Synchronizing Location Servers with Cisco Wireless LAN Controllers and Cisco WCS

This chapter describes how to synchronize Cisco wireless LAN controllers and Cisco WCS with locations servers.

This chapter contains the following sections:

Keeping Location Servers Synchronized

This section describes how to synchronize controllers, WCS and location servers manually and automatically.

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> **Note**   Be sure to verify software compatibility between the controller, WCS and the location server before performing synchronization as summarized in the compatibility matrix in Section 1-4 of Chapter 1.

Synchronizing WCS Network Designs and Location Servers

After adding a location server to the WCS database, you can add (synchronize) network designs (campus, building, and outdoor maps) to the location server database. After the network designs are stored in the Cisco WCS and location server databases, you can re-synchronize the two databases at any time.

To synchronize WCS network designs with the location server, follow these steps:

Step 1   Choose **Location > Location Servers** to display the All Location Servers window.

Step 2   From the drop-down menu (right-hand side), choose **Synchronize Servers** and click **GO**.

Cisco WCS displays the Synchronize WCS and Location Servers window.

Step 3   From the Synchronize menu, choose **Network Designs**.

Step 4   To assign a network design to one or more location server, click its corresponding **Assign** link.

Step 5   In the "Assign to servers" dialog box that appears, check the box of each server that you want to assign to the network design. Click **OK** when selection is complete.

A red asterisk (*) appears next to the Assign link. To undo assignments, click **Reset**. To go back to the All Location Servers window without making any changes, click **Cancel**.

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> **Note**   A network design might comprise a large campus with several buildings, each monitored by a different location server. This is why you might need to assign a single network design to multiple location servers.

Step 6   Click **Synchronize** to update the Cisco WCS and location server databases.

When the Cisco WCS and location server databases are synchronized, a green two-arrow icon appears in the Sync. Status column for each synchronized network design entry.

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> **Note**   To unassign a network design from a location server, uncheck the server's check box in the "Assign to servers" dialog box and click **OK**. Then, click **Synchronize**. A two-arrow icon with a red circle appears in the Sync. Status column.

Synchronizing Controllers and Location Servers

Before a location server can collect any data, you must do two things:

1. Associate the server with a controller and synchronize them using Cisco WCS.

2. Verify that the timezone is set on the associated controller.

Details for these two steps are provided in the following sections.

Associating a Location Server with a Controller

Before a location server can collect any data, you must associate the server with a controller and synchronize them using Cisco WCS. After the initial synchronization, you can resynchronize the controllers and location servers at any time.

To synchronize a location server and a controller, follow these steps:

Step 1 In Cisco WCS, choose **Location > Location Servers**.

Cisco WCS displays the All Location Servers window.

Step 2 From the drop-down menu (right-hand side), choose **Synchronize Servers** and click **GO**.

Cisco WCS displays the Synchronize WCS and Location Servers window.

Step 3 From the Synchronize menu, choose **Controllers**.

Cisco WCS displays the Controllers summary window.

Step 4 To assign a location server to a controller, choose the server from the corresponding drop-down menu.

Step 5 Click **Synchronize** to synchronize the controller and location server databases.

When the Cisco WCS and location server databases are synchronized, a green two-arrow icon appears in the Sync. Status column of every synchronized controller entry.

Note Controller names must be unique for synchronizing with location servers. If you have two controllers with the same name, only one will be synchronized.

Note To remove a controller from a location server, choose **-- Unassigned --** from the controller's drop-down menu and click **Synchronize**. A two-arrow icon with a red circle appears in the Sync. Status column.

Setting and Verifying Timezone on a Controller

For releases 4.2 and greater, if a location appliance (release 3.1 or greater) is installed in your network, it is mandatory that the time zone be set on the controller to ensure proper synchronization between the two systems; and, a highly recommended setting in networks that do not have location appliances.

Greenwich Mean Time (GMT) is used as the standard for setting the time zone system time of the controller.

You can automatically set the time zone during initial system setup of the controller or manually set it on a controller already installed in your network.

Follow these steps to manually set the time and time zone on an existing controller in your network using the CLI:

Step 1   Configure the current local time in GMT on the controller by entering the following commands.

```
(Cisco Controller) >config time manual 09/07/07 16:00:00
(Cisco Controller) >config end
```

✎

Note   When setting the time, the current local time is entered in terms of GMT and as a value between 00:00 and 24:00. For example, if it is 8 AM Pacific Standard Time (PST) in the US, you enter 16:00 (4 PM PST) as the PST time zone is 8 hours behind GMT.

Step 2   Verify that the current local time is set in terms of GMT by entering the following command.

```
(Cisco Controller) >show time
Time............................................ Fri Sep 7 16:00:02 2007
Timezone delta.................................. 0:0
```

Step 3   Set the local time zone for the system by entering the following commands.

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Note   When setting the time zone, you enter the time difference of the local current time zone with respect to GMT (+/-). For example, Pacific Standard Time (PST) in the United States (US) is 8 hours behind GMT (UTC) time. Therefore, it is entered as -8.

```
(Cisco Controller) >config time timezone -8
(Cisco Controller) >config end
```

Step 4   Verify that the controller displays the current local time with respect to the local time zone rather than in GMT by entering the following command.

```
(Cisco Controller) >show time
Time............................................ Fri Sep 7 08:00:26 2007
Timezone delta.................................. -8:0
```

✎

Note   The time zone delta parameter in the **show time** command displays the difference in time between the local time zone and GMT (8 hours). Prior to configuration, the parameter setting is 0.0.

Synchronizing Event Groups and Location Servers

To synchronize WCS event groups and location servers, follow these steps:

Step 1 Choose **Location > Location Servers** to display the All Location Servers window.

Step 2 From the drop-down menu (right-hand side), choose **Synchronize Servers** and click **GO**.

Cisco WCS displays the Synchronize WCS and Location Servers window.

Step 3 From the Synchronize menu, choose **Event Groups**.

Step 4 To assign one or more location servers to an event group, click its corresponding **Assign** link.

Step 5 In the Assign to servers dialog box, check the box of each server that you want to assign to the event group. Click **OK** when selection is complete.

A red asterisk (*) appears next to the Assign link.

Step 6 Click **Synchronize** to update the Cisco WCS and location server databases.

When the Cisco WCS and location server databases are synchronized, a green two-arrow icon appears in the Sync. Status column of every synchronized event group entry.

Note To unassign an event group from a location server, uncheck the server's check box in the "Assign to servers" dialog box and click **OK**. Then, click **Synchronize**. A two-arrow icon with a red circle appears in the Sync. Status column.

Configuring Automatic Location Server Synchronization

Manual synchronization of WCS and location servers provides immediate synchronization. However, future deployment changes (such as making changes to maps and access point positions), can yield incorrect location calculations and asset tracking until resynchronization reoccurs. To prevent out-of-sync conditions, use Cisco WCS to enable automatic synchronization. This policy ensures that synchronization between WCS and location servers is triggered periodically and any related alarms are cleared.

To configure automatic synchronization, follow these steps:

Step 1 In Cisco WCS, choose **Administration > Scheduled Tasks**.

Step 2 Click **Location Server Synchronization**.

The Location Server Synchronization window lists the latest automatic synchronization operations and displays automatic synchronization options that you can configure.

Step 3 To set the location server to send out-of-sync alerts, check the **Enabled** check box of the Out of Sync Alerts field.

Step 4 To enable automatic synchronization, check the **Auto Synchronization** check box.

> **Note**   Automatic synchronization does not apply to elements (network designs, controllers, or event groups) that have not yet been assigned to a location server. However, out-of-sync alarms will still be generated for these unassigned elements. For automatic synchronization to apply to these elements, you need to manually assign them to a location server.

Step 5   Enter the time interval in days and the time of day that the automatic synchronization is to be performed.

> **Note**   Time interval was represented in minutes prior to release 2.1.x.

By default, auto-sync is disabled.

Step 6   Click **Submit**.

Out-of-Sync Alarms

Out-of-sync alarms are of Minor severity (yellow), and are raised in response to the following conditions:

- Elements have been modified in Cisco WCS (the auto-sync policy will push these elements)
- Elements have been modified in location servers (the auto-sync policy will pull these elements)
- Elements except controllers exist in the location server but not in Cisco WCS (the auto-sync policy will pull these elements)
- Elements have not been assigned to any location server (the auto-sync policy doesn't apply)

Out-of-sync alarms are cleared when the following occurs:

- Location server is deleted

> **Note**   When you delete a location server, the out-of-sync alarms for that server are also deleted. In addition, if you delete the last available location server, the alarms for "elements not assigned to any location server" will also be deleted.

- Elements are synchronized manually or automatically
- User manually clears the alarms (although the alarms may reappear in the future when the scheduled task is next executed)

> **Note**   By default, out-of-sync alarms are enabled. You can disable them in Cisco WCS by choosing **Administration > Scheduled Tasks**, clicking **Location Server Synchronization**, unchecking the **Auto Synchronization** check box, and clicking **Submit**.

Viewing Synchronization Information

This section describes how to view location server synchronization status and history.

Viewing Location Server Synchronization Status

You can use the Synchronize Servers command in Cisco WCS to view the status of network design, controller, and event group synchronization with location servers.

To view synchronization status, follow these steps:

Step 1   In Cisco WCS, choose **Location > Synchronize Servers**.

Step 2   From the **Synchronize** drop-down menu, choose **Network Designs**, **Controllers**, or **Event Groups**.

Depending on the command you have chosen, Cisco WCS displays a list of elements (network designs, controllers, or event groups). In the list, the Sync. Status column shows the synchronization status. A green two-arrow icon indicates that its corresponding element is synchronized with the specified location server. A gray two-arrow icon with a red circle indicates that its corresponding item is not synchronized with the location server.

Viewing Location Server Synchronization History

You can use the Synchronization History command in Cisco WCS to view the location server synchronization history for the last 30 days. This is especially useful when automatic synchronization is enabled as alarms are automatically cleared. Synchronization History provides a summary of those cleared alarms.

To view synchronization history, follow these steps:

Step 1   In Cisco WCS, choose **Location > Synchronization History**.

Step 2   Click the column headers to sort the entries.

In the Synchronization History window, the Sync Direction column indicates whether information is pushed into the location server or pulled by the location server. The Generated By column indicates whether the synchronization was manual or automatic.