SYBASE®

Installation Guide

OpenSwitch

15.0

[Windows]

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About This Book

Audience

This book is for anyone responsible for installing and configuring the OpenSwitch runtime environment.

How to use this book

This book describes how to install OpenSwitch, which allows you to transparently transfer incoming client connections to any Sybase™ server product. OpenSwitch is placed between client connections (such as ISQL, or any application developed using Sybase Open Client™, ODBC, or jConnect™ for JDBC™ libraries) and two or more Sybase Adaptive Servers®.

This document contains the following chapters:

- Chapter 1, “Requirements” describes the operating system and OpenSwitch requirements for installation.
- Chapter 2, “Installing OpenSwitch” describes pre-installation tasks, the installation process, and post-installation tasks. This chapter also describes how to uninstall OpenSwitch.
- Chapter 3, “Configuring OpenSwitch” describes how to configure an OpenSwitch server using the configuration GUI or manually using a text editor.
- Chapter 4, “Post-Installation Tasks” provides instructions for post-installation tasks, describes how to start OpenSwitch, and
- Appendix A, “Troubleshooting,”describes problems you may encounter during installation and possible solutions to those problems.

Related documents

OpenSwitch documentation The following documents are available on the Sybase Getting Started CD in the OpenSwitch 15.0 product container:

- The OpenSwitch installation guide (this book) explains how to install the OpenSwitch software.
- The OpenSwitch release bulletin contains last-minute information not documented elsewhere.

OpenSwitch online documentation The following OpenSwitch documents are available in PDF and DynaText format on the OpenSwitch 15.0 SyBooks CD:

- *What's New?* describes new features and changed functionality in OpenSwitch version 15.0.
- The *OpenSwtich Administration Guide* explains how to administer OpenSwitch and how to reconfigure the product after installation.
- The *OpenSwitch Coordination Module Reference Manual* describes how to develop and use coordination modules with OpenSwitch.
- The *OpenSwitch Error Message Guide* explains how to troubleshoot problems that you may encounter when using OpenSwitch and provides explanations of error messages.

Other sources of information

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

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

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

  Refer to the *SyBooks Installation Guide* on the Getting Started CD, or the *README.txt* file on the SyBooks CD for instructions on installing and starting SyBooks.
- The Sybase Product Manuals Web site is an online version of the SyBooks CD that you can access using a standard Web browser. In addition to product manuals, you will find links to EBFs/Maintenance, Technical Documents, Case Management, Solved Cases, newsgroups, and the Sybase Developer Network.

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

Sybase certifications on the Web

Technical documentation at the Sybase Web site is updated frequently.

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

1 Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.

2 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.

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

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

2 Either select the product family and product under Search by Product; or select the platform and product under Search by Platform.

3 Select Search to display the availability and certification report for the selection.

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

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

1 Point your Web browser to Technical Documents at http://www.sybase.com/support/techdocs/.

2 Click MySybase and create a MySybase profile.

Sybase EBFs and software maintenance

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

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

2 Select EBFs/Maintenance. If prompted, enter your MySybase user name and password.

3 Select a product.

4 Specify a time frame and click Go. A list of EBF/Maintenance releases is displayed.

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

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

Conventions

The formatting conventions used in this manual are:

Formatting example	To indicate
command names and method names	When used in descriptive text, this font indicates keywords such as: • Command names used in descriptive text • C++ and Java method or class names used in descriptive text • Java package names used in descriptive text
myCounter variable *Server*`.log` *myfile.txt*	Italic font indicates: • Program variables • Parts of input text that must be substituted • File names
sybase/bin	Directory names appearing in text display in lowercase unless the system is case sensitive. A forward slash ("/") indicates directory information.
File | Save	Menu names and menu items display in plain text. The vertical bar indicates how to navigate menu selections, such as from the File menu to the Save option.
`create table` `table created`	Monospace font indicates: • Information that you enter on a command line or as program text • Example output fragments

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.

OpenSwitch version 15.0 and the HTML documentation have 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

Requirements

This chapter discusses the requirements for installing OpenSwitch.

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System space requirements

OpenSwitch requires a minimum of 256 MB RAM and 400 MB hard disk space.

Temporary space requirements

Verify that you have 100MB of free space in your temporary directory.

If you do not have enough space in the default temporary directory set by the installer, set the environment variable to redirect to a temporary directory you set.

Note The temporary directory to which you are redirecting must exist before you issue the command to redirect it.

To redirect your temporary directory, enter the following from a command prompt window, where *C:\temp* is the directory of your choice:

```
.\setup -is:tempdir C:\temp
```

Note The installation of OpenSwitch requires that you set a *%TMP%* system/user environment variable to a valid and existing directory that contains no spaces.

To set the *%TMP%* environment variable, enter the following from the Windows command prompt:

```
set TMP=d:\sybase
```

Operating systems requirements and patches

Table 1-1 shows the system hardware and software requirements for OpenSwitch 15.0.

Table 1-1: System requirements for OpenSwitch 15.0

Hardware	Operating system	Supported protocols
Intel Xeon 400 MHz or higher	Windows 2000 5.0 Service Pack 4	TCP
Intel Xeon 2 CPUs each with 1.80 MHz	Windows 2003, Enterprise Edition Service Pack 1	TCP

If your operating system requires patches, install them before you install OpenSwitch components. To determine which patches have been installed on your system, click Start | Programs | Accessories | System Tools | System Information from the Windows taskbar.

Note Do not use a patch that is earlier than the version suggested for your operating system. Use the patch recommended by the operating system vendor, even if it supersedes the patch listed here.

Limitations

Every connection requires two file descriptors—one for the client connection and one for the connection to the Adaptive Server Enterprise. An additional connection is required to allow the administrative thread to log in. If cached connections are used, you must also consider the number of cached connections. Sybase recommends that you configure 100 additional file descriptors for overhead such as Open Client/Server™ shared libraries, character set and locale files, and connection monitor (CMON) threads.

For example, to calculate the minimum number of file descriptors needed for 1000 connections with 50 cached connections:

1000 * 2 + 1 + 50 + 100 for a total of 2151 file descriptors per process.

If several short-lived applications, such as Web applications, are continuously connecting to OpenSwitch, Sybase recommends that you observe the TIMED_WAIT state through netstat. The default TIMED_WAIT limit is 2MSL (maximum segment lifetime), which is four minutes. The default limit can result in the maximum file descriptors per process being exceeded as the sockets are held until the 2MSL limit is reached. You can either increase the maximum number of file descriptors per process or reduce the 2MSL limit in the TCP configuration.

For instructions on increasing the file descriptor limit or reducing the 2MSL limit in the TCP configuration, see your operating system vendor documentation.

OpenSwitch uses 30 threads for internal functions. Therefore, you should set the maximum threads per process to at least 30 + maximum OpenSwitch users + 20 (for any additional overhead). For example, if you plan to have 1200 connections at any given time, increase the maximum threads per process to at least 1229.

Localization

Chinese, French, German, Japanese, Korean, Polish, Portuguese, Spanish, and Thai versions of OpenSwitch use the US_ENGLISH version of localization files, such as *oswitch.lcu* and *rcm.loc*.

CHAPTER 2

Installing OpenSwitch

This chapter discusses how to unload and install OpenSwitch 15.0.

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Upgrading to OpenSwitch 15.0	10

Overview

❖ **Installing OpenSwitch 15.0**

1 Read this entire OpenSwitch installation guide and the OpenSwitch release bulletin before you begin the installation.

2 Plan your size and space requirements using the information in Chapter 1, “Requirements.” Install required operating system patches.

3 Install the product using “Installing OpenSwitch” on page 7.

4 Configure the installed product using Chapter 3, “Configuring OpenSwitch.”

5 Perform post-installation tasks using Chapter 4, “Post-Installation Tasks.”

6 Start OpenSwitch using “Starting OpenSwitch” on page 32.

Assumptions

The OpenSwitch installation assumes that you have general knowledge of:

- The components of your platform such as directories, files, and environment variables.
- All platform-specific commands used to manipulate the software and hardware, such as those for changing directories and mounting the CD.
- Sybase servers.
- Failover systems.

Compatibility with other Sybase products

To ensure high-availability in a production environment, Sybase strongly recommends that you install OpenSwitch on a host other than the host where Adaptive Server® and Replication Server® are installed.

Installing OpenSwitch in the same directory as other Sybase products

OpenSwitch version 15.0 requires Open Client/Open Server version 15.0 (ESD #1). Sybase recommends that you install OpenSwitch 15.0 last if you are installing any other Sybase product (such as Adaptive Server Enterprise, Open Client/Open Server, or Replication Server) that uses an earlier version of Open Client/Open Server, or if you plan to have both OpenSwitch 15.0 and an incompatible version of Open Client/Open Server version in the same directory.

Warning! Installing Open Switch version 15.0 into its own directory changes the definition of the *%SYBASE%* environment variable systemwide. This breaks other Sybase products installed on your machine that rely on the setting of the *%SYBASE%* environment variable. For this reason, take time to plan for your OpenSwitch installation by creating scripts or user-level environment variables.

Installing OpenSwitch

Use the instructions in this section to perform a new installation of OpenSwitch version 15.0. If you are upgrading from an earlier version of OpenSwitch, see “Upgrading to OpenSwitch 15.0” on page 10.

Starting InstallShield

1 Insert the CD in the CD drive, or download and extract the OpenSwitch install image from the Sybase Product Download Center (SPDC).

The installer should start automatically from the CD.

2 If you downloaded the install image from the SPDC or the installer does not start automatically from the CD, select Start | Run, and enter the following, where “*x*” is your CD drive:

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

Click OK.

Warning! If you download the product from the SPDC, do not download to a directory with spaces in the name. You cannot run InstallShield or the configuration tool from a directory with spaces in the name.

Performing the installation

1 When the installer launches, click Next on the Welcome window.

2 Complete the options in the end-user license agreement window:

a From the drop-down list, select the geographical location where the software is being installed. The license agreement for that region displays.

b Read the license agreement, and select “I agree to the terms of the Sybase license for the install location specified.”

c Click Next.

3 In the Destination window:

a Enter or select the directory where you want to install the product.

Warning! On Windows systems, you cannot install into a directory that contains spaces in the name; for example, "Program Files."

You can:

- Accept the default installation directory; or
- Enter the name of the root directory where you want to install OpenSwitch; or
- Click the ellipsis button (with three dots) to select the installation location.

b Click Next.

c If you enter a directory that does not exist, click Yes at the prompt that asks if you want to create the directory.

4 Select the type of installation to perform.

Note If you are installing in a high-availability environment, see "Compatibility with other Sybase products" on page 6 before selecting the installation type.

- Typical – installs the OpenSwitch component, as well as the Open Client and Open Server™ connectivity libraries (OCS-15_0), which are required for OpenSwitch to run. This is recommended for most users.
- Custom – allows you to select which features to install. Select this option only if you have a good knowledge of the interdependencies of Sybase and OpenSwitch products.

5 Click Next. If you selected the Typical installation, go to step 7.

If you selected the Custom installation, the next window lists the product features you can install. Select or unselect the features to install by clicking the box to the left of the component:

- Open Client – if you are unsure whether to install CTLibrary and DBLibrary, select Open Client to install both.
- Language Modules – select the language modules you want to install. To install all language modules, unselect and reselect Language Modules. All language modules are selected.

6 Click Next.

7 The summary window displays:

- The installation directory
- The features to be installed
- The total size of the installation

Click Next to continue with the installation, or click Back to change the feature selection.

8 A progress bar shows the progress of the installation. When the installation completes, a message shows whether the installation was successful.

Note If you are installing into an existing Adaptive Server Enterprise 15.0 installation directory, you may be asked if you want to overwrite certain Open Client/Server files.

If an existing file is newer or has the same date, select No. If an existing file is older, select Yes.

If the installation was successful, click Next.

If the installation was unsuccessful, use a text editor to open the installation log file (*oswInstall.log*) and troubleshoot what may have gone wrong. The log file is located in the root installation directory at *%SYBASE%\oswInstall.log*

9 When the installation is successful and you click Next, the configuration tool window opens.

- To configure OpenSwitch now, click Next. Proceed to Chapter 3, “Configuring OpenSwitch.”
- If you do not want to configure OpenSwitch now, click Cancel. When a prompt asks you to confirm that you want to terminate the configuration, click Yes. Both the installer and configuration tool windows close.

  To configure the product later, go to Chapter 3, “Configuring OpenSwitch.”

10 Perform any post-installation steps. See Chapter 4, “Post-Installation Tasks,” for instructions.

❖ **Verifying the installation**

You can verify whether the installation and configuration processes were successful.

This procedure does not verify whether OpenSwitch is running with your Adaptive Server. See “Verifying client connections” on page 35 for instructions.

Note You cannot start OpenSwitch until it has been both installed and configured.

- In Task Manager | Processes, check to see that *OSwitch.exe* is running.

You are now ready to start OpenSwitch. See “Starting OpenSwitch” on page 32.

Upgrading to OpenSwitch 15.0

Use these instructions to upgrade OpenSwitch from an earlier version to version 15.0.

❖ **Installing over an existing SYBASE location**

Following these steps if you need to install over an existing %SYBASE% location.

1 Shut down the OpenSwitch server if it is running.

   a Log in to OpenSwitch as “admin” using isql.

   b At the command prompt, enter:

```
1> rp_shutdown
2> go
```

2 Install the OpenSwitch 15.0 installation on top of the existing %SYBASE% installation and click Cancel when the configuration window opens. This retains your *%SYBASE%\ini\sql.ini* file.

3 Use a text editor to modify the OpenSwitch configuration file (*sample.cfg*) located in the *%OPENSWITCH%\config* directory.

Use the instructions in “Configuring OpenSwitch manually” on page 27 to reset existing values and to add any new OpenSwitch 15.0 configuration options that are applicable to your environment.

4 Save the updated configuration file and close the text editor.

5 Start OpenSwitch. See “Starting OpenSwitch” on page 32.

CHAPTER 3

Configuring OpenSwitch

This chapter describes how to configure OpenSwitch once the product is installed. You can configure OpenSwitch during or after installation using the GUI configuration tool or a text editor.

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Introduction

OpenSwitch 15.0 includes an easy to use configuration tool with a graphical user interface (GUI). You access the configuration tool directly from the OpenSwitch installation program, or by starting the tool as a standalone application after installation.

After the installer successfully downloads OpenSwitch files to your system, the program asks if you want to configure the newly installed products. If you answer “yes,” the configuration tool starts and you begin the configuration process. If you answer “no,” you exit the installer and run the configuration tool later as a standalone application. You can also use the configuration tool post-installation to reconfigure OpenSwitch as necessary.

Planning the configuration

Before configuring the product, you should plan your OpenSwitch implementation. Several configurations are possible, depending on whether you use Replication Server, whether the Replication Server is configured for warm-standby, and whether your Adaptive Servers are configured for failover.

Verify that you have the appropriate software installed (other than OpenSwitch) as shown in Table 3-1, before you start OpenSwitch configuration.

Table 3-1: OpenSwitch configuration requirements

Name	Software requirements
Simple	• 1 OpenSwitch • 1 CM (optional) • 2 Adaptive Servers
High-availability, warm-standby	• 1 OpenSwitch server • 1 RCM configured to coordinate failover through the OpenSwitch server • 2 Adaptive Servers configured for high availability • 1 Replication Server configured for warm-standby
Redundant high-availability, warm-standby	• 2 OpenSwitch servers (1 primary and 1 secondary). OpenSwitch servers in this configuration do not communicate with each other, unlike a mutually aware configuration. • 2 RCMs configured to coordinate failover through the OpenSwitch server. • 2 Adaptive Servers configured for high availability. • 1 Replication Server configured for warm-standby.
Mutually aware	• 2 mutually aware, companion OpenSwitches. Both mutually aware OpenSwitch servers within the same cluster regard each other as companions and are both aware of each other's state and the state of the other servers. • 2 CMs or 2 RCMs (optional) • 2 Adaptive Servers, which may be configured for high availability

See the *OpenSwitch Administration Guide* and the *OpenSwitch Coordination Module Reference Manual* for details about possible OpenSwitch configurations.

See the Replication Server documentation for information about using warm-standby. See the Adaptive Server Enterprise documentation for information about high-availability failover.

Note When you install and configure the secondary companion OpenSwitch in a mutually-aware implementation, you must use the same Adaptive Server name that you provided in the primary companion OpenSwitch server configuration. If you do not do this, OpenSwitch cannot connect to your Adaptive Servers.

Configuring OpenSwitch using the GUI tool

Note The standalone configuration tool requires a JRE version of 1.4 or later; verify that JAVA_HOME is set to a JRE version of 1.4 or later.

You must run the configuration utility for each OpenSwitch that you install; for example, in a mutually aware implementation, you will have two separate OpenSwitch installations and you much run the configuration tool for both installations.

Note When you run the configuration utility in a multiple OpenSwitch environment, keep in mind which OpenSwitch you are configuring; that is, the primary or secondary OpenSwitch.

❖ **Starting the configuration tool**

When the installation is successful, you click Next, then click Next again when asked if you want to configure OpenSwitch, the configuration tool window starts automatically.

If you did not configure OpenSwitch during installation, use this procedure to start the configuration tool.

1 Open a Command Prompt window and go to the *%SYBASE%* installation directory.

2 At the command prompt, enter:

```
.\SYBASE.bat
```

3 In the same window, set the JAVA_HOME environment variable. For example:

```
set JAVA_HOME=%SYBASE%\uninstall\OSWSuite\JRE-1_4
```

4 Continuing in the same window, go to *%OPENSWITCH%\CFG-1_0\bin.*

5 At the command prompt, enter:

```
.\oswcfg.bat
```

❖ **Configuring OpenSwitch**

1 The first configuration window displays the directory where OpenSwitch is installed. Click Next.

2 Complete the options in the OpenSwitch Components section:

Option	Required?	Description
Server Name	Yes	Enter the name of this OpenSwitch server; as many as 32 alphanumeric characters.
Host Name	Yes	This option is automatically set for you to the name of the machine where OpenSwitch is installed. Simply accept the default.
Port Number	Yes	Enter the port number on which the OpenSwitch server listens for incoming connections. The port number can be any numeric value from 1025 to 65535, and cannot be in use by another process.

3 In the Coordination Module section, select:

- Custom Coordination Module – select this option if you are going to use coordination module (CM) in your OpenSwitch installation.
- Replication Coordination Module – select this option if you are going to use a replication coordination module (RCM) in your OpenSwitch installation.

Note See "Planning the configuration" on page 13 for additional software required when you use an RCM.

- None – select this option if you are not going to use a CM or RCM.

4 Complete the options in the Authorization section:

Option	Required?	Description
Admin User Name	Yes	Enter `sa` (the recommended OpenSwitch administrator's user name) or another login name for the administrative user. **Note** An administrative user has no outgoing connection to the remote Adaptive Server and is intended to perform only administrative tasks.
Admin Password	Yes	Enter `sa` (the recommended OpenSwitch administrator's password) or another password for the administrative user name. **Warning!** You may want to change the password to something other than "sa" for security purposes.
Coord. User Name	No	If you are not using CMs, leave this option blank. If you are using CMs, enter `switch_coord` (the recommended coordination module user name). **Note** This name must be different than the Admin User Name value.

Option	Required?	Description
Coord. Password	No	If you are not using CMs, leave this option blank. If you are using CMs, enter `switch_coord` (the recommended coordination module password). **Note** This password must be different than the password for the Admin User Name.

5 Answer the questions in the Other Information section:

- Encrypt User Names and Passwords? – to encrypt all user names and passwords in OpenSwitch (and in RCM, if configured).
- Use Mutual Aware Support? – if you are going to implement a mutually-aware setup. See the OpenSwitch Administration Guide for information about this feature.

  Note See "Planning the configuration" on page 13 for additional software required by this feature.

- Is This the Primary Companion OpenSwitch? – this option is available only when "Use Mutual Aware Support" is selected. If this OpenSwitch server is the primary companion (that is, the primary OpenSwitch server responsible for updating the Adaptive Server OpenSwitch configuration table and for switching over the direction of the Replication Server when failover occurs, if an RCM is used) in a mutually-aware implementation.

6 Click Next to save the entries and continue.

7 If you did not select "Use Mutual Aware Support" in step 5, go to step 9.

If you selected "Use Mutual Aware Support" in step 5, complete the Companion OpenSwitch Components options that display in the Mutual Aware Support dialog box:

Option	Required?	Description
Server Name	Yes	Enter the name of the companion OpenSwitch (primary or secondary) in the OpenSwitch cluster. If you select "Is This the Primary Companion OpenSwitch?" enter the server name of the secondary OpenSwitch. If you did not select "Is This the Primary Companion OpenSwitch?" enter the server name of the primary OpenSwitch.

Option	Required?	Description
Host Name	Yes	Enter the name of the machine on which the companion OpenSwitch is installed.
Port Number	Yes	Enter number of the port on which the companion OpenSwitch listens.
Admin User Name	Yes	Enter the user name that the administrator uses to log in to the companion OpenSwitch.
Admin Password	Yes	Enter the password for the administrator login used to connect to the companion OpenSwitch.
Cluster Name	Yes	Enter the logical name of the cluster where the two OpenSwitch servers reside in a mutually-aware configuration. **Warning!** The Cluster Name value must be the same for both mutually-aware OpenSwitch servers.

8 Click Next to save the entries and continue.

9 When the Data Server Maintenance dialog box displays, complete the options in the Config Level Connection Monitor (CMON) section.

Note The OpenSwitch Connection Monitor (CMON) thread monitors Adaptive Servers and asynchronously notifies threads as soon as connectivity to the remote server is lost.

Option	Required?	Description
User Name	Yes	The login used by the CMON thread to connect to the back-end server. This must be an existing, valid login on each Adaptive Server. Verify that this user has basic privileges.
Password	Yes	Enter the password for the user name you just entered.

10 Complete the options in the Data Server Components section to add a data server for each Adaptive Server in your OpenSwitch implementation.

Option	Required?	Description
Server Name	Yes	Enter the name of the primary or secondary data server. **Note** In a mutually-aware implementation, you must use the same name for an Adaptive Server when you install the Adaptive Server and when you reference the name here for both the primary and secondary OpenSwitch server configuration. Specifically, the name of an Adaptive Server (for example, A1), must be "A1" in the SERVER section of both the primary and secondary OpenSwitch server configuration files and must be A1 in the *sql.ini* or *interfaces* file.

Option	Required?	Description
Host Name	Yes	Enter the name of the machine on which the data server is installed.
Port Number	Yes	Enter the port number of the data server.
Create Mutual Aware Cluster Table in This Data Server?	No	This selection is available only when you select "Use Mutual Aware Support?" When you use mutually-aware support, OpenSwitch can create a configuration table in Adaptive Server that is updated with server and pool status and is used as another resource to keep the two mutually-aware OpenSwitch servers in sync. To create an OpenSwitch configuration table in this Adaptive Server, select this option. Both OpenSwitch servers in a mutually-aware configuration can access this table. **Note** See the *OpenSwitch Administration Guide* for details about this feature.
Use Different CMON User Name & Password?	No	To use a different CMON user name and password for this data server, select this option, then enter the user name and password in the next two fields. If you do not select this option, the data server you add uses the CMON user name and password that you entered previously.
CMON User Name	No	Enter the CMON user name that is used to log in to this data server.
CMON Password	No	Enter the CMON password that is used to log in to this data server.
Server Name, If Clustered	No	Enter the name of the companion data server if this is Adaptive Server is enabled for high-availability. This name will be entered under the "hafailover" entry in the interfaces file for this data server.
Port Number, If Clustered	No	Enter the port number of the companion data server if this is an high-availability Adaptive Server

11 Click Add Data Server, then click OK when the confirmation message displays.

12 Repeat steps 10 and 11 for the other data servers in your OpenSwitch configuration. (OpenSwitch requires at least two data servers.)

Note To remove a data server, enter the data server's name and click Remove Data Server. You can only remove a data server that was added using this dialog box.

13 Click Next to save the entries and continue. The Pool Maintenance dialog box displays.

You must create at least one pool. The options on this window allow you to add or remove pools and to add or remove data servers from a specified pool.

Note A pool is a logical group of servers within OpenSwitch. A pool can contain zero or more servers that are treated as a self-contained failover group, so all connections within the group fail over only to servers defined within the group. See the *OpenSwitch Administration Guide*, Chapter 2, "Concepts and Procedures," for more information about pools.

14 Complete the options in the Add Pool section:

a Enter a pool name and click Add Pool.

b Click OK when the confirmation message displays.

c Repeat this process until you have created the necessary pools for your implementation.

Note To remove an existing pool, enter the pool's name and click Remove Pool. You can only remove a pool that was added using this dialog box.

15 Add each data server to a pool:

a Complete these options:

- Pool Name – select the pool to which you are adding a data server. You can only add a data server to a pool that you have added in this dialog box.
- Server Name – select the data server that you want to add to the selected pool. You can only add data servers that were added using the Data Server Maintenance dialog box.

b Click Add Data Server To the Pool, then click OK when the confirmation message displays.

c Repeat step 15 for each data server in your implementation.

Note The order in which you add a data server to a pool is important, because the first server that you add becomes the primary data server for the pool, and the second server that you add becomes the secondary—or backup—data server for the pool.

If you are using a mutually-aware environment, you should add two pools, and then add the data servers to each of the pools in reverse order. For example, if you have added POOL1 and POOL2, add ASE1 followed by ASE2 to POOL1, and ASE2 followed by ASE1 to POOL2.

To remove a data server from a pool, select the pool, select the data server, and click Remove Data Server From Pool.

16 Click Next to save your entries and continue.

17 If you did not select "Replication Coordination Module" in the second configuration window, go to step 26.

If you selected "Replication Coordination Module" in the second configuration window, the Replication Coordination Module dialog box displays.

Note The Replication Coordination Module (RCM) is an OpenSwitch coordination module that coordinates the failover of a high-availability, warm-standby environment. The term "failover" in this document refers, in the general sense, to automatically switching to a redundant or standby server when the currently-active server fails or terminates abnormally. It does not refer to Sybase Failover, which is a specific feature of Adaptive Server Enterprise.

A redundant high-availability, warm-standby environment includes:

- A Replication Server configured for warm-standby replication
- Two Adaptive Servers and corresponding databases
- Two OpenSwitch servers
- Two RCM instances configured to coordinate failover through the OpenSwitch servers

See the *OpenSwitch Coordination Module Reference Manual* for requirements and instructions on using a redundant high-availability, warm-standby environment.

Complete the options in the Replication Coordination Module (RCM) section or accept the defaults:

Option	Required?	Description
Name	Yes	The name of the RCM. The default value is *<OpenSwitchServerName>_rcm.*
RCM Path	Yes	The location of the OpenSwitch installation directory for the RCM. The default location is *%OPENSWITCH%\bin\rcm.exe*.
Config File	Yes	The location of the RCM configuration file. The default location is *%OPENSWITCH%\config\<OpenSwitchServerName>_rcm.cfg*.
Log File	Yes	The location of the RCM log file. The default location is *%OPENSWITCH%\logs\<OpenSwitchServerName>_rcm.log*.
Is This a Secondary RCM?	Required only if this RCM is a secondary RCM in a mutually-aware or redundant setup.	Select this option if this RCM is a secondary RCM in a mutually-aware setup.
Is This a Redundant Environment Setup?	Required only if this is a redundant RCM environment	**Note** This option is enabled only if you did not select mutually-aware support on the first configuration screen. You are automatically assumed to have a redundant environment setup if you selected mutually-aware support and are using RCM. Select this option if this is a redundant RCM environment.

18 Complete the options in the Replication Server section:

Option	Required?	Description
Server Name	Yes	The name of the Replication Server that controls the warm-standby environment. Enter any valid alphanumeric name up to 32 characters.
Host Name	Yes	The host of the Replication Server that controls the warm-standby environment. Enter any valid alphanumeric name.
Port Number	Yes	Enter the port number of the Replication Server.
User Name	Yes	Enter user name that is used to log in to the Replication Server. This user should have permission to execute Replication Server commands like switch_active, suspend log transfer from all, and so on.
Password	No.	Enter the password for the user name that is used to log in to the Replication Server. The password displays in the field as asterisks.

19 Enter the Logical Connection Name. This should be in the form `<logical dataserver.logical database>` and must be already configured in the warm-standby Replication Server environment; for example, "`lds.ldb`".

20 Click Next to save your entries and close the dialog box.

If you did not select "Is This a Redundant Environment Setup?" in the Replication Coordination Module dialog box, go to step 26.

If you selected "Is This a Redundant Environment Setup?" in the Replication Coordination Module dialog box, the Primary OpenSwitch Information window or the Secondary OpenSwitch Information window opens, depending on whether this is a secondary RCM setup.

Note The information from this dialog box is saved to the *sql.ini* file and required for the redundant environment setup (two OpenSwitch servers, two RCMs, and two Adaptive Servers) to work properly.

21 When the {Primary | Secondary} OpenSwitch Information window displays, complete the options in the OpenSwitch Components section. Enter the information or accept the defaults:

- If this is a secondary RCM setup, the default information is for the primary OpenSwitch.

  Warning! If the primary OpenSwitch is not up and running, a warning displays. At the end of the configuration, the secondary RCM does not start, but the RCM configuration file is created. The secondary RCM cannot start if the primary OpenSwitch is not running.

- If this is not a secondary RCM setup, the default information is for the secondary OpenSwitch.

Option	Required?	Description
Server Name	Yes	The name of the primary or secondary OpenSwitch.
Host Name	Yes	The name of the machine on which the primary or secondary OpenSwitch is installed.
Port Number	Yes	Enter the port number of the primary or secondary OpenSwitch server.

22 Click Next to continue.

23 When the RCM Warm-Standby Configuration window opens, complete the options in the Active Data Server Configuration section.

Note This window determines which data server is the active data server and which is the standby data server in the Replication Server warm-standby environment.

Option	Required?	Description
Server Name	Yes	Select the name of the active data server in the warm-standby environment. This server cannot be the same server as the one you select for the standby data server in the next section. **Note** You must have already added this data server in step 10, in the Data Server Maintenance dialog box, Data Server Components section.
User Name	Yes	The user name used by the RCM to log in to the active data server. This user must have permission to execute commands like use database, sp_start_rep_agent, and so on.
Password	No	Enter the password for the user name you entered. The password displays in the field as asterisks.

24 Complete the options in the Standby Data Server Configuration section.

Option	Required?	Description
Server Name	Yes	Select the name of the standby data server in the warm-standby environment. This server cannot be the same server as the one you selected for the active data server in the previous section. **Note** You must have added this data server in step 10, in the Data Server Maintenance dialog box, Data Server Components section.
User Name	Yes	The user name used by the RCM to log in to the standby data server. This user must have permission to execute commands like use database, sp_start_rep_agent, and so on.
Password	No	Enter the password for the user name you entered. The password displays in the field as asterisks.

25 Select the name of the application pool in the RCM environment, then click Next to continue.

26 When the Failure Action dialog box displays, complete the options, or click Next to go to the next configuration dialog box. Some options are required only if you selected “Use Mutual Aware Support.”

Option	Required?	Description
Connection Monitor Failure – Action to Take	No	Select the action to perform when there is failure in the Connection Monitor: • DEFAULT – starts the CMON thread in the next available server in that pool. • CUSTOM – runs a user-defined custom script. • MANUAL – runs a manual script to notify the system administrator that some manual action is required. • CUSTOM_MANUAL – run a custom script. The manual script runs if the custom script fails. **Note** See the *OpenSwitch Administration Guide* for more information.
Network Failure – Action to Take	Only if "Use Mutual Aware Support" is selected	Select the action to perform when there is network failure: • DEFAULT – the primary companion OpenSwitch is shut down and all clients connected to the primary companion OpenSwitch are re-connected to the secondary companion OpenSwitch in the same cluster. Configuration changes (including server and pool status changes) are permitted. • CUSTOM – run a custom script. • MANUAL – run a manual script. • CUSTOM_MANUAL – run a custom script. The manual script runs if the custom script fails. **Note** See the *OpenSwitch Administration Guide* for more information.
Companion Failure – Action to Take	Only if "Use Mutual Aware Support" is selected	Select the action to perform when the companion in a mutually-aware implementation fails: • DEFAULT – mark the companion server as unreachable, start a timer to ping it from time to time, and act as if the primary OpenSwitch is the only server. Once the connection to the companion is reestablished, the two OpenSwitch servers synchronize their configurations • CUSTOM – run a custom script. • MANUAL – run a manual script. • CUSTOM_MANUAL – run a custom script. The manual script runs if the custom script fails. **Note** See the *OpenSwitch Administration Guide* for more information.

Option	Required?	Description
Data Server Failure – Action to Take	Only if "Use Mutual Aware Support" is selected	Select the action to perform when a data server fails: • DEFAULT – mark the Adaptive Server as not running and initiate a failover process. • CUSTOM – run a custom script. • MANUAL – run a manual script. • CUSTOM_MANUAL – run a custom script. The manual script runs if the custom script fails. **Note** See the *OpenSwitch Administration Guide* for more information.
User Action: • Custom Script • Manual Script	Yes, but only when any of the previous options in this dialog box are set to something other than "Default"	Enter the name of the custom script to execute if one of the previous options is set to CUSTOM or CUSTOM_MANUAL. Enter the name of the script to execute when one of the previous options is set to MANUAL or CUSTOM_MANUAL. **Note** See the *OpenSwitch Administration Guide* for more information.

27 Click Next to continue.

28 The Summary window appears, with the following button options:

- Back – returns you to the previous screens to make any modifications in the screens.
- Finish – begins the final configuration process, and displays a progress bar while the OpenSwitch server is being configured.

  Note Selecting Finish disables the Back button, and changes the Cancel button to an Exit button.

- Cancel – allows you to stop the configuration process. Once the Cancel button changes into an Exit button and you have finished the configuration process, select Exit to exit out of the Configurator utility.

When the Summary window appears, click Finish. A progress bar displays as the OpenSwitch server is being configured.

29 When a message displays indicating that the configuration was successful, click OK, then click Cancel to exit the configuration tool and close the installer window.

If the configuration was not successful, use a text editor to view the configuration log (*osw.err*), which is located in the OpenSwitch *logs* directory.

Note OpenSwitch does not provide any localized messages besides English. However, you can still use OpenSwitch in a different language environment, because the installer copies the English messages to all the different language *locales* directory during the installation. Therefore, when you execute OpenSwitch in a non-English environment, the messages returned to the client is in English.

Configuring OpenSwitch manually

These instructions describe how to configure OpenSwitch manually by editing the connectivity configuration file (*sql.ini*) and the OpenSwitch configuration file (<*primary_OpenSwitch_server_name*>*.cfg*).

❖ **Setting up the sql.ini connectivity configuration file**

1 In Windows, open a Command Prompt window, go to the*%SYBASE%* directory, and run the *SYBASE.bat* file:

```
%SYBASE%\SYBASE.bat
```

2 Verify that the *sql.ini* file exists in the *%SYBASE%* directory. If it does not, create it by copying from *sample.ini*. Go to the *%SYBASE%* directory, and enter:

```
cd %SYBASE%\ini
cp sample.ini sql.ini
```

3 Open the *sql.ini* file in a text editor and modify or add entries to provide the server names and port numbers for each OpenSwitch server and each Adaptive Server in your installation. For example, if you installed two OpenSwitch servers and two Adaptive Servers, you must provide the server name, host name, and port number for each server. In addition, if you are implementing mutually-aware support, you must include the server name, host name, and port number for the companion OpenSwitch server as the last line in the other OpenSwitch server's entry.

Enter the information in this format:

```
[servername]
```

```
master=tcp,<hostname>,<port>
query=tcp,<hostname>,<port>
query=tcp,<hostname>,<port>
```

Note The second "query" line is necessary only for mutually-aware OpenSwitch servers. See the*OpenSwitch Administration Guide* for details about this feature.

- *[servername]* – enter the name of the OpenSwitch server or Adaptive Server.
- `master=tcp,<hostname>,<port>` – enter the name of the machine where that server is running, and the port number from which the server is started.
- `query=tcp,<hostname>,<port>` – (first "query" line) enter the name of the machine where that server is running, and the port number from which the server is started.

  For mutually-aware OpenSwitch servers only:

- `query=tcp,<hostname>,<port>` – (second "query" line) enter the name of the machine where the mutually-aware companion OpenSwitch server is running, and the port number from which that server is started.

For example, if you install one OpenSwitch server (no mutually-aware support) and two Adaptive Servers all on the same machine, the entries in the *sql.ini* file would look similar to this:

```
[OSWITCH1]
master=TCP,dev2,4000
query=TCP,dev2,4000

[ASESRV1]
master=TCP,dev2,5000
query=TCP,dev2,5000

[ASESRV2]
master=TCP,dev2,5001
query=TCP,dev2,5001
```

If you install two OpenSwitch servers that are mutually-aware on one machine and two Adaptive Servers each on a different machine, the entries in the *sql.ini* file would look similar to this:

```
[OSW1]
```

```
master=TCP,dev2,5000
query=TCP,dev2,5000
query=TCP,dev2,5005

[OSW2]
master=TCP,dev2,5005
query=TCP,dev2,5005
query=TCP,dev2,5000

[ASE1]
master=TCP,dev1,7000
query=TCP,dev1,7000

[ASE2]
master=TCP,dev3,8000
query=TCP,dev3,8000
```

4 Save the *sql.ini* file and close the text editor.

❖ **Setting up the OpenSwitch configuration file**

Create a new OpenSwitch configuration file by going to *%OPENSWITCH%\config* and copying the *sample.cfg* file by entering the following, where <*cfg_file*> is the name of your server configuration, for example, *OpenSwitch.cfg*:

```
cp sample.cfg <cfg_file>
```

Use a text editor to set the values in the configuration file you just created. See the tables in "Configuring OpenSwitch using the GUI tool" on page 15 for definitions of the values you should provide.

5 Save the file and close the text editor.

6 Go to *%OPENSWITCH%* and create a *logs* directory:

```
mkdir logs
```

Post configuration

When you finish the OpenSwitch configuration, the tool creates several files, which are listed in the following table.

Table 3-2: Windows configuration files

File name	Location
sql.ini	*%SYBASE%\ini*
<OpenSwitch ServerName>.cfg	*%SYBASE%\OpenSwitch-15_0\config*
<OpenSwitch ServerName>_rcm.cfg	*%SYBASE%\OpenSwitch-15_0\config*
oswConfig.log	*%SYBASE%\OpenSwitch-15_0\config*
osw.err	*%SYBASE%\OpenSwitch-15_0\config*

After creating these configuration files, the configured OpenSwitch starts automatically.

Reconfiguration

When you reconfigure an OpenSwitch server the existing *sql.ini* file is copied to a backup file and appended with an *.001* extension (for example, *sql.ini.001*) and saved in *logs* directory. Similarly, the OpenSwitch configuration file is copied to *<OpenSwitch ServerName>.cfg.001* and the RCM config file is copied to *<OpenSwitch ServerName>_rcm.cfg.001* and saved in the *config* directory.

CHAPTER 4

Post-Installation Tasks

This chapter describes the tasks you perform after installing and configuring OpenSwitch version 15.0.

Topic	Page
Updating environment variables	31
Adding OpenSwitch to the Windows Start menu	31
Starting OpenSwitch	32
Verifying client connections	35
Uninstalling OpenSwitch	36

Updating environment variables

After you install OpenSwitch, you may need to update the environment variables. OpenSwitch provides a batch file for this. These files are created at the end of the installation process under the root installation directory.

Go to the *%SYBASE%* directory, open a Command Prompt window, and enter:

```
SYBASE.bat
```

To run the coordination module sample in *%OPENSWITCH%\sample*, verify that *%OPENSWITCH%\lib* and *%SYBASE%\%SYBASE_OCS%\dll* are included in your PATH variable.

Adding OpenSwitch to the Windows Start menu

Note These steps assume that you have already set the environment variables.

1 Select Start | Settings | Taskbar & Start Menu, select the Advanced tab, then click Advanced.

   This starts Windows Explorer.

2 In the right pane of Windows Explorer, double-click Programs.

3 From the menu, select File | New | Folder.

4 Name the folder OpenSwitch.

5 Double-click the OpenSwitch icon you just created.

6 From the menu, select File | New | Shortcut. This launches a dialog box.

7 Click Browse and locate *%SYBASE%\OpenSwitch-15_0\bin\OpenSwitch.bat*. Select *OpenSwitch.bat*, and click OK.

8 Modify the command line to append the following to *OpenSwitch.bat*:

```
-c ..\config\OpenSwitch.cfg
```

9 Click Next.

10 Name the shortcut “OpenSwitch” and click Finish.

11 Close the Windows Explorer.

12 Click OK in the Taskbar and Start Menu Properties dialog box.

Starting OpenSwitch

Note OpenSwitch version 15.0 uses version 15.0 of Open Server, which requires more than twice as much memory as its previous version. For this reason, it may take longer for OpenSwitch to start.

OpenSwitch starts automatically after you install and configure the product. If you chose not to configure OpenSwitch during installation, go to “Configuring OpenSwitch using the GUI tool” on page 15.

❖ **Starting OpenSwitch from the Start menu**

- If you added OpenSwitch to the Windows Start menu (see “Adding OpenSwitch to the Windows Start menu” on page 31), select Start | Programs | OpenSwitch | OpenSwitch.

❖ **Starting OpenSwitch from a command prompt**

1 Open a Command Prompt window, and go to the *%SYBASE%* directory. Enter:

```
SYBASE.bat
```

2 In the Command Prompt window, enter:

```
cd %SYBASE%\OpenSwitch-15_0\bin
```

3 Enter the following, where -c is the name of the OpenSwitch configuration file to use during startup:

```
start OpenSwitch.bat -c ..\config\OpenSwitch.cfg
```

Note See the *OpenSwitch Administration Guide*, Chapter 2, "Starting and Stopping OpenSwitch" for information about using encrypted user names and passwords and a list of command line options that let you adjust the program's behavior.

❖ **Starting OpenSwitch as a Windows service**

1 Go to *%OPENSWITCH%\bin* and use a text editor to set the OPENSWITCH and SYBASE_OCS variables in the *OpenSwitch.bat* file. Save the file and close the text editor.

2 From *%OPENSWITCH%\bin*, open a Command Prompt window and enter:

```
.\OpenSwitch.bat -c<Path of OpenSwitch Config file>
-R install
```

This installs OpenSwitch as a service.

3 Open the Registry Editor. Select Start | Run, enter `regedit` in the Open text field, then click OK.

4 In the Registry Editor window, go to HKEY_LOCAL_MACHINE | SYSTEM | CurrentControlSet | Services and click the OpenSwitch server name).

a Add a new key by selecting Edit | New | Key. Enter `Parameters` as the Key name.

b Click Parameters and add a new string value by selecting Edit | New | String Value. Enter `Application` as the new String value.

c Double-click Application. The Edit String dialog box appears. In Value Data field, enter:

```
<OpenSwitch install directory>\bin\OpenSwitch.bat
     -c OpenSwitch install directory>\config\<OpenSwitch.cfg>
     -l<OpenSwitch install directory>\bin\<OSW Server>.log
```

where:

- *-c* – is the OpenSwitch Config file location
- *-1* – is the OpenSwitch log file location.
- *<OpenSwitch.cfg>* – is an example of the OpenSwitch configuration file name. You should replace with the actual file name of your OpenSwitch configuration file.

Click OK.

d In the left pane of the Registry Editor window, click your service name. In the right pane of the Registry Editor, double-click the "ImagePath" string and delete the string that is in the Edit String dialog box.

Enter the full path to the *srvany.exe* file. For example:

```
C:\Program Files\Resource Kit\srvany.exe
```

Click OK.

Note *srvany.exe* is installed on Windows Enterprise Edition operating systems as part of the Resource Kit. If *servany.exe* is not on your machine, go to

e Exit the Registry Editor by going to Registry | Exit.

5 Select Control Panel | Services. Click OpenSwitch *<OpenSwitch server name>*, then click Startup.

6 In the "Log On As" section, select the box near "Allow Service to Interact with Desktop," and click OK.

7 Click Start to bring OpenSwitch up as a service.

By default, Startup Type is Manual. Change this to Automatic to start OpenSwitch as a service automatically the next time the Windows machine is restarted.

❖ **Removing OpenSwitch as a service**

1 Shut down OpenSwitch if it is running, and go to *%OPENSWITCH%\bin*.

2 At a command prompt, enter the following on one line, where *path* is the path of the OpenSwitch Config file:

```
.\OpenSwitch.bat -c <path> -R remove
```

This stops the service and removes it from the Registry.

Verifying client connections

You can perform a sanity test to confirm that your Open Switch is running, and that it can accept client connections.

❖ **Confirming that OpenSwitch can accept client connections**

1 Make sure the Adaptive Server you configured to use with OpenSwitch is running by executing the following, where *server_name* is the name of the Adaptive Server you configured to use with OpenSwitch:

```
1> isql.exe -Usa -P -Sserver_name
2> go
```

The connection goes through if Adaptive Server is up and running.

2 In your *%SYBASE%* location, enter the following from a command prompt:

```
.\SYBASE.bat
```

3 Log in as an Administrator, and connect to OpenSwitch using the following isql command:

```
1> rp_set TEXTSIZE
2> go
```

You should see:

```
parameter      value
-----------------------------------------------
TEXTSIZE       1048576

(1 row affected)
(return status = 0)
```

4 Log in to OpenSwitch in isql using the following syntax:

isql -U*username* -P*password* -S*servername*

Where:

- *username* – is the client username
- *password* – is the client username

- *servername* – is the name of the OpenSwitch server

5 At the prompt, issue the select *@@version* command to see the version information of the Adaptive Server that OpenSwitch is connected to. For example:

```
1> select @@version
2> go

Adaptive Server Enterprise/12.5.2/EBF 11799/P/Linux
Intel/Enterprise Linux/ase1252/1831/32-bit/OPT/Fri
Apr 9 02:53:50 2004
```

Uninstalling OpenSwitch

Before uninstalling OpenSwitch, shut down the OpenSwitch server if it is running.

1 Log in to OpenSwitch as “admin” using isql.

2 At a command prompt, enter:

```
rp_shutdown
```

❖ **Removing OpenSwitch servers**

1 Use the Windows Explorer to navigate to *%SYBASE%\uninstall\OSWSuite*, and double-click *uninstall.exe*. The uninstaller launches.

2 When the Welcome window appears, click Next. The next window displays a warning about removing the Connectivity and Language Module components.

Read the warning carefully, then click Next.

3 If you have other Sybase products installed, select the OpenSwitch components to uninstall.

If you installed OpenSwitch in a directory that has no other Sybase products, accept the default selections and click Next.

4 When the Uninstall Summary window displays, verify that the selections are correct and click Next.

Note If the selections are not correct, click Back and reselect the components to uninstall.

A message displays "Uninstalling Sybase OpenSwitch SUITE."

5 When the message displays that OpenSwitch was successfully uninstalled, click Finish to close the uninstaller.

6 If there are no other Sybase products installed in the directory where OpenSwitch was installed, manually remove any remaining OpenSwitch files and directories after running the uninstallation process.

7 Restart the machine.

APPENDIX A

Troubleshooting

These troubleshooting solutions cover some of the most frequently encountered problems during OpenSwitch installation.

Topic	Page
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File system error message	40
Java or language error messages	40
False network failure detection in a mutual-aware setup	41

Uninstaller GUI

Problem: The uninstaller GUI does not display

Solution:

1 Verify that your Java version is 1.4 or later. Check your Java version by entering:

```
<path to_java_exec>\java -version
```

For example, if your Java executable is located in *C:\jdk1.4\bin*, enter:

```
C:\jdk1.4\bin\java -version
```

2 Set JAVA_HOME when launching the uninstaller. Go to *%SYBASE%*, and from the Command Prompt window, and enter the following, where JAVA_HOME is the absolute path to your *jdk\jre* home:

```
sybase.bat
.\uninstall\OSWSuite\uninstall -is:javahome <JAVA_HOME location>
```

File system error message

Problem: Error message says the file system does not have enough space

Solution: Verify that you have 100MB free space in your temporary directory.

If you do not have enough space in the default temporary directory set by the installer, set the environment variable to redirect to a temporary directory set by you.

Note The temporary directory to which you are redirecting must exist before you issue the command to redirect it.

To redirect your temporary directory, from a Command Prompt window, enter the following, where *C:\temp* is the directory of your choice:

```
.\setup -is:tempdir C:\temp
```

Java or language error messages

Problem: “JVM or Java not found” and “wrong version of Java” error messages display, or the installer does not display in the language your machine is set to display.

Solution: Execute *setup.exe* with the error log redirection option by entering:

```
.\setup -is:log<absolute_path_to_logfile>
```

This redirects the installer log to the specified log file. When the installer exits, you can edit the file to find out what the cause of the failure is (usually JVM or temporary directory problems).

See the above instructions for redirecting your temporary directory.

False network failure detection in a mutual-aware setup

Problem: If you use mutually-aware support, and you cannot find *ping* in the path of the environment used to start the OpenSwitch server, error messages such "`Host of <`***`ASE_name`***`> not responding`" and "`forceCloseSocket`" are added to the error log at start-up.

Solution:

1 Log in as the administrator, and shut down the OpenSwitch server(s) by executing rp_shutdown.

2 Modify the OpenSwitch configuration file to set "PING_BINARY" to the absolute path of the system ping command.

3 Restart the OpenSwitch server(s) manually with the steps described in "Starting OpenSwitch" on page 32.

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