Administration Tasks for Internal Directory Mode

This chapter describes the Cisco CNS Configuration Engine 1.4 administration tasks for Internal Directory mode including information about:

Levels of Access

In Internal Directory mode, there are two categories of users who have access to device information:

- Administrator
- Operator

An Administrator has the higher access level of the two categories; full access to device and user information. An Operator has access to only order entry and operator password-related tasks.

For example, an Administrator can access all the functional areas of the user interface. Whereas, an Operator only has access to Order Entry and Tools functions.

How to Login and Out of the System

You can connect to the system by means of:

- SSH
- System console

How to Login

To login to the system, follow these steps:

Step 1   Launch your web browser.

This user interface is best viewed using Microsoft Internet Explorer, version 5.5 or later.

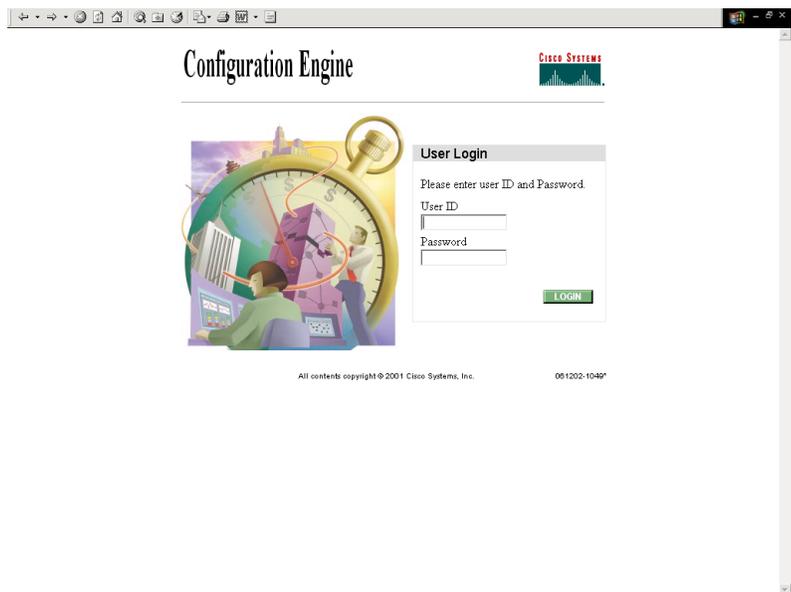**Step 2**   Go to the Cisco CNS Configuration Engine 1.4 URL.

For example: **http://**<*ip_address*>

✎
Note   If encryption is set during Setup (see "Encryption Settings" section on page 2-6), use **https://**<*ip_address*>.

The login window appears (see Figure 2-1).

Figure 2-1   Logging In to the Configuration Server

Step 3   Enter your **User ID**.

This is the value for the **ConfigService AdminID** parameter that you entered during **Setup**.

Step 4   Enter your password.

Step 5   Click **LOGIN**.

For an Administrator, the full-function Cisco CNS Configuration Engine 1.4 Home page appears (see Figure 2-2).

For an Operator, a limited-function Cisco CNS Configuration Engine 1.4 Home page appears where the active tabs are **Home**, **Order Entry**, and **Tools** (see Figure 2-3).
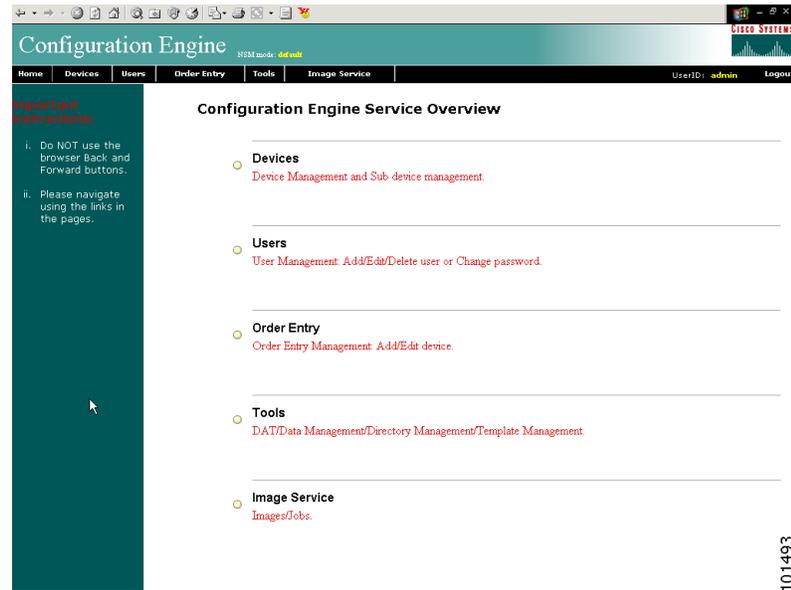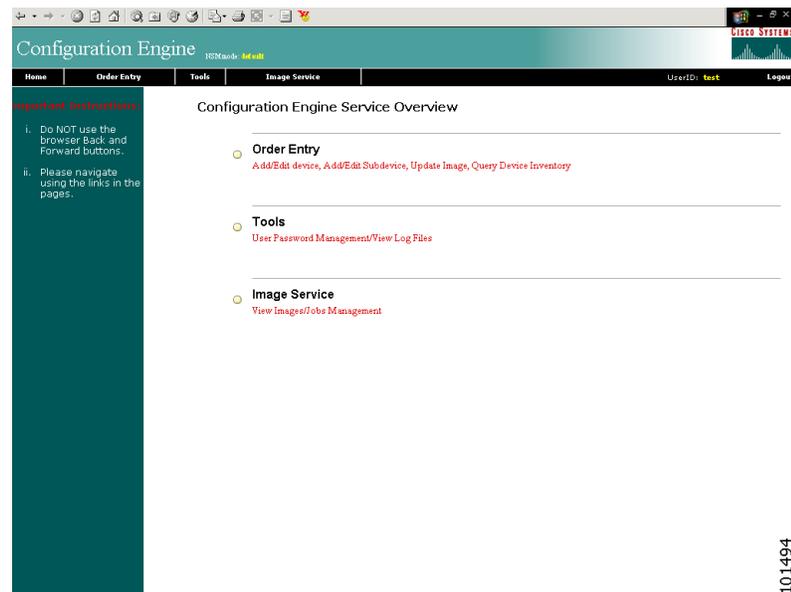
Figure 2-2   Administrator Home Page

Figure 2-3   Operator Home Page

How to Log Out

To log out of the system, click the **Logout** button.

Operator-Level Operations

After logging into the Cisco CNS Configuration Engine 1.4, an Operator has access to the following functions:

- Order Entry
    - New Order
    - Edit Order
    - Subdevice Order
    - Update Image
    - Query Device Inventory
- Tools
    - Change Password
    - View Event Log
    - View Image Server Log
- Image Service
    - View Image
    - Query Job
   - Cancel/Stop Job
    - Restart Job

Device Configuration Order Entry

The order entry functions of creating a new device configuration order, editing an existing order, and managing subdevice orders are available to both Administrator and Operator.

To conduct device configuration order entry operations as an Operator, follow these steps:

Step 1   From the Home page, click **Order Entry**.

The Order Entry page appears (see Figure 2-4).

Step 2   To add and edit device configuration orders, see "Device Configuration Order Entry" section on page 2-36.

Figure 2-4   Order Entry for Operator-Level User
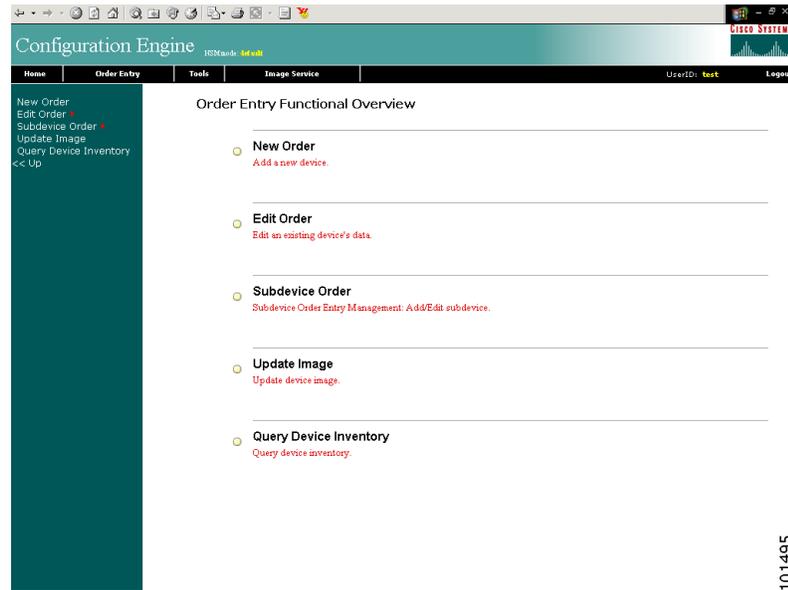
How to Change or Reset a Password at the Operator Level

Under tools, an Operator has access to the password editor (for changing or resetting only their own password), and the event log.

To change or reset a password at the operator level, click **Tools**.

The password editor appears (see Figure 2-5).

Figure 2-5   Operator Password Editor

Step 1   Enter your old password.

Table 2-1 lists valid values for these fields.

Table 2-1   Valid Values for Change Password by Operator

Attribute	Description	Valid Values
Old Password	Password	Printable characters with a length of 6 – 12
New Password	Password	Printable characters with a length of 6 – 12
Confirm Password	Password	Printable characters with a length of 6 – 12

Step 2   Enter your new password.

Step 3   To confirm your new password, enter it again.

Step 4   To save your changes, click **Save**.

Step 5   To return to the Tools main menu, click the **Tools** tab.

How to View the Event Log

As an operator, to view the Event Log, click **Tools** -> **View Event Log**.

The Event Log control panel appears (see Figure 2-6)

Figure 2-6   Operator-Level Event Log Control Panel

Table 2-2   Valid Values for View Event Log by Operator

Attribute	Description	Valid Values
Device/Group	Name of device or group.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Status Filter	View complete Event Log, or just Failure Events or Warning Events.	Check Box

Table 2-2   Valid Values for View Event Log by Operator (continued)

Attribute	Description	Valid Values
Any other Filter		a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Number of lines	Default = 25	

CNS Image Service

Under **Image Service**, an Operator can view available images (see "How to View an Image" section on page 2-77) and perform tasks on image update operations the same as an administrator (see "Working with Image Update Jobs" section on page 2-84).

Administrator-Level Operations

In Internal Directory mode, an Administrator can access all of the functions provided by the Cisco CNS Configuration Engine 1.4 user interface including managing user accounts and devices.

Managing Devices

To begin managing devices, follow these steps:

Step 1   Login to the system (see "How to Login and Out of the System" section on page 2-1).

Step 2   From the Home page, click on the **Devices** tab.

A functional overview of the device administration options appears (see Figure 2-7).

Figure 2-7   Device Administration Overview
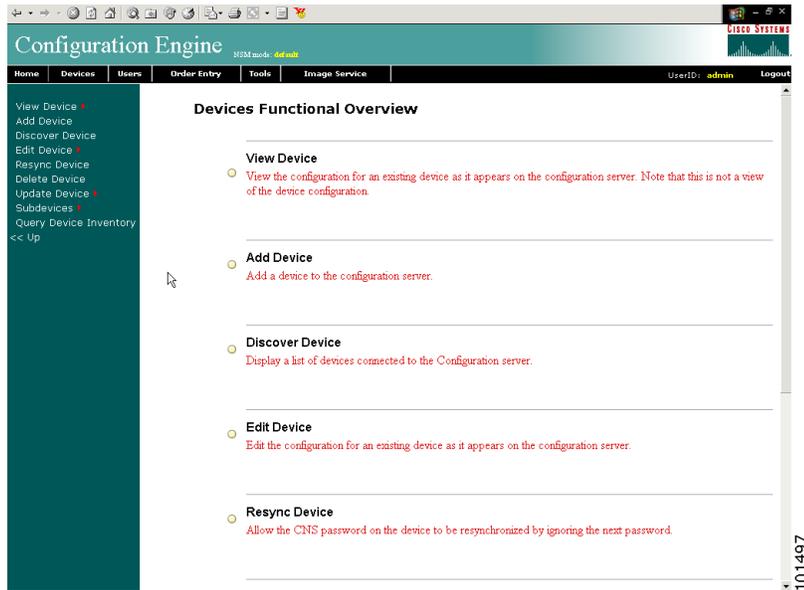
How to View Device Configuration

To view a device configuration, follow these steps:

Step 1   From the Devices Functional Overview page, click **View Device**.

The Device List page appears (see Figure 2-8).

Figure 2-8   View Device List

Step 2   Click on the icon for the device configuration you wish to view.

The Configuration for that device appears (see Figure 2-9).

Figure 2-9   Device Configuration

Device: Device1

```
 1   version 12.0
 2   service timestamps debug uptime
 3   service timestamps log uptime
 4   no service password-encryption
 5   service udp-small-servers
 6   service tcp-small-servers
 7   hostname DemoRouter
 8   boot system flash c7200-is-mz
 9   enable secret 5 $1$cMdI$.e37TH540MWB2GW5gMOn3/
10   enable password cisco
11   ip subnet-zero
12   interface FastEthernet0/0
13   no ip address
14   no ip directed-broadcast
15   no ip route-cache
16   no ip mroute-cache
17   shutdown
18   half-duplex
19   interface Ethernet1/0
20   ip address 10.10.1.1 255.255.255.240
21   no ip directed-broadcast
22   no ip route-cache
23   no ip mroute-cache
24   interface Ethernet1/1
25   no ip address
26   no ip directed-broadcast
27   no ip route-cache
28   no ip mroute-cache
29   shutdown
30   interface Ethernet1/2
31   no ip address
32   no ip directed-broadcast
33   no ip route-cache
```

✎ **Note**   The device configuration displayed is the configuration as it appears at the configuration server. It may not be the configuration running on the device.

Step 3   To view subdevices (if applicable), in the left pane, click **View Subdevices.**

Step 4   To view Images associated with this device (if applicable), in the left pane, click **View Images**.

Step 5   To return to the Devices main menu, click on the **Devices** tab.

How to Add a Device

To add the logical appearance of a device to the configuration server, follow these steps:

Step 1   From the Devices Functional Overview page, click **Add Device**.

The Device Information page appears (see).

Figure 2-10   Device Information Page

Step 2   Enter a valid value (no spaces) in the **Device Name** field.

Table 2-3 list valid values for these attributes.

Table 2-3   Valid Values for Add Device

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Unique ID	Unique ID of the device.	Default or a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Device Type	Type of device	From drop-down list
Template File Name	Name of the configuration template to associate with the device.	From drop-down list
Group	Names of groups with which this device can be associated.	From drop-down list

Step 3   In the **Unique ID** field, accept the default value that appears or enter another valid value (no spaces).

Step 4   Select a device type from the drop-down list.

Step 5   Choose a template file.

To use a template on your Cisco CNS Configuration Engine 1.4:

a.   Choose **Select file**.

b.   Use the drop-down list to choose a template.

OR

To use an external template:

a. Choose **Enter URL**.

b. Enter the full URL for the server, directory, and filename where the template is stored. Currently, only **http** is supported.

c. To test access to the external template, click **Test URL**.

If the server is unavailable or the external template cannot be accessed, an error appears. You can still save this logical device, but the template is not available until you have access to the external template.

Step 6 Choose a group.

Tip Use the Group Manager under DAT (see "How to Add a Group" section on page 4-15) to set up groups before you add a device.

Step 7 To cancel creating a device and return to the Devices main menu, click **Cancel**.

Step 8 To return to the Devices main menu and cancel creating a device, click on the **Devices** tab.

Step 9 To continue creating IDs for this device, click **Next**.

If the Device Type is not Pix, the Create Device page for adding device IDs appears (see Figure 2-12).

If the Device Type is Pix, the Pix Password page appears (see Figure 2-11).

Step 10 If applicable, enter an authentication password for Pix device, otherwise skip to Step 11.

Table 2-4   Valid Values for Change Password by Operator

Attribute	Description	Valid Values
Authentication Password	Password	Printable characters with a length of 6 – 12
Confirm AuthenticationPassword	Password	Printable characters with a length of 6 – 12

Figure 2-11   Pix Password Page

■ **Administrator-Level Operations**

Figure 2-12   Device IDs Page

Create Device

Step 2: Enter Device CNS IDs

Event ID: (required)	Device4
Config ID: (required)	Device4
Image ID: (optional, use to create a CIS Device)	Device4

Back | Next | Finish | Cancel

101502

Step 11 For the **Event ID**, accept the default value that appears or enter another value.

Table 2-5 list valid values for these attributes.

Table 2-5   Valid Values for Add Device

Attribute	Description	Valid Values
Event ID	Event ID to associated with this device.	Default, or a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Config ID	Configuration ID to associated with this device.	Default, or a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Image ID	Image ID to associated with this device.	Default, or a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 12 For the **Config ID**, accept the default value that appears or enter another value.

Step 13 For the Image ID, if you are using configuration service only, leave this field blank.

To use image service this parameter must be specified.

Step 14 To cancel creating a device and return to the Devices main menu, click **Cancel**.

Step 15 If applicable (modular router), choose subdevices.

Step 16 To go back to the previous page, click **Back**.

Step 17 To finish creating this device at this point, click **Finish**.

Step 18 To continue creating Image associations for this device, click **Next**.

The Create Device page for adding Image associations appears (see Figure 2-13).

Figure 2-13   Create Device Image Association

Step 19 In Step 3 on the page, select the image from the **Name** drop-down list.

The **Image Type** field and **Image Location** drop-down box are populated with corresponding information for the image.

Step 20 From the **Image Location** drop-down list, select the desired location.

Step 21 To add another row for image location, click **Add Another Row**.

You can locate multiple copies of an image on separate servers. This allows you to do load-sharing when updating a large number of devices. Each device in a large group can be associated with a copy of the image located at one of many server locations.

Step 22 In the Destination field, enter a valid URL where the image will be copied.

For example:

disk0:/c7200-mz

Step 23 To indicate which image is to be activated on the device after distribution, select the radio button in front of each row.

Step 24 In Step 4, on the page, select the Configuration Control template file you want to send to this device for activation of a new image:

Tip Use the Configuration Control template that contains the CLI commands required for image activation for this device (see "Configuration Control Template" section on page 2-22). If you do not have such a template, see "How to Add a Template" section on page 2-65.

a. To select a template file from the drop-down list, click the **Select file** radio button.

b. Use the drop-down list to choose a template file.

OR

To use an external template:

a. Choose **Enter URL**.

b. Enter the full URL for the server, directory, and filename where the template is stored. Currently, only **http** is supported.

c. To test access to the external template, click **Test URL**.

If the server is unavailable or the external template cannot be accessed, an error appears. You can still save this logical device, but the template is not available until you have access to the external template.

Step 25 To cancel creating a device and return to the Devices main menu, click **Cancel**.

Step 26 To go back to the previous page, click **Back**.

Step 27 To finish creating this device, click **Finish**.

How to Edit a Device

To edit information associated with a particular device, follow these steps:

Step 1 From the Devices Functional Overview page, click **Edit Device**.

Step 2 From the Edit Device page, click on the icon for the device you wish to edit.

The device configuration appears with a menu of edit functions in the left pane (see Figure 2-14).

Figure 2-14   Device Configuration

Step 3   From the left pane, choose the edit function you want to use.

Step 4   To go back to the Device List page, in the left pane, click **<< Up**.

Step 5   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Device Information

To edit device information, follow these steps:

Step 1   From the Edit Device page, click **Edit Information**.

The device information editor page appears. For devices other than PIX, see Figure 2-15. For PIX device, see Figure 2-16.

Figure 2-15   Device Information Editor

Figure 2-16   Device Information Editor for PIX Device

Step 2   To modify the device name, enter a valid value (no spaces) in the **Device Name** field.

Table 2-6   Valid Values for Edit Device

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Unique ID	Unique ID of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Authentication Password	Password	Printable characters with a length of 6 – 12
Device Type	Type of device	From drop-down list
Template File Name	Name of the configuration template to associate with the device.	From drop-down list

Step 3   To modify the Unique ID, enter a valid value (no spaces) in the **Unique ID** field.

Step 4   Modify the template file as required.

Step 5   To revert to the existing values, click **Reset**.

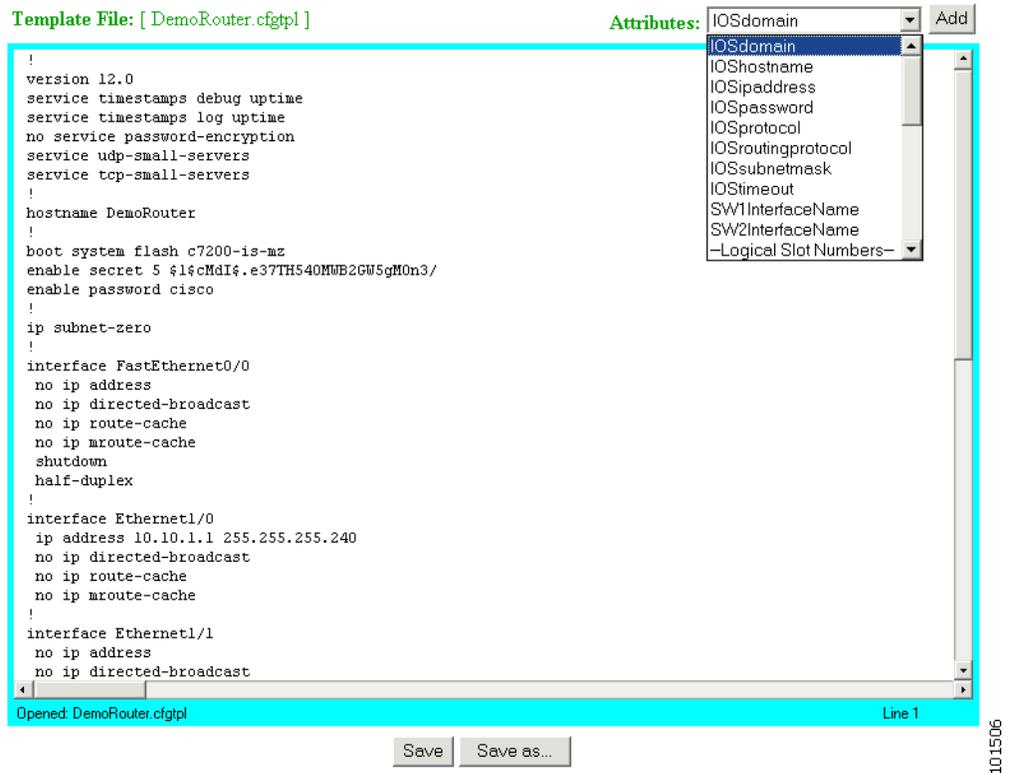**Step 6**   To update device information, click **Modify**.

Step 7   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Device Templates

To edit a device template, follow these steps:

Step 1   From the Edit Device page, click **Edit Template**.

The template editor appears (see Figure 2-17).

Figure 2-17   Template Editor

Step 2   In the **Attributes** field, click the drop-down arrow.

Step 3   Choose the attribute you wish to add to the template, then click **Add**.

Step 4   Repeat Steps 2 and 3 for all attributes you wish to add to the template file.

Step 5   Delete all unusable strings from the template file.

Step 6   Edit strings as necessary.

The default multi-line begin and end tags are **^[** and **^]** respectively. The delimiter for these tags are: ~ ! @ ^ & * - = |. Do not use # or %.

For example, a multi-line test banner might be:

```
banner exec ^[*
    This is a Test Banner
    1. Hi
    2. Hello
    3. Test is 1234567890*
^]
```

Step 7   To save your edits, click **Save**.

Step 8   To save this version as a new template, click **Save as**.

Step 9   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Device Parameters

To edit device parameters, follow these steps:

Step 1   From the Edit Device page, click **Edit Parameter**.

The parameters editor appears.

Step 2   Edit all active lines as required.

Step 3   To save your edits, click **Save Parameters**.

Step 4   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Contact Information

To edit contact information related to the physical location of a device, follow these steps:

Step 1   From the Edit Device page, click **Edit ContactInfo**.

The contact information appears.

Step 2   Edit all active fields as required.

Step 3   To clear your entries, click **Reset**.

Step 4   To save your edits, click **Update**.

Step 5   To return the to the Devices main menu, click on the **Devices** tab.

How to Edit Subdevices

For complete information about working with subdevices, including editing, see "Working with Subdevices" section on page 2-23.

How to Edit Image Association Information

To edit image information associated with a device, follow these steps:

Step 1   From the Edit Device page, click **Edit Images**.

The Edit Device Image page appears.

Step 2   Edit image and configuration information as required.

Step 3   To revert to the previous state, click **Cancel**.

Step 4   To complete this task, click **Finish**.

How to Resynchronize a Device

If the cns_password of a device becomes corrupted so that there is a mismatch between the device and the corresponding password information help in the directory, you can resynchronize the device with the CNS Configuration Engine 1.4 by using the Resync Device function.

To resynchronize a device, follow these steps:

Step 1   From the Devices Functional Overview page (see Figure 2-7), click **Resync Device**.

Step 2   From the Resync Device page, click on the icon for the device you wish to re-synchronize.

> **Note**   PIX devices will not be visible on this page.

Step 3   In the confirmation window that appears, click **Ok**.

Step 4   To return to the Devices main menu, click on the **Devices** tab.
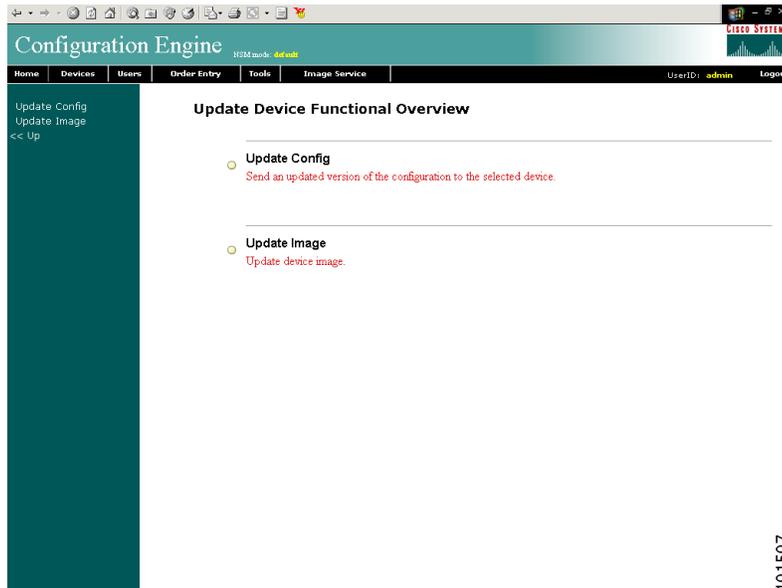
How to Delete a Device

To delete the logical appearance of a device from the configuration server, follow these steps:

Step 1   From the Devices Functional Overview page (see Figure 2-7), click **Delete Device**.

Step 2   From the Delete Device page, click **View**.

Step 3   Click the check box for the device(s) you wish to delete.

Step 4   Click **Next**.

A list of devices selected for deletion appears.

Step 5   To abandon this task at this point, in the left pane, click **<< Up**.

Step 6   To continue, click **Delete**.

Step 7   To return to the Devices main menu, click on the **Devices** tab.

How to Update Device Configuration and Image

To send an updated version of the configuration or a new image to a device, from the Devices Functional Overview page, click **Update**. The Update Device Functional Overview page appears (see Figure 2-18).

Figure 2-18   Update Device

How to Update Device Configuration

To update a device configuration, complete the following steps:

Step 1 From the Update Device Functional Overview page, click **Update Config**.

Step 2 To update all the devices in a particular group(s), click the check box next to the icon for the desired group(s).

Step 3 To update the configuration for certain devices, from the Update Device Config page, click **View**.

Step 4 Click the check box next to the icon for the device(s) you wish to update.

✎

Note   PIX devices will not be visible on this page.

Step 5 Click **Next**.

The update task dialog box appears (see Figure 2-19)

Figure 2-19   Update Task

Step 6 Choose the **Config Action** task you require.

• Write – applies the configuration without causing it to persist in NVRAM.

- Persist – applies the change and causes it to persists in NVRAM.

Step 7   If required, check the **Syntax Check** check-box.

Step 8   Click **Update Device via Event**.

Step 9   To return to the Devices main menu, click on the **Devices** tab.

How to Update Device Image

To update a device image, complete the following steps:

Step 1   From the Update Device Functional Overview page, click **Update Image**.

Step 2   To update all devices in a particular group, click the check box for the desired group.

Step 3   To update the image for a certain device, from the Update Device Image page, click **View**.

Step 4   Click the check box next to the icon for the device(s).

✎
Note   PIX devices will not be visible on this page.

Step 5   Click **Submit**.

The Update Image page appears (see)

Figure 2-20   Update Image

Step 6   To distribute the image, click the check box for **Distribute Image**.

Step 7   To activate the image, click the check box for **Activate Image**.

💡
Tip   All three agents (event, partial config, and image) must be running on the device for the activation process to succeed.

✎
Note   For the image to become active on the device, you must have a Configuration Control template associated with this device that contains the CLI commands for image activation (see "Configuration Control Template" section on page 2-22).

Step 8   To update the image immediately, click the radio button for **Immediate**.

Step 9   To update the image at a specified time in the future, click the radio button for **At a future time**:

    a.   Enter a time value.

    b.   Enter a date value.

Step 10   Set the **Device Batch Size**.

This is the number of concurrent image updates. This feature allows you to limit the number of concurrent requests to a server. When one batch of image update requests has been satisfied, then next batch starts.

✎
Note   If you are running a device image update session to a mix of IMGW and agent devices, the effective device batch size limit for IMGW devices—concurrent Telnet session limit—is equal to the value (default = 20) set for this attribute in the **Setup** program (refer to the *Cisco CNS Configuration Engine 1.4 Installation & Setup Guide For Linux*).

Step 11   If applicable, enter a text description of the job.

Step 12   To perform an evaluation rather than an actual update, click the check box at the bottom of this pane.

Step 13   To abandon this task, on the Update Image page, click **Cancel**.

Step 14   To continue, complete the steps called for, then click **Update.**

The Update Image Status page appears (see Figure 2-21). You can use this Job ID to perform job-related tasks (see "Image Update Jobs" section on page 2-83).

Figure 2-21   Job ID for Update Image

Update Image Status

Device Name	Distributed Image(s)	Activated Image(s)
Device2	image3 image2	image2

Your request has been assigned the job id: 1062710890226

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Step 15   To return to the Devices main menu, click on the **Devices** tab.

Configuration Control Template

To restart a device with a new image, you need to issue the CLI commands that you would normally enter from the device console to activate a new image.

For example, if you want to restart a Cisco 3600 Series router with an image named *3600.image*, from the device console, you would issue the following CLI commands:

no boot system
boot system flash:3600.image

Because you are using the CNS 2100 Series system running the CNS Configuration Engine 1.4 application to update and activate a new image on a device, you need to provide the device with a Configuration Control template that contains the required CLI commands for image activation.

If you do not have such a template, see "How to Add a Template" section on page 2-65. Also, you must associate this Configuration Control template with the particular device (see Step 24 under "How to Add a Device").

The content of the Configuration Control template for image activation should contain the CLI commands that you would normally enter from the device console to activate a new image on the device.

Working with Subdevices

A subdevice is a configuration object for network modules in a modular router. When working with subdevices, it is very important to pick the correct type of interface card or module.

To work with subdevices, from the Devices Functional Overview page, click **Subdevices**.

The Subdevices Functional Overview page appears (see Figure 2-22).

Figure 2-22   Subdevices
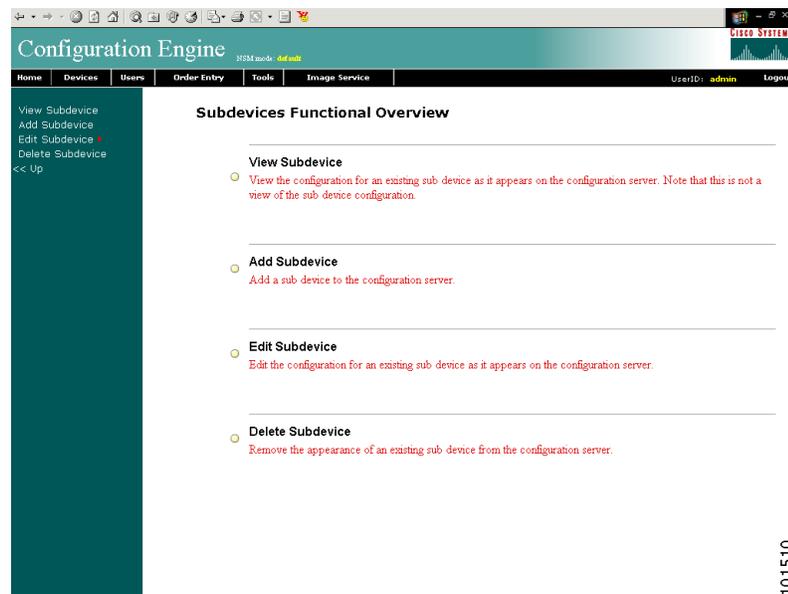
How to View Subdevices

To view subdevices, follow these steps:

Step 1   From the Subdevices Functional Overview page, select **View Subdevice**.

The list of subdevices appears (see Figure 2-23).

Figure 2-23   View Subdevice

Step 2   Click on the icon for the device configuration you wish to view.

The Configuration for that device appears.

✎

Note   The subdevice configuration displayed is the configuration as it appears at the configuration server. It may not be the configuration running on the subdevice.

Step 3   To return to the Devices main menu, click on the **Devices** tab.

How to Add Subdevices

To add the logical appearance of a subdevice to the configuration server, follow these steps:

Step 1   From the Subdevices Functional Overview page, click **Add Subdevice**.

The Subdevice Information page appears (see Figure 2-24).

Figure 2-24   Subdevice Information Page

Step 2   Enter a valid value (no spaces) in the **Device Name** field.

Table 2-7   Valid Values for Add Subdevice

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
ConfigID	Configuration ID attribute of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Device Type		From drop-down list
Template File Name	Name of the configuration template to associate with the device.	From drop-down list
Group	Names of groups with which this device can be associated.	From drop-down list

Step 3 Accept the default value that appears or enter another valid value (no spaces) in the **Config ID** field.

Step 4 From the **Device Type** drop-down list, choose the type of device to which this subdevice is associated.

Device type is the name of the network module as defined in the Cisco product catalog (price list).

Step 5 Choose a template file.

To use a template on your Cisco CNS Configuration Engine 1.4:

a. Choose **Select file**.

b. Use the drop-down list to choose a template.

OR

To use an external template:

a. Choose **Enter URL**.

b. Enter the full URL for the server, directory, and filename where the template is stored. Currently, only **http** is supported.

c. To test access to the external template, click **Test URL**.

If the server is unavailable or the external template cannot be accessed, an error appears. You can still save this logical subdevice, but the template is not available until you have access to the external template.

Step 6 Choose a group.

Step 7 To clear your entries, click **Reset**.

Step 8 To add this device, click **Add**.

Step 9 To return to the Devices main menu, click on the **Devices** tab.

How to Edit Subdevices

To edit information associated with a particular subdevice, follow these steps:

Step 1   From the Subdevices Functional Overview page, click **Edit Subdevice**.

Step 2   From the Edit Subdevice page, click on the icon for the subdevice you wish to edit.

The subdevice configuration appears with a menu of edit functions in the left pane.

Step 3   From the left pane, choose the edit function you want to use.

Step 4   To go back to the Device List page, in the left pane, click **<< Up**.

Step 5   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Subdevice Information

To edit subdevice information, follow these steps:

Step 1   From the Edit Subdevice page, click **Edit Information**.

The subdevice information editor dialog box appears (see Figure 2-25).

Figure 2-25   Device Information Editor

Step 2   To modify the device name, enter a valid value (no spaces) in the **Device Name** field.

Table 2-8   Valid Values for Modify Subdevice

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
ConfigID	Configuration ID attribute of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Device Type		From drop-down list
Template File Name	Name of the configuration template to associate with the device.	From drop-down list

Step 3 To modify the ConfigID, enter a valid value (no spaces) in the **Config ID** field.

Step 4 To modify the device type, choose the appropriate device.

Step 5 To modify the template filename, choose a new template filename.

Step 6 Modify the template file as required.

Step 7 Use the Arrow buttons to modify the status of subdevices attached to this device.

Step 8 To clear your entries, click **Reset**.

Step 9 To update device information, click **Modify**.

Step 10 To return to the Devices main menu, click on the **Devices** tab.

How to Edit Subdevice Template

To edit a device template, follow these steps:

Step 1 From the Edit Subdevice page, click **Edit Template**.

The template editor appears.

Step 2 In the **Attributes** field, click the drop-down arrow.

Step 3 Choose the attribute you wish to add to the template, then click **Add**.

Step 4 Repeat Steps 2 and 3 for all attributes you wish to add to the template file.

Step 5 Delete all unusable strings from the template file.

Step 6 Edit strings as necessary.

The default multi-line begin and end tags are **^[** and **^]** respectively. The delimiter for these tags are: ~ ! @ ^ & * - = |. Do not use # or %.

A multi-line test banner might be:

```
banner exec ^[*
    This is a Test Banner
    1. Hi
    2. Hello
    3. Test is 1234567890*
^]
```

Step 7   To save your edits, click **Save**.

Step 8   To save this version as a new template, click **Save as**.

Step 9   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Subdevice Parameters

To edit subdevice parameters, follow these steps:

Step 1   From the Edit Subdevice page, click **Edit Parameter**.

The parameters editor appears.

Step 2   Modify parameters values as required.

Step 3   To save your edits, click **Save Parameters**.

Step 4   To return to the Devices main menu, click on the **Devices** tab.

How to Edit Contact Information

To edit contact information related to the physical location of a device, follow these steps:

Step 1   From the Edit Device page, click **Edit ContactInfo**.

The contact information appears.

Step 2   Edit all active fields as required.

Step 3   To clear your entries, click **Reset**.

Step 4   To save your edits, click **Update**.

Step 5   To return the to the Devices main menu, click on the **Devices** tab.

How to Delete Subdevices

To delete the logical appearance of a subdevice from the configuration server, follow these steps:

Step 1   From the Subdevices Functional Overview page (see Figure 2-22), click **Delete Device**.

The Delete Subdevice page appears (see Figure 2-26).

Figure 2-26   Delete Subdevice

Step 2   To delete all subdevices in a group, check the group.

Step 3   To delete certain subdevices in a group, click **View**.

Step 4   From the list, check the subdevices you wish to delete.

Step 5   To proceed, click **Next**.

A status page appears indicating that the subdevice has been selected for deletion (see Figure 2-27).

Figure 2-27   Delete Subdevice

Step 6   To delete this subdevice, click **Delete**.

Step 7   To return to the Devices main menu, click on the **Devices** tab.

How to Query Device Inventory

You can use the Query Device Inventory feature to get a reports from devices about:

- Running image information
- Hardware information
- File system list

To query device inventory follow these steps:

Step 1   From the Devices Functional Overview page, click **Query Device Inventory**.

The Query Device Inventopry screen appears (see Figure 2-28).

Figure 2-28   Query Device Inventory

Step 2   Check the device(s) for which you want to get an inventory report(s), then click **Submit**.
Device inventory report(s) appear (see Figure 2-29)

Figure 2-29   Device Inventory Report

Step 3   To return to the Devices main menu, click on the **Devices** tab.

How to Manage User Accounts

To begin managing user accounts, follow these steps:

Step 1   Login to the system (see "How to Login and Out of the System" section on page 2-1).

Step 2   From the Home page, click on the **Users** tab.

A functional overview of the user administration options appears (see Figure 2-30).

Figure 2-30   User Administration Overview
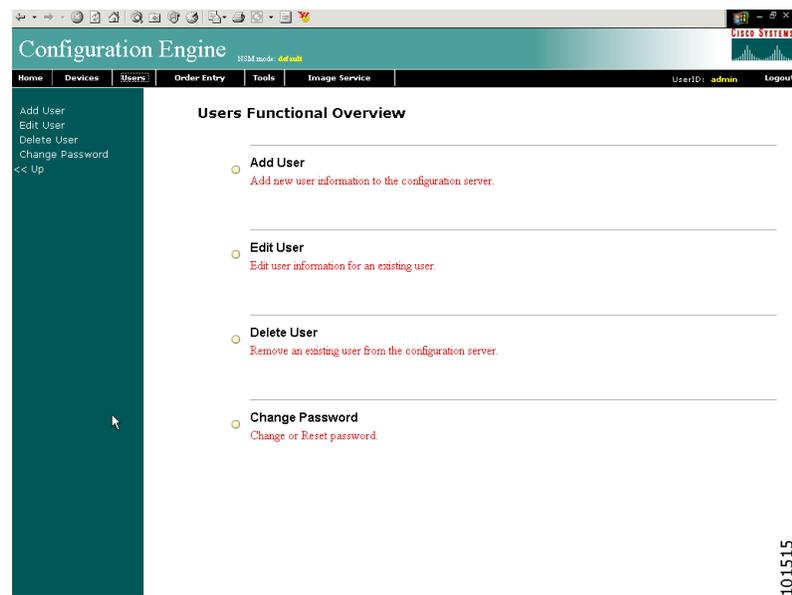
How to Add a User Account

To add a user account, follow these steps:

Step 1   From the User Administration page, click **Add User**.

The User Information dialog box appears (see Figure 2-31).

Figure 2-31   User Information

Step 2   Enter a valid value (no spaces) in the **UserID** field.

Table 2-9 lists valid values for these fields.

Table 2-9   Valid Values for Add User Account

Attribute	Description	Valid Values
UserID	ID that allows user to login to the user interface.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Password	Password	Printable characters with a length of 6 – 12
Confirm Password	Password	Printable characters with a length of 6 – 12
Last Name	Last name of registered user.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
First Name	First name of registered user.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 3   Enter a password in the **Password** field.

Step 4   Confirm the password by entering it again in the **Confirm Password** field.

Step 5   Enter the user's last name in the **Last Name** field.

Step 6   Enter the user's first name in the **First Name** field.

Step 7   In the Group pane, click the radio button that classifies the privilege level (**Administrator**, **Operator**) of this user.

Step 8   To clear your entries, click **Reset**.

Step 9   To save your entries, click **Save**.

Step 10   To return to the Users main menu, click on the **Users** tab.

How to Edit a User Account

To edit a user account, follow these steps:

Step 1   From the User Administration page, click **Edit User**.

A list of users appears (see Figure 2-32).

Figure 2-32   User List
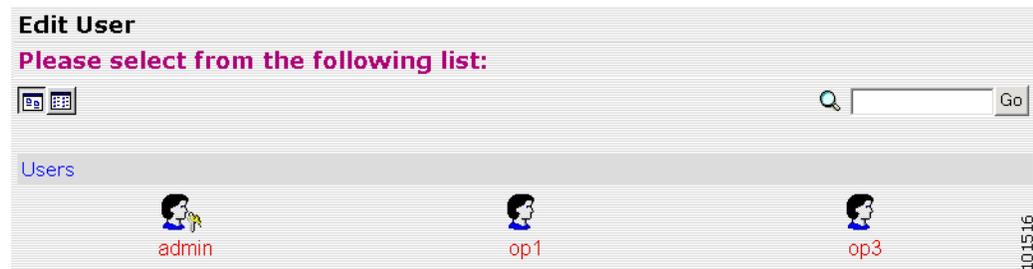
Step 2   From the User List, click on the icon for the user account you wish to edit.

Note   Administrator-level users are shown with a key icon associated with the figure icon.

The User Information page appears (see Figure 2-33).

Figure 2-33   User Information

Step 3   To modify the user ID, enter a valid value (no spaces) in the **UserID** field.

Table 2-10 list valid values for these fields.

Table 2-10   Valid Values for User Information

Attribute	Description	Valid Values
UserID	ID that allows user to login to the user interface.	Information only
Password	Password	Printable characters with a length of 6 – 12
Confirm Password	Password	Printable characters with a length of 6 – 12
Group	Administrator or Operator level	Radio Button

Step 4   To modify the user's last name, edit the **Last Name** field.

Step 5   To modify the user's first name, edit the **First Name** field.

Step 6   To modify the user group status, click the appropriate radio button in the **Group** pane.

Step 7   To clear your entries, click **Reset**.

Step 8   To save your entries, click **Save**.

User information update status appears (see Figure 2-34).

Step 9   To return to the Users main menu, click on the **Users** tab.

Figure 2-34   User Information Update Status

How to Delete a User Account

To delete a user account, follow these steps:

Step 1   From the User Administration page, click **Delete User**.

Step 2   From the user list (see Figure 2-32), click on the icon for the user account you wish to delete.

Step 3   To return to the Users main menu, click on the **Users** tab.

How to Change or Reset a User Password

To change or reset a user password, follow these steps:

Step 1   From the User Administration page, click **Change Password**.

The Change Password dialog box (see Figure 2-35) appears.

Figure 2-35   Change Password

Step 2   Enter the **UserID** for the user account password you want to change or reset.

Table 2-11 lists valid values for these fields.

Table 2-11   Valid Values for Change Password by Administrator

Attribute	Description	Valid Values
UserID	ID that allows user to login to the user interface.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Password	Password	Printable characters with a length of 6 – 12
Confirm Password	Password	Printable characters with a length of 6 – 12

Step 3   Enter the new password in the **New password** field.

Step 4   Enter the new password again in the **Confirm password** field.

Step 5 To clear your entries, click **Reset**.

Step 6 To save the new password, click **Edit**.

Step 7 To return to the Users main menu, click on the **Users** tab.

How to Change Account Privilege Level

To change the privilege level of a user account, follow these steps:

Step 1 From the User Administration page, click **Edit User**.

Step 2 Choose the user in question from the user list (see Figure 2-32).

The User Information page appears (see Figure 2-36).

Figure 2-36   User Information

Step 3 In the Group pane, click the radio button that classifies the privilege level (Administrator, Operator) of this user.

Step 4 To clear your entries, click **Reset**.

Step 5 To save your entries, click **Save**.

Step 6 To return to the Users main menu, click on the **Users** tab.

Device Configuration Order Entry

To conduct device configuration order entry tasks, from the Home page, click the **Order Entry** tab. The Order Entry page appears (see Figure 2-37).

Figure 2-37   Device Configuration Order Entry
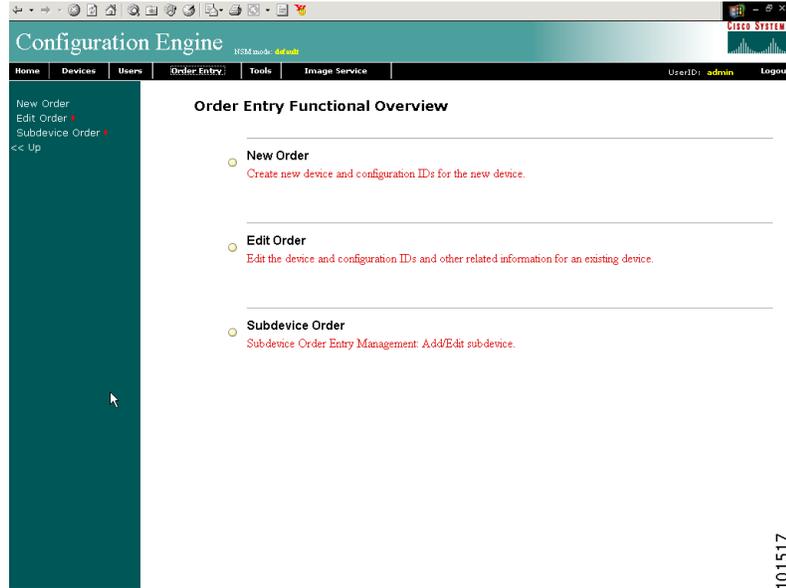
How to Enter an Order for a New Device Configuration

To enter a new device configuration order, follow these steps:

Step 1   From the Order Entry Functional Overview page, click **New Order**.

The order information dialog box appears (see Figure 2-38).

Figure 2-38   New Device Configuration Order

Step 2 Enter a valid value (no spaces) in the **Device Name** field.

Table 2-12 list valid values for these fields.

Table 2-12   Valid Values for Order Entry New Device

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
CNS EventID	Event ID attribute of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
CNS ConfigID	Configuration ID attribute of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Template File Name	Name of the configuration template to associate with the device.	From drop-down list
Subdevices Available	List of modular router subdevices available for this device.	From list
Subdevices Attached	List of modular router subdevices attached to this device.	From list
Group	Names of groups with which this device can be associated.	From drop-down list

Step 3 Enter a valid value (no spaces) in the **Event ID** field.

Step 4 Enter a valid value (no spaces) in the **Config ID** field.

Step 5 Choose a template file.

To use a template on your Cisco CNS Configuration Engine 1.4:

a. Choose **Select file**.

b. Use the drop-down menu to choose a template.

OR

To use an external template:

a. Choose **Enter URL**.

b. Enter the full URL for the server, directory, and filename where the template is stored. Currently, only **http** is supported.

c. To test access to the external template, click **Test URL**.

If the server is unavailable or the external template cannot be accessed, an error appears. You can still save this logical device, but the template is not available until you have access to the external template.

Step 6   Choose a group.

Tip   Use the Group Manager under DAT (see "How to Add a Group" section on page 4-15) to set up groups before you add a device.

Step 7   To clear your entries, click **Reset**.

Step 8   To add this device, click **Add**.

Confirmation page appears.

Step 9   Click **Update Contact Information**.

Contact information page appears.

Step 10   To update contact information, fill in all applicable field.

Step 11   To clear your entries, click **Reset**.

Step 12   To continue, click **Add**.

Confirmation page appears.

Step 13   Click **Edit Parameters**.

If there are parameters in the configuration template, they appear. Otherwise, skip.

Step 14   Enter values for parameters.

Step 15   Click Apply Template.

A confirmation page appears.

Step 16   To save, but not apply, click **Save**.

Step 17   To save and apply, **Save and Apply**.

Step 18   To clear your entry, click **Reset**.

Step 19   To return to the Order Entry main menu, click on the **Order Entry** tab.

Editing an Existing Configuration Order

To edit an existing configuration order, follow these steps:

Step 1   From the Order Entry Functional Overview page, click Edit Order.

The Edit Order page appears (see Figure 2-39).

Step 2   Click on the icon for the device configuration order you wish to edit.

The device configuration order editor appears with a menu of edit functions in the left pane.

Figure 2-39   Edit Order Device List

How to Edit Existing Order Information

To edit existing order information, follow these steps:

Step 1   From the Order Editor page, click Edit Information.

The order information dialog box appears.

Step 2   To modify the device name, enter a valid value (no spaces) in the **Device Name** field.

Step 3   To modify the EventID, enter a valid value (no spaces) in the **Event ID** field.

Step 4   To modify the ConfigID, enter a valid value (no spaces) in the **Config ID** field.

Step 5   To modify the template filename, choose a new template filename.

Step 6   Modify the template file as required.

Step 7   To clear your entries, click **Reset**.

Step 8   To save your edits, click **Modify**.

Step 9   To return to the Order Entry main menu, click on the **Order Entry** tab.

How to Edit Parameters

To edit parameter for an order, follow these steps:

Step 1   From the Order Editor page, click **Edit Parameters**.

The parameter editor appears (see Figure 2-40).

Figure 2-40   Parameter Editor

Step 2   Edit the value(s) of all applicable fields.

Table 2-13 list valid values for these fields.

Table 2-13   Valid Values for List of Parameters for Device

Attribute	Description	Valid Values
Parameter Name	Name of parameter set for the device	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 3   To save, but not apply, click **Save**.

Step 4   To save and apply, **Save and Apply**.

Step 5   To clear your entry, click **Reset**.

A parameter save and apply status page appears.

Figure 2-41   Parameter Save Status

Step 6   Use the radio buttons to choose a Config Action, then click **Update Device via Event**.

Step 7   To return to the Order Entry main menu, click on the **Order Entry** tab.

How to Edit Contact Information

To edit contact information for an existing order, follow these steps:

Step 1   From the Order Editor page, click **Edit ContactInfo**.

The contact information appears (see Figure 2-42).

Figure 2-42   Contact Information (Partial View)

Step 2   Edit all active fields as required.

Table 2-14 list valid values for these fields.

Table 2-14   Valid Values for Contact Information

Attribute	Description	Valid Values
All Fields	Contact information fields	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 3   To clear your entries, click **Reset**.

Step 4   To save your edits, click **Update**.

Step 5   To return the to the Order Entry main menu, click on the **Order Entry** tab.

Managing Subdevice Configuration Orders

To enter new subdevice configuration orders or edit existing ones, from the Order Entry page, click **Subdevice Order**. The subdevice order entry page appears (see Figure 2-43).

Figure 2-43   New Subdevice Order Entry
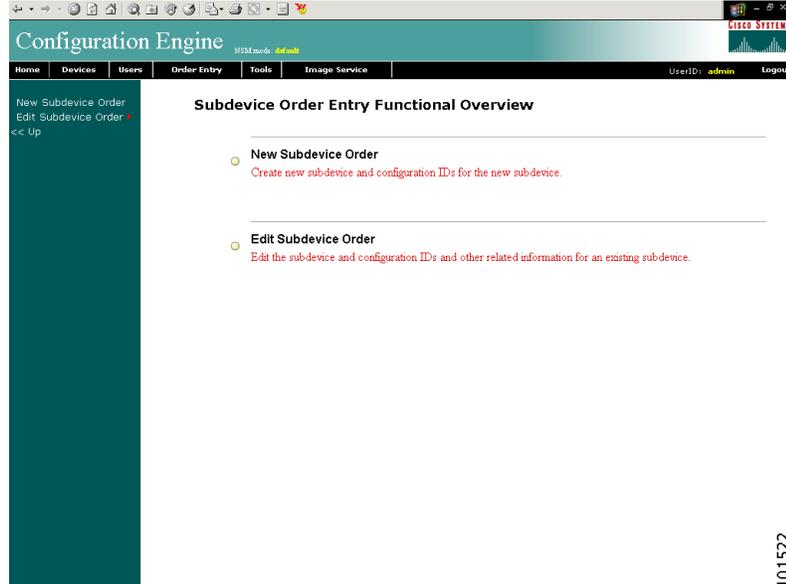
How to Enter an Order for a New Subdevice Configuration

To enter an order for a new subdevice configuration, follow these steps:

Step 1   From the Subdevice Order page, click **New Subdevice Order**.

The subdevice information page appears (see Figure 2-44).

Figure 2-44   New Subdevice Order Entry Information

Step 2   Enter a valid value (no spaces) in the **Device Name** field.

Table 2-15 list valid values for these fields.

Table 2-15   Valid Values for Add Subdevice

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Config ID	Unique ID of the device.	Default or a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Device Type	Type of device	From drop-down list
Template File Name	Name of the configuration template to associate with the device.	From drop-down list
Group	Group to which this subdevice belongs.	From drop-down list

Step 3 Accept the default value that appears or enter another valid value (no spaces) in the **Config ID** field.

Step 4 From the **Device Type** drop-down menu, choose the type of device to which this subdevice is associated.

Step 5 Choose a template file.

To use a template on your Cisco CNS Configuration Engine 1.4:

a. Choose **Select file**.

b. Use the drop-down list to choose a template.

OR

To use an external template:

a. Choose **Enter URL**.

b. Enter the full URL for the server, directory, and filename where the template is stored. Currently, only **http** is supported.

c. To test access to the external template, click **Test URL**.

If the server is unavailable or the external template cannot be accessed, an error appears. You can still save this logical subdevice, but the template is not available until you have access to the external template.

Step 6 Choose a group.

Step 7 To clear your entries, click **Reset**.

Step 8 To add this device, click **Add**.

Step 9 To return to the Order Entry main menu, click on the **Order Entry** tab.

How to Edit an Existing Order for a Subdevice Configuration

To edit an existing order for a new subdevice configuration, follow these steps:

Step 1   From the Subdevice Order page, click **Edit Subdevice Order**.

Step 2   From the Subdevice List page, click on the icon for the subdevice you wish to edit.

The subdevice configuration appears with a menu of edit functions in the left pane (see Figure 2-45).

Figure 2-45   ESubdevice Order

How to Edit Subdevice Information

To edit subdevice information, follow these steps:

Step 1   From the Edit Subdevice page, click **Edit Information**.

The subdevice information editor dialog box appears (see Figure 2-46).

Figure 2-46   Subdevice Information Editor

Step 2   To modify the device name, enter a valid value (no spaces) in the **Device Name** field.

Table 2-16 list valid values for these fields.

Table 2-16   Valid Values for Edit Subdevice

Attribute	Description	Valid Values
Device Name	The name used as **cn** (common name) of the device.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Config ID	Unique ID of the device.	Default or a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Device Type	Type of device	From drop-down list
Main Device	Device in which this subdevice resides.	From drop-down list
Template File Name	Name of the configuration template to associate with the device.	From drop-down list

Step 3   To modify the ConfigID, enter a valid value (no spaces) in the **Config ID** field.

Step 4   To modify the device type, choose the appropriate device.

Step 5   To modify the template filename, choose a new template filename.

Step 6   Modify the template file as required.

Step 7   Use the Arrow buttons to modify the status of subdevices attached to this device.

Step 8   To clear your entries, click **Reset**.

Step 9   To update device information, click **Modify**.

Step 10   To return to the Order Entry main menu, click on the **Order Entry** tab.

How to Edit Subdevice Parameters

To edit subdevice parameters, follow these steps:

Step 1   From the Edit Subdevice page, click **Edit Parameter**.

The parameters editor appears.

Step 2   Modify parameters values as required.

Step 3   To save your edits, click **Save Parameters**.

Step 4   To return to the Order Entry main menu, click on the **Order Entry** tab.

How to Edit Contact Information

To edit contact information related to the physical location of a device, follow these steps:

Step 1   From the Edit Device page, click **Edit ContactInfo**.

The contact information appears.

Step 2   Edit all active fields as required.

Step 3   To clear your entries, click **Reset**.

Step 4   To save your edits, click **Update**.

Step 5   To return the to the Order Entry main menu, click on the **Order Entry** tab.

Management Tools

To use the management tools, from the Home page, click on the Tools tab.

The Tools page appears (see Figure 2-47).

Figure 2-47   Management Tools
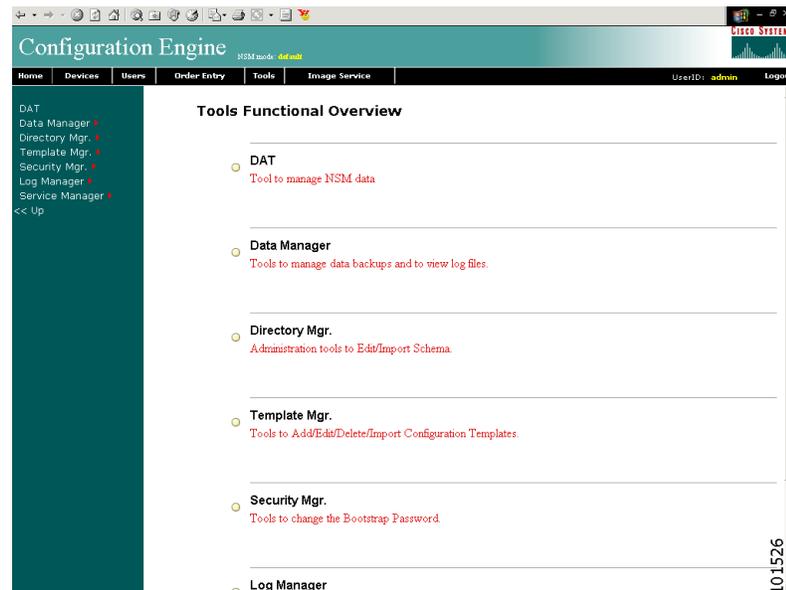
How to Use DAT

To connect to the user interface for the Directory Administration Tool (DAT), follow these steps:

Step 1   From the Tools main menu, click **DAT**.

The login window appears (see Figure 2-48).

Figure 2-48   Directory Administration Tool Login Window
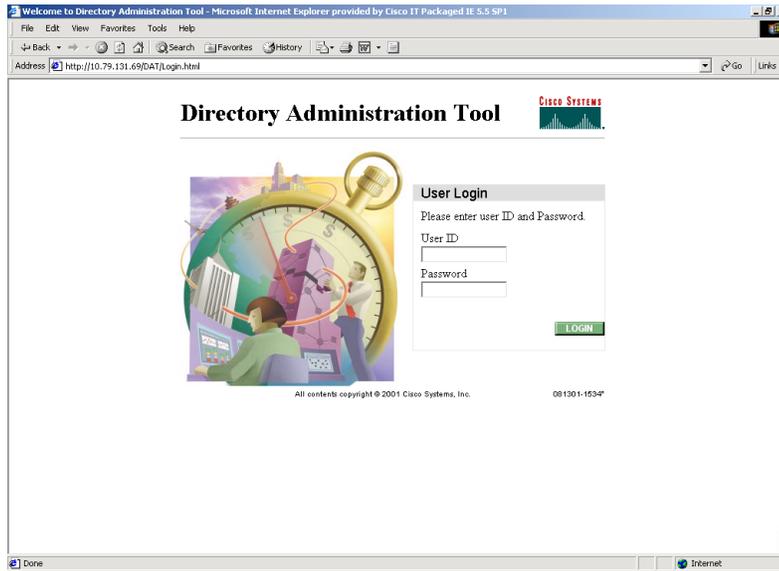
Step 2   Enter your **User ID**.

This is the LDAP proxy user name for the Cisco CNS Configuration Engine 1.4 administrative account that you entered during **Setup**.

Step 3   Enter your LDAP proxy password.

Step 4   Click **LOGIN**.

The Directory Administration Tool Overview page appears (see Figure 2-49).

Figure 2-49   DAT Home Page
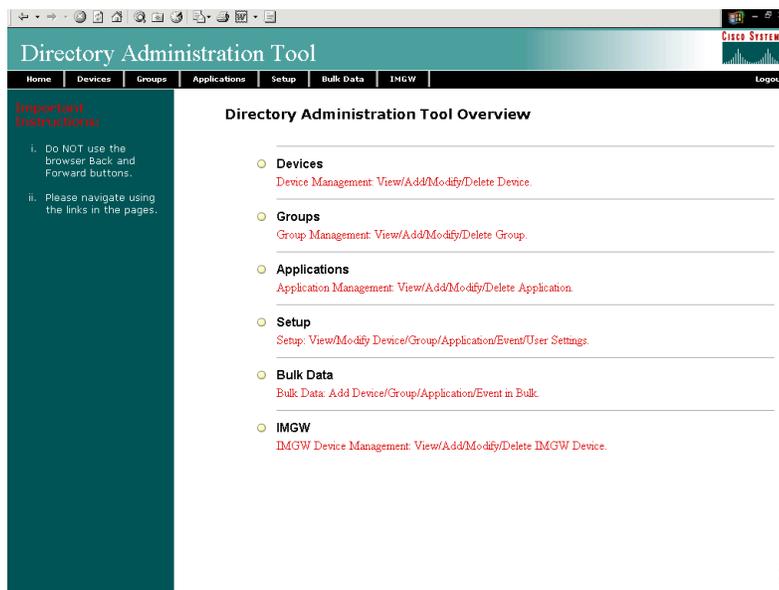
Step 5   From here, go to Chapter 4, "Directory Administration Tool" and follow the procedures for the tasks you want to run.

Managing Data

From the Tools page, click **Data Manager**. The Data Manager page appears (see Figure 2-50).

Figure 2-50   Data Manager
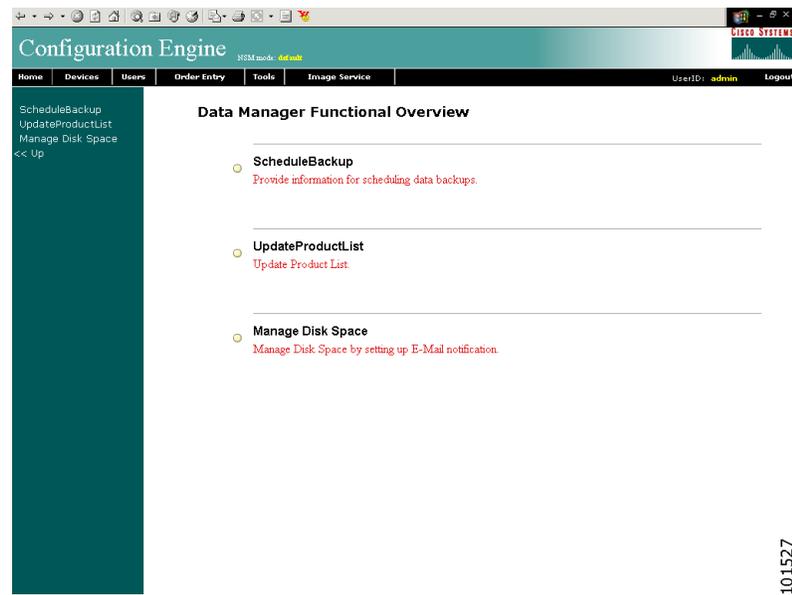
How to Schedule Data Backup

To schedule a data backup, follow these steps:

Step 1   From the Data Manager Overview page, click **ScheduleBackup**.

The backup information dialog box appears (see Figure 2-51).

Figure 2-51   Backup Schedule Parameters

BACKUP SCHEDULE PARAMETERS

Step 2   To specify where you want the backup data to be stored, enter the FTP server name in the **FTP Server Name** field.

Table 2-17 list valid values for these fields.

Table 2-17   Valid Values for Backup Schedule Parameters

Attribute	Description	Valid Values
FTP Server name	Server name where all backup files will be put.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Username	Login username for the FTP server.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Password	Password for FTP server.	Printable characters with a length of 6 – 12
Directory	Subdirectory into which all backup files will be put.	Absolute path

Table 2-17   Valid Values for Backup Schedule Parameters (continued)

Attribute	Description	Valid Values
Enable Log File Management	determines whether files will be deleted from CNS 2100 Series system after backup.	From drop-down list
Backup Schedule	Date and time fields.	As required

Step 3   To specify the username to login to the FTP server, enter a valid username in the **Username** field.

Step 4   To specify the password to use to login to the FTP server, enter a valid value in the **Password** field.

Step 5   To specify the subdirectory where the data file is put, enter the absolute path in the **Directory** field.

Step 6   Choose whether to **Enable Log File Management**.

Step 7   To specify the backup schedule, complete the fields in the **Backup Schedule** pane.

✎
Note   The time base for the CNS 2100 Series system should be set to Coordinated Universal Time (UTC).

Step 8   To cancel the backup operation, click **Cancel**.

Step 9   To start the backup operation, click **Backup**.

Step 10   To return to the Tools main menu, click on the **Tools** tab.

For more information about backup and restore, refer to the *Cisco CNS Configuration Engine 1.4 Installation & Setup Guide For Linux*.

How to Update Product List

The product list is a mapping between product name of the network modules as specified in the pricing list and the numeric identification number stored in EPROM. As new products are added, this list grows and hence the need for the Cisco CNS Configuration Engine 1.4 to update this list whenever new products are added. This list can be downloaded from the Cisco web site at: http://www.cisco.com.

To update the product list, follow these steps:

Step 1   From the Data Manager page, click **Update Product List**.

The Update Product List dialog box appears (see Figure 2-52).

Figure 2-52   Update Product List

Step 2   Select the appropriate download option.

Table 2-18 list valid values for these fields.

Table 2-18   Valid Values for Update Product List

Attribute	Description	Valid Values
Select Download Option	Available download options	Radio Button
URL	Target URL	Valid URL as per RFC 1738.
Username	Your username	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Password	Your password	Printable characters with a length of 6 – 12

Step 3   Enter the target URL.

Step 4   Enter your username and password.

Step 5   To download the product list, click **Download**.

Step 6   To return to the Tools main menu, click on the **Tools** tab.

How to Manage Disk Space

To setup disk space e-mail notification of disk space usage, follow these steps:

Step 1   From the Group Manager page, click **Manage Disk Space**.

The Setup Disk Space Notification dialog box appears (see Figure 2-53).

Figure 2-53   Disk Space Notification

Step 2   Set the notification percentage to the value that triggers an e-mail notification.

Table 2-19 list valid values for these fields.

Table 2-19   Valid Values for Setup Disk Space Notification

Attribute	Description	Valid Values
Set notification percentage	Notification percentage that triggers an e-mail notification.	0 – 100
E-Mail Ids for notification:	E-mail address to send notification.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 3   Set the appropriate e-mail address for notification e-mail.

Step 4   To save these entries, click **Save**.

Step 5   To return to the Tools main menu, click on the **Tools** tab.

How to Manage Directory Content

With the directory manager you can:

- Edit the schema
- Import a schema from an XML file

To use the directory manager tool, click **Directory Mgr**.

The Directory Manager page appears (see Figure 2-54).

Figure 2-54   Directory Manager
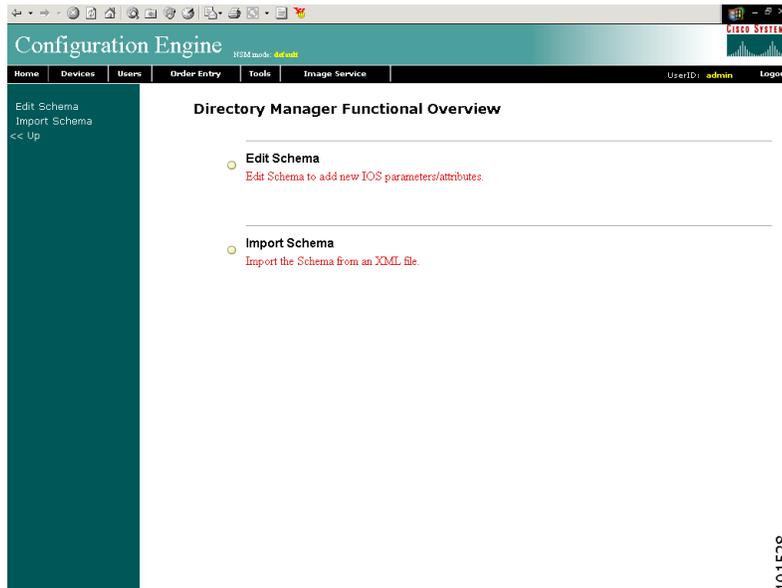
How to Edit the Schema

To edit the schema, follow these steps:

Step 1   From the Directory Manager page, click **Edit Schema**.

The schema editor appears (see Figure 2-55).

Figure 2-55   Schema Editor

Step 2   From drop-down list, select name of class to which attribute belongs.

Table 2-20 list valid values for these fields.

Table 2-20   Valid Values for Schema Editor

Attribute	Description	Valid Values
Name of class to which attribute belongs	Class name to which attribute belongs	From drop-down list
Name of the attribute	Name of the attribute	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Unique ID for this attribute	Unique ID for this attribute	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 3   Enter the name of the new attribute

Step 4   Accept or modify the **Unique ID** for this attribute.

Step 5   To clear your entries, click **Reset**.

Step 6   To add this attribute to the schema, click **Add Entry**.

Step 7   To return to the Tools main menu, click on the **Tools** tab.

How to Import Schema

You can import a schema accessible from your computer. However, the file must be in XML format and conform to the definitions specified in the document type definition (DTD) file shown here:

```
<!-- DTD for DAML           -->
<!-- Last updated: 2000-10-03 -->

<!ELEMENT daml (schema)>

<!-- SCHEMA -->
<!ELEMENT schema (class+,attribute-type+,link*)>

<!-- element types common to class and attribute-type -->

<!ELEMENT class (auxclass*,attribute+)>
<!ATTLIST class
  name      (#PCDATA)    #REQUIRED
  id        ID           #IMPLIED
  superior  IDREF    #IMPLIED
  type      (structural|abstract|auxiliary)  #REQUIRED
  description? #IMPLIED
>

<!ELEMENT auxclass EMPTY>
<!ATTLIST auxclass
  ref  IDREF       #REQUIRED
>
```

```
<!ELEMENT attribute EMPTY>
<!ATTLIST attribute
  ref       IDREF  #REQUIRED
  required  (true|false)  #REQUIRED
>

<!ELEMENT attribute-type EMPTY>
<!ATTLIST attribute-type
  name              (#PCDATA) #REQUIRED
  id                ID        #REQUIRED
  single-value      (true|false) "false"
  syntax            (string|integer|boolean|binary|key) "string"
>

<!ELEMENT link EMPTY>
<!ATTLIST link
  fromclass     IDREF          #REQUIRED
  fromattr      IDREF          #REQUIRED
  toclass       IDREF          #REQUIRED
  toattr        IDREF          #REQUIRED
>
```

For example, a valid schema would look like:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE dsml SYSTEM "dsml.dtd">
<dsml complete="true">
  <directory-schema>
   <attribute-type id="IOSe1ipaddress" single-value="true" obsolete="false"
user-modification="true">
     <name>IOSe1ipaddress</name>
     <object-identifier>1.2.840.113548.3.1.2.20</object-identifier>
     <syntax>string</syntax>
   </attribute-type>
   <class id="IOSConfigClass" superior="top" type="structural" obsolete="false">
     <name>IOSConfigClass</name>
     <object-identifier>1.2.840.113548.3.2.2.1</object-identifier>
     <attribute ref="1.2.840.113548.3.1.2.20" required="false"/>
   </class>
  </directory-schema>
</dsml>
```

To import a schema from an XML file accessible from your computer, follow these steps:

Step 1   From the Directory Manager page, click **Import Schema**.

The import schema dialog box appears (see Figure 2-56).

Figure 2-56 Import Schema

Step 2   Enter the filename of the schema you want to import in the **Schema Filename** field.

Table 2-21 list valid values for these fields.

Table 2-21   Valid Values for Import Schema

Attribute	Description	Valid Values
Schema Filename	Name of schema file to import.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Use the browse function to locate the file, if needed.

Step 3   To clear your entries, click **Reset**.

Step 4   To import the file, click **Import**.

Step 5   To return to the Tools main menu, click on the **Tools** tab.

Templates and Template Management

When creating a template, it is possible to specify variables that will be contextually substituted. Many of these variables are available in the drop-down menu in the Template Editor (see Figure 2-60). It is also possible to create these files offline without the Template Editor and still use these variables.

The basic format of a template file is simply the text of the configuration to be downloaded to your device (see "Sample Template" section on page 2-57). However, you can put variable substitutions of the following form (for example, the variable name could be *iosipaddress*):

```
Internal directory mode:
    ${LDAP://this:attrName=iosipaddress}
External directory mode:
    ${LDAP://10.1.2.3/cn=Device1,ou=CNSDevices,o=cisco,c=us:attrName=iosipaddress}
```

It is possible to create segments of templates that can be included in other templates. For example, you might have an Ethernet configuration that would be used by multiple devices. In each device template, you could have:

```
#include /opt/CSCOcnsie/Templates/ethernet_setup.cfgtpl
```

Now, you could centralize all the administration for Ethernet configuration in one file.

⚠
Caution   Circular includes of template files are not allowed.

Sample Template

The following sample is the configuration template for the DemoRouter (*DemoRouter.cfgtpl*), which is pre-loaded on your system:

```
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
```

```
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname DemoRouter
!
boot system flash c7200-is-mz
enable secret 5 $1$cMdI$.e37TH540MWB2GW5gMOn3/
enable password cisco
!
ip subnet-zero
!
interface FastEthernet0/0
 no ip address
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 shutdown
 half-duplex
!
interface Ethernet1/0
 ip address 10.10.1.1 255.255.255.240
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
!
interface Ethernet1/1
 no ip address
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 shutdown
!
interface Ethernet1/2
 no ip address
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 shutdown
!
interface Ethernet1/3
 no ip address
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 shutdown
!
ip classless
ip route 0.0.0.0 0.0.0.0 10.10.1.1
ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
line con 0
 transport input none
line aux 0
line vty 0 4
 password cisco
 login
!
end
```

Configuration Control Templates

To restart a device with a new image, you need Configuration Control templates that contain the required CLI commands for image activation on particular devices.

For example, if you want to restart a Cisco 3600 Series router with an image named *3600.image*, from the device console, you would issue the following CLI commands:

no boot system
boot system flash:3600.image

The content of the Configuration Control template for image activation should contain the CLI commands that you would normally enter from the device console to activate a new image on the device.

Templates for Modular Routers

The template mechanism for the devices has been enhanced to support modular routers. A modular router chassis includes slots in which you can install modules. You can install any module into any available slot in the chassis. Some modules like 2 Ethernet 2 WAN card slot module can in turn have sub slots to install interface cards or line cards. Device management has been extended to support subdevices representing line cards.

Additional attributes representing line card number, line card type, and subdevices have been added to the existing device object structure in the directory server in order to have the same structure to represent the main device or the subdevice.

Currently, card type is a string that maps to the product code of the network module. Since the EPROM data in the card stores part numbers only, not product codes, the part numbers are mapped to product codes. The user uses part numbers and the configuration server maps part number to product codes.

In the context of main device, the line card number and line card type fields make no sense and hence are set to NULL value. The subdevices field in the sub device (representing the line card) is set to NULL value.

New interface variable support has been added. These variables are included in the templates, which are parameterize with the interface numbers in the template. These are not attributes. They are special format variables that are replaced by the configuration server based on the interface information, which comes from the device. These variables only specify the relative position of the interface on the module and are replaced by the actual slot number, shelf-ID or port number. The interface variables are wrapped in percent sign (%) characters and specify the type, if any, and the relative position. The configuration server replaces these variables with the interface numbers. The interface type still has to be specified in the CLI using the following syntax:

Interface Variable = %[InterfaceType] RelativePosition%

For example:

%FastEthernet 0% for interface FastEthernet

%Serial 0% interface Serial

%T1 0% controller T1

%E1 0% controller E1

%voice-port 0% voice-port

Example 1:

A network module with two FastEthernet ports plugged in Slot 2 would be referred in the configuration CLI as FastEthernet 2/0 and FastEthernet 2/1 and referred in the template as FastEthernet %FastEthernet 0% and FastEthernet %FastEthernet 1%:

```
!
interface FatsEthernet 2/0
    ip address 10.10.1.1 255.255.255.0
!
interface FatsEthernet 2/1
    ip address 20.20.1.1 255.255.255.0
!
```

Templates for these CLIs would be:

```
!
interface FastEthernet %FastEthernet 0%
    ip address 10.10.1.1 255.255.255.0
!
interface FastEthernet %FastEthernet 1%
    ip address 20.20.1.1 255.255.255.0
!
```

Example 2 (Voice card with two ports plugged in slot 3):

```
!
voice-port 3/0/0
    description 4082224444
!
voice-port 3/0/0
    description 4082225555
!
```

Templates for these CLIs would be:

```
!
voice-port  %voice-port 0%
    description 4082224444
!
voice-port %voice-port 1%
    description 4082225555
!
```

The main device template does not include links to the subdevice templates. The subdevice templates are appended to the main device template. The line card number are a parameter in the subdevice templates.

All the CLI commands which reference a line card interface are specified in the subdevice template for that line card. This implies that any command in the global configuration mode, or otherwise, that refers to a particular line card interface is in the template for that subdevice (line card) and not in the main device template.

Only the CLI commands in the global configuration mode, and not pertaining to the any specific interface, are specified in the main device template.

The port number and channel number are not be template parameters since these are fixed for a given line card. The network administrator can configure specific channels on the interfaces by explicitly specifying the channels in the subdevice templates.

For example:

interface Serial %Serial 0%:0

Sample Templates for Modular Router

The names of the attributes for slot, slot-unit, line card type and so forth, are used for demonstration purposes.

Main Device Template

```
!
version 12.2
no parser cache
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname 2600
!
logging rate-limit console 10 except errors
!
memory-size iomem 25
ip subnet-zero
!
!
!
no ip dhcp-client network-discovery
lcp max-session-starts 0
!
ip classless
no ip http server
!
call rsvp-sync
!
no mgcp timer receive-rtcp
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
line con 0
line aux 0
line vty 0 4
 login
line vty 5 15
 login
!
```

Fastethernet Template

```
Interface FastEthernet %FastEthernet 0%

ip address 10.0.0.1 255.0.0.0
shutdown
speed auto
```

Voice-port Template

```
voice-port  %voice-port 0%
playout-delay mode adaptive
!
voice-port %voice-port 1%
!
dial-peer voice 10 pots
destination-pattern 200
port %voice-port 0%
forward-digits all


voice-port  %voice-port 0%
!
dial-peer voice 20 pots
destination-pattern 100
port %voice-port 0%
!
voice-port  %voice-port 1%
```

Modular Router Events

Modular router events are published to the event bus and are accessible to applications connected to the bus. The IOS device publishes the system hardware configuration in the *cisco.cns.config.device-details* event after hardware discovery. The Cisco CNS Configuration Engine 1.4 is configured to listen for this event, retrieve it and extract the hardware configuration of the device.

Following is the DTD of the *cisco.cns.config.device-details* event that the Cisco IOS device sends:

```
<!ELEMENT device-details (config-id, connect-interface?, card-info*>
<!ELEMENT config-id (#PCDATA)>
<!ELEMENT connect-interface (#PCDATA)>
<!ELEMENT card-info (card-info+)>
<!ELEMENT card-info
(card-type,card-desc?,slot,daughter?,serial-number,part-number,hw-version?,board-revision?
,ports?,controller?,rma-number?,test-history?,eeprom-version?,eeprom-data?,interface?,cont
roller?,voice-port?)>
<!ELEMENT card-type (#PCDATA)>
<!ELEMENT card-desc (#PCDATA)>
<!ELEMENT slot (#PCDATA)>
<!ELEMENT daughter (#PCDATA)>
<!ELEMENT serial-number (#PCDATA)>
<!ELEMENT part-number (#PCDATA)>
<!ELEMENT hw-version (#PCDATA)>
<!ELEMENT board-revision (#PCDATA)>
<!ELEMENT ports (#PCDATA)>
<!ELEMENT controller (#PCDATA)>
<!ELEMENT rma-number (#PCDATA)>
<!ELEMENT test-history (#PCDATA)>
<!ELEMENT eeprom-version (#PCDATA)>
<!ELEMENT eeprom-data (#PCDATA)>
<!ELEMENT interface (#PCDATA)>
<!ELEMENT controller (#PCDATA)>
```

```
<!ELEMENT voice-port (#PCDATA)>
```

Dynamic Templates

There may be times when the actual contents of a template needs to be dynamically generated. To do this, you would use the **#call** mechanism. This executes a JavaScript program whose output becomes part of the template. The program is re-executed each time a device asks for the template.

For example, you might want to distribute the load across the various event gateway processes without permanently assigning a device to a particular event gateway. This is useful because of the limit of 500 devices per event gateway daemon instance.

Let us take the following template as an example:

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname DemoRouter
#call /opt/CSCOcnsie/Templates/event_setup.js
```

Here is an example of an *event_setup.js* that one might use:

```
/*
 * An instance of Event Gateway resides on every odd port from 11011 to 11031.
 * This will choose a random one in this range so that devices are spread out
 * evenly among the various ports. Adjust the IP address in the println
 * statement to be the address of the IE2100 itself.
 */
var port = Math.floor(Math.random() * 11) * 2 + 11011;
println("cns event 10.1.6.131 " + port.toString());
```

The result of this combination would be a template that appears as follows:

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname DemoRouter
cns event 10.1.6.131 11017
```

The last line is programmatically determined and recalculated every time the template is requested by the device. So the next time a device requests this template, the last line might be:

```
cns event 10.1.6.131 11023
```

Simple modifications to *event_setup.js* could even be used to distribute devices across multiple CNS 2100 Series devices (by dynamically generating the IP address). It could also be used to affect any part of the device configuration—be it DNS servers or routing tables. Anything that is printed out by the JavaScript program becomes a dynamic part of the template.

Control Structures

The configuration template can include simple control structures such as, *if*, *else* and *elseif*. By using these control structures, the user can include or exclude a block of CLI commands based on a parameter stored in the directory.

The syntax for these **#** preprocessing control structures is as follows:

Syntax Description	**#if** *<URL> = constant*

  cli-command(s)

#elseif *<URL> = constant*

  cli-command(s)

#else

  cli-command(s)

#endif

Where *constant* is an integer, boolean or a string in single quotes and the *<URL>* is a URL pointing to an attribute in the Directory or Database.

Note Nested **#if** and **#elseif** is NOT supported.

Usage Guidelines The configuration template can include **#define** entries to define short names for long URLs.

The syntax for the **#define** preprocessing command is as follows

#define *definition-name <URL> | constant*

where *<URL>* is a reference to an attribute in the directory.

The configuration template can contain another **#** preprocessing command **#include,** which allows the inclusion of other configuration templates or the results of an ASP page.

The syntax for the **#** preprocessing command is as follows:

#include *<URL> | '<Filename>' | <Filename>*

Whenever an **#include** directive is encountered, it is replaced by the content of the file.

The following configuration template sample includes either IP sub-template or ISDN sub-template based on the value of the parameter protocol in the directory or database.

Examples

```
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname ${LDAP://this:attrName=IOShostname}
#if ${LDAP://this:attrName=IOSIPprotocol} = true then
    #include ${LDAP://this:attrName=IPsubTemplate}
```

```
#else
    #include ${LDAP://this:attrName=ISDNsubTemplate}
#endif
```
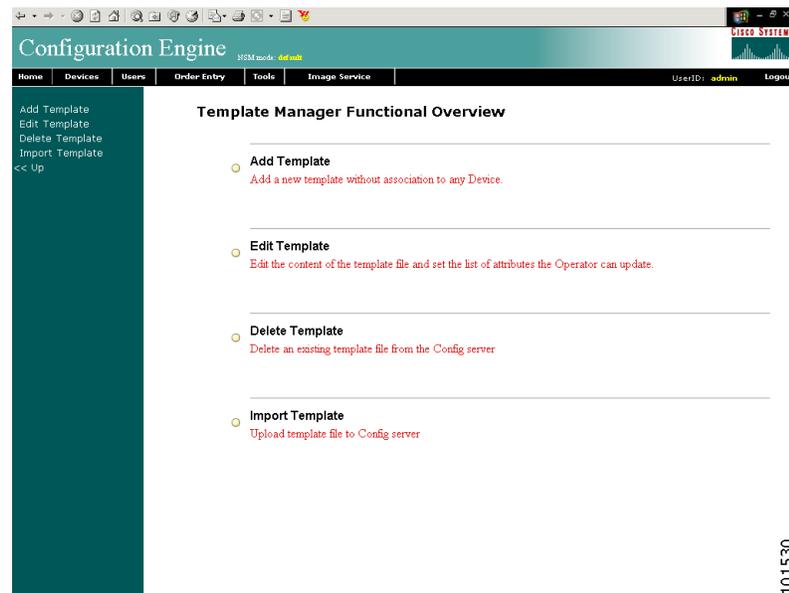
The parameter, `${LDAP://this:attrName=IPsubTemplate}` contains the location of the file.

How to Manage Templates

To use the template manager tool, click **Template Mgr**.

The Template Manager page appears (see Figure 2-57).
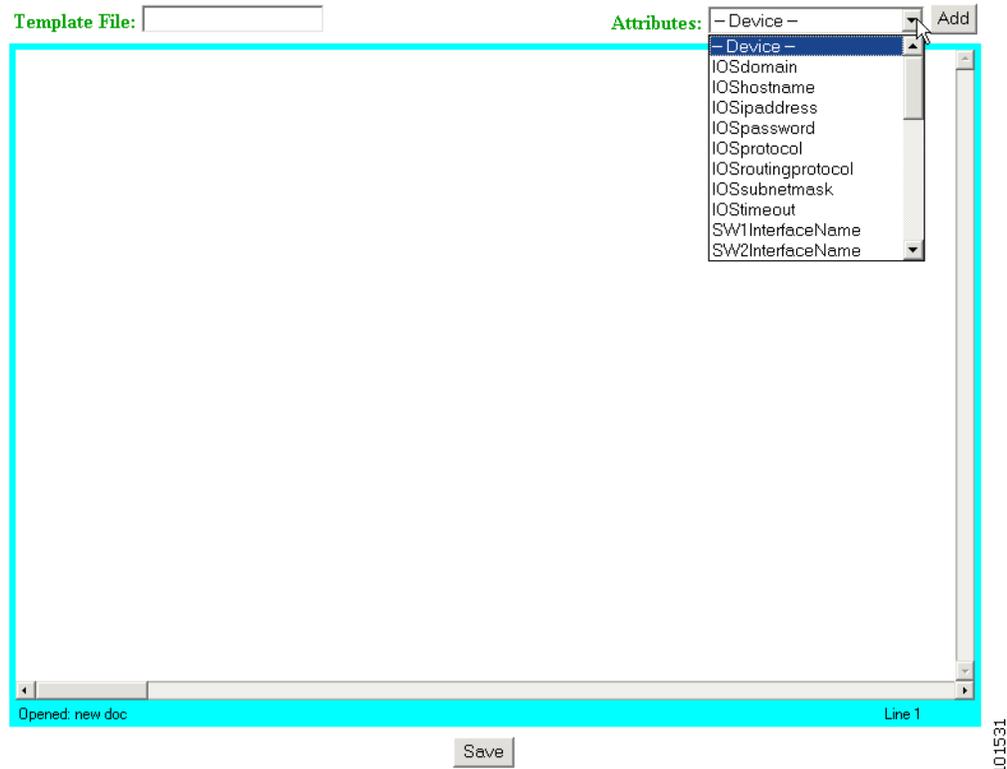
Figure 2-57   Template Manager

How to Add a Template

To add a template to the directory, follow these steps:

Step 1   From the Template Manager page, click **Add Template**.

A blank template page appears (see Figure 2-58).

Figure 2-58   Add Template

Step 2   Enter the filename for this template in the **Template File** field.

Table 2-22 list valid values for these fields.

Table 2-22   Valid Values for Add Template

Attribute	Description	Valid Values
Template File	Filename of template	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Attributes	Available attributes	From drop-down list

Step 3   To choose the attributes you want to be included in this template, use the **Attributes** menu.

Step 4   To save your entries, click **Save**.

Step 5   To return to the Tools main menu, click on the **Tools** tab.

How to Edit a Template

To edit parameters (attribute information) and the content of a template, follow these steps:

Step 1   From the Template Manager page, click **Edit Template**.

The Edit Template list appears (see Figure 2-59).

Figure 2-59   Edit Template List

Step 2   Click on the icon for the template file you wish to edit.

The template file appears.

Step 3   To edit parameters (attribute information), follow these steps:

  a. From the template file page, click **Edit AttributeInfo**.

  b. Edit the desired parameter fields.

   Only selected (see check box) parameters appear in Order Entry.

   The Display Name and Default Value appear when an operator edits parameters by means of Order Entry.

  c. To clear your entries, click **Reset**.

  d. To save your changes, click **Save**.

Step 4   To save and apply, **Save and Apply**.

  e. To return to the Tools main menu, click on the **Tools** tab.

Step 5   To edit template content, follow these steps:

  a. To edit the content of a template, from the template file page, click **Edit Content**.

   The template content appears (see Figure 2-60).

Figure 2-60   Template Content

b.   Edit the content by adding or deleting attributes.

c.   To save your edits, click **Save**.

d.   To save as a new template, click **Save as**.

e.   To return to the Tools main menu, click on the **Tools** tab.

How to Delete a Template

To delete a template, follow these steps:

Step 1   From the Template Manager page, click **Delete Template**.

The template file list appears.

Step 2   Select the template you wish to delete.

Step 3   Delete the desired template file.

Step 4   To return to the Tools main menu, click on the **Tools** tab.

How to Import a Template

To import a template file to the configuration server from another location, follow these steps:

Step 1   From the Template Manager page, click **Import Template**.

Step 2   In the dialog box that appears, enter the name of the template file in the **Filename** field, if known, or browse your directory tree to choose the filename you desire.

Step 3   To clear the field, click **Reset**.

Step 4   To upload the template file, click **Upload**.

Step 5   To return to the Tools main menu, click on the **Tools** tab.

Security Manager

With the security manager tool you can change the bootstrap password.

The bootstrap password is used to authenticate a Cisco IOS device before it connects to the Event Gateway. For additional information see "Authentication settings" section on page 2-7)

To use the security manager tool, from the Tools page, click **Security Mgr**.

The Security Manager page appears (see Figure 2-61).

Figure 2-61   Security Manager
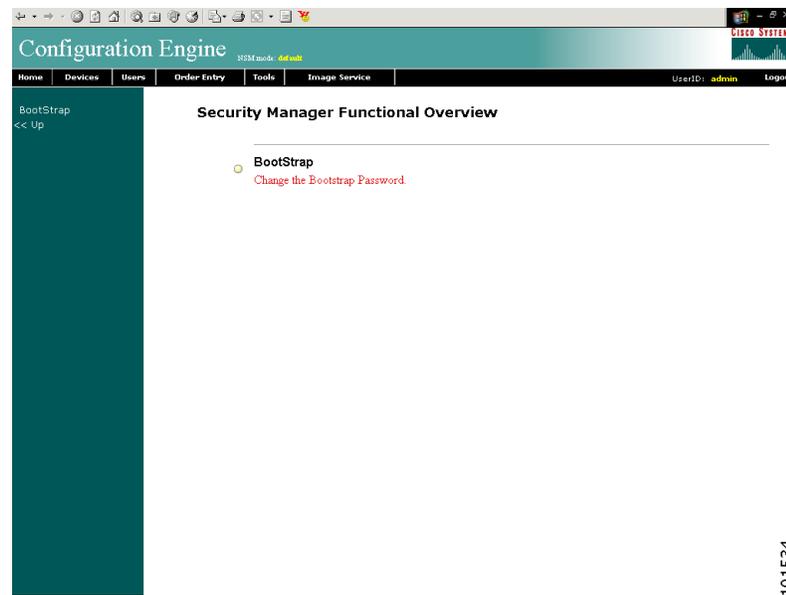
How to Change Bootstrap Password

The bootstrap password is used where multiple devices are deployed in a batch. In this case, all devices in a particular batch are given the same (bootstrap) password to use when they each start up on the network for the first time. The bootstrap password can be changed for different batches of devices by using the Security Manager.

To change the bootstrap password, follow these steps:

Step 1   From the Security Management page, click **BootStrap**.

The Change Bootstrap Password page appears (see Figure 2-62).

Figure 2-62   Change Bootstrap Password

Change Bootstrap Password

New password [   ]
Confirm password [   ]

Note: An empty string is considered a valid bootstrap password.

Action for devices that have not had their initial registration.

○ **Update** - Update the database's copy of the passwords that are equal to the current bootstrap password. (This will require manual intervention on all currently uninstalled devices when they do their initial registration.)
◉ **Keep** - Do not modify the database's copy of any password that is equal to the current bootstrap password. (This allows all currently uninstalled devices to complete their initial registration without manual intervention.)

OK   Reset

Step 2   In the password dialog box, enter the new password.

Table 2-23 list valid values for these fields.

Table 2-23   Valid Values for Change Bootstrap Password

Attribute	Description	Valid Values
New password	Bootstrap password	Printable characters with a length of 6 – 12
Confirm password	Bootstrap password	Printable characters with a length of 6 – 12
Update	Modifies the database copy of the password that is equal to the current bootstrap password. This will require manual intervention on all currently uninstalled devices when they do their initial registration.	Radio button
Keep	Does not modify the database copy of any password that is equal to the current bootstrap password. This allows all currently uninstalled devices to complete their initial registration without manual intervention.	Radio button

Step 3 Confirm the new password.

Step 4 Choose (**Keep**, **Update** radio buttons) the subsequent action to the database regarding any password that is equal to the bootstrap password.

Step 5 To clear all entries, click **Reset**.

Step 6 To save the new password, click **OK**.

Step 7 To return to the Tools main menu, click on the **Tools** tab.

Log Manager

To view various log files, from the Tools Page, click **Log Manager**. The Log Manager page appears (see Figure 2-63).

Figure 2-63 Log Manager
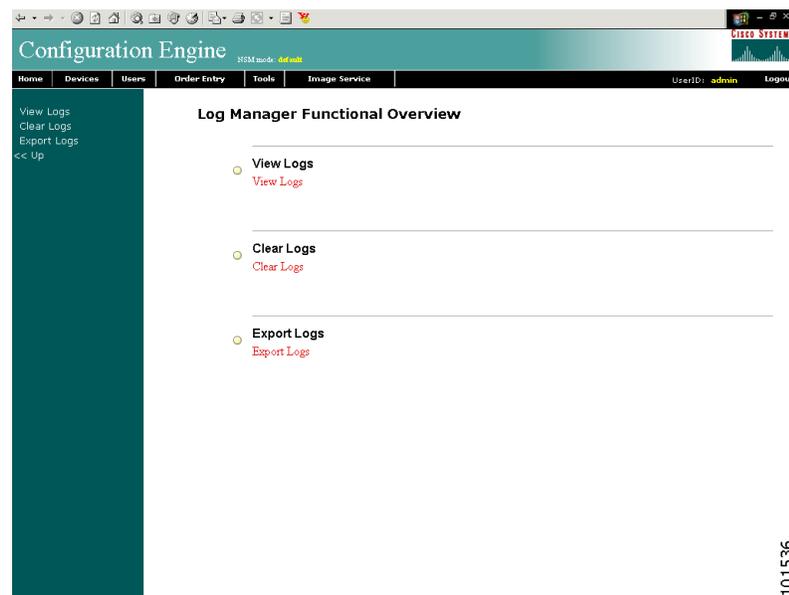
How to View Log Files

To view various log files, follow these steps:

Step 1 From the Log Manager page, click **View Logs**.

The View Log Files dialog box appears (see Figure 2-64).

Figure 2-64   Log File Viewer
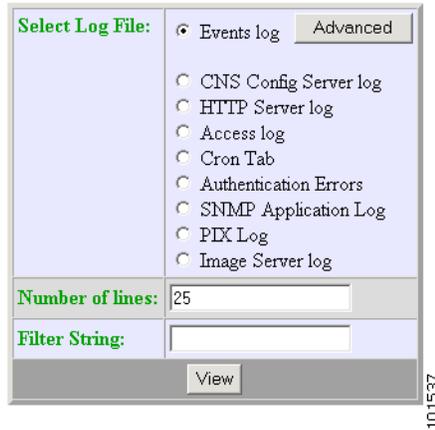
Step 2   Choose the log file you want to view.

Table 2-24 list valid values for these fields.

Table 2-24   Valid Values for View Log Files

Attribute	Description	Valid Values
Select Log Files	List of available log files.	Radio button
Number of lines	Number of lines displayed.	
Filter String	Filter string	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)

Step 3   Set the number lines you want to display.

Step 4   To limit the report to display only specific entries, set a case-sensitive keyword filter, or leave blank.

Step 5   Click **View**.

A report displays.

Step 6   To return to the Tools main menu, click on the **Tools** tab.

How to Clear Logs

To clear various log files, follow these steps:

Step 1   From the Log Manager page, click **Clear Logs**.

The Clear Log Files dialog box appears (see Figure 2-64).

Figure 2-65   Clear Logs

Clear Logs

Select Log File:	☐ Events Log
	☐ Image Server Log
	☐ CNS Config Server Log
	☐ HTTP Server Log
	☐ Access Log
	☐ Cron Tab
	☐ Authentication Errors
	☐ SNMP Application Log
	☐ PIX Log

Clear   Cancel

Step 2   Check the log files you wish to clear.

Step 3   To cancel this operation, click **Cancel**.

Step 4   To clear the selected log files, click **Clear**.

Step 5   To return to the Tools main menu, click on the **Tools** tab.

How to Export Logs

To export various log files, follow these steps:

Step 1   From the Log Manager page, click **Export Logs**.

The Export Log Files dialog box appears (see Figure 2-66).

Figure 2-66   Export Logs

Export Logs

Select Log File:	○ Events Log
	○ Image Server Log
	○ CNS Config Server Log
	○ HTTP Server Log
	○ Access Log
	○ Cron Tab
	○ Authentication Errors
	○ SNMP Application Log
	○ PIX Log

☐ Clear logs after export.

Export   Cancel

Step 2   Check the log files you wish to export.

Step 3   To clear logs after export, check the check box.

Step 4   To cancel this operation, click **Cancel**.

Step 5   To export the selected log files, click **Export**.

Step 6   To return to the Tools main menu, click on the **Tools** tab.

Service Manager

The Service Manager allows you to edit service properties for various services provided by CNS Configuration Engine 1.4.

From the Service Manager Functional Overview page, click Edit Service Properties. The Edit Service Properties page appears (see Figure 2-67).

Figure 2-67   Edit Service Properties

Edit Service Properties

Select Service:	⊙ CNS Image Service

Edit Properties   Cancel

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How to Edit CNS Image Service Properties

To edit CNS Image Service Properties, follow these steps:

Step 1   From the Edit Service Properties page, select CNS Image Service by clicking the associated radio button.

The service properties page for CNS Image Service appears (see Figure 2-68).

Figure 2-68   CNS Image Service Properties

Edit Service Properties

CNS Image Service Configurable Properties:

Name	Value
Image Types	Removed Image Types: Image Types: IOS, Other, PDM, Pix-image << >> Add New
Boot Timeout	300 seconds
Check Server Msg Timeout	600 seconds
Check Server Msg Retry	6 times

OK   Cancel

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Step 2   To Edit Image Types: Click the move button (<<) to move an image type to the Removed Image Types column.

Step 3   To Edit Boot Timeout: Enter a new value in the text box.

Step 4   To Edit Check Server Msg Timeout: Enter a new value in the text box.

Step 5   To Edit Check Server Msg Retry: Enter a new value in the text box.

Step 6   To clear this operation, click **Cancel**.

Step 7   To submit the changes, click **Ok**.

Step 8   To return to the Tools main menu, click the **Tools** tab.

CNS Image Service

To access the CNS Image Service feature, click the **Image Service** tab. The Image Service Functional Overview page appears (see Figure 2-69).
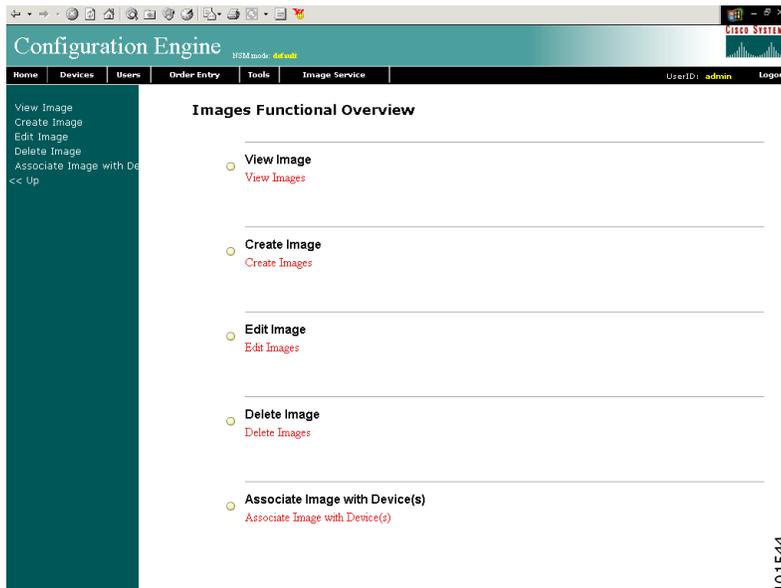
Figure 2-69   CNS Image Service
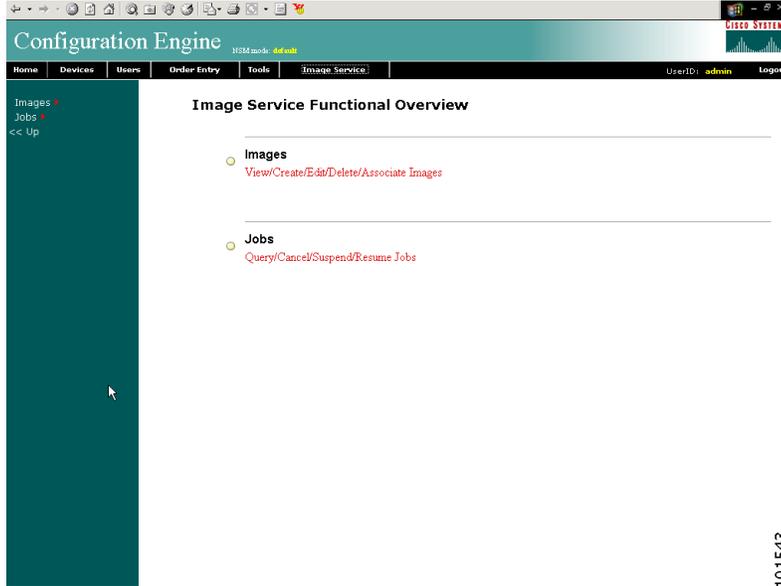
Working with Images

From the Image Service Functional Overview page, click **Images**. The Images Functional Overview page appears (see Figure 2-70).

Figure 2-70   Images

How to View an Image

To view an image, follow these steps:

Step 1   From the Images Functional Overview page, click **View Image**.

The list of images to view appears (see Figure 2-71).

Figure 2-71   View Image List

View Image

Search : [   ] Go

Name	Image Locations
image1	ftp://ftp:test@10.1.7.24/tftp/c7200-is-mz.123-1.9.T
image2	ftp://ftp:test@10.1.7.24/tftp/c3640-tea-mz.geo_20030810
image3	ftp://ftp:test@10.1.7.24/tftp/c7200-tk8ea-mz.geo_20030721.T
image4	ftp://ftp:test@10.1.7.24/tftp/c7200-tk8ea-mz.v123-3_20030714.T

101545

Step 2   From the Name column, select the image you want to view.

The image information appears (see Figure 2-72).

Figure 2-72   View Image Information

View Image

image1	
Image Name	C7200-IS-MZ
Version	12.3(1.9)T,
Platform Family	C7200
Image Checksum	8fc6160c10141ed4122b6db19f01d2f0
Size	17723372 bytes
Description	Cisco Internetwork Operating System Software IOS (tm) 7200 Software (C7200-IS-MZ), Version 12.3(1.9)T, MAINTENANCE INTERIM SOFTWARE Synched to technology version 12.3(1.9) TAC Support: http://www.cisco.com/tac Copyright (c) 1986-2003 by cisco Systems, Inc. Compiled Thu 12-Jun-03 17:19 by ccai
Image Type	IOS
Image Locations	ftp://ftp:test@10.1.7.24/tftp/c7200-is-mz.123-1.9.T

101546

Step 3   To return to the Image Service main menu, click the **Image Service** tab.

How to Create an Image

To create an image, follow these steps:

Step 1   From the Image Service Functional Overview page, click **Create Image**.

The Create Image page appears (see Figure 2-73).

Figure 2-73   Create Image

Create Image

Name (required)	
Image Name	
Version	
Platform Family	
Image Checksum	
Size (required)	
Description	
Image Type	IOS
Image Locations	
	Add Another Row
	Enter a location as <protocol>://<hostname><absolutefilepath> For example: ftp://username:password@ftp.server.com/directory/imagefile

Populate image attributes by acquiring values from image location   Populate

Lookup image attributes from CCO

Create   Cancel

101547

There are two methods for creating an Image Object:

Manual data entry

To enter image information manually, jump to Step 2.

Timesaver   You can get image attributes for manual entry by clicking the link: **Lookup image attributes from CCO**.

Automatic data entry

To automatically populate all required fields with image information from an actual image, follow these steps:

a.   In the **Image Location** field, enter a valid URL for the desired image.

b.   Click **Populate**.

Step 2   Enter the name of the image used by Image Service to identify this image object in the **Name** field.

Table 2-25 list valid values for these attributes.

Table 2-25   Valid Values for Create Image

Attribute	Description	Valid Values
Name	The name used my Image Services to identify this image object.	a-z A-Z 0-9 # _ (under-score) - (hyphen)
Image Name	The actual Image name.	a-z A-Z 0-9 - (hyphen)
Version	Version of the image.	a-z A-Z 0-9 . (period) ((open braces)) (close braces)
Platform Family	Platform family of the image.	a-z A-Z 0-9 - (hyphen)
Image Checksum	Checksum generated by MD5 hashing algorithm	128-bit hex number
Size	File size	0 – 9
Description	Description of the image.	Any text except Ctrl characters.
Image Type	(i) PDM (ii) QDM (iii) VDM (iv) Other (v) Pix-image	From drop-down list.
Image Location	- Any Valid URL: (i) http (ii) https (iii) ftp (iv) tftp - rcp	Valid URL as per RFC 1738.

Step 3   Enter the actual image name in the **Image Name** field.

Step 4   Enter the version of the image in the **Version** field.

Step 5   Enter the name of the platform family in the **Platform Family** field.

Step 6 Enter the image checksum for the image in the **Image Checksum** field.

Step 7 Enter the size of this file in the **Size** field.

Step 8 Enter a description of the image in the space provided.

Step 9 Select an image type from the **Image Type** drop-down list.

Step 10 Enter a valid URL for the image location in the **Image Location** field.

Follow the proper syntax as described.

> ✎
>
> **Note** You can create an image without specifying a location. You can add a location later by using the **Edit Image** function.

Step 11 To add another row for image location, click **Add Another Row**.

You can locate multiple copies of an image on separate servers. This allows you to do load-sharing when updating a large number of devices. Each device in a large group can be associated with a copy of the image (see"How to Add a Device" section on page 2-9) located at one of many server locations.

Step 12 To clear this operation, click **Cancel**.

Step 13 To create this image, click **Create**.

Step 14 To return to the Image Service main menu, click the **Image Service** tab.

How to Edit an Image

To edit an image, follow these steps:

Step 1 From the Image Service Functional Overview page, click **Edit Image**.

The Edit Image page appears (see Figure 2-74).

Figure 2-74 Edit Image

Edit Image

Search : [   ] [Go]

Name	Image Locations
image1	ftp://ftp:test@10.1.7.24/tftp/c7200-is-mz.123-1.9.T
image2	ftp://ftp:test@10.1.7.24/tftp/c3640-tea-mz.geo_20030810
image3	ftp://ftp:test@10.1.7.24/tftp/c7200-tk8ea-mz.geo_20030721.T
image4	ftp://ftp:test@10.1.7.24/tftp/c7200-tk8ea-mz.v123-3_20030714.T

101548

Step 2 Select the image you want to edit by clicking the Image Name.

The Edit Image information page appears (see).

Figure 2-75   Edit Image Information

Edit Image

Name	image2
Image Name	C3640-TEA-MZ
Version	12.3(20030811:051206)
Platform Family	C3640
Image Checksum	0df47cfe9c86c497e7937da132efcdc5
Size	7889812 bytes
Description	Cisco Internetwork Operating System Software IOS (tm) 3600 Software (C3640-TEA-MZ), Experimental Version 12.3(20030811:051206) [anrichar-georgia-20030810 105] Copyright (c) 1986-2003 by cisco Systems, Inc. Compiled Sun 10-Aug-03 23:43 by anrichar
Image Type	IOS
Image Locations	ftp://ftp:test@10.1.7.24/tftp/c3640-tea-mz.geo_2003081(
	[ ] Add Another Row

Edit   Cancel

101549

Step 3   To edit the image name, enter a new value in the **Name** field.

Table 2-26   Valid Values for Edit Image

Attribute	Description	Valid Values
Name	The name used my Image Services to identify this image object.	a-z A-Z 0-9 # _ (under-score) - (hyphen)
Image Location	- Any Valid URL: (i) http (ii) https (iii) ftp (iv) tftp - rcp	Valid URL as per RFC 1738.

Step 4   To edit the image location, enter a valid URL in the **Image Location** field.

Step 5   To clear this operation, click **Cancel**.

Step 6   To make these changes, click **Edit**.

Step 7   To return to the Image Service main menu, click the **Image Service** tab.

How to Delete an Image

To view images, follow these steps:

Step 1   From the Image Service Functional Overview page, click **Delete Image**.

The Delete Image page appears (see Figure 2-76).

Figure 2-76   Delete Image

Step 2   Check the image(s) you wish to delete.

Step 3   To clear this operation, click **Cancel**.

Step 4   To make these changes, click **Delete**.

Step 5   To return to the Image Service main menu, click the **Image Service** tab.

How to Associate Images with Devices

To associate images with devices, follow these steps:

Step 1   From the Image Service Functional Overview page, click **Associate Image with Device(s)**.

The Associate Image with Device(s) page appears (see Figure 2-77).

Figure 2-77   Associate Image with Device(s)

Step 2 Select the image from the **Name** drop-down list.

The **Image Type** field and **Image Location** drop-down box are populated with corresponding information for the image.

Step 3 From the **Image Location** drop-down list, select the desired location.

Step 4 In the Destination field, enter a valid URL where the image will be copied.

For example:

disk0:/c7200-mz

Step 5 To assign this image to be the active image after distribution, check **Set this image as the Image to be activated on device**.

Step 6 To clear this operation, click **Cancel**.

Step 7 To continue, click **Next**.

The Group list page appears.

Step 8 To associate this image with a group of devices, check the group, then click **Submit**.

Step 9 To associate this image with specific devices, click **View**.

The Device list page appears (see Figure 2-78).

Figure 2-78   Device List
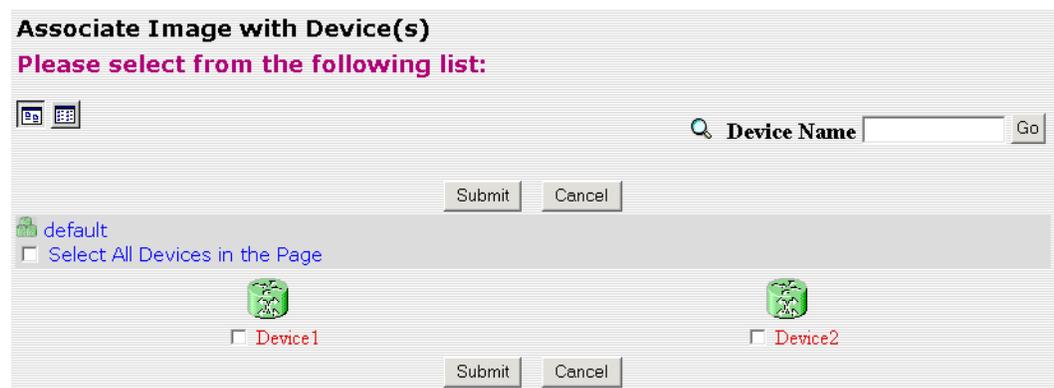
Step 10 Check the desired device(s).

Step 11 To clear this operation, click **Cancel**.

Step 12 To associate this image to the selected devices, click **Submit**.

A confirmation page appears.

Step 13 To return to the Image Service main menu, click the **Image Service** tab.

Image Update Jobs

Each Image Update job takes a considerable amount of time. Therefore, when you choose to update the image on a device from Devices -> Update Device -> Update Image (see "How to Update Device Image" section on page 2-21), the system provides you with a Job ID, which is associated with the request.

Figure 2-79   Update Image Job ID

Update Image Status

Device Name	Distributed Image(s)	Activated Image(s)
Device2	image3 image2	image2

Your request has been assigned the job id: 1062710890226

101509

Working with Image Update Jobs

You can perform the following operations with the Jobs feature:

- Query Jobs
- Cancel/Stop Jobs
- Restart Jobs

How to Query Jobs

To query job status, follow these steps:

Step 1   From the Image Service Functional Overview page, click Query Job.

The Query Job page appears (see Figure 2-80).

Figure 2-80   Query Jobs

Query Job

List of currently executing jobs:

Job ID	Description	Status
1062712116612		Status
1062710890226	Test 1	Status

101553

Step 2   To check the status of a job, for the desired job, click Status.

The Job Status page appears (see Figure 2-81).

Figure 2-81   Job Status

Job Status

Job ID	1062710890226
Description	Test 1
Schedule Time	Thu Sep 04 14:28:10 PDT 2003
Option	Distribution
Status	In-Progress
Details	Image ID Device2

[Refresh]   [Cancel]

101554

Step 3 To clear this operation, click **Cancel**.

Step 4 To update the status page, click **Refresh**.

Step 5 To return to the Image Service main menu, click the **Image Service** tab.

How to Cancel or Stop a Job

To cancel or stop a job, follow these steps:

Step 1 From the Image Service Functional Overview page, click Cancel/Stop Job.

The (see Figure 2-82).

Figure 2-82   Cancel or Stop Job.

Cancel/Stop Job

List of currently executing jobs:

	Job ID	Description	Status
☐	1062712116612		Stopping
☐	1062710890226	Test 1	In-Progress

[Cancel Jobs]   [Stop Jobs]   [Cancel]

101555

Step 2 Check the job you want to cancel or stop.

Step 3 To Cancel the job, click **Cancel Job**.

The job is permanently canceled.

Step 4 To stop the job, click **Stop Job**.

You can restart the job at a later time.

Step 5 To clear this operation, click **Cancel**.

Step 6 To return to the Image Service main menu, click the **Image Service** tab.

How to Restart a Job

To restart a job, follow these steps:

Step 1   From the Image Service Functional Overview page, click Restart Job.

The Restart Job page appears (see Figure 2-83).

Figure 2-83   Restart Job

Step 2   Check the job you want to restart.

Step 3   To clear this operation, click **Cancel**.

Step 4   To restart this job, click **Restart**.

Step 5   To return to the Image Service main menu, click the **Image Service** tab.

CNS Agent Enabled to Non-CNS Agent Enabled Up/Downgrade

With the Image Service feature, you can not only update the Cisco IOS image on a device, you can revert back to an earlier version of the image. When you do this, the availability of CNS agents on the device may change. This means you might have to use IMGW to simulate agents to update configurations and images on the device.

CNS agents at the device-level are a function of the particular version of Cisco IOS running on that device:

- 12.0 or earlier – No CNS agents on the device.
- 12.2 – CNS Configuration Agent and CNS Event Agent but not the CNS Image Agent.
- 12.3(3) or later – CNS Configuration Agent, CNS Event Agent, and CNS Image Agent.

Things to Know

- IMGW can simulate different agent types:
  - CNS Configuration Agent only
  - CNS Image Agent only
  - both CNS Configuration Agent and CNS Image Agent

Make sure to select the correct agent for your purpose when creating IMGW devices.

- You should always have one set of the same agents running for the same device object. The common mistake when upgrading/downgrading to a different version of an image is:

   – Upgrading: after enabling a certain agent on the device, you still have an IMGW device that is simulating the same agent on the CNS Configuration Engine 1.4, or the other way around.

   – Downgrading: a certain agent is not available on the device anymore, but the IMGW device is not simulating this agent. The next update will fail.

12.0 -> 12.2

To update an image from 12.0 to 12.2, the image needs to use IMGW to simulate both CNS Configuration Agent and CNS Image Agent.

Procedure

Step 1   Create a template for configuration update. This template only applies to a device when you do a configuration update.

Step 2   Create a template for image activation.

The activation template should include the boot image information. For example, if you want to copy image *c837-k9o3y6-mz.122-13.ZH2.bin* to flash and run it as the active image, the following CLI commands should be in the active template:

no boot system

boot system flash flash: c837-k9o3y6-mz.122-13.ZH2.bin

Step 3   Create the image for the device:

   a. Setup an FTP/TFTP server.

   b. Copy the image onto the FTP/TFTP server.

   c. Login to the CNS Configuration Engine 1.4, go to I**mage Service** -> **Images** -> **Create Image**.

   d. Enter image information on the page or just enter **Name** and **Image Locations** on the FTP/TFTP server, then click on **Populate** to get image information.

   e. Click on **Create**.

   f. To verify, go to **Image Service** -> **Images** -> **View Image**, select the image and verify the image information.

Step 4   Create an IMGW device with device hop info. Make sure to select an agent type to simulate both CNS Configuration Agent and CNS Image Agent:

   a. Login to the CNS Configuration Engine 1.4, click on **Tools** -> **DAT**, login to DAT.

   b. Click on **IMGW** -> **Add IMGW Device**.

   c. Enter Device Name followed by:

   Gateway ID (CNS Configuration Engine 1.4 hostname by default unless changed at **Setup**)

   Device Type

   Agent Type (Please select ConfigAgent; ImageAgent.)

   Hop Information (Select the Hop Type and enter hop info)

   d. Click **Add** to add the IMGW device.

    e. To verify, click on **View IMGW Devices**. You should see the added IMGW device in the list. Click on the device, you should see all the IMGW device information.

Step 5   Create a device object on the CNS Configuration Engine 1.4:

    a. Login to the CNS Configuration Engine 1.4, go to **Devices** -> **Add Device**.

    b. Enter Device name (same as IMGW Device Name in Step 4) followed by:

        Unique ID (same as Device Name by default.)

        Device Type

        Template File Name (The template for configuration update)

        Group

    c. Click on **Next**.

    d. Enter Event ID (same as Device Name and Unique ID by default) followed by:

        Config ID (same as Device Name and Unique ID by default).

        Agent ID (same as Device Name and Unique ID by default).

    e. Click on **Next**. (If you click **Finish**, you need to associate image with device later. Please see "How to Associate Images with Devices" section on page 2-82 for instructions.

    f. In Step 3, select image from Image Drop list. Select **OverWrite** and **EraseFileSystem** if you want to over write the existing image file or erase the file system before copying the file. Enter image destination.

    g. Click **Finish**.

Step 6   Update image:

    a. Login to the CNS Configuration Engine 1.4, go to **Devices** -> **Update Device** -> **Update Image**.

    b. Select the group where the device belong to and click on **view**.

    c. Select the device from the list and click **Submit**.

    d. Finish all four steps on the Update Image page and click **Update** to summit the image update job.

Step 7   To check the updating status, go to **Image Service** -> **Jobs** -> **Query Job**, click **Status** to check the job status.

Step 8   To see more debug message on the job, go to **Tools** -> **Log Manager** -> **View Logs** and select the log to view.

Step 9   Now you should have 12.2 image running on the device. If you want to enable CNS Configuration Agent and CNS Event Agent on the device, put the following CLI commands in device configuration template that you created in Step 1, then do **Update Confi**g from CNS Configuration Engine 1.4:

cns config partial server_ipaddress port

cns event server_ipaddress port

Step 10   To verify, go to the View Device page on CNS Configuration Engine 1.4, you should be able to see a green indicator next to this device object.

Note   In order to use CNS Configuration Agent and CSN Event Agent to do configuration updates, you should delete the IMGW device object from DAT since it should never have two sets of the same agent for the device on the CNS Configuration Engine 1.4.

12.0 -> 12.3(3) or later

To update image from 12.0 to 12.3(3) or later image you need to use IMGW to simulate both CNS Configuration Agent and CNS Image Agent.

The image update procedure is the same as 12.0 -> 12.2 except in Step 9. To enable the image agent on the device, you can also add the following line to the configuration template and update the configuration to the device:

cns image server http://*server_ipaddress*/cns/HttpMsgDispatcher status http://*server_ipaddress*/cns/HttpMsgDispatcher

✎

Note   In order to use CNS Configuration Agent, CNS Event Agent, and image agent to do configuration and image updates, you should delete the IMGW device object from DAT since it should never have two sets of the same agent for a device on the CNS Configuration Engine 1.4.

12.2 -> 12.3(3) or later

There are two ways to update the image from 12.2 to 12.3(3) or later image:

1. No agents enabled on the device and use IMGW to simulate both CNS Configuration Agent and CNS Image Agent. The procedure is same as update from 12.0 -> 12.2.

2. Enable CNS Event Agent and CNS Configuration Agent on devices to update activation template and use IMGW to simulate image agent only.

Procedure

Step 1   On the device, make sure to enable CNS Configuration Agent with the following commands (it can be done from router command line or from CNS Configuration Engine 1.4 configuration update):

cns event *server_ipaddress prot*

cns config partial *server_ipaddress prot*

Step 2   Repeat the procedure in 12.0 -> 12.2 except in Step 4. When creating the IMGW device, make sure to select **Image Agent** for Agent Type.

Step 3   To enable the image agent on the device, you can also add the following line to configuration template and update configuration to the device:

Cns image server http://*server_ipaddress*/cns/HttpMsgDispatcher status http://*server_ipaddress*/cns/HttpMsgDispatcher

✎

Note   In order to use CNS Configuration Agent, CNS Event Agent, and CNS Image Agent to do configuration and image updates, you should delete the IMGW device object from DAT since it should never have two sets of the same agent for a device on the CNS Configuration Engine 1.4.

12.3(3) or later -> 12.3(3) or later

Image upgrading from 12.3(3) or later -> 12.3(3) later images can be done with CNS agents enabled on device. There is no need for IMGW.

Procedure

Step 1 On the device, make sure to enable the CNS Configuration Agent with the following commands (it can be done from router command line or from CNS Configuration Engine 1.4 configuration update):

cns event *server_ipaddress prot*

cns config partial *server_ipaddress prot*

cns image server http://*server_ipaddress***/cns/HttpMsgDispatcher status http://***server_ipaddress***/cns/HttpMsgDispatcher**

Step 2 Create a template for configuration updates.

Step 3 Create a template for image activation.

Step 4 Create an image for device:

a. Setup FTP/TFTP server.

b. Copy image on FTP/TFTP server.

c. Login to the CNS Configuration Engine 1.4, go to **Image Service** -> **Images** -> **Create Image**.

d. Enter image information on the page or just enter **Name** and **Image Locations** on the FTP/TFTP server then click **Populate** to get image information.

e. Click on **Create**.

f. To verify, go to **Image Servic**e -> **Images** -> **View Image**, select the image and verify the image information.

Step 5 Create a device object on CNS Configuration Engine 1.4:

a. Login to the CNS Configuration Engine 1.4, then go to **Devices** -> **Add Device**.

b. Enter Device name (same as the Device Name in Step 4) followed by:

Unique ID (same as Device Name by default.)

Device Type

Template File Name (The template for configuration update)

Group

c. Click **Next**.

d. Enter Event ID (same as Device Name and Unique ID by default) followed by:

Config ID (same as Device Name and Unique ID by default)

Agent ID (same as Device Name and Unique ID by default)

e. Click **Next**. (If you click **Finish**, you need to associate image with device later. Please see "How to Associate Images with Devices" section on page 2-82 for instructions.)

f. In Step 3, select image from Image Drop list. Select **OverWrite** and **EraseFileSystem** if you want to over write the existing image file or erase the file system before copying the file. Enter the image destination.

g. Click **Finish**.

Step 6   Update image:

a. Login to the CNS Configuration Engine 1.4, then go to **Devices** -> **Update Device** -> **Update Image**

b. Select the group where the device belongs, then click on **view**.

c. Select the device from the list and click **Submit**.

d. Finish all four steps on the Update Image page, then click **Update** to summit the image update job.

Step 7   To check the updating status, go to **Image Service** -> **Jobs** -> **Query Job**, click the **Status** to check the job status.

Step 8   To see more debug messages on the job, go to **Tools** -> **Log Manager** -> **View Logs** and select the log to view.

12.3(3) or later -> 12.2

This is the same as upgrading from 12.2 -> 12.3(3) or later images. There are several things that you should check before submitting the update:

• If you are using the second option in 12.2->12.3(3), which uses IMGW to simulate only the CNS Image Agent, but not the CNS Configuration Agent and CNS Event Agent, make sure there is only CNS Event Agent and CNS Configuration Agent enabled on the device but no CNS Image Agent; even though it is running 12.3(3) or later image that has all the agents. The IMGW on the server side will simulate the CNS Image Agent.

• If there is already a device on the CNS Configuration Engine 1.4, you only need to add an IMGW device from DAT with the same device name as device object on CNS Configuration Engine 1.4.

• Please remove any commands in your configuration template to configuration CNS Image Agent.

12.3(3) or later -> 12.0

Same as upgrading from 12.0 -> 12.3(3) or later image. There are serveral things that users should check before submit the update:

Step 1   Make sure there is no agent enabled on router even it runs 12.3(3) or later image that has all the agents. The IMGW on server side will simulate both CNS Configuration Agent and CNS Image Agent.

Step 2   If there is already device object on the CNS Configuration Engine 1.4, users only need to add IMGW device from DAT with the same device name as device object on CNS Configuration Engine 1.4.

Step 3   Please remove them if you have any command in your configuration template to configure CNS Configuration Agent, CNS Event Agent, or CNS Image Agent.

Backup and Restore

The Backup and Restore function allows you to backup directory data (configuration templates, device and user information, and so forth) to a remote location.

Backup Procedure

Step 1   Login into CNS Configuration Engine 1.4 user interface.

Step 2   Go to **Tools** –>**Data Manager** –> **Schedule Backup**.

The backup information dialog box appears (see Figure 2-84).

Figure 2-84   Backup Schedule Parameters

Step 3   To specify where you want the backup data to be stored, enter the FTP server name in the **FTP Server Name** field.

Table 2-27 list valid values for these fields.

Table 2-27   Valid Values for Backup Schedule Parameters

Attribute	Description	Valid Values
FTP Server name	Server name where all backup files will be put.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Username	Login username for the FTP server.	a-z A-Z 0-9 -(hyphen) _ (under-score) . (period)
Password	Password for FTP server.	

Table 2-27   Valid Values for Backup Schedule Parameters (continued)

Attribute	Description	Valid Values
Directory	Subdirectory into which all backup files will be put.	Absolute path
Enable Log File Management	determines whether files will be deleted from CNS 2100 Series system after backup.	From drop-down list
Backup Schedule	Date and time fields.	As required

Step 4   To specify the username to login to the FTP server, enter a valid username in the **Username** field.

Step 5   To specify the password to use to login to the FTP server, enter a valid value in the **Password** field.

Step 6   To specify the subdirectory where the data file is put, enter the absolute path in the **Directory** field.

Step 7   Choose whether to **Enable Log File Management**.

Step 8   To specify the backup schedule, complete the fields in the **Backup Schedule** pane.

Note   The time base for the CNS 2100 Series system should be set to Coordinated Universal Time (UTC).

Step 9   To cancel the backup operation, click **Cancel**.

Step 10   To start the backup operation, click **Backup**.

Step 11   To return to the main menu, click on the **Tools** tab.

Data Restore Procedure

Step 1   Login to the Cisco CNS 2100 Series Intelligence Engine.

Step 2   Type **datarestore** at the command line, then press **Enter**.

Step 3   Provide inputs to following prompts:

Notes

Sample user inputs are shown in **bold** text.

```
Entering Data Restore section
Type ctrl-c to exit

Enter FTP server (hostname.domainname or IP address): 10.1.19.108
Enter username used for FTP server: admin
Enter FTP password: *****
Re-enter FTP password: *****
Enter absolute pathname of backup file on FTP server: /tmp/backup-20030819.tar.gz
```

Definitions

FTP Server: The IP address or hostname of the FTP server on which the backup file is located.

FTP Username: The username used to login to the FTP server.

FTP Password: The password used to login to the FTP server.

Absolute pathname of backup file on FTP server: Fully specified path of the backup file stored on the FTP server.

Redefining Hostname, Domain Name, and Country Code

If you want to redefine CNS 2100 Series system network information; such as hostname, domain name, and country/location code without destroying the directory data and templates, use the **relocate** command.

The **relocate** command is designed to backup and erase existing directory data so that you can redefine the CNS 2100 Series system network information using the **Setup** program.

To change CNS 2100 Series system network information, follow these steps:

Step 1   Log in as root.

Use your root password.

Step 2   Type **relocate**.

This program performs the same tasks as reinitialize, except that it backs up all data that you can restore when you run **Setup**. It also saves the configuration templates.

Step 3   Run **Setup** to redefine the desired system network information (refer to *Cisco CNS Configuration Engine 1.4 Installation & Setup Guide For Linux*).

Data Migration from Release 1.3 to 1.4

The Data Migration function allows you to upgrade your system to from Release 1.3, 1.3.1, or 1.3.2 to Release 1.4, then populate your directory with the data you established for the prior release.

This is a three-step process:

1. Export data to a remote FTP site.

2. Install Release 1.4 software.

3. Retrieve data from the FTP site and setup the system.

Export Data to a Remote FTP Site

Before exporting the data, it is assumed that the CNS 2100 Series has already been setup and is up running.

Step 1   Insert the Release 1.4 CD-ROM into the CD drive of the CNS 2100 Series to be upgraded.

Step 2   To mount the CD, login as root.

Step 3   Type:

mount /mnt/cdrom

Step 4   Change directory into:

/mnt/cdrom/DataExport

Step 5   Issue the data export command:

./dataexport

Tip   Make sure you type the period (**.**) prior to the command.

Step 6   Follow the sequence of prompts to enter information of the FTP site and storage location (absolute pathname including filename).

Following are the prompts of **dataexport**:

Notes

Sample user inputs are shown in **bold** text.

```
Entering Data Export
Type ctrl-c to exit

Enter FTP server (hostname.domainname or IP address): sername.cisco.com
Enter DNS server IP address: 171.69.226.120
Enter username used for FTP server: smith
Enter FTP password: *****
Re-enter FTP password: *****
Enter absolute pathname of data file on FTP server: /users/smith/migration.tar
```

Install Release 1.4 Software

To re-image the system, while the Release 1.4 CD-ROM is still in the CD drive:

Step 1   Enter the sync command two times:

[root@mainstreet root]# **sync**

[root@mainstreet root]# **sync**

Step 2   Restart the system by pressing the **Reset** button.

Run datamigrate and Setup the System

After the system rebooted from the new installation, the following prompts appear:

```
This Appliance is not configured.
Please login as setup to configure the appliance.
localhost.localdomain login:
```

To migrate data and setup the CNS 2100 Series system, follow these steps:

Step 1 Login as **root** with password **blender**.

Step 2 Start data migration with the command:

datamigrate

The script proceeds in three stages:

1. Acquire information of the FTP server that stores the migration data and retrieve the data.

2. Start Release 1.4 **Setup** prompts and setup the system.

3. Populate internal directory storage with retrieved data.

Following are the prompts of **datamigrate**:

Notes

Sample user inputs are shown in **bold** text.

```
You must configure eth0 or eth1. Press <Enter> to skip!

Enter eth0 IP address: 10.1.19.102
Enter eth0 network mask: 255.255.255.0
Enter eth0 default gateway IP address: 10.1.19.6
Enter FTP server (hostname.domainname or IP address): sername.cisco.com
Enter DNS server IP address: 171.69.226.120
Enter username used for FTP server: smith
Enter FTP password: *****
Re-enter FTP password: *****
Enter absolute pathname of data file on FTP server: /users/smith/migration.tar
```

Synchronize Clocks

The clock (date and time) on the CNS 2100 Series system and the clock on the PC you use to access the CNS Configuration Engine 1.4 user interface should be synchronized. This is particularly important when scheduling an update-image job for a future time (refer to the *Cisco CNS Configuration Engine 1.4 Administrator Guide*).

For this operation, the client-side check to ensure you have entered a valid time value is done using the clock on the PC with the browser used to access the CNS Configuration Engine 1.4 user interface. Consequently, if the CNS 2100 Series system clock is behind the PC clock, the user interface does not allow the job to be scheduled.

For example, if the CNS 2100 Series system clock read 11:10 while the PC clock read 12:10, the user interface will not allow a job to be scheduled before 12:10. It will issue an error message: **Please input a future time**.
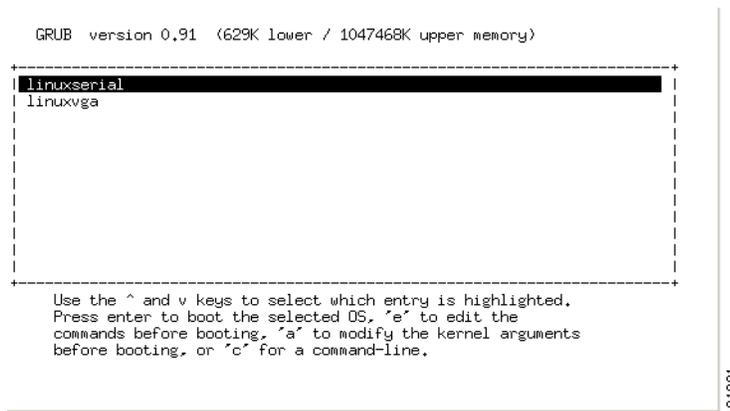
Recovering Your CNS Password

To recover your CNS password to the CNS 2100 Series system, follow these steps:

Step 1   Restart the CNS 2100 Series system.

The system shuts down, and restarts. Once the appliance restarts, you should see the boot image screen (Figure 2-85).
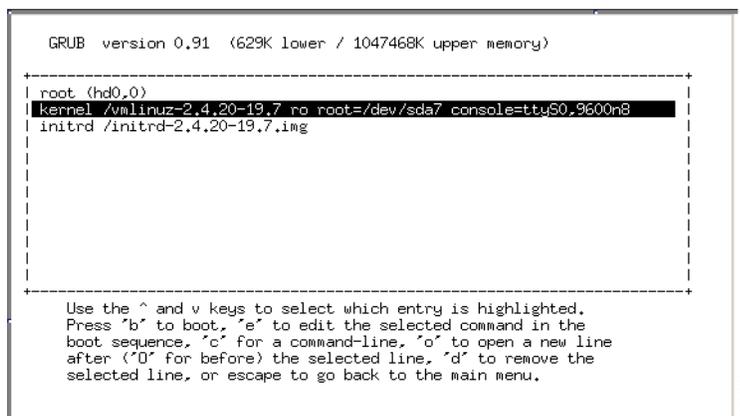
Figure 2-85   Boot Images

Step 2   Use the arrow keys to select (highlight) a boot image.

Select **linuxserial** for setting up the serial port as console. You can select **linuxvga** if you are connected by means of a local VGA connection.

Step 3   Press the **E** key to edit the boot parameters (see Figure 2-86).

Figure 2-86   Boot String

Step 4   Using the arrow keys, select the entry **kernel /vmlinuz.2.4.20-19.7 ro root=/dev/sda7 console=ttyS0,9600n8**.

Step 5   Press the **E** key to enter the editor.

Step 6   Go to the end of the line, and add **single** after the parameter **console=ttyS0,9600n8**:

```
kernel /vmlinuz.2.4.20-19.7 ro root=/dev/sda7 console=ttyS0,9600n8 single
```

Step 7   Press **Enter**.

You may not see this parameter added to the previous screen due to screen size.

Note   This parameter tells the kernel to start in single user mode.

Step 8   Press the **B** key to start the system in single-user mode.

After the system initialization, you see a root prompt, without having to type in a username or password:

```
[... sys init messages ...]
Turning on user and group quotas for local filesystems: [ OK ]
Enabling swap space: [ OK ]
sh.2.04#
```

Step 9   At this prompt, type the command **passwd** and enter the new (strong) password for the root user:

```
sh.2.04# passwd
New UNIX password:
Retype new UNIX password:
passwd: all authentication tokens updated successfully
sh.2.04#
```

Step 10   Once you change the password, type **reboot**, and let the machine start normally.

Step 11   When prompted for a name, type **root**.

Step 12   When prompted for the password, type the new password.