



Installing EMS

This chapter provides instructions for installing the element management system (EMS) software on a user workstation, and includes the following sections:

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EMS Components

EMS is a powerful operations and management tool with a graphical user interface. EMS enables you to provision, manage, and monitor up to 2,500 nodes within a Cisco 6700 series or Cisco IAD1101 network.

The following three components make up EMS:

- The Cisco 6700 NetView application displays the topology of the network. From NetView, you can create or modify all nodes, subnets, and end node lists.
- The alarm server application provides alarm configuration, tracking, and reporting for the NE. Alarms are user configurable for each NE.
- The network configuration server application acts as a storage device that holds the configuration map. This is recommended if many users will be making changes to the Cisco 6700 NetView screen.



Note

You must close any open applications on the workstation before installing EMS. Cisco Systems recommends that you reboot the workstation before installing EMS.

System Requirements

The EMS workstation must have an Ethernet port to communicate with the NE. Table 2-1 lists the minimum system requirements for each supported operating system.

Table 2-1 Operating System Minimum Requirements

Operating System	Platform	RAM	Disk Space
Windows 95 ¹	166 MHz Pentium-class CPU	32 MB (64 MB recommended)	100 MB (1 GB recommended)
Windows NT (with Service Pack 3)	233 MHz Pentium-class CPU	128 MB	1 GB
UNIX (Solaris 2.5 or 2.6)	Ultra 5 or greater	128 MB	1 GB

1. Windows 95 workstation must use EMS Lite, which does not offer alarm server or network configuration server applications.

Connecting the Ethernet Cable

On a Cisco 6732 Multiservice Access Platform, connect a crossover Ethernet cable in one of two ways:

- If your system has an AMM card, connect the Ethernet cable directly to the Ethernet port on the AMM card.
- If your system does not have an AMM card, connect the Ethernet cable to the Ethernet port on the active MCC.

EMS Installation (Windows NT)

Use the following procedures to install EMS on a Windows NT workstation.

Shutting Down the EMS Alarm Server

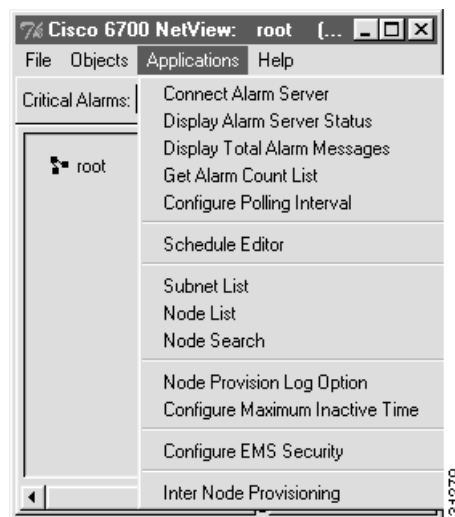


Note

If the EMS alarm server and the EMS network configuration server run on the same node that you intend to upgrade, you must shut them down before installing a new version of EMS on that node.

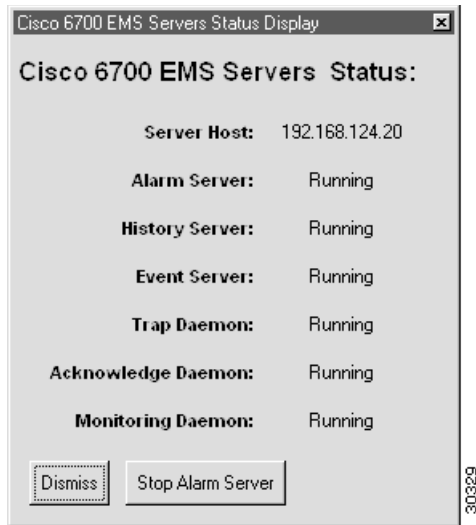
- Step 1** Select **Applications > Display Alarm Server Status** from Cisco 6700 NetView. (See Figure 2-1) Figure 2-1.)

Figure 2-1 Display EMS Alarm Server



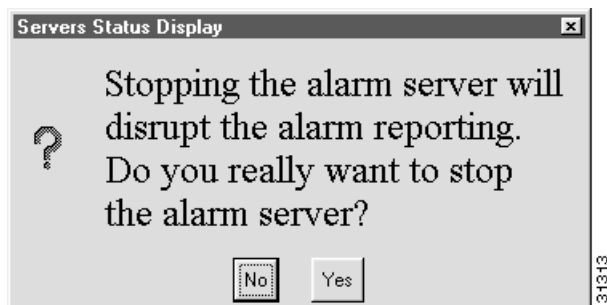
- Step 2** EMS launches the alarm server status display. (See Figure 2-2.)

Figure 2-2 EMS Alarm Server Status



Step 3 Click the **Stop Alarm Server** button. EMS displays the following dialog box. (See Figure 2-3.)

Figure 2-3 Shut Down EMS Alarm Server

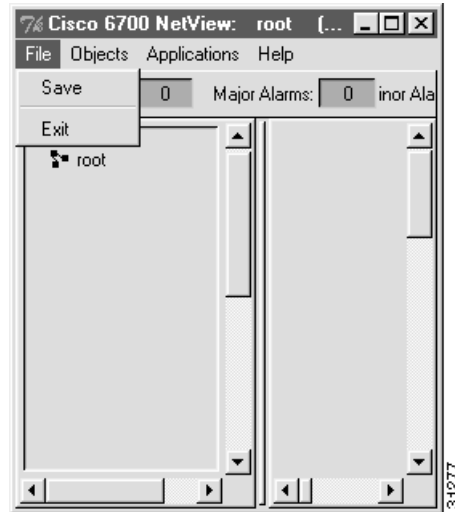


Step 4 Click **Yes** to shut down the alarm server and return to Cisco 6700 NetView.

Exiting EMS

You must exit EMS on the workstation before installing a new version of EMS. To exit EMS, select **File** > **Exit** from Cisco 6700 NetView. (See Figure 2-4.)

Figure 2-4 Exit EMS



Installing EMS

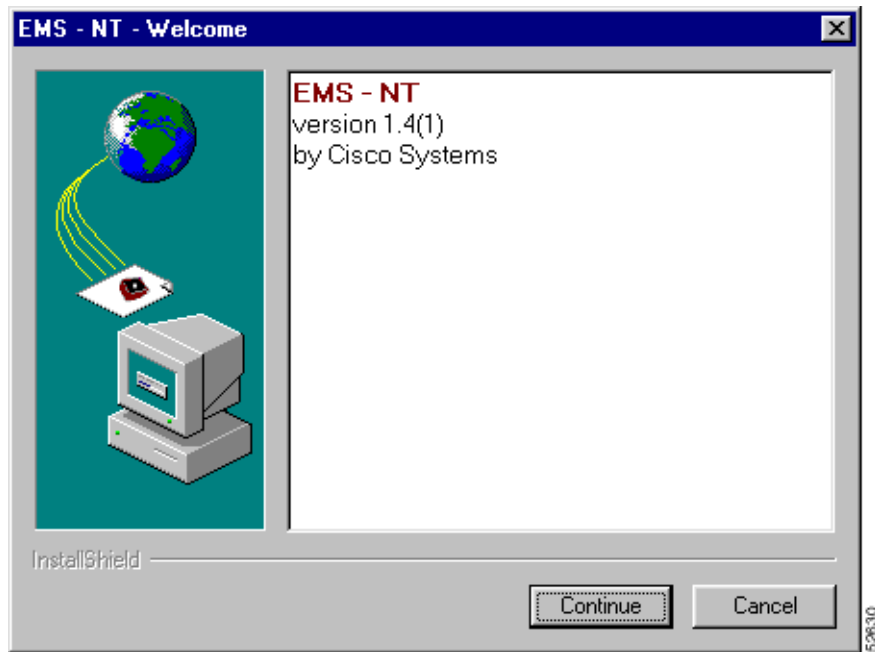
- Step 1** Launch the Cisco 6700 EMS setup file. (See Figure 2-5). The EMS setup file can be found on the included software CD-ROM, or it can be downloaded from Cisco Connection Online (see page xvi in the Preface for more information).

Figure 2-5 Cisco 6700 EMS Setup File



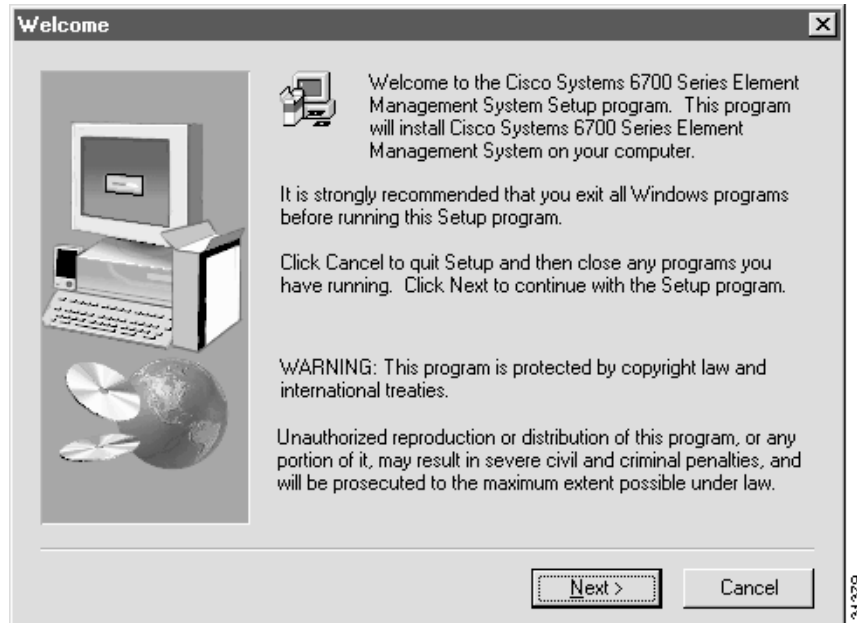
The Cisco 6700 Element Management System installation window appears. (See Figure 2-6.)

Figure 2-6 EMS Installation



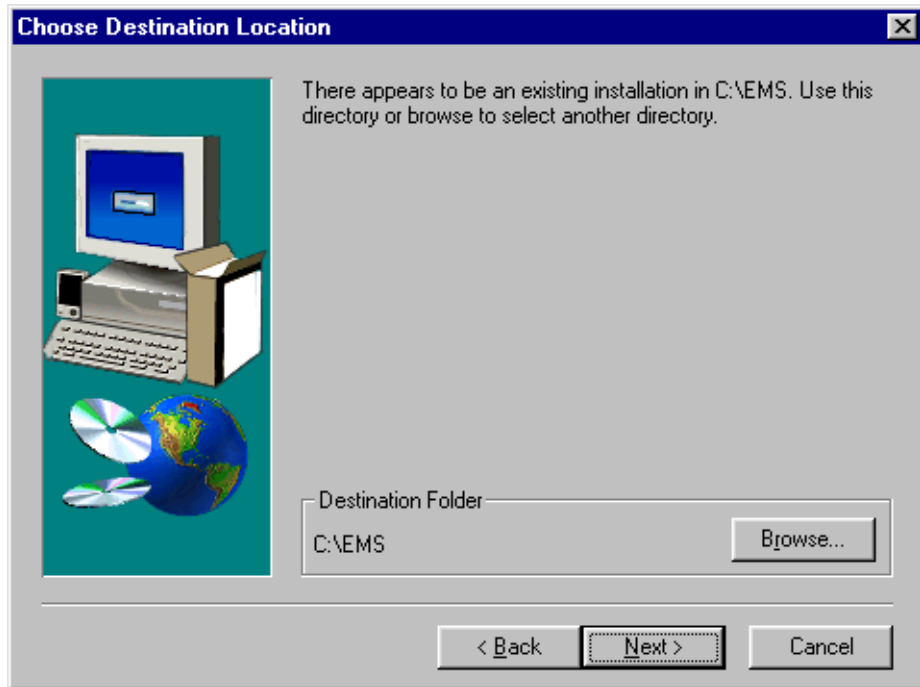
- Step 2** Click **Continue** to begin the installation. Cisco recommends that you close all other applications before proceeding. (See Figure 2-7.)

Figure 2-7 EMS Installation (continued)



- Step 3** Click **Next** to proceed.
- Step 4** Select the directory in which EMS will be installed. (See Figure 2-8.)

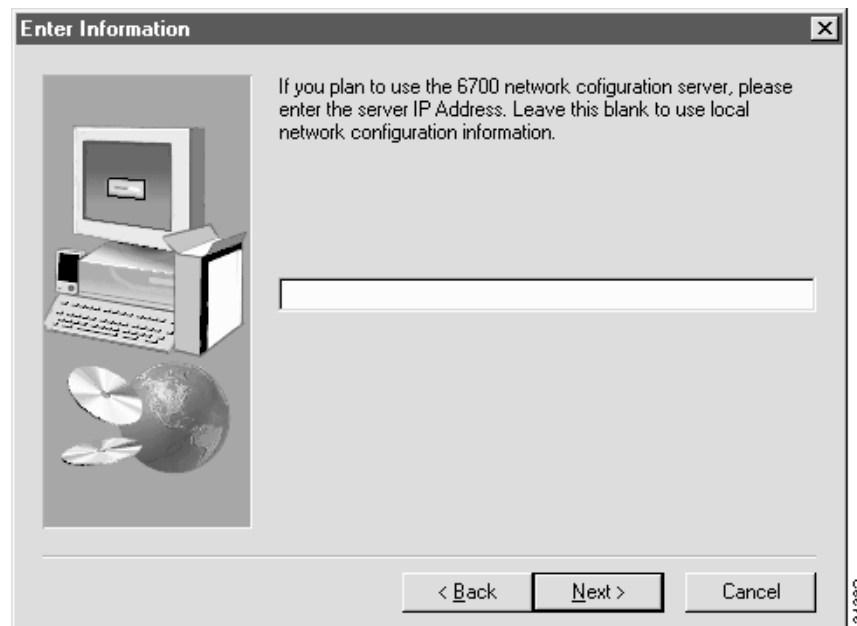
Figure 2-8 EMS Directory Selection



- Step 5** If you are performing a first-time installation of EMS on your workstation, a folder called **EMS** will be created on the root directory (**C:\EMS**). You can accept this directory by clicking on the **Next** button, or you can change the directory with the **Browse** button.
- Step 6** If you are upgrading your EMS software from a previous version, the installation program will replace the old version with the new version.
- Step 7** When prompted for the alarm server IP address, enter the IP address of the EMS alarm server. (See Figure 2-9.) Contact your EMS administrator for the correct IP address.

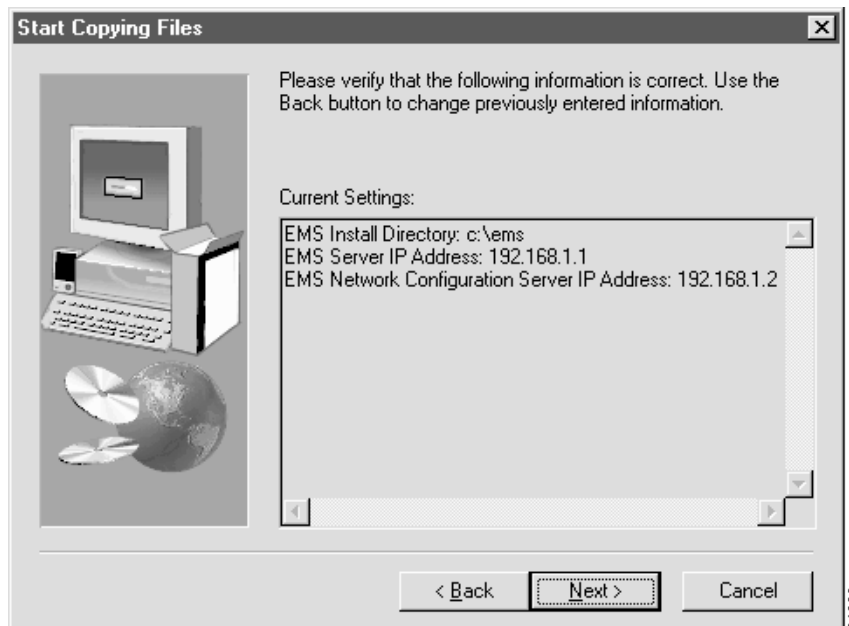
Figure 2-9 Enter Alarm Server IP Address

- Step 8** Click **Next** to proceed.
- Step 9** If you are upgrading EMS from a previous version, EMS will provide the alarm server IP address from the previous EMS installation. Click **Next** to accept this IP address, or replace it with a new IP address.
- Step 10** When prompted for the network configuration server IP address, enter the IP address of the EMS network configuration server. (See Figure 2-10.) Contact your EMS administrator for the correct IP address.

Figure 2-10 Enter Network Configuration Server IP Address

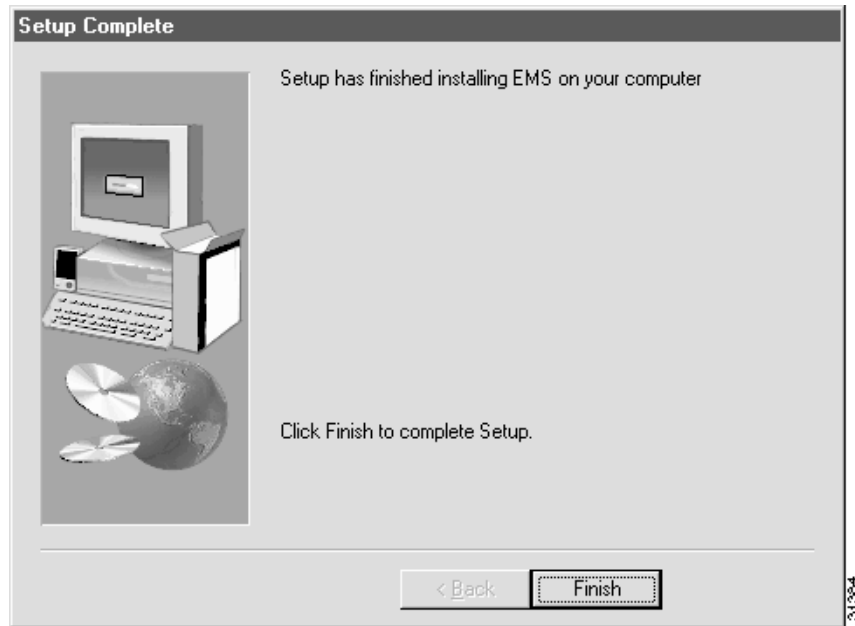
- Step 11** Click **Next** to proceed.
- Step 12** If you are upgrading EMS from a previous version, EMS will provide the network configuration server IP address from the previous EMS installation. Click **Next** to accept this IP address, or replace it with a new IP address.
- Step 13** You will be prompted to verify the installation information you have supplied. (See Figure 2-11.)

Figure 2-11 Confirm EMS Installation



- Step 14** If you wish to change this information, use the **Back** button to make changes.
- Step 15** Click **Next** to proceed with the installation of EMS program and data files.
- Step 16** When the installation file transfer is complete, click **Finish** to end EMS installation and reboot the workstation. (See Figure 2-12.)

Figure 2-12 EMS Installation Complete



When the installation is complete, EMS places icons for the EMS Netview, EMS Alarm Server, and EMS Network Configuration Server on your desktop. All three icons have the same "magic lamp" image. (See Figure 2-13.)

Figure 2-13 EMS Net View Icon



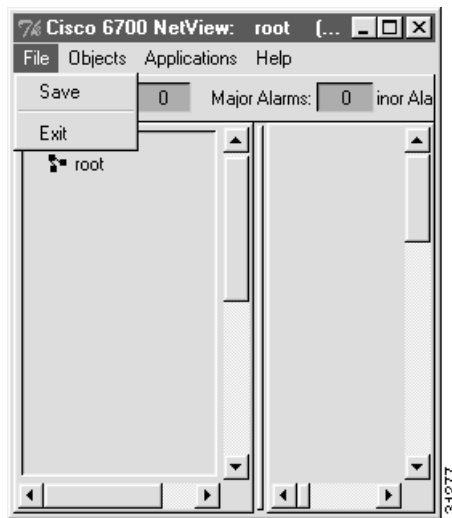
EMS Lite Installation (Windows 95)

Use the following procedures to install EMS on a Windows 95/98 workstation.

Exiting EMS

You must exit EMS on the workstation before installing a new version of EMS. To exit EMS, select **File** > **Exit** from Cisco 6700 NetView. (See Figure 2-14.)

Figure 2-14 Exit EMS



Installing EMS Lite

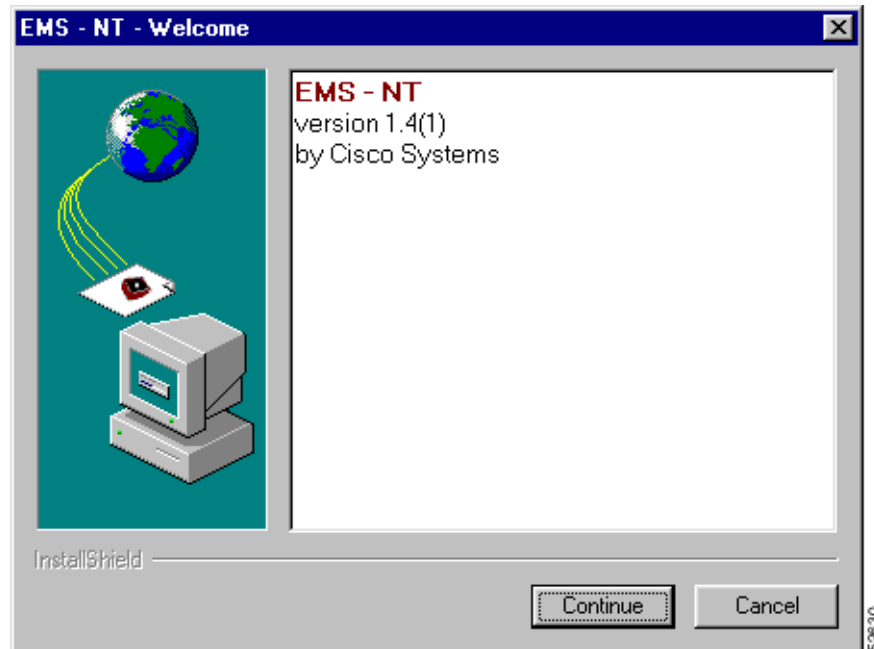
- Step 1** Launch the Cisco 6700 EMS Lite installation file. (See Figure 2-15.) The EMS installation file can be found on the included software CD-ROM, or it can be downloaded from Cisco Connection Online (see page xvi in the Preface for more information).

Figure 2-15 Cisco 6700 EMS Lite Installation File



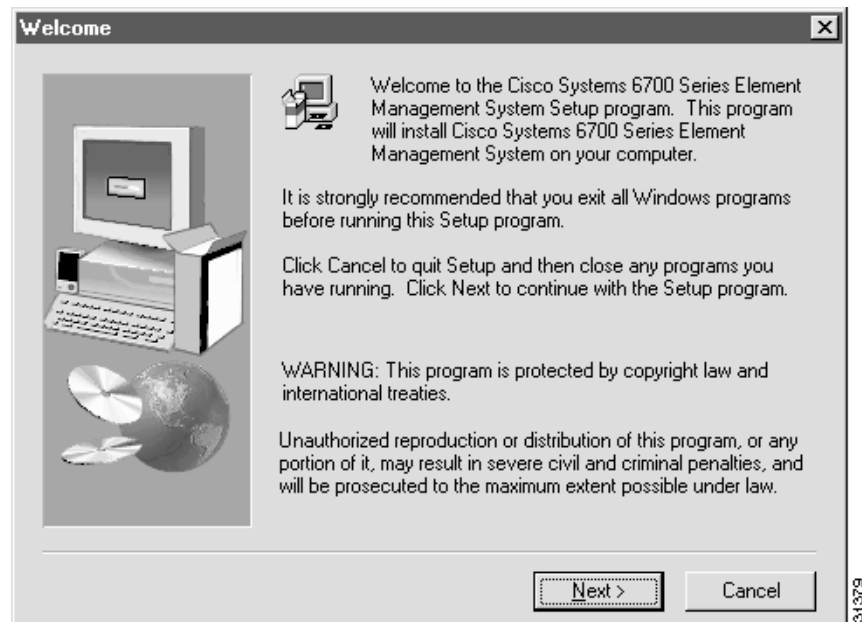
The Cisco 6700 Element Management System Lite installation window appears. (See Figure 2-16.)

Figure 2-16 EMS Lite Installation



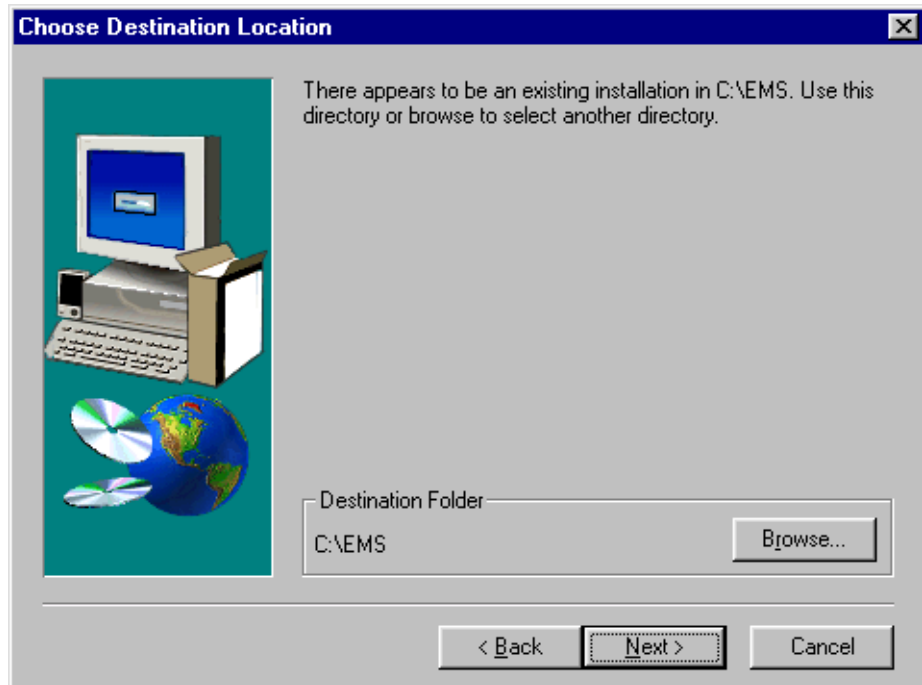
- Step 2** Click **Continue** to begin the installation. Cisco recommends that you close all other applications before proceeding. (See Figure 2-17.)

Figure 2-17 EMS Lite Installation (continued)



- Step 3** Click **Next** to proceed.
- Step 4** Select the directory in which EMS Lite will be installed. (See Figure 2-18.)

Figure 2-18 EMS Lite Directory Selection

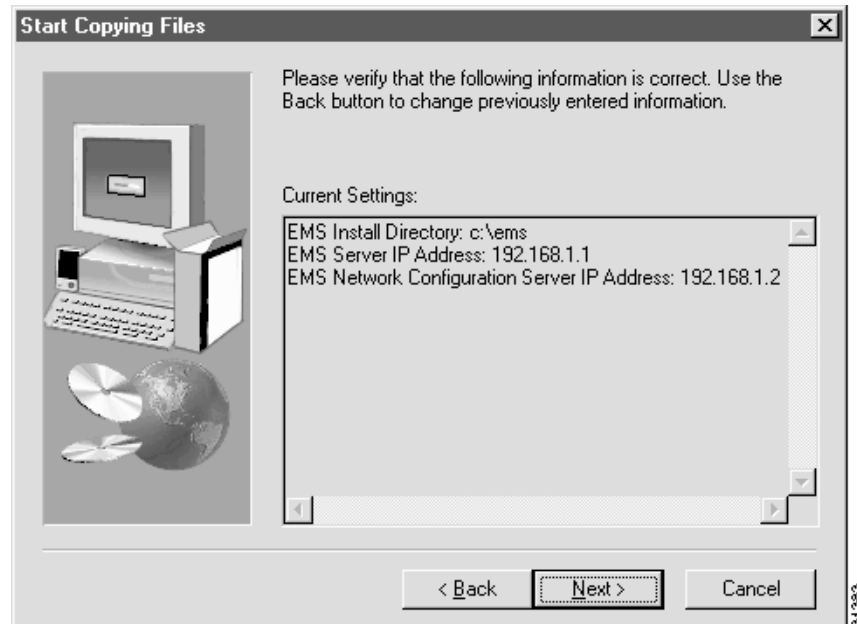


If you are performing a first-time installation of EMS on your workstation, a folder called **EMS** will be created on the root directory (**C:\EMS**). You can accept this directory by clicking **Next**, or you can change the directory with the **Browse** button.

If you are upgrading your EMS software from a previous version, the installation program will replace the old version with the new version.

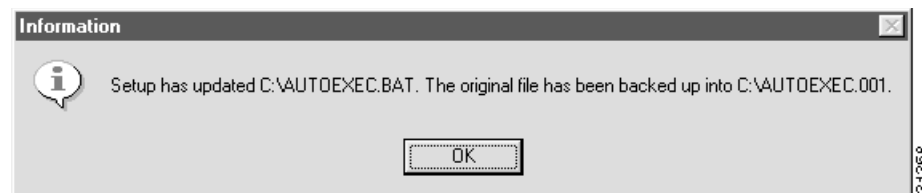
You will be prompted to verify the installation information you have supplied. (See Figure 2-19.)

Figure 2-19 Confirm EMS Lite Installation



- Step 5** If you wish to change this information, use the **Back** button to make changes.
- Step 6** Click **Next** to proceed with the installation of EMS program and data files.
- Step 7** During the installation, EMS updates the AUTOEXEC.BAT file on the workstation. (See Figure 2-20.)

Figure 2-20 AUTOEXEC.BAT File Updated



- Step 8** Click **OK** to proceed.

**Caution**

During the installation, you may see a window with the message “**Warning: Batch file update failed. Please update file by hand.**” This message indicates that the EMS install application was unable to edit the **AUTOEXEC.BAT** file on your workstation. Complete the following steps, then proceed to the “Editing AUTOEXEC.BAT” on page 2-17 for further instructions.

- Step 9** When the installation file transfer is complete, click **Finish** to end EMS installation and reboot the workstation. (See Figure 2-21.)

Figure 2-21 EMS Lite Installation Complete



- Step 10** After the workstation has been rebooted, EMS places the Cisco 6700 NetView icon on your desktop. (See Figure 2-22.)

Figure 2-22 EMS Lite Net View Icon



Editing AUTOEXEC.BAT

The following procedure shows how to enter EMS system variables into the AUTOEXEC.BAT file for your workstation.

This procedure should only be used in the event of a batch update failure in the EMS Lite installation. If you did not receive a failure message while installing EMS Lite, do not perform this procedure.

- Step 1** From the **Start** menu on your workstation, select **Run**.
- Step 2** Type **edit autoexec.bat** in the text window, and click **OK** to launch the MS-DOS editor. (See Figure 2-23.)

Figure 2-23 Edit AUTOEXEC.BAT



- Step 3** Use the down arrow key to scroll down past the last line of existing text, and enter the following lines of text exactly as shown (see Figure 2-24):

```
SET B10EMS_HOME=C:/EMS
SET TCL_LIBRARY=C:/EMS/LIB/TCL
SET TK_LIBRARY=C:/EMS/LIB/TK
SET TNM_LIBRARY=C:/EMS/LIB/TNM
```

**Note**

You must use the forward slash character (/) when entering these variables. This procedure assumes that EMS was installed to the default folder, **C:\EMS**.

Figure 2-24 Enter EMS System Variables

```

MS-DOS Editor
8 x 12
File Edit Search View Options Help
c:\AUTOEXEC.BAT
C:\PROGRAM~1\UIRUSS~1\SCAN.EXE C:\
@IF ERRORLEVEL 1 PAUSE
IF EXIST TOSCD001 LH C:\WINDOWS\COMMAND\MSCDEX /D:TOSCD001 /M:10 /L:Z
@ECHO OFF
SET PATH=C:\PROGRA~1\DOCUME~1\SHARED;%PATH%;C:\PROGRA~1\UIRUSS~1
SET B10EMS_HOME=C:/EMS
SET TCL_LIBRARY=C:/EMS/LIB/TCL
SET TK_LIBRARY=C:/EMS/LIB/TK
SET TNM_LIBRARY=C:/EMS/LIB/TNM_
F1=Help | Line:10 Col:31
28872

```

- Step 4 Select **File > Save** to save this configuration.
- Step 5 Select **File > Exit** to close the editor.
- Step 6 Close all applications and reboot the workstation to load the EMS system variables.

EMS Installation (UNIX)

The install script creates two scripts—`ems.csh` and `ems.ksh`—in the EMS installation directory. If you are upgrading or reinstalling EMS on the workstation, the script files, network configuration, and alarm information are retained from the previous installation.

EMS may be installed in any directory in which you have write privileges (root directory). The EMS distribution package for UNIX (`ems_unix`) contains three files:

- `ems.tar`
- `emsinstall`
- `installnote.txt`

To install EMS on a UNIX workstation:

- Step 1 Close all applications and reboot the workstation.

- Step 2** Choose whether you want to install directly from the CD-ROM or first copy the distribution package files into a user account. If installing directly from the CD-ROM, go to Step 3. Otherwise, enter the following commands:

```
# cp * user directory
# cd user directory
```

- Step 3** Add execute rights to the install script:

```
# chmod +x emsinstall
```

- Step 4** Execute the install script:

```
# ./emsinstall
```

```
EMS Unix Installation
```

```
-----
```

- Step 5** Press **Return** to select the default file name and location, **./ems.tar**.

```
Enter tar file name [./ems.tar]:
```

```
Setting up installation...done.
```

- Step 6** Enter a fully-qualified path name for the EMS installation directory. If the B10EMS_HOME environment variable has already been set from a previous installation, the script permits you to use that value.

```
Where would you like to install the EMS?
```

```
Enter fully qualified path name: /export/home0/ems
```

```
Creating /export/home0/ems...done.
```

```
Extracting EMS files...
```

```
...
```

```
Placing EMS files in /export/home0/ems...done.
```

- Step 7** Enter **y** to install the network configuration server, or if the server is already installed or if you do not wish to install it, enter **n**.

```
Will this installation use the network configuration server (y/n)? [n]: y
```

```
Generating script files with environment variables...done.
```

```
Files /export/home0/ems/ems.csh
```

```
and /export/home0/ems/ems.ksh
```

```
have been created. Set the value of B10EMS_SERVER and
```

```
c6700NET_SERVER if necessary in the appropriate file and source it before running the EMS. Hit Enter to complete the installation...
```

```
Completing installation...
```

```
EMS installation is complete. The EMS includes the 'nmtrapd' program which requires root permissions. Please get root permissions and type >> ./emsinstall root << to install it.
```

- Step 8** If you do not want to install the alarm server, go to Step 12.

To install the alarm server, obtain the root password for your workstation, then complete the following steps:

- Step 9** Set user to root:

```
# su
```

Step 10 Execute the `emsinstall` script with root privileges:

```
# ./emsinstall root
```

The install script prompts for the fully-qualified path name of the EMS installation directory, unless that directory is already defined in the environment.

Step 11 Exit from the root login:

```
# exit
```

Step 12 You must configure the IP addresses of the alarm server and network configuration server. Use `vi` (a standard text editor under UNIX) or another text editor to set the `B10EMS_SERVER` (alarm server) and `C6700NET_SERVER` (network configuration server) variables. Contact your network administrator for the correct IP addresses.

The following example uses `vi` to edit the `ems.csh` file:

```
# vi ems.csh
"ems.csh" 12 lines, 406 characters
setenv B10EMS_HOME /export/home0/ems
setenv B10EMS_SERVER
setenv C6700NET_SERVER
setenv TCL_LIBRARY $B10EMS_HOME/lib/tcl
setenv TK_LIBRARY $B10EMS_HOME/lib/tk
setenv TNM_LIBRARY $B10EMS_HOME/lib/tnm
setenv TNM_NMTRAPD $B10EMS_HOME/bin/nmtrapd
if (`setenv | grep LD_LIBRARY_PATH` != "") then setenv LD_LIBRARY_PATH
${LD_LIBRARY_PATH}:${B10EMS_HOME}/lib
else setenv LD_LIBRARY_PATH ${B10EMS_HOME}/lib
endif
```

Step 13 After editing the `ems.csh` or `ems.ksh` file, you must update the environment.

For C-Shell, enter `source ems.csh`. Alternatively, you can append the `ems.csh` file to the `~/.cshrc` file, log out, and log in.

For Korn Shell, enter `ems.ksh`. Alternatively, you can append the `ems.ksh` file to the `~/.profile` file, log out, and log in.

The following example uses `source ems.csh` to update the environment:

```
# source ems.csh
# env
...
B10EMS_HOME=/export/home0/ems
B10EMS_SERVER=171.68.205.106
C6700NET_SERVER=171.68.205.106
TCL_LIBRARY=/export/home0/ems/lib/tcl
TK_LIBRARY=/export/home0/ems/lib/tk
TNM_LIBRARY=/export/home0/ems/lib/tnm
TNM_NMTRAPD=/export/home0/ems/bin/nmtrapd
LD_LIBRARY_PATH=/export/home0/ems/lib
# exit
```

UNIX Environment Variables

EMS environment variables are specified in the **ems.csh** and **ems.ksh** files (see Table 2-2):

Table 2-2 EMS Environment Variables

Variable	Description/Location
B10EMS_HOME	The EMS installation directory
B10EMS_SERVER	IP address of the computer running the alarm server
C6700NET_SERVER	IP address of the computer running the network configuration server
LD_LIBRARY_PATH	<i>EMS installation directory/lib</i>
TCL_LIBRARY	<i>EMS installation directory/lib/tcl</i>
TK_LIBRARY	<i>EMS installation directory/lib/tk</i>
TNM_LIBRARY	<i>EMS installation directory/lib/tnm</i>
TNM_NMTRAPD	<i>EMS installation directory/bin/nmtrapd</i>

Starting EMS on a UNIX Workstation

The Element Management System (EMS) can be started by using C-Shell or Korn Shell.

-
- Step 1** Use your own login to start the startEMS script.
- Step 2** Use these scripts to start the alarm server, network configuration server, and Cisco 6700 NetView:
- startAlarmServer: starts the alarm server so alarms can be reported back to the server. This script should only be started once, on the alarm server workstation.



Note The display environment must be set when the alarm server is running, or the environment variable must point to some other display that is up. If this is not done, logging out of EMS will close the display environment and shut down the alarm server.



Note The alarm server uses ports 162 and 2321 as trap daemons. Make sure that these ports are not in use when starting the alarm server.

- startNwkConfServ: starts the network configuration server. Only start this script once on the network configuration server workstation.
- startEMS: starts the Cisco 6700 NetView application. Each individual NetView user must start this script.

Adding Scripts to csh or ksh Directory Paths

These programs are in the *EMS installation directory/bin* directory, and they can be started from any directory included in the path.

Step 1 append `setenv PATH ${PATH};EMS installation directory/bin` into the `~/.cshrc` file,

Step 2 Log out, and log back in.

or

Step 1 Append `export PATH=${PATH};EMS installation directory/bin` into the `~/.profile` file.

Step 2 Log out, and log back in.

About Troubleshooting Your Installation

If you have problems installing EMS, the information in this section might be helpful. If you still have difficulty with your installation, contact a customer service representative. (See “Technical Assistance Center” on page xvi of the Preface.)

Viewing Error Messages and Applying Solutions

The following section describes error messages, and their possible solutions, that might appear when you install EMS.

Error Message (Windows 95)

During the installation, you get an error similar to the following:

```
Warning: Batch file update failed. Please update file by hand.
```

Solution

This error indicates that the EMS install application was unable to edit the AUTOEXEC.BAT file on your workstation. To update the AUTOEXEC.BAT file on a workstation, complete the procedure “Editing AUTOEXEC.BAT” on page 2-17: