C H A P T E R **14**

Using Inventory Manager

This chapter explains how Inventory Manager provides a method of managing mass changes to inventory and service model data in the Prime Provisioning provisioning process. In this process, Inventory Manager enables an operator to import network-specific data into the Prime Provisioning Repository (Repository) in bulk mode. Prime Provisioning now supports the import of inventory from Prime Network. The inventory that can be imported are device credentials, software version, and SNMP details. All other physical and logical inventory is retrieved from the device using collect configuration. It contains the following sections:

- Inventory - Device Console, page 14-1
- Prime Network Device Import, page 14-11
- Changing a Node to Unmanaged State, page 14-15

Inventory - Device Console

Note The Device Console is now enabled/disabled using a DCPL property. For information about using DCPL properties, see the *Cisco Prime Provisioning 6.4 Administration Guide*.

Inventory - Device Console is the starting point for many operations. Inventory Manager performs three primary functions:

- Imports devices from configuration files and configures CPEs and PEs by associating devices with a Customer or Provider.
- Edits devices, CPEs or PEs stored in the Prime Provisioning repository.
- Assigns a device to a provider or customer.

To navigate through **Device Console**, follow these steps:

Step 1 Choose **Inventory> Device Tools > Device Console** and you receive a window appears as shown in the example in Figure 14-1.

Note The radio button last selected will be the one shown in Figure 14-1.

Figure 14-1   Device Console window

Step 2   To select one of the operations, click the radio button for one of the following selections and then click **Next**.

Note   All operations apply only to Live mode, *not* ECHO mode.

- Download Commands, page 14-2—Download operation commands and configlets. The **Select Operation Method** selections of **Simplified** and **Advanced (via wizard)** are only available for **Download Commands** and are explained in that section.

- Download Template, page 14-3—Downloads template configlets to the specified devices.

- Device Configuration Manager, page 14-6—Displays different versions of configuration files created on a repository per timestamp and writes to running-configuration or start-up configuration.

- EXEC Commands, page 14-8—Allows you to send to target devices any Cisco IOS commands that can be executed in enable mode.

- Reload, page 14-10—Remotely reloads devices.

Download Commands

To download commands, follow these steps:

Step 1   Choose **Inventory> Device Tools > Device Console > Download Commands.**

Step 2   The **Select Operation Method** default is **Simplified**, which indicates that in a single window you have the options for selecting the Devices, Device Groups, and Operation Commands. You do not need to multi-click. In a single window you can submit the required parameters to complete the task. **Advanced (via wizard)** indicates you must go to multiple windows to achieve the task. In this method, you select Device, click **Next,** select Device Groups, click **Next**, select Operation Command, and then the summary.

Step 3   Click **Next**.

A window appears as shown in Figure 14-2.

Figure 14-2   Device Console—Download Commands: Select Devices

Step 4   In the **Devices** row, click **Select/Deselect**. In the new window, check the check box for each device you want. Uncheck a check box if you do not want this device. Then click **Select**. Figure 14-2 then reappears with the selected devices in the **Devices** row.

Step 5   In the **Groups** row, click **Select/Deselect**. In the next window, check the check box for each group you want. Uncheck a check box if you do not want this group. Then click **Select**. The selected groups appear in the **Groups** row.

Step 6   In the **Operation Commands** field, enter the commands you want to download or click **Load File** to select a set of commands to place in the **Operation Commands** field.

If you leave the **Upload Config After Download** check box unchecked, you do *not* upload the configuration file after the download.

If you leave the **Retrieve device attributes** check box unchecked, you do not retrieve any device attributes. If you check the **Retrieve device attributes** check box, after the template is downloaded, SNMP is used to retrieve interface information and issue additional **show** commands, such as **show version**.

Step 7   Click **OK** to submit the download and you receive a window with the **Device Console Operation Result** and in the bottom left corner a **Status**. You can click **Download** or **Done**.

Step 8   When you click **Download**, you return to Step 6 to download additional commands on the selected devices.

Step 9   When you click **Done**, you return to Figure 14-1.

Download Template

✎
Note   Multiple datafiles belonging to different templates cannot be downloaded through the device console.

To download a template, follow these steps:

Step 1   Choose **Inventory> Device Tools > Device Console .**

Step 2 Select **Download Template** and click **Next**.

A window appears as shown in Figure 14-3.

Figure 14-3   Device Console—Download Template: Select Devices

Choose Operation

Create Information

Operation: ○ Download Commands
             ◉ Download Template
             ○ Device Configuration Manager
             ○ EXEC Commands
             ○ Reload

Back   Next   Finish   Close

285772

Step 3 Continue with Step 4 if you want to add devices; proceed to Step 9 to delete devices; or click **Next** to proceed to Step 11 for **3. Select Device Groups**.

Step 4 Click **Add**, as shown in Figure 14-3, to **2. Select Devices**.

Step 5 From the resulting Device Selection window, check the check box(es) for each device you want to select. Then click **Select**.

Step 6 You return to Figure 14-3 with the added devices.

Step 7 For each device, you can click the added **Clear** button to clear the **Upload to Customer/Site** column to reflect **none selected**, or you can click the added **Select** button and a new window allows you to **Create Customer**, **Create Site**, **Select**, or **Cancel**. When you click **Select** in this new window, you return to Figure 14-3 with the added customer or site.

Step 8 You can repeat Step 4 to Step 7 to **add** more devices, you can delete devices, as explained in Step 9, or you can proceed by going to Step 10.

Step 9 To delete devices, check the check box(es) for the devices you want to delete and then click **Delete**. Select carefully, because there is no chance to confirm this deletion.

Step 10 When you have all the devices you want, click **Next**. You proceed to **3. Select Device Groups**, starting in Step 11.

Step 11 Continue with Step 12 if you want to add device groups; proceed to Step 14 to delete device groups; or click **Next** to proceed to Step 16 for **4. Enter Download Commands**.

Step 12 Click **Add**, as shown in Figure 14-4, to **3. Select Device Groups**. Adding Device Groups is optional.

Figure 14-4   Device Group Selection

Download Template

Show Device Groups with [Device Group Name ▼] matching [*]   Find

Showing 0 of 0 records

#	☐	Device Group Name	Description

Rows per page: [10 ▼] |◄ ◄ Page [1] of 1 ► ►|

Add   Delete

Back   Next   Finish   Close

285745

Step 13 From the resulting window, check the check box(es) for each device group you want to select. Then click **Select**.

You return to Figure 14-4 with the added device groups. You can repeat Step 12 to Step 13 to **add** more device groups, you can delete device groups, as explained in Step 14, or you can proceed by going to Step 15.

Step 14   To delete device groups, check the check box(es) for the devices you want to delete and then click **Delete**. Select carefully, because there is no chance to confirm this deletion.

Step 15   When you have all the device groups you want, click **Next**. You proceed to **4. Select Download Template**, starting in Step 16.

Step 16   For **4. Select Download Template**, the resulting window is shown in Figure 14-5.

Figure 14-5   Select Download Template

Step 17   In Figure 14-5, you can click the **Select** button.

A window appears as shown in Figure 14-6.

Step 18   Click **Add** to add templates or **Remove** to remove templates. When you have the templates you want, click **OK**.

When you click **Add** you get a Template Datafile Chooser window with the template choices in the tree. Click **+** to open the folders and subfolders in the tree, until you get the property you want to choose. Click on that property and it is added to your list. Repeat this until all the templates you want are in your list. In each added property, you can click **View** and you receive the configlet for that data file. To return, click **OK**. In Figure 14-6, check the check box(es) for the template(s) you want. In each template row, click the **Action** drop-down list and choose **APPEND** or **PREPEND** to add information after or before, respectively; check or uncheck the **Active** check box; and then click **OK**.

Figure 14-6   Add/Remove Templates

Step 19   You return to Figure 14-5 with the updated information.

Step 20   Click **Next** and you proceed to **5. Download Template Summary**, as explained in Step 21.

Step 21   For **5. Download Commands Summary**, a window appears as shown in Figure 14-7.

Figure 14-7   Download Template Summary

Step 22 In Figure 14-7, if you leave the **Upload Config After Download** check box unchecked, you do *not* upload the configuration file after the download. If you check the **Upload Config After Download** check box, you upload the new configuration file after you download the templates in . If you leave the **Retrieve device attributes** check box unchecked, you do not retrieve any device attributes. If you check the **Retrieve device attributes** check box, after the template is downloaded, SNMP is used to retrieve interface information and issue additional **show** commands, such as **show version**.

Step 23 Click **Back** until you correct any information you want to change or click **Finish** to submit the download and you receive a window with the **Download Template Results** and in the bottom left corner a **Status** with a green check mark for **Succeeded**.

Step 24 Click **Done and** you return to Figure 14-1.

Device Configuration Manager

To display the configuration, download the configuration to the startup configuration on the device, or download the configuration to the running configuration on the device, follow these steps:

Step 1 Choose **Inventory> Device Tools > Device Console.**

Step 2 Select **Device Configuration Manager** and click **Next.**

A window appears as shown in Figure 14-8.

Figure 14-8   Device Configuration Manager

Step 3   In the **Device** row, click **Select**.

Step 4   From the devices listed, click the radio button for the device you want to select. Then click **Select**.

Step 5   You return to Figure 14-8 with the added device. You can repeat Step 3 to Step 4 to change the device.

Step 6   When you have selected the device you want, go to the **Configuration to Display** row and click the **Select a Version...** drop-down list. Click the version you want and then click **Load** to load that configuration file.

Step 7   Click one of the following radio buttons or keep the default:

- **Display only**—The configuration file can only be viewed.

- **Download to startup**—The configuration file is downloaded to the start up configuration of the selected router.

> ✎
> **Note**   For **Download to startup**, the Device Access Protocol (defined in device creation) must be either **ftp** or **tftp**. If this is not the case, the Device Configuration Manager Results window appears and indicates that you must set up either **ftp** or **tftp**. Dynamic Component Properties Library (DCPL) properties for DCS for both FTP and TFTP can be set in the software UI as specified in the *Cisco Prime Provisioning 6.4 Administration Guide*.

- **Download to running** The configuration file is downloaded to the router's running configuration file.

> ✎
> **Note**   When the DCPL property **copy-running-to-startup** in the **GTL/ios** folder is set to the default of **true**, the router's running configuration file is also copied to the start up configuration.

Step 8   Click **Finish**. If in Step 7 you chose **Display only, you automatically** return to Figure 14-1. If in Step 7 you clicked **Download to startup** or **Download to running**, you get a Device Configuration Manager Results window. In the **Status** box, you get a green check mark for **Succeeded** or a red **Failed** status and you must click **Done** to return to Figure 14-1.

EXEC Commands

EXEC Commands allows you to send to target devices any Cisco IOS commands that can be executed in enable mode. You can only view the router information. You cannot edit or delete the information.

To execute **EXEC Commands**, follow these steps:

Step 1   Choose **Inventory> Device Tools > Device Console.**

Step 2   Select **EXEC Commands** and click **Next**.

A window appears as shown in Figure 14-9.

Figure 14-9   Device Console—EXEC Commands: Select Devices

Step 3   Continue with Step 4 if you want to add devices; proceed to Step 7 to delete devices; or click **Next** to proceed to Step 9 for **3. Select Device Groups**.

Step 4   Click **Add**, as shown in Figure 14-9, to **2. Select Devices**.

Step 5   From the resulting window, check the check box(es) for each device you want to select. Then click **Select**.

Step 6   You return to Figure 14-9 with the added devices. You can repeat Step 4 to Step 5 to **add** more devices, you can delete devices, as explained in Step 7, or you can proceed by going to Step 8.

Step 7   To delete devices, check the check box(es) for the devices you want to delete and then click **Delete** in Figure 14-9. Select carefully, because there is no chance to confirm this deletion.

Step 8   When you have all the devices you want, click **Next**.

You proceed to **3. Select Device Groups**, starting in Step 9.

Step 9   Continue with Step 10 if you want to add device groups; proceed to Step 13 to delete device groups; or click **Next** to proceed to Step 15 for **4. Enter EXEC Commands**.

Step 10   Click **Add**, as shown in Figure 14-10, to **3. Select Device Groups**.

Figure 14-10   Device Group Selection

Step 11   From the resulting window, check the check box(es) for each device group you want to select. Then click **Select**.

Step 12   You return to Figure 14-10 with the added device groups. You can repeat Step 10 to Step 11 to **add** more device groups, you can delete device groups, as explained in Step 13, or you can proceed by going to Step 14.

Step 13   To delete device groups, check the check box(es) for the devices you want to delete and then click **Delete**. Select carefully, because there is no chance to confirm this deletion.

Step 14   When you have all the device groups you want, click **Next**. You proceed to **4. Enter EXEC Commands**, starting in Step 15.

Step 15   For **4. Enter EXEC Commands**, the resulting window is shown in Figure 14-11.

Figure 14-11   Operation Commands

Step 16   In Figure 14-11, you can click the **Browse** button to input an existing file with Cisco IOS configuration commands. Then click the **Load File** button to put the file's information in the **Commands** field. Otherwise, you can enter the Cisco IOS configuration commands directly in the **Commands** field.

Step 17   Click **Next** and you proceed to **5. EXEC Commands Summary**, as explained in Step 18.

Step 18   For **5. EXEC Commands Summary**, a window appears as shown in Figure 14-12.

Figure 14-12   EXEC Commands Summary

Step 19   Click **Back** until you correct any information you want to change or click **Finish** to retrieve the information from the router. You then receive a window with the **EXEC Commands Results** and a **Status** with a green check mark for **Succeeded**. You can click **EXEC** or **Done**.

Step 20   When you click **EXEC**, you return to Step 15 to enter additional commands on the selected devices.

Step 21   When you click **Done**, you return to Figure 14-1.

Reload

To reload (reboot) the router, follow these steps:

Step 1   Choose **Inventory> Device Tools > Device Console.**

Step 2   Select **Reload** and click **Next**.

A window appears as shown in Figure 14-13.

Figure 14-13   Device Console—Reload: Select Devices

Step 3   Continue with Step 4 if you want to add devices; proceed to Step 7 to delete devices; or click **Next** to proceed to Step 9 for **3. Select Device Groups**.

Step 4   Click **Add**, as shown in Figure 14-13, to **2. Select Devices**.

Step 5   From the resulting window, check the check box(es) for each device you want to select. Then click **Select**.

Step 6   You return to Figure 14-13 with the added devices. Repeat Step 4 to Step 5 to **add** more devices; delete devices, as explained in Step 7; or proceed by going to Step 8.

Step 7   To delete devices, check the check box(es) for the devices you want to delete and then click **Delete**. Select carefully, because there is no chance to confirm this deletion.

Step 8   When you have all the devices you want, click **Next**. You proceed to **3. Select Device Groups**, starting in Step 9.

Step 9   Continue with Step 10 if you want to add device groups; proceed to Step 13 to delete device groups; or click **Next** to proceed to Step 15 for **4. Reload Devices Summary**.

Step 10   Click **Add**, as shown in Figure 14-14, to **3. Select Device Groups**.

Figure 14-14   Device Group Selection

Step 11   From the resulting window, check the check box(es) for each device group you want to select. Then click **Select**.

Step 12   You return to Figure 14-14 with the added device groups. Repeat Step 10 to Step 11 to **add** more device groups; delete device groups, as explained in Step 13; or proceed by going to Step 15.

Step 13   To delete device groups, check the check box(es) for the devices you want to delete in Figure 14-14 and then click **Delete**. Select carefully, because there is no chance to confirm this deletion.

Step 14   When you have all the device groups you want, click **Next**. You proceed to **4. Reload Devices Summary**, starting in Step 15.

Step 15   For **4. Reload Devices Summary**, a window appears as shown in Figure 14-15.

Figure 14-15   Reload Summary

Step 16   Click **Back** until you correct any information you want to change or click **Finish** to submit the reload and you receive a window with the **Reload Results** and a **Status** with a green check mark for **Succeeded**.

Step 17   Click **Finish** and you return to Figure 14-1.

Prime Network Device Import

Prime Provisioning now supports the import of inventory from Prime Network. The inventory that can be imported are device credentials, software version, and SNMP details. All other physical and logical inventory is retrieved from the device using collect configuration. Set the DCPL property from **InventoryImport** before importing Prime Network Device. For more information on setting DCPL properties, see *Cisco Prime Provisioning 6.4 Administration Guide*.

Note   This configuration is required for every new device added to the network.

This feature allows you to perform:

- Device import from Prime Network

 • Automated Ring Discovery Process

 • Customer Device Insertion via an integrated Single Screen

 • Enhanced Inventory Manager for Bulk import from Prime Network

Cisco IOS routers that function as N-PE, U-PE, or PE-AGG are defined as devices from which Prime Provisioning collects information. Every network element that Prime Provisioning manages is defined as a device in the system.

The two ways to import devices from Prime Network are:

 – [Single Device Import during Device Creation, page 14-13](#)

 – [Bulk Import using Inventory Manager, page 14-14](#)

Device Import Prerequisite

You can import devices from Prime Network to Prime Provisioning both in Standalone mode and Suite mode.

In Suite mode, it is required to import the Prime Network certificate to Prime Provisioning trust store to import devices from Prime Network to Prime Provisioning. Please refer to the steps mentioned in the below procedure to import Prime Network certificate.

Import Prime Network certificate into Prime Provisioning Trust Store

Step 1 Add the Prime Network server details in Prime Provisioning and log into the Prime Network server.

Step 2 Navigate to `<Installation-Path>/ Main/resourcebundle/com/sheer` directory and provide the list command (`ls -alrt`).

Step 3 Transfer (FTP) the certificate (`sheer.cer`) to Prime Provisioning server installation, etc directory, i.e., `<PRIMEP_INSTALLATTION-DIR>/etc/`.

Step 4 Run the following command from the `<PRIMEP_INSTALLATTION-DIR>` directory to source the environment:

```
./prime.sh shell
```

Step 5 The keytool will prompt for the password, please see the security.properties file in the etc directory for the password, i.e., `<PRIMEP_INSTALLATTION-DIR>/etc/security.properties`.

> ✎
> **Note** <PRIMEP_INSTALLATION_DIR>/etc/security.properties is available only if Prime Provisioning is integrated with the suite.

Step 6 Run the following command from `<PRIMEP_INSTALLATTION-DIR>/etc/` directory to import the certificate to Prime Provisioning keystore:

```
keytool -import -file <certificate-name>.cer -keystore <keystore-name> -alias
<alias-name>
<certificate-name> - must be the name of the Prime  Network certificate.
<keystore-name>  - must be prime.keystore
<alias-name> - unique name to identify the certificate.
Example: keytool -import -file sheer.cer -keystore prime.keystore -alias anacer
```

> ✎
>
> **Note**   In order to confirm the password, check the security. properties file present in the `<PRIMEP_INSTALLATTION-DIR>, etc` directory.

Step 7   A keytool confirmation to import the certificate while executing the command occurs.

Enter **Yes** to import. The message Certificate was imported successfully appears.

Step 8   To ensure if the certificate is imported, run the following command that lists the trusted certificates added to the keystore:

```
keytool -list -v -keystore prime.keystore
```

Restart the server to reflect the changes.

Single Device Import during Device Creation

To navigate through **Devices** and import a device manually, follow these steps:

Step 1   Choose **Inventory > Physical Inventory > Devices.**

The Device List window appears. Click the **Create** button.

Step 2   Select **Cisco Device** from the drop-down menu.

The **Create Cisco Device** window appears.

See the following sections for descriptions of the fields:

- General Attributes, page 2-7
- Login and Password Attributes, page 2-9
- Device and Configuration Access Information Attributes, page 2-9
- SNMP v1/v2c Attributes, page 2-10

Step 3   Select the device type as Customer Device or Provider Device from the drop-down menu under **Roles** section.

Enter the region name for the Provider that you are creating. To enter the provider region name follow these steps:

    a. Click the **Select** button next in Provider Region Name.

       A list of provider region names appears.

    b. Click the radio button next to provider region name and then **Select**.

Select the device role from the Role Type drop-down menu.

> ✎
>
> **Note**   The Provider Region Name and PE Role Type options are enabled only if you choose Provider Device as the device type.

Step 4   Check the check box next to **Config Collect** to perform a configuration collection on saving the device.

Configuration Collection is performed at the device creation and device import stages. You can also navigate to **Operate > Task Manager > Task** to create a config task and select the devices created.

Step 5 Check the check box next to **Ring Discovery** to perform ring collection on saving the device. The devices associated with the REP rings are discovered from Active Network Abstration (ANA) and imported into Prime Provisioning. You can perform ring discovery task from:

- – Device Creation window
- – Inventory Manager window

Step 6 Check the check box next to MPLS-TP Discovery and MPLS Label Sync to access these details.

Step 7 To access the Additional Properties section of the **Create Cisco Device**, click **Show**.

The Additional Properties window appears.

See the following sections for descriptions of the Additional Properties fields:

- • SNMP v3 Attributes, page 2-10
- • Terminal Server Options Attributes, page 2-10
- • Device Platform Information Attributes, page 2-11

Step 8 Enter any desired Additional Properties information for the Terminal Server device you are creating.

Step 9 Click **Save**.

Step 10 The Devices window reappears with the new imported device listed.

Bulk Import using Inventory Manager

Devices which already exist in Prime Network can be imported directly into Prime Provisioning using the option available on the Inventory Manager window.

To perform bulk import of Cisco devices, follow these steps:

Step 1 Choose **Inventory > Physical Inventory > Inventory Manager**.

The **Device List** window appears.

Step 2 Click the **Import Devices** button. Select Prime Network.

Step 3 The **Inventory Import Filter** window appears.

- **a.** You can filter the import of devices from Prime Network before getting it into Prime Provisioning.
- – The devices available in Prime Network can be filtered based on Device Host Name and Management IP Address.
- – Once filtration is done, a success message displays the number of devices found matching the filter criteria.
- – The devices found matching the criteria are displayed on the **Inventory Manager** window. You can perform additional configuration such as role assignment by clicking on **Assign CE/PE** button.
- – Select the device and click on **Edit** button to change any of the device parameters before saving the device.
- – Click **Save** button to import and save the device into Prime Provisioning.

b. If you want to import all the devices available in Prime Network, click **OK** button without providing any filtering criteria on the filter screen.

Step 4 The **Device List** window appears.

Step 5 The Config Collect and Ring Discovery can be scheduled during device import. Click on **Action** button to schedule:

- Config Collect
- Config Collect + Ring Discovery
- MPLS Label Sync
- MPLS-TP Discovery
- Ring Discovery

Step 6 Click **Save**.

The Devices window reappears with the new devices added.

Changing a Node to Unmanaged State

In some situations, it can be advantageous to make a node unmanaged. For example, if a node has to be removed, service requests that included this node can fail. To avoid this, one solution is to make the node unmanaged.

To make a node unmanaged, perform the following steps:

Step 1 Choose **Inventory > Physical Inventory > Inventory Manager**.

Step 2 Click **Open** and choose **Provider**.

Step 3 In the Select provider pop-up screen, select a Provider.

Step 4 Click **Attributes** and choose **PE Attributes**.

Step 5 Select the device that you want to make Unmanaged.

Step 6 Check the checkbox next to the header **Managed**.

Step 7 Select **Edit** and uncheck the box next to the attribute Managed.

Step 8 Click **Save**.

The value of the Managed column appears as **NO** for the chosen device.