SYBASE®

Installation Guide

Mirror Replication Agent™

12.6

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Sybase, Inc., One Sybase Drive, Dublin, CA 94568.

Contents

About This Book

Mirror Activator is a Sybase® software solution that allows you to combine the benefits of transaction replication and disk replication, thereby eliminating the disadvantages of using either system alone in a disaster recovery solution.

The Mirror Activator solution includes the following Sybase software products:

- Mirror Replication Agent™
- Replication Server®

Audience

This book is for qualified System Administrators or installers who need to:

- Install the Mirror Replication Agent software, or
- Administer the Mirror Activator system.

How to use this book

Read Chapter 1, "Preparing for Installation," *before* you unload the Mirror Replication Agent software from the Mirror Replication Agent 12.6 distribution media. Use the Installation and Setup Worksheet in Chapter 1 to gather and record the connectivity and configuration information you need to set up the Mirror Replication Agent.

See Chapters 1 and 2 in the Mirror Activator *Administration Guide* for more information about the Mirror Activator system:

- An introduction to the Mirror Activator system, and an overview of its topology
- Specific configuration requirements for each Mirror Activator system component

This book provides the following information:

- Chapter 1, "Preparing for Installation," describes basic Mirror Replication Agent system requirements, and provides a worksheet to help you gather and record the configuration information that you need to install the Mirror Replication Agent software and set up the Mirror Activator system.

- Chapter 2, “Installing Mirror Replication Agent,” describes how to install the Mirror Replication Agent 12.6 software on a Linux, Microsoft Windows, or UNIX platform. This chapter also describes how to uninstall the software.

Note For information about installing the Replication Server 12.6 software, see the Replication Server installation and configuration guides for your platform.

Related documents

If you are not familiar with Sybase transaction replication technology, refer to the following documents for more information:

- Replication Server *Design Guide* for an introduction to basic transaction replication concepts and Sybase transaction replication systems
- Replication Server *Administration Guide* for information about Replication Server support for “warm standby” applications

To learn more about the Mirror Activator solution and the Mirror Replication Agent component, refer to the following documents:

- Mirror Activator *Administration Guide* for an introduction to the Mirror Activator system, and information about setting up and administering the Mirror Replication Agent and other components of the Mirror Activator system.
- The Mirror Replication Agent release bulletin for last-minute information that was too late to be included in the books

Note A more recent version of the Mirror Replication Agent 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.

Make sure you have appropriate documentation for the Adaptive Server Enterprise version that you will use for the primary and standby databases in the Mirror Activator system.

Java environment

The Mirror Replication Agent component requires a Java Runtime Environment (JRE) on the Mirror Replication Agent host machine.

- The Mirror Replication Agent release bulletin contains the most up-to-date information about Java and JRE requirements.

- Java documentation available from your operating system vendor describes how to set up and manage the Java environment on your platform.

Additional information about the Java environment is available at the following URL:

```
http://java.sun.com
```

Other sources of information

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

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

  Refer to the *Technical Library Installation Guide* in your documentation package for instructions on installing and starting the Technical Library.
- The Technical Library Product Manuals Web site is an HTML version of the Technical Library CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Updates, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

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

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

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

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

5 Click a Certification Report title to display the report.

v **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

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

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

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

3 Select a product.

4 Specify a time frame and click Go.

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

Style conventions

The following style conventions are used in this book:

- In a sample screen display, commands that you should enter exactly as shown appear like this:

  ```
  pdb_init
  ```

- In the regular text of this document, variables or user-supplied words appear like this:

  If you specify the *value* option, it changes the setting of the specified configuration parameter.

- In a sample screen display, variables or words that you should replace with the appropriate value for your site appear like this:

  ```
  resume connection to rds.rdb
  ```

  where *rds* and *rdb* are the variables you should replace.

- In the regular text of this document, names of programs, utilities, procedures, and commands appear like this:

  Use the pdb_init command to initialize the primary database.

- In the regular text of this document, names of database objects (tables, columns, stored procedures, etc.) appear like this:

  Check the price column in the widgets table.

- In the regular text of this document, names of datatypes appear like this:

  Use the date or datetime datatype.

- In the regular text of this document, names of files and directories appear like this:

  Log files are in the *$SYBASE/MRA-12_6/inst_name/log* subdirectory.

Syntax conventions

The following syntax conventions are used in this book:

Table 1: Syntax conventions

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

In reference sections of this document, statements that show the syntax of commands appear like this:

ra_config [*param* [, *value*]]

The words *param* and *value* in the syntax are variables or user-supplied words.

Character case conventions

The following character case conventions are used in this book:

- All command syntax and command examples are shown in lowercase. However, Mirror Replication Agent command names are *not* case sensitive. For example, PDB_INIT, Pdb_Init, and pdb_init are equivalent.
- Names of configuration parameters are case sensitive. For example, Scan_Sleep_Max is not the same as scan_sleep_max, and the former would be interpreted as an invalid parameter name.

- Database object names are *not* case sensitive in Mirror Replication Agent commands. However, if you need to use a mixed-case object name in a command (to match a mixed-case object name in the database), you must delimit the object name with quote characters. For example:

  ```
  pdb_get_tables "TableName"
  ```

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.

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

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

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

If you need help

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

CHAPTER 1

Preparing for Installation

This chapter describes the Mirror Replication Agent system requirements, and other information you need to know before you install the Mirror Replication Agent version 12.6 software.

Reviewing installation requirements

Review the following installation requirements before you install the Mirror Replication Agent 12.6 software:

- System requirements
- Compatible products
- Graphical user interface
- Mirror Activator team skills
- Mirror Activator component installation

System requirements

The Mirror Replication Agent 12.6 software has two system requirements:

- A compatible Java Runtime Environment (JRE)
- A compatible platform and operating system version

Java Runtime Environment

Mirror Replication Agent is a Java-based application. Therefore, a Java Runtime Environment (JRE) must be installed on the Mirror Replication Agent host machine. A JRE appropriate for your operating system is installed automatically when you install the Mirror Replication Agent software.

Operating system patch levels must be current to support Java 1.4.1. See the following Web sites to determine which patches are required for your platform, and for current information about JREs for your platform:

- `http://java.sun.com/j2se` for information about JREs on the Sun Solaris and Microsoft Windows platforms
- `http://www.ibm.com/developerworks/java/jdk/aix` for information about JREs on AIX platforms
- `http://www.hp.com/products1/unix/java` for information about JREs on HP-UX platforms
- `http://www.ibm.com/developerworks/java/jdk/linux140` for information about JREs on Linux platforms

Platforms and operating systems

The Mirror Replication Agent 12.6 software requires one of the platforms and operating system versions listed in Table 1-1.

Table 1-1: Platform and operating system requirements

Platform	Operating system version
HP 9000(8xx)	HP-UX 11.0 or 11i (11.11)
IBM RISC System/6000	IBM AIX 5.1 or 5.2
Linux/Intel x86	Red Hat Enterprise Linux 2.1 • kernel version 2.4.9-e.27 or later • RPM version 4.0.4 or later
Microsoft Windows 2000	Windows 2000 v.5.0.2195
Microsoft Windows Server 2003	Windows Server 2003 v.5.2.3790
Sun Solaris (SPARC) system	Sun Solaris 2.8 or 2.9

Note *Before* you install the Mirror Replication Agent 12.6 software, you must install the most recent operating system patches recommended by your operating system vendor for Java 1.4.1 support.

Table 1-2 lists the minimum physical memory, storage, and media device requirements on the Mirror Replication Agent host machine. Your Mirror Replication Agent configuration may require more memory and disk space than the minimums listed in Table 1-2.

Table 1-2: Memory, disk space, and media device requirements

Memory	Disk space	Media device
128MB RAM	300MB hard disk	CD-ROM drive

Accommodating the RASD

Each Mirror Replication Agent instance uses an embedded Adaptive Server Anywhere database to manage its Replication Agent System Database (RASD).

Because the RASD stores information about primary database structure or schema objects, its size depends partly on the number of tables and procedures replicated, and the number of database users in the primary database.

When it replicates a DDL transaction, the Mirror Replication Agent creates a new *version* of the affected object's metadata in its RASD. Over time, the size of the RASD can grow significantly, depending on the number and frequency of DDL transactions replicated.

If the RASD runs out of disk space, the Mirror Replication Agent will shut down and suspend replication. To prevent this, you must provide adequate disk space on the Mirror Replication Agent host machine to accommodate the initial size of the RASD, as well as some potential growth.

See the Mirror Activator *Administration Guide* for more information about the RASD.

Compatible products

Mirror Replication Agent 12.6 is compatible with the Sybase products listed in Table 1-3.

Table 1-3: Mirror Replication Agent 12.6 compatibility

Sybase product	Version
Adaptive Server® Enterprise (as the primary and standby databases)	12.5.0.3, 12.5.1, 12.5.2
Adaptive Server Enterprise (as the RSSD)	12.0.x, 12.1.x, 12.5.0.x, 12.5.1, 12.5.2
Adaptive Server Anywhere (as the RASD and RSSD)	8.0.2

Sybase product	Version
jConnect™ for JDBC™	5.5, EBF 11473 or later
Replication Server	12.0, 12.1, 12.5, 12.6
Sybase Software Asset Management (SySAM)	8.3 or later

Graphical user interface

The standard installation procedure for Mirror Replication Agent 12.6 software uses the InstallShield wizard in GUI mode (the GUI wizard).

If you want to use the InstallShield GUI wizard to install Mirror Replication Agent on a server without a display, keyboard, and pointing device, you need access to a remote machine with a GUI environment, networked to the Mirror Replication Agent host. Before you start the InstallShield wizard, verify that the remote machine is configured to provide a GUI environment for the server on which the Mirror Replication Agent software will be installed.

Note You can use the InstallShield wizard in console mode to install Mirror Replication Agent from an operating system command prompt, without a GUI environment. See “Installing in console mode” on page 26 for more information.

Mirror Activator team skills

You need team members with certain skills to successfully install Mirror Replication Agent and set up the Mirror Activator system. Identify the person or team responsible for each skill set listed in Table 1-4.

Table 1-4: Team skill requirements

Team role	Skill set
Operating System Administrator	Knowledge of the Mirror Replication Agent host machine platform and operating system, including configuration, administration, and maintenance tasks
Disk Replication System Administrator	Knowledge of the disk replication system, including: • Platform and device configuration • Operation and administration tasks

Team role	Skill set
Network Administrator	Knowledge of network communications at the primary and standby sites, including: • Communication protocols • Network configuration • Network administration tasks
Replication Server Administrator	Knowledge of Replication Server and Sybase replication systems, including configuration, administration, and maintenance tasks
Primary Database Administrator, Standby Database Administrator	Knowledge of Adaptive Server Enterprise, including: • Server configuration and administration tasks • Database administration tasks • Knowledge of the database design and schema

Mirror Activator component installation

Installing the Mirror Replication Agent software is part of the process required to set up a Mirror Activator system. Table 1-5 lists the Mirror Activator system components you must install and configure, and the documents you should refer to.

Table 1-5: Mirror Activator component installation

Component	Refer to
Mirror Replication Agent	Mirror Replication Agent *Installation Guide* (this document)
Primary and standby databases	Adaptive Server Enterprise installation and configuration guides
Replication Server	Replication Server installation and configuration guides
Disk replication system and devices	Disk replication system vendor and/or device vendor documentation

Completing the Installation and Setup Worksheet

The Installation and Setup Worksheet helps you gather and organize information about your Mirror Activator system configuration. You will need this information when you install the Mirror Replication Agent software and set up your Mirror Activator system. Collect the information to complete the worksheet *before* you install the Mirror Replication Agent software.

Make a copy of the Installation and Setup Worksheet, then gather and record the information as you read through the following sections.

Note Save a copy of the completed worksheet for your site records. You may need to refer to it during future Sybase software installations or upgrades, or during system recovery.

Section 1: Mirror Replication Agent configuration

Identify the Mirror Replication Agent instance name, administration port, and other configuration information.

v **To complete Section 1 of the Installation and Setup Worksheet**

1 Determine the name of the Mirror Replication Agent instance. The name should be recognizable as identifying this specific instance.

Record the name of the Mirror Replication Agent instance as item 1a on the Installation and Setup Worksheet.

2 Identify the port number of the administration port for this Mirror Replication Agent instance. The port number must be unique on the Mirror Replication Agent host machine.

If you are not the System Administrator for the Mirror Replication Agent host machine, ask your System Administrator which port number you should use for the Mirror Replication Agent instance administration port.

Record the Mirror Replication Agent port number as item 1b on the Installation and Setup Worksheet.

3 Determine the location of the Sybase interfaces file. The interfaces file is named *sql.ini* on Microsoft Windows platforms, or *interfaces* on UNIX platforms.

Use this item if you plan to use an Open Client™ application (such as the interactive SQL isql or jisql utility, or SQL Advantage®) to administer the Mirror Replication Agent instance.

Note The interfaces file must be accessible to the machine that hosts the Open Client application, not necessarily on the Mirror Replication Agent host machine.

Record the Sybase interfaces file location as item 1c on the Installation and Setup Worksheet.

4 Determine the Mirror Replication Agent administrator login name and password for the Mirror Replication Agent instance. Use this information when you configure the Mirror Replication Agent instance.

Record the Mirror Replication Agent administrator login name as item 1d (admin_user) and the password as item 1e (admin_pw) on the Installation and Setup Worksheet.

Section 2: Replication Server database connections

Identify the values you need to use when you create the Replication Server database connections.

v **To complete Section 2 of the Installation and Setup Worksheet**

1 Identify a logical server name and logical database name that represent a warm standby application in Replication Server.

The logical server and logical database names can be any names that help you identify the Replication Server logical database connection.

Record the logical server name as item 2a and the logical database name as item 2b on the Installation and Setup Worksheet.

2 Identify a data server name and a database name that represent the primary database connection for Replication Server.

Note The names of the primary and standby databases must be the same in a Replication Server warm standby application.

Record the primary data server name as item 2c and the primary database name as item 2d on the Installation and Setup Worksheet.

3 Identify the Maintenance User user login name and password for the primary database connection.

Note The Maintenance User login name must be a valid user login name in the primary database, and it must *not* be the name of any database user who applies transactions that might be replicated.

Record the primary database Maintenance User login name as item 2e (Primary Maintenance User) and the password as item 2f (Primary Maintenance User password) on the Installation and Setup Worksheet.

4 Identify a data server name and a database name that represent the standby database connection for Replication Server.

Note The names of the primary and standby databases must be the same in a Replication Server warm standby application.

Record the standby data server name as item 2g and the standby database name as item 2h on the Installation and Setup Worksheet.

5 Identify the Maintenance User user login name and password for the standby database connection.

Note The Maintenance User login name must be a valid user login name in the standby database, and it must *not* be the name of any database user who applies transactions that might be replicated.

Record the standby database Maintenance User login name as item 2i (Standby Maintenance User) and the password as item 2j (Standby Maintenance User password) on the Installation and Setup Worksheet.

Section 3: Mirror Replication Agent connection to Replication Server

Identify the values of Mirror Replication Agent configuration parameters for the Mirror Replication Agent connection to the Replication Server.

v **To complete Section 3 of the Installation and Setup Worksheet**

1 Identify the name of the Replication Server host machine.

Record the Replication Server host machine name as item 3a (rs_host_name) on the Installation and Setup Worksheet.

2 Identify the port number of the Replication Server client port.

This is the port number that the Mirror Replication Agent instance will use to log in to the Replication Server to send replicated transactions.

Record the Replication Server client port number as item 3b (rs_port_number) on the Installation and Setup Worksheet.

3 Identify the Replication Server user login name and password that the Mirror Replication Agent instance will use to log in to the Replication Server.

Note This user login name must be granted connect source permission in the Replication Server. See the Replication Server *Reference Manual* for more information about connect source permission.

If you are not the System Administrator for the Replication Server, ask your System Administrator for the correct user login name and password.

Record the Replication Server user login name as item 3c (rs_username) and the password as item 3d (rs_password) on the Installation and Setup Worksheet.

Section 4: Mirror Replication Agent connection to RSSD

Identify the values of the Mirror Replication Agent configuration parameters for the Mirror Replication Agent connection to the RSSD.

- **To complete Section 4 of the Installation and Setup Worksheet**

  1. Identify the name of the RSSD host machine.

     Record the RSSD host machine name as item 4a (rssd_host_name) on the Installation and Setup Worksheet.

  2. Identify the port number of the RSSD client port.

     This is the port number that the Mirror Replication Agent instance will use to log in to the RSSD to get information about replication definitions.

     Record the RSSD client port number as item 4b (rssd_port_number) on the Installation and Setup Worksheet.

  3. Identify the database name of the RSSD.

     Record the RSSD database name as item 4c (rssd_database_name) on the Installation and Setup Worksheet.

  4. Identify the RSSD user login name that the Mirror Replication Agent instance will use to log in to the RSSD.

     If you are not the System Administrator for the Replication Server, ask your System Administrator for the correct user login name and password for the RSSD.

     Record the RSSD user login name as item 4d (rssd_username) and the password as item 4e (rssd_password) on the Installation and Setup Worksheet.

Section 5: Mirror Replication Agent connection to primary data server

Identify the values of the Mirror Replication Agent configuration parameters for its connection to the primary data server and primary database.

- **To complete Section 5 of the Installation and Setup Worksheet**

  1. Identify the name of the primary data server host machine.

Record the primary data server host machine name as item 5a (pds_host_name) on the Installation and Setup Worksheet.

2 Identify the port number of the primary data server client port.

This is the port number that the Mirror Replication Agent instance will use to log in to the primary data server to get information about the primary database and to reserve the logscan context.

Record the primary data server client port number as item 5b (pds_port_number) on the Installation and Setup Worksheet.

3 Identify the name of the primary database on the primary data server.

This must be a valid database name on the primary data server, and it must be identical to the value of rs_source_db (worksheet item 2d).

Record the primary database name as item 5c (pds_database_name) on the Installation and Setup Worksheet.

4 Identify the user login name and password that the Mirror Replication Agent instance will use to log in to the primary database.

Note This user name must *not* be the same as the Maintenance User login name for the Replication Server primary database connection.

Record the primary database user login name as item 5g (pds_username) and the password as item 5h (pds_password) on the Installation and Setup Worksheet.

Installation and Setup Worksheet

Make a copy of the worksheet for each Mirror Replication Agent instance. Complete this worksheet for each Mirror Replication Agent instance *before* you install the Mirror Replication Agent software.

See the Mirror Activator *Administration Guide* for detailed descriptions of Mirror Replication Agent commands and parameters.

Section 1: Mirror Replication Agent configuration

Item	Description	Example value	Your value
1a	Mirror Replication Agent instance name This name must be unique among Mirror Replication Agent instances.	my_mra	
1b	Mirror Replication Agent admin_port parameter This is the Mirror Replication Agent instance client port number. The port number must be unique on the Mirror Replication Agent host machine.	20000 **Note** Check with your System Administrator to determine which port numbers are available.	
1c	Location (path) of the Sybase interfaces file: • *%SYBASE%\ini\sql.ini* on Microsoft Windows platforms • *$SYBASE/interfaces* on UNIX platforms	c:\sybase\ini\sql.ini	
1d	Mirror Replication Agent admin_user parameter This is the user name you use to log in to the Mirror Replication Agent instance.	my_mra_admin	
1e	Mirror Replication Agent admin_pw parameter This is the password for the admin_user login.	my_mra_pwd	

Section 2: Replication Server database connections

Item	Description	Example value	Your value
2a	Logical Data Server This is the logical data server name of the warm standby logical database connection. This value is used in the Replication Server create logical connection command.	my_logical_server	
2b	Logical Database This is the logical database name of the warm standby logical database connection. This value is used in the Replication Server create logical connection command.	my_logical_db	

Item	Description	Example value	Your value
2c	Mirror Replication Agent rs_source_ds parameter This is the data server name of the Replication Server primary database connection. This value is used in the Replication Server create connection command.	my_pri_ASE	
2d	Mirror Replication Agent rs_source_db parameter This is the database name of the Replication Server primary database connection. This value is used in the Replication Server create connection command.	my_db	
2e	Primary Maintenance User This is the login name of the Maintenance User for the primary database. This value is used in the Replication Server create connection command.	ma_maint **Note** This must be a valid user login name in the primary database.	
2f	Primary Maintenance User password This value is used in the Replication Server create connection command.	ma_maint_pwd	
2g	Standby Data Server This is the data server name of the Replication Server standby database connection. This value is used in the Replication Server create connection command.	my_stdby_ASE	
2h	Standby Database This is the database name of the Replication Server standby database connection. This value is used in the Replication Server create connection command.	my_db	
2i	Standby Maintenance User This is the login name of the Maintenance User for the standby database. This value is used in the Replication Server create connection command.	ma_maint **Note** This must be a valid user login name in the standby database.	
2j	Standby Maintenance User password This value is used in the Replication Server create connection command.	ma_maint_pwd	

Section 3: Mirror Replication Agent connection to Replication Server

Item	Description	Example value	Your value
3a	Replication Agent rs_host_name parameter This is the name of the Replication Server host machine.	rs_host	
3b	Replication Agent rs_port_number parameter This is the client port number of the Replication Server.	2048	
3c	Replication Agent rs_username parameter This is the Replication Server user name that the Mirror Replication Agent instance uses to log in to the Replication Server.	mra_rs_user **Note** This name must not be the same as the Maintenance User ID (item 2c).	
3d	Replication Agent rs_password parameter This is the password for the rs_username login.	mra_rs_pwd	

Section 4: Mirror Replication Agent connection to RSSD

Item	Description	Example value	Your value
4a	Replication Agent rssd_host_name parameter This is the name of RSSD host machine.	rssd_host	
4b	Replication Agent rssd_port_number parameter This is the RSSD client port number.	3072	
4c	Replication Agent rssd_database_name parameter This is the RSSD database name.	rssd_db	
4d	Replication Agent rssd_username parameter This is the RSSD user name that the Mirror Replication Agent instance uses to log in to the RSSD.	mra_rssd_user	
4e	Replication Agent rssd_password parameter This is the password for the rssd_username login.	mra_rssd_pwd	

Section 5: Mirror Replication Agent connection to primary data server

Item	Description	Example value	Your value
5a	Replication Agent pds_host_name parameter This is the primary data server host machine name.	pds_host	
5b	Replication Agent pds_port_number parameter This is the primary data server client port number.	4096	
5c	Replication Agent pds_database_name parameter This is the primary database name.	my_db	
5d	Mirror Replication Agent pds_username parameter This is the primary database user login name that Mirror Replication Agent uses to log in to the primary database.	mra_pds_user **Note** This name must *not* be the same as the Primary Maintenance User name (item 2e).	
5e	Mirror Replication Agent pds_password parameter This is the password for the pds_username login.	mra_pds_pwd	

After you complete the Installation and Setup Worksheet, you can proceed to Chapter 2, “Installing Mirror Replication Agent.”

CHAPTER 2

Installing Mirror Replication Agent

This chapter describes how to install Mirror Replication Agent version 12.6 software on a Linux, Microsoft Windows, or UNIX platform, and how to create, configure, and start up a Mirror Replication Agent instance.

Note In this document, Linux is treated as a "UNIX platform," unless the specific context requires a distinction.

Before you begin

Complete the following pre-installation tasks *before* you install the Mirror Replication Agent 12.6 software:

- Plan for system requirements.
- Verify the Mirror Activator system environment.
- Complete the Installation and Setup Worksheet.

The following sections describe each pre-installation task.

Plan for system requirements

Installing Mirror Replication Agent requires adequate disk space and RAM on the Mirror Replication Agent host machine. The Mirror Replication Agent host also requires network connectivity to the primary database and the Replication Server, and local access to the mirror log devices.

See “System requirements” on page 1 for more information about:

- Platform and operating system requirements
- Memory, disk space, and media device requirements
- Compatibility with other Sybase products

See the Mirror Replication Agent release bulletin for additional current information about system requirements.

Warning! Do *not* install the Mirror Replication Agent 12.6 software in the same installation directory with the following Sybase products:

- Replication Server version 12.5 or earlier
- Adaptive Server Enterprise version 12.5.0.x or earlier
- Open Client or Open Server version 12.5.0 or earlier
- OpenSwitch version 12.5 or earlier
- DirectConnect version 12.5 or earlier

Doing so incapacitates these products, and it can adversely affect other Sybase products.

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

Verify the Mirror Activator system environment

Before you install the Mirror Replication Agent 12.6 software, verify the following in your Mirror Activator system environment:

- Primary database

  Verify that the primary data server and primary database are online and configured properly for your production systems. For more information, refer to the Adaptive Server Enterprise documentation.

- Replication Server

  Verify that the Replication Server is installed, configured, and running. For more information, refer to the Replication Server installation and configuration guides for your platform.

  Note When you install the Replication Server software included in the Mirror Activator solution, you must register the Mirror Activator license certificate for the Replication Server software. See "Registering the license certificate for Replication Server" on page 39 for more information.

- Disk replication system

  Verify that the disk replication system is set up and configured to synchronously replicate (or mirror) the primary database transaction log devices to the mirror log devices at the standby site. For more information, refer to the documentation provided by your disk replication system vendor.

See Chapter 2, "Setting up the Mirror Activator system," in the Mirror Activator *Administration Guide* for more information about Mirror Activator system requirements.

Complete the Installation and Setup Worksheet

Complete the "Installation and Setup Worksheet" in Chapter 1, "Preparing for Installation." The worksheet organizes the Mirror Replication Agent configuration parameter values that you need to set up and configure a Mirror Replication Agent instance.

See "Completing the Installation and Setup Worksheet" on page 6 for detailed instructions.

Installing the Mirror Replication Agent software

The Mirror Replication Agent 12.6 product is distributed on the Mirror Replication Agent 12.6 distribution media. See the Mirror Replication Agent release bulletin for the current distribution media catalog numbers.

The following sections describe how to install the Mirror Replication Agent 12.6 software on a Linux, Microsoft Windows, or UNIX platform, using InstallShield:

- "Installing with the GUI wizard" on page 21
- "Installing in console mode" on page 26
- "Using a response file for installation" on page 28

All procedures give you the following installation options:

- *Typical* – The Mirror Replication Agent software product will be installed, with the recommended products and features.
- *Full* – All software products and features on the CD will be installed.
- *Custom* – You can select the specific products and features that you want to install, from a list of all products and features on the CD.

The following products and features are included on the Mirror Replication Agent 12.6 distribution media:

- Mirror Replication Agent 12.6
- jConnect-5_5 EBF 11473 (the Sybase JDBC driver)
  - Debug Classes (for advanced jConnect troubleshooting)
  - jTDS (the jConnect JDBC-to-Tabular Data Stream™ driver)
  - Javadocs
  - Documentation for jConnect (in English, French, German, and Japanese)
  - Free utilities for jConnect
    - jisql (the JDBC version of the interactive SQL isql utility)
    - Ribo (a tool for troubleshooting JDBC-to-database communications)
  - Samples (jConnect sample code)
- SySAM (the Sybase Software Asset Management license manager)

- Shared (JREs for each supported platform)

Minimal installation

For a minimal Mirror Replication Agent installation, choose the Custom installation option, and select *only* the Mirror Replication Agent 12.6 product. The following products and features are installed automatically when you select only the Mirror Replication Agent 12.6 product:

- Mirror Replication Agent 12.6
- jTDS
- SySAM
- Shared

If you encounter problems during the installation, see "Installation troubleshooting" on page 35.

Note For information about installing the Replication Server 12.6 software, which is included on separate distribution media in the Mirror Activator 12.6 solution package for each platform, see the Replication Server 12.6 installation and configuration guides for your platform.

Installing with the GUI wizard

This installation procedure uses the InstallShield wizard in GUI mode (the GUI wizard), which requires either:

- A GUI environment (with a display, keyboard, and pointing device) on the Mirror Replication Agent host machine, or
- A remote machine configured to provide a GUI environment for the Mirror Replication Agent host machine.

See "Installing in console mode" on page 26 for information about installing the Mirror Replication Agent software in an interactive text (or console) mode.

v **To install Mirror Replication Agent with the GUI wizard**

1 Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).

2 Close all non-essential applications, and minimize any open windows.

3 Insert the Mirror Replication Agent 12.6 distribution CD in the CD-ROM drive.

4 Start the InstallShield GUI wizard:

- On Microsoft Windows platforms, the InstallShield GUI wizard should start automatically.

  If the GUI wizard does not start automatically, select Start | Run, and enter the following in the Open box:

  ```
  x:\setupwin32.exe
  ```

  where *x:* is your CD-ROM drive.

  You can also start the GUI wizard from Windows Explorer by double-clicking the *setupwin32.exe* file icon.

- On UNIX platforms, enter the following at the command prompt:

  ```
  cd /cdrom
  ./setup_type
  ```

  where *setup_type* is one of the following strings that corresponds to the UNIX platform type:

  - setupaix
  - setuphp11x
  - setupsolaris
  - setuplinux

5 Choose Next to continue.

Note You can exit the GUI wizard and stop the installation at any point before it is complete by choosing Cancel.

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

7 Read the Sybase license agreement and select “I agree.”

Note You must agree to the terms of the software license before you can continue the installation.

Choose Next to continue.

8 Specify an installation directory in the Destination window.

The default installation directory is:

- *%SYBASE%* or *c:\sybase* on Microsoft Windows platforms
- *$SYBASE* or */opt/sybase* on UNIX platforms

Choose Next to accept the default installation directory, or do one of the following:

- Click the "browse" button (...) to select an installation directory in the file browser, then choose Next.
- Enter a directory name in the Destination Directory box, then choose Next.

If you enter a directory name that does not exist, InstallShield prompts:

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

Choose Yes to create the installation directory you specified.

If the directory you specified (either by default or by entering a directory name) exists, InstallShield prompts:

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

If you choose Yes, and:

- The Sybase products were installed with Studio Installer (for example, Replication Server version 12.5), InstallShield overwrites the common components.
- The products were installed with InstallShield, InstallShield determines the correct course of action without prompting you.

Note On Microsoft Windows platforms, if you are prompted to overwrite a DLL, choose Yes only if the version of the new DLL is newer than the one InstallShield is attempting to overwrite.

---

9 Select the type of installation from three options:

- Typical
- Full
- Custom

Typical If you choose Typical, InstallShield displays the following products and features:

- Mirror Replication Agent 12.6
- jConnect-5_5 EBF 11473
  - jTDS
  - Free Utilities for jConnect
    - jisql
- SySAM
- Shared

Full If you choose Full, InstallShield displays the complete list of products and features on the Mirror Replication Agent 12.6 distribution CD:

- Mirror Replication Agent 12.6
- jConnect-5_5 EBF 11473
  - Debug Classes
  - jTDS
  - Javadocs
  - Documentation for jConnect:
    - English documentation
    - French documentation
    - German documentation
    - Japanese documentation
  - Free Utilities for jConnect
    - jisql
    - Ribo
  - Samples
- SySAM

- Shared

Custom If you choose Custom, InstallShield displays the same products and features as the Full installation list, with check boxes that allow you to select the specific products and features you want to install.

For a minimal Mirror Replication Agent installation, choose Custom, and select *only* the Mirror Replication Agent 12.6 product. The following products and features are installed automatically when you select only the Mirror Replication Agent product:

- Mirror Replication Agent 12.6
- jTDS
- SySAM
- Shared

After you select the products and features for a Custom installation and choose Next, InstallShield displays the products and features you selected.

10 Choose Next to continue.

InstallShield installs the components in the installation directory you specified, and displays an installation progress indicator.

If errors occur during the installation, InstallShield displays error messages. In the event of an installation error, exit the InstallShield wizard to correct the cause of the error, then restart InstallShield. For more information, see "Installation troubleshooting" on page 35.

If the software is installed successfully, InstallShield displays a final window confirming the successful installation, and reminding you to check for updates on the Sybase downloads Web page.

11 Choose Next, and then choose Finish to complete the installation and shut down InstallShield.

To verify that the software components were installed correctly, see "Verifying the installation" on page 44.

Post-installation tasks

After you complete the Mirror Replication Agent software installation, you must complete the following post-installation tasks:

- Set up the SYBASE environment on the Mirror Replication Agent host machine. See "Setting up the SYBASE environment" on page 37 for more information.

- Register the Mirror Activator license certificate with the Sybase Software Asset Management (SySAM) license manager. See "Registering license certificates" on page 38 for more information.

Installing in console mode

You can install the Mirror Replication Agent software in an interactive text (or console) mode, using the same steps as those described in "Installing with the GUI wizard" on page 21, except that:

- You invoke the InstallShield wizard at the command prompt, using the -console option, and
- You use only the keyboard to select all of the installation options.

This installation procedure uses the InstallShield wizard in console mode, which requires either:

- A display and keyboard on the Mirror Replication Agent host machine, or
- A display and keyboard on a remote machine configured to control the Mirror Replication Agent host machine.

Note This installation procedure does *not* require a pointing device or a GUI environment to install the Mirror Replication Agent software.

See "Installing with the GUI wizard" on page 21 for information about installing the Mirror Replication Agent software in a GUI environment.

v **To install the Mirror Replication Agent in console mode**

1. Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).
2. Close all non-essential applications, and minimize any open windows.
3. Insert the Mirror Replication Agent 12.6 distribution CD in the CD-ROM drive.

Note If the InstallShield GUI wizard starts automatically on a Microsoft Windows platform, choose Cancel to exit the GUI wizard.

4 Open an operating system command window, and set the CD-ROM drive as the current drive.

5 Start the InstallShield wizard in console mode:

- On Microsoft Windows platforms, enter:

  ```
  setupwin32 -console
  ```

- On UNIX platforms, enter:

  ```
  ./setup_type -console
  ```

  where *setup_type* is one of the following strings that corresponds to the UNIX platform type:

  - setupaix
  - setuphp11x
  - setupsolaris
  - setuplinux

  The InstallShield wizard starts and displays the Welcome window.

6 Follow the remaining wizard prompts to install the Mirror Replication Agent 12.6 software.

  See “Installing with the GUI wizard” on page 21 for a description of all of the wizard prompts.

  InstallShield installs the components in the installation directory you specified, and displays an installation progress indicator.

If errors occur during the installation, InstallShield displays error messages. In the event of an installation error, exit the InstallShield wizard to correct the cause of the error, then restart InstallShield. For more information, see “Installation troubleshooting” on page 35.

If the software is installed successfully, InstallShield displays a final window confirming the successful installation, and reminding you to check for updates on the Sybase downloads Web page.

To verify that the software components were installed correctly, see “Verifying the installation” on page 44.

Post-installation tasks

After you complete the Mirror Replication Agent software installation, you must complete the following post-installation tasks:

- Set up the SYBASE environment on the Mirror Replication Agent host machine. See "Setting up the SYBASE environment" on page 37 for more information.
- Register the Mirror Activator license certificate with the Sybase Software Asset Management (SySAM) license manager. See "Registering license certificates" on page 38 for more information.

Using a response file for installation

A response file is a file that contains responses to all of the InstallShield wizard prompts. You can install the Mirror Replication Agent 12.6 software using a response file in either console mode, or silent mode.

The following sections describe how to use a response file for installation:

- Creating a response file
- Installing in console mode with a response file
- Installing in silent mode

Creating a response file

There are two ways to create a response file:

- Editing a *template* file that contains default responses to all of the wizard prompts
- Recording the actual responses to InstallShield wizard prompts, while the wizard runs in either GUI mode or console mode

Note Recording responses to the InstallShield wizard installs the Mirror Replication Agent software, and then generates the template file *after* the installation is complete.

You can create a template file, without running the InstallShield wizard (and installing the software), by invoking the InstallShield wizard at the command prompt with the -options-template option.

You can record your responses to the InstallShield wizard in either GUI mode or console mode, while installing the software, by invoking the

InstallShield wizard at the command prompt with the -options-record option.

Use one of the following procedures to create a response file.

v **To create a response file from a template**

1. Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).
2. Close all non-essential applications, and minimize any open windows.
3. Insert the Mirror Replication Agent 12.6 distribution CD in the CD-ROM drive.

   Note If the InstallShield GUI wizard starts automatically on a Microsoft Windows platform, choose Cancel to exit the GUI wizard.

4. Open an operating system command window, and set the CD-ROM drive as the current drive.
5. Invoke the InstallShield wizard at the command prompt, using the -options-template option:
   - On Microsoft Windows platforms, enter:

     ```
     setupwin32 -options-template MRA.resp
     ```

     where *MRA.resp* is the full path to the response (template) file you want to create.

     Note that there is no space in the `-options-template` string.
   - On UNIX platforms, enter:

     ```
     ./setup_type -options-template MRA.resp
     ```

     where:
     - *setup_type* is one of the following strings that corresponds to the UNIX platform type:
       - setupaix
       - setuphp11x
       - setupsolaris

- setuplinux
- *MRA.resp* is the full path to the response (template) file you want to create.

Note that there is no space in the `-options-template` string.

InstallShield creates a template response file with the name you specified. The template file contains the default responses for each wizard prompt.

6 Use your preferred text editor to edit the template file, and record the values you want to use to install the Mirror Replication Agent software.

v **To create a response file by recording a GUI installation**

1 Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).

2 Close all non-essential applications, and minimize any open windows.

3 Insert the Mirror Replication Agent 12.6 distribution CD in the CD-ROM drive.

Note If the InstallShield GUI wizard starts automatically on a Microsoft Windows platform, choose Cancel to exit the GUI wizard.

4 Open an operating system command window, and set the CD-ROM drive as the current drive.

5 Invoke the InstallShield wizard at the command prompt, using the -options-record option:

- On Microsoft Windows platforms, enter:

```
setupwin32 -options-record MRA.resp
```

where *MRA.resp* is the full path to the response (template) file you want to create.

Note that there is no space in the `-options-record` string.

- On UNIX platforms, enter:

```
./setup_type -options-record MRA.resp
```

where:

- *setup_type* is one of the following strings that corresponds to the UNIX platform type:
  - setupaix
  - setuphp11x
  - setupsolaris
  - setuplinux
- *MRA.resp* is the full path to the response (template) file you want to create.

Note that there is no space in the `-options-record` string.

The InstallShield wizard starts in GUI mode, and it captures all of the prompt responses in a file with the name you specified.

See "Installing with the GUI wizard" on page 21 for a description of all of the wizard prompts.

In the event of an installation error, exit the InstallShield wizard to correct the cause of the error, then restart InstallShield. For more information, see "Installation troubleshooting" on page 35.

v **To create a response file by recording a console installation**

1. Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).
2. Close all non-essential applications, and minimize any open windows.
3. Insert the Mirror Replication Agent 12.6 distribution CD in the CD-ROM drive.

   Note If the InstallShield GUI wizard starts automatically on a Microsoft Windows platform, choose Cancel to shut down the GUI wizard.

4. Open an operating system command window, and set the CD-ROM drive as the current drive.
5. Invoke the InstallShield wizard at the command prompt, using the -console and -options-record options:

- On Microsoft Windows platforms, enter:

  ```
  setupwin32 -console -options-record MRA.resp
  ```

  where *MRA.resp* is the full path to the response (template) file you want to create.

  Note that there is no space in the `-options-record` string.

- On UNIX platforms, enter:

  ```
  ./setup_type -console -options-record
  MRA.resp
  ```

  where:

  - *setup_type* is one of the following strings that corresponds to the UNIX platform type:
    - setupaix
    - setuphp11x
    - setupsolaris
    - setuplinux
  - *MRA.resp* is the full path to the response (template) file you want to create.

  Note that there is no space in the `-options-record` string.

The InstallShield wizard starts in console mode, and it captures all of the prompt responses in a file with the name you specified.

See "Installing with the GUI wizard" on page 21 for a description of all of the wizard prompts.

In the event of an installation error, exit the InstallShield wizard to correct the cause of the error, then restart InstallShield. For more information, see "Installation troubleshooting" on page 35.

Installing in console mode with a response file

A console mode installation using a response file allows you to accept all of the defaults as you move through an interactive text installation, because all of the default values are supplied by the response file.

Follow the same steps as you would for a standard console mode installation, but invoke the InstallShield wizard at the command prompt as follows:

- On Microsoft Windows platforms, enter:

  ```
  setupwin32 -console -options MRA.resp
      -W SybaseLicense.agree=true
  ```

  where *MRA.resp* is the full path to the response file.

- On UNIX platforms, enter:

  ```
  ./setup_type -console -options MRA.resp
      -W SybaseLicense.agree=true
  ```

  where:

  - *setup_type* is one of the following strings that corresponds to the UNIX platform type:
    - setupaix
    - setuphp11x
    - setupsolaris
    - setuplinux
  - *MRA.resp* is the full path to the response file.

Note The -W SybaseLicense.agree=true command option makes your agreement with the Sybase License Agreement the default option in the console mode installation.

See "Installing with the GUI wizard" on page 21 for a description of all of the wizard prompts.

In the event of an installation error, exit the InstallShield wizard to correct the cause of the error, then restart InstallShield. For more information, see "Installation troubleshooting" on page 35.

To verify that the software components were installed correctly, see "Verifying the installation" on page 44.

Post-installation tasks

After you complete the Mirror Replication Agent software installation, you must complete the following post-installation tasks:

- Set up the SYBASE environment on the Mirror Replication Agent host machine. See "Setting up the SYBASE environment" on page 37 for more information.

- Register the Mirror Activator license certificate with the Sybase Software Asset Management (SySAM) license manager. See “Registering license certificates” on page 38 for more information.

Installing in silent mode

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

Follow the same steps as you would for a standard console mode installation, but invoke the InstallShield wizard at the command prompt as follows:

- On Microsoft Windows platforms, enter:

  ```
  setupwin32 -silent -options MRA.resp
      -W SybaseLicense.agree=true
  ```

  where *MRA.resp* is the full path to the response file.

- On UNIX platforms, enter:

  ```
  ./setup_type -silent -options MRA.resp
      -W SybaseLicense.agree=true
  ```

  where:

  - *setup_type* is one of the following strings that corresponds to the UNIX platform type:
    - setupaix
    - setuphp11x
    - setupsolaris
    - setuplinux
  - *MRA.resp* is the full path to the response file.

Note The -W SybaseLicense.agree=true command option makes your agreement with the Sybase License Agreement the default option in the silent mode installation.

In the event of an installation error, see “Installation troubleshooting” on page 35.

To verify that the software components were installed correctly, see "Verifying the installation" on page 44.

Post-installation tasks

After you complete the Mirror Replication Agent software installation, you must complete the following post-installation tasks:

- Set up the SYBASE environment on the Mirror Replication Agent host machine. See "Setting up the SYBASE environment" on page 37 for more information.
- Register the Mirror Activator license certificate with the Sybase Software Asset Management (SySAM) license manager. See "Registering license certificates" on page 38 for more information.

Installation troubleshooting

If you encounter errors during installation, invoke the InstallShield wizard with the -is:log option to record the installation errors in a log file. After the wizard runs, check the log file to view a record of the installation process.

You can record installation errors with the InstallShield wizard in either GUI or console mode (with or without a response file), and in silent mode.

Use the following procedure to record an installation log file with the InstallShield wizard in GUI mode.

v **To record an installation log file**

1 Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).

2 Close all non-essential applications, and minimize any open windows.

3 Insert the Mirror Replication Agent 12.6 distribution CD in the CD-ROM drive.

Note If the InstallShield GUI wizard starts automatically on a Microsoft Windows platform, choose Cancel to exit the GUI wizard.

4 Open an operating system command window, and set the CD-ROM drive as the current drive.

5 Invoke the InstallShield wizard at the command prompt, using the -is:log option:

- On Microsoft Windows platforms, enter:

  ```
  setupwin32 -is:log MRA_err.log
  ```

  where *MRA_err.log* is the full path to the installation error log file you want to create.

- On UNIX platforms, enter:

  ```
  ./setup_type -is:log MRA_err.log
  ```

  where:

  - *setup_type* is one of the following strings that corresponds to the UNIX platform type:
    - setupaix
    - setuphp11x
    - setupsolaris
    - setuplinux
  - *MRA_err.log* is the full path to the installation error log file you want to create.

Note You can use the -is:log option, along with the -console or -silent options, to record an installation log file in non-GUI wizard modes.

6 Follow the wizard prompts to install the Mirror Replication Agent software.

See “Installing with the GUI wizard” on page 21 for a description of all of the wizard prompts.

InstallShield attempts to install the software, and creates an installation log file with the name you specified.

7 After the wizard exits, examine the contents of the installation log file to determine the cause of the errors.

Setting up the SYBASE environment

After you install the Mirror Replication Agent 12.6 software, and *before* you start the Mirror Replication Agent or run any Mirror Replication Agent utilities, you must set up the SYBASE environment on the Mirror Replication Agent host machine.

Setting up the SYBASE environment modifies the *PATH* environment variable, and sets the value of an environment variable (*%SYBASE%* on Microsoft Windows platforms, and *$SYBASE* on UNIX platforms) to point to the Mirror Replication Agent installation directory.

Note You must set up the SYBASE environment on the Mirror Replication Agent host machine *before* you register license certificates.

---

v **To set up the SYBASE environment**

1. Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the "sybase" user).
2. Execute the *SYBASE* batch or script file:
   - On Microsoft Windows platforms, enter the following at the command prompt:

     ```
     c:\%SYBASE%\SYBASE
     ```

     where *%SYBASE%* is the path to the Mirror Replication Agent installation directory.
   - On UNIX platforms, enter the following at the command prompt:

     ```
     source $SYBASE/SYBASE.sh
     ```

     where *$SYBASE* is the path to the Mirror Replication Agent installation directory.

Registering license certificates

After you successfully install the Mirror Replication Agent 12.6 software and set up the SYBASE environment, register the Mirror Activator license certificate with the Sybase Software Asset Management (SySAM) license manager.

Note You must set up the SYBASE environment on the Mirror Replication Agent host machine *before* you register license certificates.

The following sections describe how to register the Mirror Activator 12.6 license certificate for each product included in the Mirror Activator solution:

- Mirror Replication Agent 12.6
- Replication Server 12.6

Registering the license certificate for Mirror Replication Agent

Use the following procedure to register your Mirror Activator 12.6 license certificate for the Mirror Replication Agent software.

v **To register the Mirror Activator license certificate for the Mirror Replication Agent**

1. Log in to the Mirror Replication Agent host machine using an operating system user account with authority to start, stop, and administer the Mirror Replication Agent instance (for example, the “sybase” user).
2. Start the SySAM license manager to register license certificates:
   - On Microsoft Windows platforms, enter the following at the command prompt:

     ```
     %SYBASE%\SYSAM-1_0\bin\lmgr
     ```

   - On UNIX platforms, enter the following at the command prompt:

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

3. In the License Manager dialog box, enter the following information from your Mirror Activator 12.6 license certificate for the Mirror Replication Agent:

- *Order number* – the order number of your software license purchase.
- *Feature name* – the feature name from the certificate package or bundle license.
- *Feature count* – the number of licenses you have purchased for the feature package or bundle.
- *Software version* – the version number specified on the license certificate.
- *Authorization code* – the authorization code shown on your license certificate for Mirror Activator.

Note You must enter the information printed on your license certificate *exactly* as it appears on the certificate.

4 Choose More to save the license certificate you entered and enter another license certificate.

Choose Done to save the license certificate you entered and complete the license entry.

Registering the license certificate for Replication Server

When you install the Replication Server 12.6 software included in the Mirror Activator 12.6 solution, you must register the Mirror Activator 12.6 license certificate for the Replication Server software.

To register the Mirror Activator 12.6 license certificate for the Replication Server software, you must install the SySAM product from the Mirror Replication Agent 12.6 distribution media on the Replication Server host machine.

Use the following procedure to register your Mirror Activator 12.6 license certificate for the Replication Server software.

v **To register the Mirror Activator license certificate for the Replication Server**

1 Log in to the Replication Server host machine using an operating system user account with authority to start, stop, and administer the Replication Server (for example, the “sybase” user).

2 Install the SySAM license manager from the Mirror Replication Agent 12.6 distribution media on the Replication Server host machine.

Use one of the installation procedures described in “Installing the Mirror Replication Agent software” on page 20, except:

a Specify the Replication Server 12.6 installation directory for the Destination Directory.

b Select the Custom installation option.

c Select SySAM as *only* product or feature to install.

3 After SySAM installation is complete, start the SySAM license manager to register license certificates:

- On Microsoft Windows platforms, enter the following at the command prompt:

```
%SYBASE%\SYSAM-1_0\bin\lmgr
```

- On UNIX platforms, enter the following at the command prompt:

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

4 In the License Manager dialog box, enter the following information from your Mirror Activator 12.6 license certificate for the Replication Server:

- *Order number* – the order number of your software license purchase.
- *Feature name* – the feature name from the certificate package or bundle license.
- *Feature count* – the number of licenses you have purchased for the feature package or bundle.
- *Software version* – the version number specified on the license certificate.
- *Authorization code* – the authorization code shown on your license certificate for Mirror Activator.

Note You must enter the information printed on your license certificate *exactly* as it appears on the certificate.

5 Choose More to save the license certificate you entered and enter another license certificate.

Choose Done to save the license certificate you entered and complete the license entry.

Uninstalling the Mirror Replication Agent software

InstallShield includes an *Uninstall* wizard that removes the Mirror Replication Agent 12.6 software and its related components.

You can run the Uninstall wizard in either GUI mode or console mode. Sybase recommends that you use the GUI mode.

InstallShield removes only the files and directories for the products and features that you select in the Uninstall wizard. However, some files (such as log and configuration files) are left intact for administrative purposes, even if you choose to uninstall all of the products and features.

Note InstallShield does *not* remove the root installation directory (*%SYBASE%* or *$SYBASE*), and the *SYSAM-1_0* directory and its subdirectories.

Uninstalling on a Windows platform

Before uninstalling the Mirror Replication Agent software you must:

- Log in to the Mirror Replication Agent host machine using an account with administrator privileges.
- Shut down all Mirror Replication Agent instances and all other processes for the components you are uninstalling.

Use one of the following procedures to uninstall the Mirror Replication Agent software on a Microsoft Windows platform.

v **To uninstall in GUI mode on Windows platforms**

1 Choose one of the following methods to start the Uninstall wizard in GUI mode:

   - From the Start menu, select Settings | Control Panel | Add/Remove Programs to use the Windows Add/Remove Programs option.

- Enter the following at the command prompt:

  ```
  %SYBASE%\uninstall\MRA-12_6\uninstaller
  ```

- Click Start | Run and then enter:

  ```
  %SYBASE%\uninstall\MRA-12_6\uninstaller
  ```

- In Windows Explorer, double-click the *uninstaller.exe* file icon.

The Uninstall wizard window opens.

2 Click Next.

3 Select the products and features that you want to uninstall from the list of installed products and features, then click Next.

The default option is *all* installed products and features.

4 Verify the summary information, then click Next.

InstallShield removes the files and directories associated with the products and features you selected.

5 Click Finish.

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

v **To uninstall in console mode on Windows platforms**

1 Open an operating system command window.

2 Set the Sybase installation directory as the current directory:

```
cd %SYBASE%
```

where *%SYBASE%* is the path to the Mirror Replication Agent installation directory.

3 Invoke the Uninstall wizard at the command prompt, using the -console option:

```
uninstall\MRA-12_6\uninstaller -console
```

The Uninstall wizard displays the Welcome window.

4 Follow the remaining Uninstall wizard prompts to uninstall the Mirror Replication Agent software.

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

Uninstalling on a UNIX platform

Before uninstalling the Mirror Replication Agent software you must:

- Log in to the Mirror Replication Agent host machine using an account with administrator privileges.
- Shut down all Mirror Replication Agent instances and all other processes for the components you are uninstalling.

Use one of the following procedures to uninstall the Mirror Replication Agent software on a UNIX platform.

v **To uninstall in GUI mode on UNIX platforms**

1 Invoke the Uninstall wizard at the command prompt:

```
$SYBASE/uninstall/MRA-12_6/uninstaller
```

where *$SYBASE* is the path to the Mirror Replication Agent installation directory.

The Uninstall wizard window opens.

2 Click Next.

3 Select the products and features that you want to uninstall from the list of installed products and features, then click Next.

The default option is *all* installed products and features.

4 Verify the summary information, then click Next.

InstallShield removes the files and directories associated with the products and features you selected.

5 Click Finish.

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

- **To uninstall in console mode on UNIX platforms**

  1. Open an operating system command window.
  2. Set the Sybase installation directory as the current directory:

     ```
     cd $SYBASE
     ```

     where *$SYBASE* is the path to the Mirror Replication Agent installation directory.
  3. Invoke the Uninstall wizard at the command prompt, using the -console option:

     ```
     uninstall/MRA-12_6/uninstaller -console
     ```

     The Uninstall wizard displays the Welcome window.
  4. Follow the remaining Uninstall wizard prompts to uninstall the Mirror Replication Agent software.

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

Verifying the installation

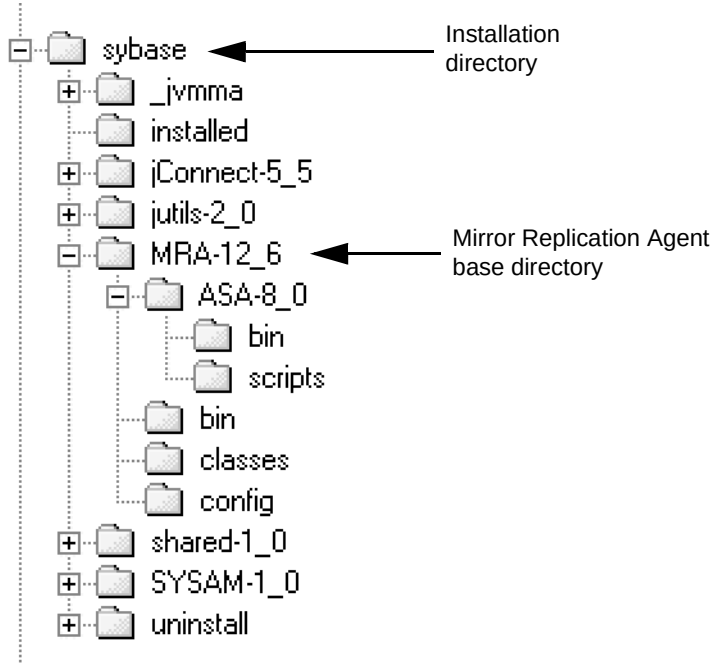
InstallShield creates subdirectories in the Mirror Replication Agent installation directory (*%SYBASE%* on Microsoft Windows platforms and *$SYBASE* on UNIX platforms) for the Mirror Replication Agent 12.6 software, and certain other software that the Mirror Replication Agent requires.

Figure 2-1 shows a typical Mirror Replication Agent software installation on a Microsoft Windows platform.

Note The same subdirectories are created in the installation directory on UNIX platforms.

To verify the installation, make sure that InstallShield created all of the directories shown in Figure 2-1 on the Mirror Replication Agent host machine.

Figure 2-1: Example installation on Microsoft Windows platform



SYBASE environment scripts

InstallShield creates SYBASE environment scripts that set *PATH* and other environment variables on the Mirror Replication Agent host machine. These scripts allow you to run the Mirror Replication Agent software and its utilities from any directory on the host machine.

The SYBASE environment scripts are created in the Sybase installation directory and named as follows:

- *SYBASE.bat* on Microsoft Windows platforms
- *SYBASE.sh* on UNIX platforms

You can use these scripts to permanently set the environment variables, or you can use them to temporarily change environment variables by running (or sourcing) the scripts each time you log in to the Mirror Replication Agent host machine.

Note On Microsoft Windows platforms, InstallShield sets up the SYBASE environment automatically when you install the Mirror Replication Agent software.

For more information, see “Setting up the SYBASE environment” on page 37.

What to do next

Refer to the Mirror Activator *Administration Guide* for information about creating a Mirror Replication Agent instance, and setting up the Mirror Activator system.

Glossary

This glossary describes Mirror Activator terms used in this book.

Adaptive Server

The brand name for Sybase relational database management system (RDBMS) software products.

- *Adaptive Server Enterprise* manages multiple, large relational databases for high-volume online transaction processing (OLTP) systems and client applications.
- *Adaptive Server IQ* manages multiple, large relational databases with special indexing algorithms to support high-speed, high-volume business intelligence, decision support, and reporting client applications.
- *Adaptive Server Anywhere* manages relational databases with a small DBMS footprint, which is ideal for embedded applications and mobile device applications.

See also **DBMS** and **RDBMS**.

atomic materialization

A materialization method that copies subscription data from a primary database to a standby database in a single, atomic operation. No changes to primary data are allowed until the subscription data is captured at the primary database. See also **bulk materialization** and **nonatomic materialization**.

BCP utility

A bulk copy transfer utility that provides the ability to load multiple rows of data into a table in a target database. See also **bulk copy**.

bulk copy

An Open Client interface for the high-speed transfer of data between a database table and program variables. It provides an alternative to using SQL insert and select commands to transfer data.

bulk materialization

A materialization method whereby subscription data in a standby database is initialized outside of the replication system. You can use bulk materialization for subscriptions to table replication definitions or function replication definitions. See also **atomic materialization** and **nonatomic materialization**.

client — In client/server systems, the part of the system that sends requests to servers and processes the results of those requests. See also **client application**.

client application — Software that is responsible for the user interface, including menus, data entry screens, and report formats. See also **client**.

commit — An instruction to the DBMS to make permanent the changes requested in a transaction. See also **transaction**. Contrast with **rollback**.

data client — A client application that provides access to data by connecting to a data server. See also **client**, **client application**, and **data server**.

data distribution — A method of locating (or placing) discrete parts of a single set of data in multiple systems or at multiple sites. Data distribution is distinct from data replication, although a data replication system can be used to implement or support data distribution. Contrast with **data replication**.

data replication — The process of copying data to remote locations, and then keeping the replicated data synchronized with the primary data. Data replication is distinct from data distribution. Replicated data is stored copies of data at one or more remote sites throughout a system, and it is not necessarily distributed data. Contrast with **data distribution**. See also **disk replication** and **transaction replication**.

data server — A server that provides the functionality necessary to maintain the physical representation of a table in a database. Data servers are usually database servers, but they can also be any data repository with the interface and functionality a data client requires. See also **client**, **client application**, and **data client**.

database — A collection of data with a specific structure (or schema) for accepting, storing, and providing data for users. See also **data server**, **DBMS**, and **RDBMS**.

database connection — A connection that allows Replication Server to manage the database and distribute transactions to the database. Each database in a replication system can have only one database connection in Replication Server. See also **Replication Server** and **route**.

datatype — A keyword that identifies the characteristics of stored information on a computer. Some common datatypes are: char, int, smallint, date, time, numeric, and float. Different data servers support different datatypes.

DBMS An abbreviation for *database management system*. A DBMS is a computer-based system for defining, creating, manipulating, controlling, managing, and using databases. The DBMS can include the user interface for using the database, or it can be a stand-alone data server system. Compare with **RDBMS**.

disaster recovery A method or process used to restore the critical business functions interrupted by a catastrophic event. A disaster recovery (or business continuity) plan defines the resources and procedures required for an organization to recover from a disaster, based on specified recovery objectives.

disk replication A data replication method that copies blocks or pages from a primary disk device to a standby device. Sometimes referred to as *disk mirroring*. See also **data replication** and **transaction replication**.

failback A procedure that restores the normal user and client access to a primary database, after a failover procedure switched access from the primary database to a standby database. See also **failover**.

failover A procedure that switches user and client access from a primary database to a standby database, particularly in the event of a failure that interrupts operations at the primary database, or access to the primary database. Failover is an important fault-tolerance feature for systems that require high availability. See also **failback**.

function A Replication Server object that represents a data server operation such as insert, delete, or begin transaction. Replication Server distributes operations to standby databases as functions. See also **function string**.

function string A string that Replication Server uses to map a function and its parameters to a data server API. Function strings allow Replication Server to support heterogeneous replication, in which the primary and standby databases are different types, with different SQL extensions and different command features. See also **function**.

gateway Connectivity software that allows two or more computer systems with different network architectures to communicate.

inbound queue A stable queue managed by Replication Server to spool messages received from a Mirror Replication Agent. See also **outbound queue** and **stable queue**.

interfaces file A file containing information that Sybase Open Client and Open Server applications need to establish connections to other Open Client and Open Server applications. See also **Open Client** and **Open Server**.

isql An interactive SQL client application that can connect and communicate with any Sybase Open Server application, including Adaptive Server, Mirror Replication Agent, and Replication Server. See also **Open Client** and **Open Server**.

Java An object-oriented programming language developed by Sun Microsystems. A platform-independent, "write once, run anywhere" programming language.

Java VM The Java Virtual Machine. The Java VM (or JVM) is the part of the Java Runtime Environment (JRE) that is responsible for interpreting Java byte codes. See also **Java** and **JRE**.

JDBC An abbreviation for *Java Database Connectivity*. JDBC is the standard communication protocol for connectivity between Java clients and data servers. See also **data server** and **Java**.

JRE An abbreviation for *Java Runtime Environment*. The JRE consists of the Java Virtual Machine (Java VM or JVM), the Java Core Classes, and supporting files. The JRE must be installed on a machine to run Java applications, such as the Mirror Replication Agent. See also **Java VM**.

LAN An abbreviation for "local area network." A local area network is a computer network located on the user's premises and covering a limited geographical area (usually a single site). Communication within a local area network is not subject to external regulations; however, communication across the LAN boundary can be subject to some form of regulation. Contrast with **WAN**.

latency In transaction replication, the time it takes to replicate a transaction from a primary database to a standby database. Specifically, latency is the time elapsed between committing an original transaction in the primary database and committing the replicated transaction in the standby database.

In disk replication, latency is the time elapsed between a disk write operation that changes a block or page on a primary device and the disk write operation that changes the replicated block or page on a mirror (or standby) device.

See also **disk replication** and **transaction replication**.

LOB An abbreviation for *large object*. A LOB is a type of data element that is associated with a column that contains extremely large quantities of data.

Log Reader An internal component of the Mirror Replication Agent that interacts with the primary database and mirror log devices to capture transactions for replication. See also **Log Transfer Interface** and **Log Transfer Manager**.

Log Transfer Interface — An internal component of the Mirror Replication Agent that interacts with Replication Server to forward transactions for distribution to a standby database. See also **Log Reader** and **Log Transfer Manager**.

Log Transfer Manager — An internal component of the Mirror Replication Agent that interacts with the other Mirror Replication Agent internal components to control and coordinate Mirror Replication Agent operations. See also **Log Reader** and **Log Transfer Interface**.

Maintenance User — A special user login name in the standby database that Replication Server uses to apply replicated transactions to the database. See also **Replication Server**.

materialization — The process of copying the data from a primary database to a standby database, initializing the standby database so that the Mirror Activator system can begin replicating transactions. See also **atomic materialization**, **bulk materialization**, and **non-atomic materialization**.

nonatomic materialization — A materialization method that copies subscription data without a lock on the primary database. Changes to primary data are allowed during data transfer, which may cause temporary inconsistencies between the primary and standby databases. Contrast with **atomic materialization**. See also **bulk materialization**.

ODBC — An abbreviation for *Open Database Connectivity*. ODBC is an industry standard communication protocol for clients connecting to data servers. See also **JDBC**.

Open Client — A Sybase product that provides customer applications, third-party products, and other Sybase products with the interfaces needed to communicate with Open Server applications. See also **Open Server**.

Open Client application — An application that uses Sybase Open Client libraries to implement Open Client communication protocols. See also **Open Client** and **Open Server**.

Open Server — A Sybase product that provides the tools and interfaces required to create a custom server. See also **Open Client**.

Open Server application — A server application that uses Sybase Open Server libraries to implement Open Server communication protocols. See also **Open Client** and **Open Server**.

outbound queue — A stable queue managed by Replication Server to spool messages to a standby database. See also **inbound queue** and **stable queue**.

primary data — The version of a set of data that is the source used for replication. Primary data is stored and managed by the primary database. See also **Mirror Replication Agent**, **primary database**, and **Replication Server**.

primary database The database that contains the data to be replicated to another database (the standby database) through a replication system. The primary database is the database that is the source of replicated data in a replication system. Sometimes called the *active database*. Contrast with **standby database**. See also **primary data**.

primary key The column or columns whose data uniquely identify each row in a table.

primary site The location or facility at which primary data servers and primary databases are deployed to support normal business operations. Sometimes called the *active site* or *main site*. See also **primary database** and **standby site**.

primary table A table used as a source for replication. Primary tables are defined in the primary database schema. See also **primary data** and **primary database**.

primary transaction A transaction that is committed in the primary database and recorded in the primary database transaction log. See also **primary database**, **replicated transaction**, and **transaction log**.

quiesce To cause a system to go into a state in which further data changes are not allowed. See also **quiescent**.

quiescent In a replication system, a state in which all updates have been propagated to their destinations. Some Mirror Replication Agent and Replication Server commands require that you first quiesce the replication system.

In a database, a state in which all data updates are suspended so that transactions cannot change any data and the data and log devices are stable.

This term is interchangeable with *quiesced* and *in quiesce*. See also **quiesce**.

RCL An abbreviation for *Replication Command Language.* RCL is the command language used to manage Replication Server.

RDBMS An abbreviation for *relational database management system*. An RDBMS is an application that manages and controls relational databases. Compare with **DBMS**. See also **relational database**.

relational database A collection of data in which data is viewed as being stored in tables, which consist of columns (data items) and rows (units of information). Relational databases can be accessed by SQL requests. See also **SQL**.

replicated data A set of data that is replicated from a primary database to a standby database by a replication system. See also **primary database**, **replication system**, and **standby database**.

replicated transaction — A primary transaction that is replicated from a primary database to a standby database by a transaction replication system. See also **primary database**, **primary transaction**, **standby database**, and **transaction replication**.

Replication Agent — An application that reads a primary database transaction log to acquire information about data-changing transactions in the primary database, processes the log information, and then sends it to a Replication Server for distribution to a standby database. See also **primary database** and **Replication Server**.

replication definition — A description of a table or stored procedure in a primary database, for which subscriptions can be created. The replication definition, maintained by Replication Server, includes information about the columns to be replicated and the location of the primary table or stored procedure. See also **Replication Server** and **subscription**.

Replication Server — The Sybase software product that provides the infrastructure for a robust transaction replication system. See also **Replication Agent**.

RSSD — An abbreviation for *Replication Server System Database*. The RSSD manages replication system information for a Replication Server. See also **Replication Server**.

replication system — A data processing system that replicates data from one location to another. Data can be replicated between separate systems at a single site, or from one or more local systems to one or more remote systems. See also **disk replication** and **transaction replication**.

rollback — An instruction to a database to back out of the changes requested in a unit of work (called a transaction). Contrast with **commit**. See also **transaction**.

SQL — An abbreviation for *Structured Query Language*. SQL is a non-procedural programming language used to process data in a relational database. ANSI SQL is an industry standard. See also **transaction**.

stable queue — A disk device-based, store-and-forward queue managed by Replication Server. Messages written into the stable queue remain there until they can be delivered to the appropriate process or standby database. Replication Server provides a stable queue for both incoming messages (the inbound queue) and outgoing messages (the outbound queue). See also **database connection**, **Replication Server**, and **route**.

standby data — The data managed by a standby database, which is the destination (or target) of a replication system. See also **data replication** and **standby database**.

standby database — A database that contains data replicated from another database (the primary database) through a replication system. The standby database is the database that receives replicated data in a replication system. Sometimes called the *replicate database*. Contrast with **primary database**. See also **standby data**.

standby site — The location or facility at which standby data servers and standby databases are deployed to support disaster recovery, and normal business operations during scheduled downtime at the primary site. Sometimes called the *alternate site* or *replicate site*. Contrast with **primary site**. See also **standby database**.

subscription — A request for Replication Server to maintain a replicated copy of a table, or a set of rows from a table, in a standby database at a specified location. See also **replication definition** and **Replication Server**.

table — In a relational DBMS, a two-dimensional array of data or a named data object that contains a specific number of unordered rows composed of a group of columns that are specific for the table. See also **database**.

transaction — A unit of work in a database that can include zero, one, or many operations (including insert, update, and delete operations), and that is either applied or rejected as a whole. Each SQL statement that modifies data can be treated as a separate transaction, if the database is so configured. See also **SQL**.

transaction log — Generally, the log of transactions that affect the data managed by a data server. Mirror Replication Agent reads the transaction log to identify and acquire the transactions to be replicated from the primary database. See also **Mirror Replication Agent**, **primary database**, and **Replication Server**.

transaction replication — A data replication method that copies data-changing operations from a primary database transaction log to a standby database. See also **data replication** and **disk replication**.

transactional consistency — A condition in which all transactions in the primary database are applied in the standby database, in the same order that they were applied in the primary database.

WAN — An abbreviation for “wide area network.” A wide area network is a system of local-area networks (LANs) connected together with data communication lines. Contrast with **LAN**.

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