



Getting Started

The following topics provide an overview of the Wireless LAN Solution Engine (WLSE), information about WLSE displays, and assistance with getting started:

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**Note**

Before using the WLSE, you should:

- Install and configure the WLSE, as described in the *Installation and Configuration Guide for the CiscoWorks Wireless LAN Solution Engine Express, Release 2.9*.
- Set up devices to be managed by the WLSE, as described in *Configuring Devices for Management by the CiscoWorks Wireless LAN Solution Engine*.

For information on locating these documents on Cisco.com, see [Finding WLSE Documentation on Cisco.com, page 1-18](#).

**Caution**

The WLSE does not support Network Address Translation (NAT).

Overview of the Wireless LAN Solution Engine

The WLSE is a hardware and software solution for managing Cisco wireless devices. The WLSE has the following major features:

- **Configuration and Firmware**
The configuration feature allows you to apply a set of configuration changes to access points and bridges and to archive configurations. Using the firmware feature, you can upgrade the firmware on access points and bridges.
- **Reporting**
Allows you to display reports for tracking device, client, and security information. Reports can be emailed, printed, and exported.
- **Fault and Policy Monitoring**
Provides device monitoring for fault and performance conditions, monitoring of authentication server responses, and monitoring of policy misconfigurations.
- **Radio Management**
Helps you manage your WLAN radio environment. All the device information shown under this tab is polled from the managed devices in your network. Radio Manager features simplify the deployment, expansion, and day-to-day management of the WLAN.

The WLSE works by gathering fault, performance, and configuration information about Cisco devices that it discovers in your network. The devices must be properly configured for discovery. After devices are discovered, you decide which devices to manage with the WLSE.

WLSE Integration with Network Management Systems

You can integrate the WLSE with other network management systems as follows:

- Add a link to a WLSE from a CiscoWorks server, using CiscoWorks Management Connection—See [Integrating the WLSE with a CiscoWorks Server](#), page 1-3.
- Launch a CiscoWorks server’s desktop from the WLSE—See [Creating Links](#), page 11-73.
- Use the WLSE’s fault notification interface to forward WLSE faults as SNMP traps—See [Notification Settings](#), page 2-81.



Note

The WLSE supports only SNMP v2c traps. SNMP v1 traps are not supported. Only network management systems that support v2c traps can integrate with the WLSE.

Integrating the WLSE with a CiscoWorks Server

You can use CiscoWorks Management Connection to add external application links to a CiscoWorks server’s navigation tree. Such links allow you to access the applications directly from the navigation tree.

Adding links to a WLSE involves installing a connection to the WLSE’s URL, as outlined in the following procedure.

Procedure

- Step 1** Enter the CiscoWorks server’s URL in the browser (for example, `http://my-cwserver:1741/`).

Step 2 Select **Management Connection > Administration > Create**.

Step 3 Follow the directions in the CiscoWorks online help.



Note In the screen titled Enter Item Information, enter any name for the connection in the Item Name field. Enter `main.html` in the URL field.

Step 4 When you finish, the connection to the WLSE appears under **Management Connection > Connections**.

Understanding the Web Interface

When you log into the WLSE through the World Wide Web, the set of features (tabs and subtabs) displayed in the UI depends on the roles assigned to your user login. A user with system administrator privileges can access the features in all of the tabs and subtabs, while other users may see only a subset of features. For more information about user roles, see [Managing Roles, page 11-62](#).

This section describes the following aspects of the UI:

- The supported browsers and versions and browser configuration—See [Configuring the Web Browser, page 1-5](#).
- The dashboard, including the tabs, subtabs, and buttons in the upper right corner—See [The WLSE Dashboard, page 1-8](#).
- How device names and IP addresses are displayed in the WLSE GUI—See [Device Identifier Display, page 1-11](#).
- How the WLSE displays time—See [Understanding WLSE Time Displays, page 1-12](#).
- How to use the device selector and Search—See [Using the Device Selector, page 1-14](#).
- How to sort table data—See [Sorting Table Data, page 1-15](#).

Configuring the Web Browser

Normally, all WLSE tasks are performed in the Web interface. Before you connect to the Web interface, make sure you are using a supported browser and that the browser is properly configured.

- [Supported Browsers, page 1-5](#)
- [Configuring Internet Explorer, page 1-6](#)
- [Configuring Mozilla, page 1-7](#)

Supported Browsers

Before connecting to the WLSE web interface, make sure you are using a supported browser and the browser is properly configured. The supported browsers for WLSE 2.9 are listed in [Table 1-1 on page 1-5](#). Use the procedures in [Configuring Internet Explorer, page 1-6](#), or [Configuring Mozilla, page 1-7](#) to configure your browser.



Note

Using earlier, unsupported versions of Internet Explorer compromises the security of the WLSE.

Table 1-1 Supported Browsers

Client Operating System	Supported Browsers
Windows 2000, Windows NT, and Windows XP	Microsoft Internet Explorer 6.0 with Service Pack 1 Mozilla 1.6 or 1.7
Japanese Windows 2000, Windows NT, and Windows XP	Japanese Microsoft Internet Explorer 6.0 with Service Pack 1 Mozilla 1.6 or 1.7
Solaris 8 and 9	Mozilla 1.6 or 1.7
Japanese Solaris 8 and 9	Japanese Mozilla 1.6 or 1.7
Java plug-in	1.4.2 or higher
	Note Java Plug-in is required for some WLSE functions.

Configuring Internet Explorer



Note

While using the WLSE's Web interface, you should disable popup-blocking software or add the WLSE to the "allow" list.

To configure Internet Explorer 6.0, perform the following steps:

Step 1 Select **Tools > Internet Options**.

Step 2 Enable JavaScript:

- a. Select **Security**.
- b. Make sure that the Internet icon is selected, and click **Custom Level**.
- c. Scroll to Scripting and select the following:
 - Select Enable for Active scripting.
 - Select Enable for Allow paste operations via script.
 - Select Enable for **Scripting of Java applets**.
- d. Click **OK**.

Step 3 Configure the browser to accept all cookies:

- a. Select **Privacy**.
- b. Move the slider down to until "Accept all Cookies" appears.
- c. Click **OK**.

Step 4 Change the default font to improve readability:

- a. Select **General**. Then elect **Fonts**.
- b. Select a sans-serif font (for example, Arial) from the **Web page font** and **Plain text font** lists.
- c. Click **OK**, then click **OK** again.

The text in the browser window is redrawn using the new fonts. Not all of the fonts will change after this user-defined font option is set.

Step 5 Disable caching:

- a. Select **General**. Then select **Settings**.

- b. Under “Check for newer versions of stored pages,” select **Every visit to the page**.

Step 6 Click **OK**.

Step 7 Windows XP does not come with the Java Plugin installed on Internet Explorer 6.0. This causes problems when updating the software on a WLSE. If you plan to use a Windows XP client or server to update WLSE software, see the following references:

- Using a Windows XP client and Internet Explorer 6.0—See [Installing the Software Update, page 11-17](#).
- Using a Windows XP server and Internet Explorer 6.0—See [Creating a Repository on a Windows Server, page 11-15](#).

Configuring Mozilla



Note

While using the WLSE’s Web interface, you should disable popup-blocking software or add the WLSE to the “allow” list.

To configure Mozilla 1.6 or 1.7, perform the following steps:

Procedure

Step 1 Select **Edit > Preferences**.

Step 2 Configure the browser to accept cookies:

- a. Select **Privacy & Security > Cookies**.
- b. Select **Allow all cookies** or **Allow cookies for the originating web site only**.

Step 3 Disable caching:

- a. Select **Advanced > Cache**.
- b. Select **Every time I view the page**.

Step 4 Click **OK**.

The WLSE Dashboard

The WLSE dashboard consists of:

- Tabs and subtabs that provide access to WLSE functions (see [Tabs and Subtabs, page 1-8](#)).
- Buttons in the upper right corner that provide general functions (see [Buttons, page 1-10](#)).

Tabs and Subtabs

The dashboard contains the following tabs and subtabs:

Table 1-2 *Tabs and Subtabs*

Main Tab	Subtabs	For information, see...
Faults	<ul style="list-style-type: none"> • Display Faults—display device faults. • Manage Fault Settings—use profiles to set thresholds and policies. • Manage Network-Wide Profiles—assign network wide settings. • Notification Settings—send fault information (traps, syslog messages, and emails). 	Fault Monitoring, page 2-1.
Devices	<ul style="list-style-type: none"> • Discover—enable discovery options and run discoveries, reset polling intervals, enter device credentials, put devices under management, run inventories, view inventory and discovery logs, import and export devices, enter AAA servers to be monitored, and enable enhanced (WDS) client tracking. • Group Management—manage device grouping by setting up static and dynamic groups. 	Managing Devices, page 3-1

Table 1-2 *Tabs and Subtabs (continued)*

Main Tab	Subtabs	For information, see...
Configure	<ul style="list-style-type: none"> • Templates—create configuration templates for IOS and non-IOS access points. • Archives—view and manage archived configurations. • Jobs—apply configuration templates to access points and retrieve configurations for archiving. • Auto Update—automate initial configuration of access points. 	<p>Using IOS Templates, page 4-1.</p> <p>Using Non-IOS Templates, page 5-1.</p> <p>Managing Device Configurations, page 6-1.</p>
Firmware	<ul style="list-style-type: none"> • Images—import firmware for access points and bridges from the desktop or from Cisco.com to the WLSE. • Jobs—upload firmware to access points. 	<p>Upgrading Device Firmware, page 7-1.</p>
Reports	<ul style="list-style-type: none"> • Device Center—view reports for a device. • Radio Manager—view radio management reports. • Wireless Clients—view reports about client associations with access points. • Current—view, export, and email reports. • Trends—view, export, and email reports about current trends. • Realtime—view current reports. • Scheduled Email Jobs—manage email jobs. 	<p>Using Reports, page 8-1.</p>
Radio Management	<ul style="list-style-type: none"> • Radio Monitoring—monitor WLAN and collect channel measurements for radio configuration, rogue AP discovery, and interference detection. • AP Radio Scan—collect rogue location estimates, radio parameter generation (RPG) data, and coverage data. • Client Walkabout—collect radio measurements and report them to the serving AP as you walk a client station throughout the coverage area. • RM Assisted Configuration—configure APs using measurement data collected from client walkabouts and AP radio scans. 	<p>Managing Your WLAN Radio Environment, page 9-1</p>

Table 1-2 Tabs and Subtabs (continued)

Main Tab	Subtabs	For information, see...
Location Manager	Display graphical view of WLAN environments, including AP locations, radio configurations, and estimated location of unknown APs.	Viewing Your WLAN Radio Environment with Location Manager, page 10-1
Administration	<ul style="list-style-type: none"> • Appliance—manage the WLSE system (view diagnostics, manage WLSE software, manage WLSE security, backup and restore data, configure WLSE redundancy, configure the login screen, set current time, specify NTP servers and name servers, set up routing for email jobs, use connectivity tools and the SNMP query tool, use the built-in TFTP server. • System—view information about supported device firmware versions, and import information about newly supported firmware versions. • User Admin—manage users and user profiles. • My Profile—reset your password and email address and configure your login environment. • Links—set up and activate links to other systems (such as other WLSEs and CiscoWorks servers) and run ACS failed login reports. 	Managing the WLSE System, page 11-1.

Buttons

The buttons in the upper right corner of the user interface have the following functions:

- Overview—Displays an overview of the tabs and their functions.
- Help—Displays online help for the subtab or option you are using and a table of contents and index for online help.

In the online help screens, you can also display the *User Guide for the CiscoWorks Wireless LAN Solution Engine, Release 2.9* by clicking **View PDF**.

You can also display the *FAQ and Troubleshooting Guide for the CiscoWorks Wireless LAN Solution Engine* by clicking **Troubleshooting**.

- About—Displays information about the WLSE software and hardware versions.
- Logout—Logs you out of the WLSE and displays the login screen.

Device Identifier Display

Many WLSE displays include a field for the device identifier:

- By default, the identifier is either the device name, the sysName, or the IP address, depending on certain settings—See [Default Device Identifier Display, page 1-11](#).
- You can select whether devices will be identified by the DNS name, hostname, IP address, device type, user-defined description, Ethernet MAC address, radio MAC address, or a combination of these identifier types—See [User-Defined Device Identifier, page 1-12](#).

Default Device Identifier Display

By default, the device identifier type is the DNS name. However, the actual identifier displayed when DNS name is chosen as the identifier type may be the DNS name, the IP address, or the SNMP sysName variable. Which identifier is displayed depends on the following:

- If reverse DNS lookup is enabled on the WLSE, the device name is displayed in this field if the lookup succeeds. If the lookup fails, the device IP address is displayed.
- If you do not enable reverse DNS lookup and the sysName is specified on the device, the sysName SNMP variable is displayed. If sysName is not set, the device IP address is displayed.
- If the sysName contains a single quote and reverse DNS lookup is not enabled, the IP address will be displayed.

In some displays there are separate fields for device name, sysName, and IP address.

To enable DNS lookup on the WLSE, select **Devices > Discover > DISCOVER > Advanced Options** and select Use reverse DNS lookup.

User-Defined Device Identifier

To specify how to identify devices in WLSE displays, select **Devices > Discover > DISCOVER > Advanced Options**. Then enter the desired identifier type in the Name Format field.

If you select the description option, you specify a name for each type in the device detail screen under **Devices > Discover > Managed Devices**.

For more information on using this option, see the online help or [Selecting the Device Name Format, page 3-56](#).

Understanding WLSE Time Displays

It is recommended that you check the current local time on the WLSE the first time you log in. If you need to reset the time, see [Set the Current Local and UTC Time, page 11-54](#).

This section contains information on:

- How time appears in WLSE displays—See [General Time Displays, page 1-12](#).
- A warning message that may appear when you are running WLSE jobs—See [Understanding Time Discrepancy Problems in Job Scheduling, page 1-13](#).

General Time Displays

The WLSE uses browser (client) time in most of its displays. The current WLSE server time, in your local timezone, is displayed in the upper right corner of the screen.

The format of timestamps depends on the browser you are using:

- In Internet Explorer, the timestamp usually consists of the browser time (hours:minutes:seconds) and date; for example:

14:17:16 10/12/2004

In some displays the timestamp is the day of the week, month and day, browser time, timezone, and year; for example:

Sat Oct 12 11:15:01 PDT 2004

The WLSE's internal system time is Universal Coordinated Time (UTC), and UTC is displayed in certain logs, such as the discovery run log.

Understanding Time Discrepancy Problems in Job Scheduling

When you schedule a job based on your local time, the scheduled time that you select in the job wizard is converted to the appropriate WLSE server time by using the timezone in which the client system is located.

If a significant time difference is discovered (more than 5 minutes), a warning message is displayed in the final step of the job scheduling wizard. The message displays the offset and whether the WLSE is ahead of or behind your local time.



Note

The WLSE server time, in your local timezone, is always displayed in the upper right corner of the screen, so you can compare your local time with the server time.

Procedure

If a time offset warning message appears:

- Step 1** Select an action:
- If you click **Cancel**, the job is not saved. The wizard remains at the scheduling screen so you can reschedule the job, if desired.
 - If you click **OK**, the wizard will finish and the job will be scheduled. The actual time that the job is run will be ahead of or behind the scheduled time.
- Step 2** To synchronize your local time with WLSE server time, see [Set the Current Local and UTC Time](#), page 11-54.



Note Resetting the local time also resets the server time.

Using the Device Selector

To select a group of devices or individual device for which you want to run a report, use the device selector in the left pane.

Procedure

- Step 1** Click to expand the desired folder.
- Step 2** Click to select the group of devices or an individual device.
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Using Search

To search for a device, use the dialog box in the left pane above the device selector.



Note Not all of the following search methods are available on all of the screens.

Procedure

- Step 1** From the list, select the method you want to use to search for the device, then enter the search information.
- Device Name—The name of the device.
 - IP Address—The IP address of the device.
 - AP MAC Address—The Ethernet and radio MAC addresses of the device.
 - Device Description—The description of the device.

- Serial Number—The top assembly serial number of the access point.
- APs Based on Client MAC—The MAC address of a known client. For both IOS and non-IOS access points.
- APs Based on Client Name—The name of a known client.
- APs Based on Client IP—The IP address of a known client.
- Use an asterisk (*) as a wildcard to denote numbers and letters.

Step 2 Click **Search**. The requested device appears in the Search Results folder.

Understanding the Icons

Search results and folders in the device selector display the following icons indicating the alarm status of the devices:

- Red X—Indicates a P1 or P2 fault or the device is unreachable.
- Yellow exclamation—Indicates a P3, P4, or P5 fault and the device is reachable.
- Green check—Indicates the device has no faults and is reachable.

The icons on the folders reflect the status of the highest severity fault for any of the devices or folders within that folder.

Sorting Table Data

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.

Logging In and Out

After initial setup, only the admin user can log into the WLSE, using the reserved username **admin** and the password specified during initial setup. When you create other logins, you assign one or more roles to each user. Roles define which tabs and subtabs are visible to the user and, therefore, which features users can access. There are predefined roles, which can be edited but not removed; and you can create new roles.

To set up access for other users, see [Managing User Accounts, page 11-64](#) and [Managing Roles, page 11-62](#). The WLSE supports up to 10 simultaneous users.

To log in via the CLI, see [Logging In and Out via CLI, page 12-2](#). Some users may not have access to the CLI.

**Note**

The WLSE Web interface times out after 30 minutes of inactivity. You will be logged out after that time. To change the timeout period, see [Set the Web Timeout Period, page 11-56](#).

Procedure

To log into the Web interface:

- Step 1** Access the WLSE through a browser by entering the WLSE's IP address or hostname, followed by **:1741** (for example: `http://209.165.128:1741`).



Note The default HTTP port is 1741, but the administrator can configure the WLSE to use port 80 instead. In that case, use the WLSE's IP address or hostname followed by **:80**.

If you using [HTTPS](#) to log in, do not append a port number to the IP address or hostname.

**Tip**

For information on supported browsers, see [Supported Browsers, page 1-5](#).

- Step 2** Enter your username and password and click **Login**.

If you do not see the features you need to use, log out and log back in as a user with those privileges. Contact the system administrator for information about the features you can access.

To log out, click **Logout** in the upper right corner of the window.

Customizing the Web Interface

You can customize the Web interface by:

- [Setting the Default Tab and Subtab, page 1-17](#)
- [Adding a Message to the Splash Screen, page 1-18](#)

Setting the Default Tab and Subtab

By default the overview screen appears when you log in. This screen provides a brief description of each of the main tabs. When you select a tab, the overview describes each of the subtabs.

Use the following procedure to customize the initial display.

Procedure

- Step 1** Select **Set Tab Defaults** in the upper right corner of the overview screen, or select **Administration > My Profile > Set Tab Defaults**.
- Step 2** Select a tab from the list.
- Step 3** Select a subtab or the Overview from the pulldown list.
- Step 4** Click **Save**.

Result: The next time you log in, your home page will be the tab and subtab that you selected.

Adding a Message to the Splash Screen

Use the following procedure to add a message to the splash screen that appears just before the login prompt.

Procedure

-
- Step 1** Select **Administration > Appliance > Splash Screen**.
 - Step 2** Enter your message.
 - Step 3** Select **Enable**. The message will be displayed in the splash screen. Users must click **Agree** in the splash screen before the login prompt will appear.
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Finding WLSE Documentation on Cisco.com

You can find WLSE 2.9 documentation on Cisco.com by using one of the following methods.

- Use the following URL:
http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cwparent/cw_1105/wlse/2_9/index.htm
- On the Cisco.com home page, select **Technical Documentation**.
 From the Network Management pulldown list, select **CiscoWorks > CiscoWorks WLSE, HSE, and ESSE > Wireless LAN Solution Engine > Wireless LAN Solution Engine 2.9**.

The following documents are available on Cisco.com:

Title	Description
<i>FAQ and Troubleshooting Guide for the CiscoWorks Wireless LAN Solution Engine, 2.9</i>	FAQs, troubleshooting hints, and fault descriptions.
<i>Supported Devices Table for the CiscoWorks Wireless LAN Solution Engine, 2.9</i>	Devices and versions supported by WLSE 2.9.

Title	Description
<i>Configuring Devices for Management by the CiscoWorks Wireless LAN Solution Engine, 2.9</i>	Instructions for setting up devices to be managed and monitored by the WLSE.
<i>Release Notes for CiscoWorks Wireless LAN Solution Engine, 2.9</i>	New features, documentation updates, known problems, and resolved problems.
<i>Installation and Configuration Guide for the CiscoWorks Wireless LAN Solution Engine, 2.9</i>	Details on WLSE 1130-19 hardware and hardware installation, initial configuration, and installation of WLSE software upgrades.
<i>User Guide for the CiscoWorks Wireless LAN Solution Engine, 2.9</i>	WLSE functionality and procedures for using the WLSE. Contains all of the information in the online help plus information on CLI commands.
<i>Regulatory Compliance and Safety Information for the 1130-19 CiscoWorks Wireless LAN Solution Engine</i>	Translated safety warnings and compliance information.

