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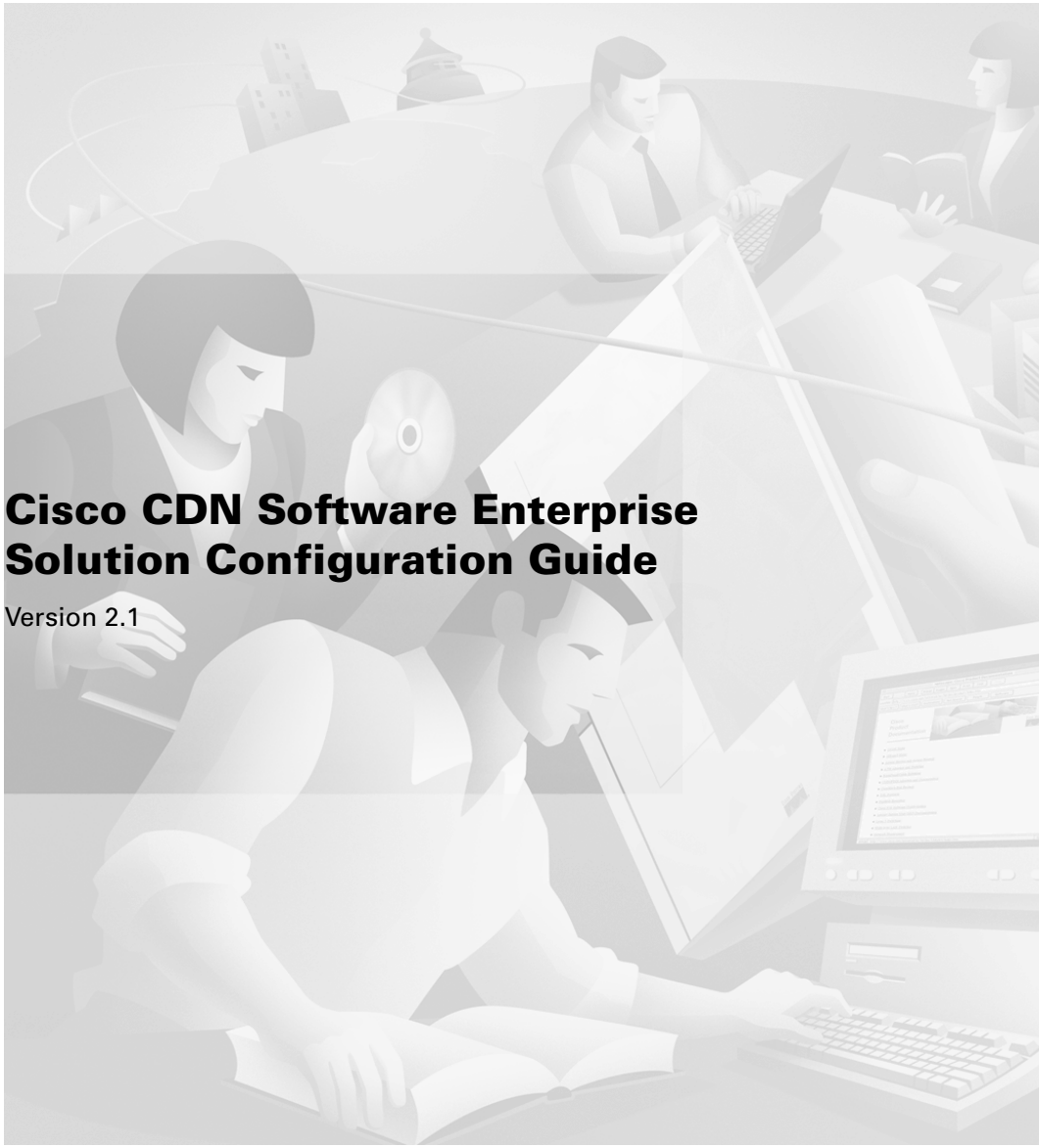

# Cisco CDN Software Enterprise Solution Configuration Guide

Version 2.1

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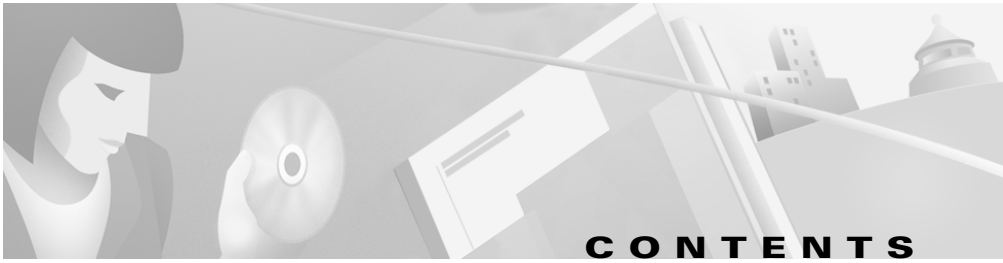

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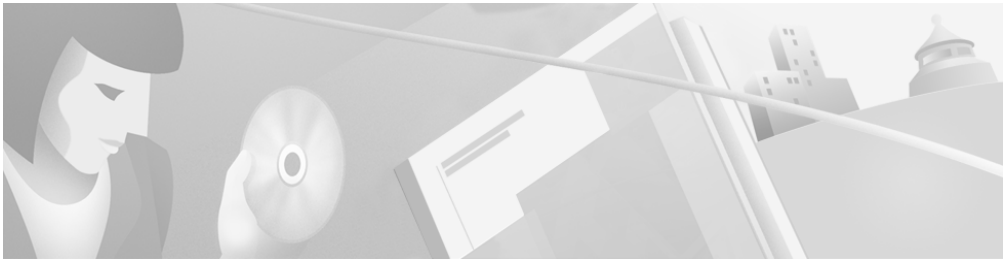

# Preface

This configuration guide provides instructions on the configuration of your CDN devices using the Cisco CDN Enterprise Solution software, which includes the CDN Installation Wizard and the administrative features of the CDM.

The CDM includes features for configuring new devices and users on your CDN, creating and populating content channels, allocating bandwidth, viewing media, and more.

This preface provides information on the structure of this document, as well as information on locating documentation resources within Cisco Systems.

This preface contains the following sections:


- Document Objectives, page vi
- Audience, page vi
- Organization, page vii
- Conventions, page vii
- Related Documentation, page viii
- Obtaining Documentation, page ix
- Obtaining Technical Assistance, page x

# Document Objectives

This guide provides detailed information to help you successfully configure and activate your CDN devices (the CDM and all CEs) on your local-area network. The guide is designed to be used as a reference for individuals setting up CDN devices for the first time and, thereafter, for administrators who are troubleshooting CDN devices.

This guide provides step-by-step instructions for setting up CDN devices and assumes that you have physical access to the CDM and CEs you will be configuring and activating.

# Audience

This guide is intended for system administrators who are going to configure and maintain CDN devices. Users of this document should have experience in the following areas:

- PC operating systems and conventions
- LAN environments
- TCP/IP
- Hardware activation and configuration on local-area networks
- Configuration of Internet browsers
- Digital media formats
- Digital media players

# Organization

This document is organized in the following manner:

| Chapter | Title | Description |
|---|---|---|
| Chapter 1 | Overview | Contains information on the minimum hardware and software requirements that must be met in order to run the CDN Installation Wizard or connect to the CDM from a workstation. |
| Chapter 2 | Configuring and Activating Content Delivery Network Devices | Describes how to prepare your CDM and CE devices for use. |
| Chapter 3 | Troubleshooting with the Installation Wizard | Provides procedures for using the Installation Wizard to troubleshoot connectivity problems with CDN devices. |

# Conventions

This document uses the following text conventions:

| Convention | Description |
|---|---|
| **boldface** font | Commands and keywords are in **boldface**. |
| *italic* font | Arguments for which you supply values are in *italics*. |
| [ ] | Elements in square brackets are optional. |
| { x \| y \| z } | Alternative keywords are grouped in braces and separated by vertical bars. |
| [ x \| y \| z ] | Optional alternative keywords are grouped in brackets and separated by vertical bars. |

| Convention | Description |
|---|---|
| string | An unquoted set of characters. Do not use quotation marks around the string, or the string will include the quotation marks. |
| `screen` font | Terminal sessions and information the system displays are in `screen` font. |
| **`boldface screen`** font | Information you must enter is in **`boldface screen`** font. |
| *`italic screen`* font | Arguments for which you supply values are in *`italic screen`* font. |
| ⟶ | This pointer highlights an important line of text in an example. |
| ^ | The symbol ^ represents the key labeled Control—for example, the key combination ^D in a screen display means hold down the Control key while you press the D key. |
| < > | Nonprinting characters, such as passwords, are in angle brackets. |

Notes use the following conventions:

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

# Related Documentation

The CDN software comes with both printed documentation and online help to assist you in learning to use the features of the CDN. Refer to the following documents when you have questions regarding the CDN software:

- *Cisco CDN Software Enterprise Solution User Guide*
- *Release Notes for the Cisco CDN Software Enterprise Edition*
- *SightPath to Cisco Hardware Migration Procedure*
- Cisco CDN online help system

In addition, you can find information related to the installation, configuration, and maintenance of your CDN hardware in the following Cisco Systems documents:

- *Cisco Content Engine 500 Series Hardware Installation Guide*
- *Cisco Content Networking Hardware Installation Guide for the Seven-Rack Unit Chassis*
- *Regulatory Compliance and Safety Information for the Cisco Content Networking Product Series*
- *Cisco Content Distribution Manager 4630 Hardware Installation Guide*
- *Cisco Content Distribution Manager 4650* (Product Description Notes)

# Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

## World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- http://www.cisco.com
- http://www-china.cisco.com
- http://www-europe.cisco.com

## Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

## Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/cgi-bin/order/order_root.pl

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

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# Obtaining Technical Assistance

Cisco Connection Online (CCO) is a starting point for all technical assistance. Warranty or maintenance contract customers can use the Technical Assistance Center. All customers can submit technical feedback on Cisco documentation using the web, e-mail, a self-addressed stamped response card included in many printed docs, or by sending mail to Cisco.

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- Telnet: cco.cisco.com
- Modem using standard connection rates and the following terminal settings: VT100 emulation; 8 data bits; no parity; and 1 stop bit.
  - From North America, call 408 526-8070
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# Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to warranty or maintenance contract customers who need technical assistance with a Cisco product that is under warranty or covered by a maintenance contract.

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| Kanji (Japanese) | japan-tac@cisco.com |
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CHAPTER 1

# Overview

The Cisco Content Delivery Network (CDN) Enterprise Solution combines sophisticated web-based software with the latest Cisco Systems routing and switching hardware to improve your company's ability to effectively deploy a new generation of Web-based, content-rich, E- learning and communications solutions over your corporate LAN, WAN, or the Internet.

The Cisco CDN Enterprise Solution dramatically changes the communications experience for organizations by enabling TV-quality streaming media over traditional LANs and WANs, making possible knowledge sharing, distance learning, and other high-bandwidth, content-rich activities using existing network infrastructure.

CDNs consist of both hardware and software components that work together to provide the following core CDN services:

- Content Distribution and Management --using the Cisco Content Distribution Manager (CDM) 4600 series hardware and the Cisco CDN Enterprise Solution software.
- Content Routing --using the Cisco Content Router 4400 hardware and the Cisco CDN Enterprise Solution software.
- Content Edge Delivery --using the Cisco Content Engine (CE) 500- and 7300 series hardware and the Cisco CDN Enterprise Solution software.

This chapter contains information on the minimum hardware requirements for workstations in your office that will access the CDM or run the CDN Installation Wizard. In addition, instructions for activating the Installation Wizard are provided.

This chapter contains the following sections:


- Minimum System Requirements, page 1-2
- CDN Installation Wizard, page 1-3


# Minimum System Requirements

The following sections list the minimum system requirements for workstations on your LAN or WAN that will be used to access the CDM or run the CDN Installation Wizard software.

## Content Distribution Manager Workstation Requirements

CDN users and administrators interact with the product using a Web-based graphical user interface to the Content Distribution Manager (CDM), which organizes content on the CDN in addition to providing other administrative functions.

The following minimum hardware and software requirements apply to each machine that will be used as a workstation to access the CDM.

### Network

Ethernet connection to network segment containing the CDM

### Platform and Operating System

- Windows 95/98 or Windows 2000 Pentium-class system, 133 MHz, 32 MB of RAM
- Windows NT Pentium-class system, 200 MHz, 64 MB of RAM
- Apple Macintosh G3-class, 32 MB of RAM

### Browser

- Microsoft Internet Explorer Version 5.0
- Netscape Navigator Version 4.7

### Media Player

- Microsoft Windows Media Player Version 6.x
- RealNetworks RealPlayer
- Apple QuickTime Version 4.0

## Installation Wizard Workstation Requirements

The Cisco CDN Installation Wizard is a utility that runs in the Microsoft Windows environment and assists you in configuring and activating your CDN devices, the CDM and CEs that make up the Content Distribution Network. After configuring your devices, you can use the Installation Wizard to monitor and reconfigure CDMs and Content Engines (CEs) across your network.

The following minimum hardware and software requirements apply to each machine that will be used as a workstation to run the CDN Installation Wizard.

### Network

Ethernet connection to network segment containing CDN devices to be configured

### Platform and Operating System

- Windows 95/98 or Windows 2000 Pentium-class system, 133 MHz, 32 MB of RAM
- Windows NT Pentium-class system, 200 MHz, 64 MB of RAM

# CDN Installation Wizard

The Installation Wizard is a utility that ships with your CDN hardware and enables you to configure, then monitor and administer the CDM and CEs across your LAN. The Wizard is a tool for managing devices from a simplified user interface. At a glance, administrators can identify CDN devices that are online, devices that are offline, and devices that are online but not properly communicating with the CDM.

The Installation Wizard is a necessary tool for activating your CDM when DHCP is not being used, or when the CDM has failed to properly connect to your network.

The Installation Wizard is always required to activate CEs.

***Figure 1-1 Cisco CDN Installation Wizard***

Clicking a device record on the Installation Wizard and then stepping through a series of configuration procedures permits you to configure network settings such as IP address, gateway, and proxy information.

This chapter describes how to install and operate the Installation Wizard, and how to use it to troubleshoot common CDN device problems. Also see Chapter 2, "Configuring and Activating Content Delivery Network Devices" for instructions on using the Installation Wizard to activate the CDM when DHCP is not being used, or refer to Chapter 2, "Configuring Content Delivery Network Devices," in the *Cisco CDN Software Enterprise Solution User Guide* for instructions on configuring CDN devices using the CDMs web-based user interface.

# Activating the Installation Wizard

The Installation Wizard is designed to be operated directly from the CD-ROM shipped to you, but can also be run locally on a CDN workstation.

**Note** You must have a PC workstation running the Windows 95/98, Windows 2000, or Windows NT operating system on the same subnet as your CDM and CEs in order for the Installation Wizard to work properly.

Before running the Installation Wizard, power on any CE and CDM devices that you wish to configure. The CEs and CDM may take a few minutes to complete the power-on tests.

When the CEs and CDM have finished powering on, you are ready to begin using the Installation Wizard.

Refer to the sections that follow for instructions on running the Installation Wizard from your CD ROM drive or your local hard disk drive.

## Running the Installation Wizard from the CD-ROM

To run the Installation Wizard utility directly from your CD-ROM drive:

**Step 1** Insert the CD-ROM into the CD-ROM drive on your workstation.

**Step 2** Navigate to your CD-ROM drive and locate the *cdnwiz.exe* file.

**Step 3** Double-click the *cdnwiz.exe* file to launch the Installation Wizard.

The Cisco CDN Installation Wizard dialog box appears.

**Step 4** Click **Next**.

The Select a Device dialog box appears, listing the CDM and all CEs on your CDN.

## Installing the Installation Wizard on a Hard Disk Drive

You can also move the Installation Wizard program to your workstation hard disk drive and run it locally.

To install the wizard on your workstation hard disk drive:

**Step 1** If you have not already done so, insert the CD-ROM into the CD-ROM drive on your workstation.

**Step 2** Navigate to the root directory of the CD-ROM drive and copy the following files:

- *cdnwiz.exe*
- *cdnwiz.hlp*
- *cdnwiz.cnt*

**Step 3** Locate or create a directory on your workstation hard disk drive to hold the Installation Wizard files.

**Step 4** Paste the Installation Wizard files into the local directory.

**Step 5** Double-click the *cdnwiz.exe* file to launch the Installation Wizard.

The Cisco CDN Installation Wizard dialog box appears.

**Step 6** Click **Next**.

The Select a Device dialog box appears, listing the CDM and all CEs on your CDN.

Once you have launched the Installation Wizard, you are ready to begin activating your CDN devices. See Chapter 2, “Configuring and Activating Content Delivery Network Devices.”

CHAPTER 2

# Configuring and Activating Content Delivery Network Devices

This chapter explains the steps that you must take to activate your CDN devices and configure them to communicate with one another over your LAN. The instructions that follow assume that this is the initial installation for your CDM and CE devices and not an upgrade.

For information on upgrading your CDN devices, refer to the *Release Notes for Cisco CDN Software Enterprise Solution Version 2.1*.

This chapter contains the following sections:


- Overview, page 2-2
- Collecting Network Configuration Information, page 2-3
- Collecting CDN Device Information, page 2-4
- Configuring and Activating the Content Distribution Manager, page 2-5
- Configuring and Activating Content Engines, page 2-12

# Overview

Although your CDM and CEs are shipped to you with the CDN software already installed, you must complete the following steps before you can begin working with these CDN devices:

1. Determine whether your network uses a Dynamic Host Configuration Protocol (DHCP) server or static IP addresses.
2. Determine whether individual CDN devices will use a proxy server or secure proxy server.
3. Identify the device ID or MAC addresses of the CDM and each CE.
4. Identify network IP addresses and accounts (for example: subnet mask, gateway address, proxy server address, secure proxy server login).
5. Activate the CDM.
6. Activate CEs.

Details on each of these steps are provided in the sections that follow.

**Note** Before continuing with this chapter, make sure you have the Cisco CDN Installation Wizard CD-ROM that shipped with your CDN hardware. The Installation Wizard is an important configuration and troubleshooting tool that you will need during the device configuration and activation process.

# Collecting Network Configuration Information

Before attempting to configure any CDN devices, you need to collect information about your network. The configuration of your LAN or WAN will determine how you configure each of your CDN devices.

Use the following table to help you gather the information you need to configure your CDN devices.

***Table 2-1 CDN Network Configuration Properties***

| Network Configuration | Description |
|---|---|
| DHCP server | A DHCP server assigns addresses to CDN devices. |
| Static IP addresses | You manually configure the network addresses of your CDN devices. |
| IP address | The unique numeric address assigned to the CDM or CE. |
| Subnet mask | The mask, or filter, used to identify the network subnet the selected CDM or CE belongs to. |
| Gateway | The IP address of a gateway device (or router) on the network. |
| DNS server | A Domain Name Service (DNS) server translates the IP addresses of network devices into user-friendly equivalents. |
| IP address | The IP address of the DNS server. |
| Proxy server | A proxy server serves Internet traffic coming from outside of your LAN or WAN to the selected CDM or CE. |
| IP address/Port | The IP address and port number of the proxy server through which the CDM or CE communicates. |

*Table 2-1 CDN Network Configuration Properties*

| Network Configuration | Description |
|---|---|
| Secure proxy server | A secure proxy server, requiring a secure user name and password, serves Internet traffic coming from outside of your LAN or WAN to the selected CDM or CE. |
| Proxy user name and password | The secure login and password used to gain access to the secure proxy server. |
| Proxy exceptions | The IP addresses of CDN devices that do not communicate through the proxy- or secure proxy server. |

# Collecting CDN Device Information

In addition to collecting information about the structure of your network, you also need to have information identifying your CDM and each CE you will be configuring on your LAN or WAN. Table 2-2 lists these network identification properties.

*Table 2-2 CDN Device Identification Properties*

| Device Setting | Description |
|---|---|
| MAC address/ Device ID | Unique device name or Media Access Control (MAC) address; the unique hardware number of your CDM or CE machine, which identifies it on the LAN or WAN. |
| Name | User-friendly name assigned to the CDN device that makes it easily distinguishable from other devices when you use the Installation Wizard or CDM user interface. |
| CDM address | *CEs only.* The IP address of the Content Distribution Manager the CE is associated with. |

# Configuring and Activating the Content Distribution Manager

The CDM provides a Web-based graphical user interface that enables CDN administrators to manage channel- and user creation, media import, and media distribution to CEs on the network. In turn, each CE can replicate media to other CEs on the network.

To begin managing and using the features of your CDN, you must first activate the CDM. Depending on the network configuration, use one of the following connection procedures.

- If your network uses a DHCP server and does not use a proxy server, see the "Activating the CDM with a DHCP Server" section on page 2-5.
- If your network does not use a DHCP server or uses a proxy server, see the "Configuring and Activating the CDM without a DHCP Server" section on page 2-6.

## Activating the CDM with a DHCP Server

If you are using a DHCP server to connect to the network, you first need to establish a permanent DHCP lease or static IP address for your CDM.

Refer to the documentation that came with your DHCP server for instructions on establishing permanent leases or static IP addresses for devices, and reserve an address for your CDM before proceeding with the instructions below.

To activate the CDM with a DHCP server:

**Step 1** Use the interface for the DHCP server to verify that a permanent DHCP lease or static IP address has been assigned to the device ID (also called MAC address) for the CDM.

**Step 2** If you are using DNS, create the DNS host name for the CDM.

**Step 3** Power on the CDM by pressing the power on/off switch to the "on" position.

**Note** The CDM may take a few minutes to complete the power-on tests.

**Step 4** From a designated workstation, launch your Web browser and point it to the DNS name or IP address of your CDM.

The Cisco splash screen appears, as does the CDN login dialog box.

**Note** If a login dialog box does not appear, your CDM may not be online. See the "Configuring and Activating the CDM without a DHCP Server" section on page 2-6 for instructions on using the CDN Installation Wizard to activate your CDM device. Make sure that you choose **Yes** when prompted by the wizard to confirm the use of a DHCP server.

**Step 5** Enter the default administrator user name and password as follows in the fields provided in the login dialog box, and then click **OK**:

```
User name: admin
Password: default
```

**Step 6** Proceed to the "Configuring and Activating Content Engines" section on page 2-12 for instructions on bringing your CEs online.

# Configuring and Activating the CDM without a DHCP Server

If your network does not use a DHCP server, you can configure and activate the CDM device using the Installation Wizard configuration tool contained on the Installation Wizard CD-ROM that shipped with your CDN hardware.

**Note** You must have a PC workstation running the Windows 95/98, Windows 2000, or Windows NT operating system on the same subnet as the CDM in order for the Installation Wizard to communicate with the CDM.

To launch the Installation Wizard tool and use it to configure your CDM:

**Step 1** If you have not already done so, power-on the CDM.

**Note** The CDM may take a few minutes to complete the power-on tests.

**Step 2** Once the CDM has finished powering on, launch the CDN Installation Wizard by following the instructions given in the "Activating the Installation Wizard" section on page 1-5.

The Cisco Content Delivery Network Installation Wizard introductory dialog box appears.

**Step 3** Click **Next.**

The Select a Device dialog box lists all CDN devices configured on the subnet by their device ID. (See Figure 1-1.)

**Step 4** Choose your CDM device and click **Next**.

The Name dialog box appears.

**Tips** If you cannot determine which device is your CDM, choose a device and click **Details** to display the Device Details dialog box. The device type is listed along with other device configuration information.

You can also sort devices by type to isolate the CDM. Right-click in the area in the Select a Device dialog box where the devices are listed and choose **Sort by Type** from the shortcut menu that appears.

**Step 5** If you have not already done so, enter a user-friendly name that describes the device in the field provided.

This name supplements the alphanumeric device ID and makes it easier to identify the device when you use the Installation Wizard or the CDM administrative user interface.

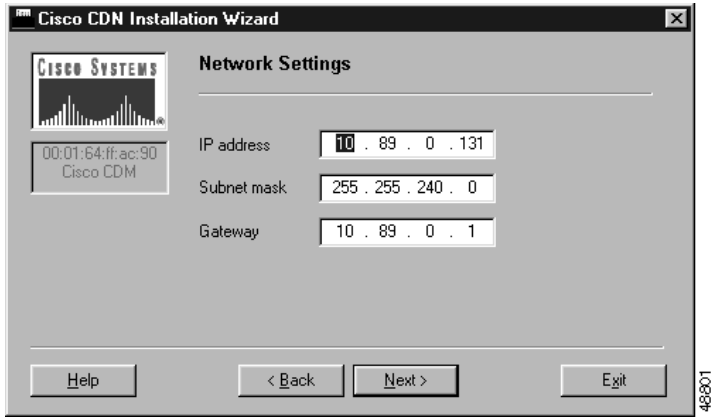
**Step 6** Click **Next** to proceed to the next step in the Installation Wizard.

The Obtain Network Settings Automatically (DHCP) dialog box appears.

**Step 7** You are not using a DHCP server. Choose **No** and click **Next**.

The Network Settings dialog box appears. (See Figure 2-1.)

***Figure 2-1 CDN Installation Wizard Network Settings Dialog Box***




Specify the network settings for your CDM as instructed by your network administrator, making sure the IP address, subnet mask, and gateway are entered in the fields provided.

CDN device settings are described in Table 2-2.

**Step 8** Click **Next**.

The DNS-Domain Name Server dialog box appears.

**Step 9** Perform one of the following actions:

- If you are using a DNS server, choose **Yes** and then click **Next** to advance to the DNS Servers dialog box and provide the IP addresses of all DNS servers referenced by your CDN devices.

  Click **Next** to advance to the next step in the Installation Wizard: identifying your proxy server (if one exists).

- If you are not using DNS server, choose **No** and then click **Next** to advance to the next step in the Installation Wizard: identifying your proxy server (if one exists).

The Proxy Server dialog box appears.

**Step 10** Perform one of the following actions:

- If your network uses a proxy server, choose **Yes** and then click **Next** to advance to the Proxy Settings dialog box and provide the IP address and port number of the proxy server in the fields provided.

  Click **Next** to advance to the next step in the Installation Wizard: identifying a secure proxy server (if one exists).

- If you are not using a proxy server, choose **No** and then click **Next** to advance to the next step in the Installation Wizard: identifying a secure proxy server (if one exists).

The Secure Proxy Server dialog box appears. (See Figure 2-3.)

***Figure 2-2 CDN Installation Wizard Secure Proxy Settings Dialog Box***

**Step 11** Perform one of the following actions:

- If you are using a secure proxy server, choose **Yes**, and then click **Next** and provide the IP address, port number, and user name and password information in the Secure Proxy Settings dialog box.

  Click **Next** to advance to the next step in the Installation Wizard: identifying addresses that are proxy exceptions.

- If you are not using a proxy server, select **No** and then click **Next** to advance to the next step in the Installation Wizard: identifying any addresses that are proxy exceptions.

The Proxy Exceptions List dialog box appears.

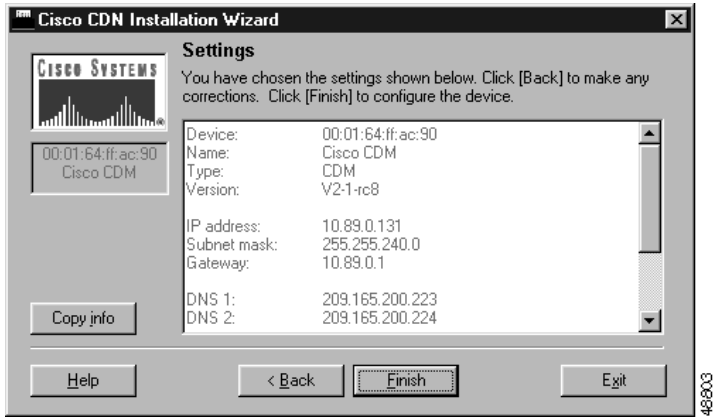
**Note** If you are using neither a proxy nor a secure proxy server, the Proxy Exceptions dialog box does not appear, and you will go directly from the Secure Proxy Server dialog box to the Settings dialog box.

**Step 12** Perform one of the following actions:

- If you do not have addresses you wish to treat as proxy exceptions, click **No**, and then click **Next** to advance to the next step in the Installation Wizard: reviewing the configuration settings for your CDM.
- If you have addresses that you do not want to connect through your proxy or secure proxy server, click **Yes** and then click **Next** to bring up the Proxy Exceptions dialog box.
  - Enter the IP address of your first exception in the field provided, and then click **Add** to add it to the list of exceptions immediately below.
  - Repeat this step for each exception. If you make a mistake, click the exception address in the list of exceptions, and then click **Remove** to remove the address from the list.
  - When you have finished adding exceptions, click **Next** to advance to the next step in the Installation Wizard: reviewing the configuration settings for your CDM.

The Settings dialog box appears. (See Figure 2-3.)

***Figure 2-3 CDN Installation Wizard Settings Dialog Box***




**Step 13** After reviewing the configuration settings for your CDM, perform one of the following actions:

- If the information is not accurate, click **Back** to step back in the wizard and change any of the configuration information.
- If the configuration information is accurate, click **Finish** to configure the CDM using the settings displayed and advance to the next step in the Installation Wizard: confirming configuration of the CDM.

**Tips** If you want to copy the information for use in another application, document, or e-mail, click **Copy info** to copy the configuration settings to your Windows clipboard. You can then paste the information into another Windows application.

The Configuring... dialog box appears.

**Step 14** Perform one of the following actions:

- If the device comes online, click **More** to return to the Select a Device dialog box and configure another of your CDN devices, or click **Exit** to close the Installation Wizard.

The machine status indicator located beneath the Copy info button turns green and reads "online" if the device is online.

- If the device fails to come online, click **Back** and review your configuration settings.

See the "Device Boot Sequence" section on page 3-4 for information on the proper sequence of events when you boot a device.

**Note** It may take a few moments for the CDM to integrate the new configuration settings and come back online. Monitor the status messages provided in the dialog box and verify that your CDM device is able to come online properly.

# Configuring and Activating Content Engines

All CEs are initially configured and associated with a CDM using the CDN Installation Wizard.

After initial configuration, you can use the Device Editor on your CDM to modify CE device configuration settings.

Refer to Chapter 2, "Configuring Cisco Content Delivery Network Devices," in the *Cisco CDN Software Enterprise Solution User Guide* for detailed instructions on configuring your CEs using the CDM user interface.

To configure a CE for use with your CDM:

**Step 1** Follow the instructions in the "Activating the Installation Wizard" section on page 1-5 to launch the Installation Wizard utility.

The Cisco Content Delivery Network Installation Wizard screen appears.

**Step 2** Click **Next** to advance to the next step in the Installation Wizard.

The Select a Device dialog box lists all CDN devices on the subnet by their device ID or by a user-friendly name previously assigned using the Installation Wizard. (See Figure 1-1.)

**Step 3** Choose the first CE device you want to configure and click **Next** to advance to the next step in the Installation Wizard.

The Name dialog box appears.

**Tips** If you cannot determine by the MAC address which device is your CE, choose a device and click **Details** to display the Device Details dialog box.

You can also sort devices by right-clicking in the area where the devices are listed and choosing one of the sort options from the shortcut menu that appears. You can sort devices by device name (Sort by Device), status, type, version, or IP address.

**Step 4** If you have not already done so, enter a user-friendly name in the field provided.

This name supplements the alphanumeric device ID or MAC address and makes it easier to identify the device when you use the Installation Wizard or CDM user interface.

**Step 5** Click **Next** to advance to the next step in the wizard: associating your CE with its CDM. The Content Distribution Manager dialog box appears.

**Step 6** Use the fields provided to associate your CE with a CDM on your network. You must complete this step in order for your CE to be able to communicate with the rest of the CDN and begin receiving media.

- Choose **Name** to identify the CDM by its DNS name and fill in the DNS name in the field provided.
- Choose **IP address** to identify the CDM by its IP address, and fill in the IP address in the field provided in valid "dotted quad" format. For example:

```
209.165.200.223
```

**Step 7** Click **Next** to advance to the next step in the Installation Wizard: indicating whether or not you are using a DHCP server.

The Obtain network settings automatically (DHCP) dialog box appears.

**Step 8** Perform one of the following actions:

- If you are using DHCP, choose **Yes** and then click **Next** to proceed to the next step in the Installation Wizard: configuring a Domain Name Server.
- If you are not using DHCP and are configuring CDN devices manually, choose **No** and then click **Next**.

The Network Settings dialog box appears. (See Figure 2-1.)

- Place your cursor in the IP address field and enter the network IP address, using the arrow key to move from block to block.
- Press the Tab key to advance to the following fields and enter the subnet mask, if one is being used, as well as the gateway address used by the selected CE.

**Note** If you do not know the exact IP address of any of these components, or if you are not sure whether your network is using static IP addresses, consult with your network administrator before proceeding. Definitions of the network settings can be found in Table 2-2.

The DNS-Domain Name Server dialog box appears.

**Step 9** Perform one of the following actions:

- If you are using a DNS server, choose **Yes** and then click **Next** to advance to the DNS Servers dialog box and provide the IP addresses of DNS servers referenced by your CDN devices.

  Click **Next** to advance to the next step in the Installation Wizard: identifying your proxy server (if one exists).
- If you are not using DNS, choose **No** and then click **Next** to advance to the next step in the Installation Wizard: identifying your proxy server (if one exists).

The Proxy Server dialog box appears.

**Step 10** Perform one of the following actions:

- If you are using a proxy server, choose **Yes** and then click **Next** to advance to the next step in the Installation Wizard, Proxy Settings. The Proxy Settings dialog box appears.
  - In the fields provided, enter the IP address of the proxy server and the number of the designated port through which traffic will pass (usually 80).
  - Click **Next** to advance to the next step in the Installation Wizard: identifying a secure proxy server (if one exists).

- If you are not using a proxy server, choose **No** and then click **Next** to advance to the next step in the Installation Wizard: identifying a secure proxy server (if one exists).

The Secure Proxy Server dialog box appears.

**Step 11** Perform one of the following actions:

- If you are using a secure proxy server, choose **Yes**, then click **Next**. The Secure Proxy Settings dialog box appears. (See Figure 2-3.)
  - Using the fields provided, enter the IP address, port number, proxy server user name and password.
  - Click **Next** to advance to the next step in the Installation Wizard: specifying addresses that will be treated as proxy exceptions.
- If you are not using a secure proxy server, choose **No** and click **Next** to advance to the next step in the Installation Wizard: specifying any addresses that will be treated as proxy exceptions.

The Proxy Exceptions List dialog box appears.

**Step 12** Perform one of the following actions:

- If you do not have addresses you wish to treat as proxy exceptions, choose **No**, and then click **Next** to advance to the next step in the Installation Wizard: reviewing the configuration settings for your selected device.
- If you have addresses that you do not want to connect through your proxy or secure proxy server, choose **Yes** and then click **Next**.

  The Proxy Exceptions dialog box appears.
  - Enter the IP address of your first exception in the field provided, and then click **Add** to add it to the list of exceptions immediately below.
  - Repeat this step for each exception. If you make a mistake, click the exception address in the list of exceptions, and then click **Remove** to remove the address from the list.
  - When you have finished adding exceptions, click **Next** to advance to the next step in the Installation Wizard: reviewing the configuration settings for your CE.

The Settings dialog box appears. (See Figure 2-3.)

**Step 13** Review the configuration settings for your CE.

- If the information is not accurate, click **Back** to step back in the Installation Wizard and change the configuration information.
- Otherwise, click **Finish** to configure the CE using the settings displayed and advance to the next step in the Installation Wizard: confirming configuration of the CE.

**Tips** If you want to copy the information for use in another application, document, or e-mail, click **Copy info** to copy the configuration settings to your Windows clipboard. You can then paste the information into another Windows application.

The Configuring... dialog box appears.

**Step 14** Perform one of the following actions:

- If this is not a new CE, proceed to  and wait for the device status to change to "online" before exiting the Installation Wizard.
- If this is a new CE, the device is reconfigured using the settings provided with the Installation Wizard, and then awaits approval from the CDM. You must manually approve the new CE:
  - Log on to the CDM and click **Device Console**. The CDM lists all associated CDN devices. The new CE appears with a caution status indicator in the online column.
  - Click **Edit** to edit the CE settings. From the Identification dialog box, check the **Approve** check box.
  - Click **Save Changes**. Return to the Installation Wizard and wait for the CDM approval to register.

**Note** It may take a few moments for the CE to integrate the new configuration settings and come back online. Monitor the status messages provided in the Configuring dialog box and verify that your CE device is able to come online properly.

The machine status indicator located beneath the Copy info button will turn green and read "online."

**Step 15** Once the device's status is "online," click **More** to return to the Select a Device dialog box and configure another of your CDN devices, or click **Exit** to close the Installation Wizard.

If the device fails to come online, click **Back** to step backward in the Installation Wizard and review your configuration settings. See the "Device Boot Sequence" section on page 3-4 for information on the proper sequence of events when booting a device.

---

After initial device configuration, the CDM user interface can be used to modify the configuration settings on any of your devices. Refer to Chapter 2, "Configuring Cisco Content Delivery Network Devices," in the *Cisco CDN Software Enterprise Solution User Guide* for detailed instructions on configuring your CDM or CEs using the CDM user interface.

CHAPTER 3

# Troubleshooting with the Installation Wizard

If the installation wizards Status column indicates that one or more of your CDN devices is not *online* after you have followed instructions in the "Configuring and Activating the Content Distribution Manager" section on page 2-5, or the "Configuring and Activating Content Engines" section on page 2-12, you can use the Installation Wizard to help bring devices back online or identify connectivity problems.

## Confirming Configuration Settings

In addition to setting the IP addresses for your CDN devices, you can use the Installation Wizard to confirm whether or not your devices are using the addresses you assigned to them using the wizard.

See the procedure below and the sections that follow for more information on confirming the configuration settings of your CDN devices.

To confirm a CDN device IP configuration:

**Step 1** Launch the Installation Wizard and click **Next**.

The Select a Device dialog box appears.

**Step 2** Locate the device for which you wish to confirm IP settings by using its device name (the MAC address, device ID, or user-friendly equivalent).

**Note** Devices that are properly configured and connected to the CDN display a green triangle icon and a status of "online" in the Status column. Devices that are offline display one of a number of icons and an error message in the Status column.

See the Table 3-1 for details on the various device status indicators used by the Installation Wizard.

**Step 3** Double-click the record for the device to display the Device Details dialog box.

The dialog box displays the settings for the machine. These values should match the network and CDN configuration settings assigned to the device.

**Step 4** If the Device Details dialog box displays information that is not accurate, you need to use the Installation Wizard to reconfigure your device:

a. Click **OK** to close the Device Details dialog box.

b. Choose the device from the list of devices and click **Next** to reconfigure the device using the Installation Wizard.

c. Depending on the type of device you need to reconfigure, see either the "Configuring and Activating the Content Distribution Manager" section on page 2-5 or the "Configuring and Activating Content Engines" section on page 2-12 for instructions on configuring CDM and CE devices with the Installation Wizard.

# Installation Wizard Device Status Indicators

When viewing the online status of devices using the Installation Wizard, use the status indicators to help you evaluate whether a given device is online or not. Table 3-1 identifies the status indicators and describes their meanings.

*Table 3-1 CDN Installation Wizard Device Status Indicators*

| Status Indicator | Device Status | Explanation |
|---|---|---|
| | Online | The device is active and communicating without error with other devices on the network. |
| | Not responding | The device previously communicated with the Installation Wizard but has not done so recently.<br>The device could be powered off, disconnected from the LAN, or experiencing other hardware- or software-related problems.<br>Determine what state the device is in before using the Installation Wizard to help bring the device online. |
| | Needs attention | The device is active but is encountering problems communicating with other CDN devices. Use the Installation Wizard to help adjust the device settings and correct any communication problems. |
| | Incompatible CDN software version | The device is running an older version of the CDN Enterprise software and cannot communicate with the Installation Wizard. Use a previous version of the Installation Wizard to communicate with this device, or update the CDN software to version 2.1 or later. |

# Device Boot Sequence

All CDN devices follow the same sequence of steps when implementing new or changed configuration settings provided by the Installation Wizard. Each step in the configuration process is captured in the installation wizards Configuring dialog box, the last step in the Installation Wizard.

## Boot Sequence Overview

The following is a step-by-step explanation of the CDN device boot sequence using the Installation Wizard.

1. First, network settings provided by a DHCP server, if one is being used, or manually using the Installation Wizard are applied.
2. If the network settings are valid and do not conflict with other devices on your network, CDN settings are applied to the device such as the DNS server, proxy server, and CDM used.
3. With both the network and CDN settings configured, the CDN device sends a request to its CDM for approval. If the device is a CDM or a preexisting CE, approval is automatic. If the device is a new CE, it must await approval by a CDN administrator using the Approval feature accessed from the Device Editor, Identification feature on the CDM UI.
4. Once approval from the CDM has been granted, a device starts itself using the confirmed network and CDN configuration settings and connects to other devices on the CDN. The device status changes to “online.”

# Sample Boot Sequence

The following is a typical device boot sequence for both CDMs and CEs. This sequence may pause at any of the steps listed as the device awaits configuration information from the network or the CDM.

```
Beginning boot sequence.
Forcing restart and re-configuring.
Waiting for network configuration.
Trying new network configuration.
Machine now set to use DHCP.
Network configuration installed successfully.
Waiting for CDN configuration.
Trying new CDN configuration.
CDN configuration installed successfully.
Waiting for approval from CDM.
Processing approval from CDM.
Waiting for servers to start.
Starting servers.
Servers started successfully.
Running normally.
```

# Device Configuration Error Messages

```
Configuration failed.
```

**Explanation** The Installation Wizard was unable to successfully reconfigure the selected device using the supplied settings. The device did not restart successfully and connect to the CDN using the current configuration settings.

**Action** Verify the network and CDN configuration settings you supplied. Next, use the Installation Wizard to reconfigure the device using valid configuration settings.

`IP address <IP_address> is already in use by another computer <MAC_address>.`

**Explanation** You have assigned an IP address to the selected CDN device that is already being used by another machine on your network. The conflicting address and machine name (MAC address) of the device currently using the address are provided.

**Action** Use the Installation Wizard to reassign to the selected device an IP address that is not being used.

`Missing <required_field_names> for CE configuration.`

**Explanation** The CE device configuration message sent by the Installation Wizard was missing required fields.

**Action** This typically indicates an internal problem. Contact Cisco Technical Support.

`Missing <required_field_names> for network configuration.`

**Explanation** The network configuration message sent by the Installation Wizard was missing required fields.

**Action** This typically indicates an internal problem. Contact Cisco Technical Support.

`Missing CDM info.`

**Explanation** The selected CE is missing the address of a valid CDM to connect to or is awaiting approval from its CDM. All CEs must be associated with a CDM on your network.

**Action** Use the Installation Wizard to verify that the CE is associated with a valid CDM. If it is, use the CDM to approve the CE. The Approve option is located in the Identification dialog box for the selected CE.

`Missing CDN settings.`

**Explanation** The selected device is missing CDN configuration information it needs to connect to the network. CDN configuration information includes the name or address of the CDM that the selected device is associated with, DNS server information (if one is being used), and proxy server or secure proxy server addresses if proxy servers are being used.

**Action** Use the Installation Wizard to reconfigure the selected device using the correct settings for DNS and proxy servers.

`Missing network settings.`

**Explanation** The selected device is missing its network configuration information. If you are using DHCP, the selected device is not being served properly by the DHCP server. If you are assigning network information manually, the information provided is incomplete or inaccurate.

**Action** Use the Installation Wizard to reconfigure the device with proper network settings (IP address, subnet mask, and gateway), or reconnect the device to your DHCP server.

`Needs attention.`

**Explanation** The selected device is online but is not communicating properly with the Installation Wizard and other CDN devices. Possible causes could be a conflicting IP address or other environmental problem.

**Action** Verify that the device is properly configured and that it is up and running. You may be required to reboot the device or to modify its configuration settings to restore communication with the Installation Wizard and CDN again.

`Not responding.`

**Explanation** The selected device was previously configured on the installation wizard and was active, but it is now offline.

**Action** Verify that the selected device is powered on and that it is still using the same network address and CDN configuration it had when it was initially added to the network. If necessary, use the Installation Wizard to change any configuration settings and try to contact the device again.

`Router <router_IP_address> is not responding.`

**Explanation** The gateway you specified for the selected device using the Installation Wizard is not responding. The router may have changed addresses or may not be functioning properly.

**Action** Verify the address you provided for the router and verify that the router is functioning properly. If necessary, use the Installation Wizard to point the device to another functioning router.

`Sent malformed message.`

**Explanation** The message received from the CDN device did not use the expected format.

**Action** This typically indicates an internal problem. Contact Cisco Technical Support.

`Services not started.`

**Explanation** The Installation Wizard was unable to bring up a required CDN device or service.

**Action** Refer to the following files for more detailed error text, and contact Cisco Technical Support:

```
/sonoma/state/boot.log
/sonoma/state/log
```

```
Unable to commit records to library.
```

**Explanation** The Installation Wizard encountered an internal error.

**Action** Refer to the following files for more detailed error text, and contact Cisco Technical Support:

```
/sonoma/state/boot.log
/sonoma/state/log
```

```
Unable to start servers!
```

**Explanation** The Installation Wizard encountered an error when attempting to restart a device using the specified configuration settings.

**Action** Refer to the following files for more detailed error text, and contact Cisco Technical Support:

```
/sonoma/state/boot.log
/sonoma/state/log
```

# Resolving Device Errors

The Installation Wizard can be used to identify and even resolve configuration problems, though its role in troubleshooting is limited to modifying configuration settings that are incorrect or that are conflicting with other devices on your LAN. For example, if the Status column for a CE reads "Missing Network settings," you can use the Installation Wizard to assign the correct network configuration to the device, or associate it with a DHCP server on your network.

Certain error conditions may require interventions that cannot be carried out using the Installation Wizard. For such cases, we recommend contacting Cisco Technical Support for help in resolving the problem.

See the "Device Configuration Error Messages" section on page 3-5 for descriptions of Installation Wizard errors. See the "Obtaining Technical Assistance" section on page x for information on contacting Cisco's Technical Assistance Center (TAC).

To reconfigure a device using the Installation Wizard:

**Step 1** Launch the Installation Wizard and click **Next**.

The Select a Device dialog box appears.

**Step 2** Locate the device that needs attention and click to select it.

Devices that are offline display a message in the status column and either the "not responding" or "needs attention" icon. See Table 3-1 for details on device status indicators.

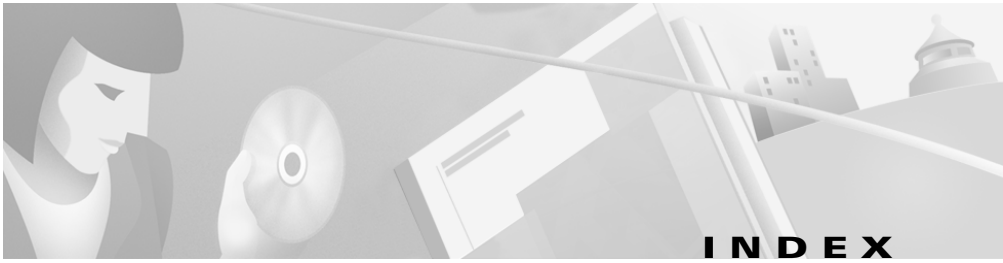
**Step 3** Double-click the device record or, with the offline device selected, click **Details**.

The Device Details dialog box appears, displaying the current configuration for the device, as well as any error conditions. Check this information against the proper configuration settings to find discrepancies, or refer to the Status column for information on configuration problems.

See the "Device Configuration Error Messages" section on page 3-5 for details on the various messages you may encounter using the Installation Wizard.

**Step 4** Choose the device record in the list of devices and click **Next** to reconfigure the device using the Installation Wizard.

Depending on the type of device you need to reconfigure, see either the "Configuring and Activating the Content Distribution Manager" section on page 2-5 or the "Configuring and Activating Content Engines" section on page 2-12 for instructions on configuring devices with the installation wizard.



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