



CHAPTER 3

Synchronizing Mobility Services Engines

This chapter describes how to synchronize Cisco wireless LAN controllers and Cisco WCS with mobility services engines.

This chapter contains the following sections:

- [“Keeping Mobility Services Engines Synchronized” section on page 3-2](#)
- [“Viewing Synchronization Information” section on page 3-6](#)

Keeping Mobility Services Engines Synchronized

This section describes how to synchronize Cisco WCS and mobility services engines manually and automatically.

After adding a mobility services engine to Cisco WCS, you can synchronize network designs (campus, building, and outdoor maps), event groups or controller information (name and IP address) with the mobility services engine.


Note

Be sure to verify software compatibility between the controller, Cisco WCS and the mobility services engine before synchronizing. Refer to the latest mobility services engine release note at the following link: http://www.cisco.com/en/US/products/ps9742/tsd_products_support_series_home.html.


Note

Communication between the mobility services engine and Cisco WCS and the controller is in universal time code (UTC). Configuring NTP on each system provides devices with the UTC time. The mobility services engine and its associated controllers must be mapped to the same NTP server and the same Cisco WCS server. An NTP server is required to automatically synchronize time between the controller, Cisco WCS, and the mobility services engine.

Synchronizing Cisco WCS and a Mobility Services Engine

To synchronize Cisco WCS network designs with the mobility services engine, follow these steps:

- Step 1** Click **Mobility > Synchronize Servers** to display the All Servers > Synchronize WCS and Server(s) window.
- Step 2** From the Synchronize menu, choose the appropriate option (network design, controller, or event groups).
 - a.** To assign a network design to one or more mobility services engines, click its corresponding **Assign** link.


Note

A network design might comprise a large campus with several buildings, each monitored by a different mobility services engine. Therefore, you might need to assign a single network design to multiple mobility services engines.

In the Assign to servers dialog box that appears, check the box of each mobility services engine that you want to assign the network design. Click **OK** when the selection is complete (Figure 3-1).

A red asterisk (*) appears next to the Assign link. To undo assignments, click **Reset**. To go back to the Synchronize WCS and Server(s) window without making any changes, click **Cancel**.

- b.** To synchronize a controller with a mobility services engine, select a mobility services engine from the Server Assigned drop-down menu for that controller (Figure 3-2).


Note

Controller names must be unique for synchronizing with a mobility services engine. If you have two controllers with the same name, only one will be synchronized.

Repeat step **b.** to synchronize a mobility services engine to more than one controller.

- c. To assign an event group to one or more mobility services engines, click its corresponding **Assign** link (Figure 3-3).

In the Assign to servers dialog box that appears, check the box of each mobility services engine that you want to assign the network design. Click **OK** when the selection is complete.

A red asterisk (*) appears next to the Assign link. To undo assignments, click **Reset**. To go back to the Synchronize WCS and Server(s) window without making any changes, click **Cancel**.

Repeat the step above to synchronize a mobility services engine to more than one event group.

Figure 3-1 Synchronize > Network Designs

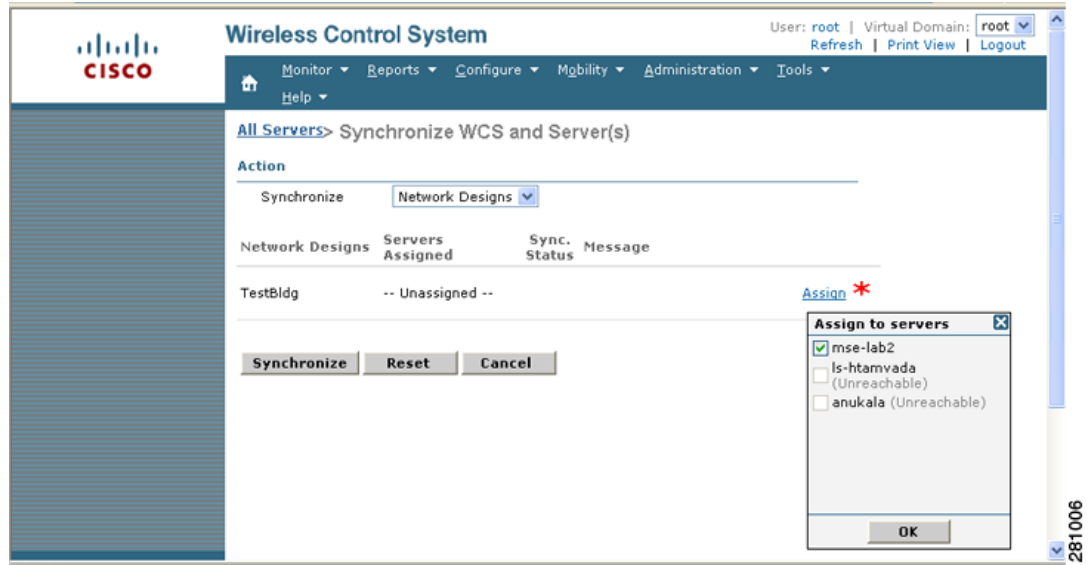


Figure 3-2 Synchronize > Controllers

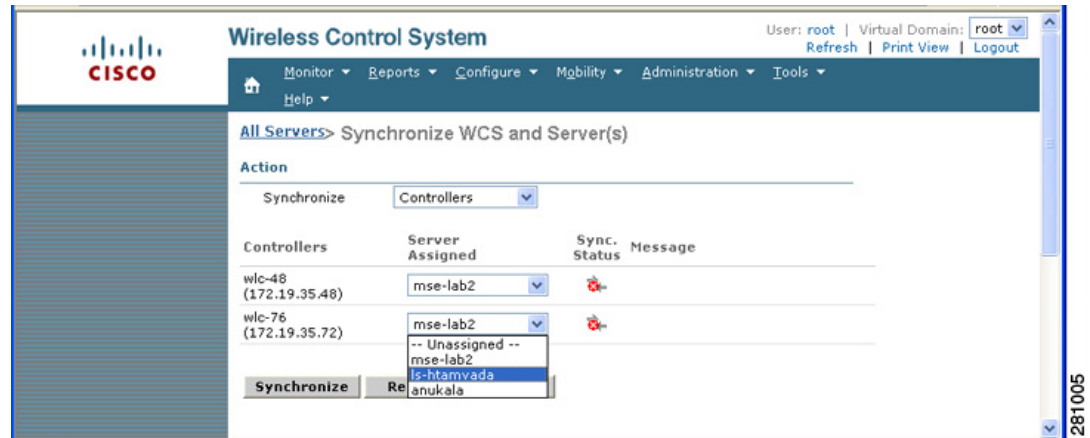


Figure 3-3 Synchronize > Event Groups

The screenshot shows the Cisco WCS interface. At the top, there is a navigation bar with options: Monitor, Reports, Configure, Mobility, Administration, Tools, and Help. Below this, the page title is "Synchronize WCS and Server(s)". There is an "Action" section with a "Synchronize" button and a dropdown menu set to "Event Groups". Below this is a table with the following columns: Event Groups, Servers Assigned, Sync. Status, and Message. The table contains one row with "GroupName" as "mse-lab2", "Servers Assigned" as "mse-lab2", and a green two-arrow icon in the "Sync. Status" column. There is an "Assign" link in the "Message" column. At the bottom of the table, there are three buttons: "Synchronize", "Reset", and "Cancel".

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Step 3 Click **Synchronize** to update the mobility services engine(s) database(s).

When items are synchronized, a green two-arrow icon appears in the Sync. Status column for each synchronized entry.

**Note**

To unassign a network design, controller or event group from a mobility services engine, do one of the following:

- To unassign a network design from a mobility services engine, uncheck the corresponding check box for that mobility services engine 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.
- To unassign a controller or event group from a mobility services engine, select the **Unassigned** option from the Server Assigned drop-down menu for the corresponding controller or event group. Then, click Synchronize. A two-arrow icon with a red circle appears in the Sync. Status column.

Configuring Automatic Mobility Services Engine Database Synchronization

Manual synchronization of Cisco WCS and mobility services engine databases is immediate. However, future deployment changes (such as 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 Cisco WCS and mobility services engine databases is triggered periodically and any related alarms are cleared.

To configure automatic synchronization, follow these steps:

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- Step 1** In Cisco WCS, choose **Administration > Background Tasks**.
 - Step 2** Check the **Location Service Synchronization** check box.
 - Step 3** Click the **Location Service Synchronization** link and the Task > Location Service Synchronization window appears.
 - Step 4** To set the mobility services engine to send out-of-sync alerts, check the **Enabled** check box of the Out of Sync Alerts field.
 - Step 5** To enable automatic synchronization, check the Auto Synchronization **Enabled** check box.



Note Automatic synchronization does not apply to elements (network designs, controllers, or event groups) that have not yet been assigned to a mobility services engine. 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 mobility services engine.

- Step 6** Enter the time interval in days and the time of day (xx:yy AM or PM) that the automatic synchronization is to be performed.
By default, auto-sync is disabled.
 - Step 7** Click **Submit**.
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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 mobility services engine (the auto-sync policy will pull these elements)
- Elements other than controllers exist in the mobility services engine database but not in Cisco WCS (the auto-sync policy will pull these elements)
- Elements have not been assigned to any mobility services engine (the auto-sync policy does not apply)

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

- Mobility services engine is deleted



Note When you delete a mobility services engine, the out-of-sync alarms for that system are also deleted. In addition, if you delete the last available mobility services engine, the alarms for the following event: *elements not assigned to any 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 clicking **Administration > Scheduled Tasks**, clicking **Location Service Synchronization**, unchecking the **Auto Synchronization** check box, and clicking **Submit**.

Viewing Synchronization Information

This section describes how to view synchronization status and history.

Viewing Mobility Services Engine 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 a mobility services engine.

To view synchronization status, follow these steps:

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

Step 2 From the **Synchronize** drop-down menu, select **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 server such as a mobility services engine. A gray two-arrow icon with a red circle indicates that its corresponding item is not synchronized with a given server.

Viewing Synchronization History

You can view the synchronization history for the last 30 days for a mobility services engine. 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 **Mobility > 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 mobility services engine or pulled by the mobility services engine. The Generated By column indicates whether the synchronization was manual or automatic.
