



## **MPLS Management Suite**

**1.2**

## **INSTALLATION GUIDE**

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# Preface

This document provides instructions for installing MPLS Management Suite products.

## Intended Audience

This document is intended for administrators who are responsible for installing the MPLS Management Suite.

## Prerequisites

You must have root or administrative privileges on the local server to perform the installation.

## Document Organization

This document consists of the following chapters and appendixes.

**Table 1: Document Organization**

CHAPTER/APPENDIX	DESCRIPTION
<b>1. OVERVIEW</b>	Describes the contents of the MPLS Management Suite CD-ROM, product compatibility, and installation tasks.
<b>2. INSTALLING THE MPLS MANAGEMENT SUITE</b>	Explains how to install the MPLS Management Suite.

**Table 1: Document Organization** (*continued*)

CHAPTER/APPENDIX	DESCRIPTION
<b>3. UPGRADING THE MPLS MANAGEMENT SUITE</b>	Explains how to upgrade the MPLS Management Suite to the current version and how to add other MPLS Management Suite products to an existing installation.
<b>4. STARTING AND VERIFYING THE SUITE INSTALLATION</b>	Describes how to start products in the MPLS Management Suite, verify their proper installation, and then stop the products.
<b>5. UNINSTALLING THE MPLS MANAGEMENT SUITE</b>	Describes how to remove the MPLS Management Suite from your system.
<b>A. REQUIREMENTS FOR THE MPLS MANAGEMENT SUITE</b>	Summarizes hardware and third-party product requirements for the MPLS Management Suite.
<b>B. UNIX PROCEDURES FOR CD-ROMS</b>	Summarizes UNIX commands related to CD-ROMs.
<b>C. UNDERSTANDING THE SM_EDIT UTILITY</b>	Explains how to use the EMC Smarts <i>sm_edit</i> utility.

## Documentation Conventions

Several conventions may be used in this document as shown in Table 2.

**Table 2: Documentation Conventions**

CONVENTION	EXPLANATION
<code>sample code</code>	Indicates code fragments and examples in Courier font
<b>keyword</b>	Indicates commands, keywords, literals, and operators in bold
<code>%</code>	Indicates C shell prompt
<code>#</code>	Indicates C shell superuser prompt
<code>&lt;parameter&gt;</code>	Indicates a user-supplied value or a list of non-terminal items in angle brackets
<code>[option]</code>	Indicates optional terms in brackets
<code>/InCharge</code>	Indicates directory path names in italics
<b><i>yourDomain</i></b>	Indicates a user-specific or user-supplied value in bold, italics
<code>File &gt; Open</code>	Indicates a menu path in italics
<b>▼▲</b>	Indicates a command is wrapped over one or more lines. The command must be typed as one line.



Directory path names are shown with forward slashes (/). Users of the Windows operating systems should substitute back slashes (\) for forward slashes.

Also, if there are figures illustrating consoles in this document, they represent the consoles as they appear in Windows. Under UNIX, the consoles appear with slight differences. For example, in views that display items in a tree hierarchy such as the Topology Browser, a plus sign displays for Windows and an open circle displays for UNIX.

Finally, unless otherwise specified, the term InCharge Manager is used to refer to EMC Smarts programs such as Domain Managers, Global Managers, and adapters.

## MPLS Management Suite Installation Directory

In this document, the term **BASEDIR** represents the location where EMC Smarts software is installed.

- For UNIX, this location is: `/opt/InCharge<n>/<productsuite>`.
- For Windows, this location is: `C:\InCharge<n>\<productsuite>`.

The `<n>` represents the EMC Smarts software platform version number. The `<productsuite>` represents the InCharge product suite to which the product belongs. For example, on UNIX operating systems, MPLS Manager is installed to `/opt/InCharge6/MPLS/smarts` by default. On Windows operating systems, this product is installed to `C:\InCharge6\MPLS\smarts` by default. This location is referred to as **BASEDIR**/`smarts`.

Optionally, you can specify the root of **BASEDIR** to be something other than `/opt/InCharge6` (on UNIX) or `C:\InCharge6` (on Windows), but you cannot change the `<productsuite>` location under the root directory.

For more information about the directory structure of EMC Smarts software, refer to the *EMC Smarts System Administration Guide*.

## MPLS Management Suite Products

The MPLS Management Suite offers the following products:

- MPLS Manager
- EMC Smarts Adapter for Cisco ISC
- Perl API

## Additional Resources

In addition to this document, EMC Corporation provides the following resources.

### Command Line Programs

Descriptions of command line programs are available as HTML pages. The *index.html* file, which provides an index to the various commands, is located in the **BASEDIR**/*smarts/doc/html/usage* directory.

### Documentation

Readers of this document may find other documentation (also available in the **BASEDIR**/*smarts/doc/pdf* directory) helpful.

#### **EMC Smarts Documentation**

The following documents are product independent and thus relevant to users of all EMC Smarts products:

- *EMC Smarts Documentation Roadmap*
- *EMC Smarts System Administration Guide*
- *EMC Smarts ASL Reference Guide*
- *EMC Smarts Perl Reference Guide*

#### **MPLS Management Suite Documentation**

The following documents are relevant to users of the MPLS Management Suite product suite:

- *EMC Smarts MPLS Management Suite Installation Guide*
- *EMC Smarts MPLS Manager User's Guide*
- *EMC Smarts MPLS Manager Configuration Guide*
- *EMC Smarts MPLS Manager Discovery Guide Supplement*
- *EMC Smarts Adapter for Cisco ISC User's Guide*
- *EMC Smarts MPLS Management Suite Release Notes*

Refer to the *EMC Smarts Documentation Roadmap* for documentation resources provided with other EMC Smarts product suites.

## Technical Support

For questions about technical support, call your local sales office or service provider. For service, call one of the following numbers:

United States: 800.782.4362 (SVC.4EMC)

Canada: 800.543.4782 (543.4SVC)

Worldwide: 508.497.7901

## EMC Powerlink

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From training on EMC products and technologies, to online support, product announcements, software registration, technical white papers, interoperability information, and a range of configuration tools, Powerlink offers resources unavailable elsewhere.

For quickest access when you do not already have a Powerlink account, ask your EMC representative for the access code for your company and register at the Powerlink site. Visit the EMC Powerlink website at:

*<http://powerlink.emc.com>*



## Overview

This chapter describes the MPLS Management Suite products and their compatibility with other EMC Smarts products. In addition, this chapter provides checklists for installation, upgrade, and uninstallation tasks.

### Suite Products

The MPLS Management Suite includes these products:

- The MPLS Manager, which discovers, models, and monitors MPLS and virtual private network (VPN) elements. The MPLS Manager identifies configuration errors, performs root cause analysis, and correlates underlying network problems with impairments to the MPLS environment. To accomplish these tasks, the MPLS Manager requires the EMC Smarts IP Availability Manager (Availability Manager).
- The ISC Adapter, which collects VPN provisioning information from the Cisco IP Solution Center (ISC) provisioning system, and sends it to the Global Manager. The adapter receives VPN discovery information from Global Manager, and synchronizes VPN information available in Cisco ISC and MPLS Manager. The ISC Adapter can be installed on the same host as the MPLS Manager or on a separate host. This product is optional.
- The Remote Application Programming Interface for Perl (Perl API), which allows developers to create Perl scripts that connect to EMC Smarts servers as clients to exchange information, manipulate data, or drive actions. This product is optional.

# Other Required EMC Smarts Products and Compatibility

The EMC Smarts MPLS solution requires the MPLS Manager and the following EMC Smarts products:

- From the Service Assurance Management Suite: Global Manager and Global Console.
- From the IP Management Suite: Availability Manager

Other MPLS Management Suite products are optional.

The MPLS Management Suite is compatible with the versions of these products listed in Table 3.

**Table 3:** MPLS Management Suite Compatibility with Other Product Suites

COMPATIBLE VERSIONS		
MPLS MANAGEMENT SUITE	SERVICE ASSURANCE MANAGEMENT SUITE	IP MANAGEMENT SUITE
1.2, with latest Rolling Patch	6.2, SmartPack 2 or later SmartPack, with latest Rolling Patch.	6.2, SmartPack 2 or later
The EMC Smarts products in this table are typically used with the MPLS Management Suite.		

## Installation Tasks

To install the MPLS Management Suite, satisfy the requirements and perform the tasks listed in Table 4.

**Table 4:** MPLS Management Suite Installation Requirements and Tasks

TASKS	GO TO:
<b>BEFORE YOU INSTALL THE MPLS MANAGEMENT SUITE:</b>	
Satisfy all requirements to install the suite.	<a href="#">Satisfy All Requirements to Install the Suite</a> on page 8
Check the Broker configuration.	<a href="#">Determine the Location of the EMC Smarts Broker</a> on page 9
Detect and stop SMARTS programs.	<a href="#">Detect and Stop EMC Smarts Programs</a> on page 9
Choose an operating mode for the installation program.	<a href="#">Choose the Operating Mode of the Installation Program</a> on page 11

**Table 4: MPLS Management Suite Installation Requirements and Tasks**

TASKS	Go To:
<b>INSTALLATION METHOD:</b>	
Mount the CD-ROM.	<a href="#">Mount the CD-ROM</a> on page 13
Install using your chosen mode of operation: <ul style="list-style-type: none"> <li>• Wizard Mode</li> <li>• CLI Mode</li> <li>• Unattended (Silent) Mode</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Install Using Wizard Mode</a> on page 14</li> <li>• <a href="#">Install Using CLI-Mode</a> on page 16</li> <li>• <a href="#">Install Using Unattended (Silent) Mode</a> on page 18</li> </ul>
<b>AFTER YOU INSTALL:</b>	
Save your EMC Smarts evaluation license, <i>trial.dat</i> , to the <b>BASEDIR</b> /smarts/local/conf directory. Edit the SM_LICENSE variable in the <i>runcmd_env.sh</i> file so that the variable specifies the full path name to the <i>trial.dat</i> file.	<a href="#">Obtaining and Installing a Temporary License for EMC Smarts Software</a> on page 37
Start the suite products for the first time.	<a href="#">Starting EMC Smarts Products</a> on page 38
Verify the current state of the products and Broker.	<a href="#">Additional Configuration Requirements for Upgrades from Version 1.1 to Version 1.2</a> on page 42
Install the latest Rolling Patch for the MPLS Management Suite.	<a href="#">EMC Smarts Rolling Patch Read Me First</a>
Install your permanent EMC Smarts license.	<a href="#">EMC Smarts System Administration Guide</a>
Configure EMC Smarts installations with your desired level of security. Although default encryption is enabled during the 6.2 installation process, EMC Corporation highly recommends that you configure a greater level of security for your deployment.	<a href="#">EMC Smarts System Administration Guide</a>
Configure the Global Manager and MPLS Manager.	<a href="#">EMC Smarts MPLS Manager Configuration Guide</a>
Configure the Availability Manager for communication with the MPLS Manager. Note that this configuration procedure initiates discovery.	<a href="#">EMC Smarts MPLS Manager Configuration Guide</a>

## Upgrade Tasks

Upgrade the MPLS Management Suite for either of the following purposes:

- To install the current version of the MPLS Management Suite over an existing previous version of the suite
- To install additional MPLS Management Suite version 1.2 products at an existing installation of the MPLS Management Suite, version 1.2

For either purpose, satisfy the requirements and perform the tasks listed in Table 5.

**Table 5: MPLS Management Suite Upgrade Requirements and Tasks**

TASKS	Go To:
<b>BEFORE YOU UPGRADE THE MPLS MANAGEMENT SUITE:</b>	
Satisfy all requirements to upgrade the suite.	<a href="#">Satisfy All Requirements to Upgrade the Suite</a> on page 22
Back up your current MPLS Management Suite configuration.	<a href="#">Back Up Your Configuration</a> on page 23
Detect and stop SMARTS programs.	<a href="#">Detect and Stop EMC Smarts Programs</a> on page 24
Choose an operating mode for the installation program.	<a href="#">Choose the Operating Mode of the Installation Program</a> on page 26
<b>UPGRADE THE SUITE:</b>	
Mount the CD-ROM	<a href="#">Mount the CD-ROM</a> on page 28
Upgrade using your chosen mode of operation: <ul style="list-style-type: none"> <li>• Wizard Mode</li> <li>• CLI Mode</li> <li>• Unattended (Silent) Mode</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Upgrade Using Wizard Mode</a> on page 29</li> <li>• <a href="#">Upgrade Using CLI Mode</a> on page 32</li> <li>• <a href="#">Upgrade Using Unattended (Silent) Mode</a> on page 33</li> </ul>
Reconcile the configuration files	<a href="#">Reconcile the Configuration Files</a> on page 35
<b>AFTER YOU UPGRADE:</b>	
Save your EMC Smarts evaluation license, <i>trial.dat</i> , to the <b>BASEDIR</b> /smarts/local/conf directory. Edit the SM_LICENSE variable in the <i>runcmd_env.sh</i> file so that the variable specifies the full path name to the <i>trial.dat</i> file.	<a href="#">Obtaining and Installing a Temporary License for EMC Smarts Software</a> on page 37
Start all the suite products.	<a href="#">Starting EMC Smarts Products</a> on page 38
Verify the current state of the upgraded products.	<a href="#">Additional Configuration Requirements for Upgrades from Version 1.1 to Version 1.2</a> on page 42
Install the latest Rolling Patch for the MPLS Management Suite.	<a href="#">EMC Smarts Rolling Patch Read Me First</a>
Install your permanent EMC Smarts license.	<a href="#">EMC Smarts System Administration Guide</a>
Configure EMC Smarts installations with to your desired level of security. Although default encryption is enabled during the 6.2 installation process, EMC Corporation highly recommends that you configure a greater level of security for your deployment.	<a href="#">EMC Smarts System Administration Guide</a>
Configure the Global Manager and MPLS Manager.	<a href="#">EMC Smarts MPLS Manager Configuration Guide</a>
Configure the Availability Manager for communication with the MPLS Manager. Note that this configuration procedure initiates discovery.	<a href="#">EMC Smarts MPLS Manager Configuration Guide</a>



# Uninstallation Tasks

To uninstall the MPLS Management Suite, satisfy the requirements and perform the tasks listed in Table 6.

**Table 6:** MPLS Management Suite Uninstallation Requirements and Tasks

TASKS	GO TO:
<b>BEFORE YOU INSTALL THE MPLS MANAGEMENT SUITE:</b>	
Detect and Stop EMC Smarts Programs	<a href="#">Detect and Stop EMC Smarts Programs</a> on page 46
<b>UNINSTALLATION METHOD:</b>	
Uninstall the MPLS Management Suite using one of these methods or modes: <ul style="list-style-type: none"><li>• Windows Control Panel method</li><li>• Wizard Mode</li><li>• CLI Mode</li><li>• Unattended (Silent) Mode</li></ul>	<ul style="list-style-type: none"><li>• <a href="#">Uninstalling From the Control Panel (Windows Only)</a> on page 49</li><li>• <a href="#">Running the Wizard-Mode Uninstallation</a> on page 50</li><li>• <a href="#">Running the CLI-Mode Uninstallation</a> on page 51</li><li>• <a href="#">Running the Unattended Uninstallation</a> on page 52</li></ul>



# Installing the MPLS Management Suite

This chapter describes how to install version 1.2 of the MPLS Management Suite. The procedures in this chapter are for a new installation, only.

For installing additional products at an existing version 1.2 installation or for upgrading to version 1.2 from the previous version, see [Upgrading the MPLS Management Suite](#) on page 21.

## Before Installation

Before running the installation program, perform the following tasks:

- Ensure that the host satisfies all requirements for installing the suite.
- Determine the location of the EMC Smarts Broker.
- Detect and stop any EMC Smarts programs that are running.
- Choose the mode to run the installation program.

### Satisfy All Requirements to Install the Suite

Before beginning, you must satisfy the following requirements:

- Platform requirements: These are defined by the products that will be installed and by the network environment that the products must support. Individuals who have EMC Smarts design experience must define the type of operating system and hardware needed. This task is not normally performed by administrators installing the software. The minimum platform requirements are included for reference in [Requirements for the MPLS Management Suite](#) on page 53.
- Operating system patch requirement: The operating system must be patched to the level that is currently recommended by the operating system vendor. The installation program will halt if the appropriate patches are not installed.
- Access requirement: The user performing the upgrade must either be superuser (User ID 0) on UNIX platforms or have administrative privileges on Windows platforms. The installation program will halt if the user does not have the appropriate privileges.
- JRE requirement: Java Runtime Environment of Java 2 Platform Standard Edition version 1.4 or later (J2SE JRE) must be installed on the system to run the installation program. The installation program attempts to detect that a compatible JRE version has been installed on your system. If necessary, download the required J2SE JRE version:
  - Solaris: <http://java.sun.com>.
  - Windows: <http://java.sun.com>.

For UNIX or Windows, if a compatible JRE version is installed and the installation program cannot locate it, you must specify the location when you execute the installation program. For Windows, you must also open a command-line shell and execute the installation program from the directory where it is installed. The syntax is:

```
<setup command> -is:javahome <local_java_dir>
```

where:

- **<setup command>** is the appropriate command for starting the installation or upgrade mode that you choose. These commands are described later in this chapter.
- **<local\_java\_dir>** is the directory path to the local Java home directory; for example, `/opt/java/j2sdk1.4.2_03` or `C:\Program Files\Java\j2re1.4.2_03`.

Based on the operating mode of the installation program that is used when installing or upgrading the suite, there may be additional requirements. These requirements are included in the procedures for the specific modes.

## Determine the Location of the EMC Smarts Broker

You must specify the location of the EMC Smarts Broker during installation of the EMC Smarts software. Typically, this location is chosen during the design of the EMC Smarts software deployment and before any installation begins.

Consult with your deployment planner or check the build guide that documents your deployment to determine the name of the host where the Broker was installed and the port that the Broker uses.

If the location is the same host where you are installing this suite, then the installation program will automatically install the Broker if it is not already on the host.

## Detect and Stop EMC Smarts Programs

Before installing or upgrading your suite, you must stop all EMC Smarts services, EMC Smarts *cron* jobs, and any other process that uses programs or libraries in any EMC Smarts installation area including the EMC Smarts service daemon process, *sm\_serviced*.

---

**Note:** While you are installing or upgrading, all EMC Smarts product suites on the same host must be shut down. If the Broker is on the host, it too must be shut down. This will prevent EMC Smarts applications from starting and new connections from being established while the Broker is down. Inform any users who may be affected and, if necessary, schedule the installation or upgrade for a period of low utilization.

---

### Detect and Stop Active EMC Smarts Programs (UNIX)

- 1 Stop active EMC Smarts services using the *sm\_service* utility from **BASEDIR**/*smarts/bin*:

```
# ./sm_service stop --all
```

- 2 Stop the EMC Smarts service daemon:

```
# /etc/init.d/ic-serviced stop
```

- 3 Determine if any EMC Smarts services are still running by using the *brcontrol* utility from **BASEDIR**/*smarts/bin*:

```
# ./brcontrol -b <host>:<port>
```

Based on the location of the Broker, go to the appropriate step, as indicated in Table 7.

**Table 7: Next Steps for Detecting and Stopping Programs**

THE BROKER IS ON THE...	AND THIS DISPLAYS...	DO THIS...
Same host	"Error attaching to broker" message	The EMC Smarts services shut down properly. Go to Step 5.
	List of services registered with the Broker	<ul style="list-style-type: none"><li>• The Broker and service daemon did not shut down.</li><li>• If any services are still running on the host, these did not shut down.</li></ul> Go to Step 4.
Different host	List of services registered with the Broker	<ul style="list-style-type: none"><li>• If any servers are still running on the host where you will install the EMC Smarts software, these did not shut down. Go to Step 4.</li><li>• If no servers are running on the host where you will install the EMC Smarts software, go to Step 5.</li></ul>

- 4 Stop any EMC Smarts server that is still running. If Broker is on the host, stop the local Broker:

- To stop any server that is still running, use the *dmquit* utility from **BASEDIR**/smarts/bin:

```
# ./dmquit --server <servername>
```

- To stop the local Broker from **BASEDIR**/smarts/bin:

```
# ./brquit --broker=localhost:<port>
```

- 5 Determine if any other EMC Smarts server processes are still running and shut the processes down:

- Detect the processes using the following command:

```
# ps -ef | grep "sm_s"
```

If a list is displayed, note the process ID (pid) of these active EMC Smarts processes.

- Shut down these EMC Smarts processes using the following command:

```
# kill <pid>
```

- 6 Determine if any additional EMC Smarts processes are still running and shut the processes down:

- Detect the processes using the following command:

```
# ps -ef | grep "sm_"
```

If a list is displayed, note the process ID (pid) of these active EMC Smarts processes.

- Shut down these EMC Smarts processes. If *sm\_authority* is running, shut that process down last. Use the following command:

```
# kill <pid>
```

### Detect and Stop EMC Smarts Programs (Windows)

To stop a service from the Windows desktop, use the Microsoft Management Console.

- 1 Select *Settings > Control Panel*.
- 2 At the Control Panel, select *Administrative Tools*.
- 3 At the Administrative Tools folder, select *Services*.
- 4 At the Services window, locate any EMC Smarts services. These services start with the words "InCharge" or "Smarts." For each of these services, right-click the service and then select *Stop*.
- 5 Repeat Step 4 until all EMC Smarts services are stopped.
- 6 Press **Ctrl+Alt+Delete**. The Windows Security dialog box opens.
- 7 Click **Task Manager**. The Windows Task Manager opens.
- 8 Select the Processes tab.
- 9 In the Processes tab, look for the Image\_Name, *sm\_service*. For each *sm\_service*, right click it and then select *End Process*.
- 10 In the Processes tab, look for other Image\_Names that start with *sm\_*. For each instance, right click it and then select *End Process*.

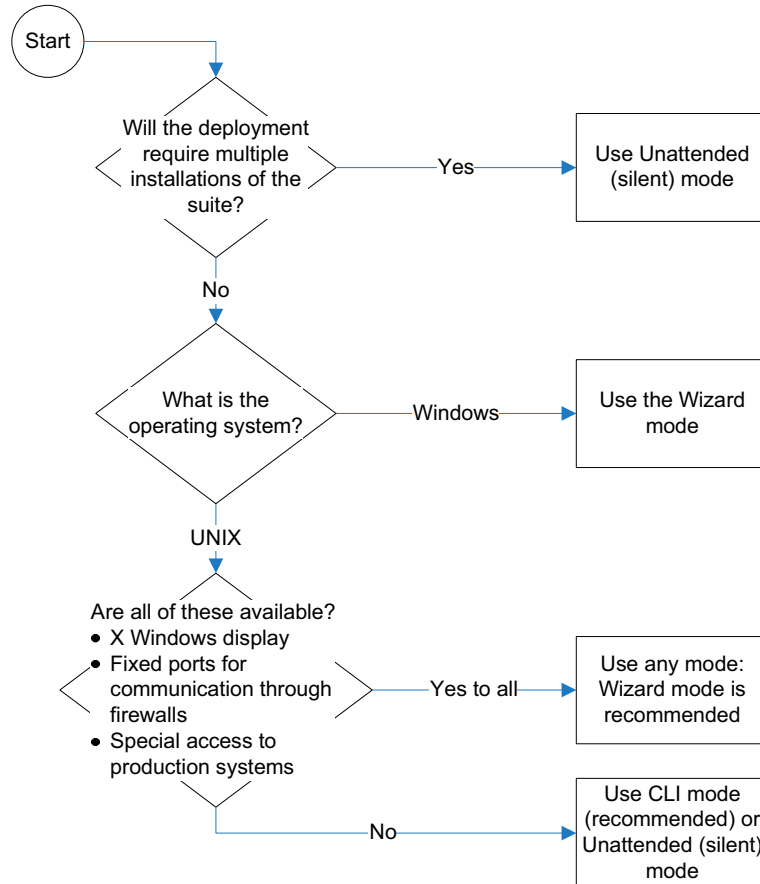
## Choose the Operating Mode of the Installation Program

Use one of the following modes supported by the installation program:

- Wizard mode is a Java-based Graphical User Interface (GUI) method intended for both UNIX and Windows platforms.
- Command Line Interface (CLI) mode (UNIX only) is a text-based method intended to support systems with non-graphics consoles.

- Unattended (Silent) mode is intended for both UNIX and Windows platforms. This method reads the selections and settings for the installation from a user-modifiable file, which enables users to easily duplicate the installation on many computer systems.

Use the following decision tree to choose the appropriate mode for an upgrade or installation.



**Figure 1:** Choose an Operating Mode for the Installation Program



# Install the Suite

Installing the suite includes following tasks:

- Mount the CD-ROM.
- Perform the installation.

## Mount the CD-ROM

Mount the CD-ROM and change to the CD-ROM directory using established procedures for your environment. The procedure for mounting the CD-ROM differs based on the operating system.

### UNIX

If necessary, see Appendix B for typical commands and examples.

### Windows

- 1 Insert the CD-ROM into the CD-ROM drive. If autoplay is enabled, the installation program starts automatically using the Wizard mode.
- 2 If necessary, change the directory to the CD-ROM. Use Windows Explorer to access the CD-ROM drive and locate the `/suite` directory.

## Perform the Installation

To perform the installation, use the procedure for the installation program mode that you selected:

- For Wizard mode, go to [Install Using Wizard Mode](#) on page 14.
- For CLI mode, go to [Install Using CLI-Mode](#) on page 16.
- For Unattended (Silent) mode, go to [Install Using Unattended \(Silent\) Mode](#) on page 18.

## Install Using Wizard Mode

### Satisfy Wizard Mode Requirements

For UNIX only, Wizard mode is an X11 application. This requires that the host where you install the EMC Smarts software and the host where you log on must both be configured to run X11. Before starting the installation program using the Wizard mode on a UNIX system, you must satisfy this requirement for X Server Settings.

### Run Wizard Mode

- 1 Execute the **Setup** command from Table 8. The InstallShield Wizard dialog box displays and closes. The Shutdown Programs dialog box and the Welcome screen then display.

**Table 8:** The Setup Command Syntax for Wizard-Mode

OPERATING SYSTEM	EXECUTE:
Solaris	# ./setup-solaris.bin
Windows	setup-winnt.exe
If the installation program cannot find a suitable JVM (Java Virtual Machine), use the option <code>-is:javahome &lt;local_java_dir&gt;</code> to indicate the path to the Java home directory (<local_java_dir>).	

- 2 Ensure that all services are stopped, including the EMC Smarts service daemon process, *sm\_serviced*. If you have not already done so, find and stop the active EMC Smarts services as described in [Detect and Stop EMC Smarts Programs](#) on page 9. Click **OK** in the Warning dialog box when you have stopped all EMC Smarts services.
- 3 Click **Next** in the Welcome screen to continue.  
**Next** is disabled if:
  - You do not have administrative privileges for the products you are attempting to install. An error message also displays.
  - Your system failed the requirements check. If this occurs, review the check results by clicking **Get System Information**. Then, cancel the installation setup program, and upgrade your system. See the [Requirements for the MPLS Management Suite](#) on page 53 for more information.
- 4 Read and accept the EMC Corporation end user license agreement and click **Next**.

- 5 If the installation program detects an existing installation of the same suite, the Installation Type screen displays.

Select **Install the product to a new directory**.

Note that this screen does not display if you are installing the suite for the first time on the server. If you select **Upgrade currently installed products, or add additional products**, follow the instructions for upgrading the suite in Step 6 of the section on [Upgrade Using Wizard Mode](#) on page 29.

- 6 Click **Next** to accept the default installation directory or type your preferred directory and click **Next**.

The default installation directory is `/opt/InCharge6` (on UNIX) or `C:\InCharge6` (on Windows).

If you specify a directory, be sure to use forward slashes ("/") for both UNIX and Windows directories. Directory names cannot contain spaces. If the specified directory does not exist, it will be created. If you do not have write privileges, an error message displays.

- 7 In the Setup screen, if you select:

- **Custom** to install or upgrade a specific product, click **Next**. Then, in the Product Selection screen, deselect products that you do not wish to install (by default, all products are selected). Click **Next**.
- **Complete** to install the entire suite, click **Next**.

- 8 The Services Selection screen displays. Select the products that you wish to install as services and click **Next**. If a product is not selectable (displays as gray text), click **Back** to return to the Product Selection screen and select the product.

---

**Note:**

When installed as services, EMC Smarts products run whenever the system is running. If the system is stopped and restarted, the EMC Smarts products will be started automatically. EMC Corporation recommends that EMC Smarts products be installed as services whenever this is possible. If any of the products being installed can be started as services, these products are displayed in the services selection screen.

---

- 9 If you are installing the Perl API, read and accept the EMC Corporation Perl API license agreement and click **Next**.

- 10** Review the list of products that will be installed and the target installation directory. At the bottom of the list, the total amount of disk space required for the selected products is provided so that you can verify that adequate disk space is available. To install the products, click **Next** and the Installation Progress screen displays.
- 11** Upon completion, the Installation Summary displays informational messages such as successful confirmations, error messages, and warnings. Click **Finish** to exit the installation. It is not necessary to restart the system after installation.

Investigate any errors or warnings. The log file is a text file with the naming convention *Install.<suite>.<productversionNumber>.log*. It is located in the **BASEDIR**/*smarts/setup/logs* directory. If the installation process fails, the log files are located in the */tmp* directory.
- 12** Unmount the CD-ROM after completing the installation. Be sure that no processes are currently accessing the drive.
  - For UNIX, type the following commands:

```
# cd /  
# umount /mnt/incharge  
# eject
```
  - For Windows, eject the CD-ROM from the machine.
- 13** Start and verify the upgrade of the suite. See the [Starting and Verifying the Suite Installation](#) on page 37.

## Install Using CLI-Mode

CLI-Mode installation is the text-based method of executing the Installation program. This mode is intended for UNIX platforms with non-graphics consoles. The CLI Mode follows the same process as the Wizard Mode but uses text rather than graphics.

### Run CLI-Mode

To start the CLI Mode, execute the **Setup** command with the `-console` option as shown in Table 9.

**Table 9:** The Setup Command Syntax for CLI-Mode

OPERATING SYSTEM	EXECUTABLE
Solaris	# ./setup-solaris.bin -console
If the installation program cannot find a suitable JVM (Java Virtual Machine), use the option <code>-is:javahome &lt;local_java_dir&gt;</code> to indicate the path to the Java home directory (<local_java_dir>).	

### User Selections and Navigation in CLI Mode

During the installation, upgrade, and uninstallation processes, you are prompted with a series of steps and menus:

- For prompts, accept the default value or select another choice. The default values are indicated in brackets. To accept the default value, press **Enter**. To reply "yes," enter y or Y; to reply "no," enter n or N. Do not press **Delete**; this causes the process to terminate with an error message.
- For selections in menus, accept the default selections or type the number of the item and press **Enter**. The default values are indicated in brackets or as pre-defined selections (check marks) in menus. If you enter a different item, a check mark (X) displays next to the item. When you are finished making selections, type zero (0) and press **Enter**.

If you incorrectly type an entry, press **4** to repeat the prompt and select the correct value. Arrow keys and the Backspace key are not supported.

To navigate between each step, use the keys listed in Table 10.

**Table 10:** Navigation Keys

KEY	OPERATION
<b>1</b>	Next, continue to the next step
<b>2</b>	Previous, go back to the previous step
<b>3</b>	Cancel, terminates the program
<b>4</b>	Redisplay, repeats the step

Start and verify the upgrade of the suite. See the [Starting and Verifying the Suite Installation](#) on page 37.

### Install Using Unattended (Silent) Mode

Unattended mode reads the commands and settings for your upgrade from a user-modifiable file that you create prior to beginning the process. Manual intervention is not necessary after you execute the setup command.

#### Modify the Response File

Each suite has a response file located on the CD-ROM in the */utils* directory. Its naming convention is *<suite>-response.txt*.

The response file provides instructions and examples of command line options that are passed to the program in unattended mode. The command line options are organized by process flow. The process flow is almost identical to that of the Wizard mode.

By default, the response file includes settings that support UNIX operating systems, install or upgrade all products from the CD-ROM, and configure the Broker location as localhost at port 426. You must edit the response file to change any of these settings: for example, to support Windows operating systems or specify a different Broker location.

For unattended operation, modify a response file:

- 1** Copy the response file from the CD-ROM */utils* directory to a directory on your system, for example, the */tmp* directory.
- 2** Using any editor, modify the values for the command line options in the response file:
  - Specify the target directory. For an upgrade, ensure that the target directory is the same directory as the one where you originally installed the product.
  - Select a directory for the process log file.
  - Select the products to install. Ensure that the property value for the product is set to true.
  - Select the products to start as services. Ensure that the property value for the product is set to true.
  - Specify the location of the Broker.
- 3** Save the file.

## Running Unattended Mode

Execute the **Setup** command from a command-line shell using the syntax in Table 11.

**Table 11:** The Setup Command Syntax for Unattended Mode

OPERATING SYSTEM	EXECUTABLE
Solaris	# ./setup-solaris.bin -options <path>/<suite>-response.txt
Windows	setup-winnt.exe -options <path>/<suite>-response.txt
Where: <path> is the fully qualified path to the response file and <suite> is the product suite, for example, NPM, IP, MPLS, or SAM. If the installation program cannot find a suitable JVM (Java Virtual Machine), use the option -is:javahome <local_java_dir> to indicate the path to the Java home directory (<local_java_dir>).	

For example, to start the unattended installation on Solaris for the MPLS Management Suite when the response file is located in /opt/home, execute:

```
▼ # ./setup-solaris.bin -options /opt/home/MPLS_SUITE-response.txt ▲
```

Start and verify the installation of the suite. See the [Starting and Verifying the Suite Installation](#) on page 37.





## Upgrading the MPLS Management Suite

This chapter describes how to upgrade the MPLS Management Suite. An upgrade is required to accomplish either of the following:

- Upgrade from MPLS Management Suite version 1.1 to version 1.2
- Install additional MPLS Management Suite products on a server where current MPLS Management Suite products are already installed.

An upgrade is *not* a migration. Migration is required when the new version of the suite cannot be installed to the same location as your current version and all customizations that were applied to the previous version of the suite must be reapplied to the new version. The following table lists suite versions and whether they must be upgraded to or migrated to the current release.

**Table 12:** Upgrade and Migration Paths for the MPLS Management Suite

PREVIOUS VERSION OF MPLS MANAGEMENT SUITE	UPGRADE OR MIGRATE TO CURRENT MPLS MANAGEMENT SUITE?	FOR MORE INFORMATION, GO TO:
Beta, 1.0	Migrate. Uninstall the earlier version of the suite and save your configuration information. Then, install the new version of the MPLS Management Suite and migrate your configuration.	Contact Technical Support for more information. See <a href="#">Technical Support</a> on page xi.
1.1	Upgrade.	<a href="#">Before an Upgrade</a> on page 22
1.2	Upgrade. Install additional MPLS Management Suite 1.2 products that were not previously installed.	<a href="#">Before an Upgrade</a> on page 22

## Before an Upgrade

Before running the installation program, perform the following tasks:

- 1 Ensure that the server satisfies all requirements for upgrading the suite.
- 2 Choose the mode to run the installation program.
- 3 Use the *smgetinfo* utility to back up your current suite configuration.
- 4 Detect and stop any EMC Smarts programs that are running.

## Satisfy All Requirements to Upgrade the Suite

Before beginning, you must satisfy the following requirements:

- Platform requirements: These are defined by the products that will be installed and by the network environment that the products must support. Individuals who have EMC Smarts design experience must define the type of operating system and hardware needed. This task is not normally performed by administrators installing the software. The minimum platform requirements are included for reference in [Requirements for the MPLS Management Suite](#) on page 53.
- Operating system patch requirement: The operating system must be patched to the level that is currently recommended by the operating system vendor. The installation program will halt if the appropriate patches are not installed.
- Access requirement: The user performing the upgrade must either be superuser (User ID 0) on UNIX platforms or have administrative privileges on Windows platforms. The installation program will halt if the user does not have the appropriate privileges.
- JRE requirement: Java Runtime Environment of Java 2 Platform Standard Edition version 1.4 or later (J2SE JRE) must be installed on the system to run the installation program. The installation program attempts to detect that a compatible JRE version has been installed on your system. If necessary, download the required J2SE JRE version:
  - Solaris: <http://java.sun.com>.
  - Windows: <http://java.sun.com>.

For UNIX or Windows, if a compatible JRE version is installed and the installation program cannot locate it, you must specify the location when you execute the installation program. For Windows, you must also open a command-line shell and execute the installation program from the directory where it is installed. The syntax is:

```
<setup command> -is:javahome <local_java_dir>
```

where:

- **<setup command>** is the appropriate command for starting the installation or upgrade mode that you choose. These commands are described later in this chapter.
- **<local\_java\_dir>** is the directory path to the local Java home directory; for example, `/opt/java/j2sdk1.4.2_03` or `C:\Program Files\Java\j2re1.4.2_03`.

Based on the operating mode of the installation program that is used when installing or upgrading the suite, there may be additional requirements. These requirements are included in the procedures for the specific modes.

## Back Up Your Configuration

Back up your current suite configuration, including all customizations, using the *smgetinfo* utility. This utility collects version information and saves the `/conf`, `/local`, `/rules`, and `/setup` directories to a `.tar` file (UNIX) or a `.zip` file (Windows).

For all platforms, to collect information about installed products and components, the Perl interpreter (version 5.0 or later) must be installed.

For Windows, WinZip is required. If WinZip is not installed in its default directory, set the variable ZIPPER to point to the WinZip directory.

To run the *smgetinfo* utility:

- 1 Ensure that the value for SM\_HOME is set to **BASEDIR**.
- 2 Go to the **BASEDIR/smarts/script** directory.
- 3 Execute the appropriate command:

- For UNIX, enter

```
./smgetinfo
```

or

```
sh smgetinfo
```

- For Windows, enter

```
smgetinfo.cmd
```

The name and location of the resulting *.tar* file or *.zip* file is displayed.

- 4 Archive the *.tar* file or *.zip* file for later use, if necessary.

## Detect and Stop EMC Smarts Programs

Before installing or upgrading your suite, you must stop all EMC Smarts services, EMC Smarts *cron* jobs, and any other process that uses programs or libraries in any EMC Smarts installation area including the EMC Smarts service daemon process, *sm\_serviced*.

---

**Note:** While you are installing or upgrading, all EMC Smarts product suites on the same host must be shut down. If the Broker is on the host, it too must be shut down. This will prevent EMC Smarts applications from starting and new connections from being established while the Broker is down. Inform any users who may be affected and, if necessary, schedule the installation or upgrade for a period of low utilization.

---

### Detect and Stop Active EMC Smarts Programs (UNIX)

- 1 Stop active EMC Smarts services using the *sm\_service* utility from **BASEDIR**/*smarts/bin*:

```
# ./sm_service stop --all
```

- 2 Stop the EMC Smarts service daemon:

```
# /etc/init.d/ic-serviced stop
```

- 3 Determine if any EMC Smarts services are still running by using the *brcontrol* utility from **BASEDIR**/*smarts/bin*:

```
# ./brcontrol -b <host>:<port>
```

Based on the location of the Broker, go to the appropriate step, as indicated in Table 13.

**Table 13: Next Steps for Detecting and Stopping Programs**

THE BROKER IS ON THE...	AND THIS DISPLAYS...	DO THIS...
Same host	"Error attaching to broker" message	The EMC Smarts services shut down properly. Go to Step 5.
	List of services registered with the Broker	<ul style="list-style-type: none"> <li>The Broker and service daemon did not shut down.</li> <li>If any services are still running on the host, these did not shut down.</li> </ul> Go to Step 4.
Different host	List of services registered with the Broker	<ul style="list-style-type: none"> <li>If any servers are still running on the host where you will install the EMC Smarts software, these did not shut down. Go to Step 4.</li> <li>If no servers are running on the host where you will install the EMC Smarts software, go to Step 5.</li> </ul>

- 4 Stop any EMC Smarts server that is still running. If Broker is on the host, stop the local Broker:

- To stop any server that is still running, use the *dmquit* utility from **BASEDIR/smarts/bin**:

```
# ./dmquit --server <servername>
```

- To stop the local Broker from **BASEDIR/smarts/bin**:

```
# ./brquit --broker=localhost:<port>
```

- 5 Determine if any other EMC Smarts server processes are still running and shut the processes down:

- Detect the processes using the following command:

```
# ps -ef | grep "sm_s"
```

If a list is displayed, note the process ID (pid) of these active EMC Smarts processes.

- Shut down these EMC Smarts processes using the following command:

```
# kill <pid>
```

- 6 Determine if any additional EMC Smarts processes are still running and shut the processes down:

- Detect the processes using the following command:

```
# ps -ef | grep "sm_"
```

If a list is displayed, note the process ID (pid) of these active EMC Smarts processes.

- Shut down these EMC Smarts processes. If *sm\_authority* is running, shut that process down last. Use the following command:

```
# kill <pid>
```

### Detect and Stop EMC Smarts Programs (Windows)

To stop a service from the Windows desktop, use the Microsoft Management Console.

- 1 Select *Settings > Control Panel*.
- 2 At the Control Panel, select *Administrative Tools*.
- 3 At the Administrative Tools folder, select *Services*.
- 4 At the Services window, locate any EMC Smarts services. These services start with the words "InCharge" or "Smarts." For each of these services, right-click the service and then select *Stop*.
- 5 Repeat Step 4 until all EMC Smarts services are stopped.
- 6 Press **Ctrl+Alt+Delete**. The Windows Security dialog box opens.
- 7 Click **Task Manager**. The Windows Task Manager opens.
- 8 Select the Processes tab.
- 9 In the Processes tab, look for the Image\_Name, *sm\_service*. For each *sm\_service*, right click it and then select *End Process*.
- 10 In the Processes tab, look for other Image\_Names that start with *sm\_*. For each instance, right click it and then select *End Process*.

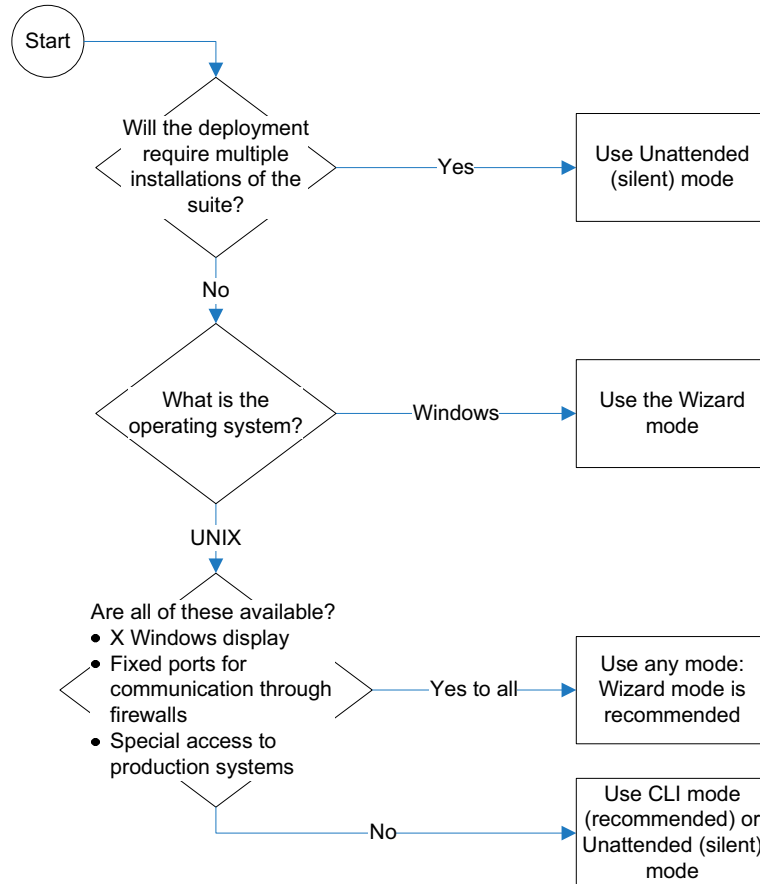
## Choose the Operating Mode of the Installation Program

Use one of the following modes supported by the installation program:

- Wizard mode is a Java-based Graphical User Interface (GUI) method intended for both UNIX and Windows platforms.
- Command Line Interface (CLI) mode (UNIX only) is a text-based method intended to support systems with non-graphics consoles.

- Unattended (Silent) mode is intended for both UNIX and Windows platforms. This method reads the selections and settings for the installation from a user-modifiable file, which enables users to easily duplicate the installation on many computer systems.

Use the following decision tree to choose the appropriate mode for an upgrade or installation.



**Figure 2:** Choose an Operating Mode for the Installation Program

## Upgrade the Suite

Upgrading the suite includes following tasks:

- Mount the CD-ROM.
- Perform the upgrade.
- Reconcile configuration files as required by the installation program.

### Mount the CD-ROM

Mount the CD-ROM and change to the CD-ROM directory using established procedures for your environment. The procedure for mounting the CD-ROM differs based on the operating system.

#### UNIX

If necessary, see Appendix B for typical commands and examples.

#### Windows

- 1** Insert the CD-ROM into the CD-ROM drive. If autoplay is enabled, the installation program starts automatically using the Wizard mode.
- 2** If necessary, change the directory to the CD-ROM. Use Windows Explorer to access the CD-ROM drive and locate the */suite* directory.

### Next Step

Go to the section for the installation program mode that you have selected:

- For Wizard mode, go to [Upgrade Using Wizard Mode](#) on page 29.
- For CLI mode, go to [Upgrade Using CLI Mode](#) on page 32.
- For Unattended (Silent) mode, go to [Upgrade Using Unattended \(Silent\) Mode](#) on page 33.



## Upgrade Using Wizard Mode

### Satisfy Wizard Mode Requirements

For UNIX only, Wizard mode is an X11 application. This requires that the host where you install the EMC Smarts software and the host where you log on must both be configured to run X11. Before starting the installation program using the Wizard mode on a UNIX system, you must satisfy this requirement for X Server Settings.

### Run Wizard Mode

- 1 Execute the **Setup** command from Table 14. The InstallShield Wizard dialog box displays and closes. The Shutdown Programs dialog box and the Welcome screen then display.

**Table 14:** The Setup Command Syntax for Wizard-Mode

OPERATING SYSTEM	EXECUTE:
Solaris	# ./setup-solaris.bin
Windows	setup-winnt.exe
If the installation program cannot find a suitable JVM (Java Virtual Machine), use the option <code>-is:javahome &lt;local_java_dir&gt;</code> to indicate the path to the Java home directory (<local_java_dir>).	

- 2 Ensure that all services are stopped. If you have not already done so, find and stop the active EMC Smarts services as described in [Detect and Stop EMC Smarts Programs](#) on page 24. Click **OK** in the Warning dialog box when you have stopped all EMC Smarts services.
- 3 To continue, click **Next** in the Welcome screen.

**Next** is disabled if:

- You do not have administrative privileges for the products you are attempting to install. A message also displays.
  - Your system failed the requirements check. If this occurs, review the check results by clicking **Get System Information**, cancel the installation setup program, and upgrade your system. See the [Requirements for the MPLS Management Suite](#) on page 53 for more information.
- 4 Read and accept the EMC Smarts end user license agreement and click **Next**.

- 5 Because this is an upgrade, the installation program detects an existing installation of the product suite and displays the Installation Type screen.

Select **Upgrade currently installed products, or add additional products**.

If the Installation Type screen does not display, or if you select **Install the product to a new directory**, follow the instructions for installing the suite for the first time. Go to Step 6 in the section, [Install Using Wizard Mode](#) on page 14.

- 6 In the suite upgrade selection screen, select the suite to upgrade. If the suite was only installed once previously, it is selected by default. If multiple choices are available, the suite was previously installed to more than one directory. When you select a suite to upgrade, the version is displayed in the Installation Details section of the screen.
- 7 In the Setup screen, if you select:
  - **Custom** to install or upgrade a specific product, click **Next**. Then, in the Product Selection screen, deselect products that you do not wish to install (by default, all products are selected). Click **Next**.
  - **Complete** to upgrade the entire suite, click **Next**.
- 8 The Services Selection screen displays. Select the products that you wish to install as services. When upgrading, you *cannot* install any products as services that have already been installed. To change the service configurations, you must do this manually after the upgrade, as described in [Starting and Verifying the Suite Installation](#) on page 37. To continue, click **Next**.

---

**Note:**

When installed as services, EMC Smarts products run whenever the system is running. If the system is stopped and restarted, the EMC Smarts products will be started automatically. EMC Corporation recommends that EMC Smarts products be installed as services whenever this is possible. If any of the products being installed can be started as services, these products are displayed in the services selection screen.

---

- 9 The installed EMC Smarts services screen displays, showing all EMC Smarts services that the installation program detected. Confirm that all services show Stopped as the status. If necessary, stop any services that show a different state and then click **Refresh** to confirm the change in state.

- 10 If your upgrade included installing the Perl API for the first time, the EMC Smarts Perl API license agreement is displayed. Read and accept the license agreement and then click **Next**.
- 11 The Reconcile Files screen displays. Review the effects of the upgrade process on configuration files by expanding the directories in the screen. A green check indicates that a file does not require manual intervention; all other indicators require an action after the upgrade. Click **Next**.
- 12 Review the list of products that will be installed and the target installation directory. At the bottom, the total amount of disk space required for the selected products is provided so that you can verify that adequate disk space is available. Click **Next**. The Installation Progress screen displays.
- 13 Upon completion, the Reconcile File Action Report displays. Review the report and note its location for later reference. To continue, click **Next**.
- 14 The Installation Summary displays informational messages such as successful confirmations, error messages, and warnings. Click **Finish** to exit the installation. It is not necessary to reboot the system after installation.

Investigate any errors or warnings. The log file is a text file with the naming convention *Install.<suite>.<productversionNumber>.log*. It is located in the **BASEDIR**/*smarts/setup/logs* directory. If the installation process fails, the log files are located in the */tmp* directory.

- 15 Unmount the CD-ROM after completing the installation. Be sure that no processes are currently accessing the drive.
  - For UNIX, type the following commands:

```
# cd /  
# umount /mnt/incharge  
# eject
```
  - For Windows, eject the CD-ROM from the machine.
- 16 Reconcile the configuration files as described in [Reconcile the Configuration Files](#) on page 35.

## Upgrade Using CLI Mode

CLI-Mode installation is the text-based method of executing the Installation program. This mode is intended for UNIX platforms with non-graphics consoles. The CLI Mode follows the same process as the Wizard Mode but uses text rather than graphics.

### Run CLI-Mode

To start the CLI Mode, execute the **Setup** command with the `-console` option as shown in Table 15.

**Table 15:** The Setup Command Syntax for CLI-Mode

OPERATING SYSTEM	EXECUTABLE
Solaris	# <code>./setup-solaris.bin -console</code>
If the installation program cannot find a suitable JVM (Java Virtual Machine), use the option <code>-is:javahome &lt;local_java_dir&gt;</code> to indicate the path to the Java home directory ( <code>&lt;local_java_dir&gt;</code> ).	

### User Selections and Navigation in CLI Mode

During the installation, upgrade, and uninstallation processes, you are prompted with a series of steps and menus:

- For prompts, accept the default value or select another choice. The default values are indicated in brackets. To accept the default value, press **Enter**. To reply “yes,” enter y or Y; to reply “no,” enter n or N. Do not press **Delete**; this causes the process to terminate with an error message.
- For selections in menus, accept the default selections or type the number of the item and press **Enter**. The default values are indicated in brackets or as pre-defined selections (check marks) in menus. If you enter a different item, a check mark (X) displays next to the item. When you are finished making selections, type zero (0) and press **Enter**.

If you incorrectly type an entry, press **4** to repeat the prompt and select the correct value. Arrow keys and the Backspace key are not supported.

To navigate between each step, use the keys listed in Table 16.

**Table 16:** Navigation Keys

KEY	OPERATION
<b>1</b>	Next, continue to the next step
<b>2</b>	Previous, go back to the previous step
<b>3</b>	Cancel, terminates the program
<b>4</b>	Redisplay, repeats the step

When the upgrade is complete, reconcile the configuration files as described in [Reconcile the Configuration Files](#) on page 35.

## Upgrade Using Unattended (Silent) Mode

Unattended mode reads the commands and settings for your upgrade from a user-modifiable file that you create prior to beginning the process. Manual intervention is not necessary.

### Modify the Response File

Each suite has a response file located on the CD-ROM in the `/utils` directory. Its naming convention is `<suite>-response.txt`.

The response file provides instructions and examples of command line options that are passed to the program in unattended mode. The command line options are organized by process flow. The process flow is almost identical to that of the Wizard mode.

By default, the response file includes settings that support UNIX operating systems, install or upgrade all products from the CD-ROM, and configure the Broker location as localhost at port 426. You must edit the response file to change any of these settings: for example, to support Windows operating systems or specify a different Broker location.

For unattended operation, modify a response file:

- 1** Copy the response file from the CD-ROM `/utils` directory to a directory on your system, for example, the `/tmp` directory.
- 2** Using any editor, modify the values for the command line options in the response file:
  - Specify the target directory. For an upgrade, ensure that the target directory is the same directory as the one where you originally installed the product.
  - Select a directory for the process log file.

- Select the products to install. Ensure that the property value for the product is set to true.
- Select the products to start as services. Ensure that the property value for the product is set to true.
- Specify the location of the Broker.

3 Save the file.

Running Unattended Mode

Execute the **Setup** command from a command-line shell using the syntax in Table 17.

Table 17: The Setup Command Syntax for Unattended Mode

OPERATING SYSTEM	EXECUTABLE
Solaris	# ./setup-solaris.bin -options <path>/<suite>-response.txt
Windows	setup-winnt.exe -options <path>/<suite>-response.txt
Where: <path> is the fully qualified path to the response file and <suite> is the product suite, for example, NPM, IP, MPLS, or SAM. If the installation program cannot find a suitable JVM (Java Virtual Machine), use the option -is:javahome <local_java_dir> to indicate the path to the Java home directory (<local_java_dir>).	

For example, to start the unattended installation on Solaris for MPLS Management Suite when the response file is located in /opt/home, execute:

▼ # ./setup-solaris.bin -options /opt/home/MPLS\_SUITE-response.txt ▲

The log files are located in the **BASEDIR**/smarts/setup/logs directory. If the installation process fails, the log files are located in the /tmp directory. A non-zero status indicates a failure.

When the upgrade is complete, reconcile the configuration files as described in [Reconcile the Configuration Files](#) on page 35.

## Reconcile the Configuration Files

During the upgrade, a file reconciliation analysis is performed to determine how to handle files in the **BASDIR**/*smarts/local* directory or one of its subdirectories. These files are typically customized versions of user-modifiable files. The results of the reconciliation analysis are included in the Reconcile Files Action Report, which is located in **BASEDIR**/*smarts/setup/info/Patch\_Report*<number>.txt (where <number> includes the new suite version number).

All files that are installed during an upgrade are compared with files in the */local* or one of its subdirectories.

If a version of a file *does not exist* in */local* and is considered user-modifiable, the file is simply copied to appropriate subdirectory and used when the application runs.

If a version of a new file *does exist* in */local*:

- If the file is user-modifiable, the new version of the file is installed and the version in */local* is included in the Reconcile Files Action Report with a User Action of Reconcile. You must compare these files manually and move appropriate changes to the new file.
- If the file is *NOT* user-modifiable, the new version of the file is installed and the version in */local* is renamed and included in the Reconcile Files Action Report with a User Action of Contact Support.

The upgrade process also checks files in */local* or one of its subdirectories to ensure that they belong there. If an unknown file is detected, the Reconcile Files Action Report indicates that the User Action is to investigate the file.

### Manually Merging Files

- 1 Determine which files require action by reviewing the Reconcile Files Action Report generated by the upgrade process. Using any editor, you can open and review the report which is located in **BASEDIR**/*smarts/setup/info/Patch\_Report*<number>.txt.
- 2 To open the files, you must do the following:
  - If the upgrade created a backup of that file, the open both the new and old versions of the file using the *sm\_edit* utility.
  - If the upgrade did not create backup of that file, rename the existing version of the file and then open both the new and old versions of the file using the *sm\_edit* utility.

- 3 With the both versions of the file open, compare the two files to find the customizations that you applied. Text can be copied from the older or backup file and pasted into the newly installed file.
- 4 Close the renamed or backup file without saving.
- 5 Save and close the newly installed and modified file.

For example, the following section describes how to reconcile the *LOCAL.import* file, which is required after an upgrade.

### Reconcile the *LOCAL.import* File

The *LOCAL.import* configuration file is one of the files that must be reconciled after an upgrade:

- 1 If it is not already renamed, rename the version of *LOCAL.import* in the *local/conf/mpls-vpn/* directory.
- 2 Go to the **BASEDIR**/*smarts/bin* directory in the Global Manager installation area and open *LOCAL.import* using the *sm\_edit* utility:  

```
# ./sm_edit conf/mpls-vpn/LOCAL.import
```
- 3 In a separate shell or window, go to the **BASEDIR**/*smarts/bin* directory in the Global Manager installation area and open the renamed version of your original *LOCAL.import* using the *sm\_edit* utility:  

```
# ./sm_edit conf/mpls-vpn/<renamed_LOCAL.import>
```

Where *<renamed\_LOCAL.import>* is the new name for the *LOCAL.import* that was used with the previous release. The Reconciliation Files Action Report includes the new name and is located in **BASEDIR**/*smarts/setup/info/Patch\_Report<number>.txt*.
- 4 Copy any customized parameter values from the *<renamed\_LOCAL.import>* file into the *LOCAL.import* file.
- 5 Save the *LOCAL.import* file. The modified version of the file is saved to the **BASEDIR**/*smarts/local/conf* directory.
- 6 Reconcile any additional files that the Reconciliation Files Action Report lists with the User Action of Reconcile.
- 7 Start and verify the upgrade of the suite. See [Starting and Verifying the Suite Installation](#) on page 37.

---

**Note:** Additional configuration tasks are required when upgrading the MPLS Management Suite. These tasks are included in [Starting and Verifying the Suite Installation](#) on page 37.

---



## Starting and Verifying the Suite Installation

This chapter describes tasks for confirming proper installation for the MPLS Management Suite. The tasks include the following:

- Obtain a temporary license for the suite.
- Start suite products or components as services. If the products are not installed as services, commands are provided to install the products as services and to start the service in native mode.
- Verify the operational status of the products or components.

### Obtaining and Installing a Temporary License for EMC Smarts Software

Typically, the EMC Corporation will email a temporary license to you. Copy the license file, *trial.dat*, to the **BASEDIR**/*smarts/local/conf* directory on the system where the EMC Smarts software is installed.

If you installed an EMC Smarts product suite on multiple systems, copy the license file, *trial.dat*, to the **BASEDIR**/*smarts/local/conf* directory on each system where EMC Smarts software is installed.

If you installed multiple EMC Smarts product suites on the same system, each suite requires a separate copy of *trial.dat* in the **BASEDIR**/*smarts/local/conf* directory for that suite.

Edit the `SM_LICENSE` variable in `runcmd_env.sh` on each system where EMC Smarts software is installed so that it specifies the full path to a single *trial.dat* file (by default, `runcmd_env.sh` specifies a path to a local copy of *trial.dat*). When multiple EMC Smarts product suites are installed on the same system, each suite will include a `runcmd_env.sh` in its

**BASEDIR**/smarts/local/conf.

Temporary licenses for EMC Smarts software are time-limited. At the end of the trial period, the software will no longer start. You can request an extension to your temporary license by emailing [smartslicensing@emc.com](mailto:smartslicensing@emc.com) with your request. If you need or have a permanent license, see the *InCharge System Administration Guide* for configuration instructions.

## Starting EMC Smarts Products

EMC Smarts recommends installing managers and adapters as services. If you installed the products as services, you must start them for the first time. These services start automatically upon system reboot, but the following sections describe additional methods to start EMC Smarts services.

If you did not install the products as services, you can install them now using the procedure in [Manually Installing Services](#) on page 39 or you can start them as described in [Starting Products in Native Mode \(UNIX only\)](#) on page 41.

## Verifying the EMC Smarts Product Status

You can determine the current state of the products in the suite that register with the Broker by issuing the following command:

```
# BASEDIR/smarts/bin/brcontrol
```

This command displays a list of Managers and adapters registered with the broker, their states (RUNNING, DEAD, UNKNOWN), process IDs, port numbers, and the last time that their states changed.

Also check any log files for the products. Typically, these log files are in **BASEDIR**/smarts/local/logs.

For example, to start the MPLS Manager service named `ic-mpls-server`:

```
# BASEDIR/smarts/bin/sm_service start ic-mpls-server
```

## Starting Individual EMC Smarts Services on Windows

Programs that are installed as services can also be started and/or stopped from the Windows desktop.

To start an EMC Smarts service from the Windows desktop, follow these steps:

- 1** Select *Settings > Control Panel > Administrative Tools*.
- 2** Select *Services*.
- 3** Right click the EMC Smarts service to select it and display a menu.
- 4** Choose **Start** from the menu.

---

**Note:** To stop a service, choose **Stop** instead of **Start** from the menu.

---

## Manually Installing Services

The MPLS Manager and the ISC Adapter can be installed as services. If you chose not to install them as services during installation, you can install them as services manually. Typical reasons to install products as services include the following conditions:

- During installation of the suite, you choose to start products manually and now want to run the products as services.
- Multiple instances of a single product running as a service are required. During installation, you can install only a single instance of a product as a service.

To install a product as a service, enter the appropriate **sm\_service install** command as described in the following sections. For a complete description of the command syntax, see the *EMC Smarts System Administration Guide*.

### MPLS Manager

Use the following installation options and values for the MPLS Manager:

#### UNIX

```
▼ # BASEDIR/smarts/bin/sm_service install <service_name>
--startmode=runonce
--description="SMARTS MPLS Manager Server"
BASEDIR/smarts/bin/sm_server
--name=<MPLS_Manager_name>
--config=mpls-vpn
--output ▲
```

#### Windows

```
▼ BASEDIR\smarts\bin\sm_service install
--force
--name=<service_name>
--description="SMARTS MPLS Manager Server"
--startmode=runonce
BASEDIR\smarts\bin\sm_server.exe
--name=<MPLS_Manager_name>
--config=mpls-vpn
--output ▲
```

For UNIX and Windows installations,

- <**service\_name**> is a unique name for the service. The default name is ic-mpls-server.
- <**MPLS\_Manager\_name**> is a unique name for the MPLS Manager. The default name is INCHARGE-MPLS.

## ISC Adapter

Use the following installation options and values for the ISC Adapter:

### UNIX

```
▼ # BASEDIR/smarts/bin/sm_service install
--force
--unmanaged
--startmode=runonce
--name=<service_name>
--description="SMARTS InCharge Adapter for Cisco ISC"
--env=SM_JAVA_ENABLED=YES
BASEDIR/smarts/bin/sm_server
--config=prov
--name=<ISC_Adapter_name>
--output
--norestore ▲
```

### Windows

```
▼ BASEDIR\smarts\bin\sm_service install
--force
--name=<service_name>
--description="SMARTS InCharge Adapter for Cisco ISC"
--env=SM_JAVA_ENABLED=YES
--startmode=runonce
BASEDIR\smarts\bin\sm_server.exe
--config=prov
--name=<ISC_Adapter_name>
--output
--norestore ▲
```

For UNIX and Windows installations,

- <service\_name> is a unique name for the service. The default name is ic-isc-adapter.
- <ISC\_Adapter\_name> is a unique name for the ISC Adapter. The default name is INCHARGE-PROV.

## Starting Products in Native Mode (UNIX only)

If any products were not installed as services in UNIX, you can manually start them. EMC Corporation does not recommend using this method in a production environment, but it can be useful for testing. To start a product, enter the appropriate **sm\_server** command from Table 18. For a complete description of the command syntax, see the *EMC Smarts System Administration Guide*.

**Table 18: Starting MPLS Management Suite Products in Native Mode**

COMMANDS FOR STARTING MPLS MANAGEMENT SUITE PRODUCTS IN NATIVE MODE	
PRODUCT	COMMAND (▼▲ INDICATES THE COMMAND MUST BE TYPED ON ONE LINE.)
MPLS Manager	▼ # <b>BASEDIR</b> /smarts/bin/sm_server --name=< <b>MPLS_Manager_name</b> > --config=mpls-vpn --output ▲
ISC Adapter	▼ # <b>BASEDIR</b> /smarts/bin/sm_server --config=prov --name=< <b>ISC_Adapter_name</b> > --output --norestore ▲

## Additional Configuration Requirements for Upgrades from Version 1.1 to Version 1.2

To ensure proper operation when upgrading from MPLS Management Suite version 1.1 to the current version, you must also perform the following steps after starting the MPLS Manager:

- Go to the **BASEDIR**/smarts/bin directory in the MPLS Manager installation area and enter the following command:

```
▼ # ./dmctl -s <MPLS_Manager_name> invoke  
ICF_PolicyManager::ICF-PolicyManager loadSettings  
<BASEDIR>/smarts/conf/mpls-vpn/mpls12-settings.conf ▲
```

Where <MPLS\_Manager\_name> is the name of the MPLS Manager. This loads the new Remote Ping related groups to the Polling and Threshold Console while preserving your existing groups and thresholds.

- Manually install the ISC Adapter service as described in [Manually Installing Services](#) on page 39.

## Verifying the EMC Smarts Product Status

After installation or upgrade, start the EMC Smarts products in order to verify that they operate properly. Determine the current state of the products that register with the Broker by issuing the following command:

```
# BASEDIR/smarts/bin/brcontrol
```

This command displays a list of EMC Smarts Managers and adapters registered with the broker, their states (RUNNING, DEAD, UNKNOWN), process IDs, port numbers, and the last time that their states changed.

Also check any log files for the products. Typically, these log files are in **BASEDIR**/smarts/local/logs.

If you notice any issues, consider uninstalling and reinstalling the suite. Once you have verified operation, stop any newly installed or upgraded products.

## Install the Latest Rolling Patch for the MPLS Management Suite

To ensure proper functionality, install the latest Rolling Patch for the MPLS Management Suite.

## Where to Go Next

EMC Smarts products must be configured before they can perform useful analysis and provide information to operators. To continue deploying the MPLS Management Suite, configure the following:

- 1 MPLS Manager, as described in the *EMC Smarts MPLS Manager Configuration Guide*.
- 2 Global Manager, as described in the *EMC Smarts MPLS Manager Configuration Guide*.
- 3 EMC Smarts IP Availability Manager, as described in the *EMC Smarts MPLS Manager Configuration Guide*.
- 4 ISC Adapter, as described in the *EMC Smarts Adapter for Cisco ISC User's Guide*.
- 5 Install permanent licenses, as described in the *EMC Smarts System Administration Guide*.
- 6 Configure security, as described in the *EMC Smarts System Administration Guide*.





## Uninstalling the MPLS Management Suite

This chapter describes uninstalling the product suite or individual products. After uninstalling, your customized files remain saved in **BASEDIR**/smarts/local.

---

**WARNING:** EMC Smarts product suites use standard installation software to install and uninstall product suites. You must use the **uninstaller** command (for UNIX) or **Add/Remove Programs** (for Windows) to uninstall EMC Smarts software. Failure to use the appropriate method will result in an unstable system and/or inconsistent product directories. Do not manually delete the installed product directories.

**The uninstall process is not a rollback!** The uninstall command removes all product suite files, not simply files that changed as a result of a new product installation or upgrade. If you need a full rollback procedure, contact EMC Smarts technical support. See [Technical Support](#) on page xi.

---

## Detect and Stop EMC Smarts Programs

Before uninstalling your suite, you must stop all EMC Smarts services, EMC Smarts *cron* jobs, and any other process that uses programs or libraries in any EMC Smarts installation area except the EMC Smarts service daemon process, *sm\_serviced*, and related child processes. The service daemon process must be running to allow the uninstallation process to unregister EMC Smarts services.

---

**Note:** While you are uninstalling a product suite, all EMC Smarts product suites on the same host must be shut down. If the Broker is on the host, it too must be shut down. This will prevent EMC Smarts applications from starting and new connections from being established while the Broker is down. Inform any users who may be affected and, if necessary, schedule the upgrade for a period of low utilization.

---

### Detect and Stop Active EMC Smarts Programs (UNIX)

- 1 Stop active EMC Smarts services using the *sm\_service* utility from **BASEDIR**/*smarts/bin*:
- 2 Determine if any EMC Smarts services are still running by using the *brcontrol* utility from **BASEDIR**/*smarts/bin*:

```
# ./sm_service stop --all
```

```
# ./brcontrol -b <host>:<port>
```

Based on the location of the Broker, go to the appropriate step, as indicated in Table 19.

**Table 19:** Next Steps for Detecting and Stopping Programs

THE BROKER IS ON THE...	AND THIS DISPLAYS...	DO THIS...
Same host	"Error attaching to broker" message	The EMC Smarts services shut down properly. Go to Step 4.
	List of services registered with the Broker	<ul style="list-style-type: none"><li>• The Broker and service daemon did not shut down.</li><li>• If any services are still running on the host, these did not shut down.</li></ul> Go to Step 3.
Different host	List of services registered with the Broker	<ul style="list-style-type: none"><li>• If any servers are still running on the host where you will install the EMC Smarts software, these did not shut down. Go to Step 3.</li><li>• If no servers are running on the host where you will install the EMC Smarts software, go to Step 4.</li></ul>

- 
- 3** Stop any EMC Smarts server that is still running. If the Broker is on the host, stop the local Broker:

- To stop any server that is still running, use the *dmquit* utility from **BASEDIR**/smarts/bin:

```
# ./dmquit --server <servername>
```

- To stop the local Broker from **BASEDIR**/smarts/bin:

```
# ./brquit --broker=localhost:<port>
```

- 4** Determine if any other EMC Smarts server processes are still running and shut the processes down:

- Detect the processes using the following command:

```
# ps -ef | grep "sm_s"
```

If a list is displayed, note the process ID (pid) of these active EMC Smarts processes. Take particular note of the pid for the EMC Smarts service daemon process, *sm\_serviced*.

- Shut down all EMC Smarts processes *except* for the EMC Smarts service daemon process, *sm\_serviced* using the following command:

```
# kill <pid>
```

- 5** Determine if any additional EMC Smarts processes are still running and shut the processes down:

- Detect the processes using the following command:

```
# ps -ef | grep "sm_"
```

If a list is displayed, note the process ID (pid) of these active EMC Smarts processes. Also, note any processes whose parent process ID (ppid) is the pid of the EMC Smarts service daemon process, *sm\_serviced*. These processes were created by *sm\_serviced*.

- Shut down any EMC Smarts processes *with these exceptions*: the EMC Smarts service daemon process, *sm\_serviced*, and any process whose ppid is the pid of *sm\_serviced*. If one or more *sm\_authority* processes are running and do not have a ppid that matches the pid of *sm\_serviced*, shut those *sm\_authority* processes down last. Use the following command:

```
# kill <pid>
```

### Detect and Stop EMC Smarts Programs (Windows)

To stop a service from the Windows desktop, use the Microsoft Management Console.

- 1 Select *Settings > Control Panel*.
- 2 At the Control Panel, select *Administrative Tools*.
- 3 At the Administrative Tools folder, select *Services*.
- 4 At the Services window, locate any EMC Smarts services. These services start with the words "InCharge" or "Smarts." For each of these services, right-click the service and then select *Stop*.
- 5 Repeat Step 4 until all EMC Smarts services are stopped.
- 6 Press **Ctrl+Alt+Delete**. The Windows Security dialog box opens.
- 7 Click **Task Manager**. The Windows Task Manager opens.
- 8 Select the Processes tab.
- 9 In the Processes tab, look for the Image\_Name, *sm\_service*. For each *sm\_service*, right click it, and then select *End Process*.
- 10 In the Processes tab, look for other Image\_Names that start with *sm\_*. For each instance, right click it, and then select *End Process*.

## Uninstalling the FLEXlm Server

When uninstalling *all* of your EMC Smarts products and suites that use a specific FLEXlm License Server, you must also uninstall the FLEXlm License Server. If any EMC Smarts products will remain in your network and use the FLEXlm License Server, do *not* uninstall it.

The FLEXlm License Server runs as a daemon on UNIX and as a service on Windows. These automatically start the license server. If you uninstall EMC Smarts products without uninstalling the FLEXlm License Server, a message displays that the FLEXlm (*lmgrd*) service is still running. Keep in mind that an EMC Smarts application will not start if it is unable to contact the license server.

To stop and uninstall the FLEXlm License Server, execute the *install\_license* script with the **uninstall** command from the **BASEDIR/smarts/script** directory.

### UNIX

```
# BASEDIR/smarts/script/install_license.sh uninstall
```

### Windows

```
BASEDIR\smarts\script\install_license.cmd uninstall
```

## Uninstalling From the Control Panel (Windows Only)

---

**Note:** If you installed the same suite in two or more directories on your system, do not use Add/Remove Programs; use the **uninstaller** command instead. Add/Remove Programs does not support multiple instances of the same suite.

---

To use the Windows Control Panel to uninstall a product suite, perform these steps:

- 1** Click *Start > Settings > Control Panel*.
- 2** Double-click **Add/Remove Programs**.
- 3** From the Add/Remove Programs window, select the appropriate service for your product suite.
- 4** Click **Change/Remove**.

## Running the Wizard-Mode Uninstallation

---

**WARNING:** For UNIX only, when uninstalling EMC Smarts suites from the same server, the EMC Smarts suite that was installed *first* must be uninstalled *last*. During the installation of the first EMC Smarts suite, the EMC Smarts Service Database is also installed and the other suites subsequently access it. Uninstalling the Service Database prior to uninstalling other suites will disable the **sm\_service** command for those products and prevent their proper operation and uninstallation, and interrupt products running as services.

To identify which suite was installed first, examine the directory path listed in the *init.d* table. The Service Database resides in the */var/smarts* directory.

---

You can uninstall a complete suite or individual products from the local server.

- 1 Execute the **uninstaller.bin** command for UNIX or the **uninstaller.exe** command for Windows. For example:  

```
# BASEDIR/_uninst/uninstaller.bin
```
- 2 Click **Next** in the Welcome screen to continue.
- 3 In the Product Selection screen, click **Next** to uninstall the entire suite of products (by default, all products are selected) or deselect products that should remain installed.
- 4 Review the list of products that will be uninstalled and the target installation directory. Once you click **Next**, you cannot cancel the uninstallation process.  
  
If necessary, click **Back** to return to the Product Selection screen to revise your selections.  
  
To uninstall the products, click **Next**; the Uninstallation Progress screen displays.
- 5 Upon completion, the Uninstallation Summary displays informational messages such as successful confirmations, error messages, and warnings. If **Next** displays, your system needs to be rebooted. Click it and then reboot your system. Otherwise, click **Finish** to exit the uninstallation.

The log file is a text file with the naming convention *Uninstall.<suite>.<productversionNumber>.log*. It is located in the **BASEDIR**/*smarts/setup/logs* directory. If the uninstallation process fails, the log files are located in the */tmp* directory.

- 6 Examine any remaining directories if you plan to re-install EMC Smarts and save customized files located in the */local* directory. Depending upon the suite, some or all of the following subdirectories will remain in the **BASEDIR**/*smarts* directory after uninstallation because they contain user-modified files:
  - */classes*
  - */local*
  - */bin*
  - */setup*

## Running the CLI-Mode Uninstallation

To uninstall a EMC Smarts product or product suite using CLI-Mode, perform the following procedure:

- 1 Execute the following command:

```
# BASEDIR/_uninst/uninstaller.bin -console
```

During the upgrade and uninstallation processes, you are prompted with a series of steps and menus. You can either accept the default value or select another choice. The default values are indicated in brackets or as pre-defined selections (check marks) in menus. To accept the default value, press **Enter**.

When replying to a prompt, you can either accept the default value or select another choice. To reply "yes," enter y or Y; to reply "no," enter n or N. Do not press **Delete**; this causes the process to terminate with an error message.

For selections in menus, you can accept default selections or type the number of the item and press **Enter**. A check mark (X) displays next to the item. When you are finished making selections, type zero (0) and press **Enter**.

If you incorrectly type an entry, press **4** to repeat the prompt and select the correct value. Arrow keys and the Backspace key are not supported.

- 2 Upon completion, the Uninstallation Summary displays informational messages such as successful confirmations, error messages, and warnings. Press **Enter** to continue.
- 3 If necessary, the Installation Program will prompt to restart your computer. Press **1** to restart immediately or press **2** to restart later.
- 4 If you chose not to restart your computer, press **3** to finish.
- 5 Examine any remaining directories if you plan to re-install the suite and save customized files located in the */local* directory. Depending upon the suite, some or all of the following subdirectories will remain in the **BASEDIR**/*smarts* directory after uninstallation because they contain user-modified files:
  - */classes*
  - */local*
  - */bin*
  - */setup*

The installation log file is a text file with the naming convention *Uninstall.<suite>.<productversionNumber>.log*. It is located in the **BASEDIR**/*smarts/setup/logs* directory. If the uninstallation process fails, the log files are located in the */tmp* directory.

## Running the Unattended Uninstallation

To uninstall using unattended operation, stop EMC Smarts services including the service for the FLEXlm License Server, as described in [Detect and Stop EMC Smarts Programs](#) on page 46.

The log files are located in the **BASEDIR**/*smarts/setup/logs* directory. If the uninstallation process fails, the log files are located in the */tmp* directory. A non-zero status indicates a failure.

To uninstall all of the products for a suite using unattended uninstallation, execute the **uninstaller.bin** command with the *-silent* option. The syntax is as follows:

```
▼ # BASEDIR/_uninst/uninstaller.bin -silent  
-G replaceNewerResponse="Yes to All" ▲
```





# Requirements for the MPLS Management Suite

Before an installation or upgrade, network architects design a solution that includes specific configurations of operating system and hardware to support your particular environment. This is typically not a task for the software installer, but this appendix includes the minimum levels required as a reference.

## Supported Platforms

Table 20 summarizes the operating systems supported for all products in the MPLS Management Suite.

**Table 20:** Supported Platforms for MPLS Management Suite

OPERATING SYSTEM	VERSION
Solaris	8 and 9
Windows	Windows 2000 Server and Advanced Server with SP4 or later, Windows 2003

## Hardware Requirements

The minimum hardware levels for installation of the MPLS Management Suite are summarized in the following tables:

- Table 21 lists disk space requirements for installing all products in the MPLS Management Suite.
- Table 22 lists minimum requirements for CPUs, memory, and data disk space used by the MPLS Management Suite software for writable files such as logs, repository files, and output files. If you are installing more than one product, your system must meet the products' total memory and data disk space requirements.
- Table 23 lists minimum hardware platform requirements.

These requirements are in addition to the requirements for any products from the Service Assurance Management Suite and the IP Management Suite that are also installed on the same computer system.

**Table 21:** Required Disk Space for the MPLS Management Suite

PLATFORM	DISK SPACE
Solaris	350 MB
Windows	150 MB

**Table 22:** CPU, Memory, and Data Disk Space Requirements

EMC SMARTS PRODUCT	CPUS	MEMORY (RAM)	DATA DISK SPACE
MPLS Management Suite	2	512 MB	100 MB for each instance of MPLS Management Suite

**Table 23:** Platform Requirements for the MPLS Management Suite

PLATFORM	PLATFORM HARDWARE (MINIMUM)
Solaris	Sun Fire 280
Windows	2xPentium4, 2GHz

# B

## UNIX Procedures for CD-ROMs

As a reference, this chapter includes UNIX commands and examples used when installing or upgrading the suite.

### Mounting the CD-ROM

- 1 Insert the CD-ROM into the CD-ROM drive.
- 2 Select the appropriate mount command as shown in Table 24.

**Table 24:** Mounting the CD-ROM for UNIX Operating Systems

OPERATING SYSTEM	COMMANDS AND EXAMPLES
Solaris	Syntax: # mount -o ro -F hsfs <DEVICE> /mnt Example: # mount -o ro -F hsfs /dev/dsk/c0t6d0s0 /mnt
Where <DEVICE> is the mount point for your CD-ROM drive.	

- 3 Change to the CD-ROM directory by entering the appropriate command from Table 25.

**Table 25:** Changing to the CD-ROM Directory in Unix Operating Systems

OPERATING SYSTEM	COMMAND
Solaris	If Volume Manager (VM) is running: # cd /cdrom/<suite>_<version>_<build>/suite If VM is not running: # cd /mnt/suite
Where: <suite> is the product suite, for example, NPM, IP, MPLS, or SAM. <version> is the release version, for example, 1_1_0 or 6_2_0. <build> is a build number, for example, 6219 or 23922.	



## Understanding the sm\_edit Utility

As part of the EMC Smarts deployment and configuration process, you will need to modify certain files. User modifiable files include configuration files, rule set files, templates, and files (such as seed files, and security configuration files) containing encrypted passwords. Original versions of these files are installed into appropriate subdirectories under the **BASEDIR**/*smarts*/ hierarchy. For example, on UNIX operating systems the original versions of Global Manager configuration files are installed to */opt/InCharge6/SAM/smarts/conf/ics*.

Original versions of files should not be altered. If a file requires modification, it must be stored as a local copy of the file in **BASEDIR**/*smarts/local* or one of its subdirectories. For example, a modified *ics.conf* file should be saved to */opt/InCharge6/SAM/smarts/local/conf/ics*. EMC Smarts software is designed to first search for user modifiable files in **BASEDIR**/*smarts/local* or one of its subdirectories. If a modified version of a file is not found in the local area, EMC Smarts software then searches appropriate nonlocal directories.

---

**Note:** Original versions of files may be changed or updated as part of an EMC Smarts software upgrade. However, files located in **BASEDIR**/*smarts/local* are always retained during an upgrade.

---

To facilitate proper file editing, EMC Corporation provides the *sm\_edit* utility with every EMC Smarts product suite. When used to modify an original version of a file, this utility automatically creates a local copy of the file and places it in the appropriate location under **BASEDIR**/*smarts/local*. This ensures that the original version of the file remains unchanged. In both UNIX and Windows environments, you can invoke *sm\_edit* from the command line. Optionally, you can configure Windows so that *sm\_edit* is automatically invoked when user-modifiable files are double-clicked in Windows Explorer.

To invoke the *sm\_edit* utility from the command line, specify the path and the name of the file you want to edit under **BASEDIR**/*smarts*. If multiple EMC Smarts products are running on the same host, you should ensure that you invoke *sm\_edit* from the *bin* directory of the product suite whose files you wish to edit. For example, to edit the configuration file for the Global Manager, you invoke the *sm\_edit* utility as follows:

```
# /opt/InCharge6/SAM/smarts/bin/sm_edit conf/ics/ics.conf
```

The *sm\_edit* utility automatically creates a local copy of the *ics.conf* file in the **BASEDIR**/*smarts/local/conf/ics* directory, if necessary, and opens the file in a text editor. If a local version of the file already exists, the *sm\_edit* utility opens the local version in a text editor. In addition, *sm\_edit* creates any necessary directories.

For more information about how to properly edit user modifiable files and how to use the *sm\_edit* utility, refer to the *EMC Smarts System Administration Guide*.