



CHAPTER 3

Getting Started

This chapter discusses initial device configuration, logging into and navigating the Internet Streaming Content Delivery System Manager (CDSM), and a typical Content Delivery System (CDS) configuration workflow. This chapter presents the following major topics:

- [Initially Configuring the Devices, page 3-1](#)
- [Logging In to the Internet Streaming CDSM, page 3-1](#)
- [Activating and Synchronizing the Devices, page 3-3](#)
- [Navigating the Internet Streaming CDSM, page 3-7](#)
- [Configuring Primary and Standby CDSMs, page 3-11](#)
- [Typical Configuration Workflow, page 3-13](#)

Initially Configuring the Devices

You must initially configure the Content Delivery Engines (CDEs) before they can participate in the CDS network. The CDE that runs the Internet Streaming CDSM must be initialized first so that the CDEs running the Service Engine (SE) and Service Router (SR) can register with it. For more information about initially configuring the CDEs, see *Cisco Content Delivery Engine 205/220/250/420 Hardware Installation Guide*. See the “[Related Publications](#)” section on page x.

After you have initially configured your CDEs, you must activate the SEs and SRs and configure the internal clocks by using the Internet Streaming CDSM. See the “[Activating and Synchronizing the Devices](#)” section on page 3-3 for more information.

Logging In to the Internet Streaming CDSM

To log in to the Internet Streaming CDSM, do the following:

Step 1 Using your web browser, enter the IP address of your CDSM and port 8443.



Note CDS supports Internet Explorer version 6 or higher, and Mozilla Firefox version 3.6 or higher.

For example, if the IP address of your CDSM is 192.168.0.236, enter:

https://192.168.0.236:8443

The Security Alert message is displayed.



Note If you are using Mozilla Firefox version 3.6 or higher as your web browser, you need to add the CDSM IP address to the exception list. After entering the CDSM IP address with port 8443, Firefox displays a Secure Connection Failed message with a link stating “Or you can add an exception.” Click this link, then click **Add Exception**. The Add Security Exception dialog box is displayed. Click **Get Certificate**, and then click **Confirm Security Exception**. The CDSM IP address has been added to the exception list and you no longer get the Secure Connection Failed message.



Note Sometimes the CDSM is not initially accessible from a web browser. If this occurs you must disable and re-enable the Centralized Management System (CMS). log in to the CLI for the CDSM, and enter the global configuration command **no cms enable** followed by **cms enable**.

Step 2 Click **Yes** to accept the security certificate. The Login page is displayed (Figure 3-1).

Figure 3-1 Internet Streaming CDSM Login Page



Step 3 Enter the username and password and click **Login**. The Internet Streaming CDSM home page is displayed.

The built-in username is *admin* and the initial password is *default*.



Note We strongly recommend that you change the built-in admin password as soon as possible. To do so, log in to the CLI of the CDSM device, and use the **username admin password <password>** global configuration command.

**Note**

If the default username and password have been changed by another CDSM administrator, you need to get the new username and password.

Activating and Synchronizing the Devices

The CDS administrator approves a device by making it active. This security feature prevents unauthorized devices from joining the CDS.

**Caution**

All devices must be synchronized with each other for the CDS to function properly.

Synchronization ensures accurate timestamps in all the logs and accuracy in caching decisions determined by If Modified Since (IMS) lookups. Using Network Time Protocol (NTP) to synchronize the devices in the CDS is the best practice.

**Note**

If the network is not configured with NTP, then every device in the CDS must be configured with exactly the same time and time zone. We recommend that you use an NTP server for network synchronization.

Activating and Setting NTP for Each Device

**Tip**

To navigate within the Internet Streaming CDSM, click one of the tabs (for example, Devices) and then one of the tab options (for example Locations). Navigational directions in procedures are written in the following way:

Devices > Devices > Assignments > Device Groups

**Note**

From the Devices Table, you can activate all inactive devices by clicking the **Activate All Inactive SEs** icon. See the [“Activating All Inactive Service Engines”](#) section on page 3-5.

To activate and synchronize a Service Engine (SE) or Service Router (SR), do the following:

Step 1

From the Internet Streaming CDSM home page, choose **Devices > Devices**. The Devices Table is displayed ([Figure 3-2](#)) listing all the registered SEs and SRs.

Figure 3-2 Devices Table Page—Edit Device

Device Name	Type	IP Address	Status	Location	Software Version
Edit NE-CDM-612-9	Content Delivery System Manager (Primary)	3.1.4.18	Online		2.0.0.b.430
NE-612-12	Service Engine	3.1.4.31	Online	NE-612-12-location	2.0.0.b.410
Q5-CDE200-2	Service Engine	2.225.2.56	Online	Q5-CDE200-2-location	2.0.0.b.420

Step 2 Click the **Edit** icon next to the device name. The Devices home page is displayed.



Note If the device you want to activate is not listed in the Devices Table, restart the CMS for that device by telnetting to it and entering **no cms enable** followed by **cms enable** in global configuration mode.

Step 3 Click **Activate** in the Devices home page. The Location dialog box is displayed (Figure 3-3).

Figure 3-3 Devices Home Page—Location Dialog Box

Device Home for ATT1-7326-CE-1

Status: **Inactive** **Activate**

To finish activation of this device, you must select or create a location.

Select a Location: **Tier1**

Create a new Location:

Parent of the new Location: **None**

Apply and Activate

Alarm Status: 1 Minor

Assignments: ATT1-7326-CE-1 belongs to 3 Delivery Services, 0 Device Groups and supports 0 Programs.

Type: Service Engine

Software Version: 2.0.0.b.300 **Update Software**

Model: Indeterminable

Primary Hostname: ATT1-7326-CE-1

Primary IP Address: 2.224.22.2

Bytes Served by Service Engine:

207350

Step 4 Create or choose a location. To activate an SE, you need to assign it to a location.

Because the standby CDSM is global to the CDS network, it does not need to be assigned to a location.

You have the following options in creating or choosing a location:

- a. If you have already created locations, you can choose a location from the **Location** drop-down list.
- b. To create a default location, which can be edited later, check the **Create a New location** check box. A default location is created with the following name: **<SE-name>-location**. From the **Parent of the New Location** drop-down list, choose a parent for this location.

For information about creating locations, see the “[Configuring Locations](#)” section on page 4-1.

Step 5 Click **Apply and Activate**.

The Status of the device shows “pending” until the device is fully activated. This may take a few minutes.

Step 6 To display the top-level Table of Contents, click the **Show All** button above the Contents pane.

Step 7 From the left-panel menu, select **General Settings > Network > NTP**. The NTP Settings page is displayed.

Step 8 Check the **Enable** check box and enter the IP address or hostname of each NTP server. Use a space to separate each server.

Step 9 Click **Submit** to save your settings.

The activation and NTP server settings must be completed for each SE, SR, and standby CDSM.



Tip

For a quick way to get to other SEs, click the **Display All Devices** icon located to the left of the Expand All button. This icon toggles between the Display All Devices and Menu icons.

For more detailed information about configuring locations, activating devices, and configuring NTP servers, see the following sections:

- [Configuring Locations, page 4-1](#)
- [Activating a Service Engine, page 4-10](#)
- [Configuring NTP, page 4-62](#)

Activating All Inactive Service Engines

To activate all inactive SEs, do the following:

Step 1 From the CDSM home page, choose **Device > Devices** and click the **Activate All Inactive SEs** icon. See [Figure 3-4](#).

Figure 3-4 *Devices Table Page—Activate All Inactive Service Engines*

Device Name	Type	IP Address	Status	Location	Software Version
NE-612-12	Service Engine	3.1.4.31	Online	NE-612-12-location	2.0.0.b.410
NE-612-5	Service Engine	3.1.4.14	Online	tier-1	2.0.0.b.400
NE-612-6	Service Engine	3.1.4.15	Online	tier-2	2.0.0.b.430

The Location Choice page is displayed ([Figure 3-5](#)).

Figure 3-5 Location Choice Page

The screenshot shows the Cisco Content Delivery System Manager interface. At the top left is the Cisco logo and 'Content Delivery System Manager'. To the right is 'System Status' showing 'Devices: 3 Devices, Critical' and 'Service: 2 Services, Critical'. Below this are navigation tabs for 'Devices', 'Services', and 'System'. Under 'Devices' are sub-tabs for 'Device Groups', 'Locations', and 'Statistics'. The main content area is titled 'Location Choice' and contains two radio button options: 'Select an existing location for all inactive SEs' (unselected) and 'Create a new location for each inactive SE' (selected). Below the second option is a dropdown menu labeled 'Select a parent location for all newly created locations:' with 'None' selected. A vertical ID '211811' is on the right side of the screenshot.

Step 2 In the Location Choice page, click either **Select an Existing Location for All Inactive SEs** or **Create a New Location for Each Inactive SE**.

If you are creating a new location, you can select a parent location, or leave the default of “none.”

Step 3 Click **Submit** to save the settings.

The Status in the Devices Table for all the inactive SEs shows “pending” until the devices have been fully activated.

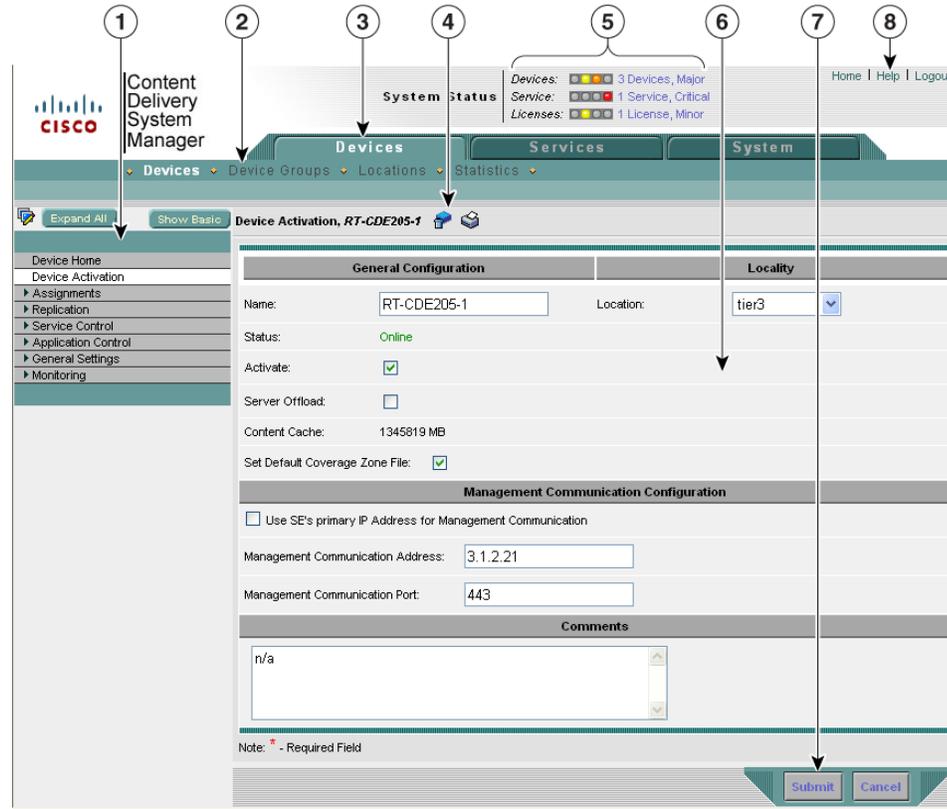


Note All devices activated in this way need to have the NTP settings configured. See [Step 6](#) through [Step 9](#) in the “Activating and Setting NTP for Each Device” section on page 3-3.

Navigating the Internet Streaming CDSM

Figure 3-6 shows the different elements of the Internet Streaming CDSM.

Figure 3-6 Internet Streaming CDSM User Interface



1	Left panel menu	5	System Status bar
2	Tab options	6	Page
3	Tabs	7	Submit and Cancel buttons
4	Task bar	8	Tools (Home, Help, and Logout)

The System Status bar, tabs, tab options, and tools are accessible from any page in the CDSM. The left panel menu changes depending on which tab and tab option you choose.

Devices, Services, and Other Tables

The Devices Table page shows all the devices registered in the CDSM. Figure 3-7 shows an example of the Devices Table page. A table is displayed for each of the following tab options:

- Devices (from Devices tab)
- Device Groups (from Devices tab)
- Locations (from Devices tab)

- Delivery Services (from Services tab)
- Live Video (from Services tab)

Figure 3-7 *Devices Table Page*

Device Name	Type	IP Address	Status	Location	Software Version
NE-612-12	Service Engine	3.1.4.31	Online	NE-612-12-location	2.0.0.b.450
NE-612-5	Service Engine	3.1.4.14	Online	tier-1	2.0.0.b.470
NE-612-6	Service Engine	3.1.4.15	Online	NE-612-12-location	2.0.0.b.470
NE-612-7	Service Engine	3.1.4.16	Online	tier-1	2.0.0.b.470
NE-7326-2	Service Engine	3.1.4.21	Online	tier-3	2.0.0.b.470
NE-CDM-612-9	Content Delivery System Manager (Primary)	3.1.4.18	Online		2.0.0.b.470
NE-CR-612-4	Service Router	3.1.4.13	Online	tier-1	2.0.0.b.470
Q5-CDE200-1	Service Engine	2.225.2.11	Offline	tier-1	2.0.0.b.410
Q5-CDE200-2	Service Engine	2.225.2.56	Offline	Q5-CDE200-2-location	2.0.0.b.420
Q5-CDE200-4	Service Engine	2.225.2.14	Online	tier-1	2.0.0.b.440

You can sort the information in the table by clicking on any column title. The table can be sorted in ascending or descending order for each column. The task bar options provide other table manipulations, including filtering, refreshing the table, viewing all items, and printing.

The bottom of the table lists the page number and the total number of pages, as well as how many items are showing out of the total number of items.

The table defaults to listing ten rows. You can change the number of rows shown by clicking the Rows drop-down list.

To get more information on an item or to configure an item, click the **Edit** icon to the left of the item name. To create a new item, click the **Create New** icon in the task bar.

Devices Home Page

The Devices home page provides information about the device, as well as the ability to perform the following tasks:

- Activate the device
- Update the device software
- Assign the device to baseline groups

From the Devices home page you can access the delivery services and device groups the device is assigned to, by clicking the appropriate link. All delivery services, or device groups (depending on which link you clicked), configured in your CDS are displayed. Through this page, you can assign the device to additional delivery services or device groups by clicking the icon next to the applicable delivery services or device groups and submitting your selection.

The Devices home page offers detailed bandwidth and bytes-served graphs with detailed reports for each.

The left panel menu has two toggle buttons: Show Basic/Show All and Expand All/Collapse All.

- **Show All** Shows all the menu items in the menu.
- **Show Basic** Shows only the Device home menu item.
- **Expand All** Shows every menu and submenu.
- **Collapse All** Shows only the top-level menu items.

Task Bar

The task bar displays information about the page you are on and provides associated tasks. All task bar icons, as well as other icons, have labels that are displayed when you roll over the icon with your mouse pointer.

Any icon used in a procedure is referenced by the rollover label; for example, **Create New** is the rollover label for the following icon:



Table 3-1 describes the icons available in the CDSM.

Table 3-1 CDSM Icons

Icon	Function
	Activates all inactive Service Engines.
	Displays devices.
	Displays left-panel menu.
	Deactivates the device.
	Updates application statistics.
	Forces refresh of replication information or process content changes.
	Goes back to Replication Status page.
	Forces full database update.
	Forces settings on SEs in group.
	Forces the group settings.

Table 3-1 CDSM Icons (continued)

Icon	Function
	Views read-only items.
	Creates a new item.
	Edits an item.
	Deletes an item.
	Adds a content item for acquisition.
	Deletes a selected item.
	Manages between host and proxy servers for content acquisition.
	Saves to disk.
	Views complete URL (+) or view (-) partial URL that is used to acquire content.
	Exports a table to a comma-separated value (CSV) file.
	Creates a filtered table. Filter the table based on the field values.
	Displays a graph.
	Applies the default settings to the device.
	Overrides the group settings on the device.
	Views all table entries. Click this icon to view all entries after you have created a filtered table.
	Refreshes the table.
	Reboots the device.
	Prints the current window.
	Copies a program.

Table 3-1 CDSM Icons (continued)

Icon	Function
	Previews a program.
	Assigns all items to the entity.
	Removes all items from the entity.
	Indicates that the current transaction was successfully completed.
	Indicates that user input is invalid and that the transaction did not finish.

Configuring Primary and Standby CDSMs

The Internet Streaming CDSM can operate in two different roles: primary and standby. The primary role is the default. You can have only one primary CDSM active in your network; however, you can have any number of CDSMs operating in a standby role to provide redundancy and failover capacity. You must configure the primary CDSM first. See *Cisco Content Delivery Engine 205/220/250/420 Hardware Installation Guide* for information on configuring the primary CDSM.



Note

The primary and standby CDSMs must be running the same version of software. You must upgrade your standby CDSM first, and then upgrade your primary CDSM.

If the primary CDSM is down, the devices (SE and SR) cannot send regular reports and events to it, so the data is sent to the standby CDSM. After the primary CDSM is online, the database on the standby CDSM is synchronized with the database on the primary CDSM.

To configure a standby CDSM, do the following using the CLI:

-
- Step 1** Follow the instructions for configuring a CDSM using the setup utility, except do not enter the IP address of the CDSM. The instructions can be found in the *Cisco Content Delivery Engine 205/220/250/420 Hardware Installation Guide*.
- Step 2** Configure the standby CDSM.
- ```
CDE(config)# cdsm role standby
```
- Step 3** Identify the IP address of the primary CDSM.
- ```
CDE(config)# cdsm ip 10.1.1.90
```
- Step 4** Start the Centralized Management System (CMS).
- ```
CDE(config)# cms enable
```
- Step 5** Save the configuration.
- ```
CDE# copy running-config startup-config
```
- Step 6** Activate the standby CDSM by using the web interface of the primary CDSM.

The primary CDSM notifies all registered devices that a standby CDSM exists and sends each device the information it needs to contact the standby should the primary fail or become inactive.

**Note**

You cannot log in to the web interface of the standby CDSM. Its function is to maintain an up-to-date copy of the primary's database.

Changing a Standby to a Primary CDSM

**Note**

If your primary CDSM is still operating, you must change its role to standby by executing the **cdsm role standby** command before following these steps. You can only have one primary CDSM operating at any given time.

**Note**

To change the standby CDSM to become the primary, do the following:

- Step 1** If your primary CDSM has failed, enter the following command:
- ```
CDE(config)# cdsm role primary
```
- Step 2** Save the configuration.
- ```
CDE# copy running-config startup-config
```
- Step 3** Restore the old primary CDSM, if possible.
- Step 4** When the old primary CDSM is restored, change its role to standby.
- ```
cdsm role standby
```
- Step 5** Reconnect the old primary CDSM (now standby CDSM) into the CDS network.
- Step 6** Wait at least one polling interval to allow the data from the primary CDSM to be copied to the standby CDSM.

**Note**

During this period, do not make any configuration changes.

- Step 7** When the new primary CDSM and the new standby CDSM have synchronized, you can change the roles of the CDSMs back to their original roles.

**Note**

There can only be one primary CDSM in a CDS at one time. If there are two primary CDSMs, both CDSMs are halted.

To do this, do the following:

- a. Change the role of the primary CDSM to standby.
 

```
cdsm role standby
```
- b. Change the role of the standby CDSM to primary.

```
cdsd role primary
```

**Note**

If you have recently made configuration changes to the primary CDSM, wait at least the polling interval before changing roles to ensure that the standby has a record of the most recent configuration changes.

## Recovering from Two Primary CDSMs

If you did not change the primary CDSM to standby before you changed the standby CDSM to primary, you will have two primary CDSMs in your CDS and both will be halted. To restore both CDSMs, do the following:

- Step 1** Make sure the CDSM that is to be designated as the standby is in fact the standby by entering the **cdsd role standby** command.
- Step 2** Initiate the CMS on the standby CDSM by entering the **cms enable** command.
- Step 3** Make sure the CDSM that is to be designated as the primary is in fact the primary by entering the **cdsd role primary** command.
- Step 4** Initiate the CMS on the primary CDSM by entering the **cms enable** command.
- Step 5** Make sure the standby CDSM is activated by using the web interface of the primary CDSM.

## Typical Configuration Workflow

Once you have completed activating and configuring the NTP servers for all the devices in the CDSM, you are ready to configure the CDS for content delivery. For information about activating and configuring the NTP servers for a device, see the [“Activating and Setting NTP for Each Device” section on page 3-3](#).

[Table 3-2](#) lists the basic tasks for configuring the CDS for content delivery, with references to the associated sections in each chapter.

**Table 3-2 Configuration Workflow**

| <b>Task</b>                                        | <b>Description</b>                                                                                                         | <b>Where to Find More Information</b>                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Change admin password                              | Change the administrator password on each device, including the CDSM, and change the administrator password for the system | Log in to the CLI for the device and use the <b>username admin password &lt;password&gt;</b> global configuration command.<br><br>The password strength must be a combination of alphabetic characters, at least one number, at least one special character, and at least one uppercase character.<br><br>To change the password for the CDSM GUI and CLI, go to “ <a href="#">Creating, Editing, and Deleting Users</a> ,” page 6-2 |
| Configure Dedicated Management with Redundant Port | Separate management traffic from application traffic, and configure a redundant port for management                        | “ <a href="#">Configuring Port Channel</a> ,” page J-6                                                                                                                                                                                                                                                                                                                                                                               |
| Create Device Groups                               | Group like devices to speed up configuration                                                                               | “ <a href="#">Configuring Device Groups</a> ,” page 4-4                                                                                                                                                                                                                                                                                                                                                                              |
| Configure RCP                                      | Configure Remote Copy Protocol (RCP) to listen for requests on TCP port 514                                                | “ <a href="#">Enabling RCP</a> ,” page 4-62                                                                                                                                                                                                                                                                                                                                                                                          |
| Configure FTP                                      | Enable FTP services to listen for connection requests                                                                      | “ <a href="#">Enabling FTP Services</a> ,” page 4-61                                                                                                                                                                                                                                                                                                                                                                                 |
| Configure Web Engine                               | For all SEs participating in delivering content                                                                            | “ <a href="#">Configuring Web Engine HTTP Cache Freshness</a> ,” page 4-44                                                                                                                                                                                                                                                                                                                                                           |
| Configure Windows Media Engine                     | For all SEs participating in delivering Windows Media content                                                              | Begins with “ <a href="#">Configuring Windows Media Streaming—General Settings</a> ,” page 4-37                                                                                                                                                                                                                                                                                                                                      |
| Configure Movie Streamer                           | For all SEs participating in delivering MPEG or MOV content                                                                | “ <a href="#">Configuring Movie Streamer—General Settings</a> ,” page 4-40                                                                                                                                                                                                                                                                                                                                                           |
| Configure Flash Media Streaming                    | For all SEs participating in delivering Flash Media Streaming content                                                      | “ <a href="#">Configuring Flash Media Streaming—General Settings</a> ,” page 4-42                                                                                                                                                                                                                                                                                                                                                    |
| Create Coverage Zone File                          | Map SEs to client service areas by IP address or geographic location                                                       | Appendix C, “ <a href="#">Creating Coverage Zone Files</a> ”                                                                                                                                                                                                                                                                                                                                                                         |
| Import or Upload Coverage Zone File                | Apply Coverage Zone mappings to CDS                                                                                        | “ <a href="#">Coverage Zone File Registration</a> ,” page 6-12                                                                                                                                                                                                                                                                                                                                                                       |
| Configure Global Routing Method                    | Set the Coverage Zone file                                                                                                 | “ <a href="#">Configuring Global Routing</a> ,” page 6-13                                                                                                                                                                                                                                                                                                                                                                            |
| Configure Routing Method                           | Configure the routing method used by SRs                                                                                   | “ <a href="#">Configuring the Service Router</a> ,” page 4-95                                                                                                                                                                                                                                                                                                                                                                        |
| Configure Content Origins                          | Define all origin servers that are used in delivery services                                                               | “ <a href="#">Content Origins</a> ,” page 5-1                                                                                                                                                                                                                                                                                                                                                                                        |

**Table 3-2 Configuration Workflow (continued)**

| <b>Task</b>                         | <b>Description</b>                                                               | <b>Where to Find More Information</b>                  |
|-------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------|
| Create Delivery Service Definitions | Create delivery services for both prefetched or cached content and live programs | <a href="#">“Creating Delivery Service,” page 5-14</a> |
| Create Live Programs                | Create live programs, or rebroadcasts and schedules                              | <a href="#">“Configuring Programs,” page 5-40</a>      |

