close any Sybase products in use and restart the installation.

❖ **Installing Sybase Central on your PC**

1 Verify that the drive on which you install the products has enough disk space for the products being installed. Set the TEMP environment variable to a temporary directory, such as *c:\temp*. The installation program uses the extra space and directory to write files temporarily during the installation. The installation program frees this space after the installation is complete.

2 Insert the PC-Client CD in the CD drive.

InstallShield starts automatically. If it does not, double-click *setup.exe* or select Start | Run, and enter the following, where *x:* is your CD drive:

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

You might see the following error message:

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

If so, set the temporary directory to another directory that has more disk space by entering the following at the command line, where *directory_name* is the name of the temporary directory to which InstallShield will write its temporary files:

This directory should have at least 100KB of disk space.

3 Select Next to proceed.

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

5 Read the Sybase license agreement and select "I agree." Click Next.You must agree to the license and copyright before you can continue.

6 In the install directory window, click Next to accept the default directory for the installation (*c:\sybase*), or enter a different directory name.

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

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

Click Yes.

8 If the installation directory exists, the software prompts:

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

If you click Yes, and:

- The products were installed with Studio Installer (for example, if you installed a version of Replication Server plug-in earlier than 12.6) – InstallShield overwrites common components.
- The products were installed with InstallShield – InstallShield determines the correct course of action without prompting you.

If you are prompted to overwrite a DLL, select Yes only if the version of the new DLL is later than the one InstallShield is attempting to overwrite.

9 If you chose Typical, InstallShield displays the following default components for a Typical installation:

- Connectivity
- Language Modules
- jConnect
- Shared
- Replication Server Administration Tools

If you chose Custom, select the components you want to install.

10 Click Next.

InstallShield installs the components on the hard drive and displays a progress indicator.

Note If you do not have enough disk space for the installation, InstallShield displays an error message. In this case, exit InstallShield, remove any programs or files that you do not need, and clean out temporary directories. Then, restart InstallShield.

11 The Installation Complete window displays, verifying that Replication Server PC-Client software is now installed.

12 Check for updates at Sybase downloads Web site at http://www.sybase.com/downloads.

To install Sybase Replication Server PC-Client software without the GUI interface, do one of the following:

- To install in console mode, follow the procedures in "Installing in console mode" on page 21.
- To install using a response file, follow the steps in "Installing with a response file" on page 22.

System environment variables that are needed by InstallShield, such as PATH, are set automatically as part of the installation.

If you encounter problems, check the installation log file to see a record of the installation process. The file is located in *$SYBASE/log.txt*.

When you have completed the InstallShield wizard, InstallShield creates the target directory (if necessary) and unloads all of the selected components into the target directory.

Installing OCX manually

InstallShield automatically installs Visual Components First Impression OCX, which is used by the Latency Graphing function in the Replication Server plug-in for Sybase Central, Windows Edition. If this component does not load correctly and you must install it manually, enter the following at the command line, where *%SYBASE%* is where you installed your Sybase software:

```
\%SYBASE%\%SYBASE_RSP%\regsvr32.exe \%SYBASE%\%SYBASE_RSP%\vcfi32.ocx
```

Uninstalling Sybase products

InstallShield includes an uninstall feature that removes the Sybase components you have installed.

Warning! Do not install Replication Server version 12.6 on top of the following 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

Doing so incapacitates older versions of these products, and can also adversely affect other Sybase products.

You cannot reverse this with an uninstallation, as this could remove required components of the older Sybase products updated by Replication Server version 12.6. For this reason, Sybase recommends that you back up your current directory before installing Replication Server version 12.6.

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

Note On SGI and HP Tru64 platforms, Sybase recommends that you uninstall Sybase software in console mode instead of using a windowing package.

Before uninstalling Sybase software, log on to your machine using an account with administrator privileges. Then shut down Replication Server and all other processes for the components you are uninstalling.

Note InstallShield removes only those files that were loaded from the installation media. Some Sybase files, such as log and configuration files, are left intact for administrative purposes. Also, InstallShield does not remove *installed* or *_jvmrep*.

❖ **Uninstalling in GUI mode**

1 To uninstall the products in GUI mode, first source the *SYBASE.csh* or *SYBASE.sh* as appropriate, then execute the following at the command line:

- **On AIX, HP Itanium, HP-UX, and Solaris:**

```
$SYBASE/uninstall/REP126/uninstall
```

- **On HP Tru64:** From the *$SYBASE/uninstall/REP126* directory:

```
$SYBASE/shared-1_0/JRE-1_3/bin/java -jar uninstall.jar
```

- **On Mac:** Open *install_directory* | *uninstall* | *REP126*, where *install_directory* is the location where you installed Replication Server.

  Do not use GUI mode on a "headless" Mac that lacks a monitor; use command line mode instead. See "Uninstalling in console (command line) mode" on page 38.

- **On SGI:**

```
$SYBASE/shared-1_0/JRE-1_3/bin/java -jar \
    $SYBASE/uninstall/REP126/uninstall.jar
```

The Uninstaller window opens.

2 Click Next.

3 Select the product you want to remove from the list, then click Next.

4 Verify the summary information, then click Next.

The uninstaller removes the files associated with the software.

5 Click Finish.

Note You may be prompted to decide whether to remove shared files. Sybase recommends that you do *not* remove shared files.

6 If you are uninstalling the Replication Manager plug-in to Sybase Central, Java Edition, and you have previously installed both the Replication Manager plug-in *and* the Adaptive Server plug-in to Sybase Central, Java Edition, unregister the Replication Manager plug-in in Sybase Central.

See the Replication Manager plug-in online help for more information.

❖ **Uninstalling in console (command line) mode**

1 To uninstall the products in console mode, first source the *SYBASE.csh* or *SYBASE.sh* as appropriate, then execute the following at the command line:

- **On AIX, HP Itanium, HP-UX, and Solaris platforms:**

```
$SYBASE/uninstall/REP126/uninstall -console
```

- **On HP Tru64:** From the *$SYBASE/uninstall/REP126* directory:

```
$SYBASE/shared-1_0/JRE-1_3/bin/java -jar uninstall.jar -console
```

- **On Mac:** In a terminal window, enter:

```
java -Djava.awt.headless=true -cp \
$SYBASE/uninstall/REP126/uninstall.jar run -console
```

- **On SGI:**

```
$SYBASE/shared-1_0/JRE-1_3/bin/java -jar
   $SYBASE/uninstall/REP126/uninstall.jar -console
```

The uninstaller program starts.

2 Choose the Replication Server software product you want to uninstall.

The Replication Server software product you chose and its associated files are removed.

Note You may be prompted to decide whether to remove shared files. Sybase recommends that you do not remove shared files.

3 If you are uninstalling the Replication Manager plug-in to Sybase Central, Java Edition, and you have previously installed both the Replication Manager plug-in *and* the Adaptive Server plug-in to Sybase Central, Java Edition, unregister the Replication Manager plug-in in Sybase Central.

See the Replication Manager plug-in online help for more information.

APPENDIX A

Sybase Software Asset Management (SySAM)

This appendix describes licensing concepts that you need to understand to register additional copies of Replication Server with the license host, to set up the license manager in a network environment, and to set up redundant servers for high availability and failover using Sybase Software Asset Management (SySAM). If you are installing Replication Server using SySAM for the first time, see "Using the SySAM license manager" on page 26.

Note This option is not available for HP Itanium.

SySAM overview

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

- Provides System Administrators with a means to monitor their site's use of Sybase products and optional features
- Enables select Replication Server 12.6 features
- Enables failover to registered installations of Replication Server in the event of failure

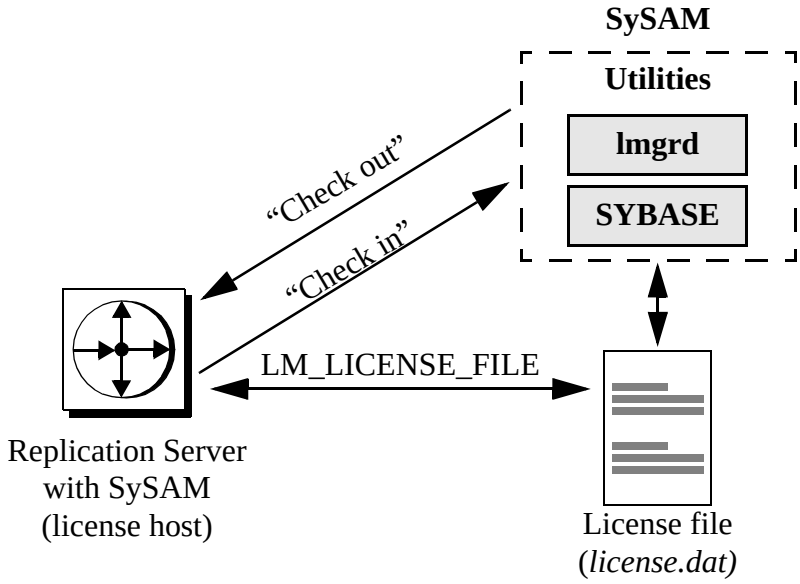
As part of the installation process, you must register your Replication Server license through SySAM.

SySAM "checks out" licensed features to users, and checks them back in when they are no longer needed. The basic components of SySAM are:

- The Replication Server feature
- One or more license files
- The SySAM software, which consists of a license management daemon and a Sybase daemon

Figure A-1 shows the relationship between these components.

Figure A-1: SySAM components



License check-out procedure

When you start Replication Server 12.6, it looks for the license file specified in the LM_LICENSE_FILE environment variable. If this environment variable is not set, Replication Server looks for the *license.dat* license file located in *$SYBASE/$SYBASE_SYSAM/licenses*.

The license file contains a pointer to the SySAM software on the local or remote server where SySAM is running. The machine where the license certificates are registered is called the license host. All machines that point to the license file on the license host are called secondary servers.

Note To differentiate the secondary servers that point to the license host from secondary Replication Servers, these machines are referred to in this document as **licensee servers**.

SySAM consists of a utility, lmutil, to manage licensing activities, and two daemons: lmgrd, the license management daemon, and the SYBASE daemon. The daemons handle requests to check in or check out licensed features, as shown in Figure A-1.

Using information in the license file, Replication Server connects to SySAM and attempts to check out a license (REP_SERVER) for the base Replication Server product.

Note Replication Server version 12.6 continues its start-up process even if the REP_SERVER license does not check out successfully, although it does so with a warning message.

Types of SySAM systems

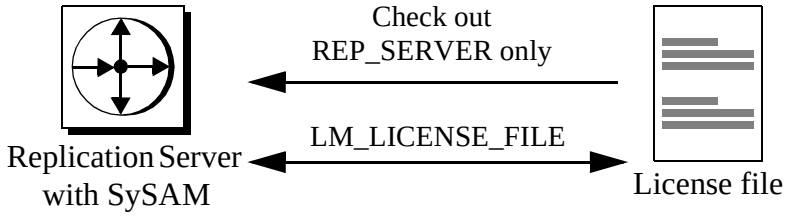
The basic components of SySAM can be arranged for a standalone server, for a collection of servers on a network accessing a primary license host, and with multiple, redundant servers across a local area network (LAN) or a wide area network (WAN), for backup and load-balancing purposes.

Depending on the installation—license host or licensee host—procedures for registering licenses vary.

Standalone system

In a standalone system, *all* of the SySAM components shown in Figure A-2 reside on a single machine, called the **license host**. The license file points directly to the SySAM software, which runs on the same machine.

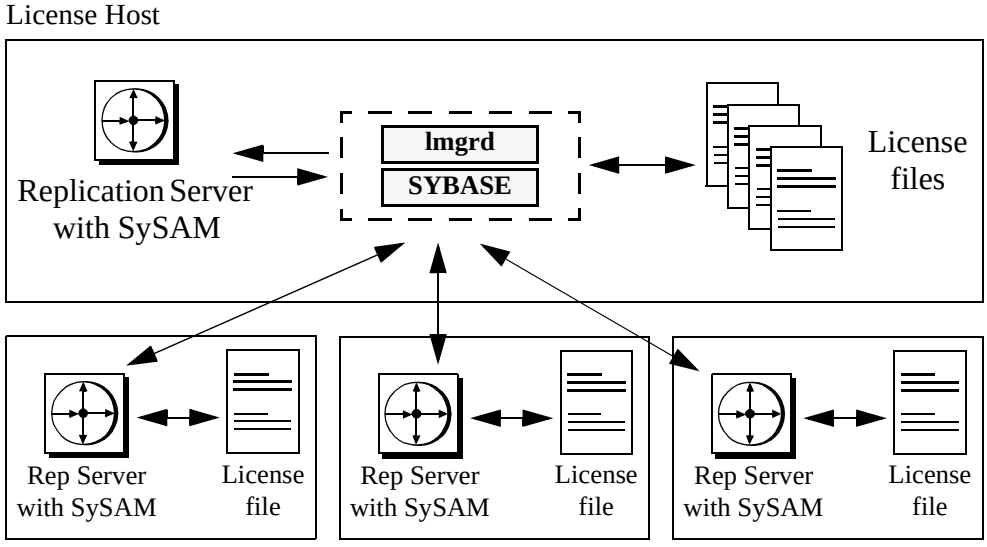
Figure A-2: Standalone system



Network system

In a network system, the license host runs SySAM, which handles check-in and check-out requests from all **licensee servers**, as shown in Figure A-3.

Figure A-3: Network system



The license files for licensee servers contain only pointers to the license host. Licensee servers check out licenses from the license host through the SySAM software.

Note If you are using a networked SySAM system, you must install the software on the license host before you install it on licensee servers.

Redundant servers

As part of a failover plan or a load-balancing system, you can have multiple servers running the same Replication Server configuration, using redundant licenses across all servers. The **redundant server system** can be connected by LAN or by a WAN.

A redundant server system is an excellent load-balancing mechanism for physically distant servers. The redundant license allows you to specify local servers as the first in the queue, and make remote servers available as backup. The SySAM application attempts to check out a license from a license-file list, starting with the first server. If that server fails for any reason, the second server in the list is contacted, and so on.

The redundant server system also provides failover protection. If one server in the list goes down for any reason, the second server responds to the license request. If that server fails too, the next server in line is contacted, and so on.

SySAM in the network environment

Before you begin installing Replication Server components in a network system, the license manager must be installed and running on the license host. To verify that the license manager is running, see “Verify that SySAM is running” on page 44.

To install Replication Server on additional (licensee) servers, you need:

- Your Sybase License Certificate
- The host name of the license host
- The port number on the license host where the asset manager listens for connections
- The SySAM software installation directory on the license host

Redundant license servers

As part of a failover plan or a load-balancing system, you may have multiple license servers running the same Replication Server license configuration, using redundant licenses across all servers. The redundant license servers can be connected by LAN or by WAN.

❖ **Configuring redundant license servers**

1 Follow the instructions in this guide to install the Replication Server components on each of the servers in the redundant system.

2 As you install the software, make a note of the machine names and the dedicated port number that SySAM uses on each machine.

3 After the installation is completed, set the environment variable LM_LICENSE_FILE for each server in the redundant system to:

```
"port@machine:port@machine:port@machine"
```

For example, if you use port 2972 on each machine and the machine names are Huey, Dewey, and Louie, the environment variable that points to the license file would look like this:

```
LM_LICENSE_FILE="2972@huey:2972@dewey:2972@louie"
```

The first server in the license list is the first server queued by the licensing software.

Administering SySAM

If you are installing servers in a network environment, SySAM must be installed and running on the license host before you install Replication Server on additional servers. This section describes how to start SySAM manually or as an automatic service, and other SySAM administration information.

Verify that SySAM is running

When the lmgrd daemon starts, it automatically starts up the SYBASE daemon. To verify that the license management software is running on the system, use:

```
$SYBASE/$SYBASE_SYSAM/bin/lmutil lmstat -c
```

Make sure that both lmgrd and SYBASE are running before you continue the installation or start Replication Server.

If the SySAM software is not running, see “Starting SySAM manually,” next.

Starting SySAM manually

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

❖ **Starting SySAM manually**

1 Source *SYBASE.csh*.

2 Go to *$SYBASE/SYSAM-1_0/bin* and run lmgr.

Mac: If you are using a "headless" Mac without a monitor, specify lmgr -l.

If you have not yet completed the license information in SySAM, follow the instructions in "Registering your first license certificate in SySAM" on page 27.

Starting SySAM automatically

❖ **Configuring SySAM to start automatically when the server is restarted**

These instructions are for Solaris and Mac. For instructions on how to start custom applications automatically for other platforms, see the documentation for your operating system.

1 Make sure the *license.dat* file has the correct path for the SYBASE daemon.

2 Using an account with "root" privileges, log in to the machine where you installed the asset management software. On a Mac, use the sudo su command.

Solaris:

1 Use a text editor to create a new file, */etc/rc3.d/S17lmgrd*.

2 Add the following lines to */etc/rc3.d/S17lmgrd*:

Note You must know the name of both the Sybase release directory as well as the Sybase SySAM release directory.

```
SYBASE=<Sybase reldir>
SYBASE_SYSAM=<SySam rel>
#<SySAM rel> should be SYSAM-1_0 for instance

/bin/su user_name -c 'echo starting lmgrd> \
      $SYBASE/$SYBASE_SYSAM/bin/boot.log'
```

```
/bin/nohup /bin/su user_name -c 'umask 022; \
      $SYBASE/$SYBASE_SYSAM/bin/lmgrd -c \
      $SYBASE/$SYBASE_SYSAM/licenses/license.dat -l \
      $SYBASE/$SYBASE/$SYBASE_SYSAM/log/lmgrd.log >> \
      $SYBASE/$SYBASE_SYSAM/log/boot.log'\

/bin/su user_name -c 'echo sleep 5>> \
      $SYBASE/$SYBASE_SYSAM/bin/boot.log'

/bin/sleep 5

/bin/su user_name -c 'echo lmdiag >> \
      $SYBASE/$SYBASE_SYSAM/bin/boot.log'

/bin/su user_name -c
'$SYBASE/$SYBASE_SYSAM/bin/lmutil lmdiag -n -c \
      $SYBASE/$SYBASE_SYSAM/bin/license.dat>> \
      $SYBASE/$SYBASE_SYSAM/bin/boot.log'

/bin/su user_name -c 'echo exiting >> \
      $SYBASE/$SYBASE_SYSAM/bin/boot.log'
```

3 Save */etc/rc3.d/S17lmgrd* and exit the text editor.

4 Change the permissions, ownership, and group for */etc/rc3.d/S17lmgrd* by entering:

```
chmod 744 /etc/rc3.d/S17lmgrd
chown root /etc/rc3.d/S17lmgrd
chgrp sys /etc/rc3.d/S17lmgrd
```

Mac:

1 Create the following directory:

```
/Library/StartupItems/SybaseLicenseManagerRS
```

2 In the *SybaseLicenseManagerRS* directory, create a file of the same name using vi or any text editor:

```
cd /Library/StartupItems/SybaseLicenseManagerRS
vi SybaseLicenseManagerRS
```

3 In the *SybaseLicenseManagerRS* file, insert the following text:

```
#!/bin/sh

##
# Start Sybase Replication License Manager for RS
##
```

```
. /etc/rc.common

set +u

. /Applications/Sybase/ReplicationServer126/SYBASE.sh

 ConsoleMessage "Starting Sybase License Manager for RS"

 umask 002
 $SYBASE/SYSAM-1_0/bin/startd.sh
```

4 Create a second file called *StartupParameters.plist* in the same directory:

```
cd /Library/StartupItems/SybaseLicenseManagerRS
vi StartupParameters.plist
```

5 In the *StartupParameters.plist* file, insert the following text:

```
{
 Description     = "Sybase License Manager for RS";
 Provides        = ("Sybase License Manager for RS");
 Requires        = ("Disks", "Resolver");
 Uses            = ("Network Time");
 OrderPreference = "None";
 Messages =
 {
   start = "Starting Sybase License Manager for RS";
   stop  = "Stopping Sybase License Manager for RS";
 };
}
```

6 Change the owner and permissions of the two files you created:

```
cd /Library/StartupItems/SybaseLicenseManagerRS

/usr/sbin/chown root SybaseLicenseManagerRS
/usr/sbin/chown root StartupParameters.plist

/bin/chmod +x SybaseLicenseManagerRS
```

Installing multiple copies of Replication Server

The instructions in this section assume that you have already installed a Sybase product that required SySAM.

If you purchased more than one copy of Replication Server, you were provided with:

- A Sybase License Certificate that shipped with the Replication Server product, showing that you purchased the physical product, and;
- An additional Sybase License Certificate that lists all of the licensing information for your *additional* seats.

Note Even if you purchased more than one additional copy of Replication Server, you may only have a single Sybase License Certificate that represents all of your additional copies.

Installing additional licenses purchased at the same time

Before you begin, you must have both the Sybase License Certificate that came with the software, as well as any additional Sybase License Certificate indicating the licensing information of your additional copies of Replication Server.

❖ **Installing additional licenses of Replication Server**

1 While in SySAM, click More. A blank SySAM screen appears.

2 Enter information from the Sybase License Certificate for Replication Server:

- Order Number – your Sybase order number.
- Feature Name – REP_SERVER.
- Feature Count – *n*.
- Software Version – 12.6.
- Authorization Code – the REP_SERVER license key listed in your additional Sybase License Certificate.

The *n* for Feature Count represents the number of copies listed on your Sybase License Certificate. For example, if you purchased a total of 5 copies of Replication Server, your secondary Sybase License Certificate should show a feature count of 4.

Adding additional licenses separately

Use these instructions to update your license information manually if you are installing:

- Additional licenses of Replication Server after you have already loaded and configured your first Replication Server version 12.6 in another session.
- Your first Replication Server license after you have previously installed and enabled SySAM through Adaptive Server version 12.0 or later.

❖ **Adding additional licenses to SySAM at a later time**

1 Log on to the license host, where the license manager is installed.

2 Check to see that lmgrd and Sybase daemons are running:

```
$SYBASE/$SYBASE_SYSAM/bin/lmutil lmstat -c
```

3 If the license daemon is not running, manually start lmgrd:

```
$SYBASE/$SYBASE_SYSAM/bin/
lmgrd -c $SYBASE/$SYSAM/licenses/license.dat \
-l $SYBASE/$SYSAM/lmgrd.log&
```

4 Launch the license manager:

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

Mac: If you are using a "headless" Mac without a monitor, specify lmgr -l.

5 Click Yes when prompted: "Do you have Sybase Software Asset Management Certificates to register?" The SySAM License Manager screen prompts you for:

- Order Number – your Sybase order number.
- Feature Name – REP_SERVER.
- Feature Count – *n*.
- Software Version – 12.6.
- Authorization Code – the REP_SERVER license key listed in your additional Sybase License Certificate.

Mac: In the command line, the license manager prompts: "Which license scheme do you wish to use?"

Select "L" to indicate that the SySAM server is on your current machine.

6 Click More until you have entered all available licenses.

7 Click Done.

8 Because you are adding additional licenses to an existing file, you must notify the license daemons of the changes:

- Before you issue the reread command, verify that SySAM is running:

  ```
  $SYBASE/$SYBASE_SYSAM/bin/lmutil lmstat -c
  ```

- Shut down the server to which you are adding the new license.

9 Run the license management utility lmutil lmreread from the *$SYBASE/$SYSAM/bin/*directory:

```
$SYBASE/SYSAM-1_0/bin/lmutil lmreread
```

The new license is appended to the end of the *license.dat* file.

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

Troubleshooting SySAM

When you boot Replication Server with SySAM support, problems acquiring licenses or contacting the asset management software appear in the Replication Server error log file, *<SERVERNAME>.log*, located in your default install directory. For details on the SySAM daemon, see the lmgrd.log SySAM daemon log file, located at *$SYBASE/$SYBASE_SYSAM/log*

Table A-1 describes the SySAM error messages and suggests ways to correct common problems.

Table A-1: SySAM error messages

Message	Description	Action
`SYSAM: returned error code '...'` `SYSAM: There is no valid license for the Replication Server Product. Replication Server will continue to run, but please install a valid license by contacting Sybase Inc.`	Replication Server failed to check out a REP_SERVER license key from the SySAM daemon because of one of the following: • SySAM daemon is not running. • The license does not exist. • You have not installed the most recent version of the license. • The license is corrupt. Check *lmgrd.log* for more detail.	Start the SySAM daemon if it is not running. Request and install a valid REP_SERVER license if the REP_SERVER license: • Does not exist • Is expired • Is corrupt

Message	Description	Action
`SYSAM: returned error code '...'` `SYSAM: There is no valid 'REP_SSL' license. Replication Server will continue to run without this feature. Please install a valid license by contacting Sybase Inc.`	Replication Server failed to check out a REP_SSL license key from the SySAM daemon because of one of the following: • SySAM daemon is not running • The license does not exist • You have not installed the most recent version of the license • The license is corrupt Check *lmgrd.log* for more detail. In order to use SSL with Replication Server, Replication Server must check out both REP_SERVER and REP_SSL licenses.	Start the SySAM daemon if it is not running. Request and install a valid REP_SSL license if it: • Does not exist • Is expired • Is corrupt
`SYSAM: Replication Server received a valid license.`	Replication Server checked out a valid REP_SERVER license.	None
`SYSAM: Replication Server received a valid 'REP_SSL' license.`	Replication Server checked out a valid REP_SSL license.	None

Authorization code input error

When you purchase licenses for Sybase Replication Server products, you are issued a Sybase Software Asset Management Certificate. The certificate has the following information for each product:

- Order Number
- Feature Name
- Feature Count
- Software Version
- Authorization Code
- Product Description

This information is used by SySAM to build the license file, with new licenses. Here is a license file example, *license.dat*:

```
SERVER server1 ANY 4100
VENDOR SYBASE $SYBASE/$SYBASE_SYSAM/bin/SYBASE
REP_SERVER
```

```
INCREMENT REP_SERVER SYBASE 12.0 PERMANENT 1000
123456789123 SN=10001 OVERDRAFT=10000 ck=0
```

- *REP_SERVER* – is the feature name.
- *12.6* – is the version number.
- *Feature Count* – immediately follows the license type, *PERMANENT*.
- *SN=10001* – is the Order Number.
- *OVERDRAFT= ###* – is the maximum licenses that can be checked out.
- *123456789123* – is a 12-digit number representing the authorization code.

The authorization code is case-sensitive. If you make a mistake while entering the authorization code, correct it by accessing the license file with a text editor, making the necessary changes, and saving the file.

The file is located in *$SYBASE/$SYBASE_SYSAM/licenses/license.dat*.

Warning! Tampering with any portion of the licenses file other than the authorization code invalidates the license.

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