Grouping Devices, Ports and Data Center

You can create your own logical grouping of devices, ports and data center to enable efficient update and management of your device and data center. For example, you can create a device group that includes devices with a particular module. If you later want to configure a feature related specifically to that module, you use the device group that you created to push the configuration change to all of the devices contained in the group.

Types of Groups

You can use groups to filter views of devices and their associated alarms, control which network topology to view, and perform bulk operations (such as configuration changes and software updates) on sets of devices. Grouping not only saves you time when configuring multiple devices, but it also ensures that configuration settings are applied consistently across your network.

Prime Infrastructure provides the following types of grouping:

- **Device type groups**—By default, Prime Infrastructure creates rule-based device groups and assigns devices to the appropriate Device Type folder. You cannot edit these device groups. You can view the rules for a device group by hovering your mouse cursor over the device group folder. The device type groups are not used for network topology maps.

- **User defined groups**—Create your own device groups based. These groups can be static or dynamic.

- **Location groups**—Create location-based groups. For example, if you have devices that reside in different time zones, you can create location groups based on geographic regions so that the devices in one group can have a different time zone setting from the devices in another group.

- **Port groups**—Create port groups to simplify monitoring and configuring ports.

In smaller deployments where all devices can be configured with the same settings, you may only need to create one general device group. This setup allows you to configure settings for the group, and then apply those settings consistently across all of your devices.

You cannot control which users have access to which device groups. All users can see all device groups. For role-based access control (RBAC), you need to create sites and virtual domains.

Related Topics

- Creating Device Groups
- Using Location Groups
- Creating Location Groups
- Creating Groups of Ports
Creating Device Groups

You can create the following device groups:

- **Static**—Create and name a new device group to which you can add devices from Inventory > Device Management > Network Devices or from Inventory > Group Management > Network Device Groups.

- **Dynamic**—Create and name a new device group and specify the rules to which devices must comply before they are added to this device group. You can select one of the rules such as Description (sysDescr), Location (sysLocation), Management address, Device name, Product Family, Product Series, Product type, Software type and Software version. You do not add devices to dynamic groups. Prime Infrastructure adds devices that match the specified rules to the dynamic group from Inventory > Group Management > Network Device Groups or from Inventory > Device Management > Network Devices.

- **Mixed**—Create and name a new device group to which you can add devices manually and specify the rules to which devices must comply before they are added to this device group from Inventory > Group Management > Network Device Groups or from Inventory > Device Management > Network Device.

Before you create a device group, make sure that you understand the unique properties that you want the group to contain. For example, you may want to set up two device groups that have different authentication settings or different time zone settings.

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**Note**

While there is no limit to the number of rules that you can specify for a dynamic group, as the number of rules increases, the group update performance could become slower.

To create a device group, follow these steps:

**Step 1** Choose Inventory > Device Management > Network Devices or Inventory > Group Management > Network Device Groups.

**Step 2** In the Device Groups pane on the left, perform one of the following tasks:

- Click the expand icon next to User Defined and click Add SubGroup.
- Click the add icon and choose Create User Defined Group form the drop-down list.

**Step 3** Enter the group name and group description, and select a parent group, if applicable.

**Step 4** Specify whether you want to create a dynamic or static group:

**Step 5** To create a dynamic group, in the Add Devices Dynamically group box, specify the rules that you want to apply to the devices in the group. Click Preview to view the devices that are automatically added to the group based on the specified rule and the manually added devices.

You can create a rule using the UDF labels defined in Administration > Settings > System Settings > User Defined Field.

To create a static group, in the Add Devices Manually group box, click Add, then choose the devices that you want to assign to the group.

**Step 6** Click Save to add the device group with the settings that you specified.

The device group that you created appears under the user-defined groups.
Using Location Groups

Location groups allow you to group devices by location. You can create a hierarchy of location groups (such as theater, country, region, campus, building, and floor) by adding devices manually or by adding devices dynamically.

A device should appear in one location group only, though a higher level “parent” group will also contain that device. For example, a device that belongs to a building location group might also indirectly belong to the parent campus group.

By default, the top location of the hierarchy is the All Locations group. All devices that have not be assigned to a location appear under the Unassigned group under All Locations.

Creating Location Groups

To create a location groups, follow these steps:

Step 1  Choose Inventory > Group Management > Network Device Groups or Inventory > Device Management > Network Devices.

Step 2  In the Device Groups pane on the left, perform one of the following tasks:
•  Click the expand icon next to Location and click Add SubGroup.
•  Click the add icon and choose Create Location Group form the drop-down list.

Step 3  In the Device Groups pane on the left, click the expand icon next to Location and click Add SubGroup.

Step 4  Enter the group name and group description, and select a parent group, if applicable.

Step 5  In the Add Devices Dynamically group box, specify the rules that you want to apply to the devices in the group.

Step 6  In the Add Devices Manually group box, choose the devices that you want to assign to the group.

Step 7  Click Preview to view the devices that are automatically added to the group based on the specified rule and the manually added devices.

Step 8  Click Save to add the device group with the settings that you specified.
Related Topics

- Types of Groups
- Creating Device Groups
- Using Location Groups
- Creating Groups of Ports

Location Groups and Wireless Maps

The location groups you create are separate and independent from wireless maps (Maps > Wireless Maps > Site Maps), though you’ll want to make sure they are similar in structure. Therefore, if you add a new site under Maps > Wireless Maps > Site Maps, you should create a new location group (Inventory > Group Management > Network Device Groups) with the same name and devices.

Editing User Defined and Location Groups

You can change the parent group, add devices, and modify device rules using the edit option.

To edit a group follow these steps:

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Choose Inventory &gt; Group Management &gt; Network Device Groups.</td>
</tr>
<tr>
<td>Step 2</td>
<td>In the Device Groups pane on the left, click on the name of the group you want to edit.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Click Edit and modify the details.</td>
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<tr>
<td>Step 4</td>
<td>Click Preview to view the updated device details.</td>
</tr>
<tr>
<td>Step 5</td>
<td>Click Save to save the updated device details.</td>
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</tbody>
</table>

Duplicating User Defined and Location Groups

You can duplicate a group using the Duplicate Group option in quick view. The duplicated group contains all of the values entered by the user in the UI for a group. The populated group name will have a prefix of ‘CopyOf’ by default. You can change the name, if required.

If you duplicate a child group, a copy of child group is created under the same parent group.

To duplicate a group follow these steps:

<table>
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<tr>
<th>Step</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Choose Inventory &gt; Group Management &gt; Network Device Groups.</td>
</tr>
<tr>
<td>Step 2</td>
<td>In the Device Groups pane on the left, click the icon next to the name of the group you want to duplicate.</td>
</tr>
<tr>
<td>Step 3</td>
<td>Click Duplicate Group and update the device details.</td>
</tr>
<tr>
<td>Step 4</td>
<td>Click Preview to view the updated device details.</td>
</tr>
<tr>
<td>Step 5</td>
<td>Click Save to save the updated device details.</td>
</tr>
</tbody>
</table>
Deleting User Defined and Location Groups

You can delete a group using **Delete Group** option in quick view. You can delete a group only if the group does not have any immediate child group.

To delete a location group follow these steps:

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**Step 1** Choose **Inventory > Group Management > Network Device Groups** or **Inventory > Device Management > Network Devices**.

**Step 2** In the **Device Groups** pane on the left, click the expand icon next to name of the group you want to delete, and click **Delete Group**.

**Step 3** Click **OK** in the popup window to delete the selected group.

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Device Accessibility in Parent-Child Device and Location Groups

The device inheritance in parent-child user defined and location groups are as follows:

- **User Defined Group**—When you create a child group under a parent device group, the devices accessible to the child group depend on the device group that you create:
  - If the parent and child group are both dynamic device groups, the child group can access the devices available in the parent group only.
  - If the parent group is a static device group and the child group is a dynamic group, the child group is not limited to the devices available in the parent group.
  - In dynamic and mixed device groups the child group “inherits” its devices from the parent device group.

- **Location Group**—The parent group is a superset of all the child groups and inherits the child group devices.

Hiding Empty Groups

A device or port group might be empty if:

- You created a group in which no devices are added manually or dynamically.
- You created a static group and have not added devices to the group.
- You created a dynamic group in which no devices matched the rules that you specified for the dynamic group.

By default, Prime Infrastructure displays empty groups. If you do not want to display empty groups, choose **Administration > Settings > System Settings > Inventory > Grouping**, then unselect **Display groups with no members** check box.
Creating Groups of Ports

Creating a port group helps you simplify monitoring and configuration tasks. For example, you might want to create a port group that contains all WAN ports so that you can easily monitor these key ports. By default, port groups are based on interface type.

A port group that you create can be one of three types:

- **Static**—Create and name a new port group to which you can add interfaces using the Add to Group from Inventory > Group Management > Port Groups.

- **Dynamic**—Create and name a new port group. Specify rules to which ports or interfaces must comply before they can be added to this port group.

- **Mixed**—Create and name a new port group to which you can add interfaces manually. Specify rules such as Name, Speed, Description and Type to which the interfaces must comply before they are added to this port group from Inventory > Group Management > Port Groups.

**Note** While there is no limit on the number of rules that you can specify for a dynamic group, as the number of rules increases, the group update performance could become slower.

To create a port group follow these steps:

**Step 1** Choose Inventory > Group Management > Port Groups.

**Step 2** In the Port Groups pane on the left, mouse hover the information icon next to the User Defined group and click Add SubGroup.

**Step 3** Enter the name, description, and parent group if applicable.

**Step 4** Select whether the group is static or dynamic:
- **Static**—Click Add under Add Ports Manually. The ports of the selected device is displayed. Choose the ports for adding to the group based on your needs.
- **Dynamic**—You must specify rules to which ports must comply before they are added to this port group. You do not add ports to dynamic groups. Prime Infrastructure adds ports that match the specified rules to the dynamic group.

**Step 5** Click Save.

Creating Device Context or Group Context Port Groups

The Device Context Selection option enables you to group ports for a specific device group.

To create a port group for a specific device or group:

**Step 1** Choose Inventory > Group Management > Port Groups.

**Step 2** In the Port Groups pane on the left, mouse hover the information icon next to the User Defined group and click Add SubGroup.

**Step 3** Enter the name, description, and parent group if applicable.

**Step 4** Click the Device Selection drop-down arrow.
Understanding System Defined Port Groups

Prime Infrastructure supports four types of system defined port groups. As and when new devices are added to the system, the ports of the devices are automatically assigned to the respective groups.

- **Trunk Ports**—Ports that are connected to a Cisco device or other network devices (Switch/Router/Firewall/Third party devices) and operating on “Trunk” mode in which they carry traffic for all VLANs.
- **Link Ports**—Ports that are connected to another Cisco device or other network devices and are operating on “VLAN” mode and are assigned to a VLAN.
- **Access Ports**—Ports that are connected to an end host, IP phone, servers, Access Points (AP) or video end points and operating on “Access” mode in which they carry traffic for only one particular VLAN.
- **Unconnected Ports**—Ports are unconnected if any or all of the below are valid:
  - Not connected to any device.
  - Operational status is down.
  - Administrative status is down.

**Note**
The ports in this group can not be deleted and neither can this group be created as a sub group. If the status of a port goes down, it is automatically added to Unconnected Port group.
Adding Access Points (AP) to Device Group or Location Group

You can add AP under the Device or Location group.

To Add AP to device group:

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**Step 1** Choose **Inventory > Group Management > Network Device Groups**.

**Step 2** In the Device Groups pane on the left, mouse hover the expand icon next to the **User Defined** and click **Add SubGroup**.

**Step 3** Enter the name, description, and parent group if applicable.

**Step 4** Add APs in one of the following ways:

- **Static**—Click **Add** under **Add Devices Manually** and select APs to be added to the group, based on your need.
- **Dynamic**—Specify rules to which APs must comply before they are added to this port group. You do not add APs to dynamic groups. Prime Infrastructure adds APs that match the specified rules to the dynamic group.

**Step 5** Click **Preview** to view the APs that are automatically added to the group based on the specified rule and the manually added APs.

**Step 6** Click **Save**.

If the group has 'Unified AP' or 'Third Party AP' as its member, a new tab is added in the right hand table in the Device Work Center, to display the APs.

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Creating Customized Port Groups

You can create a customized, user-defined port group that contains devices or interfaces on which you want to apply configuration changes in one operation.

To create a customized port group follow these steps:

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**Step 1** Choose **Inventory > Group Management > Port Groups**.

**Step 2** In the Device Groups pane on the left, mouse hover the expand icon next to the **User Defined** and click **Add SubGroup**.

Leave the default Parent Group text box entry as **User Defined**.

**Step 3** Enter a group name and description, then select whether the group is static or dynamic:

- **Static**—Click **Add** under **Add Ports Manually**. The ports of the selected device is displayed. Choose the ports for adding to the group based on your needs.
- **Dynamic**—You must specify rules to which ports must comply before they are added to this port group. You do not add ports to dynamic groups. Prime Infrastructure adds ports that match the specified rules to the dynamic group.

The port group that you created appears under the User Defined folder.
Grouping Integration with Data Center

In addition to the out-of-box groups for data center and cluster, you can create multiple user-defined groups for VMs and hosts.

To create user defined Hosts and VMs groups, follow these steps:

Step 1  Choose Inventory > Device Management > Compute Devices > User Defined Hosts and VMs.
Step 2  Hover your mouse over the expand icon and click Add SubGroup.
Step 3  Enter the group name and group description, and select a parent group, if applicable.
Step 4  In the Add Devices Dynamically pane, specify the rules that you want to apply to the devices in the group.
Step 5  In the Add Devices Manually pane, choose the devices that you want to assign to the group.
Step 6  Click Preview to view the devices that are automatically added to the group based on the specified rule and the manually added devices.
Step 7  Click Save to add the device group with the settings that you specified.