



Cisco Media Gateway Controller Node Manager Installation Guide

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Preface

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This preface describes the objectives of this document and explains how to find additional information on related products and services. It contains the following sections:

- [Document Objectives, page v](#)
- [Audience, page v](#)
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Document Objectives

This installation guide provides information for installing and configuring the Cisco Media Gateway Controller (MGC) Node Manager (MNM). It also contains reference information for administrators, service technicians, and users.

Audience

The book is designed for

- System administrators who install and configure Cisco MNM
- Network Operations Center (NOC) personnel who use Cisco MNM to monitor the network and respond to events and alarms

This document describes Cisco MNM in the context of the Cisco Element Management Framework (Cisco EMF).

Cisco MNM enhances some capabilities of Cisco EMF. Therefore, this manual includes links to Cisco EMF documentation. You need to be familiar with both Cisco EMF and Cisco MNM to use some of the customizable features of Cisco MNM.

Related Documentation

The documents that contain information related to Cisco Media Gateway Controller Node Manager are at the following URL:

http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/tsd_products_support_series_home.html

The documents that contain information related to the Cisco PGW 2200 Softswitch are at the following URL:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/tsd_products_support_series_home.html

You can also find the Cisco PGW 2200 Softswitch Documentation Map at the following URL:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/products_documentation_roadmaps_list.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation at

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0

Document Change History

Subject	Document Number	Change Date	Change Summary
Chapter 1, Installation Overview and Planning Chapter 2, Installing Cisco MNM	OL-14272-04	October 2009	Updated the “ Hardware Recommendations ” section on page 1-4, “ Task 3: Plan and Execute Hard Drive Partitioning ” section on page 2-4. Added a troubleshooting procedure for the Cisco EMF Licensing problem in Table 2-5
All	OL-14272-03	January 2009	Updated the Cisco EMF and Cisco MNM installation procedures.
Chapter 2, Installing Cisco MNM	OL-14272-02	October 2008	Updated the Cisco EMF and Cisco MNM installation procedures.
All	OL-14272-01	August 2008	Initial release.



CHAPTER 1

Installation Overview and Planning

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This chapter provides overview and planning information for installation of the Cisco Media Gateway Controller (MGC) Node Manager (MNM). [Chapter 2](#) provides detailed installation procedures.



Note

In Cisco MNM Release 2.7(3), the Cisco Voice Services Provisioning Tool (VSPT) is packaged with Cisco MNM.

The following topics are covered in this chapter:

- [Installation Overview, page 1-1](#)
- [Determine Your Hardware Requirements, page 1-2](#)
- [Installation Checklist, page 1-5](#)

Installation Overview

Successful network management using Cisco MNM begins with a well planned and carefully executed installation. Network element management involves many interdependent factors, including:

- The correct Sun server for your network size
- The correct software release and patch levels on managed devices
- The correct installation of Cisco Element Management Framework (EMF), the foundation software for Cisco MNM
- Performing installation tasks in the required order, so that required items are in place

To organize the installation process, use the [Installation Checklist, page 1-5](#), to plan and execute your installation. Read through the checklist and check off each task as it is completed.

Who Should Install Cisco MNM?

Installing Cisco MNM involves setting up hard drives and checking and modifying system files, tasks that are best performed by a system administrator with good knowledge of the Solaris operating system.

Determine Your Hardware Requirements

The hardware required and the way Cisco MNM is installed depend on the size of the network you are managing and the amount of data you collect. Use this section to determine your hardware requirements and software configurations.

Cisco EMF and Cisco MNM consist of server and client software. You can manage all small, medium and most large network from a single server using the Sun T2000 server which combines the client and server software. The multi-core, multi-thread architecture of Sun T2000 servers works well with the Virtual Network Computing (VNC) technology. It gives each VNC server a processor thread and keeps X-terminal traffic off the network. The combination of the Sun T2000 server and VNC for Cisco MNM provides excellent response time, even when your access is over WAN network connections.

Here is a breakdown of the client and server roles:

Server Software

- Network management, including management of databases that contain network information, store alarms, and performance data
- GUI applications, with user interaction, when Cisco MNM is installed on a standalone server

Client Software

- GUI applications, with which users interact.

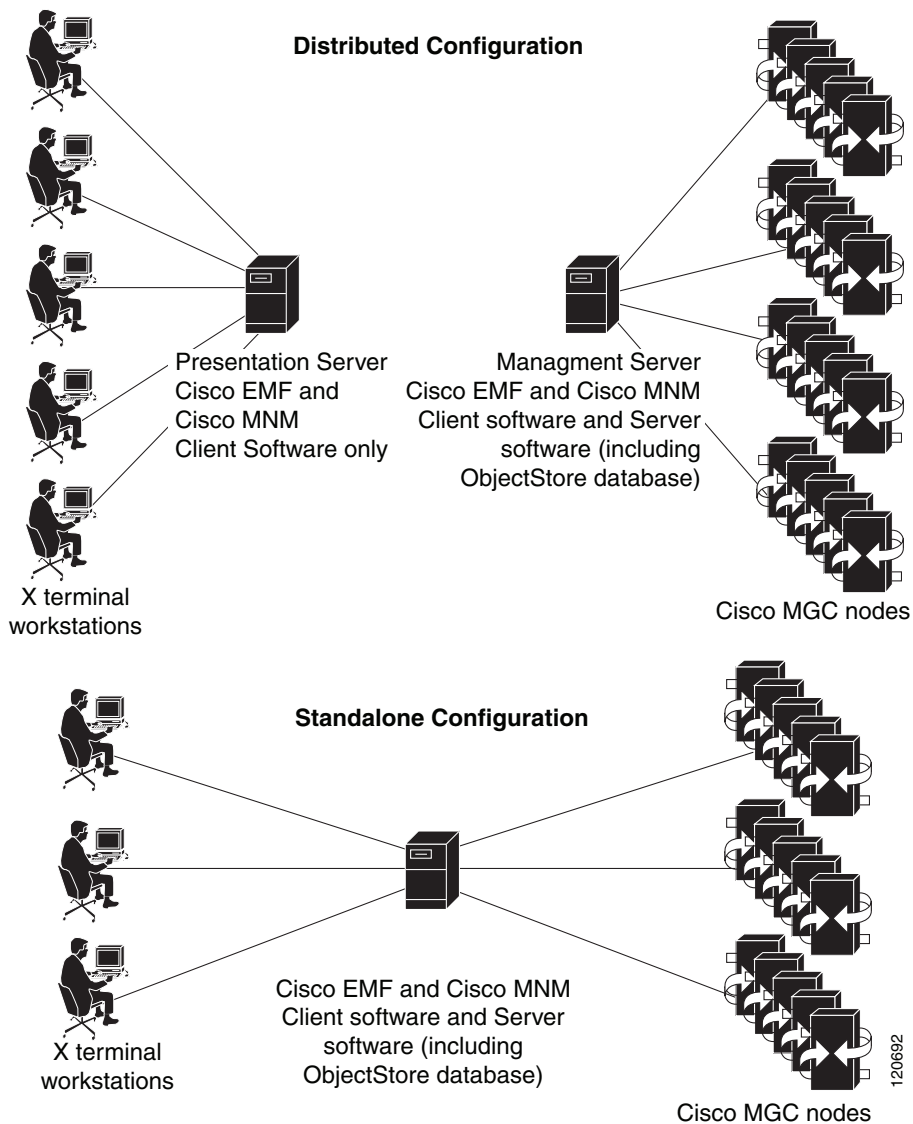
The Cisco EMF and Cisco MNM software run on a separate machine, or on machines other than the Cisco MGC host. In a small network, server and client software might reside on a single machine (a standalone configuration). In larger networks, the software is installed on two or more machines in the following distributed configuration:

- One machine, known as the management server, contains the server software (including the ObjectStore database management software in the Cisco EMF) and client software.
- One machine, known as the presentation server, contains the client software only. In some large networks, more than one presentation server might be required.

In either configuration, users typically access Cisco MNM from X-terminal workstations that run the Client software through a Telnet session. In the distributed configuration, the X-terminal workstations connect directly to the presentation server to run the client software.

See the standalone and distributed configurations illustrated in [Figure 1-1](#).

Figure 1-1 Standalone and Distributed Configurations

**Note**

The management server is sometimes called the Database server. The presentation server is sometimes called the Client, GUI, or application server. To avoid confusion, this document uses management server and presentation server consistently, and these terms denote the machines in a distributed configuration, not the software that resides on them.

The Cisco MNM client simultaneously supports up to ten X terminal users or VNC users. The exact number supported in a given installation depends on your processing resources and the network size.

Supported Configurations

The following configurations are supported:

- Cisco MNM and Cisco VSPT installed together on a network management server (recommended)

- Cisco VSPT (only) installed on a Cisco PGW 2200 Softswitch host machine
- Cisco MNM installed on a network management server and Cisco VSPT installed on a separate server

**Caution**

Cisco MNM is not supported on a Cisco PGW 2200 Softswitch host machine.

Hardware Recommendations

Before you find the suitable hardware platform for Cisco MNM, determine your network deployment size. [Table 1-1](#) gives guidance on how to determine your network deployment size.

Table 1-1 Network Deployment Size

Criteria	Small Deployment	Medium Deployment	Large Deployment
PGW Pairs	1–3	6–10	11–20
Gateways	1–10	11–40	41–100
HSI	1–3	6–10	11–20
BAMS	1–2	2–3	2–5

You have two options to get the hardware platforms for Cisco MNM:

- Reuse old Sun SPARC-based platforms.
You cannot use Sun OPETRON-based platforms or X86 platforms for Cisco MNM. Old Sun SPARC-based platforms, Sun Fire 240 and Sun Netra 240, were fully tested with Cisco MNM. Other old Sun SPARC-based platforms might be interoperable.
- Order new hardware platforms.

[Table 1-2](#) describes Cisco MNM hardware recommendations for various network sizes.

Table 1-2 Hardware Recommendations for Cisco MNM Host Machine(s)

Network Deployment Size	Host Machine Components			
	Platform	CPU	Hard Disks	RAM
Small Deployment	Sun Netra T2000	4 core	2 x 73 GB ¹	8 GB
Medium Deployment	Sun Enterprise T2000	4 core	4 x 73 G RAID	8 GB
Large Deployment	Sun Enterprise T2000	8 core	4 x 73 G RAID	16 GB

1. Two-drive machines work for smaller networks that have less traffic and fewer operators. Response time to operator commands increases as the network grows and additional operators are added.

**Note**

The Cisco MNM host machine requires the minimum number of drives indicated in [Table 1-2](#). These are *recommendations* to aid you in planning. The total amount of disk space required depends on many factors, such as the amount of alarm and performance data collected.

Disk Drives and Database Storage

In a medium or large network, using multiple disk drives to store databases helps alleviate I/O bottlenecks and improves software performance. If you are using multiple disk drives for database storage, or you expect to generate large database files, use raw partitions, as described in the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf



Note

If you are using UNIX File System (UFS) partitions, installing more than one drive for database storage does not improve performance because the databases cannot span multiple partitions.

Installation Checklist

This checklist summarizes the tasks required for an initial installation of Cisco MNM. The procedures for completing each task are provided in the following chapter.

We recommend that you print out the checklist and use it during the installation. Perform the tasks in sequence unless otherwise noted.

Before You Begin

Read the release notes. If information there differs from what is presented here, use the information in the release notes.

You can find installation tasks in [Table 1-3](#).

Table 1-3 **Installation Tasks**

Task	Description
Determine Your Hardware Requirements.	—
Task 1: Gather Installation Software and Required Information.	—
Task 2: Ensure That Network Devices Have the Correct Software.	—
Task 3: Plan and Execute Hard Drive Partitioning.	—
Task 4: Ensure That the Sun Solaris 8 or 10 Operating System Is Installed.	—
Task 5: Make System Configurations.	—
Task 6: Obtain a Cisco EMF License.	—

Table 1-3 *Installation Tasks (continued)*

Task	Description
<p>Task 7: Install CiscoView 6.1(6) on a Solaris 10 Operating System.</p>	<p>This task is required only if you want to manage Cisco IP Transfer Point - LinkExtenders (Cisco ITP-Ls) or LAN switches from Cisco MNM, which uses the CiscoView server as the management interface.</p> <p>CiscoView now ships as part of LAN Management Solution (LMS) 3.1 with MGC Node Manager. Only the CiscoView part of LMS is provided. To obtain licenses for other LMS features, order LMS 3.0 from the Cisco.com website.</p> <p>Cisco MNM Release 2.7(3) includes CiscoView for Solaris 10 only. CiscoView for Solaris 8 is not provided with the Cisco MNM media kit. However, old CiscoView versions shipped with previous Cisco MNM media kits can be re-used. New Cisco MNM customers should be using Solaris 10 for the best long-term satisfaction and full CiscoView support. New Cisco MNM customers who only use Solaris 8 operating systems must obtain CiscoView for Solaris 8 separately, possibly by purchasing the appropriate LMS 2.5.1 package.</p>
<p>Task 8: Install Cisco EMF 3.2.</p>	<p>—</p>
<p>Task 9: Install Cisco MNM Release 2.7(3) and Verify the Installation.</p>	<p>If you want to install other element managers to run co-resident with Cisco MNM, install them now.</p>
<p>Task 10: Set Up the X Terminal Workstations for Remote Access.</p>	<p>—</p>
<p>Task 11. Synchronize Time.</p>	<p>—</p>
<p>Task 12: Configure Network Devices to Forward Alarms.</p>	<p>This task, which must be completed before Cisco MNM can collect alarm information from network devices, is covered in Chapter 2 in the “Configuring Network Devices for Management” section of the <i>Cisco Media Gateway Controller Node Manager User Guide</i>, Release 2.7(3).</p>



CHAPTER 2

Installing Cisco MNM

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This chapter provides instructions for the following installation tasks:

- [Performing a New Installation of Cisco MNM, page 2-1](#)
- [Upgrading from Previous Cisco MNM Releases, page 2-20](#)
- [Uninstalling Cisco MNM, page 2-23](#)
- [Displaying Current Cisco MNM Release Packages, page 2-24](#)
- [Viewing Help for Cisco MNM Installation Scripts, page 2-24](#)
- [Uninstalling Cisco EMF, page 2-24](#)
- [Troubleshooting Common Installation Problems, page 2-25](#)

Before You Begin

- Read the [Installation Overview, page 1-1](#)
- [Determine Your Hardware Requirements, page 1-2](#)
- Print the [Installation Checklist, page 1-5](#) and use it to guide your installation.

Performing a New Installation of Cisco MNM

Task 1: Gather Installation Software and Required Information

This section describes the software and information you need before you begin the installation.

Installation Software

Cisco MNM and Cisco VSPT Software

Your order has the following:

- Cisco Media Gateway Controller Node Manager (Cisco MNM), Release 2.7(3), including the Cisco MNM element managers that work with Cisco EMF.

- Cisco Element Management Framework (Cisco EMF) 3.2. This software has Cisco EMF Service Packs 7, 7.1, and 7.2. Also included is ObjectStore 5.1, which provides the database management. See the latest Cisco EMF 3.2 software patch and release note (an Acrobat PDF file, such as *CEMF3.2P7DepRelNote.pdf*) at the following URL:

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2/release/notes/rn_3_2.html

For all releases of 3.2 release notes, go to the following URL:

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/release/notes/rn3_2sp7.html

- CEMF Crypto Add-on Package Software

If you want to use SSH for secure communications with SSH-enabled network components, download the CEMF Crypto Add-On package, which is available at

<http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-addon-3des>

Download both the CEMF Crypto Add-on Package software and the *CEMF Crypto Add-on Package Installation Guide*. You must have authorization to download cryptographic software. If you do not have it, you are automatically redirected to an authorization request page.

- CiscoView 6.1(6) (from LMS DVD—Solaris 10 only). Install CiscoView 6.1(6) if you want to manage Cisco IP Transfer Point - LinkExtenders (Cisco ITP-Ls) or Cisco LAN switches (Cisco MNM uses the CiscoView server as the management interface). Install CiscoView *before* you install Cisco EMF and Cisco MNM. Cisco View 6.1(6) is part of the LMS 3.0 package. If you want to use other network management applications in the LMS 3.0 package, you can purchase the complete LMS 3.0 product and install it with the MGC Node Manager on the same Sun Server.



Note If Cisco MNM coexists with CiscoView 6.1(6) on a Solaris 10 Operating System, the version of the Solaris Operating System must be the November 2006 release or higher, and the minimum recommended cluster patch levels are those released April 17, 2007.

- Cisco VSPT. The Cisco VSPT version must support your version of the Cisco PGW 2200 Softswitch software. If you are managing nodes with Cisco PGW 2200 Softswitch hosts running different software versions, you can install multiple VSPT versions. Cisco MNM automatically launches the correct version for the selected host.

For the latest VSPT patch, go to

<http://www.cisco.com/cgi-bin/tablebuild.pl/vspt>

For Cisco MNM release notes, go to

http://www.cisco.com/en/US/products/sw/netmgmtsw/ps1912/prod_release_notes_list.html



Note CD is the installation media for Cisco MNM, and DVD is the installation media for LMS 3.0 and CiscoView 6.1(6).

X Terminal Software

You must have Reflection 7.2 or higher installed to access Cisco MNM from a remote workstation. See the “[Task 10: Set Up the X Terminal Workstations for Remote Access](#)” section on page 2-18 for more information.

Solaris Operating System

The machines that run Cisco MNM must have the Sun Solaris 8 or 10 operating system with Common Desktop Environment (CDE) 1.3 installed.



Caution

The Solaris language setting must be English and the locale setting must be English (C-7 bit ASCII). Other language and locale choices are not supported.

Required Information

Table 2-1 lists information you should have before you begin installation. Review the table and have it available as you work through the installation tasks.

Table 2-1 Required Information

Information	Source
Superuser (su) password and privileges.	Your UNIX system administrator.
Host name and host ID of the machine where Cisco EMF is to be installed (in a distributed configuration, the management server).	On the machine where Cisco EMF is to be installed, enter hostname at the command prompt. The host name displays. At the command prompt, enter hostid . The host ID displays. This is a hexadecimal string that identifies the system, not the IP address.
Host IP address of the machine.	At the command prompt, enter ifconfig -a . If there are multiple interfaces, select the IP address of the interface where traps will be forwarded (as specified when you configure devices for network management). See Chapter 3 of the <i>Cisco Media Gateway Controller Node Manager User Guide</i> at http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/products_user_guide_list.html .
Product authorization key for Cisco EMF, to be used in Task 5: Make System Configurations .	On the Cisco EMF product CD sleeve.
DNS domain of the machine where Cisco EMF will be installed (in a distributed configuration, the management server) if your network uses DNS.	Your UNIX system administrator.
IP address of the CiscoView server. It is required when you install Cisco MNM.	

Task 2: Ensure That Network Devices Have the Correct Software

Cisco MNM interacts with other software that runs on the various components of the Cisco Media Gateway Controller (MGC) node. The software on the device and the version or patch that is compatible with Cisco MNM need to match to prevent network management problems. See the software requirements for these components in the MNM 2.7(3) Release Notes at

http://www.cisco.com/en/US/products/sw/netmgts/ps1912/prod_release_notes_list.html



Caution

Upgrades are released frequently. To ensure that you have the most recent software patch(es), check the website for the latest bulletins and upgrades.

Task 3: Plan and Execute Hard Drive Partitioning

By default, the Cisco EMF software is installed with standard UNIX file system (UFS) partitions (partitions with readable directory structures). However, we recommend using RAW File System (RAWFS) partitions (partitions without readable directory structures) for the database drives for larger networks, because RAWFS partitions offer the following advantages over UFS partitions:

- The capability to span multiple hard disks
- The option of having databases over 2 GB in size

For more information, see the “Hard Drive Partitioning” section of the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Table 2-2 gives you hard drive partitioning recommendations.

Table 2-2 Hard Drive Partitioning Recommendations¹

Small- to Medium-Sized Deployments ²		Medium- to Large-Sized Deployments ³
Single Drive (73 GB)	Single Drive (146 GB)	Dual Drives or Quad Drives
fileys c1t0d0s0 12 GB /	fileys c1t0d0s0 12 GB /	<ul style="list-style-type: none"> • Dual Drives—RAID 0 • Quad Drives—RAID 0+1
fileys c1t0d0s1 8 GB Solaris swap	(Solaris remaining space for future allocation)	
fileys c1t0d0s3 6 GB /var	fileys c1t0d0s1 10 GB Solaris swap	
fileys c1t0d0s4 30 GB /opt	fileys c1t0d0s3 6 GB /var	
fileys c1t0d0s6 6 GB /usr	fileys c1t0d0s4 50 GB /opt	
fileys c1t0d0s7 8 GB /exprt/home	fileys c1t0d0s6 6 GB /usr	
	fileys c1t0d0s7 8 GB /exprt/home	

1. The hard drive partitioning recommendations in this table are for NFS partitions. For the recommendations of RAW partitions, see the *Cisco Element Management Framework Installation and Administration Guide*.
2. A small- to medium-sized deployment applies to a network environment with no more than eight active/standby pairs of Cisco PGW 2200 Softswitches. The recommendations for the small to medium size deployment are based on Sun SPARC-based platforms with a single hard drive, and RAM size ranging from 2 GB to 8 GB.
3. A medium to large-sized deployment is supported by Sun Netra T2000 series or Sun Netra T5200 series platforms.

Task 4: Ensure That the Sun Solaris 8 or 10 Operating System Is Installed

Cisco MNM machines must have the Sun Solaris 8 or 10 operating system with CDE 1.3 installed. If the Sun Solaris 8 or 10 operating system is not already installed, install it according to instructions provided by the manufacturer.

Also install the latest J2SE Solaris 8 or 10 patch cluster, available at this URL:

<http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access>



Note

- The Solaris 8 operating system is now at end of sale; therefore, migration to Solaris 10 is required. The next release of Cisco MNM may not support Solaris 8.
- If you intend to install the Solaris 10 operating system, install the Solaris 10 OEM Distribution kernel 11/06. Do not install the Cisco PGW 2200 Softswitch Solaris 10 Jumpstart or the Cisco PGW 2200 Softswitch OS recommended patches.
- If Cisco MNM coexists with CiscoView 6.1(6) on a Solaris 10 Operating System, the version of the Solaris operating system must be the November 2006 release or higher, and the minimum recommended cluster patch levels are those released April 17, 2007.

Task 5: Make System Configurations

Two kinds of system configurations are required after the Solaris operating system and setup disk drives are installed:

1. [Setting Up IP and Remote User Access Files](#)
2. [DNS Configurations](#)

Setting Up IP and Remote User Access Files

After you have installed Solaris and added all hard drives, you need to edit files on the management server that contain data for IP networking and remote user access. See [Table 2-3](#) for instructions.

Table 2-3 IP Networking and Remote User Access Files

File	Modification
/etc/defaultrouter	Add the host name and IP address of the default gateway router that provides network access between remote users, network devices, and the standalone system or the management server.
/etc/default/login	Add a # symbol at the front of the line that reads, "CONSOLE = /dev/console" to comment out the line. If you do not comment out this line, users cannot log in to the machine remotely.
/etc/default/login	Add the login accounts for all users accessing the server by Telnet.
/etc/hosts	Add the presentation server's host information.

DNS Configurations

Use these steps to modify DNS configurations:

- Step 1** Ask your IT administrator if DNS should be used. If yes, perform Steps 2 and 3. If no, perform Steps 4 and 5.
- Step 2** If DNS *should* be used, the IT administrator must configure the hostname of your machine on the DNS server.
- Step 3** Add the valid DNS server and domain name in `/etc/resolv.conf`.

- Step 4** If DNS *should not* be used, delete the `/etc/resolve.conf` file if it exists.
- Step 5** Verify that the hosts entry in the `/etc/nsswitch.conf` file looks exactly like the following line:
hosts: files

**Note**

If you change how DNS is configured after Cisco EMF is installed, you must uninstall and reinstall Cisco EMF. For more information on DNS configurations, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Task 6: Obtain a Cisco EMF License

To start Cisco EMF, you must have a valid license key file available. In a distributed configuration, the license key is required on the management server.

To obtain a required valid license key file, do the following:

- Step 1** Go to the Cisco Product License Registration site at <https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet>
- Step 2** Fill in the Product Authorization Key (PAK). The PAK is provided on the Cisco EMF product CD sleeve.
- Step 3** Click **Submit**.
- Step 4** Verify that the product information shown on the screen is correct, and if it is correct, click **Continue**.
- Step 5** Select the version of the Cisco EMF product you are licensing in the Version number field.
- Step 6** Enter the hostname of the server where the Cisco EMF product is installed. You can obtain the server's hostname by entering the hostname command at the server's command line prompt.



Note The server hostname must not include a period (.).

- Step 7** Enter the host ID of the server where the Cisco EMF product is installed. (The host ID is a hexadecimal string that identifies the system; it is not the IP address.) You can obtain the server's host ID by entering the **hostid** command at the server's command line prompt.
- Step 8** Read the End-User License Agreement and click **I Accept**. You must accept to get a license.
- Step 9** Verify the registrant information shown on the screen.
- Step 10** Click **Continue**.
- Step 11** Verify the summarized information and click **Submit**.

The license request is submitted. The Cisco EMF permanent license key file is returned to you as an e-mail attachment.

Task 7: Install CiscoView 6.1(6) on a Solaris 10 Operating System

CiscoView is a graphical device management tool based on the Simple Network Management Protocol (SNMP) that provides real-time views of networked Cisco devices. Cisco MNM uses CiscoView to configure and monitor the Cisco ITP-L and the LAN switch (Cisco Catalyst 2900, 5500, and 6509) devices through a CiscoView server.

**Note**

Cisco IP Transfer Point LinkExtender (ITP-L) replaces the term Cisco Signaling Link Terminal (SLT).

CiscoView is optional; install it only if you want to manage the Cisco ITP-L or LAN switches from Cisco MNM.

Install CiscoView 6.1(6) *before* installing Cisco MNM 2.7(3) so that you can identify the CiscoView server IP address that must be entered when you install Cisco MNM. You can install CiscoView locally on the Cisco MNM workstation or on a remote server.

Use these steps to install CiscoView 6.1(6):

Step 1 Insert the LMS 3.0 DVD that comes with your Cisco MNM package in the DVD-ROM drive.

**Note**

- CiscoView ships as part of LMS 3.0 with MGC Node Manager. Only the CiscoView part of LMS is provided. To obtain licenses for other LMS features, order LMS 3.0 from the Cisco.com website.
- If your machine does not have a DVD-ROM drive, see [Table 2-5](#) in the Troubleshooting section for steps on mounting a DVD-ROM drive from a remote machine.

Step 2 Write down the CiscoView server IP address, which is needed for Task 9 when you install Cisco MNM.

Step 3 Run the installation setup script by entering:

```
# sh setup.sh
```

or

```
# ./setup.sh
```

Step 4 Press **Enter** to read the license agreement.

Step 5 Enter **Y** to accept the license agreement and proceed with the installation.

**Note**

- Error messages appear if you do not have required Server and Client patches. Warning messages appear if you do not have recommended server or client patches.
- CiscoView must use the default port number 1741. Do not modify this number during installation.

Step 6 Select one of the following installation modes:

- a. Typical, to select the components and install them in the default location (/opt/CSCOpX). This is the default installation mode.
- b. Custom, to select optional components, customize the settings, and specify the location.

Step 7 Select **CiscoView 6.1(6)** to begin the installation. When the installation is complete, the following messages display:

Software Installation Tool Completed
Possible Warnings/Errors Encountered

The warning and error messages that appear after these messages do not hinder the installation. They only indicate that you need to take corrective actions after the installation is complete.

Your Solaris machine has successfully installed CiscoView.

For more CiscoView installation details, see the *Installation and Setup Guide for CiscoView 5.4 (Standalone)* at

http://www.cisco.com/en/US/products/sw/cscowork/ps4565/products_installation_guide_book09186a00800e19f6.html

To get the supported device list, see the *User Guide for CiscoView 6.1(6)* at

http://www.cisco.com/en/US/docs/net_mgmt/ciscoworks_ciscoview/6.1.6/user/guide/cv_ug.html

After installing CiscoView 6.1(6), get the support list for Signaling Link Terminals ITP-Ls and Media Gateways (MGWs) by logging in to the CiscoView server. If your Cisco ITP-L or MGW isn't included in the list, download the device package at

<http://www.cisco.com/cgi-bin/Software/CiscoView/cvplanner.cgi>

Add the device package by following the instructions provided in the readme file.

Task 8: Install Cisco EMF 3.2

Follow the procedures below to install Cisco EMF 3.2 on a standalone system or on both machines (management server and presentation server) in a distributed configuration.

For more information on the Cisco EMF 3.2 installation, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Installing on the Management Server

Step 1 Log in as the root user on the machine where Cisco EMF is to be installed.

Step 2 Insert the Cisco EMF 3.2 Service Pack 7 Disk 1 in the CD-ROM drive.

Step 3 Change the folder using the following command:

```
# cd /cdrom/cdrom0
```

Step 4 Invoke the Cisco EMF installation script using the following command:

```
# ./ceminstall
```

A menu listing the Cisco EMF installation options displays.

Step 5 Choose the **Cisco Element Manager Framework - Server** option, and press **Enter**.

Step 6 Accept the default location for the installation (<CEMF_ROOT>) and press **Enter**.

Step 7 Accept the default location (/opt/Backup) and press **Enter**.



Note You can specify a separate disk to gain better performance.

Step 8 Choose the hostname, and then press **Enter**.



Note If there is more than one hostname, choose the correct hostname. If the correct hostname is not listed in the menu, press **Enter**. Then enter the desired hostname and press **Enter**.

Step 9 Press **Enter** to verify that the setup information is correct.

Step 10 Enter **y** to accept the default DNS domain and press **Enter**.



Note To change the default DNS domain, enter **n**, press **Enter**, specify the DNS domain, and press **Enter** again.

Step 11 Enter **y** and press **Enter** to run the FlexLM daemon, which is provided with Cisco EMF.



Note To use an existing FlexLM daemon running on your system, enter **n** and press **Enter**.

Step 12 Press **Enter** if you have a valid license file available on your network. If you do not have a valid license file, enter **n**.



Note To obtain a license, see the [“Task 6: Obtain a Cisco EMF License”](#) section on page 2-6.



Note If you do not have a valid license file, you can still continue with the installation. The installation process continues, but you cannot start the Cisco EMF Server until a valid license key is provided and the `<CEMF_ROOT>/bin/cemf license` command is run to update the license information.

Step 13 Enter the full name, including the path, of the license file and press **Enter**.

The installation process begins and takes several minutes. When the installation is complete, a message indicates that the Cisco EMF Server Package installation completed satisfactorily.

This completes the Cisco EMF installation procedure on the management server.

If you are using a distributed configuration (with the management server and the presentation server), continue installing Cisco EMF on the presentation server by following the steps in the [“Installing on the Management Server”](#) section on page 2-8. Otherwise, continue the installation by performing the procedure described in the [“Installing Cisco EMF Service Packs”](#) section on page 2-10.

Installing Cisco EMF on the Presentation Server

Cisco EMF must be installed on the management server first, and the Cisco EMF server must be started before a Presentation client is installed.

Step 1 Log in as the root user on the Presentation Server where the Cisco EMF client is to be installed.

Step 2 Insert the Cisco EMF 3.2 Service Pack 7, CD #1 in the CD-ROM drive.

Step 3 Change the folder using the following command:

```
# cd /cdrom/cdrom0
```

Step 4 Invoke the Cisco EMF installation script using the following command:

```
# ./ceminstall
```

A menu listing the Cisco EMF installation options displays.

Step 5 Choose the **Cisco Element Manager Framework - Client** option, and press **Enter**.

Step 6 Accept the default location for installation, /opt/cemf, and press **Enter**.

Step 7 Specify the hostname of the management system where the Cisco EMF Server is installed, and then press **Enter**.

Step 8 Press **Enter** to confirm the hostname for the management server.



Note Enter **n** and press **Enter** if you want to change the hostname for the management server.

Step 9 Press **Enter** to confirm the hostname and corresponding IP address of the management server.



Note Enter **n** and press **Enter** if you want to change the values.

The installation process begins and takes several minutes. When the installation is complete, a message indicates that the Cisco EMF Server Package installation completed satisfactorily.

This completes the Cisco EMF installation procedure on the presentation server.



Note After installing the Cisco EMF 3.2 base version, you must install Cisco EMF Service Packs 7, 7.1, and 7.2. See “[Installing Cisco EMF Service Packs](#)” for more information.

Installing Cisco EMF Service Packs

Cisco MNM requires Cisco EMF Service Packs 7, 7.1, and 7.2. See the release notes for additional patch requirements.

To install Service Packs 7, 7.1, and 7.2, follow these steps.



Caution

The Cisco EMF Service Packs must be installed in this order: 7, 7.1, and 7.2.

Step 1 Insert the Cisco EMF 3.2 Service Pack 7, CD #2 in the CD-ROM drive.



Note The Cisco EMF 3.2 Service Pack is also available at <http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-sp32-sp1>

Step 2 Change the directory to cdrom using the following command:

```
# cd /cdrom/cdrom0
```

Step 3 Determine your current Cisco EMF version and patch level by entering this command:

```
# ./cemfinstall -show
```

Step 4 Proceed to Step 5 if Service Pack 7, 7.1, and 7.2 are not listed. Otherwise, you can skip this installation procedure for Cisco EMF service packs.

Step 5 Start the Cisco EMF installation script using the following command:

```
# ./cemfinstall
```

Step 6 Choose the package to install.



Note If you have a Cisco EMF Server installed, you can install only the server patch. If you have a Cisco EMF Client installed, you can install only the client patch.

The installation begins. Wait until the installation is complete.

This complete the installation procedure for Cisco EMF Service Packs 7, 7.1, and 7.2

Installing the Cisco EMF SSH Add-On Package

To enable SSH support on Cisco MNM running on Solaris 8 or 10, install the CEMF Crypto Add-on Package by following the steps in this section:



Note We recommend installing SSH on Cisco MNM and Cisco VSPT before installing on the Cisco PGW 2200 Softswitch so that you can use the element managers to monitor the installation process on the Cisco PGW 2200 Softswitch and other managed components.

Step 1 Download the CEMF Crypto Add-on Package Software and the *CEMF Crypto Add-on Package Installation Guide* available from the network management download page at

<http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-addon-3des>

Step 2 Under the heading, “Cisco Element Management Systems,” click **CEMF Strong Cryptographic Software**.



Note Authorization is required for downloading the cryptographic software. If you do not have authorization, you are automatically redirected to an authorization request page.

Step 3 Follow the installation instructions in the *CEMF Crypto Add-on Package Installation Guide*.



Note Make sure the entry of SSH exists in the `/etc/services` file on the machine where Cisco MNM is installed.

**Caution**

Using the # character in the /etc/motd banner might cause SSH connectivity problems. The # character might interfere with the scripts used in Cisco MNM. If you encounter problems using SSH with the installation of the CEMF Crypto Add-on package and the SSH entry in the /etc/services file, try removing the motd banner.

**Caution**

Do not use special characters, such as %, \$, #, @, and &, in the SSH password because the CEMF Crypto Add-on package does not support these special characters for the SSH password.

Starting Cisco EMF

To start Cisco EMF, use these steps:

Step 1 Log in to the system where you installed Cisco EMF.

Step 2 Become the root user using the following command:

```
# su - root
```

Step 3 Change the working directory to <CEMF_ROOT>/bin using the following command:

```
# cd <CEMF_ROOT>/bin
```

Where <CEMF_ROOT> is the directory where Cisco EMF is installed.

Step 4 Use the following command to start Cisco EMF if the Cisco EMF background processes are not already running:

```
# ./cemf start
```

**Note**

Depending on your server, it might take 10–30 minutes for the Cisco EMF startup processes to complete. A relatively longer startup might occur if your database is new or has been reset.

Task 9: Install Cisco MNM Release 2.7(3) and Verify the Installation

Follow the instructions in this section to install Cisco MNM. If you are upgrading from Version 1.5 or 2.x, see the [“Upgrading from Previous Cisco MNM Releases”](#) section on page 2-20.

Check for the latest software patches by going to the URL provided in the [“Installation Software”](#) section on page 2-1.

**Note**

The Cisco MNM software must be installed with the **root** privilege.

Follow the procedure below to install Cisco MNM on a standalone system or on both machines (management server and presentation server) in a distributed configuration. The Cisco MNM installation process automatically detects if the complete Cisco EMF software is installed, or only the Cisco EMF client, and then it installs the correct Cisco MNM components.

Installing Cisco MNM

Step 1 Start Cisco EMF if it is not already running.

Step 2 Change the working directory using the following command:

```
% cd <CEMF_ROOT>/bin
```

Step 3 Verify that Cisco EMF is running using the following command:

```
% ./cemf query
```

Text similar to the following is displayed:

```
CEMF Manager 3.2 initialized
```

Step 4 Change to the root user using the following command:

```
# su - root
```

Step 5 Verify that the Volume Management daemon is running using the following command:

```
# ps -ef | grep vold
```

Text similar to the following is displayed:

```
root 483 1 0 Oct 23 ? 0:00 /usr/sbin/vold -f /etc/vold.conf
```



Note If the daemon name is not displayed, start the daemon using the following command:

```
/etc/init.d/volmgt start
```

Verify that the Volume Management daemon is running with the command provided above. If it is still not displayed, contact your system administrator.

Step 6 Insert the Cisco MNM CD in the CD-ROM drive.

Step 7 Enter the following command:

```
# cd /cdrom/cscocmmn
```

Step 8 Enter the following command to start the installation

```
# ./cmmninstall
```

Text similar to the following is displayed:

```
-----
Cisco MGC-Node Manager Installation
Mon Oct 27 02:51:35 PM
-----
```

```
Setup has detected that the CEMF Manager software is installed.
Do you wish to install the CSCOcmmn Manager software. [y/n]:
```



Note To upgrade to the next release of Cisco MNM, use the command:
`./cmninstall -u`

Step 9 Enter `y` and press **Enter** to continue.

Step 10 Enter the required information:

- Database backed up—Press **Enter** if you had your databases backed up.
- CiscoView Server IP address—Enter the IP address of the CiscoView server installed in the [“Task 7: Install CiscoView 6.1\(6\) on a Solaris 10 Operating System”](#) section on page 2-7. If you are not using CiscoView, press **Enter**.
- Logfile directory location—Press **Enter** to accept the default location `/var/tmp`, or enter another location and press **Enter**.
- Logfile name—Press **Enter** to accept the default name `CSCOCmmn.log`, or enter another name and press **Enter**.

Step 11 Enter `y` to proceed with the installation.



Note If the disk space is not sufficient, delete your unwanted files.

When the installation is complete, text similar to the following is displayed:

```
Everything appears to be installed correctly.
```



Note The installation might take 15–40 minutes, depending on your system. If the installation is not successful, check the installation log, `/var/tmp/installCSCOCmmn.log`.

This completes the Cisco MNM installation procedure. Continue with the [“Verifying the Cisco MNM Installation”](#) section on page 2-14.

Verifying the Cisco MNM Installation

Step 1 Before starting Cisco MNM, verify that the package is installed by using the following command:

```
# pkginfo CSCOCmmn
```

Text similar to the following is displayed:

```
application CSCOCmmn      Cisco MGC-Node Manager (CMNM) 2.7.3
```

Step 2 Use the following command to verify that the Cisco MNM element managers have been installed:

```
# <CEMF_ROOT>/bin/cmmversion -verbose
```

Text similar to the following is displayed:

```
CSCOCmmn Tool Versions

          Patch Build  Build
          Name Version Level Num  Type
-----
```

```

CSCOcmnm 2.7.3(FCS) 00 060107 REL
CSCOcmcv 2.7.3
CSCOcmhp 2.7.3 00
CSCOcemfm 3.2 Patch: 170007-06
Patch: 190701-05
Patch: 190702-01

```

```

-----

CSCOcmnm Element Manager Versions

```

```

          Patch Build Build
          Name Version Level Num Type
-----
hostEMm 2.7.3 00 060107 REL
mgcEMm 2.7.3 00 060107 REL
-----

```

**Note**

The information displayed when you run this script varies with the Cisco MNM release and the patch you are using.

Table 2-4 gives descriptions on the two types of element managers, mgcEM and hostEM.

Table 2-4 Element Managers

Name	Description
mgcEM	Common Element Manager for Cisco PGW 2200 Softswitch node devices
hostEM	Element Manager for Cisco PGW 2200 Softswitch host signaling, trunking, and dial plan components

**Note**

If you suspect problems with the installation, check the installation log file (which by default is `/var/tmp/installCSCOcmnm.log`) to search for errors.

Verifying the Installation of CiscoView 6.1(6)

Before starting Cisco MNM, verify that the CiscoView 6.1(6) package is installed by entering the following command:

```
# ./cmmupdateCvip -s
```

- If the package is installed, text similar to the following is displayed:

```
Current Ciscoview IP Address: 10.10.10.10
```

where 10.10.10.10 is the server IP address.

- If the package is not installed, text similar to the following is displayed:

```
./modules/installUtilities: not found
```

CiscoView is designed to work with CiscoWorks 2000 (an integrated suite of network management tools). When you install CiscoView packages from the Cisco MNM media kit, the following functions of CiscoView are not supported:

- Telnet
- CCO connection
- Preferences
- About
- Help

**Note**

When you are running `xdsu` of the CiscoView, the following exception is generated and can be ignored:

```
ERROR: exception occurred while examining Integration Utility configuration:
com.cisco.nm.nmim.nmic.IntgUtilCheckConfig
```

Setting the IP Address of the CiscoView Server

You can choose either of the following options to set the IP address of the CiscoView server.

- You can set the IP address of the CiscoView server when prompted with the following message during the Cisco MNM installation.

```
Please enter the CiscoView Server IP address [def: 0.0.0.0] [?, q]
```

- You can change the IP address of the CiscoView server using the following command from the Cisco EMF base directory:

```
# ./cmmupdateCVip -i new CiscoView IP address
```

Text similar to the following is displayed:

```
cmm CiscoView Server IP Addresses changed
From: <old IP address>
To: <new IP address>
```

Starting Cisco MNM

Use the following steps to start Cisco MNM:

- Step 1** Start Cisco EMF.
- Step 2** Log in with your user ID.
- Step 3** Change to the directory using the following command:

```
% cd <EMF_ROOT>/bin
```

**Note**

An X-server must be running, and the `DISPLAY` environment variable must be properly configured. Use one of the following commands, depending on which shell you are using, to set the X-display variable:

In “csh” or “tcsh”: **setenv DISPLAY <hostname>:<display number>**

In “sh” or “ksh”: **DISPLAY=<hostname>:<display number>;export \$DISPLAY**

The default value for the display number is 0.

Step 4 Start the Cisco MNM using the following command:

```
% ./cemf session
```

Step 5 Enter your login name and password.



Note The default Cisco MNM login and password are each **admin**. Use the login and password configured for your system.

For help with navigation and basic operations, see Chapter 3, “Getting Started with Cisco MNM” in the *Cisco Media Gateway Controller Node Manager User’s Guide* at

http://www.cisco.com/en/US/products/sw/netmgmtsw/ps1912/products_user_guide_list.html

If you are using SSH for secure communications with SSH-enabled network devices, go to the next section, “Getting Started with Secure Communications on Cisco MNM”.

Getting Started with Secure Communications on Cisco MNM

This section tells you how to enable secure communications on network devices managed with Cisco MNM.

Before you begin: The CEMF Crypto Add-on Package must already be installed (see the “Installing the Cisco EMF SSH Add-On Package” section on page 2-11), and you must know the security policy for the elements you are enabling.



Note

SSH is enabled on network elements directly, not by the use of Cisco MNM. Network elements include Cisco PGW 2200 Softswitch, Cisco HSI, and Cisco BAMS. See the documents at http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/tsd_products_support_series_home.html

You do not need to know the specific SSH version. Cisco MNM automatically negotiates the correct version (SSH 2 if available or SSH 1.x).

Do you have existing (already deployed in Cisco MNM) network elements that are SSH-enabled? See the “Updating Existing SSH-Enabled Network Elements” section on page 2-17.

Do you want to set SSH security policy for existing SSH-enabled network elements? See the “Using SSH to Deploy New Elements” section on page 2-18.

Updating Existing SSH-Enabled Network Elements

Use this procedure to set SSH as the security policy for network elements that are already deployed and SSH-enabled:

Step 1 Start Cisco MNM. See the “Starting Cisco MNM” section on page 2-16.

Step 2 Click the **Viewer** button on the main window.

Step 3 In the Map Viewer, right-click the SSH-enabled element you want to set the security policy for. The operation menu is displayed.

Step 4 Click **Accounts**.

The Accounts dialog box opens.

- Step 5** From the Security Policy drop-down list, choose **SSH**. (**None** is the default.)
- Step 6** Click **Save**.
- Step 7** Repeat the steps above for the remaining SSH-enabled elements.
-

Using SSH to Deploy New Elements

Use this procedure to deploy new elements that have been SSH-enabled:

- Step 1** For **Security Policy** in the Deployment Wizard template, select **SSH** and follow the on-screen prompts.
- Step 2** Click **Finish**.
- Cisco MNM finds the new elements using the appropriate SSH protocol. Non-SNMP communication with elements now uses SSH secure utilities.
-

Check Security Policies of Elements

The security policy indicates the type of connection that Cisco MNM uses to connect to an element:

- none—Indicates that the Cisco MNM uses telnet to connect to the element.
- SSH—Indicates that the Cisco MNM uses SSH to connect to the element.

Use this procedure to check the security policy of an element:

- Step 1** Right-click the element you want to check.
- Step 2** Click **Accounts**.

The Accounts dialog box opens. You can see the current security policy in the Security Policy drop-down list.

Task 10: Set Up the X Terminal Workstations for Remote Access

Use the steps below to set up X terminal workstations for accessing Cisco MNM remotely from a workstation or PC.



Note

Cisco MNM has been tested with the Reflection 7.20 X server software package.

Creating an XDMCP Connection

For Reflection software to display Cisco MNM correctly, it must be run in the XDMCP mode. For the host name, use the name of the presentation server (in a distributed configuration) or the name of the standalone system.

Use the following steps to create an XDMCP connection:

-
- Step 1** Start the Reflection software.
 - Step 2** From the Connection menu, click **New XDMCP Connection**.
 - Step 3** From the Method drop-down list, click **Broadcast** or **Direct**, and continue with one of the following sets of steps:

For Broadcast Method

- a. Enter the host name or the IP address of the XDMCP destination host in the Host name field. Or choose the XDMCP destination host from the Host name drop-down list.



Note If you do not know which XDMCP destination host to choose or enter, contact your system administrator.

- a. Click **Connect**.

For Direct Method

- a. Enter the host name of the XDMCP computer in the Host name field,
- b. Click **Connect**.

In either method, an X terminal window opens on the host machine. Start Cisco MNM in the usual manner (see the “[Starting Cisco MNM](#)” section on page 2-16).



Note If the Cisco EMF Launchpad displays but appears to be inactive, check for a message box behind the Launchpad that reads “[T]here are insufficient colors available for Cisco EMF Manager.” You can safely ignore this message and close the message box, or remedy the problem as described in the “[Fixing Insufficient Colors Problem](#)” section on page 2-20.

Creating a Connection from UNIX WorkStation

To connect to Cisco MNM from a remote UNIX workstation, use the following procedure:

-
- Step 1** Open an X terminal window.
 - Step 2** Use Telnet to connect to the Cisco MNM host.
 - Step 3** Enter the following command to change to the Cisco MNM directory:

```
# cd <CEMF_ROOT>/bin
```
 - Step 4** Enter the following command to launch Cisco MNM:

```
# ./cemf session
```
-

Fixing Insufficient Colors Problem

You may encounter the “... insufficient colors available for Cisco EMF Manager” problem. To fix this problem, see the procedure in the “Configuring Reflection X Version 7.20 to Support Cisco EMF Color Usage” section of the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Task 11. Synchronize Time

After installing Cisco MNM, you should synchronize the times configured for the Cisco MGC, Cisco MNM, and the Billing and Measurements Server (BAMS). To ensure that the Cisco MNM records are correct, these components should all be configured to Greenwich Mean Time (GMT). For instructions on setting the time for these components, see both the *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide* at

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/prod_installation_guides_list.html

and the *Cisco Billing and Measurements Server User's Guide* for your BAMS server at

http://www.cisco.com/en/US/products/sw/voicesw/ps522/products_user_guide_list.html.

Task 12: Configure Network Devices to Forward Alarms

The final task in readying Cisco MNM for network management is to configure the devices in the network so that they send alarm information to Cisco MNM. For more information, see Chapter 3 in the *Cisco Media Gateway Controller Node Manager User's Guide* at

http://www.cisco.com/en/US/products/sw/netmgts/ps1912/products_user_guide_list.html

Upgrading from Previous Cisco MNM Releases

When you upgrade from a previous release of Cisco MNM, the installation updates the content but leaves your existing data intact (for example, network data and user access settings). You do not need to uninstall your previous release before upgrading.

If you have installed CiscoView, you may also want to upgrade it. When upgrading CiscoView, upgrade according to the LMS 3.0 installation guide. CiscoView 6.1(6) requires more disk space than the previous release, and if the space is insufficient, CiscoView 6.1(6) can be installed on another machine. If you install CiscoView 6.1(6) on another machine, use the following command to reconfigure CiscoView server's IP address: # <CEMF_ROOT>/bin/cmmupdateCVip -i <CiscoView_NewServer_IP>.

Although the upgrade option preserves your data, we recommend that you perform a backup before upgrading, as described in the “Uninstalling Cisco MNM” section on page 2-23.

Use the following steps to upgrade from a previous Cisco MNM release:

-
- Step 1** Read the “Installation Checklist” section on page 1-5 to identify other tasks needed for the upgrade.
 - Step 2** Have Cisco EMF and Cisco MNM running.
 - Step 3** Change the working directory using the following command:

```
% cd <CEMF_ROOT>/bin
```

Step 4 Verify that Cisco EMF is running using the following command:

```
% ./cemf query
```

Text similar to the following is displayed:

```
CEMF Manager 3.2 initialized
```

Step 5 Change to the root user using the following command:

```
# su - root
```

Step 6 Verify that the Volume Management daemon is running using the following command:

```
# ps -ef | grep vold
```

If the daemon is running, text similar to the following is displayed:

```
root 483 1 0 Oct 23 ? 0:00 /usr/sbin/vold -f /etc/vold.conf
```



Note If the daemon name is not displayed, start the daemon using the following command:
/etc/init.d/volmgt start

Verify that the Volume Management daemon is running with the command provided above. If it is still not running, contact your system administrator.

Step 7 Insert the Cisco MNM 2.7(3) CD in the CD-ROM drive.

Step 8 Change the working folder using the following command:

```
# cd /cdrom/cscocmnm
```

Step 9 Back up your database (see the [“Backing Up Your Databases”](#) section on page 2-22).

Step 10 Start Cisco MNM.

Step 11 Close Cisco MNM.

Step 12 Eject the Cisco MNM 2.7(3) CD.

Step 13 Insert Cisco EMF 3.2 Service Pack 7, CD #2 in the CD-ROM drive.

Step 14 Install CEMF 3.2 Service Packs 7, 7.1, and 7.2.

Step 15 Enter either this command:

```
# ./cmninstall -u
```

or this command:

```
# ./cmninstall -upgrade
```

Text similar to the following is displayed:

```
-----
                        Cisco MGC-Node Manager Installation
                        Wed Oct 29 07:57:46 PM
-----
```

```
Setup has detected that the CEMF Manager software is installed.
Do you wish to install the CSCOcmmn Manager software. [y/n]: [y]
```

Step 16 Enter **y** and press **Enter** to continue the upgrade.

Step 17 Enter the required information as summarized here:

- Database backed up—Press **Enter** if you had your databases backed up.
- CiscoView Server IP address—Enter the IP address of the CiscoView server installed in “[Task 7: Install CiscoView 6.1\(6\) on a Solaris 10 Operating System](#)” section on page 2-7. If you are not using CiscoView, press **Enter**.
- Logfile directory location—Press **Enter** to accept the default location /var/tmp, or enter another location and press **Enter**.
- Logfile name—Press **Enter** to accept the default name CSCOCmmm.log, or enter another name and press **Enter**.

Text similar to the following is displayed:

```

**WARNING** We don't check diskspace for upgrade right now.

                It is the user's responsibility to make sure there is enough free
diskspace.

Continue with CSCOCmmm install [y,n,?]

```

Step 18 Enter **y** to continue the upgrade.

Step 19 Verify the upgrade according to the instructions in the “[Verifying the Cisco MNM Installation](#)” section on page 2-14.

Step 20 Start Cisco MNM and do the rediscover of the following objects:

- All BAMS objects, using the Map Viewer BAMS-View
- All HSI objects, using the Map Viewer HSI-View
- All MGC objects, using the Map Viewer MGC-Node-View

The objects discovered before the upgrade should appear.

Step 21 Remove the dial plan components if they exist manually for each MGC node:

- Expand the MGC node
- Right click the dial plan component
- Choose **Deployment > Delete Objects**
- Click **Finish** in the prompt.



Note

During the upgrade process, you might see error messages caused by Cisco EMF trying to create controllers that already exist. These messages can be safely ignored.

Backing Up Your Databases

If you are upgrading from Cisco MNM 2.x, the upgrade process retains your databases. However, it is good practice to back up your databases before upgrading. For more information, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Uninstalling Cisco MNM

Cisco EMF must be running in order for you to uninstall Cisco MNM. Use the following procedure to uninstall the Cisco MNM software:

Step 1 If Cisco MNM is running, click **File > Quit** to exit it. Do not stop Cisco EMF.

Step 2 Insert Cisco MNM 2.7(3) CD in the CD-ROM drive.

Step 3 Change the working folder using the following command:

```
# cd /cdrom/cscocmm
```

Step 4 Enter either this command:

```
# ./cmminstall -r
```

or this command:

```
# ./cmminstall -remove
```

Text similar to the following is displayed:

```
-----
Cisco MGC-Node Manager Installation
Mon Oct 27 03:51:35 PM
-----
```

```
Setup has detected that the CEMF Manager and CSCOcmm Manager
software is installed on this workstation.
Do you wish to uninstall the CSCOcmm Manager software. [y/n]: [n]
```

Step 5 Enter **y** to uninstall Cisco MNM.

Text similar to the following is displayed:

```
It is recommended that your databases are backed up before
running this command.
```

```
Have your databases been backed up [y/n]: [n]
```

Step 6 Enter **y** and press **Enter**.

Step 7 Press **Enter** twice to accept the default log file directory and the default log file name.

Text similar to the following is displayed:

```
Continue with CSCOcmm uninstall [y,n,?]
```

Step 8 Enter **y** to continue the uninstallation.

Step 9 Use the following procedure to verify that Cisco MNM was successfully uninstalled:

- Enter **pkginfo CSCOcmm** to verify that the CSCOcmm package could not be found.
- Enter **pkginfo hostEM** to verify that the hostEM package could not be found.
- Enter **pkginfo mgcEM** to verify that the mgcEM package could not be found.
- Enter **pkginfo CSCOcmev** to verify that the CSCOcmev package could not be found.

This completes the procedure for uninstalling Cisco MNM.

Displaying Current Cisco MNM Release Packages

To display the current Cisco MNM release packages, do the following:

-
- Step 1** Log in as the root user.
 - Step 2** Insert Cisco MNM 2.7(3) CD in the CD-ROM drive.
 - Step 3** Change the working folder using the following command:

```
# cd /cdrom/cscocmm
```

- Step 4** Enter either the following commands:

```
# ./cmminstall -s
```

or

```
# ./cmminstall -show
```

All current Cisco MNM release packages display.

Viewing Help for Cisco MNM Installation Scripts

To view the help content of the Cisco MNM installation scripts, do the following:

-
- Step 1** Log in as the root user.
 - Step 2** Insert Cisco MNM 2.7(3) CD in the CD-ROM drive.
 - Step 3** Change the working folder using the following command:

```
# cd /cdrom/cscocmm
```

- Step 4** Enter either the following commands:

```
# ./cmminstall -h
```

or

```
# ./cmminstall -help
```

The help information script displays.

Uninstalling Cisco EMF

You must uninstall Cisco MNM before uninstalling Cisco EMF. When Cisco EMF is uninstalled, all Cisco EMF processes are automatically stopped.

Use the following procedure to uninstall Cisco EMF:

-
- Step 1** As a superuser (su), log in to the machine where Cisco EMF is installed.

- Step 2** Verify that Cisco MNM has been uninstalled.
- Step 3** Insert Cisco EMF 3.2 Service Pack 7, CD #1 in the CD-ROM drive.
- Step 4** Change the folder using the following command:
- ```
cd /cdrom/cdrom0
```
- Step 5** Remove Cisco EMF using the following command:
- ```
# ./cemfinstall -remove
```
- Cisco EMF is uninstalled.
-

For more information on Cisco EMF, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Troubleshooting Common Installation Problems

Carefully following the “[Installation Checklist](#)” in Chapter 1 helps you to avoid most installation pitfalls. But if a problem occurs, check this section for troubleshooting guidelines.

See [Table 2-5](#) for suggested steps on troubleshooting common installation problems.

Related Topics

Cisco Media Gateway Controller Node Manager User’s Guide, Appendix C, “Troubleshooting Cisco MNM.”

“[Problems Installing an Element Manager on Cisco EMF](#)” in the “Troubleshooting” section of the *Cisco Element Management Framework Installation and Configuration Guide Version 3.2 Service Pack 7*.

Table 2-5 Troubleshooting Installation Problems

Problem	Suggested Steps
No local DVD-ROM drive is available.	<p>Use these steps to mount a DVD-ROM drive on a remote system:</p> <p>Note The steps below show you how to mount a DVD-ROM drive on a remote system. These steps provide general information only. For more information, refer to the Sun Solaris documentation or consult your IT administrator.</p> <ol style="list-style-type: none"> 1. Insert the DVD-ROM in the DVD-ROM drive of the remote system. The DVD-ROM should work normally on the remote system. If it does not, consult your IT administrator. <p>Note The DVD-ROM is mounted as <code>/cdrom/cdrom0</code>.</p> <ol style="list-style-type: none"> 2. Log in to the remote system as the root user. 3. Use the following mount command to mount the DVD-ROM on the remote system: <pre># mount -F hsfs -r ro /dev/dsk/device_filename /cdrom/cdrom0</pre> <p>Where:</p> <ul style="list-style-type: none"> -F indicates the type of file system (hsfs for the ISO 9660 standard). -r ro mounts the DVD-ROM in read-only mode. <p><i>device_filename</i> is the name of the device, such as <code>/dev/dsk/cxydz</code> where x is the DVD-ROM drive controller number, y is the DVD-ROM drive SCSI ID number, and z is the slice partition on which the DVD-ROM is located.</p> 4. Edit or create the <code>/etc/dfs/dfstab</code> file to include the following line, which sets the NFS attributes to read-only: <pre>share -F nfs -o ro -d "NFS description" /cdrom/cdrom0</pre> <p><code>/cdrom/cdrom0</code> is the name of the directory to be shared.</p> 5. Log in the local system as the root user. If the <code>/cdrom</code> directory does not already exist, enter the following command to create it: <pre># mkdir -p /cdrom/cmm</pre> 6. Mount the DVD-ROM drive by entering the following: <pre># /usr/sbin/mount -r remote_host_name:/cdrom/cdrom0 /cdrom/cmm</pre> <p>The DVD-ROM drive on the remote system is mounted.</p>

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
How to unmount a remote DVD-ROM drive.	<p>After you install CiscoView 6.1(6) from a DVD-ROM drive that is mounted on the remote system, you must unmount that DVD-ROM drive. Here are the steps for doing that:</p> <ol style="list-style-type: none"> Log in to the local machine as root, and enter the following command: <pre># umount /cdrom/cmm</pre> <p>Note Assume that cmm is the directory where the remote DVD-ROM drive was originally mounted.</p> <ol style="list-style-type: none"> Log in to the remote machine as root, and enter the following command: <pre># unshare -F nfs -o ro /cdrom/cdrom0</pre> <p>The DVD-ROM drive is unmounted.</p>
You get the message, “Cannot connect to session” when you try to start a Cisco MNM session.	<p>Make sure that Cisco EMF is running.</p> <ul style="list-style-type: none"> If Cisco EMF is not running, start it, and then retry starting Cisco MGC Node Manager. If Cisco EMF is running, check to see if the IP address or host name of the Cisco MNM server has changed since Cisco MNM was installed. If it has, follow the steps described for the next problem.
You get the message, “System IP address does not match database address” when you try to start Cisco EMF.	<p>This can be caused by a change in the IP address or host name of the Cisco MNM server that takes place after Cisco MNM was installed. Use the following steps to correct the problem:</p> <ol style="list-style-type: none"> Stop Cisco EMF: <pre><CEMF_ROOT>/bin/cemf stop</pre> If needed, update the IP address in Cisco EMF: <pre><CEMF_ROOT>/bin/cemf updateIP -m</pre> When prompted, enter the new IP address. If needed, update the host name in Cisco EMF: <pre><CEMF_ROOT>/bin/cemf updateName -m</pre> <p>When prompted, enter the new host name.</p> Restart Cisco EMF: <pre><CEMF_ROOT>/bin/cemf start</pre> <p>Note If the Management server address or name has changed in a distributed configuration, make the necessary changes on both the Management server and the Presentation server. If the Presentation server address or name has changed, make the changes on the Presentation server only.</p>

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
Fails to start Cisco MNM due to license problems.	Verify the following: <ul style="list-style-type: none"> • The license file has a .lic extension. • The license file is present in the <CEMF_ROOT>/config/licenses directory. • The license has not expired. If it has, get a new license at https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet. For detailed instructions, see “Task 6: Obtain a Cisco EMF License”. • The license is a multi-user license. • The license file has been issued for a correct machine. The license is machine-specific; you cannot move a license file from one machine to another but must get a new license for your current machine.
Uninstallation problem	Make sure you are uninstalling in the correct sequence. Before uninstalling Cisco EMF, you must uninstall Cisco MNM. Before uninstalling Cisco MNM, make sure that Cisco EMF is running.
Password problems	Reset the password.

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
ObjectStore problems starting CEMF on workstations with 16 GB of RAM or more	<p>ObjectStore cannot start up properly on a Cisco EMF server installed on a large workstation with 16 GB of RAM or more. Use the following steps to correct the problem:</p> <ol style="list-style-type: none"> 1. Identify the CEMF AppsServer.ini and ObjectServer.ini failure in <CEMF_ROOT>/log/sysmgr.log. 2. Remove the partial EM Installation (mgcEMm and the hostEMm): <pre><CEMF_ROOT>/bin/cemf load -remove mgcEMm -skippportcheck</pre> 3. Stop Cisco EMF: <pre><CEMF_ROOT>/bin/cemf stop</pre> 4. Clear the cache files by deleting the files in /tmp/ostore: <pre>rm -rf /tmp/ostore/*</pre> 5. Change the directory by using the following command: <pre>cd <CEMF_ROOT>/config/init</pre> 6. Use the UNIX editing tool, vi, to change the cacheSize value in each file listed below. <p>For example, for the first file, use vi to open the abstractionServer.ini file. Locate the cacheSize = <value> line. Reduce the value by a factor of 4 or set the cacheSize value to the value specified below (2).</p> <p>Continue to edit all of the other files accordingly.</p> <pre>abstractionServer.ini:cacheSize = 2 agServer.ini:cacheSize = 4 alarmDirServer.ini:cacheSize = 4 appsServer.ini:cacheSize = 32 asyncIosDataRepository.ini:cacheSize = 4 asyncSnmpDataRepositoryCommon.include:cacheSize = 0 attributeHistoryCollector.ini:cacheSize = 24 attributeHistoryServer.ini:cacheSize = 8 genericController.ini:cacheSize = 4 localDBServer.ini:cacheSize = 16 mapServer.ini:cacheSize = 4 nbinterface.ini:cacheSize = 4 notificationServer.ini:cacheSize = 8 objectServer.ini:cacheSize = 32 ogServer.ini:cacheSize = 4 pasTestRig.ini:cacheSize = 16 pollerServer.ini:cacheSize = 2 queryServer.ini:cacheSize = 8 reallocater.ini:cacheSize = 16 RMEBridge.ini:cacheSize = 4 statusPropagationRecalculator.ini:cacheSize = 4 statusPropagationServer.ini:cacheSize = 16 trapAlarmMapper.ini:cacheSize = 16 trServer.ini:cacheSize = 8 vectorServer.ini:cacheSize = 6 virtualAttributeServer.ini:cacheSize = 4</pre>

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
	<p>7. Restart Cisco EMF.</p> <pre data-bbox="667 363 1002 386"><CEMF_ROOT>/bin/cemf start</pre> <p>8. Check the file <CEMF_ROOT>/log/sysmgr.log for ObjectStore failures. If you don't see ObjectStore errors in this file, this completes the troubleshooting procedure for this problem. If you see ObjectStore errors similar to the following, go to Step 8.</p> <pre data-bbox="619 558 1453 684">INFO processControl.cc:1240 AV process produced bad message: [ObjectServer], [PID : 18736] No handler for exception: ObjectStore internal error <maint-0025-0045> The client communication area is filled up. (err_internal)</pre> <p>9. Stop Cisco EMF:</p> <pre data-bbox="667 758 991 781"><CEMF_ROOT>/bin/cemf stop</pre> <p>10. Set the following values in the <CEMF_ROOT>/config/env/avCore.sh file.</p> <pre data-bbox="667 890 1286 963">OS_COMMSEG_SIZE=26640384; export OS_COMMSEG_SIZE OS_COMMSEG_RESERVED_SIZE=26640384; export OS_COMMSEG_RESERVED_SIZE</pre> <p>11. Restart Cisco EMF.</p> <pre data-bbox="667 1041 1002 1064"><CEMF_ROOT>/bin/cemf start</pre>

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
Cisco EMF Licensing problem	<p>After the Cisco EMF installation is finished, when you start it, you may meet a license problem. The reason is that the default configuration of the Cisco EMF does not fully support Solaris 10 platform. You need to perform the following procedure to resolve this problem.</p> <p>If you come with an error with Cisco EMF licensing when starting the Cisco EMF, stop and restart the license manager daemon by running the following commands:</p> <pre data-bbox="655 562 965 615">/etc/rc2.d/S98avlm stop /etc/rc2.d/S98avlm start</pre> <p>If the problem is not resolved, please check that a valid license has already been uploaded into /opt/cemf/config/licenses, and use the following procedure:</p> <ol style="list-style-type: none"> <li data-bbox="655 751 1316 783">1. Add the following two lines in /opt/cemf/flexlm/avlm: <pre data-bbox="655 800 874 852">ulimit -n 1024 ulimit -H -n 1024</pre> <li data-bbox="655 877 1246 909">2. Enter the following command to stop the lmgrd: <pre data-bbox="655 926 954 947">/opt/cemf/flexlm/lmdown</pre> <li data-bbox="655 976 1377 1008">3. Enter the following command to start the Cisco EMF again: <pre data-bbox="655 1024 965 1045">/opt/cemf/bin/cemf start</pre> <p>The Cisco EMF licenses are fixed for a particular machine. You cannot copy the license file from one machine to another. If you want to install the Cisco EMF software on another machine, you must contact Cisco TAC and ask for a new license. You are required to provide Cisco TAC with the hostname and hostid of the new machine.</p>



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