



Using Device Groups and Device Locations

This chapter describes the types of device groups supported by the Cisco WAAS software and how to create groups that make it easier to manage and configure multiple devices at the same time. This chapter also discusses how to use device locations.



Note Throughout this chapter, the term Cisco WAAS device is used to refer collectively to the Cisco WAAS Central Managers and Cisco WAEs in your network. The term WAE refers to Cisco WAE and Cisco WAVE appliances, and Cisco WAE Network Modules (the Cisco NME-WAE family of devices).

This chapter contains the following sections:

- [About Device Groups, on page 1](#)
- [Working with Device Groups, on page 2](#)
- [Working with Device Locations, on page 12](#)

About Device Groups

When you create a device group, you need to identify the unique characteristics that distinguish that group of devices from others in your network. For example, in larger Cisco WAAS deployments, one set of devices may need to be configured with authentication settings that are different from another set of devices in your Cisco WAAS network. In this situation, you would create two device groups that each contain different authentication settings, and then assign your devices to the most appropriate group.

If you have devices that reside in different time zones, you can also create device 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.

In smaller Cisco WAAS 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 your Cisco WAAS devices.

Groups not only save you time when configuring multiple devices, but they also ensure that configuration settings are applied consistently across your Cisco WAAS network.

There are two types of device groups: **WAAS Device Groups** and **WAAS Express Device Groups**. These groups are explained in more detail in [Creating a New Device Group, on page 2](#).

When you register a Cisco WAAS device with the Cisco WAAS Central Manager, that device automatically joins the **AllWAASGroup**, which is the default device group on the system for Cisco WAAS devices. If you create additional device groups, you need to decide if you want your devices to belong to more than one group (the default **AllWAASGroup** and the new device group you create). If you only want a device to belong to a device group that you create, make sure that you remove the device from the default **AllWAASGroup**. WAAS Express devices automatically join the default **AllWAASExpressGroup** device group when they are registered with the Central Manager.

Cisco WAAS devices and Cisco WAAS Express devices cannot be mixed in the same device group. You choose the device group type when you create the group and it cannot be changed. When you create a Cisco WAAS Express type of device group, you can copy policies from an existing Cisco WAAS or Cisco WAAS Express group, but policies cannot be copied after creation.

Working with Device Groups

This section contains the following topics:

Creating a Device Group

This section contains the following topics:

The following table provides a checklist for creating a new device group.

Table 1: Checklist for Creating a Device Group

Task	Additional Information and Instructions
1. Create a new device group.	Defines general information about the new group, such as the group name, group type, and whether all newly activated devices are assigned to this group. For more information, see Creating a New Device Group, on page 2 .
2. Configure the settings of the new device group.	Specifies the settings that are unique to this device group. All devices that are a member of this group will automatically inherit these settings. For more information, see Configuring the Settings for a Device Group, on page 4 .
3. Assign devices to the device group.	Assigns devices to the group so they can inherit the group settings. For more information, see Assigning Devices to a Configuration Device Group, on page 5 .

Creating a New Device Group

Before you begin

Before you create a device group, make sure 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.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups > All Device Groups**. The **Device Group** window appears. From this window you can perform the following tasks:
- Click the **Edit** icon next to the device group that you want to modify.
 - Create a new device group as described in the steps that follow.
- Step 2** Click the **Create New Device Group** icon in the taskbar. The **Creating New Device Group** window appears.
- Step 3** In the **Name** field, enter the name of the device group.
- The name must be unique and should be a name that is useful in distinguishing the device group from others/other groups on your system. Otherwise, an error message stating that the name already exists is displayed. The name cannot contain characters other than letters, numbers, period, hyphen, underscore, and space.
- Step 4** For the **Configuration Group Type**, choose either **WAAS** or **WAAS Express**. This sets the type of devices that the group can contain. A WAAS Express group can contain only WAAS Express devices. A WAAS group can contain all types of devices *except for* WAAS Express devices.
- Step 5** Check the **Automatically assign all newly activated device to this group** check box to set this device group as the default device group for all newly activated devices.
- Step 6** If you chose the **WAAS Express** group type, you can copy policies from another existing group by choosing the group in the Copy Policies from the device group drop-down list. If you copy policies from a WAAS group, only basic optimization policies are copied, not application acceleration policies.
- If you chose the WAAS device group type, you can copy policies from another existing WAAS device group by choosing the WAAS device group in the Copy Configuration from the device group drop-down list. This copies only the WAAS policy configurations from the selected device group. Note that only those WAAS device groups that have configured policies are listed here.
- Step 7** (Optional) Enter comments about the group in the **Comments** field. The comments that you enter will appear in the **Device Group** window.
- Step 8** Click **Submit**.
- The window refreshes with additional options.
- Note** The **Pages** configured for this device group arrow lists the configuration windows in the Cisco WAAS Central Manager GUI that have been configured for this device group. Because this is a new device group, no pages will appear in this list.
- Step 9** (Optional) Customize the menu options for this device group by completing the following steps. Use this feature to remove from view any configuration windows that you do not need for that particular device group:
- a) Click **Select pages to hide from table contents for this device group** arrow.
A list of windows in the Cisco WAAS Central Manager GUI appears.
 - b) Check the windows that you want to hide for this device group. You can click the folder icon next to a window to display its child windows.
 - c) Click **Submit**.

- Step 10** Configure the settings for this device group as described in [Configuring the Settings for a Device Group, on page 4](#).
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Configuring the Settings for a Device Group

Before you begin

After creating a device group, you need to configure the settings that you want to be unique to this group.

Consider the following guidelines when you configure device group settings:

- If you have a general device group that contains all your Cisco WAAS devices of a specific type, configure only the settings that you want to be consistent across all the devices of that type.
- Settings that apply to a single device should be configured on that device only and not on the device group.
- When a device group is created, no policies are assigned to that group unless the admin adds them.
- Note the following about the class-default policy and creating or changing device group settings:
 - After policies are added to a device group (either custom or the default set), a class-default policy is also created.
 - All of the policies in a default policy set or custom policy set except the class-default policy can be modified or deleted.
 - The class-default policy cannot be modified or deleted. To change the class-default policy, you must delete the device group, and then create a new device group with a new class-default policy.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups** > *device-group-name*.
The **Modifying Device Group** window appears.
- Step 2** Click the **Pages configured for this device group** arrow button to view which configuration windows have already been configured for the group.
A list of pages that are configured for that device group appears. If this is a new device group or if there are no pages configured for this device group, the list displays **Null**.
- Step 3** Customize the menu options for this device group by completing the following steps:
- a) Click the **Select pages to hide from table of contents of this device group** arrow button.
A list of windows in the Cisco WAAS Central Manager GUI appears.
 - b) Place a check next to the windows that you want to hide for this device group. Use this feature to remove from view any configuration windows that you do not need for this particular device group.
- Step 4** Use the menu bar to choose each configuration option that you want to modify for this device group.
If the configuration option has not been configured for this device group, the message **There are currently no settings for this group** appears at the top of the window.

- Step 5** Make the necessary changes on the configuration option window and, after finished, click **Submit**.
After a particular setting is configured, the configuration window is listed under **Pages** configured for this device group in the **Modifying Device Group** window.
- Step 6** Assign devices to this new group as described in [Assigning Devices to a Configuration Device Group, on page 5](#).

Assigning Devices to a Configuration Device Group

Before you begin

After you create a configuration device group, you need to assign devices to the group. The Cisco WAAS Central Manager GUI provides two methods to assign devices to a configuration group:

- Select the device first, and then assign a device group to the device.
- Select the device group first, and then assign devices to the device group.

Consider the following guidelines for assigning devices to a configuration device group.

- To assign a device group to a device, choose **Devices** > *device-name* and choose **Assign Device Groups** from the *device-name* menu. You can then assign a device group to the device using the same method described in **Step 4** and **Step 5** below.
- You cannot assign the Cisco WAAS Central Manager to a device group. You must configure the Cisco WAAS Central Manager separately from other devices.
- You cannot assign WAAS Express devices to a WAAS group, and you cannot assign WAAS devices to a WAAS Express group. When you assign devices to device groups, invalid devices are not shown in the device list.
- By default, all devices when they are activated automatically join either the **AllWAASGroup** or the **AllWAASExpressGroup**. If you do not want a device to belong to one of the default device groups: unassign that device from the default device group, and then assign that device to a custom device group. Generally, when assigning a device to two different Device Groups, have the same page configured in it: either have the page configured in single Device Group or it is expected to have **Force Device Group (FDG)** settings enabled in the other Device Group. The Cisco WAAS Central Manager pushes the latest changed Device Group's configuration to the device.
- When a device is moved from a Device level to Device Group level, the configurations of the **Current applied settings from Device** are applied to the Device Group. In such conditions, the **Force** device group icon appears in the respective device group configuration pages for that device.

This **Force** device group icon depicts that there is difference between Device and Device group configurations and can be resolved using the [Procedure for Forcing Device Group Settings, on page 9](#).

Additionally, they show up in the **Force Device Group Detection** window. This **Force** device group icon depicts that there is a difference between Device and Device group configurations. The Cisco WAAS Central Manager provides an easy way to identify, view and resolve these configuration conflicts.

- When you assign devices that have different Cisco WAAS software versions to a device group, some features configured for a device group may not be supported by all devices in the group. In some cases, devices may be prevented from joining the group if the group is configured with policies that they cannot

support. In such cases, we recommend that you upgrade all devices to the same software version, or create different device groups for devices with incompatible versions.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups** *device-group-name* .
The **Modifying Device Group** window appears.
- Step 2** Choose *device-group-name* **Assign Devices**.
The **WAE/WAAS Express Assignments** window appears, displaying the devices assigned to various locations. If you are editing a WAAS group, only WAAS devices are shown. If you are editing a WAAS Express group, only WAAS Express devices are shown.
The **WAE/WAAS Express Assignments** window allows you to filter your view of the items in the list. Filtering allows you to find items in the list that match the criteria that you set.
- Step 3** Assign all available devices, or specific devices, to the device group:
- To assign all available devices to the device group, click the **Select All** icon (blue "x" overlaid with green arrow)
 - To assign specific devices to the device group, click the **Select** icon (blue "x") next to each device that you want to assign to the device group.
- Step 4** Click **Submit**.
A green check mark appears next to the assigned devices.
- Step 5** Click the **Unassign** icon (green check mark) next to the name of the device that you want to remove from the device group. Alternatively, you can click the **Remove all** icon in the taskbar to remove all devices from the selected device group. Click **Submit**.
If there is any mismatch in the configuration between a Device and Device group configured pages, the **Force Device Group** icon will appear in the respective device group configuration page after assigning the device to the device group.
To correct this, use the Force Group Settings, described in [Procedure for Forcing Device Group Settings, on page 9](#) to ensure that all devices in the specified group have the same configuration.
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Deleting a Device Group

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups** > *device-group-name*.
The **Modifying Device Group** window appears.
- Step 2** In the taskbar, click the **Delete Device Group** icon. You are prompted to confirm your decision to delete the device group.

- Step 3** To confirm your decision, click **OK**.
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Viewing the Groups Assigned to a Device

Before you begin

The Cisco WAAS Central Manager GUI allows you to view the groups that a device belongs to, as well as the devices that belong to a specific group. This section describes both of these procedures.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Devices** > *device-name*.
The **Device Dashboard** window appears.
- Step 2** In the **Assignments** field on the **Device Dashboard** window, click the link that displays the groups to which the device is assigned.
The **Device Group Assignments** window appears, which shows all the device groups in your Cisco WAAS network that match the device type (Cisco WAAS or Cisco WAAS Express). The device is assigned to the device groups with a green check mark next to them.
You can also go to the **Device Group Assignments** window by choosing the **Assign Device Groups** option in the menu bar.
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Viewing the Devices Assigned to a Group

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups** *device-group-name* .
The **Modifying Device Group** window appears.
- Step 2** Choose *device-group-name* **Assign Devices**.
The **WAE/WAAS Express Assignments** window appears, which shows all the Cisco WAAS or Cisco WAAS Express devices on your Cisco WAAS network. The devices with a green check mark next to them are assigned to this group.
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Viewing the Device Groups List

The **Device Groups** window lists all the device groups that have been created in your Cisco WAAS network. To view this list, from the Cisco WAAS Central Manager menu bar, choose **Device Groups** > **All Device Groups**.

The **Device Groups** window appears; this window displays the following information about each device group:

- Type of device group (WAAS Configuration Group or WAAS Express Configuration Group).
- Any comments that were entered when the device group was created.

From the **Device Groups** window, you can perform the following tasks:

- Create a new device group. For more information, see [Creating a New Device Group, on page 2](#).
- Modify the settings of a device group: click the **Edit** icon next to the group that you want to edit.

Enabling or Disabling Device Group Overlap

Before you begin

By default, you can assign a device to multiple device groups. You can disable this functionality so a device can only belong to one device group, which eliminates the possibility of a device inheriting settings from more than one group.

Procedure

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- Step 1** From the Cisco WAAS Central Manager menu, choose **Configure > Global > System Properties**. The **Config Properties** window appears.
- Step 2** Click the **Edit** icon next to the property name **DeviceGroup.overlap**. The **Modifying Config Property, DeviceGroup.overlap** window appears.
- Step 3** From the **Value** drop-down list, choose either **true** or **false**. The default is **true**.
When you disable Device Group Overlap (set to **false**), existing overlapping device groups are retained and continue to be handled as though overlap were enabled. However, any newly added groups do not allow overlapping, and new devices cannot be added to the existing overlapping groups.
- Step 4** Click **Submit**.
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Overriding Group Configuration Settings

The Cisco WAAS Central Manager GUI provides the following methods to override the current group configuration on a device:

Forcing Device Group Settings on All Devices in the Group

This section contains the following topics:

Operating Considerations for Force Group Settings

The **Device Groups** > *device-group-name* > **Force Group Settings** applies all settings configured for a specified device group to all the WAEs and WAAS Express assigned to it.

When you register a WAE to the Cisco WAAS Central Manager, consider the following uses of **Force Group Settings**:

- Because all devices in a device group have the same configuration, the configuration you apply at the device group level gets assigned to all the devices in the group. However, if a device in a device group has local settings that were either configured manually using the Cisco WAAS CLI or automatically during upgrade, its device settings may be out of sync with the rest of the device group. To remedy this:
 - To ensure that all devices in the specified group have the same configuration, use **Force Group Settings**, as described in [Procedure for Forcing Device Group Settings, on page 9](#).
 - To avoid the need to use **Force Group Settings** after a device is registered to the Cisco WAAS Central Manager, restore the device's default factory settings before registering it to the Cisco WAAS Central Manager.

Procedure for Forcing Device Group Settings

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups** > *device-group-name*.
The **Modifying Device Group** window appears.
- Step 2** In the **Taskbar**, click the **Force Group Settings** icon.
The Cisco WAAS Central Manager GUI displays the following message:
The action will apply all settings configured for this device group to all the WAEs/WAAS Express assigned to it. Do you wish to continue?
- Step 3** To force group settings across all devices in the device group, click **OK**.
- Step 4** Click **Submit**.
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Selecting Device Group Precedence

Before you begin

When a device belongs to multiple device groups that have conflicting settings, the device automatically inherits the settings from the device group that was most recently changed. For a more detailed description of how a device inherits settings when it belongs to multiple device groups, see [Understanding the Impact of Assigning a Device to Multiple Device Groups , on page 11](#).

When a configuration conflict occurs, you can edit a device's configuration on a page-by-page basis and select which device group's settings should take precedence.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Devices** > *device-name* .
The **Device Dashboard** window appears.
- Step 2** From the Cisco WAAS Central Manager menu bar, choose the configuration option that contains the conflicting settings.
A drop-down list appears in the taskbar at the top of the window. This drop-down list allows you to select the device group that you want this configuration window to inherit settings from. The device group that is currently selected is the device group that has precedence.
- Step 3** From the drop-down list, choose the device group that you want this configuration page to inherit settings from, and click **Submit**.
The selected configuration window changes to reflect the settings associated with the selected device group.
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Overriding the Device Group Settings on a Device

Before you begin

The Cisco WAAS Central Manager GUI allows you to override the device group settings and specify new settings that are unique to that device.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Devices** > *device-name* .
The **Device Dashboard** window appears.
- Step 2** From the menu bar, choose the configuration option that contains the device group settings you want to override.
- Step 3** In the Taskbar, click the **Override Group Settings** icon.
The settings in the selected configuration window are enabled.
- Note** The **Override Group Settings** icon only appears on configuration windows that have been modified on the associated device group.
- Step 4** Make the necessary changes to the configuration window and click **Submit**.
The device is now configured with settings that are different from the device group it belongs to.
- Note** The **Force Settings on all Devices in Group** icon appears in the device group view of an overridden configuration window. To reapply the device group settings to all devices in the device group, click this icon.
- Step 5** To reapply the device groups settings to this configuration window, choose the device group from the drop-down list in the Taskbar and click **Submit**.
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Understanding the Impact of Assigning a Device to Multiple Device Groups

If a device belongs to multiple device groups, a configuration conflict might occur if the groups are not configured exactly the same. In this case, the device will inherit the settings from the device group that was most recently changed. In some cases, however, a device can retain settings from more than one device group depending on how the changes were implemented.

The following scenario describes how a device can retain settings from multiple device groups:

Action 1: Device A is assigned to Device Group 1 (DG1).

Result: Device A automatically inherits all the configuration settings of DG1.

Action 2: Device A is assigned to Device Group 2 (DG2) so it now belongs to two device groups (DG1 and DG2).

Result: Device A inherits all the settings from DG2, but it remains a member of DG1.

Action 3: The standard time zone setting on DG1 is changed to America New York.

Result: The time zone of Device A changes to America New York, but the device maintains all its other configuration settings from DG2.

In this scenario, Device A's configuration is a hybrid of DG1 and DG2. To specify which device group settings a device should inherit, use the override features described in [Overriding Group Configuration Settings, on page 8](#).

Methods of Moving a Device Between Device Groups

The Cisco WAAS Central Manager GUI provides two methods to move a device from one device group to another device group.

- Select the device first: From the Cisco WAAS Central Manager menu, select the device and choose **Devices > device-name > Assign Device Groups** and use the green check mark icon next to each Device Group to assign a Device Group to the specified device. Similarly you can also unassign the device from the group and assign to a new device group.
- Select the Device Group first: From the Cisco WAAS Central Manager menu, select the Device Group and choose **Device Groups > device-group-name > Assign Devices** and use the green check mark icon next to each device you want to assign to the specified Device Group. You can also unassign the device from one device group and assign to a new device group.

However, when you do any of the above, configuration conflicts can occur. These are available in the configuration page for the device as a **Force Device Group** icon and can be resolved using the [Procedure for Forcing Device Group Settings, on page 9](#).

Additionally they show up in the **Force Device Group Detection** page. This **Force Device Group** icon indicates that there is a difference between Device and Device Group configurations. The Cisco WAAS Central Manager provides an easy way to identify, view and resolve these configuration conflicts.

To move a Cisco WAAS device between two device groups that have different optimization policies, you must reassign the device to a different device group and then force the device group settings on the device.

Moving a Device Between Device Groups

Before you begin

To move a Cisco WAAS device between two device groups that have different optimization policies, you must reassign the device to a different device group and then force the device group settings on the device.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Device Groups** > *old-device-group-name*.
 - Step 2** Choose *DeviceGroup* > **Assign Devices**.
 - Step 3** Click the green check icon next to the device that you want to reassign. The icon changes to a red arrow pointing left.
 - Step 4** Click **Submit**.
 - Step 5** From the Cisco WAAS Central Manager menu, choose **Device Groups** > *new-device-group-name*.
 - Step 6** Click the blue **X** icon next to the device that you want to reassign. The icon changes to a green arrow pointing right.
 - Step 7** Click **Submit**.
 - Step 8** Choose **Configure** > **Acceleration** > **Optimization Policies**.
 - Step 9** In the Taskbar, click the **Force Settings on all Devices in Group** icon.
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Working with Device Locations

The Cisco WAAS Central Manager GUI allows you to create locations that you can associate with a Cisco WAAS device. You assign a device to a location when you first activate the device. The main purpose of assigning a device to a location is to help you identify a Cisco WAAS device by the physical region in which it resides. Locations are different from device groups because devices do not inherit settings from the location to which they belong.

You can view reports that aggregate data from all the devices in a particular location. For more information, see [Location-Level Reports](#) in the chapter "Monitoring Your Cisco WAAS Network."

You assign a device to a location when you activate the device as described in the [Modifying Device Properties](#) in the chapter "Configuring Other System Settings."

This section contains the following topics:

Creating Locations

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Locations** > **All Locations**.
The **Location** window appears.

- Step 2** In the Taskbar, click the **Create New Location** icon.
The **Creating New Location** window appears.
- Step 3** In the **Name** field, enter a location name.
The name can contain letters, numbers, period, hyphen, underscore, and space.
- Step 4** From the **Parent Location** drop-down list, choose a parent location, or choose **None**.
A location with no parent is a Level 1 location. A location with a Level 1 parent becomes a Level 2 location, and so forth. The location level is displayed after you choose a parent location, or choose None.
- Step 5** To save the configuration, click **Submit**.
- Step 6** (Optional) In the **Comments** field, enter comments about the location.
- Step 7** Click **Submit**.
- Step 8** To modify a location, choose the **Locations** window and click the **Edit** icon next to the name of the location that you want to modify.
- Step 9** Assign a device to this location. For more information, see [Modifying Device Properties](#) in the chapter "Configuring Other System Settings."
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Deleting Locations

Before you begin

You can delete locations as needed, as long as they are not the root locations of activated Cisco WAAS devices.



Note If a location has a device assigned to it, you can first assign the device to another location and then delete the original location.

Procedure

- Step 1** From the Cisco WAAS Central Manager menu, choose **Locations** > *location-name*.
The **Modifying Location** window appears.
- Step 2** In the Taskbar, click the **Delete Location** icon. You are asked to confirm your decision to delete the location.
- Step 3** To confirm the action and delete the location, click **OK**.
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Viewing the Location Tree

The location tree represents the network topology you configured when you assigned a parent to each location. The Cisco WAAS Central Manager GUI graphically displays the relationships between the locations configured in your Cisco WAAS network.

To view the location tree, choose **Locations > All Locations**. In the Taskbar, click the **Location Trees** icon. The location tree shows an expandable list. For each tree node, the corresponding icons show the location or device name.