



## Managing Device Configurations

---

The WLSE allows you to create templates, schedule and check on the status of configuration jobs, manage configuration archives, and automate configurations.

Following are the subtabs under Configure:

- **Templates**—See [Using IOS Templates, page 5-1](#) or [Using Non-IOS Templates, page 6-1](#)
- **Archives**—See [Managing Configuration Archives, page 9-1](#).
- **Jobs**—See [Managing Jobs, page 9-8](#).
- **Auto Update**—See [Automating Configurations, page 9-49](#).

## Managing Configuration Archives

As WLAN networks become larger, configuration management becomes more difficult. Each group of devices may have distinct configuration parameters that are difficult to track and maintain manually. The configuration archive feature allows you to easily restore or troubleshoot a failing device by applying the previously stored configuration. It also enables you to archive the last 4 distinct configurations for a device, which you can restore if needed.



### Note

---

Your login determines whether you can use this option.

---

The topics covered in this section are:

- Viewing, editing, deleting, comparing, and exporting configuration archives—See [Viewing Archived Configurations, page 9-2](#).
- Scheduling a configuration archive job—[Scheduling an Archive Collection, page 9-4](#).
- Viewing the status of a configuration archive job—[Viewing Archive Status, page 9-4](#).

## Viewing Archived Configurations

Use this option to view, edit, delete, compare, and export an archived configuration. You can also allow or disallow a configuration archive to be overwritten.

### Before You Begin

Before you can view any archived configurations, you must have run an archive job. See [Scheduling an Archive Collection, page 9-4](#) for information on creating and running an archive job.

### Procedure

- 
- Step 1** Select **Configure > Archives**.
- Step 2** Search for a device or select the device for which you want to view a configuration archive from the device selector in the left pane.



---

**Note** The icons in the device selector show the current status of the access points; not the archive status.

---

For information on how to search or use the device selector, see [Using the Device Selector, page 1-17](#).

- Step 3** Click the device group or device name and the following table appears:

Field	Description
Device Name	The name of the device.
Archive Name	The name of the archived configuration. Click the <b>Archive Name</b> to view the configuration. A window appears displaying the configuration file for the selected archive.
Date	The date the configuration was archived.
Type	The type of configuration archive: IOS or non-IOS.
Overwrite	Indicates if the configuration has been marked as Overwrite. Yes indicates that the configuration is available to be overwritten; No indicates it will not be overwritten.
Edit	Click the icon to edit the information. The Archive Details Window appears. See <a href="#">Editing the Archive, page 9-5</a> .

**Step 4** By selecting the archives in this table you can do any of the following:

- Allow or disallow overwriting—See [Selecting Overwrite Settings, page 9-5](#).
- Delete an archived configuration—See [Applying an Archived Configuration to a Device, page 9-6](#).
- Apply an archived configuration to a device—See [Applying an Archived Configuration to a Device, page 9-6](#).
- Compare configurations—See [Comparing Configurations, page 9-7](#).
- Export a configuration to a file—See [Exporting a Configuration to a File, page 9-7](#).
- Export a configuration to a template—See [Exporting a Configuration to a Template, page 9-7](#).

## Scheduling an Archive Collection

**Note**

Archive collection for non-IOS access points is supported only for device versions 11.23T and higher (AP350/BR350) and 11.56 and higher (AP1200).

**Procedure**

- 
- Step 1** Select **Configure > Archives**.
  - Step 2** Click **Schedule Archive Collection**. The window for creating an archive job appears. See [Archive Job Choices, page 9-36](#).
  - Step 3** After scheduling a job, click **View Archives** to return to the **Configure > Archives** window.
- 

## Viewing Archive Status

**Procedure**

- 
- Step 1** Select **Configure > Archives**.
  - Step 2** Click **View Archive Status**. The window for creating and archive job appears. See [Viewing Archive Job Status, page 9-41](#).
  - Step 3** After viewing the archive status, click **View Archives** to return to the **Configure > Archives** window.
-

## Editing the Archive

### Procedure

**Step 1** To edit the archive, complete the following:



**Note** None of the fields under Details are editable; they are informational only.

Field	Description
Archive Name	Enter a name for the archived configuration.
Overwrite	Select one of the following: Yes—Use this setting to indicate that the configuration archive is available to be overwritten. No—Use this setting to indicate that it will not be overwritten.
Description	Enter a description for the archived configuration.
Details	
Save Time	The date and time the configuration archive was saved.
Type	The type of configuration archive: IOS or non-IOS.
Device Name	The name of the device.

**Step 2** Click **Save Changes**.

## Selecting Overwrite Settings

Use this option to allow an archive to be overwritten or to disallow overwriting it.

**Procedure**

---

- Step 1** Select a configuration archive configuration.
- Step 2** Click one of the following:
- Overwrite—to allow the configuration archive to be overwritten.
  - Do Not Overwrite—to make sure the configuration archive is not overwritten.
- 

## Deleting Archived Configurations

Use this option to delete an archived configuration from the database. You cannot retrieve a deleted configuration archive.

**Procedure**

---

- Step 1** Select a configuration from the table.
- Step 2** Click **Delete**.
- 

## Applying an Archived Configuration to a Device

Use this option to apply an archived configuration to the device.

**Procedure**

---

- Step 1** Select a configuration from the table.
- Step 2** Click **Apply to Device**.
- A confirmation box displays asking if you are sure you want to apply the configuration.
- Step 3** Click **Yes** to continue. The configuration is applied.
-

## Comparing Configurations

Use this option to compare archived configurations.

**Tip**

---

You can compare archived configurations for devices that are in different groups by creating a new group, then putting the devices you want to compare into that group.

---

**Procedure**

---

**Step 1** Select any two archived configurations you want to compare from the table.

**Step 2** Click **Compare**. A window opens with the selected configurations.

Differences between the configurations are shown in red; information that is one configuration but not the other are shown in orange.

---

## Exporting a Configuration to a File

Use this option to export an archived configuration to a file.

**Procedure**

---

**Step 1** Select a configuration you want to from the table.

**Step 2** Click **Export to File**. You will be prompted for a location to export the configuration.

---

## Exporting a Configuration to a Template

Use this option to export an archived configuration to a template.

### Procedure

---

- Step 1** Select a configuration you want to from the table.
- Step 2** Click **Export to Template**. The configuration is exported to a template.
- Step 3** To view the exported template, select **Configure > Templates** and it is listed in the Existing Templates window.
- 

## Managing Jobs

There are two types of jobs you can manage in this window:

- Configuration Jobs—See [Managing Configuration Jobs, page 9-8](#).
- Archive Jobs—[Managing Archive Jobs, page 9-32](#).

## Managing Configuration Jobs

This window allows you to view a list of configuration jobs. It also allows you to create, edit, undo, and perform other operations on configuration jobs.

The configuration job types include:

- Config Regular—Jobs created to apply template configurations to devices.
- Config Auto—Jobs created using the Auto Update option.
- Config Undo—Jobs created to undo completed non-IOS template configuration jobs with software versions 12.01T or later.
- Archive Regular—Jobs created using the Schedule Archive Collection option.

The topics covered in this section are:

- [How Do WLSE Configuration Jobs Work?, page 9-9](#)
- [In What Order are the Template Configurations Applied to the Devices?, page 9-10](#)
- [Recommendations For Running Configuration Jobs, page 9-11](#)

- [Creating a Configuration Job, page 9-23](#)
- [Viewing Configuration Job Status, page 9-23](#)
  - [Filtering a Configuration Job, page 9-28](#)
  - [Editing a Configuration Job, page 9-29](#)
  - [Running a Configuration Job Again, page 9-29](#)
  - [Deleting a Configuration Job, page 9-30](#)
  - [Copying a Configuration Job, page 9-30](#)
  - [Viewing the Job Run Details Tables, page 9-31](#)

#### Related Topics

- [Using IOS Templates, page 5-1](#)
- [Using Non-IOS Templates, page 6-1](#)

## How Do WLSE Configuration Jobs Work?

Both IOS and non-IOS access points use jobs created by the **Configure > Jobs** option to make configuration updates. The process by which the configurations are updated, however, differs for IOS and non-IOS access points.

#### IOS-Based Access Points

When the WLSE configures IOS-based access points, it pushes raw IOS CLI commands to the access points over a telnet or SSH connection.

To update the configuration, therefore, the WLSE requires only the telnet or SSH user name and password access point credentials.

#### Non-IOS-Based Access Points

To configure non-IOS-based access points:

1. The WLSE places the configuration template in the local /tftpboot directory.
2. The WLSE starts the configuration job using either the SNMP set or HTTP post operation.
  - When using SNMP, the SNMP set operation includes the WLSE IP address as the TFTP server and the template filename to download from the /tftpboot directory of the WLSE.

- When using HTTP, because of limitations on the access point, you cannot specify the WLSE as the TFTP server *when you start the configuration job*. Instead, you must configure each separate access point to use the WLSE as a TFTP server *first*, before you can use HTTP to start the job.




---

**Note** If an access point's FTP setting is the same as the DHCP server, then HTTP config jobs pick up the wrong template from wrong WLSE server:

---

3. The devices use TFTP to download the configuration updates from the WLSE.
4. When the job completes, the WLSE removes the template from the /tftpboot directory to prevent an unauthorized client from connecting to the WLSE and downloading the configuration template.

To make configuration updates for non-IOS-based access points, the WLSE requires these access point credentials:

- When using SNMP: SNMP-write access.
- When using HTTP:
  - The HTTP username and password
  - WLSE configured as a TFTP server on each access point

#### Related Topics

- [Recommendations For Running Configuration Jobs, page 9-11](#)
- [Creating a Configuration Job, page 9-23](#)

## In What Order are the Template Configurations Applied to the Devices?

When you create a template using several categories (Association, Services > CDP, etc.) the commands associated with each category are applied sequentially to the device, but the order in which each category is applied is random.

For example, if you create an IOS template made up of two categories, Basic Security and SecurityManager > SSID 802.11 b/g, all the commands generated by the Basic Security category are applied in order. However, the commands associated with the Security Manager > SSID 802.11 b/g might be applied before the commands generated for Basic Security.

However, any custom values you configure, are applied to the device only after all the other template configurations have been applied.

## Recommendations For Running Configuration Jobs

There are two interrelated questions you should consider when you use the WLSE configuration feature:

- How many devices should be included in the job?
- How much time should be allotted for the job?

### How Many Devices?

Because the WLSE configuration feature is multi-threaded with up to 20 allotted threads, it can configure as many as twenty access points simultaneously. For example, a configuration job with 100 devices will begin by configuring twenty devices, one thread per device. When a device configuration completes, its thread will start on a new device immediately, even if the other configuration tasks are in progress. However, the maximum limit of devices can be configured in single job is 500.

### How Much Time?

When calculating the amount of time it takes to configure an access point, the factors to consider are:

- How long does it take to download the template via TFTP or push IOS CLI commands to the access point?

TFTP download and IOS CLI command pushes are highly dependent on network performance. The WLSE has an internal configuration parameter that specifies a timeout value for configuration jobs. If the WLSE is unable to complete the job within the timeout period, it will declare the job as a failure. A timeout value that is set too low may cause the WLSE to prematurely abort configuration jobs or improperly report a device configuration failure. So if you have high latency issues or a congested network, increase the configuration timeout setting.

- How long does it take for the access point to reboot if required by the configuration change?

The amount of time to reboot and load new firmware is usually constant. However, if the access point uses DHCP to get an IP address or retrieve a configuration file when it comes up after a reboot, this time is also affected by network performance. This may cause issues with the configuration job timeout, so you may need to increase the timeout.

Here are some other factors that might influence configuration times:

- Configuration jobs sometimes fail due to configuration parameter dependencies on the access points. Consult the access point documentation to understand if there are any configuration dependencies if you have issues with configuration jobs failing.
- Large templates take longer to apply and are more prone to issues with parameter dependencies. If you are applying a large template and seeing configuration failures, it may be useful to break the template into multiple templates and run multiple configuration jobs.

For example, configuration tasks can be greatly simplified by using the WLSE device grouping feature. Suppose a WLSE administrator has created a group for the access points in Site A, sub-groups for Channels 1, 6, and 11, and moved the appropriate access points into the channel groups. Now, the administrator can create three separate templates to set the Channel IDs to Channels 1, 6, and 11. Then to set the access points to the correct channel, three configuration jobs can be created to map the correct template to the corresponding channel group.

### Calculating the Estimated Change Window

Configuration jobs should be kept to a reasonable size. Typically, a job with 100 devices is a reasonably sized job, but that can vary. A configuration job should be able to complete within a change window. To calculate this window, use a formula similar to the one recommended for firmware:

$$T = (n / 10) * t + s$$

where:

- T is the total time for the change window
- n is the number of devices in the configuration job
- t is the estimated time to configure a single device
- s is the safety factor.

In this formula, T is often a constant defined by IT policies. For example, many campuses allow for a change window of no more than two hours. If you determine that it will take more than T to configure the access points, plan the upgrades in phases, each of which can be completed well within the change window. It is always a good idea to plan configuration changes conservatively. One conservative way to use this formula is to use the configuration timeout setting as your value for t.

## Configuration Job Choices

When you create or edit a configuration job, the following choices appear in the left pane of the Jobs window:

1. **Job Name**—See [Naming the Configuration Job, page 9-13](#).
2. **Select Template**—See [Selecting a Template, page 9-15](#).
3. **Select Devices**—See [Selecting Devices, page 9-17](#).
4. **Schedule Job**—See [Scheduling a Configuration Job, page 9-18](#).
5. **Options**—See [Setting Configuration Job Options, page 9-19](#).
6. **Save**—See [Saving the Configuration Job, page 9-22](#).



### Caution

---

Clicking on another Configure subtab before you have saved your entries in this window will cause the window to reset and you will lose all the information you entered.

---

## Naming the Configuration Job

### Procedure

---

- Step 1** Click **Job Name**. The Job Name dialog box appears.
- Step 2** Complete the following:



### Note

---

Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

---

**Table 9-1 Job Name**

<b>Field</b>	<b>Description</b>
Job Name	Enter a name for the job. See <a href="#">Naming Guidelines, page B-1</a> .
Description	Enter a description of the job. See <a href="#">Naming Guidelines, page B-1</a> .

**Step 3** From the menu in the left pane, go to the next step, Select Template. For additional information, see [Selecting a Template, page 9-15](#).

---

## Selecting a Template

### Procedure

**Step 1** Click **Select Template**. The Select Template window appears.

**Step 2** Complete the following:



**Note** Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

**Table 9-2** *Select Template*

Field	Description
Configuration Template	From the list, select the template which you want to apply to the devices.
Name	Displays the name of the selected template.
Device Types	Displays the device types that are valid for the selected template.

**Table 9-2** *Select Template (continued)*

Field	Description
Device Versions	<p>Displays the device versions for the device types listed in the Device Type field.</p> <p>Each device type's valid versions are displayed in sequence and grouped using parentheses.</p> <p>If the template is applicable to an access point with an 802.11g radio, it cannot be applied to an access point with an 802.11b radio.</p> <p>A template that is valid for a 1310 wireless bridge in AP mode cannot be applied to 1310 wireless bridge that is in bride mode, and vice versa.</p> <p>If a 1310 wireless bridge is in workgroup bridge mode, the job will fail because the WLSE does not support configurations on workgroup bridges. which will be noted in the job run log.</p>
Description	Displays the template description.
Version Check Enabled	Indicates whether the version check is enabled.

**Step 3** From the menu in the left pane, go to the next step, Select Devices. For additional information, see [Selecting Devices, page 9-17](#).

## Selecting Devices

The maximum number of devices that can be configured in a single job is 500.

### Procedure

---

**Step 1** Click **Select Devices**. The Select window appears.



**Note** Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

---

**Step 2** From the device selector, click the folder from which you want to build a device list.

- Clicking the folder displays the folder's contents in the Available Devices list box.
- Repeat this step as many times as necessary to select devices from the folder in which they reside.

**Step 3** From the Available Devices list, select folders or individual devices, then click >>. The devices appear in the Selected Devices list box.



**Note** If you select a folder, the template will be applied to all of the devices in that folder. If a device is subsequently added to the folder, the template is applied to that device.

---

**Step 4** To remove devices, select them from the Selected Devices list, then click <<.

**Step 5** From the menu in the left pane, go to the next step, Select Template. For additional information, see [Scheduling a Configuration Job, page 9-18](#).

---

## Scheduling a Configuration Job

### Procedure

**Step 1** Click **Schedule Job**. The Schedule Job dialog box appears.

**Step 2** Complete the following:



**Note** Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

**Table 9-3** *Schedule Job*

Field	Description
Run Now	Click to run the job. <b>Note</b> This option ignores any dates you have entered in Start Date and Start Time.
Start Date	From the lists, select the month, day, and year you want your job to run.
Start Time	From the list, select the hour and minutes of the day you want your job to run.
Repeat	
Enable	Check to run the job repeatedly.
Every	Indicate how often you want the job to repeat by entering a numerical value, then selecting an interval of time: Hours, Days, Months, or Years.

**Step 3** From the menu in the left pane, go to the next step, Options. For additional information, see [Saving the Configuration Job, page 9-22](#).

## Setting Configuration Job Options

### Procedure

- Step 1** Click **Options** in the left pane to complete creating a job. The Options dialog box appears in the right pane.


The dialog box varies depending on the type of template you are scheduling:

- IOS template job—See [IOS Template Job](#).
- Non-IOS template job—See [Non-IOS Template Job](#).

**Table 9-4** *IOS Template Job*

Field	Description
Email Settings	
On completion, email to	Enter a comma-separated list of email addresses to be notified when the job completes.
Email only if job fails	Select this checkbox if you want recipients to be notified only if the job fails.
Other Settings	
Apply Configuration using	Select either Telnet or SSH.

Table 9-4 IOS Template Job

Field	Description
Write NVRAM on Success	Check if you want the this template, after the job has succeeded, to be used by the access point in the event of a reload.
Overwrite Existing Configuration	<div data-bbox="763 402 807 440" style="text-align: center;"></div> <p data-bbox="733 448 807 472"><b>Caution</b></p> <p data-bbox="848 448 1231 857">This option is recommended for advanced users only. Use it when you are sure that the new template is a complete configuration which can replace the existing configuration on the device(s), and when you are sure that the device(s) can be safely rebooted. Pushing an incomplete configuration template with this option can result in loss of data and the access point can hang during the reboot.</p> <hr/> <p data-bbox="733 898 1231 987">This option allows you to overwrite the existing configuration on the device with the selected configuration template.</p> <p data-bbox="733 1008 1231 1097">At minimum, use the templates under Basic Settings and the Security &gt; Admin Access to create a basic configuration.</p> <p data-bbox="733 1118 1157 1172">Click <b>Learn More About Overwrite Configuration</b> for details.</p>

**Tip**

If email notification is not working, you may need to configure the mailroute by selecting **Administration > Appliance > Configure Mailroute**.

**Step 2** Go to Step 3.

**Table 9-5 Non-IOS Template Job**

Field	Description
Email Settings	
On completion, email to	Enter a comma-separated list of email addresses to be notified when the job completes.
Email only if job fails	Select this checkbox if you want recipients to be notified only if the job fails.
Other Settings	
Protocol	Select one of the following: HTTP or SNMP. For SNMP jobs, click <b>See detail</b> for additional information about Undo restrictions.

**Tip**

If email notification is not working, you may need to configure the mailroute by selecting **Administration > Appliance > Configure Mailroute**.

- Step 3** From the menu in the left pane, go to the next step, Save. For additional information, see [Saving the Configuration Job, page 9-22](#).

## Saving the Configuration Job

When you run a configuration job, the jobs are validated to make sure that the configuration template you selected is applicable to the devices you selected.

If the job encounters validation problems, a window displays the found errors or warnings.

- Warnings—They are issued when there are version mismatches and are not critical. You can still force the template on the devices despite the warnings. Warnings are caused by one of the following reasons:
  - The selected device is running a software version that is not currently supported. You can work around this by importing the latest supported device version from Cisco.com. See [Updating Supported AP Firmware Versions, page 16-67](#).
  - The selected device version does not match the device versions supported by the selected template.
- Errors—They are issued based on device type mismatches and are critical. You cannot force a configuration template on a device with job errors; you must correct the problem.

### Procedure

- 
- Step 1** Click **Save** in the left pane to complete creating a job. The Save dialog box appears in the right pane with the job details.



- Note** If a warning message appears saying that WLSE server is ahead of or behind your local time, see [Understanding Time Discrepancy Problems in Job Scheduling, page 1-16](#).
- 

- Step 2** Click **Save**. A window displays comments to indicate whether the job has passed the validation tests.
-

## Creating a Configuration Job

Using this option, you can create a configuration job.

**Note**

---

Your login determines whether you can use this option.

---

**Procedure**

---

- Step 1** Select **Configure > Jobs**.
- Step 2** Click **Config Job**. The Jobs Window appears.
- Step 3** Select the numbered choices in the left pane to create a job. For a description, see [Configuration Job Choices, page 9-13](#).
- 

## Viewing Configuration Job Status

This window allows you to view job status. It also allows you to filter a job, edit a job, view details about the job and undo a job.

Device data is polled every 15 minutes by default, and the duration that job data is retained is 30 days. To change either default, see [Updating Supported AP Firmware Versions, page 16-67](#).

The topics covered in this section are:

- [Creating a Configuration Job, page 9-23](#)
- [Viewing the Configuration Job, page 9-24](#)
- [Filtering a Configuration Job, page 9-28](#)
- [Editing a Configuration Job, page 9-29](#)
- [Running a Configuration Job Again, page 9-29](#)
- [Deleting a Configuration Job, page 9-30](#)
- [Copying a Configuration Job, page 9-30](#)
- [Viewing the Job Run Details Tables, page 9-31](#)



**Note** Your login determines whether you can use this option.

#### Related Topics

- [Using IOS Templates, page 5-1](#)
- [Using Non-IOS Templates, page 6-1](#)

## Viewing the Configuration Job

### Procedure

**Step 1** Select the status of the job you want to view from the Job State list.

**Step 2** Select the type of job you want to view from the Job Type list.

If you select Config Auto, the User field always displays WLSE as the user.

**Step 3** Click **Apply**. The window refreshes and the jobs are displayed.

The tables vary depending on the type of Job State and Job Type you selected: [Scheduled and Unscheduled](#), [Running](#), or [All](#).

- Scheduled and Unscheduled

Field	Description
Job Name	The job name.
Recurring	Whether the job recurs.
Next Schedule	For scheduled jobs, this indicates the next time the job will run. For completed jobs, this is last time the job ran.

Field	Description
Last Run Status	The status of the last run. <b>Note</b> Jobs that cause an access point to reboot are listed as Unverified.
User	The user who created the job. <b>Note</b> If you upgrade from a previous release to Release 2.9, and have scheduled a recurring job, the user will appear as WLSE after the upgrade.

- Running

Field	Description
Job Name	The job name.
Recurring	Whether the job recurs.
Job Start Time	The time the job started.
Percent Complete	The percent of the job that has completed running.
Next Schedule	The next time the job is scheduled to run.
User	The user who created the job.  <b>Note</b> If you upgrade from a previous release to Release 2.9, and have scheduled a recurring job, the user will appear as WLSE after the upgrade.

- All

Field	Description
Job Name	The job name.
Recurring	Whether the job recurs.
Job State	The state of the job (Completed, Scheduled, etc.)
Next Schedule	For scheduled jobs, this indicates the next time the job will run. For completed jobs, this is last time the job ran.

Field	Description
Last Run Status	The status of the job the last time it ran. For more information, see <a href="#">Understanding Job Status Information</a> , page 9-27.
User	The user who created the job. <b>Note</b> If you upgrade from a previous release to Release 2.9, and have scheduled a recurring job, the user will appear as WLSE after the upgrade.

- Step 4** To sort table data, click on the column heading by which you want to sort the data:
- A triangle indicates ascending order.
  - An upside-down triangle indicates descending order.
  - No triangle indicates that the data is not sorted.

- Step 5** Do any of the following:



**Note** If the option is not available for the job type, the buttons are grayed.

- Filter the job—See [Filtering a Configuration Job](#), page 9-28.
- Edit the job—See [Editing a Configuration Job](#), page 9-29.
- Run the job again—See [Running a Configuration Job Again](#), page 9-29.
- Delete the job—See [Deleting a Configuration Job](#), page 9-30.
- Copy a job—See [Copying a Configuration Job](#), page 9-30.
- View the run details—See [Viewing the Job Run Details Tables](#), page 9-31.
- Refresh the screen—Click **Refresh**.

## Understanding Job Status Information

[Table 9-6 on page 9-28](#) describes the status of the job.

**Table 9-6 Job Status**

Status	Meaning
Success	The configuration job for all devices was successful..
Failed	The configuration job for all devices failed.  Rerun the job by clicking <b>Job Run Details</b> , then click one of the options to rerun the job. See <a href="#">Viewing Job Run Details, page 9-47</a> .
Partial Success	The configuration job failed for some of the devices, not all.  Rerun the job by clicking <b>Job Run Details</b> , then click one of the options to rerun the job. See <a href="#">Viewing Job Run Details, page 9-47</a> .
Success (no backup)	The configuration update succeeded but a backup could not be performed.
Aborted	This job status can be caused by one of the following: <ul style="list-style-type: none"> <li>An unexpected failure occurred and the configuration job did not complete.  Select the job, and click <b>Run Again</b>.</li> <li>A user stopped the configuration job before it completed.</li> </ul>
Not verified	The job status cannot be verified, whether the job completed or not. For example, if the configuration job caused a device to reboot, the WLSE may not be able to verify whether the job succeeded.
Running	The job is running.
Not run	The job does not have any devices on which to run the job.
Waiting	The job has just entered the queue to run.

### Filtering a Configuration Job

Use this option to filter jobs from the displayed list. Filtering this way allows you to display a limited set of jobs, making it easier to search for a particular job if you know the name.

### Procedure

---

- Step 1** Click **Filter Job**. The Filter Job dialog box appears.
- Step 2** Enter the name, or part of the a name, on which to filter. Use % as a wildcard to filter jobs. For example, entering %name% will filter all the jobs that contain “name.”
- Step 3** Click **Apply filter**. The Job window refreshes and the matching jobs are displayed on the Jobs list.



---

**Note** The filter is applied only until the page is refreshed.

---

## Editing a Configuration Job

Use this option to edit jobs from the displayed list of jobs.

### Procedure

---

- Step 1** Select the job from the list which you would like to edit.
- Step 2** Click **Edit Job**. The Job Name dialog box appears.
- Step 3** Select the choices in the Template Menu to create a configuration template. For a description, see [Configuration Job Choices, page 9-13](#).
- 

## Running a Configuration Job Again

Use this option to run jobs again from the displayed list of jobs.



---

**Note** This option works only for Run Now jobs.

---

**Procedure**

---

- Step 1** Select the job or jobs from the list which you would like to re-run.
- Step 2** Click **Run Again**. A confirmation box appears verifying the job was run.
- 

**Deleting a Configuration Job**

Use this option to delete jobs from the displayed list of jobs. Jobs that are scheduled, unscheduled, completed and did not start can be deleted. Jobs that are running cannot be deleted.

**Procedure**

---

- Step 1** Select the job from the list which you would like to delete.
- Step 2** Click **Delete Job**.
- 

**Copying a Configuration Job**

Use this option to copy unscheduled jobs from the displayed list of jobs, which can be run later on demand.

**Procedure**

---

- Step 1** Select the job from the list which you would like to copy.
- Step 2** Click **Copy Job**. A dialog box appears.
- Step 3** Enter a name for the job, then click **OK**. The screen refreshes and the job is listed.
-

### Viewing the Job Run Details Tables

The Job Runs Details the following tables display:

**Table 9-7 Job Runs**

Field	Description
Job StartTime	The time the job started.
Job End Time	The time the job ended.
Job Status	The status of the job. For more information, see <a href="#">Understanding Job Status Information, page 9-27</a> .
Percent Complete	The percent of the job that has completed.

Select any of the jobs, in the Job Runs table, then you can click the following options:

- **Show Run Details**—The information for the selected job is displayed in [Table 9-8](#).
- **Job Run Log**—A window displays the job log information.
- **Refresh**—The screen refreshes.

**Table 9-8 Job Run Details**

Field	Description
Device Name	The name of the device.
Start Time	The time the job started.
End Time	The time the job ended.
Status	The status of the job. For more information, see <a href="#">Understanding Job Status Information, page 9-27</a> .

You can click the following options:

- **Select All**—Selects all the jobs listed.
- **DeSelect All**—Deselects all the jobs listed.



---

**Note** If you have multiple screens, you must Select All or DeSelect All one screen at a time.

---

- **Rerun for All Failed Devices**—Re-runs all failed jobs.
- **Rerun for All Selected Devices**—Re-runs all selected jobs.
- **Undo**—Undoes the configuration job.

The Undo feature is not supported for the following:

- IOS configurations
- Custom Values
- Security options: Local Admin Authentication under the Local Admin Access; Encryption Key Values under Local AP/Client Security; Shared Secret under Server-Based Security; and Shared Secret under Accounting.
- FTP username and password
- Previously undone jobs
- Routing table configurations (for versions prior to 11.23T only)
- Adding a user in place of an existing user on the access point. The Undo feature works for new users

## Managing Archive Jobs

This window allows you to view a list of archive jobs. It also allows you to create, edit, and perform other operations on archive jobs.

The topics covered in this section are:

- [How Do Configuration Archive Jobs Work?](#), page 9-33
- [Recommendations For Using Configuration Archives](#), page 9-34
- [Creating an Archive Job](#), page 9-41
- [Viewing Archive Job Status](#), page 9-41
  - [Filtering an Archive Job](#), page 9-44
  - [Editing an Archive Job](#), page 9-44

- [Running an Archive Job Again, page 9-46](#)
- [Deleting an Archive Job, page 9-46](#)
- [Copying an Archive Job, page 9-46](#)
- [Viewing the Job Run Details Table, page 9-48.](#)

## How Do Configuration Archive Jobs Work?

The **Configure > Archive** feature allows you to set up a job that will archive an access point configuration. When a configuration archive job runs, the WLSE uses TFTP to download the configuration from the access point. If the configuration is identical to the previous archived configuration, the new configuration is not saved. If the new configuration is different from the previous archive, a new archived configuration is saved as a file on the WLSE.

The feature can archive a maximum four different configurations. By default, archived configurations can be overwritten after the maximum number of configurations has been reached. You can, however, mark an archived configuration as protected, so that it cannot be overwritten. If the maximum numbers of configurations are archived and all of the files are protected against overwrites, the WLSE will not create a new configuration archive.

Using this option, you can also:

- View existing archived configurations.
- Compare any two archived configurations within a WLSE device group.
- Export archived configurations to a file or to a WLSE configuration template.

### Related Topics

- [Recommendations For Using Configuration Archives, page 9-34](#)
- [Scheduling an Archive Collection, page 9-4](#)

## Recommendations For Using Configuration Archives

There are several issues to consider when using the Configuration Archive feature:

- Q.** When should archive jobs be run?
- A.** Configurations are downloaded from access points to the WLSE using TFTP, which means that configuration archival is potentially sensitive to network congestion and oversubscription. Therefore, due to the potential sensitivity to network conditions and because configuration archival is a low-priority background task that can be affected by higher priority processes, archive jobs should be run during off-hours.

- Q.** How many devices should I include in an archive job?

- A.** The number of devices assigned to a configuration archive job will vary depending on network congestion and WLSE performance factors. Some WLSE users have successfully archived hundreds of configurations in a single job, while others have had difficulty with less than one hundred.

Arriving at a good number for an archive job may be a trial-and-error process. For example, you could start with twenty-five devices. If that is successful, try fifty. Keep adding more devices until configurations are no longer archived satisfactorily.

- Q.** How often should I archive configurations?

- A.** The recommended frequency of configuration archival varies with deployment and operational requirements and WLSE performance capabilities. Typically, device configurations do not change much after a network becomes stable. Therefore, after archiving the initial baseline configurations, you might need to run configuration archive jobs as monthly recurring jobs or only after known changes have been made to network configurations.

- Q.** What should be protected from overwrites?

- A.** After archiving baseline configurations for the network devices, you should protect these official configurations. For additional protection, export the archive to a file and to a configuration template. A configuration template can be used if a roll-back is required.

- Q.** How do I work with the limitations of non-IOS-based access points?
- A.** Due to limitations imposed by the device operating system, not all configured attributes on a non-IOS-based access point are archived. Security related parameters, for example, such as user names and passwords, WEP keys, and AAA servers are not archived. Other non-security related parameters also are not archived. If you create configuration templates for any unratified configuration parameters, you can apply these templates to the appropriate devices when necessary.
- Q.** How can I take advantage of the WLSE grouping feature?
- A.** The WLSE grouping feature is especially useful when configuring configuration archive jobs. Each configuration archive job should operate on a logical grouping of devices. For example, it might make sense to archive configurations per campus or per building. See [Recommendations For Running Configuration Jobs, page 9-11](#), for details on organizing the managed WLAN with the WLSE grouping feature.
- Q.** How can I use the compare feature effectively?
- A.** The configuration archive compare feature allows you to compare any archived file with any other archived file within a device group. The comparison feature is really most relevant for examining the difference between two configuration archives from access points of the same type or access points that are deployed identically to other access points.
- Q.** What should I do when some configuration archives fail?
- A.** Because WLSE configuration archive jobs download configurations using TFTP, some devices might fail during the archive job. The job run log files typically contain information about why the configuration archival for a device might have failed. Typically, rerunning an archive job for any devices that have failed is all that is necessary.

If the entire configuration archive job fails, verify that the WLSE is configured with the correct device credentials. If the WLSE has the correct credentials, there are probably network issues to resolve.

### Related Topics

- [Managing Archive Jobs, page 9-32](#)

## Archive Job Choices

When you create or edit an archive job, the following choices appear in the left pane of the Jobs window:

**Note**

---

Archive collection for non-IOS access points is supported only for device versions 11.23T and higher (AP350/BR350) and 11.56 and higher (AP1200).

---

1. **Job Name**—See [Naming the Archive Job, page 9-37](#).
2. **Select Devices**—See [Selecting Devices, page 9-37](#).
3. **Schedule Job**—See [Scheduling an Archive Job, page 9-39](#).
4. **Finish**—See [Finishing the Archive Job, page 9-40](#).

**Note**

---

All these steps, except Schedule Job, must be completed, but do not have to be done in order.

---

**Related Topics**

[Recommendations For Using Configuration Archives, page 9-34](#)

## Naming the Archive Job

### Procedure

**Step 1** Click **Job Name**. The Job Name dialog box appears.

**Step 2** Complete the following:



**Note** Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

**Table 9-9** Job Name

Field	Description
Job Name	Enter a name for the job. See <a href="#">Naming Guidelines, page B-1</a> .
Description	Enter a description of the job. See <a href="#">Naming Guidelines, page B-1</a> .

**Step 3** From the menu in the left pane, go to the next step, Select Devices. For additional information, see [Selecting Devices, page 9-17](#).

## Selecting Devices

### Procedure

**Step 1** Click **Select Devices**. The Select window appears.



**Note** Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

- Step 2** From the device selector, click the folder from which you want to build a device list.
- Clicking the folder displays the folder's contents in the Available Devices list box.
  - Repeat this step as many times as necessary to select devices from the folder in which they reside.
- Step 3** From the Available Devices list, select folders or individual devices, then click >>. The devices appear in the Selected Devices list box.



---

**Note** If you select a folder, the template will be applied to all of the devices in that folder. If a device is subsequently added to the folder, the template is applied to that device.

---

- Step 4** To remove devices, select them from the Selected Devices list, then click <<.
- Step 5** From the menu in the left pane, go to the next step, Schedule Job. For additional information, see [Scheduling a Configuration Job, page 9-18](#).
-

## Scheduling an Archive Job

### Procedure

**Step 1** Click **Schedule Job**. The Schedule Job dialog box appears.

**Step 2** Complete the following:



**Note** Clicking **Clear** removes all the current entries in the window and any entries you have made in other Job windows up until that point.

**Table 9-10** *Schedule Job*

Field	Description
Run Now	Click to run the job. <b>Note</b> This option ignores any dates you have entered in Start Date and Start Time.
Start Date	From the lists, select the month, day, and year you want your job to run.
Start Time	From the list, select the hour and minutes of the day you want your job to run.
Repeat	
Enable	Check to run the job repeatedly.
Every	Indicate how often you want the job to repeat by entering a numerical value, then selecting an interval of time: Hours, Days, Months, or Years.

**Step 3** From the menu in the left pane, go to the next step, Finish. For additional information, see [Finishing the Archive Job, page 9-40](#).

## Finishing the Archive Job



**Note** Archive jobs use SNMP, and will only work properly for non-IOS devices with software releases 11.23T and higher.

### Procedure

**Step 1** Click **Finish** in the left pane to complete creating a job. The Finish dialog box appears in the right pane.

**Step 2** Complete the following:

Field	Description
On completion, email to	Enter a comma-separated list of email addresses to be notified when the job completes.
Email only if job fails	Select this checkbox if you want recipients to be notified only if the job fails.
Configuration Type	Select the type of configuration. <b>Note</b> This setting applies to IOS devices only; for non-IOS devices, select either one.



**Tip** If email notification is not working, you may need to configure the mailroute by selecting **Administration > Appliance > Configure Mailroute**.

**Step 3** Click **Save**. A confirmation window appears with the job summary.

## Creating an Archive Job

Using this option, you can create an archive job.

**Note**

---

Your login determines whether you can use this option.

---

**Procedure**

- 
- Step 1** Select **Configure > Jobs**.
- Step 2** Click **Archive Job**. The Jobs Window appears.
- Step 3** Select the numbered choices in the left pane to create a job. For a description, see [Archive Job Choices, page 9-36](#).
- 

**Related Topics**

[Recommendations For Using Configuration Archives, page 9-34](#)

## Viewing Archive Job Status

This window allows you to view job status. It also allows you to filter a job, edit a job, and view details about the job.

The topics covered in this section are:

- [Viewing the Archive Job, page 9-42](#)
- [Filtering an Archive Job, page 9-44](#)
- [Editing an Archive Job, page 9-44](#)
- [Running an Archive Job Again, page 9-46](#)
- [Deleting an Archive Job, page 9-46](#)
- [Copying an Archive Job, page 9-46](#)
- [Viewing the Job Run Details Table, page 9-48](#)

**Note**

---

Your login determines whether you can use this option.

---

## Viewing the Archive Job

### Procedure

**Step 1** Select the status of the job you want to view from the Job State list.

**Step 2** Select Archive Regular from the Job Type list.

**Step 3** Click **Apply**. The window refreshes and the jobs are displayed.

The tables vary depending on the type of Job State and Job Type you selected: [Scheduled and Unscheduled](#), [Running](#), or [All](#).

- Scheduled and Unscheduled

Field	Description
Job Name	The job name.
Recurring	Whether the job recurs.
Next Schedule	For scheduled jobs, this indicates the next time the job will run. For completed jobs, this is last time the job ran.
Last Run Status	The status of the last run.
User	The user who created the job.  <b>Note</b> If you upgrade from a previous release to Release 2.9, and have scheduled a recurring job, the user will appear as WLSE after the upgrade.

- Running

Field	Description
Job Name	The job name.
Recurring	Whether the job recurs.
Job Start Time	The time the job started.
Percent Complete	The percent of the job that has completed running.

Field	Description
Next Schedule	The next time the job is scheduled to run.
User	The user who created the job.  <b>Note</b> If you upgrade from a previous release to Release 2.9, and have scheduled a recurring job, the user will appear as WLSE after the upgrade.

- All

Field	Description
Job Name	The job name.
Recurring	Whether the job recurs.
Job State	The state of the job.
Next Schedule	For scheduled jobs, this indicates the next time the job will run. For completed jobs, this is last time the job ran.
Last Run Status	The status of the job the last time it ran.
User	The user who created the job.  <b>Note</b> If you upgrade from a previous release to Release 2.9, and have scheduled a recurring job, the user will appear as WLSE after the upgrade.

**Step 4** To sort table data, click on the column heading by which you want to sort the data:

- A triangle indicates ascending order.
- An upside-down triangle indicates descending order.
- No triangle indicates that the data is not sorted.

**Step 5** You can do the following:



---

**Note** If the option is not available for the job type, the buttons are grayed.

---

- Filter the job—See [Filtering an Archive Job](#), page 9-44.
  - Edit the job—See [Editing an Archive Job](#), page 9-44.
  - Delete the job—See [Deleting an Archive Job](#), page 9-46.
  - Run the job again—See [Running an Archive Job Again](#), page 9-46.
  - Copy a job—See [Copying an Archive Job](#), page 9-46.
  - View the run details—See [Viewing Job Run Details](#), page 9-47.
  - Refresh the screen—Click **Refresh**.
- 

## Filtering an Archive Job

Use this option to filter jobs from the displayed list. Filtering this way allows you to display a limited set of jobs, making it easier to search for a particular job if you know the name.

### Procedure

---

- Step 1** Click **Filter Job**. The Filter Job dialog box appears.
- Step 2** Enter the name, or part of the a name, on which to filter. Use % as a wildcard to filter jobs. For example, entering %name% will filter all the jobs that contain “name.”
- Step 3** Click **Apply filter**. The Job window refreshes and the matching jobs are displayed on the Jobs list.



---

**Note** The filter is only applied until the page is refreshed.

---

## Editing an Archive Job

Use this option to edit jobs from the displayed list of jobs.

### Procedure

---

- Step 1** Select the job from the list which you would like to edit.
- Step 2** Click **Edit Job**. The Job Name dialog box appears.
- Step 3** Select the choices in the Archive Job Menu to edit the job. For a description, see [Archive Job Choices, page 9-36](#).
-

## Running an Archive Job Again

Use this option to run jobs again from the displayed list of jobs.

**Note**

This option works only for Run Now jobs.

**Procedure**

- Step 1** Select the job or jobs from the list which you would like to re-run.
- Step 2** Click **Run Again**. A confirmation box appears verifying the job was run.

## Deleting an Archive Job

Use this option to delete jobs from the displayed list of jobs. Jobs that are scheduled, unscheduled, completed and did not start can be deleted. Jobs that are running cannot be deleted.

**Procedure**

- Step 1** Select the job from the list which you would like to delete.
- Step 2** Click **Delete Job**.

## Copying an Archive Job

Use this option to copy unscheduled jobs from the displayed list of jobs, which can be run later on demand.

### Procedure

---

- Step 1** Select the job from the list which you would like to copy.
  - Step 2** Click **Copy Job**. A dialog box appears.
  - Step 3** Enter a name for the job, then click **OK**. The screen refreshes and the job is listed.
- 

## Viewing Job Run Details

Use this option to view details about a job.

### Procedure

---

- Step 1** From the table displayed in **Configure > Jobs** window, select a job for which you would like to see details, then click **Job Run Detail**.
- Step 2** The details window appears with the Job Runs table:

Field	Description
Select Run	Used to select a job for which you want to see more details.
Job Start Time	The time the job started.
Job End Time	The time the job ended.
Job Status	The status of the job.
Percent Complete	The percent of the job that completed.

**Step 3** Do any of the following:

- To view details for a particular job run or to undo a job, select the job, then click **Show Run Details**. The Job Run details table displays the information. See [Viewing the Job Run Details Table, page 9-48](#).
- To view the job run log, click **Job Run Log**. A window displays all the details for the selected job number.
- To refresh the table, click **Refresh**.

### Viewing the Job Run Details Table

The Job Runs Details table displays the following information:

Field	Description
Device Name	The name of the device.
Start Time	The time the job started.
End Time	The time the job ended.
Status	The status of the job.

- To sort table data, click on the column heading by which you want to sort the data:
  - A triangle indicates ascending order.
  - An upside-down triangle indicates descending order.
  - No triangle indicates that the data is not sorted.

# Automating Configurations

This window allows you to automatically upload configuration templates to access points and bridges. Use this feature to:

- Apply startup templates through the DHCP server to newly installed devices with manufacturer-default configurations.
- Apply a common template to devices the first time they are discovered, auto managed, and the WLSE has their inventory information.

The topics covered in this section are:

- [Creating a Startup Configuration Template, page 9-49](#)
- [Assigning a Startup Configuration, page 9-53](#)
- [Assigning an Auto-Managed Configuration, page 9-56](#)

## Creating a Startup Configuration Template

The startup configuration is used to bootstrap a device to allow the WLSE to discover it.



---

**Caution**

The startup configuration template is placed in tftpboot directory and anyone who knows the file name can access it. This template should contain only minimal feature settings.

---

To create a startup template select **Configure > Templates**. (To configure the access point manually without using a startup configuration, see [Getting Started with Device Management, page 4-2](#).)



---

**Caution**

Do not use the Reload command in a startup configuration.

---

You can create a startup configuration for:

- IOS devices—See [Creating an IOS Startup Template, page 9-50](#).
- Non-IOS devices—See [Creating a Non-IOS Startup Template, page 9-52](#).

## Creating an IOS Startup Template

Use the following table to guide you in creating a startup configuration template for IOS devices:

Tasks	Template Choice	Notes
Enable Cisco Discovery Protocol (CDP)	Select <b>Services &gt; CDP</b> .	CDP is required for the WLSE to discover devices on the network.
Enable Telnet	Select <b>Services &gt; Telnet/</b> .	Select <b>Enabled</b> for Telnet.
Enable SSH	Select <b>Services &gt; Telnet/SSH</b> .	<p>Do the following:</p> <ol style="list-style-type: none"> <li>1. Select <b>Enabled</b> for Secure Shell.</li> <li>2. Enter the system name, where the system name is the host name of the IOS access point. For a factory- default IOS access points, this name is by default set to <b>ap</b>.</li> <li>3. Enter the domain name. For example, <b>cisco.com</b>.</li> </ol> <p><b>Note</b> For any version earlier than 12.2(11)JA, you will have to manage the access points, then create and upload a template that enables SSH on those access points.</p>
Enable SNMP	Select <b>Services &gt; SNMP</b> .	<p>SNMP is required for the WLSE to discover and manage the device.</p> <p>Select <b>Enabled</b> for Simple Network Management Protocol (SNMP).</p>

Tasks	Template Choice	Notes
Create a Read community string	Select <b>Services &gt; SNMP</b> .	Do the following: <ol style="list-style-type: none"> <li>1. Enter a community string in the SNMP Community field.</li> <li>2. Enter <b>iso</b> in the Object Identifier field.</li> <li>3. Select <b>Read-Only</b>.</li> </ol> <b>Note</b> The read community string must be specified under <b>Administration &gt; Device Credentials</b> .
Create a Write community string	Select <b>Services &gt; SNMP</b> .	Do the following: <ol style="list-style-type: none"> <li>1. Enter a community string in the SNMP Community field.</li> <li>2. Select <b>Write-Only</b>.</li> </ol> <b>Note</b> The write community string must be specified under <b>Administration &gt; Device Credentials</b> .

**Note**

Access points come with a factory default username, password, and SSID. If you do not want the defaults, apply a custom template to remove them.

## Creating a Non-IOS Startup Template

Use the following table to guide you in creating a non-IOS startup configuration template:

Tasks	Template Choice	Notes
Enable Cisco Discovery Protocol (CDP)	Select <b>Services &gt; CDP</b> .	CDP is required for the WLSE to discover devices on the network.
Enable SNMP. (Optional Set the location.) (Optional Set the system name and system contact.)	Select <b>Services &gt; SNMP</b> .	SNMP is required for the WLSE to discover and manage the device.  Setting the location enables proper grouping of devices into the system-defined Location group. For more information, see <a href="#">Managing Groups, page 4-107</a> .
Set the community string by creating a user with all privileges.	Select <b>Security &gt; Local Admin Access</b> .  To create an user with SNMP read/write privileges, enter a username and password and select the Write, SNMP, Firmware, and Administrator capabilities.	The username of the user with Write and SNMP privileges is used as the SNMP read/write community string.  This community string should also have been configured on the WLSE using <b>Administration &gt; Discover &gt; Device Credentials &gt; SNMP Communities</b> .  The Firmware privilege is required for configuring devices from the WLSE.
Set up TFTP as the transfer protocol between the WLSE and access points.	Select <b>Services &gt; FTP</b> .	TFTP is used for transferring configuration changes to access points.

## Assigning a Startup Configuration

The startup configuration is used for newly-installed devices that have a manufacturer-default configuration. After the devices are powered on and receive an IP address from a DHCP server, the startup configuration will be automatically uploaded to the devices.



### Tip

After the access point is powered on and the startup configuration is applied, you may want to prevent the startup configuration from being uploaded to devices again if for some reason the access points reboot.

For non-IOS access points: Prevent the initial configuration from being uploaded to devices after a reboot by setting the **bootconfigReadINI** variable to **never** by auto-managed configuration or regular configuration.

For IOS access points (Version 12.2(13)JA or later): Prevent the initial configuration from being uploaded to devices after a reboot by using the IOS config command **no boot upgrade**. Enter this command in the Custom Value template.

### Before You Begin

1. Create a template for the startup configuration. See [Creating a Startup Configuration Template, page 9-49](#).
2. Make sure that the AP SNMP strings are setup correctly by selecting **Devices > Discover > Device Credentials > SNMP Communities**.
3. If you are configuring
  - A DHCP server, go to step [5](#).
  - A router as a DHCP server, go to step [4](#).
4. To configure a router as a DHCP server, enter the following commands:

```
ip dhcp pool (name)
network (network address) (subnet mask)
bootfile (startup file)
next-server (WLSE IP address)
default-router (default router)
domain-name (domain name)
dns-server (DNS IP address)
```

In this example, use the **next-server** command instead of option 66 or option 150.

5. To configure a DHCP server, do the following:
  - a. Return the WLSE's address. This is done by entering the `<IP address of the WLSE>` in the **Boot Server Host Name** field (option number 066) on the DHCP server.
  - b. Return the name of the initial template file in the DHCP reply message. This is done by entering `<startup file name>` in the **BootfileName** field (option number 067) on the DHCP server.

For example, if you had a WLSE with the IP address 10.10.11.12) and an associated startup template with Bootfile Name "newap1200.ini", you would do the following:

- a. On the DHCP server, select **Scope > Scope Options**.
- b. Set Scope option 066 (TFTP boot server name or IP address) with `10.10.11.12` (the WLSE's IP address).
- c. Set Scope option 067 (Bootfile Name) with `newap1200.ini` (the new Bootfile Name associated with the startup template file.)

#### Related Topics

- [Creating a Startup Configuration Template, page 9-49](#)
- [Assigning an Auto-Managed Configuration, page 9-56](#)

## Procedure

**Step 1** Select **Configure > Auto Update > Startup Configuration**. The Startup Configuration Template dialog box appears.

**Step 2** Complete the following:

Field	Description
Startup Templates	Lists the startup templates that have been created.
Bootfile Name	Enter the configuration file name that appears on the DHCP server.  <b>Note</b> For non-IOS access points, this name must have an.ini extension. There are no restrictions for IOS access points.
Description	Enter a description for the configuration.
Configuration Template	From the list select the startup template to assign to the configuration file.  Click <b>Details</b> to see the device types and device versions for which the template is valid.
Save Configuration to NVRAM (for IOS only)	Select the checkbox to save the auto-managed configuration to NVRAM.

**Step 3** Click **Save** to save the template. Click **Delete** to delete the template.

**Step 4** Modify the periodic discovery or run an immediate discovery to get the APs discovered by selecting **Devices > Discover > Discovery Wizard**.

## Assigning an Auto-Managed Configuration

Use this option to automatically apply a configuration template to devices the first time they are discovered, auto managed, and the WLSE has their inventory information.

**Tip**

---

It is recommended that as part of the auto-managed configuration template, you create an HTTP user and password by selecting **Security > Local Admin Access**. You also enter this user and password on the WLSE by selecting **Administration > Discover > Device Credentials > HTTP User/Password**.

---

The following topics are covered in this section:

- Assigning an Auto-Managed Configuration Template—See [Assigning Auto-Managed Configuration Templates](#), page 9-56
- Emailing the Configuration Job Results—See [Using Auto-Managed Options](#), page 9-60

## Assigning Auto-Managed Configuration Templates

When a template is to be applied, the WLSE does the following:

- It tries to find a matching template based on either the MAC address or the serial number of the device. If a match exists, the template will be applied to the device.
- If a MAC address match or a serial number match does not exist, the WLSE will continue to look for a match based on the other criteria specified, such as device type, device version, and subnet.

### Before you Begin

Make sure that for IOS APs, the Telnet/SSH credentials are entered correctly in the WLSE by selecting **Devices > Device Credentials > Telnet/SSH User /Password**.


## Procedure

- Step 1** Select **Configure > Auto Update > Auto-Managed Configuration > Assign Templates**. The Auto-Managed Configuration Templates dialog box appears with the names of the groups for which you can apply an automated template.
- Step 2** Complete the following:

**Table 9-11 Auto-Managed Configuration Templates**

Field	Description
Auto-Managed Templates	Lists the auto-managed templates that have already been created.
Enable	Select the checkbox to automatically apply a configuration template to the devices, after they are auto managed, that matches the criteria below.
Name	Enter a name for the auto-managed configuration. (For non-IOS devices, it must have an .ini extension.)
Description	Enter a description for the configuration.
Configuration Template	From the list select the template to assign to the configuration file.  Click <b>Details</b> to see the device types and device versions for which the template is valid.
Matching Criteria	

**Table 9-11 Auto-Managed Configuration Templates (continued)**

Field	Description
MAC Address	<ol style="list-style-type: none"> <li>1. Select the checkbox to enable the MAC address matching.</li> <li>2. Enter a MAC address, or select an existing one from the list, then click &gt;&gt; to add it to the list of valid MAC addresses for that template</li> </ol> <div style="margin-top: 10px;">  <p><b>Note</b> The existing MAC addresses list is populated by enabling filtering for auto managed devices under Devices &gt; Discover &gt; Discover &gt; Advanced Options.</p> </div> <ol style="list-style-type: none"> <li>3. To remove a MAC address from the list, select it, then click <b>Remove</b>.</li> </ol>
Serial Number	<ol style="list-style-type: none"> <li>1. Select the checkbox to enable the serial number matching.</li> <li>2. Enter the device serial number (top assembly serial number), then click &gt;&gt; to add it to the list of valid serial numbers for that template.</li> <li>3. To remove a serial number from the list, select it, then click <b>Remove</b>.</li> </ol>

**Table 9-11 Auto-Managed Configuration Templates (continued)**

Field	Description
Device Types	<ol style="list-style-type: none"> <li>1. Select the checkbox to enable the device type matching.</li> <li>2. Enter the device type, or select an existing one from the list, then click &gt;&gt; to add it to the list of valid devices for that template.  Note the following: <ul style="list-style-type: none"> <li>– AP350—Auto-managed templates for AP 350s are applied to 350 bridges; you cannot assign a different template for bridges based on device type alone. If the bridges are running a different software version than the AP350s, use a different template for bridges and set the appropriate version numbers.</li> <li>– AP1210—For 1210 access points with dual radios (11a and 11g), use device type 1210. For 1210 access points with a single radio (11g) use device type AP1210-SR.</li> </ul> </li> <li>3. To remove devices from the list, select it, then click <b>Remove</b>.</li> </ol>
Device Versions	<ol style="list-style-type: none"> <li>1. Select the checkbox to enable the device version matching.</li> <li>2. Enter the version numbers if they are not in the list, or from the list, select the version number, then click &gt;&gt; to add it to the list of valid versions for that template.</li> <li>3. To remove a version number, select it from the list, then click <b>Remove</b>.</li> </ol>

**Table 9-11 Auto-Managed Configuration Templates (continued)**

Field	Description
Subnet	<ol style="list-style-type: none"> <li>1. Select the checkbox to enable subnet matching.</li> <li>2. Enter the subnet if it is not in the list, or from the list, select the subnet then click &gt;&gt; to add it to the list of valid subnets for that template.</li> <li>3. To remove a subnet, select it from the list, then click <b>Remove</b>.</li> </ol>
Save Configuration to NVRAM (for IOS only)	Select the checkbox to save the auto-managed configuration to NVRAM. (This option can only be used for IOS configurations.)

**Step 3** Click **Save** to save the template.

**Step 4** To delete a template, select it from the Auto-Managed Templates listbox, then click **Delete**.

## Using Auto-Managed Options

This option allows you to email the results of your auto-managed configuration job.

### Procedure

**Step 1** Select **Configure > Auto Update > Auto-Managed Configuration > Auto-Managed Options**. The Auto-Managed Configuration Options dialog box appears.

**Step 2** Select the checkbox to enable email notification.

**Step 3** Enter the email address for the recipients of the notification.



**Tip** If email notification is not working, you may need to configure the mailroute by selecting **Administration > Appliance > Configure Mailroute**.

**Step 4** Click **Save**.

---

