



CHAPTER 13

Using Inventory Manager

This chapter explains how Inventory Manager provides a method of managing mass changes to inventory and service model data in the Cisco Prime Fulfillment provisioning process. In this process, Inventory Manager enables an operator to import network-specific data into the Prime Fulfillment Repository (Repository) in bulk mode. Prime Fulfillment 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 13-1](#)
- [Prime Network Device Import, page 13-12](#)

Inventory - Device Console

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 Fulfillment 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 as shown in the example in [Figure 13-1](#).



Note

The radio button last selected will be the one shown in [Figure 13-1](#).

Figure 13-1 Device Console window

Choose Operation

Create Information

Operation:

- Download Commands
- Download Template
- Device Configuration Manager
- EXEC Commands
- Reload

Select Operation Method:

- Simplified
- Advanced

Back Next Finish Close

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 13-2](#)—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 13-3](#)—Downloads template configlets to the specified devices.
- [Device Configuration Manager, page 13-6](#)—Displays different versions of configuration files created on a repository per timestamp and writes to running-configuration or start-up configuration.
- [EXEC Commands, page 13-8](#)—Allows you to send to target devices any Cisco IOS commands that can be executed in enable mode.
- [Reload, page 13-10](#)—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 as shown in [Figure 13-2](#).

Figure 13-2 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 13-2](#) 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 13-1](#).

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 as shown in [Figure 13-3](#).

Figure 13-3 *Device Console—Download Template: Select Devices*

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 13-3](#), 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 13-3](#) 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 13-3](#) 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**.

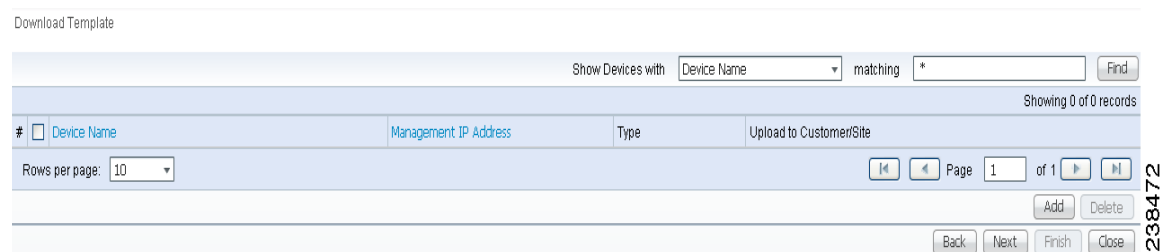
Step 12 Click **Add**, as shown in [Figure 13-4](#), to **3. Select Device Groups**. Adding Device Groups is optional.

Figure 13-4 *Device Group Selection*

#	Device Group Name	Description
1	NbiDeviceGroup	NBI Device group

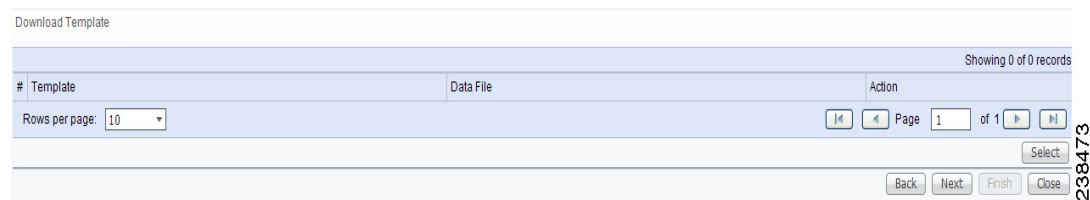
- Step 13** From the resulting window, check the check box(es) for each device group you want to select. Then click **Select**.
- You return to [Figure 13-4](#) with the added device groups. You can repeat [Step 12](#) to [Step 13](#) to **add** more device groups, you can delete device groups, as explained 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 13-5](#).

Figure 13-5 *Select Download Template*



- Step 17** In [Figure 13-5](#), you can click the **Select** button.
- A window as shown in [Figure 13-6](#).
- 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 13-6](#), 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 13-6 *Add/Remove Templates*



- Step 19** You return to [Figure 13-5](#) 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 as shown in [Figure 13-7](#).

Figure 13-7 Download Template Summary

Download Template

Template Summary

Devices:

Device Groups:

Template:

Upload Config After Download

Retrieve device attributes

Back Next Finish Close

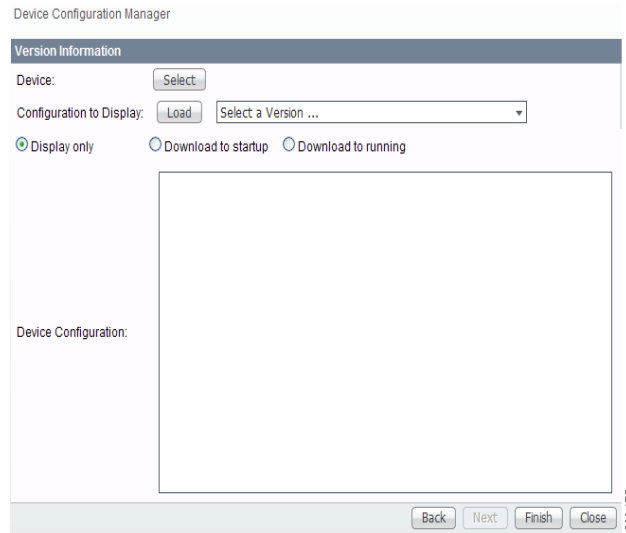
2300474

- Step 22** In [Figure 13-7](#), 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 13-1](#).

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 as shown in [Figure 13-8](#).

Figure 13-8 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 13-8](#) 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 are specified in [Appendix B, “Property Settings”](#).

- **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 13-1](#). 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 13-1](#).

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.

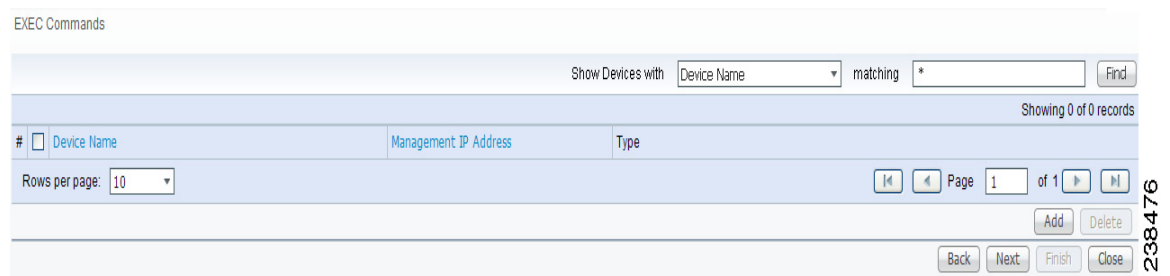
To execute **EXEC Commands**, follow these steps:

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

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

A window as shown in [Figure 13-9](#).

Figure 13-9 *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 13-9](#), 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 13-9](#) 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 13-9](#). 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 13-10](#), to **3. Select Device Groups**.

Figure 13-10 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 13-10](#) 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 13-11](#).

Figure 13-11 Operation Commands

- Step 16** In [Figure 13-11](#), 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 as shown in [Figure 13-12](#).

Figure 13-12 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 13-1](#).

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 as shown in [Figure 13-13](#).

Figure 13-13 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 13-13](#), 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 13-13](#) 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 13-14](#), to **3. Select Device Groups**.

Figure 13-14 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 13-14](#) 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 13-14](#) 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 as shown in [Figure 13-15](#).

Figure 13-15 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 13-1](#).

Prime Network Device Import

Prime Fulfillment 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 [Config, page 14-3](#) in [Chapter 14, “Administration Tasks”](#).



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 Fulfillment collects information. Every network element that Prime Fulfillment 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 13-12](#)
- [Bulk Import using Inventory Manager, page 13-13](#)
- [Import Prime Network certificate into Prime Fulfillment Trust Store, page 13-14](#)

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 Abstraction (ANA) and imported into Prime Fulfillment. 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 ANA can be imported directly into Prime Fulfillment 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 **ANA**.
- Step 3** The **Inventory Import Filter** window appears.
- a. You can filter the import of devices from ANA before getting it into Prime Fulfillment.

- The devices available in ANA can be filtered based on Device Host Name, Management IP Address, Element Management Key and Software Version.
- 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 Fulfillment.
- b. If you want to import all the devices available in ANA, 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
- Ring Discovery

Step 6 Click **Save**.

The Devices window reappears with the new devices added.

Import Prime Network certificate into Prime Fulfillment Trust Store

To perform import of Prime Network certificate, follow these steps:

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

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



Note Make sure the files `.keystore` & `security.properties` are available.

Step 3 Export the server certificate from a server keystore (`.keystore`) using the following command:

```
keytool -export -alias ana -file <certificate-name>.cer -keystore <keystore-name>
<certificate-name> can be - sheer.cer (must end with .cer)
<keystore-name> must be - .keystore
Example: keytool -export -alias ana -file sheer.cer -keystore .keystore
```

Step 4 Transfer (FTP) the certificate (`sheer.cer`) to Prime Fulfillment server installation, etc directory, i.e., `<PRIMEF_INSTALLATION-DIR>/etc/`.

Step 5 Run the following command from the `<PRIMEF_INSTALLATION-DIR>` directory to source the environment:

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

- Step 6** Run the following command from <PRIMEF_INSTALLATION-DIR>/etc/ directory to import the certificate to Prime Fulfillment 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
```

- Step 7** The keytool will prompt for the password. Use the password as **changeit**.



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

- Step 8** A keytool confirmation to import the certificate while executing the command occurs. Enter **Yes** to import. The message Certificate was imported successfully appears.

- Step 9** 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.
