Installation and Configuration Guide for the Cisco NAM Series 2204 Appliance

January 2011
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About This Guide

Revised Date: January 25, 2011

This preface describes who should read the *Installation and Configuration Guide for the Cisco NAM 2204 Appliance*, and the objectives, audience, organization, and conventions for the guide.

Note

Use this document along with the documents listed in the “Related Documentation” section on page xvii.

This preface contains the following sections:
- Document Revision History, page ix
- Objectives, page x
- Audience, page x
- Organization, page x
- Conventions, page xi
- Safety Warnings, page xi
- Related Documentation, page xvii
- Obtaining Documentation and Submitting a Service Request, page xvii

Document Revision History

The following Document Revision History table records technical changes to this document. The table shows the document revision number for the change, the date of the change, and a brief summary of the change.

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Change Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>January 2011</td>
<td>First release</td>
</tr>
</tbody>
</table>
Objectives

This guide explains how to prepare your site for installation, how to install the Cisco NAM 2204 appliance in an equipment rack, and how to troubleshoot and maintain the appliance. After completing the appliance installation procedures covered in this guide, you then use the appropriate publications to configure your appliance.

Warranty, service, and support information is located in the Cisco Information Packet that is shipped with your appliance.

Audience

This guide is designed for personnel who install, configure, and maintain the Cisco NAM 2204 appliance. To use this hardware publication, you should be familiar with internetworking equipment and cabling, and have a basic knowledge of electronic circuitry and wiring practices.

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Statement 1030

Organization

The major sections of this hardware installation guide are listed in the following table.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>Introducing the Cisco NAM 2204 Appliances</td>
<td>Describes the hardware features and specifications of the Cisco NAM 2204 appliance.</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Preparing to Install the Cisco NAM 2204 Appliance</td>
<td>Describes the safety recommendations, site requirements, network connection considerations, required tools and equipment, and provides an installation checklist.</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Installing the Cisco NAM 2204 Appliance</td>
<td>Includes appliance installation information, including how to connect the appliance console and network ports.</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Configuring the Cisco NAM 2204 Appliance</td>
<td>Describes how to configure the Cisco NAM 2204 appliance to establish network connectivity, configure IP parameters, how to perform other required administrative tasks using the NAM command line interface (CLI), and how to get started with the NAM graphical user interface (GUI).</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Backing up and Restoring NAM Configuration</td>
<td>Provides information about how to back up your NAM appliance configuration, download NAM software and updates, and restore your NAM appliance configuration.</td>
</tr>
<tr>
<td>Appendix A</td>
<td>Maintaining the Cisco 2204 NAM Appliance</td>
<td>Contains the procedures for keeping your appliance in good condition.</td>
</tr>
</tbody>
</table>
About This Guide

Conventions

This guide uses the following conventions to convey instructions and information.

**Note**

Means reader take note. Notes contain helpful suggestions or references to material not covered in the manual.

**Timesaver**

Means the described action saves time. You can save time by performing the action described in the paragraph.

**Tip**

Means the following information will help you solve a problem. The tips information might not be troubleshooting or even an action, but could be useful information, similar to a Timesaver.

**Caution**

Means reader be careful. In this situation, you might do something that could result in equipment damage or loss of data.

Safety Warnings

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, might harm you. A warning symbol precedes each warning statement. The safety warnings provide safety guidelines that you should follow when working with any equipment that connects to electrical power or telephone wiring. Included in the warnings are translations in several languages. (Refer to the Cisco Regulatory Compliance and Safety Information for the Cisco NAM 2204 Appliance for detailed information about compliance guidelines and translated safety warnings.)
IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS
Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Avviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia! INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyr, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Warning! VIKTIGA SÄKERHETSANVISNINGAR


SPARA DESSA ANVISNINGAR
FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelvezet jel veszélyre utal. Sérülésveszélyt rejtó helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékel biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

ПРЕДУПРЕЖДЕНИЕ ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБОЛЮДЕНЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要な安全性説明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電力回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의  중요 안전 지침

이 경고 기호는 위험을 나타냅니다. 작업자가 신체 부상을 입을 수 있는 위험한 환경에 있습니다. 장비에 작업을 수행하기 전에 전기 회로와 관련된 위험을 숙지하고 표준 작업 관례를 숙지하여 사고를 방지하십시오. 각 경고의 마지막 부분에 있는 경고문 번호를 참조하여 이 장치와 함께 제공되는 번역된 안전 경고문에서 해당 번역문을 찾아십시오.

이 지시 사항을 보관하십시오.
Aviso  INSTRUÇÕES IMPORTANTES DE SEGURANÇA
Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel  VIGTIGE SIKKERHEDSANVISNINGER

GEM DISSE ANVISNINGER

Upozorenje  VAŽNE SIGURNOSNE NAPOMENE
Ovaj simbol upozorenja predstavlja opasnost. Nažalost se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

Upozornění  DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY
Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoli vybavení si uvádějte nebezpečí související s elektrickými obvyky a seznámte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přiložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USHOVEJTE TYTO POKYNY
About This Guide

Installation and Configuration Guide for the Cisco NAM 2204 Appliance

Preface

Greetings

About This Guide

OL-22621-01

Greek:

About This Guide

Russian:

Installation and Configuration Guide for the Cisco NAM 2204 Appliance

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Related Documentation

For information beyond the scope of this document, or for additional information about the Cisco NAM 2204 appliance, refer to the following publications:

- *Cisco Regulatory Compliance and Safety Information for the Cisco NAM Appliance*
  

- *Release Notes for the Cisco Network Analysis Module, Release 5.0*
  

- *Quick Start and Documentation Guide for the Cisco NAM 2200 Series Appliance*
  

- *User Guide for the Cisco Network Analysis Module Traffic Analyzer, Release 5.0*
  

- *Cisco NAM Command Reference, Release 5.0*
  

- *Copyright Notices for the Cisco Network Analysis Module, Release 5.0*
  

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:


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.
Introducing the Cisco NAM 2204 Appliances

This chapter provides an introduction to the two Cisco NAM 2204 appliances, the NAM2204-RJ45 and the NAM2204-SFP, and describes the appliance hardware, major components, and front- and rear-panel LED indicators, controls, and connectors of both appliances.

The Cisco NAM 2204 appliance comes preloaded with Cisco Network Analysis Module (NAM), 5.0 software. NAM software enables network managers to understand, manage, and improve how applications and services are delivered to end-users.

The NAM offers flow-based traffic analysis of applications, hosts, and conversations, performance-based measurements on application, server, and network latency, quality of experience metrics for network-based services such as voice over IP (VoIP) and video, and problem analysis using deep, insightful packet captures.

The Cisco NAM includes an embedded, web-based Traffic Analyzer GUI that provides quick access to the configuration menus and presents easy-to-read performance reports on web for different types of services and traffic including voice and video, response time, and netFlow-based reports.

This chapter includes the following sections:

- Product Overview, page 1-2
- Hardware Features, page 1-4
- Environmental Monitoring, page 1-9
- Regulatory Compliance, page 1-10
Product Overview

The Cisco NAM 2204 appliance (see Figure 1-1) is contained in a standard shelf-rack enclosure. The appliance weighs 35 lb (15.9 kg). It measures 1.69 inches high x 17 inches wide x 20 inches deep (4.29 cm x 43.18 cm x 50.80 cm). These dimensions do not include the rack handles.

Figure 1-1   Cisco NAM 2204 Appliance Front View

See  for upgrade options and spare part numbers.

The Cisco NAM 2204 appliance is configured for AC-input power and has a single auto-ranging AC-input power supply, mounted in a standard 19-inch (48.3 cm) 2- or 4-post equipment rack (using the rack-mount brackets provided) and includes the following:

- Intel Core 2 Duo 2.13-GHz processor with an 800-MHz front side bus (FSB) and 2 MB of Layer 2 cache
- 8 GB dynamic RAM (SDRAM, factory installed)
- Two 250 GB SATA hard disk drives
- Monitoring Ports—Four 1-GB 10/100/1000BASE-T RJ45 or four 1 GB SFP 1000BASE-T SX LC or LX LC
- Management Port—One RJ-45 10BASE-T/100BASE-TX/1000BASE-T network interface connector (located on the rear panel)
- One slimline DVD-ROM drive (located on the front panel)
- One DB-9 serial (console) port (located on the rear panel)
- Front-to-rear airflow blowers using two 40-mm exhaust fans and ducting for the CPU and memory, two 40-mm exhaust fans built in to the power supply, and one PCI exhaust fan
- Three USB 2.0 ports (two located on the rear panel, one on the front panel)
- One PS/2 (keyboard) port (located on the rear panel)
- One PS/2 (mouse) port (located on the rear panel)
- One DB-15 serial (video) port (located on the rear panel)
- Rear-access cabling
Chapter 1      Introducing the Cisco NAM 2204 Appliances

Product Overview

• Four green front-panel appliance LEDs (for a description, see the “Cisco NAM 2204 Appliance Front View” section on page 1-4):
  – Power (indicates whether the power supply is operational)
  – Hard disk drive activity (indicates whether the drive is functioning properly)
  – NIC 1 activity (indicates whether interrupts or packet transfers are occurring)

The Cisco NAM 2204 appliance is normally shipped with a 4-post rack-mount kit. (See Chapter 3, “Installing the Cisco NAM 2204 Appliance.”)

Product Serial Number Location

On the Cisco NAM 2204 appliance, the serial number label is located on the front of the appliance at the lower-left, as shown in Figure 1-2.

Figure 1-2 Cisco NAM 2204 Appliance Serial Number Location

Note

The serial number for the Cisco NAM 2204 appliance is 11 characters long.

Cisco Product Identification Tool

The Cisco Product Identification (CPI) tool helps you retrieve the serial number of your Cisco products. Before you submit a request for service online or by phone, use the CPI tool to locate your product serial number. You can access this tool from the Cisco Support website by clicking the Get Tools & Resources link, clicking the All Tools (A-Z) tab, and then choosing Cisco Product Identification Tool from the alphabetical list.

This tool offers three search options:

• Search by product ID or model name
• Browse for Cisco model
• Copy and paste the output of the show command to identify the product
Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before you place a service call.

The CPI tool is accessed via Cisco.com at the following URL:


Access to the CPI tool on the Cisco Support website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at:


Hardware Features

This section illustrates and describes the front- and rear-panel controls, ports, and LED indicators on the Cisco NAM 2204 appliance.

Cisco NAM 2204 Appliance Front View

The center of the Cisco NAM 2204 appliance front panel includes a USB 2.0 port, the appliance power button, and various status LEDs. Figure 1-3 shows the location of these components.

**Table 1-1** describes the Cisco NAM 2204 appliance LEDs located on the front panel.
Chapter 1 Introducing the Cisco NAM 2204 Appliances

Table 1-1 Front-Panel LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appliance Power</td>
<td>Green</td>
<td>On</td>
<td>Power on</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Blinking</td>
<td>Sleep (standby)</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>Off</td>
<td>Power off</td>
</tr>
<tr>
<td>Hard Disk Drive</td>
<td>Green</td>
<td>Random blinking</td>
<td>HDD activity</td>
</tr>
<tr>
<td></td>
<td>Off</td>
<td>Off</td>
<td>No HDD activity</td>
</tr>
<tr>
<td>NIC 1</td>
<td>Green</td>
<td>On</td>
<td>NIC link, no access</td>
</tr>
<tr>
<td></td>
<td>Green</td>
<td>Blinking</td>
<td>LAN access</td>
</tr>
</tbody>
</table>

Cisco NAM 2204 Appliance Rear View

On the rear panel, viewing from left to right, the Cisco NAM 2204 appliance includes the following components:

- AC power connector
- Two PS/2 connectors (mouse and keyboard)
- One serial (DB-9) connector
- One video connector
- Two NIC (RJ-45) ports
- Two USB 2.0 ports
- One PCI-e Network Adapter card (in expansion slot)
- NIC LEDs

Figure 1-4 shows the orientation of these components.

Note

The locations of the rack-mounting brackets are also shown on the left and right sides of the appliance. (See the “Rack-Mounting Configuration Guidelines” section on page 3-2 for instructions on how to install the mounting brackets.)
Hardware Features

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Figure 1-5 shows the location of the monitoring ports on the back panel of the Cisco NAM 2204 appliance. These are logical DataPort inputs (DataPort 1 - DataPort 4 from right to left) for the NAM appliance. Figure 1-5 shows the RJ-45 ports of the Cisco 2204-RJ45 appliance. The Cisco 2204-SFP appliance has slots in this location for your SFP modules.

**Figure 1-5   Monitoring Ports**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC power receptacle</td>
</tr>
<tr>
<td>2</td>
<td>PS/2 connector (mouse)</td>
</tr>
<tr>
<td>3</td>
<td>PS/2 connector (keyboard)</td>
</tr>
<tr>
<td>4</td>
<td>Serial (EIA/TIA-232) console port</td>
</tr>
<tr>
<td>5</td>
<td>Video (VGA) port</td>
</tr>
<tr>
<td>6</td>
<td>Inactive NIC port; unused</td>
</tr>
<tr>
<td>7</td>
<td>Unused NIC LED</td>
</tr>
<tr>
<td>8</td>
<td>Unused NIC LED</td>
</tr>
<tr>
<td>9</td>
<td>Two USB ports (2.0)</td>
</tr>
<tr>
<td>10</td>
<td>NIC 1 port (10/100/1000 Mb/s) or Ethernet 0</td>
</tr>
<tr>
<td>11</td>
<td>Monitoring ports (see Figure 1-5)</td>
</tr>
</tbody>
</table>

**LEDs**

The rear of the Cisco NAM 2204 appliance includes LEDs that indicate the connection activity and speed of the NIC 1 port. See location 10 in Figure 1-4. See Figure 1-6 for a detailed view of the connector and LEDs. Table 1-2 on page 1-7 describes the activity and connection speed associated with each LED state.

**Figure 1-6   NIC 1 LEDs**
Chapter 1      Introducing the Cisco NAM 2204 Appliances

Input/Output Ports and Connectors

The Cisco NAM 2204 appliance supports the following I/O connectors on the rear of the appliance:

- 1 GB Ethernet connectors
- Ethernet connectors
- Serial connector
- Video connector
- Mouse connector
- Keyboard connector

**Warning**

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables. Statement 1021

Management Port (NIC 1)

The Cisco NAM 2204 appliance comes with an integrated dual-port Ethernet controller which provides an interface for connecting to 10-Mb/s, 100-Mb/s, or 1000-Mb/s networks. The Ethernet controller also provides full-duplex (FDX) capability which enables simultaneous transmission and reception of data on the Ethernet local-area network (LAN).

To access the management port, connect a Cat5e or 6 unshielded twisted-pair (UTP) cable to the RJ-45 connector on the back of the appliance. (See Table 1-3.)

**Table 1-2 NIC 1 LEDs**

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left 1</td>
<td>Off</td>
<td></td>
<td>No network connection</td>
</tr>
<tr>
<td>Amber</td>
<td>Solid</td>
<td></td>
<td>Network connection</td>
</tr>
<tr>
<td>Amber</td>
<td>Blinking</td>
<td></td>
<td>Transmit/receive activity</td>
</tr>
<tr>
<td>Right 2</td>
<td>Off</td>
<td>10-Mb/s connection (if left LED is on or blinking)</td>
<td></td>
</tr>
<tr>
<td>Amber</td>
<td>Solid</td>
<td>100-Mb/s connection</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>Solid</td>
<td>1000-Mb/s (or 1-Gb/s) connection</td>
<td></td>
</tr>
</tbody>
</table>

**Table 1-3 Ethernet Cabling Guidelines**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10BASE-T</td>
<td>EIA Categories 3, 4, or 5 UTP (2 or 4 pair) up to 328 ft (100 m)</td>
</tr>
<tr>
<td>100BASE-TX</td>
<td>EIA Cat5e UTP (2 pair) up to 328 ft (100 m)</td>
</tr>
<tr>
<td>1000BASE-T</td>
<td>EIA Category 6 UTP (recommended), Category 5E UTP or 5 UTP (2 pair) up to 328 ft (100 m)</td>
</tr>
</tbody>
</table>
Chapter 1  Introducing the Cisco NAM 2204 Appliances

Hardware Features

Ethernet Port Connector

Figure 1-7 on page 1-8 shows the Ethernet RJ-45 port and plug.

![RJ-45 Port and Plug](image)

Table 1-4 lists the RJ-45 pin signals used on the connector.

<table>
<thead>
<tr>
<th>Ethernet Port Pin</th>
<th>Signal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TxD+</td>
<td>Transmit data +</td>
</tr>
<tr>
<td>2</td>
<td>TxD–</td>
<td>Transmit data –</td>
</tr>
<tr>
<td>3</td>
<td>RxD+</td>
<td>Receive data +</td>
</tr>
<tr>
<td>4</td>
<td>Termination network</td>
<td>No connection</td>
</tr>
<tr>
<td>5</td>
<td>Termination network</td>
<td>No connection</td>
</tr>
<tr>
<td>6</td>
<td>RxD–</td>
<td>Receive data –</td>
</tr>
<tr>
<td>7</td>
<td>Termination network</td>
<td>No connection</td>
</tr>
<tr>
<td>8</td>
<td>Termination network</td>
<td>No connection</td>
</tr>
</tbody>
</table>

Serial (Console) Port

The Cisco NAM 2204 appliance has one standard serial (console) port. Use the configuration/setup utility program to change the port address assignments.

Note

The configuration/setup utility program is located in the Cisco NAM 2204 appliance ROM and can be accessed through the serial (console) port.

Serial (Console) Port Connector

The Cisco NAM 2204 appliance has one serial port connector located on the back of the appliance. Figure 1-8 shows the pin number assignments for the 9-pin, male D-shell serial port connector on the back of the appliance. These pin number assignments conform to industry standards.
Environmental Monitoring

The Cisco NAM 2204 appliance has protection circuits that monitor and detect overcurrent, overvoltage, and overtemperature conditions inside the appliance. If the power supply shuts down or latches off, an AC cycle of off for 15 seconds and on for 1 second will reset the power supply.

Overcurrent Protection (OCP)

The power supply shuts down and latches off after an overcurrent condition occurs. This latch is cleared by an AC power interruption.

Note

The power supply will not be damaged from repeated power cycling.

Overvoltage Protection (OVP)

The power supply shuts down and latches off after an overvoltage condition occurs. This latch is cleared by an AC power interruption.
Overtemperature Protection (OTP)

The power supply is protected against overtemperature conditions caused by the loss of fan cooling or excessive ambient temperature. In an OTP condition, the power supply will shut down. When the power supply temperature drops to the rated safety limit, the power supply restores power automatically.

Regulatory Compliance

For regulatory compliance and safety information, see the Cisco Regulatory Compliance and Safety Information for the Cisco NAM 2204 Appliance document. This document is available online at Cisco.com (see the for more information).
Preparing to Install the Cisco NAM 2204 Appliance

This chapter describes the tasks you must perform before you install a Cisco NAM 2204 appliance. This chapter contains the following sections:

- Safety Guidelines, page 2-2
- Preparing Your Site for Installation, page 2-6
- Management and Console Port Considerations, page 2-15

Note

Read the Regulatory Compliance and Safety Information for the Cisco NAM 2204 Appliance document and the Site Preparation and Safety Guide that came with your Cisco NAM 2204 appliance before you begin the installation.
Safety Guidelines

Before you begin installing the Cisco NAM 2204 appliance, review the safety guidelines in this chapter and the “Rack-Mounting Configuration Guidelines” section on page 3-2 to avoid injuring yourself or damaging the equipment.

In addition, before replacing, configuring, or maintaining the appliance, review the safety warnings listed in the and in the Cisco Regulatory Compliance and Safety Information for the Cisco NAM 2204 Appliance document.

General Precautions

Observe the following general precautions for using and working with your appliance:

- Observe and follow service markings. Do not service any Cisco product except as explained in your appliance documentation. Opening or removing covers that are marked with the triangular symbol with a lightning bolt might expose you to electrical shock. Components inside these compartments should be serviced only by an authorized service technician.

- If any of the following conditions occur, unplug the product from the electrical outlet and replace the part or contact your authorized service provider:
  - The power cable, extension cord, or plug is damaged.
  - An object has fallen into the product.
  - The product has been exposed to water.
  - The product has been dropped or damaged.
  - The product does not operate correctly when you follow the operating instructions.

- Keep your appliance away from radiators and heat sources. Also, do not block cooling vents.

- Do not spill food or liquids on your appliance, and never operate the product in a wet environment.

- Do not push any objects into the openings of your appliance. Doing so can cause fire or electric shock by shorting out interior components.

- Use the product only with other equipment approved by Cisco.

- Allow the product to cool before removing covers or touching internal components.

- Use the correct external power source. Operate the product only from the type of power source indicated on the electrical ratings label. If you are not sure of the type of power source required, consult your service representative or local power company.

- Use only approved power cables. If you have not been provided with a power cable for your appliance or for any AC-powered option intended for your appliance, purchase a power cable that is approved for use in your country. The power cable must be rated for the product and for the voltage and current marked on the product’s electrical ratings label. The voltage and current rating of the cable should be greater than the ratings marked on the product.

- To help prevent electric shock, plug the appliance and power cables into properly grounded electrical outlets. These cables are equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cord, use a three-wire cord with properly grounded plugs.

- Observe extension cord and power strip ratings. Make sure that the total ampere rating of all products plugged into the extension cord or power strip does not exceed 80 percent of the extension cord or power strip ampere ratings limit.
Safety Guidelines

- Do not use appliance or voltage converters or kits sold for appliances with your product.
- To help protect your appliance from sudden, transient increases and decreases in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).
- Position cables and power cords carefully; route cables and the power cord and plug so that they cannot be stepped on or tripped over. Be sure that nothing rests on your appliance cables or power cord.
- Do not modify power cables or plugs. Consult a licensed electrician or your power company for site modifications. Always follow your local or national wiring rules.

Safety with Equipment

The following guidelines will help ensure your safety and protect the equipment. However, this list does not include all potentially hazardous situations, so be alert.

**Warning**

Read the installation instructions before connecting the system to the power source. Statement 1004

- Always disconnect all power cords and interface cables before moving the appliance.
- Never assume that power is disconnected from a circuit; always check.
- Keep the appliance chassis area clear and dust-free before and after installation.
- Keep tools and assembly components away from walk areas where you or others could fall over them.
- Do not work alone if potentially hazardous conditions exist.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Do not wear loose clothing that might get caught in the appliance chassis.
- Wear safety glasses when working under conditions that might be hazardous to your eyes.

Safety with Electricity

**Warning**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Statement 1017

**Warning**

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Statement 1021

**Warning**

Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected. Statement 4
Safety Guidelines

Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. Statement 43

Warning Before working on a chassis or working near power supplies, unplug the power cord on AC units; disconnect the power at the circuit breaker on DC units. Statement 12

Warning Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001

Warning This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use. Statement 39

Warning When installing or replacing the unit, the ground connection must always be made first and disconnected last. Statement 1046

Follow these guidelines when working on equipment powered by electricity:

- Locate the room’s emergency power-off switch. Then, if an electrical accident occurs, you can quickly turn off the power.
- Disconnect all power before doing the following:
  - Working on or near power supplies
  - Installing or removing an appliance
  - Performing most hardware upgrades
- Never install equipment that appears damaged.
- Carefully examine your work area for possible hazards, such as moist floors, ungrounded power extension cables, and missing safety grounds.
- Never assume that power is disconnected from a circuit; always check.
- Never perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Never work alone when potentially hazardous conditions exist.
- If an electrical accident occurs, proceed as follows:
  - Use caution, and do not become a victim yourself.
  - Turn off power to the appliance.
  - If possible, send another person to get medical aid. Otherwise, determine the condition of the victim, and then call for help.
  - Determine whether the person needs rescue breathing, external cardiac compressions, or other medical attention; then take appropriate action.

In addition, use the following guidelines when working with any equipment that is disconnected from a power source but still connected to telephone wiring or network cabling:
Chapter 2 Preparing to Install the Cisco NAM 2204 Appliance

Safety Guidelines

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for it.
- Never touch uninsulated telephone wires or terminals unless the telephone line is disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. ESD can occur when electronic printed circuit cards are improperly handled and can cause complete or intermittent failures. Always follow ESD-prevention procedures when removing and replacing modules:

- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component in your appliance. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
- When transporting a sensitive component, first place it in an antistatic container or packaging.
- Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads and workbench pads.
- Ensure that the Cisco NAM 2204 appliance is electrically connected to earth ground.
- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the appliance to channel unwanted ESD voltages safely to ground. To guard against ESD damage and shocks, the wrist strap and cord must operate effectively.
- If no wrist strap is available, ground yourself by touching a metal part of the appliance.

Caution

For the safety of your equipment, periodically check the resistance value of the antistatic wrist strap. It should be between 1 and 10 Mohm.

Lifting Guidelines

A Cisco NAM 2204 appliance weighs between 15 lb (9.071 kg) and 33 lb (14.96 kg) depending on what hardware options are installed in the appliance. The appliance is not intended to be moved frequently. Before you install the appliance, ensure that your site is properly prepared so you can avoid having to move the appliance later to accommodate power sources and network connections.

Whenever you lift the appliance or any heavy object, follow these guidelines:

- Always disconnect all external cables before lifting or moving the appliance.
- Ensure that your footing is solid, and balance the weight of the object between your feet.
- Lift the appliance slowly; never move suddenly or twist your body as you lift.
- Keep your back straight and lift with your legs, not your back. If you must bend down to lift the appliance, bend at the knees, not at the waist, to reduce the strain on your lower back muscles.
- Lift the appliance from the bottom; grasp the underside of the appliance exterior with both hands.
Preparing Your Site for Installation

Before installing the Cisco NAM 2204 appliance, it is important to prepare for installation by:

- Preparing the site (site planning) and reviewing the installation plans or method of procedures (MOPs)
- Unpacking and inspecting the appliance
- Gathering tools and test equipment required to properly install the appliance

Site Planning

Warning

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

Statement 1017

Typically, you should have prepared the installation site beforehand. As part of your preparation, obtain a floor plan of the site and the equipment rack where the Cisco NAM 2204 appliance will be housed. Determine the location of any existing appliances and their interconnections, including communications and power. Following the airflow guidelines (see the “Airflow Guidelines” section on page 2-8) ensures that adequate cooling air is provided to the appliance.

All personnel involved in the installation of the appliance including installers, engineers, and supervisors should participate in the preparation of a MOP for approval by the customer. (See the “Method of Procedure” section on page 2-10.)

The following sections provide the site requirement guidelines that you must consider before installing the appliance:

- Rack Installation Safety Guidelines, page 2-6
- Site Environment, page 2-8
- Airflow Guidelines, page 2-8
- Temperature and Humidity Guidelines, page 2-9
- Power Considerations, page 2-9
- Method of Procedure, page 2-10

Rack Installation Safety Guidelines

The Cisco NAM 2204 appliance can be mounted in most 4-post or 2-post (telco-type) 19-inch equipment racks that comply with the Electronics Industries Association (EIA) standard for equipment racks (EIA-310-D). The rack must have at least two posts with mounting flanges to mount the appliance. The distance between the center lines of the mounting holes on the two mounting posts must be 18.31 inches +/- 0.06 inch (46.50 cm +/- 0.15 cm). The rack-mounting hardware included with the appliance is suitable for most 19-inch equipment racks or telco-type frames.

Figure 2-1 shows examples of 4-post and 2-post (telco-type) equipment racks, respectively.
Preparing Your Site for Installation

**Enclosed Rack (Do Not Use)**

*Figure 2-1a* shows a freestanding, enclosed rack with two mounting posts in the front. The Cisco NAM 2204 appliance should *not* be installed in this type of enclosed rack, because the appliance requires an unobstructed flow of cooling air to maintain acceptable operating temperatures for its internal components. Installing the appliance in any type of enclosed rack—*even with the front and back doors removed*—could disrupt the airflow, trap heat next to the appliance, and cause an overtemperature condition inside the appliance.

**4-Post (Open) Rack**

*Figure 2-1b* shows a freestanding, 4-post open rack with two mounting posts in front and two mounting posts in back. The mounting posts in this type of rack are often adjustable so that you can position the rack-mounted unit within the depth of the rack rather than flush-mount it with the front of the rack.

**2-Post (Telco) Rack**

*Figure 2-1c* shows a 2-post (telco-type) rack. This rack is an open frame consisting of two posts tied together by a crossbar at the top and a floor stand at the bottom.

This type of rack is usually secured to the floor and sometimes to an overhead structure or wall for additional stability. The Cisco NAM 2204 appliance can be installed in this rack either in a front-mounted position or a center-mounted position.

- In the front-mounted position, you secure the appliance rack-mounting brackets directly to the rack posts.
- In the center-mounted position, you secure a set of optional center-mount brackets to the rack posts. The appliance rack-mounting flanges are then secured to the center-mount brackets. The center-mounted position moves the center of gravity closer to the appliance and closer to the vertical axis of the rack posts, which adds to the stability of the rack installation.

Before installing your Cisco NAM 2204 appliance in a rack, review the following guidelines:

- Two or more people are required to install the appliance in a rack.
- Ensure that the room air temperature is below 95°F (35°C).
• Do not block any air vents; usually 6 inches (15 cm) of space provides proper airflow.
• Plan the appliance installation starting from the bottom of the rack.
• Do not extend more than one appliance out of the rack at the same time.
• Connect the appliance to a properly grounded outlet.
• Do not overload the power outlet when installing multiple devices in the rack.
• Do not place any object weighing more than 110 lb (50 kg) on top of rack-mounted devices.

Site Environment

The location of your appliance and the layout of your equipment rack or wiring room are extremely important considerations for proper operation. Equipment placed too close together, inadequate ventilation, and inaccessible panels can cause malfunctions and shutdowns, and can make maintenance difficult. Plan for access to front and rear panels of the appliance.

The following precautions will help you plan an acceptable operating environment for your appliance and will help you avoid environmentally caused equipment failures:

• Ensure that the room where your appliance operates has adequate circulation. Electrical equipment generates heat. Without adequate circulation, ambient air temperature might not cool equipment to acceptable operating temperatures (see the “Airflow Guidelines” section on page 2-8).
• Ensure the site of the rack includes provisions for source AC power, grounding, and network cables.
• Allow sufficient space to work around the rack during the installation. You need:
  – At least 3 feet (9.14 m) adjacent to the rack to move, align, and insert the appliance.
  – At least 24 inches (61 cm) of clearance in front of and behind the appliance for maintenance after installation.
• To mount the appliance between two posts or rails, the usable aperture (the width between the inner edges of the two mounting flanges) must be at least 17.7 inches (45.0 cm).
• If you use a 2-post (telco-type) rack, the weight of several appliances is cantilevered off of the two rack posts. Make sure that:
  – The weight of several appliances does not make the frame unstable.
  – The frame is bolted to the floor and is secured to the building structure using either wall brackets or overhead brackets.
• Use appropriate strain-relief methods to protect cables and equipment connections.
• To avoid noise interference in network interface cables, do not route them directly across or along power cables.
• Always follow ESD-prevention procedures as described in the “Preventing Electrostatic Discharge Damage” section on page 2-5 to avoid damage to equipment. Damage from static discharge can cause immediate or intermittent equipment failure.

Airflow Guidelines

To ensure adequate airflow through the equipment rack, it is recommended that you maintain a clearance of at least 6 inches (15.24 cm) at the front and the rear of the rack.

If airflow through the equipment rack and the appliances that occupy it is blocked or restricted, or if the ambient air being drawn into the rack is too warm, an overtemperature condition within the rack and the appliances that occupy it can occur.
Preparing Your Site for Installation

The site should also be as dust-free as possible. Dust tends to clog the appliance fans, reducing the flow of cooling air through the equipment rack and the appliances that occupy it. This reduction increases the risk of an overtemperature condition.

Additionally, the following guidelines will help you plan your equipment rack configuration:

- Besides airflow, you must allow clearance around the rack for maintenance.
- When mounting an appliance at an open rack, ensure that the rack frame does not block the front intakes or the rear exhausts.

Temperature and Humidity Guidelines

Table 2-1 lists the operating and nonoperating environmental site requirements for the Cisco NAM 2204 appliance. The appliance normally operates within the ranges listed; however, a temperature measurement approaching a minimum or maximum parameter indicates a potential problem. Maintain normal operation by anticipating and correcting environmental anomalies before they approach critical values by properly planning and preparing your site before you install the appliance.

**Table 2-1 Operating and Nonoperating Environmental Specifications**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature, ambient operating</td>
<td>50°F (10°C)</td>
<td>95°F (35°C)</td>
</tr>
<tr>
<td>Temperature, ambient nonoperating and storage</td>
<td>-40°F (-40°C)</td>
<td>158°F (70°C)</td>
</tr>
<tr>
<td>Humidity, ambient (noncondensing) operating</td>
<td>10%</td>
<td>90%</td>
</tr>
<tr>
<td>Humidity, ambient (noncondensing) nonoperating and storage</td>
<td>5%</td>
<td>95%</td>
</tr>
<tr>
<td>Vibration, operating</td>
<td>5–500 Hz, 2.20 g RMS random</td>
<td>—</td>
</tr>
</tbody>
</table>

Power Considerations

You configure the Cisco NAM 2204 appliance with AC-input power only. Ensure all power connections conform to the rules and regulations in the National Electrical Codes (NECs), as well as local codes. Follow these precautions and recommendations when planning power connections to your appliance:

- Check the power at your site before installation and periodically after installation to ensure that you are receiving clean power (free of spikes and noise). Install a power conditioner if necessary.
- The AC power supply includes the following features:
  - Autoselects either 110-V or 220-V operation.
  - All appliances include an electrical cord. (A label near the power cord indicates the correct voltage, frequency, current draw, and power dissipation for the appliance.)

**Warning**

This product relies on the building’s installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors). Statement 13

- Install proper grounding to your host equipment rack to avoid damage from lightning and power surges.
Warning

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

- The AC-input power supply operates on input voltage and frequency within the ranges of 100 to 240 VRMS and 50/60 Hz without the need for operator adjustments.

Method of Procedure

As described previously, part of your preparation includes reviewing installation plans or MOPs. An example of a MOP (a preinstallation checklist of tasks and considerations that need to be addressed and agreed upon before proceeding with the installation) is as follows:

1. Assign personnel.
2. Determine protection requirements for personnel, equipment, and tools.
3. Evaluate potential hazards that might affect service.
4. Schedule time for installation.
5. Determine any space requirements.
6. Determine any power requirements.
7. Identify any required procedures or tests.
8. On an equipment plan, make a preliminary decision that locates each Cisco NAM 2204 appliance that you plan to install.
9. Read this hardware installation guide.
10. Verify the list of replaceable parts for installation (screws, bolts, washers, and so on) so that the parts are identified.
11. Check the required tools list to make sure the necessary tools and test equipment are available. (See the “Required Tools and Equipment” section on page 2-13.)
12. Perform the installation.

Unpacking and Checking the Contents of Your Shipment

The shipping package for the Cisco NAM 2204 appliance is designed to reduce the possibility of product damage associated with routine material handling experienced during shipment. To reduce the potential damage to the product, transport the appliance in its original Cisco packaging. Failure to do so might result in damage to the appliance. Also, do not remove the appliance from its shipping container until you are ready to install it.

The appliance, cables, and any optional equipment you ordered might be shipped in more than one container. When you unpack the containers, check the packing list to ensure that you received all the parts listed in Table 2-2. A Notes section has been provided to record damaged or missing items.

**Note**

Do not discard the packaging materials used in shipping your Cisco NAM 2204 appliance. You will need the packaging materials in the future if you move or ship your appliance.
## Table 2-2 Cisco NAM 2204 Appliance Packing List

<table>
<thead>
<tr>
<th>Item</th>
<th>Cisco Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cisco NAM 2204 appliance</td>
<td>NAM2204-RJ45 or NAM2204-SFP</td>
</tr>
<tr>
<td>Cisco NAM Software 5.0 with Recovery CD</td>
<td>NAM-APPL-SW-5.0</td>
</tr>
<tr>
<td>Power cables, one of the following:</td>
<td>• CAB-AC (default)</td>
</tr>
<tr>
<td></td>
<td>• CAB-ACA</td>
</tr>
<tr>
<td></td>
<td>• CAB-ACE</td>
</tr>
<tr>
<td></td>
<td>• CAB-ACI</td>
</tr>
<tr>
<td></td>
<td>• CAB-ACR</td>
</tr>
<tr>
<td></td>
<td>• CAB-ACS</td>
</tr>
<tr>
<td></td>
<td>• CAB-ACU</td>
</tr>
<tr>
<td></td>
<td>• CAB-JPN</td>
</tr>
<tr>
<td>Cable assembly, RJ45 Rolled, Modular, Console/Config, Lt.</td>
<td>72-1259-01</td>
</tr>
<tr>
<td>Cable assembly, Ethernet, RJ45-RJ45, Yellow, 6 ft</td>
<td>72-1482-01</td>
</tr>
<tr>
<td>Cable assembly, Crossover, RJ45-RJ45, Org, 6 ft</td>
<td>72-3515-01</td>
</tr>
<tr>
<td>Cisco 90-Day Limited Hardware Warranty Terms</td>
<td>83-1294-01</td>
</tr>
<tr>
<td>Software Right-to-Use License</td>
<td>90-0031-01</td>
</tr>
<tr>
<td>4-post Server Rack-mount kit (For kit contents, see the “4-Post Rack-Mount Hardware Kit” section on page 3-3.)</td>
<td>NAM2220-RAILS</td>
</tr>
<tr>
<td>Quick Start and Documentation Guide for the Cisco 2200 Series NAM Appliance</td>
<td>78-18440-01</td>
</tr>
<tr>
<td>Regulatory Compliance and Safety Information for the Cisco 2200 Series NAM Appliance</td>
<td>78-18787-01</td>
</tr>
</tbody>
</table>

### Notes

Inspect all items for shipping damage. If anything appears to be damaged, or if you encounter problems installing or configuring your appliance, contact your customer service representative.
Cisco Information Packet and Warranty

The Cisco Information Packet provides warranty, service, and support information.

To access and download the Cisco Information Packet and your warranty and license agreements from Cisco.com:

**Step 1** Launch your Internet browser, then go to this URL:
The Warranties and License Agreements page appears.

**Step 2** To read the Cisco Information Packet:
- Click the Information Packet Number field, and make sure the part number 78-5235-03D0 is highlighted.
- Select the language in which you would like to read the document.
- Click Go.

The Cisco Limited Warranty and software License page from the Information Packet appears.

- Read the document online, or click the PDF icon to download and print the document.

| Note | You must have Adobe Acrobat Reader to view and print PDF files. You can download the reader from the Adobe website at: http://www.adobe.com |

**Step 3** To read translated and localized warranty information about your product:
- Enter this part number in the Warranty Document Number field:
  78-5236-01C0
- Select the language in which you would like to read the document.
- Click Go.

The Cisco warranty page appears.

- Review the document online, or click the PDF icon to download and print the document in PDF.

**Step 4** You can also contact the Cisco Service and Support website for assistance at:

Duration of Hardware Warranty

Ninety (90) days.

Replacement, Repair, or Refund Policy for Hardware

Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the Return Materials Authorization (RMA) request. Actual delivery times can vary depending on the customer location.

Cisco reserves the right to refund the purchase price as its exclusive warranty remedy.
To Receive a Return Materials Authorization (RMA) Number

Contact the company from whom you purchased the product. If you purchased the product directly from Cisco, contact your Cisco Sales and Service Representative.

Complete the information below, and keep it for reference:

<table>
<thead>
<tr>
<th>Company product purchased from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company telephone number and website location</td>
</tr>
<tr>
<td>Product model number</td>
</tr>
<tr>
<td>Product serial number¹</td>
</tr>
<tr>
<td>Maintenance contact number</td>
</tr>
</tbody>
</table>

¹ See Product Serial Number Location for more information.

Required Tools and Equipment

**Caution**
The fastener pack, within the rack-mount kit, contains eight rack screws. You must check these screws to ensure that they are the appropriate size for the holes in your rack. Using the wrong-sized screws for your threaded rack holes can damage the rack.

You need the following tools and equipment to install the Cisco NAM 2204 appliance in a 2- or 4-post rack:

**Warning**
Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

- ESD-preventive cord and wrist strap.
- Number 2 Phillips screwdriver.
- Flat-blade screwdrivers: small, 3/16-inch (0.476 cm) and medium, 1/4-inch (0.625 cm).
  - To remove the cover, if you are upgrading memory or other components
- Rack-Mount Kit (For kit contents, see the “2-Post Rack-Mount Hardware Kit” section on page 3-3 or “4-Post Rack-Mount Hardware Kit” section on page 3-3.)
- Cables for connection to the LAN ports (depending on the configuration).
- Ethernet hub or PC with a network interface card for connection to the Ethernet (LAN) port or ports.
- Console terminal (an ASCII terminal or a PC running terminal-emulation software) that is configured for 9600 baud, 8 data bits, no parity, 1 stop bit, and no hardware flow control.
- Console cable for connection to the serial (console) port. A null-modem cable is recommended.
Installation Checklist

To assist you with your installation and to provide a historical record of what was done, and by whom, use the following Installation Checklist. Make a copy of this checklist and mark the entries as you complete each task. When the checklist is completed, include a copy of the checklist for each Cisco NAM 2204 appliance in your Site Log (see the “Creating a Site Log” section on page 2-14 for information about creating a Site Log) along with other records for your new appliance.

Installation Checklist for Site:
Cisco NAM 2204 Appliance

<table>
<thead>
<tr>
<th>Task</th>
<th>Verified by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation Checklist copied</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Background information placed in Site Log</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site power voltages verified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installation site power check completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required tools available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional equipment available</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cisco NAM 2204 appliance received</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Cisco Information Packet</em> publication received</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appliance components verified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial electrical connections established</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASCII terminal (for local configuration)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Signal distance limits verified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Startup sequence steps completed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial operation verified</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Creating a Site Log

The Site Log (see for a sample Site Log) provides a record of all actions related to installing and maintaining the Cisco NAM 2204 appliance. Keep the log in an accessible place near the appliance so that anyone who performs tasks has access to it. Use the Installation Checklist (see the previous section, “Installation Checklist”) to verify the steps in the installation and maintenance of your appliance. Site Log entries might include the following:

- Installation progress—Make a copy of the appliance Installation Checklist, and insert it into the Site Log. Make entries as you complete each task.
- Upgrade, removal, and maintenance procedures—Use the Site Log as a record of ongoing appliance maintenance and expansion history. Each time a task is performed on the appliance, update the Site Log to reflect the following information:
  - Installation of new adapter cards
  - Removal or replacement of adapter cards and other upgrades
  - Configuration changes
Management and Console Port Considerations

The network interface connector (NIC 1) on the rear panel of the Cisco NAM 2204 appliance. Both ports use unshielded twisted-pair (UTP) cable. Cisco recommends you use a Cat5e UTP cable for the management port. The maximum segment distance is 328 feet (100 meters). The UTP cables look like the cables used for ordinary telephones; however, UTP cables meet certain electrical standards that telephone cables do not. Cables are not included.

The appliance includes an asynchronous serial console port, which provides access to the appliance locally (using a console terminal). This section describes important cabling information to consider before connecting a console terminal—either an ASCII terminal or a PC running terminal-emulation software—to the console port.

Note
The console cable is not included with the Cisco NAM 2204 appliance.

Management Port

The Cisco NAM 2204 appliance uses the NIC 1 port as the management port. It supports the 10BASE-T, 100BASE-TX, and 1000BASE-T standards. The transmission speed of the Ethernet port is autosensing by default and is user configurable.

shows the pin orientation of the RJ-45 Ethernet port and the modular cable plug it accepts.

Console Port Connections

The console port on the Cisco NAM 2204 appliance includes an EIA/TIA-232 asynchronous serial (DB-9) connector. This serial console connector (port) allows you the capability to access the appliance locally by connecting a terminal—either a PC running terminal-emulation software or an ASCII terminal—to the console port.

To connect a PC running terminal-emulation software to the console port, use a DB-9 female to DB-9 female null-modem cable.

To connect an ASCII terminal to the console port, use a DB-9 female to DB-25 male straight-through cable with a DB-25 female to DB-25 female gender changer. The default parameters for the console port are 9600 baud, 8 data bits, no parity, 1 stop bit, and no hardware flow control.
CHAPTER 3

Installing the Cisco NAM 2204 Appliance

This chapter describes how to install your Cisco NAM 2204 appliance and how to connect it to the network.

This chapter contains the following sections:

- Rack-Mounting Configuration Guidelines, page 3-2
- Mounting the Cisco NAM 2204 Appliance in a 4-Post Rack, page 3-5
- Mounting the Cisco NAM 2204 Appliance in a 2-Post Rack, page 3-10
- Installing SFP Modules, page 3-22 (2204-SFP only)
- Connecting Cables, page 3-25:
  - Connecting a Console Terminal
  - Connecting the Management Port
  - Connecting the Monitoring Ports
  - Cable Management
- Powering Up the Cisco NAM 2204 Appliance, page 3-29
- Removing or Replacing the Cisco NAM 2204 Appliance, page 3-31

Before you begin the installation, read the Regulatory Compliance and Safety Information for the Cisco NAM 2204 Appliance document and the Site Preparation and Safety Guide that shipped with your appliance.


Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

Statement 1030

Warning

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

Statement 1017
Rack-Mounting Configuration Guidelines

Each Cisco NAM 2204 appliance has a set of rack handles (installed at the factory). These handles will have to be used later when you install the appliance in a 4-post rack. You can front (flush) mount or mid-mount the appliance in a 19-inch (48.3-cm) equipment rack that conforms to the 2- and 4-post rack specification (the inside width of the rack should be 17.5 inches [44.45 cm]). Mount the appliance to the brackets as described in the “Attaching the Rack-Mounting Brackets to the Appliance” section on page 3-13. When installed in the rack, the appliance requires one EIA 1.75-inch (4.4-cm) vertical mounting space or 1 rack unit (RU) for mounting. (See the “Mounting the Cisco NAM 2204 Appliance in a 2-Post Rack” section on page 3-10.)

Caution

Clearance in the front and rear of the Cisco NAM 2204 appliance must be allowed for cooling air to be drawn in through the front and circulated through the appliance and out the rear of the appliance.

The “Rack Installation Safety Guidelines” section on page 2-6 and the following information will help you plan your equipment rack configuration:

- When mounting the appliance to an equipment rack, ensure that the rack is bolted to the floor.
- Because you will probably be installing more than one appliance into the rack, ensure that the weight of all the appliances installed does not make the rack unstable.

Caution

Some equipment racks are also secured to ceiling brackets, if necessary, due to the weight of the equipment in the rack. Make sure that the rack you are using to install the appliances is secured to the building structure.

- As mentioned in the “Airflow Guidelines” section on page 2-8, maintain a 6-inch (15.2-cm) clearance at the front and rear of the appliance to ensure adequate air intake and exhaust.
- Avoid installing the appliances in an overly congested rack. Air flowing to or from other appliances in the rack might interfere with the normal flow of cooling air through the appliances, increasing the potential for overtemperature conditions within the appliances. (See the for more information about overtemperature conditions.)
- Allow at least 24 inches (61 cm) of clearance at the front and rear of the rack for appliance maintenance.

Caution

To prevent appliance overheating, never install the appliance in an enclosed rack or room that is not properly ventilated or air conditioned.

- Follow your local practices for cable management. Ensure that cables to and from the appliances do not impede access to perform equipment maintenance or upgrades.
Chapter 3  Installing the Cisco NAM 2204 Appliance

Rack-Mounting Configuration Guidelines

4-Post Rack-Mount Hardware Kit

Figure 3-1 shows the rails that you need to install the Cisco NAM 2204 appliance in a 4-post rack. Table 3-1 describes the contents of the rack-mount hardware kit, Cisco part number NAM2204-RAILS.

![Release Levers on the Slide Rail Hardware](image)

<table>
<thead>
<tr>
<th>1</th>
<th>Slide release lever</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Component release lever</td>
</tr>
</tbody>
</table>

Table 3-1  Rack-Mount Hardware Kit

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slide rails</td>
<td>2</td>
</tr>
<tr>
<td>Multi-pin adapters</td>
<td>4</td>
</tr>
<tr>
<td>Fastener screws</td>
<td>4</td>
</tr>
</tbody>
</table>

Depending on the type of holes that your rack has, you will use different hardware to attach the appliance to the rack:

- For racks with square holes, you use the multi-pin adapters to attach the appliance to the rack. The installation kit includes four fastener screws (see Table 3-1) that secure the multi-pin adapters after you install them in the rack.
- For racks with round holes, you use rack screws, rather than the multi-pin adapters. Rack screws are not included in the installation kit.

Note: Each rail consists of three pieces that slide to extend the rail to its full length. To access the features of the innermost piece, such as the release levers (see Figure 3-4 on page 3-6), you must grasp the end of the innermost piece and pull it firmly out of the piece that contains it.

Proceed to the next section, “Installing the Slide Rails into a Rack with Square Holes,” to continue the installation.

2-Post Rack-Mount Hardware Kit

Figure 3-2 shows the brackets that you need to install the Cisco NAM 2204 appliance in a 2-post rack. Table 3-2 on page 3-4 describes the contents of the rack-mount hardware kit, Cisco part number NAM2204-BRKTS.
**Figure 3-2  Rack-Mount Brackets**

Besides the above items, the rack-mount kit includes rear brackets (2) and a fastener pack (see Figure 3-3 and Table 3-2 on page 3-4).

**Figure 3-3  Fastener Pack**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rack screw, 10-32 x 1/2-inch (1.27 cm)</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Screw, hex head</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Screw, 10-32 x 7/8-inch (2.22 cm)</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Handle spacers</td>
<td>2</td>
</tr>
</tbody>
</table>

**Table 3-2  Fastener Pack**
Chapter 3  Installing the Cisco NAM 2204 Appliance

Mounting the Cisco NAM 2204 Appliance in a 4-Post Rack

**Warning**
When the appliance is installed in a rack and is fully extended on its slide rail, it is possible for the rack to become unstable and tip over, which could cause serious injury. To eliminate the risk of rack instability from extending the rail or in the event of an earthquake, you should affix the rack to the floor.

This section contains the following topics:
- Setting the Multi-Pin Adapters for the Rack Type, page 3-5
- Installing and Securing the Slide Rails in a Rack, page 3-6
- Installing the Slide Rails into a Rack with Round Holes, page 3-8
- Installing the Appliance into the Slide Rails, page 3-9

### Setting the Multi-Pin Adapters for the Rack Type

The multi-pin adapters allow the slide rails to be used in racks that have square mounting holes or round mounting holes.

To set the adapters for the rack type:

**Step 1** On each slide rail, reverse the multi-pin adapter position to match the rack-mounting hole type if necessary. Remove the multi-pin adapter by rotating the swivel lock up, pressing the mounting pins together, and then pulling the adapter from the multi-pin bracket.

**Step 2** Install the multi-pin adapter by pressing the pins together while inserting the adapter into the bracket. The multi-pin adapter must be fully locked in the bracket. Make sure both mounting pins on the multi-pin adapter are fully engaged in the multi-pin bracket, then lock the multi-pin adapter in place using the swivel lock.

**Step 3** Repeat Steps 1 and 2 for both ends of each slide rail.

### Table 3-2  Fastener Pack (continued)

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Nut bar</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Appliance disks</td>
<td>2</td>
</tr>
</tbody>
</table>
Step 4  To lock the adapters in place:

a. Rotate the swivel lock to the “up” position (see the left-hand illustration in Figure 3-4 on page 3-6). Press the pins together and insert the rack-mating end of the multi-pin adapter through the corresponding holes in the bracket. (Insert the adapter into the bracket with the slotted pin in the “up” position as shown.)

![Figure 3-4 Locking the Adapter into Place](image)

b. When the multi-pin adapter is fully seated in the bracket, close the swivel lock. (See the right-hand illustration in Figure 3-4.)

c. If you have the adapter seated properly, you should be able to easily rotate the swivel lock to the fully locked (closed) position.

Proceed to the next section, “Installing and Securing the Slide Rails in a Rack,” to continue the installation.

Installing and Securing the Slide Rails in a Rack

⚠️ Caution  If you mount the slide rail in holes that are not vertically aligned from front to back, you could damage the slide rail and your mounting might not be secure.

To install the slide rails into the rack:

Step 1  At all four rack uprights, determine the vertical position in the rack where the slide rails are to be installed. The top-most mounting hole for a particular rack unit (RU) mounting position is typically identified by a mark or hole. (See Figure 3-5.)
Chapter 3  Installing the Cisco NAM 2204 Appliance

Mounting the Cisco NAM 2204 Appliance in a 4-Post Rack

Figure 3-5  Mounting Position Marks on a Rack

Step 2  Noting the holes that you determined in Step 1, align the left slide rail with its mounting holes.

Step 3  Hold the slide rail in the desired rack-mounting position. At the rear of the slide rail, press the multi-pin adapter mounting pins together (see location 1 in Figure 3-6 on page 3-7) and insert the slide rail into the rack post (see location 2 in Figure 3-6 on page 3-7).

Figure 3-6  Inserting the Adapter Pins into the Mounting Holes

The following table describes some of the correct and incorrect ways to insert the adapter pins into the rack. (See Figure 3-7 on page 3-8.)
Mounting the Cisco NAM 2204 Appliance in a 4-Post Rack

Chapter 3      Installing the Cisco NAM 2204 Appliance

Figure 3-7  Correct and Incorrect Adapter Pin Insertion

<table>
<thead>
<tr>
<th></th>
<th>Correct</th>
<th>Incorrect</th>
<th>Incorrect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The multi-pin adapter pins are fully engaged in the rack holes. Also, the rack hole into which the top pin was inserted aligns with one of the round RU holes.</td>
<td>Note that the multi-pin adapter pins are not fully engaged in the rack holes.</td>
<td>The rack hole into which the top pin was inserted does not align with one of the RU holes.</td>
</tr>
</tbody>
</table>

Step 4  Making certain the proper mounting holes on the rack upright are selected, repeat Step 2 at the slide rail front-mounting position. Ensure the slide rail is level.

Step 5  Fully extend the slide rail to its fully extended (locked) position. Press the slide extension release levers to release the lock. Move the slide rail in and out throughout its entire range of motion and make certain it does not bind.

If you notice some binding, recheck the mounting positions.

Step 6  Repeat Steps 2 through 5 for the right slide rail, ensuring that it is parallel and level with the left slide rail.

Proceed to the “Installing the Slide Rails into a Rack with Round Holes,” to continue the installation.

Installing the Slide Rails into a Rack with Round Holes

Installing the slide rails into a rack with round holes requires rack screws (not included in the rack-mount installation kit). Before you begin the installation, obtain the appropriate rack screws.
If you mount the slide rail in holes that are not vertically aligned from front to back, you could damage the slide rail and your mounting might not be secure.

When you install the rail hardware into a rack with round holes, you must position the rails so that they are inside the rack with the brackets facing outward. This placement decreases the amount of space between the posts into which you will slide the appliance. Ensure that you have adequate space for the appliance to slide into the rack.

The required clearance is approximately 17.4 inches (44.2 cm).

Installing the slide rails on a round-hole rack does not require the multi-pin adapters. If the multi-pin adapters are already installed in the slide rails, remove them by rotating the swivel lock up, pressing the mounting pins together, and then pulling the adapter from the multi-pin bracket. (See Figure 3-4 on page 3-6.)

To install the slide rails into the rack:

<table>
<thead>
<tr>
<th>Step 1</th>
<th>At all four rack uprights, determine the vertical position in the rack where the slide rails are to be installed. The top-most mounting hole for a particular rack unit (RU) mounting position is typically identified by a mark or hole.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>Noting the holes that you determined in Step 1, align the left slide rail with its mounting holes.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Hold the slide rail in the desired rack-mounting position, with the rail on the inside of the rack and the brackets facing outward. At the rear of the slide rail, press the rear bracket against the rear post of the rack and secure the bracket to the rack with rack screws.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Making certain that you selected the proper mounting holes on the front rail post (that the rail is level), place the front bracket against the front post and secure the bracket to the rack with rack screws.</td>
</tr>
<tr>
<td>Step 5</td>
<td>Fully extend the slide rail to its fully extended (locked) position. Press the slide extension release levers to release the lock. Move the slide rail in and out throughout its entire range of motion and make certain it does not bind.</td>
</tr>
</tbody>
</table>

If you notice some binding, recheck the mounting positions.

| Step 6 | Repeat Steps 2 through 5 for the right slide rail, ensuring that it is parallel and level with the left slide rail.                                                                                          |

Proceed to the next section, “Installing the Appliance into the Slide Rails,” to continue the installation.

**Installing the Appliance into the Slide Rails**

To install the Cisco NAM 2204 appliance into the slide rails:

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Extend both slide rails into the fully extended (locked) position.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2</td>
<td>Align the mounting studs with the mounting channels on the slide rails. (See Figure 3-8 on page 3-10.)</td>
</tr>
</tbody>
</table>
Mounting the Cisco NAM 2204 Appliance in a 2-Post Rack

Warning
When the appliance is installed in a rack and is fully extended on its slide rail, it is possible for the rack to become unstable and tip over, which could cause serious injury. To eliminate the risk of rack instability from extending the rail or in the event of an earthquake, you should affix the rack to the floor.

This section describes how to mount a Cisco NAM 2204 appliance to a 19-inch (48.3-cm) 2-post equipment rack with rack-mounting brackets that attach to the front sides of the appliance. The inside width between the two posts or mounting strips (left and right) must be at least 17.5 inches (44.45 cm). See the for information about the equipment rack.

Even though the intake and exhaust for cooling air are located on the front and on the rear of the appliance, respectively, it is recommended that multiple appliances be stacked in a rack with at least a 1.5-inch (3.81-cm) vertical clearance.

To secure the appliance to the equipment rack, you must use the four mounting screws (provided) for each side or follow your local practices for installing the appliance into your equipment rack. Ensure that the rack-mount brackets have been securely fastened. See the “Attaching the Rack-Mounting Brackets to the Appliance” section on page 3-13 for more information.

The following procedure provides a general outline for mounting the appliance into the equipment rack.

Caution
To prevent injury, review the “Safety Guidelines” section on page 2-2 and the “Rack-Mounting Configuration Guidelines” section on page 3-2 before installing the appliance in the equipment rack.

Step 1 Locate the equipment rack position you plan to install the appliance into.
Step 2 Verify that there are no obstructions and ensure that the equipment rack is stabilized.
Step 3  Position the appliance in the equipment rack, lining up the bracket holes on the appliance with the holes on the rack, and secure it with four 10-32 x 1/2-inch rack screws (each side). You need two people to install the appliance in the rack—one person to hold the appliance and one person to secure it to the rack.

Note  The vertical spacing for the equipment rack is at least 1.75 inches (4.44 cm), with mounting holes spaced 1.5 inches (3.81 cm) apart.

Step 4  Tighten the screws using a Number 2 Phillips screwdriver (each side).

Mid-Mounting in a 2-Post Rack

This section contains the following topics:

- Removing the Front Bezel and Appliance Handles, page 3-11
- Attaching the Rack-Mounting Brackets to the Appliance, page 3-13
- Attaching the L Brackets to the Center Posts, page 3-14
- Installing the Appliance in the Rack, page 3-15

Removing the Front Bezel and Appliance Handles

Note  The following procedure assumes that your Cisco NAM 2204 appliance came shipped with the front bezel and handles installed.

You must remove the front bezel to access the DVD-ROM and the power button. The bezel does not lock.

Step 1  To remove the bezel, pull the bezel from the appliance. (See Figure 3-9.)
Step 2  To replace the bezel, line up the center notch on the bezel with the center guide on the appliance handles, then push the bezel onto the front of the appliance until it clicks into place.

Step 3  Remove the appliance handles by removing the two screws (see Figure 3-10) from each handle.

Figure 3-9  Removing the Front Bezel from the Appliance

Figure 3-10  Removing the Handles from the Appliance
Step 4  Replace the screws to keep the bezel attached to the appliance.

Proceed to the next section, “Attaching the Rack-Mounting Brackets to the Appliance,” to continue the installation.

**Attaching the Rack-Mounting Brackets to the Appliance**

Before you begin, check the 10-32 x 1/2-inch screws that are included in the fastener pack (see Figure 3-3 on page 3-4) to see if they are the correct size for your rack. If not, obtain the correct screws to use in the procedure where “rack screws” are required.

To attach the brackets to the appliance:

Step 1  Place a mounting bracket (see location 1 in Figure 3-11 on page 3-13) along one side of the appliance in the mid-mount position.

*Figure 3-11  Attaching the Bracket*

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mounting bracket</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Mounting bracket holes</td>
<td>4</td>
</tr>
</tbody>
</table>

Step 2  Align the holes (see location 2 in Figure 3-11) in the bracket with the tabs (see location 3 in Figure 3-11) on the appliance and place the bracket against the appliance.
Chapter 3 Installing the Cisco NAM 2204 Appliance

Mounting the Cisco NAM 2204 Appliance in a 2-Post Rack

Note

The four appliance tabs are not installed on the units when shipped, but are included in the accessory kit.

Step 3 Slide the bracket as far as it will go toward the front of the appliance.

Step 4 Insert the hex head screws (see location 4 in Figure 3-11) and fasten the bracket to the appliance using a Number 2 Phillips screwdriver.

Step 5 Repeat Steps 2 through 4 for the other rack-mounting bracket.

Step 6 You are now ready to install the appliance into the 2-post rack.

Proceed to the next section, “Attaching the L Brackets to the Center Posts,” to continue the installation.

Attaching the L Brackets to the Center Posts

To attach the L brackets to the center posts:

Step 1 Position an L bracket (see location 1 in Figure 3-12) on the front side of the center post (see location 3 in Figure 3-12).

Figure 3-12 Attaching an L Bracket to a Center Post

1 | 2 | 3
---|---|---
L bracket | Rack screw | Front side of right center post

Step 2 Attach the L bracket to the center post using the rack screws (see location 2 in Figure 3-12). Do not fully tighten the screws at this time.
Step 3  Repeat Steps 1 and 2 for the other L bracket.

Proceed to the next section, “Installing the Appliance in the Rack,” to continue the installation.

Installing the Appliance in the Rack

⚠️ Caution Lifting the appliance and attaching it to the rack is a two-person job. If needed, use an appropriate lifting device. A fully loaded Cisco NAM 2204 appliance weighs approximately 35 lb (15.9 kg).

To mount the appliance in the rack:

Step 1  Locate one person at the front of the rack and one at the rear.

Step 2  Position the appliance so that the L brackets (see location 1 in Figure 3-13) are inserted into the appliance mounting brackets (see location 2 in Figure 3-13).

Figure 3-13  L Brackets Inserted into Appliance Mounting Brackets (Front View)

<table>
<thead>
<tr>
<th>1</th>
<th>L brackets</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Appliance mounting brackets</td>
</tr>
<tr>
<td>3</td>
<td>Adjusting the L brackets</td>
</tr>
</tbody>
</table>
Step 3 While one person supports the weight of the appliance, the other person must adjust the L brackets to fit tightly into the appliance brackets (see location 3 in Figure 3-13).

Step 4 Slide the appliance toward the front of the rack until the front of the appliance mounting brackets contact the rear of the center posts.

Step 5 Using the rack screws, attach the front of the mounting brackets to the front of the center posts. (See Figure 3-14 on page 3-16.)

Figure 3-14 Installing the Appliance in the Rack

<table>
<thead>
<tr>
<th>1</th>
<th>Appliance mounting bracket in mid-mount position</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Rack screws</td>
</tr>
</tbody>
</table>

Step 6 Tighten all screws.

Front-Mounting in a 2-Post Rack

Warning The rack mount kit for the Cisco NAM 2204 appliance provides the option for mounting the system in a two post front-mount-only configuration. However, this option is not recommended for use in most rack systems. If you wish to use a front-mount-only configuration, it is strongly recommended that you verify with your rack vendor that your specific rack is designed to support the excessive weight and
stresses that this mounting configuration imposes on the rack. If the rack is not designed for this type of load, you might experience structural failure of the rack. Rather, you should use a 2-post mid-mount or 4-post configuration, when possible.

This section contains the following topics:

- Removing the Front Bezel and Appliance Handles, page 3-17
- Attaching the Rack-Mounting Brackets to the Appliance, page 3-18
- Attaching the L Brackets to the Rack Posts, page 3-20
- Installing the Appliance in the Rack, page 3-21

Removing the Front Bezel and Appliance Handles

Note

The following procedure assumes that your Cisco NAM 2204 appliance came shipped with the front bezel and handles installed.

You must remove the front bezel to access the DVD-ROM and the power button. The bezel does not lock.

Step 1
To remove the bezel, pull the bezel from the appliance. (See Figure 3-15.)

Figure 3-15    Removing the Front Bezel from the Appliance

Step 2
To replace the bezel, line up the center notch on the bezel with the center guide on the appliance handles, then push the bezel onto the front of the appliance until it clicks into place.

Step 3
Remove the appliance handles by removing the two screws (see Figure 3-16 on page 3-18) from each handle.
Mounting the Cisco NAM 2204 Appliance in a 2-Post Rack

Chapter 3 Installing the Cisco NAM 2204 Appliance

Step 4 Replace the screws to keep the bezel attached to the appliance.

Proceed to the next section, “Attaching the Rack-Mounting Brackets to the Appliance,” to continue the installation.

Attaching the Rack-Mounting Brackets to the Appliance

Before you begin, check the 10-32 x 1/2-inch screws that are included in the fastener pack (see Figure 3-3 on page 3-4) to see if they are the correct size for your rack. If not, obtain the correct screws to use in the procedure where “rack screws” are required.

To attach the brackets to the appliance:

Step 1 Place a mounting bracket (see location 1 in Figure 3-17 on page 3-19) along one side of the appliance in the front-mount position.
Figure 3-17  Attaching the Bracket

Step 2  Align the holes (see location 2 in Figure 3-17) in the bracket with the tabs (see location 3 in Figure 3-17) on the appliance and place the bracket against the appliance.

Step 3  Slide the bracket toward the front of the appliance, until the forward-most hole on the bracket is aligned with the second hole on the appliance. (If you attempt to use the first hole on the appliance, the holes will not align properly with the bracket.)

Step 4  Attach the bracket to the appliance using hex head screws (see location 4 in Figure 3-17) and fasten the bracket to the appliance using a Number 2 Phillips screwdriver.

Step 5  Repeat Steps 2 through 4 for the other rack-mounting bracket.

Step 6  You are now ready to install the appliance into a 2-post rack.

Proceed to the next section, “Attaching the L Brackets to the Rack Posts,” to continue the installation.
Attaching the L Brackets to the Rack Posts

To attach the L brackets to the front posts:

**Step 1** Position an L bracket (see location 1 in Figure 3-18) on the rear side of one of the posts (see location 3 in Figure 3-18).

**Step 2** Attach the L bracket to the center post using the rack screws (see location 2 in Figure 3-18). Do not fully tighten the screws at this time.

**Step 3** Repeat Steps 1 and 2 for the other L bracket.

**Figure 3-18 Attaching an L Bracket to a Center Post**

<table>
<thead>
<tr>
<th></th>
<th>L bracket</th>
<th></th>
<th>Front side of right center post</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Rack screws</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Proceed to the next section, “Installing the Appliance in the Rack,” to continue the installation.
Installing the Appliance in the Rack

**Caution**  Lifting the appliance and attaching it to the rack is a two-person job. If needed, use an appropriate lifting device. A Cisco NAM 2204 appliance weighs 35.0 lb. (15.9 kg).

To mount the appliance in the rack:

**Step 1**  Locate one person at the front of the rack and one at the rear.

**Step 2**  Position the appliance so that the L brackets (see location 1 in Figure 3-19) are inserted into the appliance mounting brackets (see location 2 in Figure 3-19).

*Figure 3-19  L Brackets Inserted into Chassis Mounting Brackets*
### Chapter 3 Installing the Cisco NAM 2204 Appliance

#### Installing SFP Modules

The Cisco NAM 2204 appliance uses up to four 1 GB Ethernet SFP modules to connect fiber optical cables as data input sources. You can install any combination of long-range and short-range SFPs. Depending on the type of SFP you use, you must use the correct fiber optical cables. The SFP of the interface at the monitored device must be the same type as the monitoring port you connect to on the Cisco 2204-SFP appliance.

#### Step 3

While one person supports the weight of the appliance from the rear, the other person must adjust the L brackets to fit tightly into the appliance brackets (see location 3 in Figure 3-19).

#### Step 4

Slide the appliance toward the rear of the rack until the front of the appliance brackets contact the front of the center posts.

#### Step 5

Using the rack screws, attach the front of the mounting brackets to the front of the center posts. (See Figure 3-20 on page 3-22.)

### Figure 3-20 Installing the Appliance in the Rack

![Installing the Appliance in the Rack](image)

#### Step 6

Tighten all screws.

### Table

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L brackets</td>
</tr>
<tr>
<td>2</td>
<td>Appliance mounting brackets</td>
</tr>
<tr>
<td>3</td>
<td>Adjusting the L brackets</td>
</tr>
</tbody>
</table>
You can order SFPs as hardware options or you can use SFPs you might already own as long as they meet the specifications described in the “SFP Modules” section on page B-2. Because SFPs are delicate devices, they are packaged separately and are not installed in the appliance prior to shipping. The Cisco 2204-SFP appliance supports the following Cisco standard SFPs (or their equivalent):

- GLC-T—1000GASE-T
- GLC-SX-MM—Gigabit Ethernet SFP, LC Connector, SX transceiver
- GLC-LH-SM—Gigabit Ethernet SFP, LC Connector, LX/LH transceiver

You install the SFPs into slots on the back panel of the Cisco NAM 2204 appliance. See location #9 in Figure 3-21. The slots are logical DataPort 1-4 from the right. Figure 3-21 shows a detailed view of an SFP module installation.

Figure 3-21 Installing an SFP Module

The SFP module uses the bail clasp latching mechanism as shown unlatched in Figure 3-22 and latched in Figure 3-23. See the label on the SFP for technology type and model.

SFP dimensions are:

- Height 0.33 inches (8.5 mm)
- Width 0.72 inches (18.3 mm)
- Depth 3.1 inches (78 mm)
SFP temperature ranges are:
- COM—Commercial operating temperature range between 23 degrees Fahrenheit to 158 degrees Fahrenheit (-5 degrees Celsius to 70 degrees Celsius)
- EXT—Extended operating temperature range between 23 degrees Fahrenheit to 185 degrees Fahrenheit (-5 degrees Celsius to 85 degrees Celsius)
- IND—Industrial operating temperature range between -40 degrees Fahrenheit to 185 degrees Fahrenheit (-40 degrees Celsius to 85 degrees Celsius)

Caution: Do not add labels or markings to the SFPs.

You can order SFPs as hardware options or you can use SFPs you might already own. Because SFPs are delicate devices, they are packaged separately and are not installed in the appliance prior to shipping.

Installing an SFP

To install an SFP into the Cisco NAM 2204 appliance:

1. Locate the SFP you plan to install and remove any protective packaging.
2. Determine into which of the two slots you will install the SFP.
3. With its latch open, slide the SFP into the slot until you feel resistance, then push the SFP harder until you feel (or hear) it click into its socket.
   
   Figure 3-22 shows an example of an SFP with its latch open.

4. With your finger, pull the latch upwards to lock the SFP into its slot.

   Figure 3-23 shows an example of a locked SFP.
The SFP is now ready to receive the fiber optical cable input.

**Replacing an SFP**

To replace an SFP in the Cisco NAM 2204 appliance:

**Step 1** Locate the new SFP you plan to install and remove any protective packaging. Examine the SFP for any signs of damage.

**Step 2** Determine which SFP you want to replace on the Cisco NAM 2204 appliance back panel.

**Step 3** Remove the fiber optical cable from the SFP.

**Step 4** With your finger, pull the latch down to release the SFP from its latched position. See Figure 3-22.

**Step 5** Using the latch, pull the SFP out of the appliance and place it in a safe location.

**Step 6** Insert the new SFP into the slot and slide it in until you feel resistance, then push the SFP harder until you feel (or hear) it click into its socket.

**Step 7** With your finger, pull the latch upwards to lock the SFP into its slot.

**Step 8** Replace the fiber optical cable.

**Connecting Cables**

This section describes how to connect your Cisco NAM 2204 appliance to the network and the appliance console. It includes the following sections:

- Connecting the Management Port, page 3-26
- Connecting a Console Terminal, page 3-26
- Cable Management, page 3-29

*Figure 3-24  Cisco NAM 2204 Appliance Rear View*
Connecting Cables

Connecting a Console Terminal

Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity.

Statement 1001

The Cisco NAM 2204 appliance has a DCE-mode console port for connecting a console terminal. You can connect a terminal or a PC running terminal-emulation software to the console port.

The appliance uses a DB-9 serial connector for the console port, location #4 in Figure 3-24. (See the for more information.)

Table 3-3 lists the console terminal settings you should use to connect to the Cisco NAM 2204 appliance.

Table 3-3 Terminal Settings

| Baud Rate | 9600 |
| Data Bits | 8 |
| Parity    | No  |
| Stop Bit  | 1   |
| Hardware Flow Control | Off |

Connecting the Management Port

Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity.

Statement 1001

The Cisco NAM 2204 appliance management port is the NIC 1 port, location #10 on Figure 3-24, a 10/100/1000 RJ-45 connector.

The RJ-45 port supports standard straight-through and crossover Category 5e unshielded twisted-pair (UTP) cable. Cisco does not supply Category 5e UTP cables; these cables are available commercially.

To connect the Cisco NAM 2204 appliance management port, connect one end of a Cat5e UTP cable to the NIC 1 port on the appliance. Connect the other end of the cable to a hub or switch (a gateway) in your network.
Connecting the Monitoring Ports

The Cisco NAM 2204 appliance provides four monitoring ports, either 4x1GB 10/100/1000 BASE-T RJ-45 connectors or 4x1GB 1000 BASE-T SFP, supporting both SX LC and LX LC connectors.

You can connect the Cisco NAM 2204 appliance directly to a device to monitor, such as a switch or router, or you can connect the appliance between two devices using an optical tap device or a hub.

Direct Connection

You connect the Cisco NAM 2204 appliance directly to a switch or router by running a cable from a data port interface on a switch or router to one of the monitoring ports on the appliance back panel. See location #11 in Figure 3-24 for the location of the appliance monitoring ports.

Figure 3-25 shows the four monitoring ports with RJ-45 connectors. These ports, regardless of type, are logical DataPort inputs (DataPort 1 - DataPort 4 from right to left) for the NAM appliance.

![Monitoring Ports](image)

The Cisco 2204-RJ45 appliance requires a Cat5eUTP cable. The Cisco 2204-SFP appliance requires a fiber optical cable. See Appendix B, “Monitor Port Requirements” for other SFP and cable specifications.

Tap Connection

You can connect the Cisco NAM 2204 appliance between two devices using an optical tap device or a hub. The tap connection mirrors the transmit sides of the cables that connect two devices as shown in Figure 3-26.

Using an Optical Tap Device

You can use an optical tap device to connect the Tx signals of two devices to the Cisco 2204-SFP appliance monitoring ports. The Cisco 2204-SFP appliance supports up to two optical taps and monitors up to four device interfaces.

Note: The optical tap connection requires two additional fiber optical cables.
Connecting Cables

Chapter 3 Installing the Cisco NAM 2204 Appliance

Connecting Cables

Figure 3-26 Optical Tap Connection

Note
You can find optical tap specifications in Appendix B, “Monitor Port Requirements.”

To connect two devices to a Cisco 2204-SFP appliance using an optical tap device:

Step 1 Disconnect the fiber optical cable that connects the two devices.
Step 2 Connect one of the devices to the A port on the optical tap device.
Step 3 Use another fiber optical cable to connect the other device to the B port on the optical tap device.
Step 4 Run a third fiber optical cable from the optical tap device’s output ports (Tx A and Tx B) to the Cisco NAM 2204 appliance.

This cable contains the mirrored transmit output of both devices (Tx A and Tx B). You use both of the plugs as separate inputs to two of the four Cisco 2204-SFP appliance monitoring ports.
Step 5 At the Cisco 2204-SFP appliance, separate the cable’s two plugs, and plug each into the left (Tx) side of an SFP in the appliance monitoring ports.

Using a Hub

You can use a simple hub to connect the Tx signals of two devices to the Cisco 2204-RJ45 appliance monitoring ports.

To connect two devices to a Cisco 2204-RJ45 appliance using a hub:

Step 1 Disconnect the cable that connects the two devices, and connect one of the devices to a port on the hub.
Step 2 Use a Cat5e UTP Ethernet cable to connect the other device to another port on the same hub.
Step 3 Run a Cat5e UTP Ethernet cable from the hub to the Cisco NAM 2204 appliance and plug the cable into one of the four monitoring ports on the Cisco 2204-RJ45 appliance back panel.
Cable Management

Cable management is the most visual aspect of your appliance setup. However, cable management is often overlooked because it can be time consuming.

Equipment racks and enclosures house more equipment today than ever before. This growth has increased the need for organized cable management both inside and outside the rack. Poor cable management not only leads to damaged cables or increased time for adding or changing out cables, but also blocks critical airflow or access. These problems can lead to inefficiencies in the performance of your equipment or even downtime.

There are many solutions to address cable management. They can range from simple cable management rings, to vertical or horizontal organizers, to troughs and ladders.

All Cisco NAM 2204 appliance cables should be properly dressed so as not to interfere with each other or other pieces of equipment. Use local practices to ensure that the cables attached to your appliance are properly dressed.

Proceed to the next section, “Powering Up the Cisco NAM 2204 Appliance,” to continue the installation.

Powering Up the Cisco NAM 2204 Appliance

Warning

Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected. Statement 4

Warning

This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use. Statement 39

Checklist for Power Up

You are ready to power up the Cisco NAM 2204 appliance if the following steps are complete:

- The appliance is securely mounted.
- Power, network, and interface cables are properly connected.

Power-Up Procedure

To power up the Cisco NAM 2204 appliance and verify its initialization and self-test, follow this procedure. When the procedure is finished, the appliance is ready to configure.

Step 1 Review the information in the “Safety Guidelines” section on page 2-2.
Step 2 Plug the AC power cord into the power cord receptacle at the rear of the appliance. (See location 1 in Figure 3-24 on page 3-25.)
Step 3 Connect the other end of the power cord to a power source at your installation site.
Step 4  Press the power button on the front of the appliance. (See location 2 in Figure 3-27.)

The appliance should begin booting. Once the operating system boots, you are ready to initialize the basic software configuration. (See the software installation guide or user guide that shipped with your appliance for proper configuration procedures.)

Figure 3-27  Cisco NAM 2204 Appliance Front View

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USB port</td>
</tr>
<tr>
<td>2</td>
<td>Power button</td>
</tr>
<tr>
<td>3</td>
<td>Appliance Power LED</td>
</tr>
<tr>
<td>4</td>
<td>Hard Disk Drive Activity LED</td>
</tr>
<tr>
<td>5</td>
<td>NIC 1 LED</td>
</tr>
<tr>
<td>6</td>
<td>NIC 2 LED (unused)</td>
</tr>
</tbody>
</table>

Checking the LEDs

When the Cisco NAM 2204 appliance is up and running, observe the front-panel LEDs. The following LEDs provide power, activity, and status information:

Front-Panel LEDs

- Appliance power, green:
  - On when power is on.
  - Off when power is off or an error condition has been detected in the operating voltages.
- Hard disk activity, green:
  - On when appliance software has booted up, and the appliance is operational.
  - Off when appliance has not yet booted, or an error condition has been detected in the boot process.
- NIC 1 or NIC 2, green:
  - On when packets are transferring
  - Off when no packets are transferring

For more detailed information about the LEDs, see Appendix C, “Troubleshooting.”
Removing or Replacing the Cisco NAM 2204 Appliance

Always use the NAM CLI command `shutdown` to turn power off.

**Warning**

*Before working on a system that has an On/Off switch, turn OFF the power and unplug the power cord.*

Statement 1

**Warning**

*Ultimate disposal of this product should be handled according to all national laws and regulations.*

Statement 1040

To remove a Cisco NAM 2204 appliance from your network, power it down, disconnect the power cords and network cables, and physically remove the appliance from the rack.

**Note**

*Before turning off power to the Cisco NAM 2204 appliance, use the NAM CLI and issue the `shutdown` command to shut down the NAM application.*

To replace an appliance, remove it from the network. Then, install a new appliance and configure it using the same configuration parameters that you used for the removed appliance.
Configuring the Cisco NAM 2204 Appliance

This section describes how to configure the Cisco NAM 2204 appliance to establish network connectivity, configure IP parameters, and perform other required administrative tasks using the NAM command line interface (CLI). This chapter also provides information about how to get started with the NAM graphical user interface (GUI) and how to perform various system management tasks.

This chapter contains the following sections:

- Logging In For the First Time, page 4-1
- Establishing Network Connectivity, page 4-3
- Enabling the NAM Traffic Analyzer Web Server, page 4-6
- Additional Configuration Using the NAM GUI, page 4-8
- Managing the Cisco 2204 NAM Appliance, page 4-12

Note
For more advanced NAM configuration information, use the NAM Traffic Analyzer web GUI or see the Network Analysis Module Command Reference at the following URL:

Logging In For the First Time

After you turn power on and boot the Cisco NAM 2204 appliance for the first time, the login prompt displays on the attached console. When shipped from the factory, the root user is pre configured on the Cisco NAM 2204 appliance. The default password for the root user is root.

Note
We require you to change the user root password during the first login session.

The root user has access to the root (read/write) level of NAM and can enter NAM command-line interface (CLI) commands.

To log in to the Cisco NAM 2204 appliance for the first time, open a console session or a serial session with the NAM appliance:

Note
After your initial login, you can enable telnet and ssh connections to the NAM appliance.
Chapter 4      Configuring the Cisco NAM 2204 Appliance

Logging In For the First Time

Step 1 When the NAM login prompt appears, type root and press Enter.

nam.localdomain login: root

Step 2 When the password prompt appears, type root and press Enter.

After you enter the ID and password, you will be prompted to change the root password.

Cisco 2200 NAM Appliance (NAM2200)

nam.localdomain login: root
Password: root

Cisco 2200 NAM Appliance (NAM2200) Console, 5.0(1)
Copyright (c) 1999-2010 by Cisco Systems, Inc.

System Alert! Default password has not been changed!
Please enter a new root user password.
Enter new UNIX password:

Step 3 Enter the new password for the root user.

We recommend that you make a record of the password, and store this information in a secure location. You should change this password regularly in accordance with your site’s password security policies. See Changing the Root Password, page 4-2.

Reype new UNIX password:
paswd: password updated successfully
root@nam.localdomain#

Changing the Root Password

This section describes how to change the root user password after the initial login session. To change the root password:

Step 1 Open a console session or serial session with the NAM appliance.

Step 2 When prompted for a username, enter root.

The Cisco NAM 2204 appliance ships from the factory with default settings for user root with a password of root.

Step 3 When prompted, enter the password for user root.

After you log in as the root user, you have read and write access to the root level of the NAM appliance, and you can enter and perform CLI commands.

root@hostname#

Step 4 Enter the following command to change the root user password.

password root

New password:

Confirm password:
Establishing Network Connectivity

This section describes how to configure the Cisco NAM 2204 appliance to configure IP parameters and establish network connectivity.

Log in to the Cisco NAM 2204 appliance from the management console and enter the following CLI commands with the appropriate information for your site:

**Step 1** Use the `ip address` command to configure the NAM appliance IP address. The syntax for this command is as follows:

```
ip address ip-address subnet-mask
```

**Example**

```
root@localhost# ip address 172.20.104.126 255.255.255.248
```
Step 2  (Optional) You can use the `ip broadcast` command to configure the NAM appliance broadcast address. The syntax for this command is as follows:

```
ip broadcast broadcast-address
```

Example

```
root@localhost# ip broadcast 10.255.255.255
```

Step 3  Use the `ip gateway` command to configure the NAM appliance default gateway address. The syntax for this command is as follows:

```
ip gateway ip-address
```

Example

```
root@localhost# ip gateway 172.20.104.123
```

Step 4  (Optional) You can use the `exsession` command to enable remote login to the NAM appliance using either Telnet or SSH. The `exsession on ssh` requires crypto patch to be installed. See Enabling the NAM Traffic Analyzer Web Server, page 4-6, to know how to download and install the software K9 cryptographic patch.

The syntax for this command is as follows:

```
exsession on  (for Telnet)
or
exsession on ssh  (for SSH)
```

Examples

To configure the NAM appliance to enable Telnet access:

```
root@localhost# exsession on
```

To configure the NAM appliance to enable SSH access:

```
root@localhost# exsession on ssh
```

Note  The NAM software K9 cryptographic patch is required to configure the `ssh` option.

Step 5  You can use the `ip domain` command to configure the NAM appliance system domain name. The syntax for this (optional) command is as follows:

```
ip domain name
```

Example

```
root@localhost# ip domain your_company.com
```
**Step 6**  You can use the `ip host` command to configure the NAM appliance system hostname.
The syntax for this command is as follows:

`ip host name`

**Example**

```
root@localhost# ip host nam_machine
```

**Step 7**  You might (optionally) want to use the `ip nameserver` command to configure one or more name servers for the NAM appliance.
The syntax for this command is as follows:

`ip nameserver ip-address [ip-address] [ip-address]`

**Examples**

```
root@localhost# ip nameserver 172.20.104.10
root@localhost# ip nameserver 172.20.104.10 172.20.104.20 172.20.104.30
```

---

**Checking Your Configuration**

After you finish configuring the NAM appliance for network connectivity, it is a good idea to check your connectivity and verify the IP parameters you have just configured for the NAM appliance.

**Step 1**  Use the `show ip` command to verify that you have configured the NAM appliance IP parameters the way you want them.
The syntax for this command is as follows:

`show ip`

```
root@localhost# show ip
root@nam1.company.com# show ip
```

**Sample Output for the show ip NAM CLI Command**
The following is an example of the `show ip` command output that shows a configured NAM appliance:

```
root@nam1.company.com# show ip

IP address:  172.20.105.215
Subnet mask:  255.255.255.192
IP Broadcast:  10.255.255.255
DNS Name:  nam1.company.com
Default Gateway:  172.20.105.210
Nameserver(s):  209.165.201.29
HTTP server:  Disabled
HTTP secure server:  Disabled
TACACS+ configured:  No
telnet:  Enabled
SSH:  Disabled
root@nam1.company.com#
```
Enabling the NAM Traffic Analyzer Web Server

This section describes how to enable the NAM Traffic Analyzer web server and browser-based access to the NAM Traffic Analyzer graphical user interface (GUI).

To enable the NAM web server and provide browser-based access, the following prerequisites must be met:

- If you plan to use the HTTP secure server (HTTPS), you must first download and install the NAM software K9 cryptographic patch. You can download the NAM software K9 cryptographic patch from Cisco.com.

After downloading the software, install the patch using the following command:

```
patch <ftp url>
<ftp url>: ftp://<username>@<host>/<path>/<filename>. The username is optional based on the ftp server setting.
```

For example: `patch ftp://10.1.1.2/patch/nam-5-0-k9.patch`

### Note

The `ip http secure` commands remain disabled until you install the patch.

- Ensure that your web browser supports your NAM software release. For a list of supported browsers, see the NAM software release notes at the following URL:


To enable the NAM web server:
Step 1  Open a Telnet or SSH session to the NAM appliance and at the password prompt, enter your password.

    telnet {ip-address | hostname}

or

    ssh {ip-address | hostname}

Step 2  Enter one of the following commands to enable either an HTTP server or an HTTPS secure server:

To enable the NAM HTTP web server:

    ip http server enable

To enable the NAM HTTPS secure web server:

    ip http secure server enable

The NAM requests a web administrator user name.

    Enabling HTTP server...

    No web users are configured.
    Please enter a web administrator user name [admin]: <CR>

The NAM web server requires at least one properly-configured web administrator. If the NAM does not prompt you for a web username and password, then at least one web administrator was previously configured.

Step 3  Enter the username of the web administrator. Otherwise, press Enter to use the default web administrator username admin.

    The NAM requests a password for the web administrator, then requests the password to be entered again to ensure accuracy.

        New password: <adminpasswd>

        Confirm password: <adminpasswd>

Step 4  Enter the password for the web administrator and confirm it. Otherwise, press Enter to use the default web administrator password adminpasswd.

Note  Because this document is available to the public by way of Cisco.com, it is a good idea to change this and all default passwords as soon as possible.

---

Enabling the Web Server Summary

The following summarizes the steps or interaction when you enable the NAM web server and access to it.

    root@localhost# ip http server enable

    No web users are configured.
    Please enter a web administrator user name [admin]: <CR>
    New password: <adminpasswd>
    Confirm password: <adminpasswd>

    User admin added.
Checking the NAM Traffic Analyzer Web Server

After you have configured the NAM Traffic Analyzer web server and enabled access to it, you should check that the web server is working by launching a browser and trying to log in to the NAM.

To check the NAM Traffic Analyzer web server functionality, launch an approved internet browser and enter the IP address or host and domain name in the browser address field.

Note: For a list of supported browsers, see the NAM software release notes at: http://www.cisco.com/en/US/docs/net_mgmt/network_analysis_module/software/5.0/release/notes/nam50note.html

If the Cisco NAM 2204 Appliance web server is properly configured, you should be able to access the NAM Traffic Analyzer. At this point, the only user able to log in to the NAM Traffic Analyzer web server is the administrative user you configured when you enabled the web server.

Additional Configuration Using the NAM GUI

After you log in through the NAM Traffic Analyzer login window, you have access to the NAM graphical user interface (GUI). The NAM GUI is a web-based interface that uses five main tabs for you to set up and use the NAM. The five main tabs are:

- Monitor
- Analyze
- Capture
- Setup
- Administration

For detailed information on the NAM GUI, see the User Guide for your NAM software release. You can find a PDF file of the user guide in the online help of the NAM GUI and on Cisco.com at the following URL:


After you log in to the NAM GUI, perform the following tasks:

Step 1 Go to the Setup > Managed Device > Device Information window, and enter the parameters for your managed device in the Managed Device Information window.

Figure 4-1 shows the Managed Device Information window.

For more detailed information about the parameters required to set up a managed device, see Chapter 3 of the User Guide at http://www.cisco.com/en/US/products/sw/cscowork/ps5401/products_user_guide_list.html

Starting httpd
Step 2: Go to the **Administration > System** window, and click **Network Parameters** in the content menu.

*Figure 4-2* shows an example of the Network Parameters window. Use this window to enter additional network connectivity parameters such as your site’s name servers.
Step 3  Continue with each option in the content menu of the Administration > System window.

Figure 4-3 shows the content menu of the Administration > System window. The default view of that window is the System Overview window.

Figure 4-3  Administration > System Content Menu

You can find detailed information about the options in the Administration > System window content menu in the User and System Administration chapter of the User Guide for the Cisco Network Analysis Module Traffic Analyzer.

Step 4  If you plan to use SNMP, go to the Administration > System > SNMP Agent window. Set the community strings for the NAM SNMP agent and enter the administrative contact information.

Step 5  Go to the Administration > System > System Time window, and configure the NAM system time to synchronize with either the local managed device or an external network time protocol (NTP) server. The default setting is to synchronize with the local managed device. If NTP is used for time synchronization, enter at least one NTP server name or IP address.

Note  You must configure the NAM local time zone regardless of the time synchronization method.

Step 6  Go to the Administration > System > E-Mail Setting window, and enter the POP or external mail server for your organization. Also enter a complete E-mail address to receive a test message when you have completed the E-mail configuration.

Step 7  Go to the Administration > System > Web Data Publication window, and check each item you want to make available for Web Data Publishing. The publication code, if required, must be present in the URL address or cookie to enable access to published data.

Step 8  Go to the Administration > System > Capture Data Storage window, and enter the parameters required to set up capture storage to remote disks using either iSCSI or NFS storage systems.

Step 9  Go to the Administration > System > Syslog Setting window, and specify optional remote syslog server names (up to five) to receive syslog messages from NAM. NAM syslogs are created for alarm threshold events, voice threshold events, or system alerts. You can use the NAM Traffic Analyzer to view the local NAM syslogs.

Step 10  Go to the Administration > System > SNMP Trap Setting window, and enter the parameters required to configure traps.

Step 11  Go to the Administration > System > Preferences window, and enter the preferred parameters.
If you plan to use the local user database, continue with the next step. If you plan to use a TACACS+ database, proceed to Step 13.

**Step 12**

Go to the **Administration > Users > Local Database** window, and click **Create** to add any administrative users who require access. Click **Edit** to make any changes to the privilege each administrative user require for the functions they might perform, and **Delete** to remove the user access. Figure 4-4 shows an example of the default local user database window.

**Figure 4-4  Administration > Users > Local Database Window**

![Image](image1.png)

**Step 13**

If you plan to use a TACACS+ server for authentication and authorization (AA), go to the **Administration > Users > TACACS+** window, and enter the parameters required to access the TACACS+ server for authentication and authorization.

Enter the IP address of the TACACS+ server and the secret key to communicate with the server. The secret key must be the same as the one configured in the TACACS+ server.

**Figure 4-5 shows an example of the Administration > Users > TACACS+ window.**
Managing the Cisco 2204 NAM Appliance

This section contains the following information:

- Shutting Down and Starting Up Cisco NAM 2204 appliance, page 4-13
- Verifying System Status, page 4-13
- Configuring Logging Options and Generating Diagnostics, page 4-13
- Opening and Closing a Telnet or SSH Session to the NAM, page 4-14

Note

- The tables in these sections show only common managed device and network module commands.
  - To view a complete list of available commands, type `?` at the prompt
    (Example: `user@nam_host.domain# ?`).
  - To view a complete list of command keyword options, type `?` at the end of the command
    (Example: `nam_host.domain# ip ?`).
- The tables group commands by the configuration mode in which they are available. If the same command is available in more than one mode, it might act differently in each mode.
Shutting Down and Starting Up Cisco NAM 2204 appliance

To shut down the Cisco NAM 2204 appliance, issue the `shutdown` command.
The Cisco NAM 2204 appliance reboots after you press the Power button.

Verifying System Status

To verify the status of an installation, upgrade, or downgrade or to troubleshoot problems, use commands from those listed in Table 4-1, Common diagnostic and Show Commands.

Note

Among keyword options for many `show` commands is provision to display diagnostic output on your screen or to pipe it to a file or a URL.

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>show audit-trail</code></td>
<td>Displays the web GUI logins and CLI access settings</td>
</tr>
<tr>
<td><code>show configuration</code></td>
<td>Displays the current bootloader configuration as entered using the <code>configure</code> command</td>
</tr>
<tr>
<td><code>show ip</code></td>
<td>Displays the IP parameters</td>
</tr>
<tr>
<td><code>show patches</code></td>
<td>Displays any installed patches</td>
</tr>
<tr>
<td><code>show tech-support</code></td>
<td>Displays general information about the host router that is useful to Cisco technical support for problem diagnosis</td>
</tr>
<tr>
<td><code>show time</code></td>
<td>Displays the NAM system time settings</td>
</tr>
<tr>
<td><code>show version</code></td>
<td>Displays information about the loaded router, software, or network module bootloader version, and also hardware and device information.</td>
</tr>
</tbody>
</table>

Configuring Logging Options and Generating Diagnostics

To configure logging options for Cisco NAM 2204 appliance, use commands as needed from the list of common network module commands shown in Table 4-2.

Note

Some keyword options for many of the `log` and `trace` commands is provision to display diagnostic output on your screen or to pipe it to a file or a URL.
### Opening and Closing a Telnet or SSH Session to the NAM

This procedure opens and closes a Telnet or SSH session to the NAM. This procedure is not commonly performed, because you would typically use the NAM Traffic Analyzer (web GUI) to monitor and maintain the NAM. If, however, you cannot access the NAM Traffic Analyzer, then you might want to use Telnet or SSH to troubleshoot from the NAM CLI.

If your Cisco NAM 2204 appliance is not properly configured for Telnet or SSH access (see the following Prerequisites, page 4-14 section), then you can open a Telnet session to the managed device to which the Cisco NAM 2204 appliance is connected, then open a NAM console session from the managed device.

#### Prerequisites

- Configure the NAM system IP address. Optionally, set the NAM system hostname.
- Verify NAM network connectivity by performing one of the following ping tests:
  - From a host beyond the gateway, ping the NAM system IP address.
  - From the NAM CLI, ping the NAM system default gateway.

#### Telnet Prerequisites

- Enter the `exsession on` NAM CLI command.

#### SSH Prerequisites

- Install the NAM software K9 cryptographic patch, which you can download from Cisco.com.
- Enter the `exsession on ssh` NAM CLI command.
SUMMARY STEPS

1. `telnet {ip-address | hostname}`
   or
   `ssh {ip-address | hostname}`
2. At the login prompt, enter `root`.
3. At the password prompt, enter your password.
   or
   If you have not changed the password from the factory-set default, enter `root` as the root password.
4. Perform the tasks that you need to perform in the NAM CLI. When you want to end the Telnet or SSH session to the NAM and return to the Cisco IOS CLI, complete Step 5 and Step 6.
5. `exit`
6. `logout`

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Logs in to a host that supports Telnet. or Starts an encrypted session with a remote networking device.</td>
</tr>
<tr>
<td>`telnet {ip-address</td>
<td>hostname}`</td>
</tr>
<tr>
<td>`ssh {ip-address</td>
<td>hostname}`</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>host.domain# telnet 10.20.30.40</code></td>
<td></td>
</tr>
<tr>
<td><code>host.domain# ssh 10.20.30.40</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Accesses the root (read/write) level of NAM.</td>
</tr>
<tr>
<td><code>At the login prompt, enter </code>root<code>.</code></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>login: root</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>—</td>
</tr>
<tr>
<td><code>At the password prompt, enter your password.</code></td>
<td></td>
</tr>
<tr>
<td><code>If you have not changed the password from the factory-set default, enter </code>root<code> as the root password.</code></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
</tr>
<tr>
<td><code>Password: root</code></td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td>For help using NAM CLI commands.</td>
</tr>
<tr>
<td><code>Perform the tasks that you need to perform in the NAM CLI. When you want to end the Telnet or SSH session to the NAM and return to the Cisco IOS CLI, complete Step 5 and Step 6.</code></td>
<td></td>
</tr>
</tbody>
</table>
### Step 5

**Command or Action**: `exit`

**Purpose**: Leaves a subcommand mode.
- Return to command mode.

**Example:**
root@localhost (sub-custom-filter-capture)# exit
root@localhost#

### Step 6

**Command or Action**: `logout`

**Purpose**: Logs out of the NAM system.

**Example:**
root@localhost# logout
Connection closed by foreign host.

---

### Examples

#### Opening and Closing a Telnet Session to the NAM Using the NAM System IP Address: Example

```
nam_host> telnet 172.20.105.215
Trying 172.20.105.215 ... Open
Cisco Network Analysis Module (NAM 2200 Appliance)
login: root
Password: <password>
Terminal type: vt100
Cisco Network Analysis Module (NAM 2200 Appliance) Console, 5.0
Copyright (c) 2010 by cisco Systems, Inc.
WARNING! Default password has not been changed!
root@nam.company.com#
root@nam.company.com# logout
[Connection to 172.20.105.215 closed by foreign host]
nam_host>
```

#### Opening and Closing an SSH Session to the NAM Using the NAM System Hostname: Example

```
host [/home/user] ssh -l root namappl
root@namappl's password: <password>
Terminal type: vt100
Cisco Network Analysis Module (NAM 2200 Appliance) Console, 5.0
Copyright (c) 2010 by cisco Systems, Inc.
WARNING! Default password has not been changed!
root@namappl.company.com#
root@namappl.company.com# logout
Connection to namappl closed.
host [/home/user]
```
You can install/ re-install NAM on your Cisco NAM 2204 appliance. You might also use the downloadable software to restore your appliance software in the case of a catastrophic failure. After you restore your appliance software, if you have backed up your NAM appliance configuration, you can restore that configuration and resume network monitoring without undue delay.

This chapter contains the following sections:

- **Backing Up Your Configuration**
  After you complete any changes to your NAM appliance configuration, use the command-line interface to upload your NAM configuration to an archive server.

- **Restoring Your Configuration**
  Use the command-line interface to restore your previous NAM configuration.

---

**Note**

In this release, upgrading the NAM software is not supported.

---

### Backing Up Your Configuration

Before you begin the install/ re-install process, we recommend that you perform a complete backup of your current NAM configuration. Doing so will archive your current configuration which will be helpful if you have difficulties duplicating your previous configuration after the installation.

To back up your current configuration, use the NAM CLI **config upload** command, as in the following example:

```
root@172-20-104-106.yourcorp.com# config upload
ftp://admin:secret@buserver/archive
Building configuration, please wait... Done.

Uploading the configuration to '172-20-104-106-nam-5.0.config'
on 'ftp://admin:secret@buserver/archive', This may take few minutes ...

Uploading the namxml setup to 172-20-104-106-nam-5.0.config.namxml.tar on
ftp://admin:secret@buserver/archive
Operation completed.
```
Restoring Your Configuration

The `config upload` command sends a copy of the NAM running configuration and archive of NAMs setup files in XML format to the destination you specify. The copy of your configuration is stored in a back-up configuration file with an ending suffix of `.config` as in `NAM_host-nam2204-5.0.config`. The destination address should be a valid server name and directory path where you have read and write permissions.

Restoring Your Configuration

After you complete the installation of the NAM application software, you can restore your previous configuration if you have backed up your configuration as described in *Backing Up Your Configuration*. Use the `config network` command to restore your previous NAM configuration, as in the following example:

```
root@172-20-104-106.yourcorp.com# config network
ftp://admin:secret@buserver//archive/172-20-104-106-nam-5.0.config
Download
ftp://admin:secret@buserver//archive/172-20-104-106-nam-5.0.config, please wait ...

ftp://admin:secret@buserver//archive/172-20-104-106-nam-5.0.config (8K)
/tmp/lrcfile.txt.26012 [############################] 8K | 3536.73K/s
8409 bytes transferred in 0.00 sec (3485.68k/sec)
Download
ftp://admin:secret@buserver//archive/172-20-104-106-nam-5.0.config.namxml.tar,
please wait ...

ftp://admin:secret@buserver//archive/172-20-104-106-nam-5.0.config.namxml.tar (50K)
namxml.tar [############################] 50K | 4932.96K/s
51200 bytes transferred in 0.01 sec (4918.41k/sec)
Download completed.
Configuring the NAM. This may take few minutes, please wait ...
NAM configuration completed.
To view the results, use the command 'show log config'.
```
Maintaining the Cisco 2204 NAM Appliance

Your Cisco NAM 2204 appliance is configured to your order and is ready for installation and startup when it leaves the factory. After you install and configure your appliance, you might have to perform specific maintenance procedures and operations to ensure that the appliance is operating properly. Following these preventive maintenance procedures can keep your appliance in top operating condition and minimize the need for costly, time-consuming service procedures.

Caution

To help prevent problems, before performing any procedures in this chapter, review the and the “Safety Guidelines” section on page 2-2.

The following sections discuss various environmental factors that can adversely affect appliance performance and longevity.

Maintaining Your Site Environment

Good preventive maintenance includes regular visual inspections of the appliance including exterior cleaning and inspection.

Other important areas are:

- General Exterior Cleaning and Inspection, page A-2
- Cooling, page A-3
- Temperature, page A-3
- Humidity, page A-4
- Altitude, page A-4
- Electrostatic Discharge, page A-4
- Electromagnetic and Radio Frequency Interference, page A-4
- Magnetism, page A-5
- Power Source Interruptions, page A-5
General Exterior Cleaning and Inspection

This section details the cleaning requirements for exterior surfaces of the appliance and the inspection of cables and adapter cards.

Caution

Never spray cleaning solution on the surfaces of the appliance. Overspray can penetrate into the appliance and cause electrical problems and corrosion.

Appliance

Use a lint-free, nonabrasive cloth to perform cleaning. Do not use a solvent, abrasive cleaning agents, or tissue paper. If the appliance is dirty (for example, with thick dust), use a soft damp cloth and wipe the surface of the appliance gently.

Immediately wipe off any water or liquid from the appliance.

Dust and Particles

A clean operating environment can greatly reduce the negative effects of dust and other particles, which act as insulators and interfere with the operation of an appliance’s mechanical components. In addition to regular cleaning, you should follow these guidelines to deter contamination of the appliance:

- Do not permit smoking anywhere near the appliance.
- Do not permit food or drink near the appliance.

Cables and Connectors

Inspect cables and connectors to and from your appliance periodically to see if they are worn out or loose.

Adapter Cards

Check the connections on the adapter cards. Be sure they are secured to the appliance and have not been jarred loose or mechanically damaged.

Corrosion

The oil from a person’s fingers or prolonged exposure to high temperature or humidity can corrode the gold-plated edge connectors and pin connectors on adapter cards in the appliance. This corrosion on adapter card connectors is a gradual process that can eventually lead to intermittent failures of electrical circuits.

To prevent corrosion, you should avoid touching contacts on adapter cards. Protecting the appliance from corrosive elements is especially important in moist and salty environments, which tend to promote corrosion. Also, as a further deterrent to corrosion, the appliance should not be used in extreme temperatures, as explained in the “Temperature” section on page A-3.
Cooling

Warning

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis.

Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Statement 1029

Exhaust fans in the power supply and in the appliance itself cool the power supply and the appliance by drawing air in through various openings in the front of the appliance and blowing it out the back. However, the fans also draw dust and other particles into the appliance, causing contaminant buildup, which results in an increase in the appliance’s internal temperature and interferes with the operation of various appliance components.

To avoid these conditions, we recommend keeping your work environment clean to reduce the amount of dust and dirt around the appliance, thereby reducing the amount of contaminants drawn into the appliance by the fans.

Temperature

Temperature extremes can cause a variety of problems, including premature aging and failure of chips or mechanical failure of devices. Extreme temperature fluctuations can cause chips to become loose in their sockets and can cause expansion and contraction of disk drive platters, resulting in read or write data errors.

To minimize the negative effects of temperature on appliance performance, follow these guidelines:

- Ensure that the appliance is operated in an environment no colder than 50°F (10°C) or hotter than 95°F (35°C).
- Ensure that the appliance has adequate ventilation. Do not place it within a closed-in wall unit or on top of cloth, which can act as insulation. Do not place it where it will receive direct sunlight, particularly in the afternoon. Do not place it next to a heat source of any kind, including heating vents during winter.

Adequate ventilation is particularly important at high altitudes. Appliance performance might not be optimum when the appliance is operating at high temperatures as well as high altitudes.

- Make sure that all slots and openings on the appliance remain unobstructed, especially the fan vents on the back of the appliance.
- Clean the appliance at regular intervals to avoid any buildup of dust and debris, which can cause an appliance to overheat.
- If the appliance has been exposed to abnormally cold temperatures, allow a 2-hour warm-up period to bring it up to normal operating temperature before turning it on. Failure to do so might cause damage to internal components, particularly the hard disk drive.
Humidity

High-humidity conditions can cause moisture migration and penetration into the appliance. This moisture can cause corrosion of internal components and degradation of properties, such as electrical resistance, thermal conductivity, physical strength, and size. Extreme moisture buildup inside the appliance can result in electrical shorts, which can cause serious damage to the appliance.

Each appliance is rated to operate at 8 to 80 percent relative humidity, with a humidity gradation of 10 percent per hour. Buildings in which climate is controlled by air conditioning in the warmer months and by heat during the colder months usually maintain an acceptable level of humidity for appliances. However, if an appliance is located in an unusually humid location, a dehumidifier can be used to maintain the humidity within an acceptable range.

Altitude

Operating an appliance at high altitude (low pressure) reduces the efficiency of forced, convection cooling and can result in electrical problems related to arcing and corona effects. This condition can also cause sealed components with internal pressure, such as electrolytic capacitors, to fail or perform at reduced efficiency.

Electrostatic Discharge

Electrostatic discharge (ESD) results from the buildup of static electricity on the human body and certain other objects. This static electricity is often produced by simple movements, such as walking across a carpet. ESD is a discharge of a static electrical charge that occurs when a person whose body contains such a charge touches a component in the appliance. This static discharge can cause components, especially chips, to fail. ESD is a problem particularly in dry environments where the relative humidity is below 50 percent.

To reduce the effects of ESD, you should observe the following guidelines:

- Wear a grounding wrist strap. If a grounding wrist strap is unavailable, touch an unpainted metal surface on the appliance chassis periodically to neutralize any static charge.
- Keep components in their antistatic packaging until they are installed.
- Avoid wearing clothing made of wool or synthetic materials.

Electromagnetic and Radio Frequency Interference

Warning
Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Electromagnetic interference (EMI) and radio frequency interference (RFI) from an appliance can adversely affect devices, such as radio and television (TV) receivers operating near the appliance. Radio frequencies emanating from an appliance can also interfere with cordless and low-power telephones.
RFI is defined as any EMI with a frequency above 10 kilohertz (kHz). This type of interference can travel from the appliance to other devices through the power cable and power source or through the air like transmitted radio waves. The Federal Communications Commission (FCC) publishes specific regulations to limit the amount of EMI and RFI emitted by computing equipment. Each appliance meets these FCC regulations.

To reduce the possibility of EMI and RFI, follow these guidelines:

- Operate the appliance only with the appliance cover installed.
- Ensure that the screws on all peripheral cable connectors are securely fastened to their corresponding connectors on the back of the appliance.

**Magnetism**

Because they store data magnetically, hard disk drives are susceptible to the effects of magnetism. Hard disk drives should never be stored near magnetic sources such as the following:

- Monitors
- Printers
- Telephones with real bells
- Fluorescent lights

**Power Source Interruptions**

 Appliances are especially sensitive to variations in voltage supplied by the AC power source. Overvoltage, undervoltage, and transients (or spikes) can erase data from the memory or even cause components to fail. To protect against these types of problems, power cables should always be properly grounded and one or both of the following methods should be used:

- Place the appliance on a dedicated power circuit (rather than sharing a circuit with other electrical equipment). In general, do not allow the appliance to share a circuit with any of the following:
  - Copier machines
  - Teletype machines
  - Laser printers
  - Facsimile machines
  - Any other motorized equipment

Besides the above equipment, the greatest threats to an appliance’s supply of power are surges or blackouts caused by electrical storms.

If a blackout occurs—even a temporary one—while the appliance is turned on, turn off the appliance immediately and disconnect it from the electrical outlet. Leaving the appliance on might cause problems when the power is restored.
Monitor Port Requirements

This appendix provides information about the specifications of cables, SFP modules, and tap devices supported on the Cisco NAM 2204 appliances.

- **Cables**
- SFP Modules, page B-2
- Tap Devices, page B-2
  - Optical Tap Devices
  - Copper Tap Devices

### Cables

The Cisco NAM 2204 appliance uses two types of fiber optical cables depending upon the SFP module you use. For short range SFPs, the appliance uses multi-mode (MM) fiber optical cables. For long range SFPs, the appliance uses single-mode (SM) fiber optical cables.

*Table B-1, SFP Port Cabling Specifications*, provides SFP cabling specifications for the Cisco NAM 2204 appliance.

<table>
<thead>
<tr>
<th>SFP Module</th>
<th>Wavelength</th>
<th>Fiber Type</th>
<th>Core Size (micron)</th>
<th>Modal Bandwidth (Mhz *km)</th>
<th>Maximum Cable Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLC-SX-SM</td>
<td>850 nm</td>
<td>MMF</td>
<td>62.5</td>
<td>160</td>
<td>722 ft (220 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>62.5</td>
<td>200</td>
<td>902 ft (275 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50.0</td>
<td>400</td>
<td>1640 ft (500 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50.0</td>
<td>500</td>
<td>1804 ft (550 m)</td>
</tr>
<tr>
<td>GLC-LH-SM</td>
<td>1300 nm</td>
<td>SMF</td>
<td>62.5</td>
<td>500</td>
<td>1804 ft (550 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50.0</td>
<td>400</td>
<td>1804 ft (550 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50.0</td>
<td>500</td>
<td>1804 ft (550 m)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9/10</td>
<td>—</td>
<td>6.2 miles (10 km)</td>
</tr>
</tbody>
</table>
### SFP Modules

You can find more information about Cisco SFP Modules for Gigabit Ethernet applications at the following URL:


The Cisco 2204-SFP appliance supports the following Cisco SFPs (or industry standard equivalent):

- GLC-T—1000BASE-T SFP
- GLC-SX-MM—1 GE SFP, LC connector, SX transceiver
- GLC-LH-SM—1 GE SFP, LC connector, LX/LH transceiver

### Tap Devices

You can use optical tap devices with the Cisco 2204-SFP appliance and copper tap devices with the Cisco 2204-RJ45 appliance.

### Optical Tap Devices

Table B-2 lists the optical tap devices that have been successfully tested with the Cisco 2204-SFP appliance in a tap configuration.

#### Table B-2 1 Gb Optical Tap Device

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Product</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetOptics</td>
<td>GigaBit Fiber Tap (MM50 850nm SC)</td>
<td>TP-SX5-SCSLM</td>
</tr>
<tr>
<td></td>
<td>GigaBit Fiber Tap (SM50:50 1310 nm SC)</td>
<td>TP-LX5-SCSLM</td>
</tr>
<tr>
<td>DataCom Systems</td>
<td>SINGLEstream configurable dual link aggregator Tap (configured in break out mode)</td>
<td>SS-2206ST-SFP</td>
</tr>
<tr>
<td>Network Critical</td>
<td>SMF 9 850/1300NM supports 1000 base-LX, 10 Gig-LR, 10 Gig-ER</td>
<td>FO-S15002-LC</td>
</tr>
<tr>
<td></td>
<td>MMF 50 850/1300NM supports 1000 base-SX, 10 Gig-SR</td>
<td>FO-M35002-LC</td>
</tr>
<tr>
<td></td>
<td>MMF 62.5 850/1300NM supports 1000 base-SX</td>
<td>FO-M15002-LC</td>
</tr>
</tbody>
</table>

### Copper Tap Devices

Table B-3 lists 1 GE copper tap devices that have been successfully tested with the Cisco 2204-RJ45 appliance in a tap configuration.
Table B-3: 1 Gb Copper Tap Devices

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Product</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetOptics</td>
<td>10/100/1000 BaseT Tap</td>
<td>TP-CU3</td>
</tr>
<tr>
<td>DataCom Systems</td>
<td>SINGLEstream configurable dual link aggregator Tap (configured in break out mode)</td>
<td>SS-2206BT-BT</td>
</tr>
</tbody>
</table>

Breakout Mode Configuration

To use breakout mode configuration, use an optical tap to split the Tx and Rx signals of two connected devices so the NAM appliance receives the Tx of both devices to observe the transmitted output of each device.

There are two breakout mode configurations:

- Tx of one direction of the monitored data traffic is replicated on Tx of one breakout port and Tx of the other direction of the monitored data traffic is replicated on Tx of the other breakout port.
  
  This case provides two output replicated ports: one for Tx in one direction and one for Tx of the other direction. Each replicated port is an input to a different monitoring port of the appliance to monitor both directions of traffic.

- Tx of one direction of the monitored data traffic is replicated in one Tx connection of the breakout port and Tx of the other direction of the monitored data traffic is replicated on the other Tx connection of the same breakout port.
  
  This case provides only one replicated port which has Tx of both directions. This case requires you to split the connectors of one fiber optical cable and put one connector into one appliance monitoring port and put the other connector into a different appliance monitoring port.
Troubleshooting

The Cisco NAM 2204 appliance undergoes extensive testing before it leaves the factory. If you encounter problems, use the information in this appendix to help isolate problems or to eliminate the appliance as the source of the problem.

Although an overtemperature or overvoltage condition is unlikely at initial startup, a discussion of environmental temperature and voltage monitoring functions is provided in the .

Note: The procedures in this chapter assume that you are troubleshooting the initial Cisco NAM 2204 appliance startup, and that the appliance is in the original factory configuration. If you have removed or replaced components or changed any default settings, the recommendations in this chapter might not apply.

This appendix does not cover every possible trouble event that might occur on an appliance but instead focuses on those events that are frequently seen by the customer.

This appendix contains the following sections:

- Troubleshooting Overview, page C-1
- Problem Solving, page C-2
- Reading the LEDs, page C-5
- Product Serial Number Location, page C-7

Troubleshooting Overview

Before and at initial system boot, you should verify the following:

- External power cable is connected, and the proper power source is being applied. (See the “Power Considerations” section on page 2-9, the “Powering Up the Cisco NAM 2204 Appliance” section on page 3-29, and the “Troubleshooting the Power and Cooling Systems” section on page C-3.)
- The appliance fan and blower are operating. (See the “Airflow Guidelines” section on page 2-8 and the “Troubleshooting the Power and Cooling Systems” section on page C-3).
- The appliance software boots successfully.
- The adapter cards (if installed) are properly installed in their slots, and each initializes (is enabled by the appliance software) without problems.
Problem Solving

The key to problem solving is to isolate the problem to a specific location by comparing what the Cisco NAM 2204 appliance is doing to what it should be doing.

In other words, when troubleshooting, define the specific symptoms, identify all potential problems that could be causing the symptoms, and then systematically eliminate each potential problem (from most likely to least likely) until the symptoms disappear.

The following steps provide guidelines to use in the problem-solving process:

**Step 1** Analyze the problem and create a clear problem statement. Define symptoms and potential causes.

**Step 2** Gather the facts that you need to help isolate possible causes.

**Step 3** Consider possible causes based on the facts that you gathered.

**Step 4** Create an action plan based on those causes. Begin with the most likely problem and devise a plan in which you manipulate only one variable.

**Step 5** Implement the action plan. Perform each step carefully while testing to see whether the symptom disappears.

**Step 6** Analyze the results to determine whether the problem has been resolved. If the problem was resolved, consider the process complete.

**Step 7** If the problem has not been resolved, create an action plan based on the next most probable cause on your list. Return to **Step 4** and repeat the process until the problem is solved.

**Step 8** Make sure that you undo anything that you changed while implementing your action plan. Remember that you want to change only one variable at a time.

---

When each of these conditions is met, the hardware installation is complete, and you should proceed to perform a basic configuration (see the software installation guide or user guide that shipped with your appliance for proper configuration procedures).

If you cannot locate the source of the problem, contact a customer service representative for information on how to proceed. For technical support information, see the *Cisco Information Packet* publication that shipped with your appliance. Before you call, have the following information ready:

- Appliance chassis type and serial number (see the or the “Cisco Product Identification Tool” section on page C-7 for more information)
- Maintenance agreement or warranty information (see the *Cisco Information Packet*)
- Type of software and version number (if applicable)
- Date you received the new appliance
- Brief description of the problem you are having and the steps you have taken to isolate and resolve the problem

**Note** Ensure you provide the customer service representative with any upgrade or maintenance information that was performed on the Cisco NAM 2204 appliance after your initial installation. (See the “Creating a Site Log” section on page 2-14 and for Site Log information.)
The LEDs on the front panel of the appliance enable you to determine appliance performance and operation. For a description of these LEDs, see the “Reading the LEDs” section on page C-5.

When problem solving, check the following appliance subsystems first:

- Power and cooling systems—External power source, AC power cable or DC power wires, and appliance fans. Also check for inadequate ventilation, air circulation, or environmental conditions.
- Adapter cards—Checking the LEDs on the adapter card can help you to identify a failure.
- Cables—Ensure that the external cables connecting the appliance to the network are all secure.

**Troubleshooting the Power and Cooling Systems**

Both the power LED and the fans can help you troubleshoot a power problem. Check the following items to help isolate the problem:

- When the Cisco NAM 2204 appliance is connected to the power source, is the appliance power LED on the front panel on?
  - If not, check the connection of the AC power cord or DC power wires.
  - If the power LED is still off, the problem might be a power supply failure.
- Does the appliance shut down after being on for only a short time?
  - Check for an environmentally induced shutdown (see the “Environmental Reporting Features” section on this page).
  - Check the fans. If the fans are not working, the appliance will overheat and shut itself down.
  - If the fans are not working, you might need to check the power supply connections to the fans.
  - Ensure that the appliance intake and exhaust vents are clear.
  - Check the environmental site requirements in the “Temperature and Humidity Guidelines” section on page 2-9.
- Does the appliance partially boot, but the LEDs do not light?
  - Check for a power supply failure by inspecting the power LED on the front panel of the appliance. If the LED is on, the power supply is functional.
  - If the LED is off, refer to the Cisco Information Packet for warranty information or contact your customer service representative.

**Environmental Reporting Features**

The Cisco NAM 2204 appliance has protection circuits that monitor and detect overcurrent, overvoltage, and overtemperature conditions inside the appliance. If the power supply shuts down or latches off, an AC cycle of off for 15 seconds and on for 1 second resets the power supply. For more information, see the.
The following conditions can cause an abnormally high appliance temperature:

- Fan failure
- Air conditioner failure in the room
- Airflow blocked to cooling vents

Take steps to correct the problem. For information about environmental operating conditions, see the “Temperature and Humidity Guidelines” section on page 2-9.

## Troubleshooting Adapter Cards, Cables, and Connections

Network problems can be caused by an adapter card, cables or cable connections, or external devices such as a hub, wall jack, WAN interface, or terminal. Check for the following symptoms to help isolate the problem:

- **Adapter card is not recognized by the Cisco NAM 2204 appliance.**
  - Make sure that the adapter card is firmly seated in its slot. For information, refer to the documentation that was included with your adapter card.
  - Check the LEDs on the adapter card. Each adapter card has its own set of LEDs. For information on these LEDs, see the “Reading the LEDs” section on page C-5.
  - Make sure that you have a version of software that supports the adapter card. Refer to the documentation that was included with your adapter card.

- **Adapter card is recognized, but interface ports do not initialize.**
  - Make sure that the adapter card is firmly seated in its slot. For information, refer to the documentation that was included with your adapter card.
  - Check external cable connections.
  - Make sure that you have a version of software that supports the adapter card. Refer to the documentation that was included with your adapter card.

- **The Cisco NAM 2204 appliance does not boot properly, or it constantly or intermittently reboots.**
  - Make sure that the adapter card is firmly seated in its slot. For information, refer to the documentation that was included with your adapter card.
  - Check the appliance chassis or the application software. For warranty information, refer to the Cisco Information Packet publication that shipped with your appliance or contact your customer service representative.

- **If you are using the console port with a terminal, and the Cisco NAM 2204 appliance boots but the console screen is frozen.**
  - Check the external console connection.
  - Verify that the parameters for your terminal are set as follows:
    (a) The terminal should have the same data rate that the appliance has (9600 bps is the default).
    (b) 8 data bits.
    (c) No parity generated or checked.
    (d) 1 stop bit.

- **The Cisco NAM 2204 appliance powers up and boots only when an adapter card is removed.**
  - Check the adapter card. There might be a problem with the adapter card. Refer to the documentation that was included with your adapter card.
Reading the LEDs

There are several LEDs on the Cisco NAM 2204 appliance. LEDs serve the following purposes:

- Indicate that basic power is available to the appliance
- Guide you to a broken adapter card, or to one that has failed its diagnostics
- Give an indication that traffic is flowing through the adapter card to the appliance

The LEDs on the front panel of the Cisco NAM 2204 appliance and corresponding adapter card are aids for determining appliance and adapter performance and operation.

Front-Panel LEDs

Figure C-1 shows the locations of the appliance’s front-panel LEDs. Table C-1 describes these LEDs.

Table C-1  Front-Panel LEDs

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appliance Power</td>
<td>Green</td>
<td>On</td>
<td>Power on</td>
</tr>
<tr>
<td>(location 1)</td>
<td></td>
<td>Off</td>
<td>Power off</td>
</tr>
<tr>
<td>Appliance Status</td>
<td>Green</td>
<td>On</td>
<td>Standby or ready for operation</td>
</tr>
<tr>
<td>(location 2)</td>
<td></td>
<td>Blinking</td>
<td>Degraded operation (for example, power supply nonredundancy, part of system memory mapped out of BIOS)</td>
</tr>
<tr>
<td>Amber</td>
<td>On</td>
<td>One or more critical fault conditions</td>
<td></td>
</tr>
<tr>
<td>Amber</td>
<td>Blinking</td>
<td>One or more noncritical fault conditions</td>
<td></td>
</tr>
</tbody>
</table>
Reading the LEDs

NIC LEDs

Figure C-2 shows the NIC 1 and NIC 2 LEDs located on the rear of the appliance. These LEDs indicate the connection activity and speed of the NIC ports. Table C-2 on page C-6 describes the activity and connection speed associated with each LED state.

Table C-2 NIC 1 and NIC 2 LED Descriptions

<table>
<thead>
<tr>
<th>LED</th>
<th>Color</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left</td>
<td>Off</td>
<td>No network connection</td>
<td></td>
</tr>
<tr>
<td>(location 1)</td>
<td>Green</td>
<td>Solid</td>
<td>Network connection</td>
</tr>
<tr>
<td>Right</td>
<td>Off</td>
<td>10-Mb/s connection (if left LED is on or blinking)</td>
<td></td>
</tr>
<tr>
<td>(location 2)</td>
<td>Green</td>
<td>Solid</td>
<td>100-Mb/s connection</td>
</tr>
<tr>
<td></td>
<td>Amber</td>
<td>Solid</td>
<td>1000-Mb/s (or 1-Gb/s) connection</td>
</tr>
</tbody>
</table>
Product Serial Number Location

On the Cisco NAM 2204 appliance, the serial number label is located on the right-hand corner above the RJ-45 serial connector on the front of the appliance. (See Figure C-3.)

Figure C-3  Cisco NAM 2204 Appliance Serial Number Location

Note  The serial number for the Cisco NAM 2204 appliance is 11 characters long.

Cisco Product Identification Tool

The Cisco Product Identification (CPI) tool helps you retrieve the serial number of your Cisco products. Before you submit a request for service online or by phone, use the CPI tool to locate your product serial number. You can access this tool from the Cisco Support website by clicking the Get Tools & Resources link, clicking the All Tools (A-Z) tab, and then choosing Cisco Product Identification Tool from the alphabetical list.

This tool offers three search options:

- Search by product ID or model name
- Browse for Cisco model
- Copy and paste the output of the show command to identify the product

Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before you place a service call.

The CPI tool is accessed via Cisco.com at the following URL:


Access to the CPI tool on the Cisco Support website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at:
Site Log

The Site Log provides a record of all actions related to installing and maintaining the Cisco NAM 2204 appliance. Keep the log in an accessible place near the appliance chassis so that anyone who performs tasks has access to it. Use the Installation Checklist (see the “Installation Checklist” section on page 2-14) to verify the steps in the installation and maintenance of your appliance.

Site Log entries might include the following:

- Installation progress—Make a copy of the appliance Installation Checklist, and insert it into the Site Log. Make entries as you complete each task.

- Upgrade, removal, and maintenance procedures—Use the Site Log as a record of ongoing appliance maintenance and expansion history. Each time a task is performed on the appliance, update the Site Log to reflect the following:
  - Configuration changes
  - Maintenance schedules and requirements
  - Maintenance procedures performed
  - Intermittent problems
  - Comments and notes

Table D-1 on page D-2 shows a sample site log. Make copies of the sample or design your own site log to meet the needs of your site and equipment.
Table D-1  Site Log

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Action Performed or Symptom Observed</th>
<th>Initials</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This appendix lists the BIOS settings used in the Cisco NAM 2204 appliance. The appliance uses BIOS version 88.

We recommend that you do not change any of these settings.

### Table E-1 Cisco NAM 2204 Appliance BIOS Settings

<table>
<thead>
<tr>
<th>Type</th>
<th>CMOS Setup Menu Contents</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main</td>
<td>Quiet Boot</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>POST Error Pause</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>System Date</td>
<td>Use CLI <code>clock set</code> command to set current date and time.</td>
</tr>
<tr>
<td></td>
<td>System Time</td>
<td></td>
</tr>
<tr>
<td>Advanced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Processor</td>
<td>Core-Multi Processing</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Enhanced Speed Step</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Execute Disable Bit</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Virtualization Technology</td>
<td>Disabled</td>
</tr>
<tr>
<td>Memory</td>
<td>ECC</td>
<td>ECC</td>
</tr>
<tr>
<td>IDE Controller</td>
<td>Onboard PATA Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Onboard SATA Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>SATA Mode</td>
<td>Enhanced</td>
</tr>
<tr>
<td></td>
<td>Configure SATA as RAID</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>SATA RAID OPROM</td>
<td>LSI</td>
</tr>
<tr>
<td>Serial Port</td>
<td>COM1 Enable</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Address</td>
<td>3F8</td>
</tr>
<tr>
<td></td>
<td>IRQ</td>
<td>4</td>
</tr>
</tbody>
</table>
## Table E-1 Cisco NAM 2204 Appliance BIOS Settings (continued)

<table>
<thead>
<tr>
<th>Type</th>
<th>CMOS Setup Menu Contents</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>USB Configuration</strong></td>
<td>USB Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Legacy USB Support</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Port 60/64 Emulation</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>USB 2.0 Controller</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>USB Mass Storage Emulation Type</td>
<td>Varies with device</td>
</tr>
<tr>
<td><strong>PCI</strong></td>
<td>Intel 82573E GbE</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Intel 82541PI GbE</td>
<td>Enabled</td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>After Power Failure</td>
<td>Last State</td>
</tr>
<tr>
<td></td>
<td>Wake on Lan from S5</td>
<td>Power On</td>
</tr>
<tr>
<td><strong>Boot Configuration</strong></td>
<td>NumLock</td>
<td>On</td>
</tr>
<tr>
<td><strong>Hardware Health</strong></td>
<td><strong>Hardware Monitor</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td>Auto Fan Control</td>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Admin Password</td>
<td></td>
</tr>
<tr>
<td></td>
<td>User Password</td>
<td></td>
</tr>
<tr>
<td><strong>Server Management</strong></td>
<td>Clear Event Log</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>Event Login</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>ECC Event Loggin</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>O/S Boot WD Timer</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>ASF Support</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>Enter AMTBx Setup</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>Boot to Network</td>
<td>Disabled</td>
</tr>
<tr>
<td><strong>Console Redirection</strong></td>
<td>Console Redirection</td>
<td>Enabled</td>
</tr>
<tr>
<td></td>
<td>Flow Control</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Baud Rate</td>
<td>9.6 k</td>
</tr>
<tr>
<td></td>
<td>Terminal Type</td>
<td>VT-100</td>
</tr>
<tr>
<td><strong>Boot Options</strong></td>
<td>Boot Timeout</td>
<td>10 seconds</td>
</tr>
<tr>
<td></td>
<td>Boot Option #1</td>
<td>CD</td>
</tr>
<tr>
<td></td>
<td>Boot Option #1</td>
<td>Hard Drive</td>
</tr>
<tr>
<td></td>
<td>Boot Option #1</td>
<td>[EFI Shell]</td>
</tr>
<tr>
<td><strong>Boot Manager</strong></td>
<td>CD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hard drive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[EFI Shell]</td>
<td></td>
</tr>
</tbody>
</table>
Using the Recovery CD

You can use the recovery CD to re-install NAM application software on your Cisco NAM 2204 appliance if your appliance should suffer a catastrophic event, such as a hard disk crash, and you can no longer boot the NAM application.

Note

The information found in Chapter 5, “Backing up and Restoring NAM Configuration”, helps you prepare to recover from a catastrophic event.

After you use the recovery CD to re-install the NAM application image, you can use the command-line interface (CLI) to restore the most recent configuration file to the NAM appliance if you have stored a configuration file at an accessible location. See “Backing Up Your Configuration” section on page 5-1, for more information.

The recovery CD is part of the NAM software kit (part number NAM-APPL-SW-5.0).

Booting the Recovery CD

When you boot the Cisco NAM 2204 appliance from the recovery CD, the NAM appliance console will temporarily display the bootloader window. After this window displays for ten seconds, the Cisco NAM 2204 appliance will automatically boot the NAM application software.

When using the recovery CD, choose helper and press Enter within that 10 second interval to get to the helper utility Menu. Otherwise, you might have to reboot the Cisco NAM 2204 appliance again.

To use the recovery CD:

Step 1 Insert the NAM Software Recovery CD-ROM into the DVD-ROM drive on the front panel of the Cisco NAM 2204 appliance.

Step 2 From the NAM console or command line, enter the reboot command.

The Cisco NAM 2204 appliance performs a reset and launches the GNU GRUB boot loader and displays the window shown in Figure F-1. This window displays for about ten seconds enabling you to select to boot the helper utility instead of the NAM application software (NAM-AP in Figure F-1).
Step 3
Use the “v” key to select helper, and press Enter.

The helper utility menu displays as shown in Figure F-2.

See the next section, Helper Utility Menu Options, for more information about the options.

Helper Utility Menu Options

This section describes the Helper Utility Menu, what each option does, and any requirements for using a particular option.

Note
Before you can use menu items 1 and 2, you must first use menu item n to configure network parameters for the appliance.

Possible selections for the top level of the helper utility menu are 1, 2, 3, 4, 5, 6, 7 d, n, f, r, and h.
Option n - Configure Network

Use Option n to configure the network parameters for the appliance.

**Step 1**
When the Configure Network Interface menu displays, enter 2 to configure manually.

```
-----
Configure Network interface:
1 - Use application image configuration
2 - Configure manually
3 - Show config
r - return to main menu

Selection [123r]: 2
```

**Step 2**
The utility prompts you for the IP address, netmask, and default gateway for the appliance.

Enter IP configuration:
IP address []: 172.20.122.93
netmask []: 255.255.255.128
default gateway []: 172.20.122.1

```
-----
Configure Network interface:
1 - Use application image configuration
2 - Configure manually
3 - Show config
r - return to main menu

Selection [123r]
```

**Step 3**
Check your network configuration using Configure Network menu option 3.

```
eth0    Link encap:Ethernet  HWaddr 00:0E:0C:EE:50:3E
       inet addr:172.20.122.93  Bcast:172.20.122.127  Mask:255.255.255.128
       UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
       RX packets:210 errors:0 dropped:0 overruns:0 frame:0
       TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
       collisions:0 txqueuelen:1000
       RX bytes:13632 (13.3 KiB)  TX bytes:0 (0.0 b)

Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
172.20.122.0     0.0.0.0 255.255.255.128 U 0 0 eth0
0.0.0.0           172.20.122.1 0.0.0.0  UG 0 0 eth0

-----
Configure Network interface:
1 - Use application image configuration
2 - Configure manually
3 - Show config
r - return to main menu

Selection [123r]:
```
Option 1 - Download Application Image and Write to HDD

Prior to using Option 1, first use Option n to configure the network.

Use Option 1 to download a version of the NAM application image from an FTP server location and write the image to the hard disk drive. This option requires network connectivity and that network parameters be configured for the Cisco NAM 2204 appliance using helper menu item n.

This option enables you to download an image you might have stored at an FTP location or at a location you can access using http. You can download the latest version of NAM software from the following URL:

http://www.cisco.com/cgi-bin/tablebuild.pl/nam-appl

This URL requires you to have a Cisco service agreement and access to the internet to download the zipped software.

Option 2 - Download Application Image and Reformat HDD

Prior to using Option 2, first use Option n to configure the network.

Use Option 2 to download the NAM application image and write the image to the hard disk drive. This option downloads a version of the NAM application image from an FTP server location or at a location you can access using http.

Using this option reformats the hard disk drives before writing the application image and will destroy all data such as reports or data captures.

You can also download the latest version from Cisco.com.

Option 3 - Install Application Image from CD

Use Option 3 to install the NAM application image from the recovery CD. This option might be necessary if you are unable to connect to your network and download a version of NAM software you archived earlier.

Note: The version of NAM software available on the recovery CD is the first release of the software and has no patches or upgrades. If you use this option, see Restoring Your Configuration, page 5-2.

This option reformats the hard disk drives before writing the application image and will destroy all data such as reports or data captures.

Option 4 - Display Software Versions

Use Option 4 to display the current NAM application image version stored on your hard disk.

Selection [123456789dnfrh]: 5

NAM application version: 5.0(1)
Option 5 - Reset Application Image CLI Passwords to Default

Use Option 5 to reset the password for users root and admin to their default values.

Option 6 - Change File Transfer Method

Use Option 6 to change the file transfer method. This option is only necessary if you change the file transfer method by mistake. Only FTP and http are supported.

Selection [123456789dnfrh]: 7
-----
Change file transfer method menu
The current file transfer method is ftp/http.
1 - Change to FTP/HTTP
r - return to main menu

Option 7- Send Ping

Use Option 7 to send a ping to determine if network connectivity exists. When prompted, enter the IP address or full domain name of the location to send the ping.

IP address to ping []: 172.20.122.91

Sending 5 ICMP ECHO_REQUEST packets to 172.20.122.91.
PING 172.20.122.91 (172.20.122.91) 56(84) bytes of data.
64 bytes from 172.20.122.91: icmp_seq=1 ttl=64 time=0.151 ms
64 bytes from 172.20.122.91: icmp_seq=2 ttl=64 time=0.153 ms
64 bytes from 172.20.122.91: icmp_seq=3 ttl=64 time=0.125 ms
64 bytes from 172.20.122.91: icmp_seq=4 ttl=64 time=0.102 ms
64 bytes from 172.20.122.91: icmp_seq=5 ttl=64 time=0.166 ms

--- 172.20.122.91 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.102/0.139/0.166/0.025 ms

Option r- Exit and Reset Services Engine

Use Option r to reset the NAM appliance prior to rebooting the newly installed NAM application image. Before using Option r, remove the recovery CD from the CD drive to enable the NAM appliance to boot the application image.

Option h- Exit and Shutdown Services Engine

Use Option h to reset and shut down the NAM appliance.

---------------------------------------------
Option h for recovery CD
Selection [123456789dnfrh]: h
About to exit and reset NAM.
Are you sure? [y/N] :y
Stopping internet superserver: inetd.
Stopping OpenBSD Secure Shell server: sshd.
Stopping internet superserver: xinetd.
Restoring the NAM Appliance Configuration

If you have stored your NAM configuration file at a remote server location you can access using FTP or HTTP, you can restore your NAM configuration file after a system recovery. See “Backing Up Your Configuration” section on page 5-1 and Restoring Your Configuration, page 5-2.
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