

SYBASE®

Installation Guide

Replication Server®

15.0

[Linux]

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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 install Replication Server®, read Chapter 1, “Preparing to Install and Configure Replication Server” in the *Replication Server Configuration Guide for UNIX* to help you plan your installation. However, the step is unnecessary if you plan to install a sample Replication Server.

This guide contains the these chapters:

- Chapter 1, “Before You Begin,” describes pre-installation information and tasks.
- Chapter 2, “Installing Replication Server,” describes how to install Replication Server.
- Chapter 3, “Post-Installation Tasks,” provides information about the tasks you must perform after installation.
- Appendix A, “SySAM Administration,” provides additional information about licensing concepts that you need to know before you install additional copies of Replication Server, set up the license manager in a network environment, or set up redundant servers for high availability and failover.

Related documents

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® Technical Library.

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

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- *What's New in Replication Server?* – describes the new features in Replication Server version 15.0 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 setting up a simple replication system.
 - *Heterogeneous Replication Guide* – describes how to use Replication Server to replicate data between databases supplied by different vendors.
 - *Reference Manual* – contains the syntax and detailed descriptions of Replication Server commands in the Replication Command Language (RCL); Replication Server system functions; Sybase Adaptive Server® commands, system procedures, and stored procedures used with Replication Server; Replication Server executable programs; and Replication Server system tables.
 - *System Tables Diagram* – illustrates system tables and their entity relationships in a poster format. Available only in print version.
 - *Troubleshooting Guide* – contains information to aid in diagnosing and correcting problems in the replication system.
 - Replication Manager plug-in help, which contains information about using Sybase Central™ to manage Replication Server.
 - *FLEXnet Licensing End User Guide* – this Macrovision manual explains FLEXnet Licensing for administrators and end users and describes how to use the tools which are part of the standard FLEXnet Licensing distribution kit from Sybase.
 - *SAMreport User's Guide* – this Macrovision manual explains how to use SAMreport, a report generator that helps you monitor the usage of applications that use FLEXnet licensing.

Other sources of information

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

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

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

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

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

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

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

❖ Finding the latest information on product certifications

- 1 Point your Web browser to Technical Documents at <http://www.sybase.com/support/techdocs/>.
- 2 Click Certification Report.
- 3 In the Certification Report filter select a product, platform, and timeframe and then click Go.
- 4 Click a Certification Report title to display the report.

❖ Finding the latest information on component certifications

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

-
- 2 Either select the product family and product under Search by Base Product; or select the platform and product under Search by Platform.
 - 3 Select Search to display the availability and certification report for the selection.

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

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

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

Sybase EBFs and software maintenance

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

- 1 Point your Web browser to the Sybase Support Page at <http://www.sybase.com/support>.
- 2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.
- 3 Select a product.
- 4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

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

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

Conventions

This section describes the 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 italics 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
<i>variable</i>	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}
```

Accessibility features

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

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

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

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

If you need help

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



Before You Begin

This chapter provides information about system and licensing requirements for installing Replication Server. It also discusses other pre-installation tasks you must complete before you install Replication Server.

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Introduction

This section describes the components of Replication Server and provides an overview of the tasks involved in installing and setting up Replication Server.

Replication Server components

Replication Server consists of the following components:

- Replication Server
- RepAgent™ for Adaptive Server Enterprise
- Replication Server support files (for example, scripts and configuration files)
- Adaptive Server® Anywhere for Embedded Replication Server System Database (ERSSD)
- RepAgent for ERSSD

- The Replication Server Administration tool, which consists of:
 - Sybase Central version 4.3
 - Replication Manager plug-in (RM) to Sybase Central
- Replication Monitoring Services (RMS)

Installation task overview

The *Replication Server Installation Guide for Linux* 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 to 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

Sybase Software Asset Management

Replication Server version 15.0 includes a new Sybase Software Asset Management System (SySAM) implementation. SySAM configuration is no longer optional, which results in installation and configuration changes.

SySAM product licensing software allows you to:

- Manage Replication Server entitlements
- Perform asset management tasks by viewing and analyzing historic use data
- Control Replication Server use within your organization

How SySAM works

Replication Server uses SySAM to “check out” a license for product functionality, then checks the license back in when the product is no longer in use. The basic SySAM components are:

- Replication Server linked with SySAM libraries
- One or more local license files
- Optionally, a SySAM network license server

When you install the product, you select whether to configure an unserved license or a network license server. Both configurations create a local license file on the same machine as Replication Server in `$SYBASE/SYSAM-2_0/licenses`. When you start Replication Server, the product searches for a license in the default location—`$SYBASE/SYSAM-2_0/licenses`—looking at all files with a `.lic` extension. The local license file contains the actual licenses or a pointer to a SySAM network license server. When a license is successfully checked out, Replication Server starts.

Using an unserved license

When you configure an unserved license, Replication Server does not connect to a network license server, but obtains the required license information directly from the local license file.

When you use an unserved license configuration, there is no network license server. In this configuration, Replication Server reads the unserved license and directly checks out the required license. You activate the licenses for each machine separately; that is, you do not have centralized control over licenses. You also do not have asset management or reporting capabilities, and the license must be rehosted if you move Replication Server from one machine to another.

When using an unserved configuration, the local `$SYBASE/SYSAM-2_0/licenses` directory contains all necessary licenses. You do not maintain a license server.

Setting up an unserved configuration

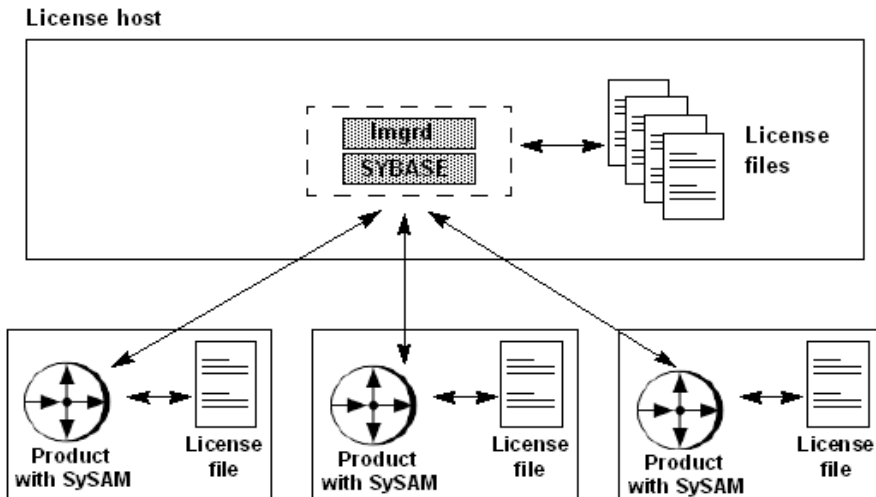
During Replication Server installation, select the option to use a local license file. When you are activating licenses from the Sybase Software Product Download Center (SPDC) at <https://sybase.subscribenet.com>, select the “unserved” license format and save the license in the local license directory `$SYBASE/SYSAM-2_0/licenses`.

Using a network license server

When you configure a network license server, the server uses two daemons—the `lmgrd` FLEXlm daemon and the vendor (SYBASE) daemon—to handle license check-in and check-out for licensed products. Using the pointer in the local license file, Replication Server connects to the network license server and attempts to check out a license (`REP_SERVER`).

In a network license server configuration, the license server host runs the network license server. The local license file on the Replication Server machine contains a pointer to the network license server.

Figure 1-1: Network license server configuration



Multiple users connect to the network license server to obtain the required license. You can activate several licenses at once, you have full control over license use, and you have access to complete asset management and reporting capabilities.

You can use an existing network license server or install a new one. You can install network license server on the same host with Replication Server, or as a standalone system. The number of free cycles on the machine with Replication Server and the total expected license server activity should dictate whether a standalone system is needed. For system requirements, see Chapter 4, “Selecting License Server Machines,” in the *FLEXnet Licensing End User Guide*.

Setting up a network license server

To install a network license server on a separate system, use the Replication Server installation program, select only the SySAM server components, and complete the installation. When activating licenses at the Sybase Product Download Center, select the “Served” license model. Save the activated license file in your machine’s `$$SYBASE/SYSAM-2_0/licenses` directory. See “Installing a new license server” on page 22 for instructions.

To configure Replication Server to use the network server, specify the network server host name and port number during installation. Specify the host ID for the network license server host when you obtain a license from the Sybase Software Product Download Center. After installation, you can edit the `SYBASE.lic` file in `$$SYBASE/SYSAM-2_0/licenses` and change the network license server host name and port number if necessary.

Note A license responds only to the license server that you specify when you obtain the license from the Sybase Software Product Download Center.

Limitations

The SySAM network license server has the following limitations:

- 1 You cannot start the SySAM network license server until there is at least one “Served” license copied into the `licenses` directory. Obtain a “Served” license from the Sybase Software Product Download Center before starting the license server. See “Managing licenses” on page 43.

- 2 Replication Server version 15.0 uses a newer version of the SySAM licensing technology and an updated license format. On any one machine, you can have only one instance of a license server running. You must make some adjustments to use earlier versions with Replication Server 15.0. See “Co-existing with earlier versions of SySAM” on page 8.

Using multiple network license servers

As part of a failover plan or a load-balancing system, you can have multiple SySAM network license servers running a subset of the total licenses. The SySAM network license servers can be connected by a local area network (LAN) or by a wide area network (WAN).

This configuration is an excellent load-balancing mechanism for physically distant locations. You can specify the local servers ahead of the remote servers in the license location list.

To specify multiple license servers, set up the SYBASE_LICENSE_FILE or LM_LICENSE_FILE environment variable to contain a list of license files, where each license file refers to one of the network license servers. Replication Server uses this list to checkout licenses, starting with the first server on the list. If check-out fails for any reason, Replication Server attempts to check out licenses using the second server in the list, and so on.

Although this configuration provides a basic level of failover protection, if one or more license servers in the list are down, the licenses served by these servers are no longer available, so the total number of available licenses is reduced until the servers restart.

Note See “Redundant License Server Systems” in Chapter 4, “Selecting License Server Machines,” of the *FLEXnet Licensing End User Guide*.

Setting up multiple network servers

To use multiple network license servers, install a network license server on two or more servers using the instructions in “Installing a new license server” on page 22.

To configure Replication Server to use multiple network servers, specify the network server addresses in the SYBASE_LICENSE_FILE environment variable as *port@host* separated by a semicolon. For example:

```
set SYBASE_LICENSE_FILE=1700@tokyo;1700@chicago
```

Replication Server attempts to use the first server in the list. If that fails for any reason, Replication Server tries to use the second server.

Using three-server redundancy

To achieve true high availability, you can set up Replication Server to acquire a license that is used in a three-server redundant configuration. The same license is served by all three license servers. With three-server redundancy, if any two of the three license servers are running (referred to as a quorum), the system is functional and serves its total complement of licenses.

Machines in a three-server redundant configuration must:

- Run the same operating system
- Communicate with each other
- Reside on the same subnet

The three servers must be located physically close to each other. This form of redundancy requires that the servers exchange heartbeats periodically, and poor communication can cause poor performance. Avoid configuring redundant servers with slow communication or dial-up links.

Three-server redundancy provides only hardware failover protection and does not provide load-balancing because only one of the three servers is “master,” capable of issuing licenses. Because all clients must contact the “master,” all clients must have reliable networking to a single machine. To implement load-balancing, see “Setting up multiple network servers” on page 6.

Note Because Sybase provides grace periods for any licensing issues, setting up the license servers for failover may be unnecessary. Replication Server operations are not compromised as long as license server issues are fixed within the grace period.

Setting up three-server redundancy

To use three-server redundancy, you must obtain licenses that are set up for such an environment. When you activate your licenses, specify the three-server redundancy option.

Install the network license server on the three selected machines and deploy the license obtained on all three machines. See “Installing a new license server” on page 22 for instructions.

To configure Replication Server to use these redundant network servers, specify the addresses for three servers in SYBASE_LICENSE_FILE environment variable as *port@host* separated by a semicolon. For example:

```
set SYBASE_LICENSE_FILE 1700@srv1;1700@srv2;1700@srv3
```

Any two of the servers specified in SYBASE_LICENSE_FILE must be running for checkout to succeed.

Using alternative license file locations

You can specify alternate license locations using the SYBASE_LICENSE_FILE and LM_LICENSE_FILE environment variables. The product looks at the locations provided in these variables before looking in the default location.

Note See “Specifying Location of the License File” in Chapter 2, “License File Basics,” of the *FLEXnet Licensing End User Guide*.

Co-existing with earlier versions of SySAM

Replication Server version 15.0 uses a newer version of the SySAM licensing technology and an updated license format. On any machine, you can have only one instance of a license server running. You must make some adjustments to use earlier versions of Sybase products with Replication Server 15.0.

Case 1: If you are using a central network server for Replication Server 15.0, and a network license server-based SySAM license for earlier versions of the product, migrate to Replication Server version 15.0:

- 1 Update the network license software with the version provided in Replication Server 15.0. Use the instructions in “Setting up a network license server” on page 5.
- 2 Copy the earlier license files (typically, a single file named *license.dat*) into the new `$$SYBASE/SYSAM-2_0/licenses` directory and rename *license.dat* to *license.lic*.

- 3 Shut down the old license server and start the new license server.
- 4 Copy any new licenses into this new directory.

Old and new Sybase software now use this license server.

Case 2: If you are using individual license servers for earlier versions of Replication Server, with each machine running earlier Sybase software hosting a local license server, Sybase recommends that you move to a single network license server model to migrate to Replication Server version 15.0.

❖ **Using a central license server only for new licenses**

- 1 Select the machine for the new network license server and install the SySAM network license server supplied with Replication Server version 15.0 on that machine.
- 2 If this machine is already running an older license server, use the instructions in Case 1 to migrate the local licenses. All new licenses are now installed on this machine.
- 3 Point the Replication Server version 15.0 installation to this license server. Use the `Impath` utility (see “Using SySAM utilities” on page 53) to do this or edit `license.dat` and add these lines at the beginning of the file:

```
SERVER <network license server hostname> ANY <license server port>
VENDOR SYBASE
USE_SERVER
```

❖ **Migrating old licenses to a new central license server**

- 1 Set up the new SySAM network license server using the instructions in “Setting up a network license server” on page 5.
- 2 Collect licenses from all old local license servers to deploy to the new network license server.
 - a Create a new license file that includes the contents of all individual licenses from each earlier local license server.

When you create the new license file, discard the license header from each file. The header is the first three lines that start with “SERVER,” “VENDOR,” and “USE_SERVER.”
 - b Create one license header with the above three lines in the merged file to match the requirements on the new network license server and save this file as `license.lic` in the `licenses` directory.

- 3 Shut down the earlier individual license servers on each machine and point the software to the new license server. Use the `Impath` utility (see “Using SySAM utilities” on page 53) to do this, or edit the `license.dat` file on each installation by adding these lines at the beginning of the file:

```
SERVER <network license server hostname> ANY <license server port>
VENDOR SYBASE
USE_SERVER
```

Case 3 If you are not using the network license server for Replication Server version 15.0, no changes are required to the previous software. When fulfilling Replication Server version 15.0 licenses, select the unserved license model and copy the license locally on each installation. The software runs appropriately, however, you lose the asset management functionality in this approach. See “Choosing the appropriate license server configuration” on page 21 for the pros and cons of using a network license server versus using a local license file.

Managing licenses from multiple vendors

If you use software from multiple vendors that use Macrovision’s FLEXnet technology, you can consolidate licenses from all vendors to centrally manage the licenses. See Chapter 3, “Managing Licenses from Multiple Vendors,” in the *FLEXnet Licensing End User Guide*.”

License usage and enforcement

This section describes the licenses used by Replication Server and other enforcement mechanisms.

- License Features Used – when Replication Server starts, it first checks out a license for the base Replication Server, which is `REP_SERVER`.
- Number of licenses used – the number of licenses used for Replication Server depends on the license type under which Replication Server was licensed.

For Replication Server licensed under any of the Server license types such as `SR`, `SV`, and so on, one license is checked out per Replication Server. Starting additional Replication Server instances on the same machine does not check out additional licenses.

For Replication Server licensed under any of the CPU license types such as `CP`, `SF`, and so on, the number of licenses used is the number of physical CPUs.

Some Windows and Linux machines use technologies such as “Hyper Threading” which presents one physical CPU as two logical CPUs. This is still considered one CPU for counting licenses.

License availability and grace periods

If Replication Server cannot obtain a suitable license, the product does not run. A license is considered unavailable if it cannot be checked out, or if the license cannot be issued during a grace period. Licenses can be unavailable during start-up or heartbeat runtime.

When SySAM detects a checkout failure, the event is logged in the Replication Server error log, which you can use to diagnose any unexpected licensing failures. After the initial checkout failure, periodic events are logged during a grace period.

If a suitable license cannot be found when requested, Replication Server evaluates if a license can be issued during a grace period. There are three types of grace periods:

- **Install time** – when you configure a new Replication Server (or upgrade an earlier version to 15.0), you have 30 days to activate and configure the appropriate license.
- **Runtime** – a runtime grace period is evaluated when one of these conditions occurs:
 - A license was not checked out at start-up, but there is a history of successfully using the requested license on this machine.
 - A license that was successfully checked out at start-up becomes unavailable at a later time.

If Replication Server encounters either situation, it enters into a 30-day runtime grace period. If the problem is not resolved within 30 days, Replication Server stops running; however, the user can save any work and exit. If the problem that causes the license to be unavailable is fixed during the runtime grace period, Replication Server automatically picks up the license and no longer operates in the grace period.

- **Support renewal time** – this grace period allows you enough time to update the license after renewing support. The support grace period for Replication Server is one year.

This means that you can install and use EBFs and updates that are released up to one year past the end-of-support date recorded in the license.

If Replication Server cannot obtain a license, SySAM evaluates whether the license can be issued under a grace period. The grace periods evaluated are described in “License availability and grace periods” on page 11.

If a SySAM license cannot be acquired

If the license cannot be issued during the grace period, Replication Server does not start and errors are reported in the error log file.

The error messages indicate the product’s inability to obtain a valid license, and why the license could not be obtained. You must fix the license failure before you can use Replication Server.

Acquiring SySAM licenses during the grace period

If the license can be issued during the grace period, the issue is logged and Replication Server starts. The log entry looks similar to this:

```
I. 2005/11/24 22:11:43. SySAM: Using licenses from:
/opt/sybase/SYSAM-2_0/licenses
I. 2005/11/24 22:11:44. SySAM: Checked out graced
license for 1 <license_name> (2005
.1114) will expire Sat Dec 24 22:10:31 2005.
I. 2005/11/24 22:11:44. SySAM: Failed to obtain 1
license(s) for <license_name> feature from license
file(s) or server(s) .
I. 2005/11/24 22:11:44. SySAM: Cannot find license file.
```


Replication Server continues to operate normally until the issue causing the license failure is fixed, or until the grace period expires. The error message indicates the date and time the grace period is scheduled to end. The error log entry is repeated with increasing frequency while Replication Server operates in the grace period until you fix the issue causing the license failure. When the issue is fixed, Replication Server automatically acquires the license and moves from grace period mode into normal mode. If Replication Server cannot obtain the license before the grace period expires, Replication Server stops running.

Note If you obtain a Replication Server license from a network license server, Replication Server periodically executes a heartbeat with the network license server. A successfully acquired license could be invalidated during the heartbeat; for example, if the license has an expiration date or the network license server was restarted and other Replication Server instances acquired all available licenses before this instance could reacquire a license. If this happens, Replication Server enters a grace period. This information is written in the error log, and is similar to the information written to the error log when you initially start the product.

Pre-installation tasks

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

Read the release bulletin

The release bulletin contains last-minute 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>.

Plan your replication system

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

Review system requirements

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

Table 1-1: System requirements for Linux

Item	Requirement
Disk storage	<p>A minimum of 450MB of available hard disk space:</p> <ul style="list-style-type: none">• 400MB for the Replication Server software, supporting files, and log files.• An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software.• One of the following:<ul style="list-style-type: none">• Disk space for your Adaptive Server Enterprise database, which serves as your Replication Server System Database (RSSD) if you are not using the Embedded RSSD (ERSSD). See your Adaptive Server Enterprise documentation for system requirements.• 80MB for your Adaptive Server 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. <p>More disk space may be required, depending on your replication system application.</p>
Operating system	Red Hat Enterprise Linux 3.0, SuSE Linux Enterprise Server SLES 9.0.
Supported protocol	TCP/IP sockets.

Review operating system patch requirements

Linux distributors that supply Linux Kernel Version 2.4.x should provide all the libraries you require. If you are alerted to any outdated or missing libraries, download them from your Linux distributor's Web site.

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

```
rpm -q -a
```

Understand 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 15_0.

Replication Server 15.0 includes a new version of Replication Server and many of its supporting components. Other Sybase products may contain earlier versions of the same components. Installing Replication Server 15.0 into the same directory containing these existing products, will not impact the products.

However, if you are using other Sybase products, installing Replication Server 15.0 in a separate directory may cause some environment variables to change. You will have to reset the environment variables in order to make the individual products work.

Note Replication Server 15.0 may be installed in the same directory as Adaptive Server Enterprise (ASE) and OCS versions 12.5.1 or later.

You can install Replication Server 15.0 on top of Replication Server 12.6, in the same *\$\$SYBASE* directory. Installing 15.0 on top of Replication Server 12.6 will create a duplicate entry in the interfaces file for *SAMPLE_RS*, which is the sample Replication Server. *rs_init* will warn you about the duplicate entry and will use the first instance of *SAMPLE_RS* found in the interfaces file.

Warning! Do not install Replication Server version 15.0 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. If you perform one of these installations, you cannot reverse it with an uninstallation, as uninstalling might remove required components of the older Sybase products updated by Replication Server version 15.0. For this reason, Sybase recommends that you back up your current directory before installing Replication Server version 15.0.

Note If you are installing Replication Server 15.0 in an existing Sybase installation directory that contains Adaptive Server version 15.0, you may be asked if you wish to install older locales or charset files on top of newer files. To ensure that you have the latest version of these files select “No to all.”

Shared components are installed in subdirectories that are separate from component subdirectories. For example, the Replication Server subdirectory is *\$\$SYBASE/REP-15_0*. However, Open Client is installed in *\$\$SYBASE/OCS-15_0*, and the Replication Manager plug-in for Sybase Central, *RMPPlugin.jar* and its associated files are installed in *\$\$SYBASE/RMP-15_0*. The exception is Adaptive Server Anywhere (ASA), which is installed in *\$\$SYBASE/REP-15_0/ASA9*, as it is used only for Replication Server. 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.

A diagnostic server *REP-15_0/bin/repserver.diag* is installed to capture and display information about internal processes. Do not delete this program as you may need to use it at the direction of Sybase Technical Support, to diagnose and resolve Replication Server 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.

Review the Sybase installation directory contents

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

Installation directory after installation from the CD

The following items are installed on your machine.

Within \$SYBASE:

Components of
Replication Server

- *charsets* – character sets and sort order.
- *collate* – Unicode.
- *config* – configuration files.
- *locales* – localization files.
- *log.txt* – the log of the installation process.
- *OCS-15_0* – Open Client and Open Server files, including *bin*, *config*, *devlib*, *include*, *lib*, *lib3p*, *sample*, *sybhelp*, and *xappdefaults*.
- *REP-15_0* – Replication Server 15.0 files, including *ASA9*, *bin*, *certificates*, *doc*, *init*, *install*, *samp_repserver*, *scripts*, *sysam*, *ThirdPartyLegal*, and *upgrade*.
- *SYSAM-2_0* – software license manager files, including *bin*, *licenses*, *log*, and *META-INF*.
- *_jvmrep* – files used by InstallShield.
- *uninstall* – files used by InstallShield to uninstall Replication Server software.

- *ua*– the Replication Monitoring Service (RMS) files in the *plugin* directory, including *common*, *ldap*, *log*, *server*, *services*, *bin*, *conf*, *rtlib*, *utility*, *thirdparty* and *shared*.
- *vpd.properties* – file used by InstallShield to keep track of version of installed and uninstalled software. The *vpd.properties* file gets installed in the \$SYBASE directory.

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

- *RMP-15_0* – files and directories for Replication Manager plug-in to Sybase Central, including *bin*, *help*, *install*, *lib*, and *scripts*.
- *Shared* – common components shared across products, including the Java runtime environment and files and directories for Sybase Central 4.3.

Set the required environment variable for *dsedit* utility

The Replication Server installation also includes a utility called *dsedit*, which lets you configure the *interfaces* file. The *dsedit* utility requires the `LD_LIBRARY_PATH` environment variable to be set 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 “Set environment variables” on page 41 for more information.

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

Remove unwanted entries from the RPM database

When a previous installation of Replication Server is overwritten or used—whenever the path is set to `/opt/sybase-15.0` or `/opt/sybase`—you must remove entries from the RedHat Package Manager (RPM) database. If you want to continue to use the earlier version of Replication Server, do not remove entries from the RPM database.

Note You must have “root” permission to remove RPM entries.

To remove RPM entries, enter:

```
# rpm -qa | grep sybase
```

You should get a result set similar to:

```
sybase-thai-12.5.0.3-3
sybase-polish-12.5.0.3-3
sybase-german-12.5.0.3-3
sybase-esql-12.5.0.3-3
sybase-ase-12.5.0.3-3
sybase-doc-12.5.0.3-3
sybase-openserver-12.5.0.3-3
sybase-portuguese-12.5.0.3-3
sybase-common-12.5.0.3-3
sybase-japanese-12.5.0.3-3
sybase-chinese-12.5.0.3-3 sybase-openclient-12.5.0.3-3
sybase-spanish-12.5.0.3-3 sybase-korean-12.5.0.3-3
sybase-french-12.5.0.3-3
```

To erase these entries, enter:

```
# rpm -e 'rpm -qa | grep sybase'
```

To erase individual packages, enter:

```
# rpm -e sybase-rep
```

Note You can no longer use previously installed help scripts for post-installation operations.

Perform administrative tasks

This section describes 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 20 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.

SySAM pre-installation tasks

Before you install Replication Server, you must plan the type of SySAM license configuration you want to use. Depending on your configuration choice, you may also need to perform additional pre-installation tasks before installing Replication Server.

In this section you:

- 1 Choose the appropriate SySAM licensing configuration. SySAM allows you to acquire a license using a local file or you can acquire a license from a network license server. See “Choosing the appropriate license server configuration” on page 21.
- 2 Install a new network license server if necessary. See “Installing a new license server” on page 22.

Choosing the appropriate license server configuration

When you configure your license server, you must choose between configuring for a local license file, or for a network license server.

Unservd
configuration

If you are using an unserved configuration, the local *licenses* directory should contain all necessary licenses. You do not maintain a license server.

When you use an unserved configuration, you must activate the licenses for each machine separately; that is, you do not have centralized control over your licenses. You also do not have asset management or reporting capabilities, and your license must be rehosted if you move Replication Server from one machine to another.

Network license
server configuration

In this setting, you can activate several licenses at once. You have full control over license use, and complete asset management and reporting capabilities.

Before you install Replication Server, decide which SySAM configuration to use:

- Unservd model using unserved licenses
- Network license server using Served licenses

If you are going to use a network license server, decide whether to use an existing license server or a new license server.

- If you use an existing license server, you must know the server host name and port number.
- To create a new license server before installing Replication Server, see “Installing a new license server” on page 22.

Note Sybase recommends that you obtain the license files from the Sybase Product Download Center (SPDC) at <https://sybase.subscribenet.com> before you begin installation.

Installing a new license server

Perform the following steps to install a new license server on a machine separate from the Replication Server you want to run:

- 1 Mount the CD by running the following command:

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

- 2 Launch the Sybase installer program by entering:

```
./setup
```

- 3 The Welcome Window displays. Click Next.
- 4 Accept the license agreement.
- 5 Enter or select the destination directory.
- 6 Select the custom installation.
- 7 Select only SySAM Network License Server for installation.
- 8 Unselect other components, to install the Net License Server only.
- 9 Click OK for the installer to install SySAM licensing tools.
- 10 Get the host ID for the machine on which the new license server will run.
To get the host ID:
 - a Go to `$$SYBASE/$$SYBASE_SYSAM/bin` where `$$SYBASE` is the Sybase installation directory and `$$SYBASE_SYSAM` is the directory for `SYSAM-2_0`.
 - b Enter:

```
./lmutil lmhostid
```

Note If your machine has multiple network adapters, `lmutil lmhostid` returns host IDs associated with each adapter. Choose one of the IDs. Avoid using IDs for removable network adapters.

- c Save the host ID to use at the Sybase Product Download Center.
- 11 Go to the Sybase Product Download Center (SPDC) at <https://sybase.subscribenet.com>.
 - 12 Get the license you want to install.

- a Log in to your account. When you place an order for Sybase software, the Sold To and Ship To contacts become members of the Sybase Product download Center account, and their e-mail addresses are automatically added as a login. The Sold To Contact is also established as the administrator of the account. Each member receives a welcome message from the Sybase Product Download Center, which contains a login name and password. In addition, Technical Support contacts are added as members to the Sybase Product Download Center account.

The administrator can add new members to the Sybase Product Download Center account at any time.

- b Select the product for which to activate licenses.
 - c Complete the License Activation wizard to generate required licenses. The generated licenses are displayed when the wizard completes.
 - d Click Save All to save the license file. Make sure you have saved the license file with the extension *.lic*.
- 13 Copy the license file in the licenses directory *\$\$SYBASE/\$SYBASE_SYSAM/licenses* on the network license server machine.
 - 14 Start the SySAM network license server:
 - a Go to:
\$\$SYBASE/\$SYBASE_SYSAM/bin
 - b Enter:

```
sysam start
```
 - 15 Validate that the license daemon is running by entering:

```
sysam status
```


Installing Replication Server

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

Topic	Page
Using InstallShield for installation	25
Installing Replication Server	27
Uninstalling Sybase products	35

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.

Using InstallShield for installation

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.

Warning! Do not install Replication Server into an existing Adaptive Server Enterprise 12.x (64-bit) directory. This may cause some localization (*.loc*) files to be overwritten, resulting to problems in starting Adaptive Server Enterprise.

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 (default) – installs the Replication Server components considered to be useful for most customers. In this type of installation, only the U.S. English language module and its supported character sets are installed. The components that will be installed and the total disk space required display prior to installation.
 - Full – installs every Replication Server component including all the supported language modules from the CD. The components that will be installed and the total disk space required display prior to installation.
 - Custom – allows you to select the components to install. Recommended for advanced users. When you select Custom install, the next window displayed is the Component Selection window, which allows you to select the components to install.

Note 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 15.0 components.

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 “Set environment variables” on page 41.
- Starts the sample Replication Server when the installation process is complete, if you installed the defaults.

You must manually start other components, such as Replication Monitoring Services, 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.

Installing Replication Server

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

❖ Installing Replication Server components

1 Choose one of the following installation modes:

- Graphical user interface (GUI) – lets you install the components using the InstallShield interface.
- Console – lets you install components in a command line environment.
- Response file – lets you record or create a response file. You can install Replication Server in two different ways using a response file:
 - Silent – 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 – 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.

2 Mount the Replication Server CD. Enter:

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

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.

When you complete the installation process, unmount and remove the CD from the drive at the # prompt by entering:

```
# umount /dev/cdrom  
# eject
```

❖ Installing in GUI mode

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

```
cd /mnt/cdrom
./setup -is:javahome JVM
```

- 2 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.

- 3 Select Next.
- 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 (*\$\$SYBASE* or */opt/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?

- 8 Click Yes. If the installation directory you selected exists, and contains a prior installation, InstallShield prompts you with the following message:

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

Click Yes if you wish to install on top of the previous installation. If the products were previously 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.

- InstallShield, the correct course of action is determined by InstallShield without prompting you.
- 9 Select the type of installation:
- If you choose Full or Typical, InstallShield displays the following default components:
 - Sybase Servers – Replication Server
 - Connectivity
 - Language Modules for Replication Server
 - Language Modules – Connectivity
 - Shared
 - Replication Monitoring Services
 - Replication Server Administration Tools – Sybase Central and Replication Manager Plugin
 - Sybase Software Asset Management
 - If you choose Custom, select the components to install. Certain components are automatically installed if they are required to run your selected components.
- 10 Click Next. InstallShield displays a progress indicator as it installs the components.

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 On successful installation, InstallShield displays the following message: Click Next.

```
The InstallShield Wizard has successfully installed
Replication Server Software, Version 15.0. Choose
next to continue the wizard.
```

- 12 The SySAM License Server window opens and displays this prompt:

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

- Select Yes if you have a preexisting SySAM network license server installed or installed a new license server using “Installing a new license server” on page 22.

Enter the host name and the port number of the license server.

- Select No if you do not have a SySAM license server installed and are going to use a local license file. A message displays telling you to download the license file.

If you select Yes and the license server is not found, or you select No and the local license file is not installed on your local machine, this message displays:

```
Installer can't check out a license. Do you want to
continue with a license?
```

Click Yes to complete the installation. If you select No, this message displays:

```
Please remember to download and install the license
file after this installation.
```

Click OK to return to the beginning of step 12.

Note See “Choosing the appropriate license server configuration” on page 21 for information on which choice is appropriate for your installation.

- 13 The SySAM Notification window asks you to configure your server for e-mail notification. When configuration is enabled, you will receive information about license management events requiring attention.
 - SMTP server host name
 - SMTP server port number
 - E-mail Return Address
 - Recipient e-mail addresses
 - Message severity that triggers e-mail messages
- 14 On the sample Replication Server option window, select:
 - 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 select No, you can configure and start a sample Replication Server after installation. See “Start the sample Replication Server” on page 40 for more information.

- 15 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 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.

All files and logs associated with the sample Replication Server will be located in the directory \$SYBASE/REP-15_0/samp_repserver.

The sample Replication Server will be configured using the file \$SYBASE/REP-15_0/samp_repserver/SAMPLE_RS.res.

- 16 Click Next. The Configure New Replication Server window displays the progress of the server configuration.
- 17 Click Next. The Installation Completed window appears, verifying that the Replication Server software is now installed.

If you chose to start a sample Replication Server, it 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 configuring your new Replication Server.

- 18 Click Finish. The InstallShield wizard closes.

❖ **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 27, 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:

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

InstallShield starts and displays the welcome window as follows:

```
-----  
  
Welcome to the InstallShield Wizard for Sybase  
Replication Server Software, Version 15.0.  
  
The InstallShield Wizard will install Replication  
Server Software, Version 15.0 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 available to you from the command line.

Note If the environment variable \$SYBASE is set, the installer uses it as the default directory for installation. However, you can explicitly specify a different directory during the installation process to override \$SYBASE.

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.

Note You must provide the absolute path name for the response file you create.

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:

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

Note You must provide the absolute path name for the response file you create.

```
./setup -is:javahome JVM -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 file name:

```
-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; these features have been predefined as installed.

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

- 3 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 lowercase):

```
-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:

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

Installing in silent mode

A silent mode installation, sometimes referred to as an unattended installation, allows you to install the product using 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:

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

Where:

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

Checking for a valid installation

- 1 View 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:

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

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/log.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.

Uninstalling Sybase products

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

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

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. The *installed* or *_jvmrep* directories are also not removed by InstallShield.

❖ **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:

```
$SYBASE/uninstall/REP150/uninstall
```

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 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:

```
$SYBASE/uninstall/REP150/uninstall -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.

This chapter describes the post-installation tasks that you need to perform after installing the Replication Server software.

For more information, see the *Replication Server Configuration Guide for UNIX*.

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Review the log files

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

- InstallShield error log file:
`$SYBASE/log.txt`
- Adaptive Server Anywhere error logs:
`$SYBASE_REP/samp_repsrvr/errorlog/`
- rs_init log file:
`$SYBASE/$SYBASE_REP/init/logs/logmdd.xxx`
For example: `$SYBASE/$SYBASE_REP/init/logs/log1106.001`
- Replication Server log file:
`$SYBASE/$SYBASE_REP/install/rs_name.log`
For example: `$SYBASE/$SYBASE_REP/install/REP_redtail.log`

Start Adaptive Server for the RSSD

To use the RSSD stored on Adaptive Server Enterprise, install the Adaptive Server Enterprise database, if you have not done so already. For installation instructions, see the *Adaptive Server Enterprise Installation Guide* for your platform.

After successful installation, start Adaptive Server Enterprise. For more information, see Chapter 2, “Starting and Stopping Servers” in the *Adaptive Server Enterprise Configuration Guide* for your platform.

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.

Start the sample Replication Server

During installation, InstallShield asks if you want to configure and start a sample Replication Server. InstallShield creates a resource file, `$SYBASE/REP-15_0/samp_repserver/SAMPLE_RS.res`, for the sample Replication Server and updates the *interfaces* file regardless of your choice. If you select No, 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-15_0/install/rs_init -r\  
$SYBASE/REP-15_0/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 start-up of the sample Replication Server, read this log file, `$SYBASE/REP-15_0/init/logs/logmmd.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 are in the directory *\$SYBASE/REP-15_0/samp_repserver*.

Table 3-1 contains the sample Replication Server configuration information. Keep this information in a safe place for later reference.

Table 3-1: Sample Replication Server configuration information

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

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*.

Set 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 3-2 describes the environment variables.

Table 3-2: Environment variables for UNIX

Environment variable	Description
\$LD_LIBRARY_PATH	The subdirectory path to the Open Client and Open Server runtime shared library.
\$LM_LICENSE_FILE	The subdirectory path to the <i>license.dat</i> 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_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_UA	The subdirectory path to the Unified Agent Framework and Replication Monitoring Services.
\$\$SCROOT	The subdirectory path to Sybase Central.
\$\$SYBROOT	The parent directory of \$\$SCROOT. If Sybase Central is installed in the same directory as Replication Server, \$\$SYBASE and \$\$SYBROOT will be the same.

SySAM Administration

Replication Server uses Sybase Software Asset Management (SySAM) to perform license administration and asset management tasks.

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Managing licenses

The Sybase Product Download Center is an where you obtain license keys to enable Sybase software.

When you purchase software from Sybase, go to the download site at <https://sybase.subscribenet.com>. When your order is processed, you receive an e-mail message that includes the above URL, your login, and your password for the Sybase Product Download Center.

When you purchase software from a Sybase reseller, go to the download site at <https://sybase.subscribenet.com/webkey>. Use the certificate that you received in your software package to enter the activation string.

Before you go the Sybase Product Download Center, determine:

- Your license configuration – whether to use the network license server or an unserved SySAM configuration.
- The host ID for the servers you want to run.
 - If you are going to use an unserved configuration, you need the host ID for the machine where Replication Server will run.

- If you are going to use a network license server, you need the host ID of the machine where the license server will run.

To obtain a host ID, go to `$SYBASE/SYSAM-2_0/bin` and execute:

```
./lmutil lmhostid
```

Note If you want to obtain the `hostid` before installing Replication Server, the `lmutil` executable binary is available as a standalone download from the Sybase Product Download Center.

- The host name for the network license server if you are using a license server.
- The TCP/IP port number to be used by the network license server if you are using a license server. If you do not specify the port number, the network license server uses the first available port number in the 27000 through 27009 range.

At the Sybase Product Download Center, you can:

- Generate a license file for an order.
- Generate a license file for partial fulfilment of an order. For example, if you want ten copies of the software, you can acquire five now and obtain the remaining copies later.
- Download ordered software.
- Complete the remaining fulfilment for an order.
- Rehost a license. To change the machine where a license is located, you must generate a new license file at the Sybase Product Download Center.
- View a history of fulfilled licenses and re-download the licenses.

- Obtain updated licenses after renewing support.

Note When you renew your software support with Sybase, the SySAM licenses are updated with the new support date. Download updated licenses from the Sybase Product Download Center after renewing support. The designated support contact receives an e-mail message when a support renewal is processed. The support date is checked when you install Replication Server to verify your support is current when the update is posted.

If you cannot access the Sybase Product Download Center or have problems generating license keys, contact Sybase Customer Services and Support. They can generate the license keys on your behalf and provide the keys to you.

The Sybase Product Download Center keeps a record of the license keys you have activated, and allows you access the records of the software for which you are licensed.

Using the options file to manage licenses

Use the options file (*\$SYBASE/SYSAM-2_0/licenses/SYBASE.opt*) to provide control to the Replication Server license from the network server. For example, you may want to limit the machines on which Replication Server can be run, or restrict usage to particular users.

For example, the following options file restricts the use of Replication Server to the users Tom, Sam, and Harry:

```
# the sse_group are
GROUP sse_group tom sam harry
INCLUDE REP_SERVER GROUP sse_group
```

Note When you specify INCLUDE, you must include all machines or all users licensed for the product in the host group. A machine or a user that is not included in the host group cannot use the product.

Starting and stopping network license servers

❖ Manually starting SySAM servers

- 1 Go to `$SYBASE/SYSAM-2_0/bin`.
- 2 Execute:

```
sysam start
```

❖ Manually stopping a SySAM server

- 1 In a Command Prompt window, go to `$SYBASE/SYSAM-2_0/bin`.
- 2 Enter:

```
sysam stop
```

❖ Starting and stopping SySAM as an automatic service

- To configure SySAM to start automatically when a host server is restarted:
 - 1 Using an account with root privileges, log on to the machine where you installed the Sybase Software Asset Management (SySAM) software.
 - 2 Create a script that the system will use to start and shutdown. The main purpose of such a script is to avoid running the License Manager with root privileges, as these are not required. The following example script assumes that the SySAM License Manager will be run as the user `sybase`, and was installed into `/opt/sybase`. Change these parameters to match your specific installation:

```
#!/bin/sh
#
SYBUSER=sybase
SYBASE=/opt/sybase
SYSAM=$SYBASE/SYSAM-2_0
case "$1" in
  'start')
    su $SYBUSER -c "echo `date` starting lmgrd
    >> $SYSAM/log/boot.log"
    nohup su $SYBUSER -c "umask 022;
    $SYSAM/bin/sysam start >> $SYBASE/log/boot.log"
    ;;
  'stop')
    su $SYBUSER -c "echo `date` stopping lmgrd
    >> $SYSAM/log/boot.log"
    su $SYBUSER -c "$SYSAM/bin/sysam stop -q
```

```
>> $SYSAM/log/boot.log"
    ;;
    *)
        echo "Usage: $0 { start | stop }"
        exit 1
    ;;
esac
exit 0
```

- 3 Save the script to the file name appropriate for your operating system.

For Linux:

```
/etc/rc.d/init.d/sysam.boot
```

- 4 Change the permissions, ownership, and group for the script. For example, assuming the script was stored as */etc/init.d/sysam.boot* enter:

```
chmod 744 /etc/init.d/sysam.boot
chown root /etc/init.d/sysam.boot
chgrp sys /etc/init.d/sysam.boot
```

- 5 Create an appropriately named link to start the License Manager during start-up (typically, S + run number + script name):

```
ln -s /etc/rc.d/init.d/sysam.boot
    /etc/rc.d/rc3.d/S70sysam
```

- 6 Create an appropriately named link to stop the License Manager during shutdown (typically, K + run number + script name):

```
ln -s /etc/rc.d/init.d/sysam.boot
    /etc/rc.d/rc2.d/K02sysam
```

Note The run number (2 above) should be chosen such that it is lower than that of subsystems required by SySAM such as networking services and higher than the run number of applications that require SySAM such as Adaptive Server Enterprise.

Borrowing a license to work offline

Use the `lmborrow` option to check out licenses from the network license server, if you will be disconnected from the network for extended period of time.

Replication Server periodically executes a “heartbeat” on the network license server to update license status. If the machine running Replication Server is disconnected from the network, these heartbeats fail and eventually the software becomes unavailable. Borrowing a license before disconnecting from the network suspends the heartbeat checks and provides full use of the software while disconnected.

Specify the end time when you perform the borrow operation. At the end of the lease, you can obtain a new lease by connecting back to the network. You can also return a license earlier than the lease end time.

Note You cannot borrow a license when you are use local license files.

❖ **Borrowing a license using *lmborrow***

- 1 Before disconnecting from the network, shut down Replication Server.
- 2 Go to `$SYBASE/SYSAM-2_0/bin`.
- 3 Enter:

```
./lmutil lmborrow SYBASE enddate [ time ]
```

where `enddate [time]` is the desired borrow end date.

Note Run `lmborrow` from the same machine on which licenses are being borrowed, and from the same user that starts Replication Server.

For example, the following command sets the end date at 1 p.m. on August 20th, 2005:

```
lmutil lmborrow SYBASE 20-aug-2005 13:00
```

The maximum borrow time is 30 days. Your license administrator can reduce the maximum borrow time following the instructions in “Returning a borrowed license early” on page 49.

- 4 Start Replication Server. The checked out license is borrowed.
- 5 Disconnect from the network.

❖ **Displaying status on a borrowed license**

- 1 Go to `$SYBASE/SYSAM-2_0/bin`.
- 2 Enter:

```
./lmutil lmborrow -status
```

❖ Returning a borrowed license early

- 1 Connect to the network.
- 2 Shut down Replication Server.
- 3 Go to `$SYBASE/SYSAM-2_0/bin`.
- 4 Return each borrowed license by entering:

```
./lmutil lmborrow -return [-c licfile]
[-d display_name] feature
```

For example, the following command returns the REP_SERVER license:

```
./lmutil lmborrow -return -c
$SYBASE/SYSAM-2_0/licenses -d myhost REP_SERVER
```

❖ Renewing a borrowed license

- 1 Connect to the network.
- 2 Shut down Replication Server.
- 3 Return the currently borrowed license if the lease has not expired.
- 4 Execute the steps to borrow licenses with a new lease end date.

See Chapter 8, “Mobile Licensing,” and Chapter 7, “License Administration Tools,” in the *FLEXnet Licensing End User Guide* for more details.

Enabling the network license server REPORTLOG file

The network license server can produce a REPORTLOG file that records license use.

Note Asset management reporting capabilities require a report log.

The report log is enabled by adding this command in the options file:

```
REPORTLOG [+] report_log_path
```

where *report_log_path* is the report log file for this vendor daemon. Sybase recommends that you prepend the *report_log_path* with a plus (+) character to append logging entries, otherwise, the file is overwritten each time the daemon starts.

Note The Replication Server installation automatically creates an options file with REPORTLOG enabled. The options file, *SYBASE.opt*, is located in *\$\$SYBASE/SYSAM-2_0/licenses*.

Using SAMreport

SAMreport is a report generator that records the license use of FLEXnet-licensed applications. SAMreport records license use based on license activity recorded in the FLEXnet report logs, and on selected criteria that includes product and feature name, user, date and time, and display or host.

The SAMreport install program is on the Replication Server installation media in the */samreport* directory.

Note The recommended *\$\$SAMreport_home* location is *\$\$SYBASE/SYSAM-2_0/samreport*.

The report types provided by SAMreport are:

- Usage Over Time – a line graph that shows the maximum number of licenses in use over a period of time.
- High Water Mark – a line graph that shows the maximum number of licenses used during the specified time period.
- Summary Barchart – a format to compare license use across users and features, based on calculations made in the Usage Summary report.
- Usage Efficiency – how long each successive license for a given product was in use.
- Usage Summary – text output that summarizes usage statistics for each product.
- Server Coverage – the time during which the license server was servicing licenses.

- Raw – individual use events, not a summary of license use. In general, a Raw report provides one line of data for every license checkout, listed in chronological order of check-in.

SAMreport system requirements

SAMreport v3.6 is supported on Red Hat Linux 7.2-8.0.

Installing the Java Runtime Environment

Before you install SAMreport, you may need to install the Java Runtime Environment (JRE), specific to your platform. Refer to your platform documentation or web site for more details.

To install the JRE, follow the instructions that come with the program.

Installing SAMreport

To install SAMreport as a new installation:

- 1 Run the SAMreport installer, located in the *samreport* directory on the Replication Server version 15.0 installation media.
- 2 Use console mode if your display supports only characters, not graphics.
 - To run in console mode, enter the following command:

```
samreport-3_6-i86_r6.bin -console
```
 - To run in GUI mode, enter the following command:

```
samreport-3_6-i86_r6.bin
```
- 3 If the installer does not find a JRE installed on your system, specify the location where JRE 1.4 is installed using the following command:

```
-is:javahome <JAVA HOME DIR>
```

For example:

```
samreport-3_6-i86_r6.bin -is:javahome JRE directory
```

In the above examples, the JRE directory is the JRE directory that was installed in “Installing the Java Runtime Environment” on page 51. If the install program cannot use the JRE, install the JRE that is supplied with the SAMreport installation program.

- 4 The Welcome screen displays. Click Next.
- 5 Choose an installation location. Sybase recommends that you install SAMreport in \$SYBASE/SYSAM-2_0/samreport. SAMreport is installed in a v3.6 directory under the specified directory. A symbolic link to a directory named current is created in the installation directory in the v3.6 directory. Click Next to continue with the installation.
- 6 Choose the license file location. Browse to the directory where you launched the SAMreport installation program. Select the license file named *SAMreport_SYBASE.lic* and click Open.
The installation does not continue until it locates the specified license file. The contents of the license file are not checked until you try to run SAMreport.

The Installer copies the specified file into the following directory:
SAMreport_home/machind/license/license.dat.
- 7 If the Installer does not find the JRE you installed, you are prompted to enter the location of that JRE directory. For example: /usr/local/jre.

Click Next.
- 8 The installation directory and space requirements are displayed. Click Next to begin the extraction of files and installation of SAMreport.
- 9 Click Finish to complete the installation.

Post-installation tasks for SAMreport

Set the following environment variable before launching SAMreport. Perform the following task, each time you start SAMreport.

Note SAMreport may not launch without this variable defined.

From a C or a Bourne Shell enter the following, where *platform name* is “i86_r6”.

C Shell:

```
setenv GPLATFORM platform name
```

Bourne Shell:

```
export GPLATFORM=platform name
```


Starting and Stopping SAMreport

This section provides information on how you can start and stop SAMreport.

To start SAMreport

Go to the `$SAMreport_home` directory, and enter:

```
report
```

To stop SAMreport:

To stop SAMreport, select File | Exit or click the Exit button in the SAMreport interface.

Managing and collecting logs

SAMreport must access report logs on the SySAM license server on which you want the report. If you are using an unserved license, the report log files must be on the local machine. If you are using a network license server, the report log files must be accessible via a network-mounted server. SAMreport does not manage this task; you must manually copy the reports to the appropriate local or network machine and map a drive to the network server if necessary.

Note For information on how to manage report logs, including scripts to automate collection of such logs, see Appendix A of the *SAMreport User's Guide*. To access this guide, go to the Sybase Product Manuals Web site at Product Manuals at <http://www.sybase.com/support/manuals/>.

Portions of the *FLEXnet Licensing End User Guide* and the *SAMreport User's Guide* are included with permission of Macrovision Corporation.

Using SySAM utilities

SySAM provides these utilities, which allow the license administrator to manage network licensing activities:

- `lmborrow` – supports license borrowing.
- `lmdiag` – diagnoses license checkout problems.
- `lmdown` – shuts down selected license daemons.
- `lmhostid` – reports the system hostid.
- `lminstall` – converts license files to different formats.

- `lmnewlog` – moves existing report log information to a new file name or starts a new report log file with the existing file name.
- `lmpath` – allows direct control over license file path settings.
- `lmremove` – releases a failed license to the pool of free licenses.
- `lmreread` – directs the license daemon to reread the license file and to start any new vendor daemons.
- `lmstat` – displays the license server system status.
- `lmswitch` – controls the size and location of the debug log.
- `lmswitchr` – switches the report log to a new file name.
- `lmver` – reports the FLEXnet licensing version of a library or binary file.

For more information, see Chapter 7 in the *FLEXnet Licensing End-User Guide*.

The `sysam` script located in `$SYBASE/SYSAM-2_0/bin` provides a wrapper for the most frequently used FLEXlm utilities. To display the help text, which provides complete instructions, enter the following command in a Command Prompt window:

```
sysam help
```

To display detailed help on a specific action, enter:

```
sysam help <action>
```

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