



Managing Devices and Hosts

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Managing Your Device Inventory

The **Device Inventory** window displays the results of the discovery scan. To access the **Discovery** window, from the **Navigation** pane, click **Device Inventory**.

Figure 1: Device Inventory Window

| Device Name | IP Address | Reachability Status | Up Time | Last Updated Time | Last Inventory Collection Status |
|--|-------------|---------------------|-----------------------|-------------------|----------------------------------|
| SDN-BRANCH-ASR1002.cisco.com | 10.10.10.10 | Reachable | 207 days, 23:29:32.17 | 17 minutes ago | ERROR-ENABLE-PASSWORD |
| SDN-CAMPUS-C6K2.cisco.com | 10.10.10.10 | Reachable | 113 days, 15:06:34.27 | 18 minutes ago | Managed |

**Note**

The information that is displayed depends on the **Layout** that you selected.

After the initial discovery, network devices are polled every 30 minutes. Polling occurs for each device, link, host, and interface. Only devices that have been active for less than a day are displayed. This prevents any stale device data from being displayed. On average, polling 500 devices takes approximately 20 minutes.

| Name | Description |
|------------------------------|--|
| Device Selection check boxes | Allows you to select devices to perform tasks. |
| Filters | Allows you to refine the list of devices that are displayed in the table by name, location tag, and IP address. |
| Layout | <p>Allows you to choose from three predefined layouts or a customized layout:</p> <ul style="list-style-type: none"> • Status—Layout shows the device name, IP address, state of the device, how long it has been up, and the last time it was updated. • Hardware—Layout shows the device name, IP address, device family, platform, serial number, MAC address, and role, along with its IOS/firmware version and a link to its configuration file. • Tagging—Layout shows the device name, IP address, MAC address, device role, location, and tags. • Customize—Layout shows the information in the columns that you have selected to display. <p>For descriptions of the columns of information that you can display, see the Device Inventory Information table below.</p> |

Below the **Device Inventory** table, you can adjust the number of devices displayed in the table (10, 25, 50, 100), and you can click **First**, **Previous**, **Next**, **Last**, or the page number to navigate through the table.

The **Device Inventory** table displays the following information for each discovered device. All of the columns, except the **Config** column, support sorting. Clicking on the column header sorts the rows in an ascending order. Clicking on the column header again sorts the rows in descending order.

For more information, see the *Cisco Application Policy Infrastructure Controller Enterprise Module Configuration Guide*.

Table 1: Device Inventory Information

| Column Name | Description |
|---------------|--|
| Device Status | <p>State of the device.</p> <ul style="list-style-type: none"> • Connecting—Controller is connecting to the device. • Reachable: <ul style="list-style-type: none"> ◦ Discovered—Controller has connected to the device and is able to execute Cisco commands using the CLI . ◦ Failure—Controller has connected to the device, but is unable to execute Cisco commands using the CLI. This status usually indicates that the device is not a Cisco device. • Authentication Failed—Controller has connected to the device but is unable to determine what type of device it is. This device status also usually indicates that the device is not a Cisco device. • Unreachable—Controller is unable to connect to the device. <p>Note If credentials are not provided at the time a discovery request is made or earlier, then the device status could be displayed as "Not reachable." You need to perform a new discovery with the correct credentials.</p> |

| Column Name | Description |
|---------------|--|
| Device Name | <p>Name of the device. Click the device name to display the Device Overview dialog box with the following information:</p> <ul style="list-style-type: none"> • Device serial number • Device IP address • MAC address • Cisco OS version • Up time • Product ID • Vendor • Memory size <p>Note The device name appears red for any device whose inventory has not been updated for more than 30 minutes.</p> <p>The Device Overview dialog box also includes an Interfaces tab with the following interface data:</p> <ul style="list-style-type: none"> • Status—Up or down • Interface name—Name of the interface. • MAC address—MAC address of the interface. |
| MAC Address | MAC address of the device. |
| IP Address | IP address of the device. |
| IOS/Firmware | Cisco IOS software currently running on the device. |
| Platform | Cisco product part number. |
| Serial Number | Cisco device serial number. |
| Up Time | Period of time that the device has been up and running. |
| Config | <p>Click View to display detailed configuration information similar to the CLI show running-config command output.</p> <p>Note This feature is not supported for access points and wireless LAN controllers, therefore configuration data is not returned for these device types.</p> |

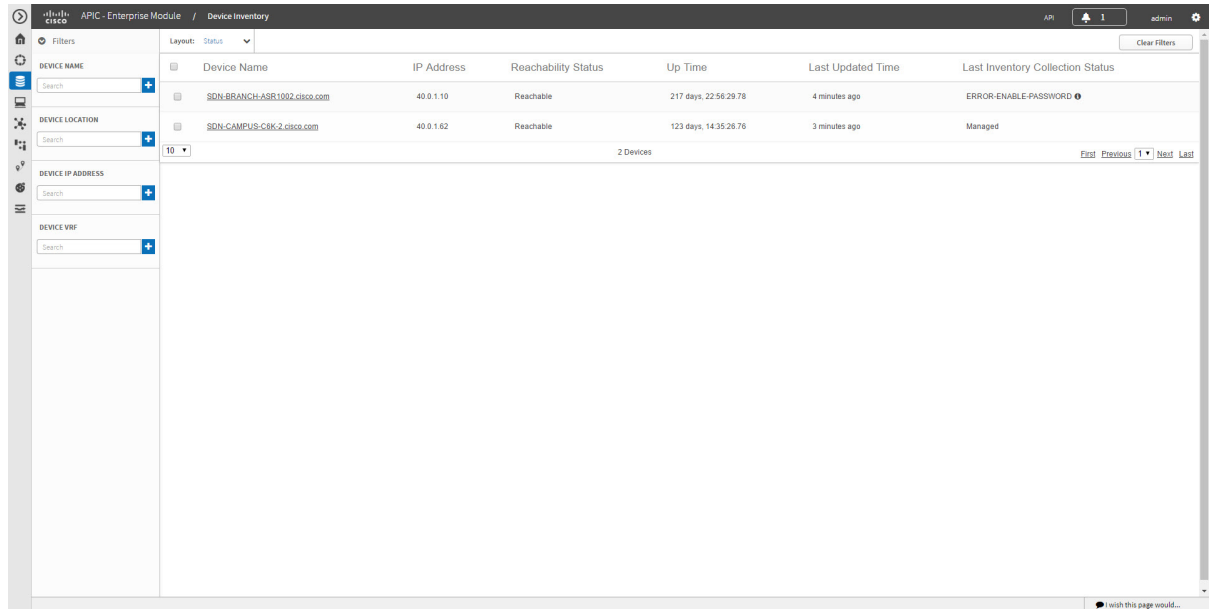
| Column Name | Description |
|-------------|--|
| Device Role | <p>Role assigned to each discovered device during the scan process. The device role is used to identify and group devices according to their responsibilities and placement within the network. If the controller is unable to determine a device role, it sets the device role as unknown.</p> <p>Note The controller can change the device role as the network topology changes, but if you manually change the device role, then the role will not change as the network topology changes.</p> <p>If desired, you can use the drop-down list in this column to change the assigned device role. The following device roles are available:</p> <ul style="list-style-type: none">• Unknown• Access• Core• Distribution• Border Router |

| Column Name | Description |
|-------------|--|
| Location | <p>Tag that you can apply to a device to denote its geographic location. By applying the same tag to several devices, you can group them based on a common attribute. The Device Inventory window and Topology window support location tags.</p> <p>Use the following guidelines when creating location tags:</p> <ul style="list-style-type: none"> • Location tag information is maintained on the controller only and not deployed to or derived from the device itself. • A location defined on the controller is not the "civic-location" property that some devices support. • You cannot create, use, or search for location tags in the Topology window. • Location tags cannot be attached to hosts. • You can apply only one location tag to a device. However, you can use both a location tag and a device tag together. <p>For information about adding location tags, see Adding or Removing Location Tags, on page 15.</p> <p>Along with the location tag, you can add a geographical marker on a world map to a device. For information, see Adding or Changing a Location Marker, on page 17.</p> |
| Device Tag | <p>Tag assigned to devices to identify them by a common attribute. For example, you can create a tag and use it to group devices based on a platform ID or Cisco IOS release.</p> <p>A number in the Tag column indicates how many tags have been applied to that device.</p> <p>Note You are permitted to use both a location tag and a device tag together.</p> <p>For information about adding or removing device tags, see Adding or Removing a Device Tag in Device Inventory, on page 12.</p> <p>For information about deleting a tag from the controller database, see Deleting a Tag, on page 18.</p> |

| Column Name | Description |
|----------------------------------|---|
| Policy Tag | <p>Tag applied to a group of devices that will share the same policy.</p> <p>After applying a policy tag, you need to configure the policies that will be applied to the devices with the same policy tag. For information about configuring QoS policies, see Configuring Quality of Service.</p> |
| Last Updated Time | Date and time that the device was last scanned and the controller database was updated. |
| Device Family | <p>Group of related devices, as follows:</p> <ul style="list-style-type: none"> • Cisco Interfaces and Modules • Routers • Switches and Hubs • Third Party Device • Unsupported Cisco Device • Wireless Controller |
| Device Series | Series number of the device, for example, Cisco Catalyst 4500 Series Switches. |
| Last Inventory Collection Status | <p>Status of the last discovery scan for the device:</p> <ul style="list-style-type: none"> • Managed—Device is in a fully managed state. • Partial Collection Failure—Device is in a partial collected state and not all the inventory information has been collected. Move the cursor over the Information (i) icon to display additional information about the failure. • Unreachable—Due to device connectivity issues, the device could not be reached and no inventory information was collected. This condition can occur when periodic collection happens. • Wrong Credentials—If the device credentials are changed after adding the device to the inventory, this condition is noted. • In Progress—Inventory collection is occurring. |

Filtering Devices in the Device Inventory Window

You can filter the devices displayed in the **Devices Inventory** window by device name, location, IP address and VRF instance.



Before You Begin

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

Procedure

Step 1 From the **Device Inventory** toolbar, click **Filters**.
The following filters display:

- **Device Name**
- **Device Location**
- **Device IP Address**
- **Device VRF**

Step 2 Enter the appropriate value in the selected filter field.
For example, for the **Device Name** filter, enter the name of a device.

The controller presents you with auto-complete values as you enter values in the other fields. Choose one of the suggested values or finish entering the desired value.

Note You can also use a wildcard (asterisk) with these filters. You can enter values with the asterisk at the beginning, end, or in the middle of the string value.

Step 3 Click the plus (+) icon to perform the filter.
The data displayed in the **Devices** table automatically updates according to your filter selection.

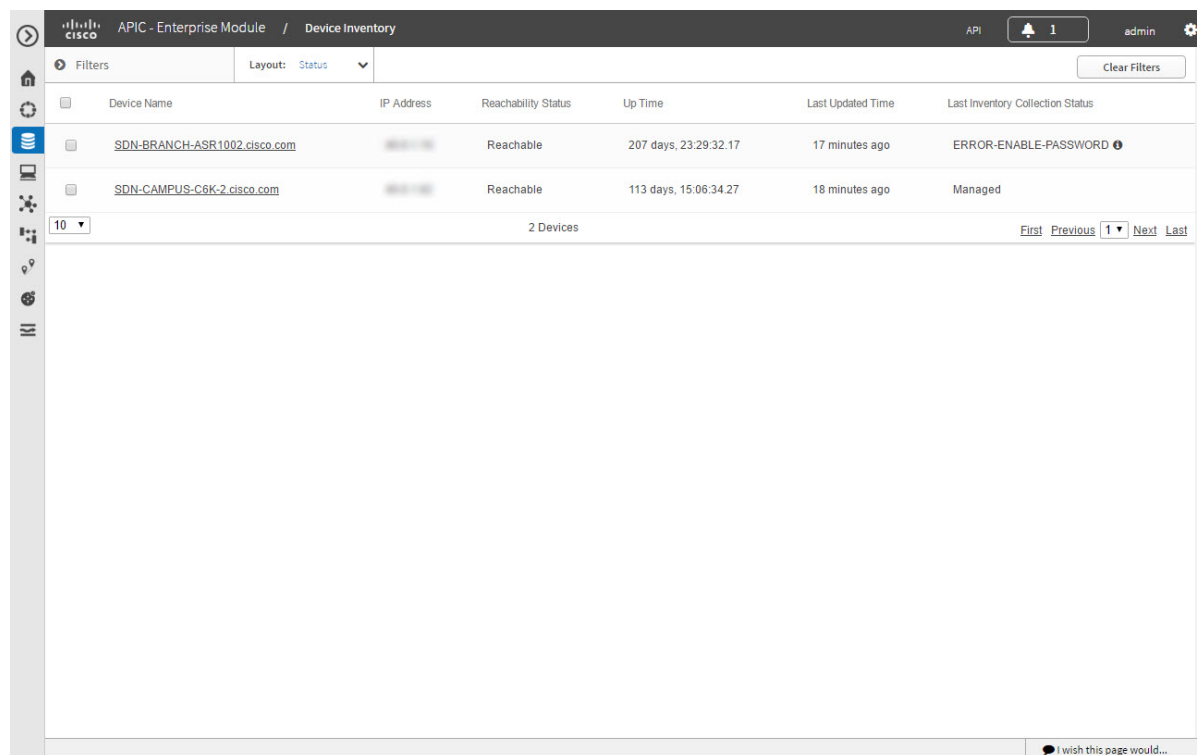
- Step 4** (Optional) If needed, add more filters following the above steps.
Note You can filter on more than one value per filter or across several different filter types.
- Step 5** To remove the filter, click the **x** icon next to the filter value.

What to Do Next

Review the updated information displayed in the **Device Inventory** window. If required for your network configuration, make changes to the displayed columns within the **Devices** table view.

Changing the Devices Layout View

You can change the information that is displayed in the **Devices** table by selecting different layout views or by customizing a layout view for the devices in your network.



Before You Begin

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

Procedure

- Step 1** From the **Device Inventory** toolbar, click the **Layout** field and choose one of the following layout options from the drop-down list:

- **Status**—Displays general device status information, including up time, update frequency, and number of updates.
- **Hardware**—Displays hardware information, including IOS/firmware, serial number, and device role.
- **Tagging**—Displays tagging information, including device role, location, and tag.
- **Customize**—Displays a list of options to choose from to create your own layout.

APIC-EM displays the information for the chosen layout.

- Step 2** To customize a specific layout, choose **Customize** and select the desired display options. Display options toggle on and off. Blue options with checkmarks indicate that the option is on and is displayed in the table.
-

What to Do Next

Review the updated information displayed in the **Device Inventory** window. If required for your network configuration, make any adjustments.

Changing the Device Role

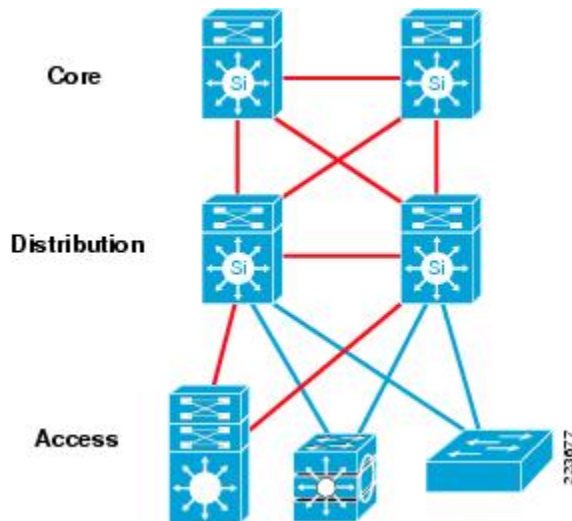
During the scan process, the controller assigns a role to each discovered device. The device role is used to identify and group devices according to their responsibilities and placement in the network.

A device can have one of the following roles:

- **Unknown**—Device role is unknown.
- **Access**—Device is located in and performs tasks required of the access layer or first tier/edge of the network.
- **Border Router**—Device performs tasks required of a border router.
- **Distribution**—Device is located in and performs tasks required of the distribution layer of the network.

- Core—Device is located in and performs tasks required of the core of the network.

Figure 2: Device Roles and Network Locations



You can change the device role in the **Device Inventory** window.



Note You can also change the device role from the **Topology** window. See [Changing a Device's Role From the Topology Window](#).

Before You Begin

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function. You must have either administrator (ROLE_ADMIN) or policy administrator (ROLE_POLICY_ADMIN) permissions and the appropriate RBAC scope to perform this procedure.

Procedure

- Step 1** From the **Navigation** pane, click **Device Inventory**. The **Devices Inventory** window appears.
- Step 2** From the **Device Inventory** toolbar, choose one of the options from the **Layout** drop-down list. Valid options are **Hardware**, **Tagging**, or **Customize > Device Role**. The table refreshes and includes a column for the **Device Role**.
- Step 3** Locate the device you want to change and choose a new role from the drop-down list in the **Device Role** column. Valid choices are **Unknown**, **Access**, **Core**, **Distribution**, or **Border Router**.

What to Do Next

If required, change the role of other devices in the **Device Inventory** window.

Deleting a Device

You can delete devices from the Cisco APIC-EM database.

Before You Begin

You must have administrator (ROLE_ADMIN) permissions and access to all devices (RBAC Scope set to ALL) to perform this procedure.

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

Procedure

Step 1 From the **Navigation** pane, click **Device Inventory**.

Step 2 Click the check box next to the device that you want to delete.
A toolbar opens.

Note Even after the toolbar opens, you can select multiple devices by clicking additional check boxes, or you can select all devices by clicking the checkbox at the top of the list.

Step 3 From the open toolbar, click **Delete**.

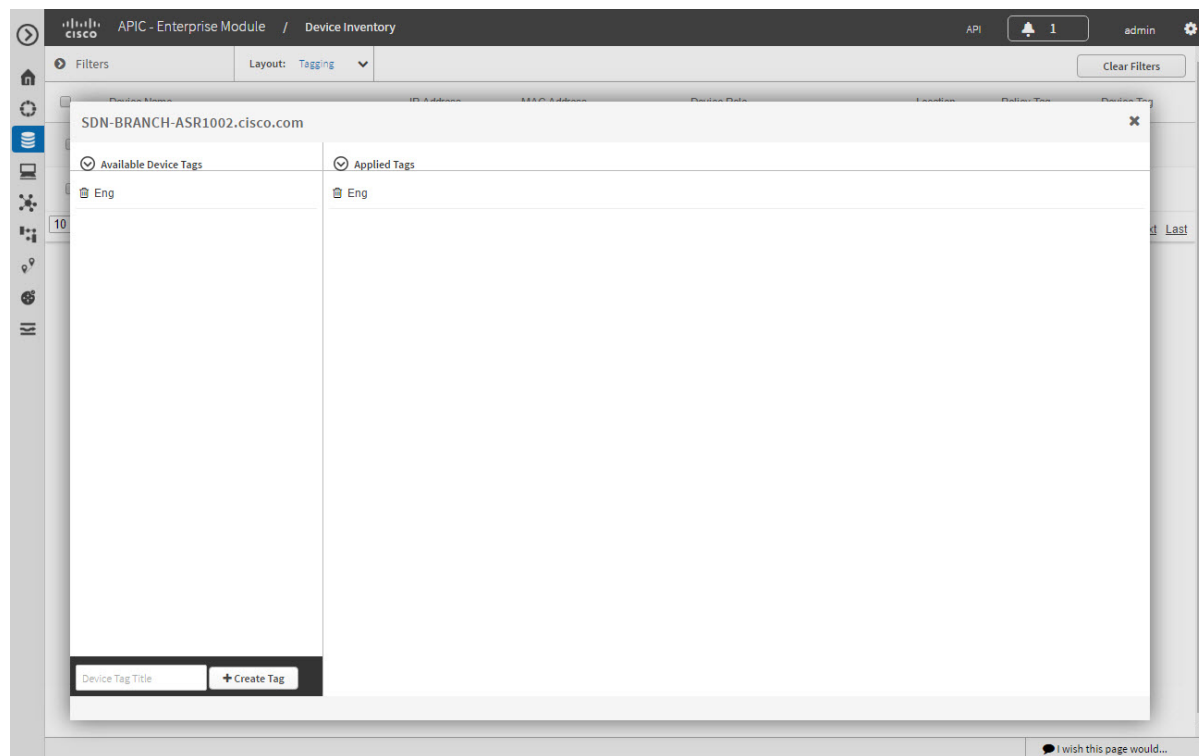
Adding or Removing a Device Tag in Device Inventory

You can group devices according to common attributes by applying device tags. For example, you may want to apply device tags to group devices by their platform ID or Cisco IOS release. A single device can have multiple device tags; similarly, a single device tag can be applied to multiple devices.

**Note**

For information about Policy tags and Location tags, see [Adding or Removing a Policy Tag in Device Inventory](#), on page 14 and [Adding or Removing Location Tags](#), on page 15.

Figure 3: Device Tags Dialog Box



Before You Begin

You must have administrator (ROLE_ADMIN) permissions and access to all devices (RBAC Scope set to ALL) to perform this procedure.

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

Procedure

- Step 1** From the **Navigation** pane, click **Device Inventory**.
- Step 2** From the **Device Inventory** toolbar, choose **Layout > Tagging** from the drop-down list. The table refreshes and displays a **Device Tag** column in addition to other columns.
- Step 3** Select the check box to the left of the desired devices and click **Set Device Tags**.

Note For a single device, you can also click the number displayed in the **Device Tag** column.
- Step 4** Do one of the following:

- To apply a device tag, from the **Available Tags** list, click the tags that you want to apply to the selected devices.

Note If the desired tag is not in the list, enter a name for the tag and click **+New Tag**.

- To remove a device tag, from the **Applied Tags** list, click the **Trash can** icon next to the tag that you want to remove from the selected devices.

Note The **Applied Tags** list is populated only if at least one of the selected devices has a tag applied to it.

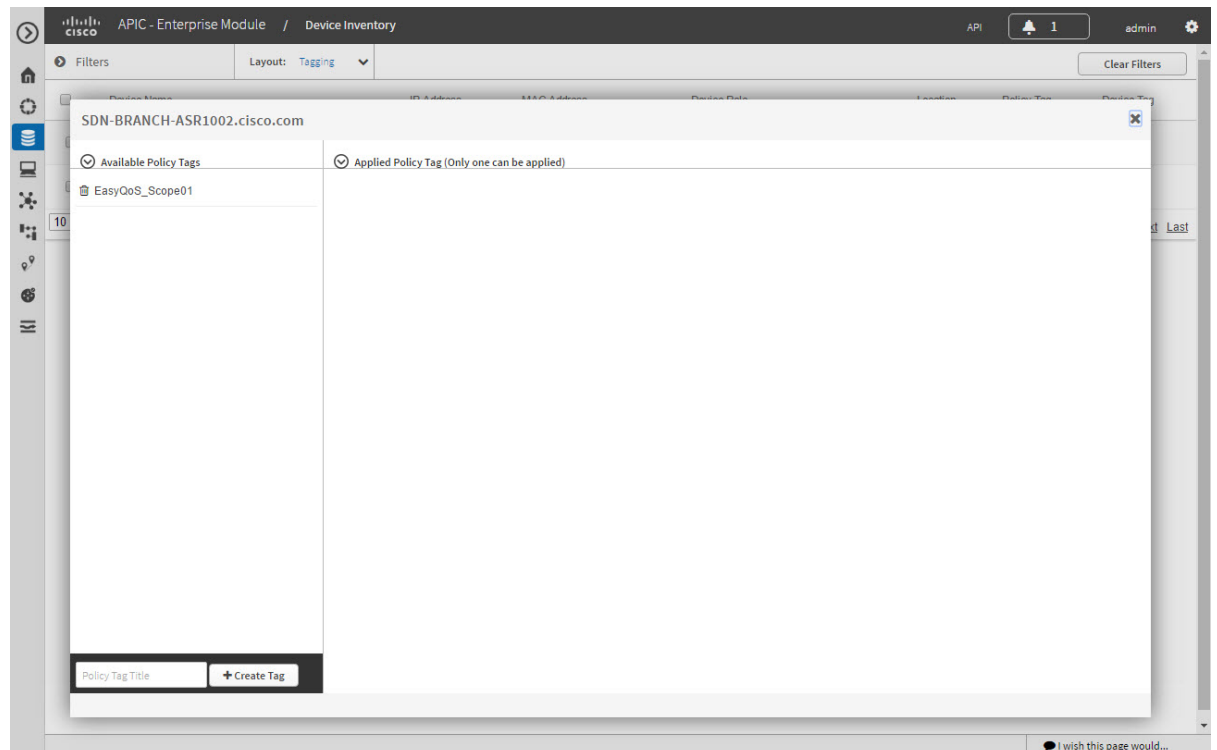
Step 5 Click **x** to close the dialog box.

What to Do Next

If required for your network configuration, add location or policy tags to your devices.

Adding or Removing a Policy Tag in Device Inventory

You can apply a policy tag applied to a group of devices so that you can deploy the same QoS policy to those devices at the same time.



Before You Begin

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

Procedure

Step 1 From the **Navigation** pane, click **Device Inventory**.

Step 2 From the **Device Inventory** toolbar, choose **Layout > Tagging** from the drop-down list. The table refreshes and displays a **Policy Tag** column in addition to other columns.

Step 3 Select the check box to the left of the desired devices and click **Set Policy Tag**.

Note For a single device, you can also click **Add** displayed in the **Policy Tag** column.

Step 4 Do one of the following:

- To apply a policy tag, from the **Available Tags** list, click the tag that you want to apply to the selected devices.

Note If the desired tag is not in the list, enter a name for the tag and click **+New Tag**.

- To remove a policy tag, from the **Applied Tags** list, click the **Trash can** icon next to the tag that you want to remove from the selected devices.

Note The **Applied Tags** list is populated only if at least one of the selected devices has a tag applied to it.

Step 5 Click **x** to close the dialog box.

What to Do Next

If you added a policy tag to devices and now want to configure QoS policies, see the *Cisco EasyQoS Solution Guide*.

Adding or Removing Location Tags

You can apply a location tag to a device to name a device's geographic location. By applying the same tag to several devices, you can group them based on their common location. You can create a location tag and, optionally, place a corresponding location marker on a geographical map. For information, see [Adding or Changing a Location Marker](#), on page 17.

Use the following guidelines when adding location tags:

- Location tag information is maintained on the controller only and not deployed to or derived from the device itself.
- When location tags and markers are used, the **Topology** window displays them on a geographical map.
- A location defined on the controller is not the "civic-location" property that some devices support.
- Location tags cannot be attached to hosts.

- You can apply only one location tag to a device. However, you can use both a location tag and a device tag together.

Figure 4:



Before You Begin

You must have administrator (ROLE_ADMIN) permissions and access to all devices (RBAC Scope set to ALL) to perform this procedure.

Procedure

-
- Step 1** From the **Navigation** pane, click **Device Inventory**.
- Step 2** From the **Device Inventory** toolbar, choose **Layout > Tagging** from the drop-down list. The table refreshes and displays a **Location** column in addition to other columns.
- Step 3** Select the check box to the left of the desired devices (or select the check box at the top of the list to select all devices) and click **Set Location**.
- Note** For a single device, you can also click the **Add** link displayed in the **Location** column for that device.
- Step 4** Do one of the following:
- To apply a location tag, from the **Available Tags** list, click the tag that you want to apply to the selected devices. If the desired tag is not in the list, click the plus icon (+), enter a name for the tag, and click the check mark icon.
 - To remove a location tag assignment from the devices, in the **Edit Location** field, click the x icon . The devices now have no location tag assignment.
 - To change the current location tag to another one, click the new location tag that you want to assign.
 - To delete the location tag, first make sure that it is not in use (either change device assignments to other location tags or remove the tag assignment altogether). Then, click the trash can icon next to the location tag that you want to delete.
- Step 5** When you are done, click x to close the dialog box.
-

What to Do Next

If required for your network configuration, add or remove other location tags to other devices or add location markers.

Related Topics

[Adding or Changing a Location Marker, on page 17](#)

Adding or Changing a Location Marker

A location marker is an icon used to indicate the location of the devices associated with a location tag on a geographical map. You can add a location marker to devices in the **Device Inventory** window.

Before You Begin

You must have administrator (ROLE_ADMIN) permissions and access to all devices (RBAC Scope set to ALL) to perform this procedure.

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

You have already added location tags to your devices.

Procedure

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- Step 1** From the **Navigation** pane, click **Device Inventory**.
- Step 2** From the **Device Inventory** toolbar, choose **Layout > Tagging** from the drop-down list. The table refreshes and displays a **Location** column in addition to other columns.
- Step 3** (Optional) To display devices with a specific location tag, from the **Device Inventory** toolbar, click **Filters**, enter a location tag in the **Device Location** field, and click the + icon.
- Step 4** Select the desired location tag from the **Locations** column.
- Note** Because you are not assigning a location tag, it is not important which device you choose. When you add or remove a location marker, the change is applied to the location tag, and all devices that have the location tag will be updated.
- Step 5** To add or change a location marker, select the location tag from the **Available Locations** pane and do one of the following:
- In the **Address of Location** field on the right side of the geographical map, enter the address where you want to place the location marker. You can enter a complete address or part of an address, for example, a city name or zip code. Cisco APIC-EM displays the location on the map. Click the map where you want the marker to be placed and confirm the action in the confirmation dialog box that appears.
 - Position the map as close to the desired location as possible using your mouse to drag and drop, zoom in, and zoom out on the map, then click the map.
- Note** If you need to reposition the marker, click the map again where you want the marker to be placed.
- Figure 5: Edit Location Dialog Box Showing Location Marker**
- Screen shot to be provided.
- Step 6** (Optional) To add additional location markers, click another location tag and repeat Step 5.
- Step 7** When you are done, click **x** to close the dialog box.
-

Related Topics

[Topology](#)

[Topology Icons](#)
[Topology Toolbar](#)

Deleting a Tag

When a device tag, policy tag, or location tag is no longer needed, you can delete it, and it is removed permanently from the controller. You can delete device tags using the **Device Inventory** window or the **Topology** window. Policy tags and location tags can be deleted only from the **Device Inventory** window. This procedure shows you how to delete tags from the **Device Inventory** window.

Before You Begin

You must have administrator (ROLE_ADMIN) permissions and access to all devices (RBAC Scope set to ALL) to perform this procedure.

Make sure that you have devices in your inventory. If not, discover devices using the Discovery function.

Before you can delete a tag, you need to remove it from all devices that have been assigned the tag.

Procedure

- Step 1** From the **Navigation** pane, click **Device Inventory**.
- Step 2** From the **Device Inventory** toolbar, choose **Layout > Tagging** from the drop-down list.
- Step 3** Do one of the following:
- To delete a device tag, click any number in the **Device Tag** column. From the **Available Tags** list, click the **Trash can** icon next to the tag or tags that you want to delete.
 - To delete a policy tag, click **Add** or the name of a policy tag in the **Policy Tag** column. From the **Available Tags** list, click the **Trash can** icon next to the tag or tags that you want to delete.
 - To delete a location tag, click **Add** or the name of a location tag in the **Location** column. From the **Available Locations** list, click the **Trash can** icon next to the tag or tags that you want to delete.
- Step 4** Click **OK** to confirm the deletion.
The tag is removed permanently from the controller.
If the deletion fails, the tag might still be assigned to devices. Remove the tag from these devices and try to delete the tag again.
- Step 5** Click **x** to close the dialog box.
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Managing Your Host Inventory

Cisco APIC-EM displays information about the discovered hosts in the **Host Inventory** window.

The following table describes the information that is displayed about the hosts in your inventory.



Note

Use the filters located below the **Host Inventory** table to limit the number of hosts displayed in the table (10, 25, 50, 100) or to view groups of hosts at a time (First, Previous, Next, Last, or 1-3).

Figure 6: Host Inventory Window

| Host MAC Address | Host IP Address | Host Type | Connected Network Device IP Address | Connected Interface Name | Host Name |
|-------------------|-----------------|-----------|-------------------------------------|--------------------------|-----------|
| 00:50:56:aa:6f:6d | 200.200.200.136 | WIRED | 150.50.3.2 | GigabitEthernet1/0/37 | |
| 00:50:56:aa:cb:38 | 200.200.200.134 | WIRED | 150.50.3.2 | GigabitEthernet1/0/37 | |
| 00:50:56:aa:d3:fc | 200.200.200.135 | WIRED | 150.50.3.2 | GigabitEthernet1/0/37 | |
| 00:50:56:aa:ef:e9 | 200.200.200.24 | WIRED | 150.50.3.2 | GigabitEthernet1/0/37 | |
| 58:ac:78:59:9f:3f | 200.200.200.129 | WIRED | 150.50.3.2 | GigabitEthernet1/0/31 | |

The following table describes the information that is displayed about the hosts in your inventory.

Table 2: Host Inventory

| Host Inventory | Description |
|-------------------------------------|--|
| Host Name | Name of the host. |
| Host MAC address | MAC address of the host. |
| Host IP address | IP address of the host. |
| Host type | Type of host (wired or wireless). |
| Connected Network Device IP Address | IP address of the device that is connected to the host. Note IP addresses of only wired devices are shown. |
| Connected Interface Name | Name of the interface that the device is connected to. For example, GigabitEthernet1/0/24. |

Filtering Hosts in the Host Inventory Window

You can filter the hosts displayed in the **Host Inventory** window by host MAC address, host IP address, host name, host type, connected network device IP address, or connected interface name.

Before You Begin

Make sure that you have hosts in your inventory. If not, discover them using the Discovery function.

Procedure

- Step 1** From the **Host Inventory** toolbar, click **Filters**.
You can choose from the following filter options:
- **Host MAC Address**
 - **Host IP Address**
 - **Host Name**
 - **Host Type**
 - **Connected Network Device IP Address**
 - **Connected Interface Name**
- Step 2** Enter the appropriate value in the selected filter field.
For example, for the **Host Name** filter, enter the name of the host.
The controller presents you with auto-complete values as you enter values in the other fields. Choose one of the suggested values or finish entering the value.
- Note** You can also use a wildcard (asterisk) with these filters. You can enter values with the asterisk at the beginning, end, or in the middle of the string value.
- Step 3** Click the plus (+) icon to perform the filter.
The data displayed in the **Devices** table automatically updates according to your filter selection.
- Step 4** (Optional) If needed, add more filters following the above steps.
Note You can filter on more than one value per filter or across several different filter types.
- Step 5** To remove the filter, click the x icon next to the filter value.
-