



Viewing Your WLAN Radio Environment with Location Manager

The Location Manager gives you a graphical view of the access points (APs) on each floor of your building(s). Use Location Manager to:

- Enter information about building and floor environments (see [Adding Building Information, page 10-6](#))
- Specify the location of APs on each floor (see [Adding Devices to the Floor, page 10-12](#))
- Display graphically the APs and their configuration values on each floor of your building (see [Modifying Information Displayed with Device Icons, page 10-13](#))
- View the relative location of unknown or rogue APs (see [Changing Display Options for Unknown Radios, page 10-21](#))
- Use the Assisted Site Survey to determine optimal radio transmit power, channel selection, and beacon interval (see [Using the Assisted Site Survey Wizard, page 10-22](#))
- Display the predicted coverage of APs (see [Using the Assisted Site Survey Wizard, page 10-22](#))

The Location Manager supports up to 1,500 buildings per location with a maximum of 100 floors per building and a maximum of 100 APs per floor.

Prerequisites for Using Location Manager

Before using Location Manager, you must have

- Installed Java Runtime version 1.4.1 or higher. When you click on Location Manager, a message appears displaying what version of Java plug in you have installed and gives you a link to install the correct version if necessary.
- Discovered, inventoried, and managed all devices. See [Managing Devices, page 3-1](#).
- Authenticated the devices with WDS. IOS access points must be configured for Wireless Domain Service (WDS) and for LEAP authentication. For information on the minimum requirements for device setup, see the “Setting Up Devices” chapter in the *Installation and Configuration Guide for the CiscoWorks Wireless LAN Solution Engine, Release 2.7*. This guide is shipped with each WLSE, or you can view it online on Cisco.com.
- Obtained an image (.gif, .jpg, .jpeg, or .png) of the layout of your building, which you import in to Location Manager (see [Importing an Image of the Building or Floor, page 10-8](#)). It is recommended that your image be less than 300KB and less than 1,000x1,000 pixels. While it is not required that you import an image, you must at least specify the floor dimensions.

Launching Location Manager

You can launch Location Manager in two ways:

- By clicking the Location Manager tab, then clicking **Location Manager > Launch**.
- By selecting **Faults > Display Faults** and clicking the link in the Address, Description, or Timestamp fields in the Fault Summary Table for an unknown access point. A new window displays the Rogue Access Point Details report. From the Rogue Access Point Details report, click on **Location Manager** to launch Location Manager.

Related Topics

- [Understanding the Location Manager Window, page 10-3](#)
- [Getting Started with Location Manager, page 10-3](#)

Getting Started with Location Manager

After you launch Location Manager, there are several steps you need to perform before using the Location Manager features:

1. Add information about your building (see [Adding Building Information, page 10-6](#))
2. Import a image of your building (see [Importing an Image of the Building or Floor, page 10-8](#)). This step is optional but highly recommended.
3. Add information about the floor(s) in your building (see [Adding Floor Information, page 10-11](#))
4. Place devices in their approximate location on the floor map (see [Adding Devices to the Floor, page 10-12](#))

Understanding the Location Manager Window

[Figure 10-1](#) shows the information contained in the Location Manager window.

Understanding the Location Manager Window

Figure 10-1 Location Manager Window

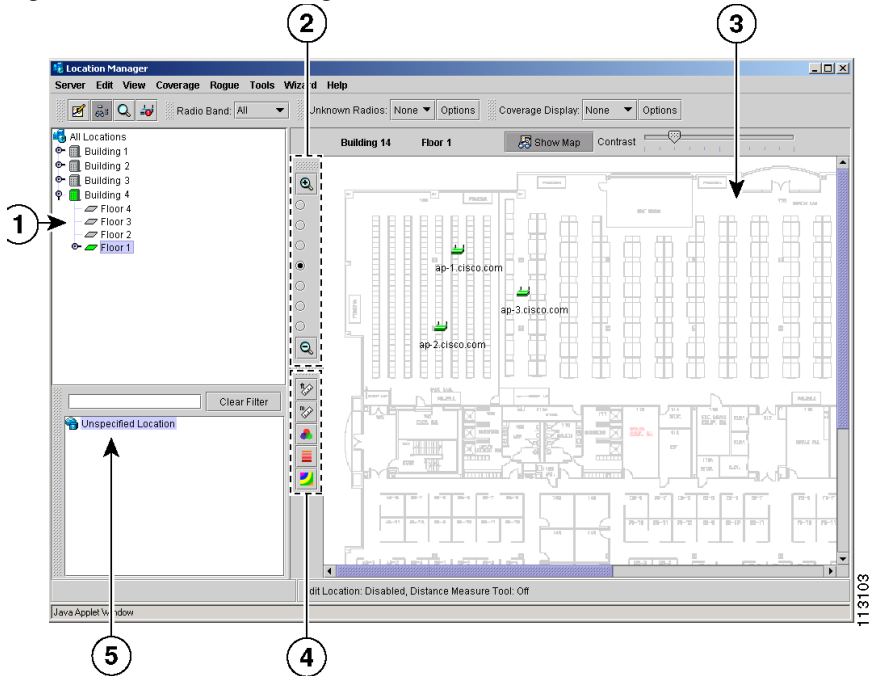


Table 10-1 describes the Location Manager fields that are numbered above

Table 10-1 Location Manager Window Descriptions

| Number | Description |
|--------|--|
| 1 | <p>Under All Locations, the buildings and floors that have been added to Location Manager are listed.</p> <ul style="list-style-type: none"> • If you click on All Locations, the All Locations Summary appears in field 3. (See All Locations Summary, page 10-5.) • Click on a building to see the Building Summary in field 3. Double-click on a building name or click the expand button to see the floors of each building. • Click on a floor to see the floor map in field 3. Double-click on a floor name or click the expand button to see the devices on the floor. • Double-click on a device to center the device in the floor map in field 3. |
| 2 | Zoom options for the floor map (See Zooming In and Out , page 10-36.) |

Table 10-1 Location Manager Window Descriptions (continued)

| Number | Description |
|--------|--|
| 3 | If you imported an image map, the map for the floor you clicked on appears here (See Importing an Image of the Building or Floor, page 10-8 for information about importing floor maps.) |
| 4 | Tools you can use for measuring and displaying color keys (See Using Location Manager Tools, page 10-34 .) |
| 5 | Lists discovered, inventoried, and managed devices not assigned to a building or floor. (See Managing Devices, page 3-1 .) |

Related Topics

- [All Locations Summary, page 10-5](#)
- [Prerequisites for Using Location Manager, page 10-2](#)
- [Getting Started with Location Manager, page 10-3](#)
- [Understanding Location Manager Device Icons, page 10-12](#)

All Locations Summary

When you first launch Location Manager, the default view is All Locations. The window on the right displays the All Locations Summary which contains the following information:

- Managed Access Points—Number of managed APs
- Active Alarms—Sum of major and minor alarms currently in your network
- Major Alarms—P1 and P2 alarms (see [Viewing Fault Information, page 2-2](#))
- Minor Alarms—P3, P4, and P5 alarms (see [Viewing Fault Information, page 2-2](#))

When you expand the All Locations folder, you see a list of the buildings and corresponding floors that have been entered in to Location Manager. When you click on a building or floor, the building or floor image map appears in place of the All Locations Summary.

The Building Summary, which appears when you click on a building name, displays the same information as the All Locations Summary but about the specific building.

Related Topics

- [Understanding the Location Manager Window, page 10-3](#)
- [Getting Started with Location Manager, page 10-3](#)

Adding Building Information

When you start Location Manager, the first thing you need to do is add information about your building(s) and its floor(s).

Procedure

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- Step 1** Select the Location Manager tab, then click **Location Manager**. A page appears telling you about the necessary Java plug-in version required to use Location Manager, and it displays the Java version you are currently running.
- Step 2** When you are sure you are running the correct version of the Java plug-in, click **Launch** to start Location Manager. The Location Manager window opens.
- The first time you launch Location Manager, a dialog box appears saying that no building or floor information was found. It asks if you want to add a new building. Click **Yes**.
- If you have previously launched Location Manager and want to add a building, select **Edit > Add Building** or right-click on **All Locations** and select **Add Building**.
- Step 3** The Building Tool opens displaying the Create Building Information form. Enter information about the building.

The following table shows the character limits for each field on the Create Building Information form:

| Field | Maximum Character Length |
|---------------|--------------------------|
| Building Name | 64 characters |

| Field | Maximum Character Length |
|---------|--------------------------|
| Contact | 64 characters |
| Address | 256 characters |

Step 4 To import an image of the building, click **Upload/Select**. This step is optional but useful if each floor plan and floor dimensions in the building are the same. If you want to specify different images for each floor, you can skip this step.

The larger an image resolution is, the longer it takes to upload to the server and the more memory it uses. Therefore, we recommended that your image be less than 300KB and less than 1,000x1,000 pixels. For more information about importing an image, see [Importing an Image of the Building or Floor, page 10-8](#). This step is optional, but highly recommended. If you do not import an image, the floor appears as a white box.



Note If you import an image at the building level, that image is the default for all floors in the building.

Step 5 Enter dimensions for the floor in the Floor Dimension fields and select whether the measurement is in feet or meters. See [Specifying Dimensions for and Scaling Imported Images, page 10-9](#) for more information.

Step 6 Click **Save** or click **Add Floor** to add information about the floor of the building (see [Adding Floor Information, page 10-11](#)). If you click **Add Floor**, you are prompted to save the building information first.

The Create Floor Information window appears. See [Adding Floor Information, page 10-11](#).

Related Topics

- [Importing an Image of the Building or Floor, page 10-8](#)
- [Adding Floor Information, page 10-11](#)
- [Specifying Dimensions for and Scaling Imported Images, page 10-9](#)

Importing an Image of the Building or Floor

To use Location Manager, you need an image (.gif, .jpg, .jpeg, or .png) of the layout of your building or floor. The larger an image resolution is, the longer it takes to upload to the server and the more memory it uses. Therefore, we recommended that your image be less than 300KB and less than 1,000x1,000 pixels. You can import this image into Location Manager by following these steps.

**Note**

If you import an image at the building level (not a *floor*), that image is the default for all floors in the building.

**Note**

If your image filename has any spaces in, the spaces are replaced with underscores (_). For example, if your image filename is *my floor image.jpg*, it will become *my_floor_image.jpg* in Location Manager.

Procedure

- Step 1** In the Location Manager window, right click on a building (or floor name) and select **Edit Building** (or Edit Floor if you right-clicked on a floor). The Edit Building (or Floor) Information form appears.
- Step 2** Click **Upload/Select**. The Select Image File window appears. If your image file appears in the Select Image File window, skip to Step 5 .
- Step 3** Click **Add to List**. to browse to the location of your image file.
- Step 4** Click on your image file, then click **Select**. Your file is uploaded and added to the Select Image file window.
- Step 5** Click on the image file, the click **Select**. The image is selected. The image file appears in the Default Floor Map Image field on the Building Tool window, and your image file appears in the Map Image Preview field.
- Step 6** Enter the correct the values in the Floor Dimension field, then click **Update Preview**.
- Step 7** On the Map Image preview, drag the red rectangle to cover just the edges of your building or floor, or if desired, drag the rectangle over just a portion of the image. This is particularly important if your image has white space around the building

or floor because it helps Location Manager more accurately determine the location of any interferers. See [Specifying Dimensions for and Scaling Imported Images](#), page 10-9.

Related Topics

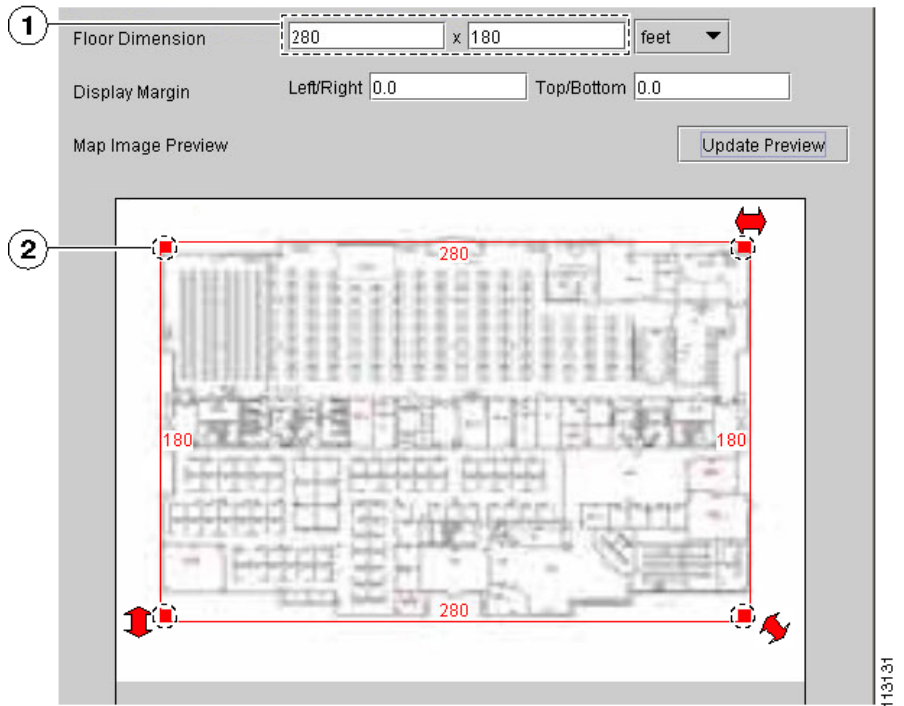
- [Adding Floor Information](#), page 10-11
- [Adding Devices to the Floor](#), page 10-12
- [Specifying Dimensions for and Scaling Imported Images](#), page 10-9

Specifying Dimensions for and Scaling Imported Images

In order for Location Manager and many Radio Manager functions to give the most accurate information, it's important that you enter the correct floor dimensions and, if you imported an image, that your floor image be as accurate as possible. There are two important steps you need to perform to ensure your building and floor information are accurate:

- Specify exact floor dimensions in the Floor Dimension fields on the Location Manager Building Tool.
- If you imported an image, use the scaling tool (the red rectangle) in the Building Tool window to encompass the area on the image for which you specified dimensions (see [Scaling the Building or Floor Image](#), page 10-10).

Figure 10-2 Scaling the Building or Floor Image



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| Number | Description |
|--------|--|
| 1 | Enter exact dimensions in the Floor Dimension fields and select whether the measurement is in feet or meters. |
| 2 | Move the red rectangles in each corner to cover only the area of floor for which you specified dimensions in the Floor Dimension fields. |

Adding Floor Information

After importing an image file of your building, you need to specify the dimensions of the floor(s) so that Location Manager knows the scale of the image you imported and can more accurately report the location of any interferers. When you first import an image file into Location Manager, the floor dimensions are the pixel size of the imported image.

Procedure

Step 1 In the Location Manager window, right click on the building name and select **Add Floor**. The Building Tool opens with the Create Floor Information form.

Step 2 Enter the name of the floor and import an image map.



Note If you previously imported an image to your building, that image is the default for all floors in the building. To upload a new image for the floor, import a new image. For more information on importing an image, see [Importing an Image of the Building or Floor, page 10-8](#).

Step 3 Select whether the measurement is in feet or meters using the pull-down menu, and then enter the dimensions of your floor in the Floor Dimensions field.

Step 4 On the Map Image preview, drag the red rectangles, which appear in the corners of your image, to cover just the edges of your floor, or if desired, drag the rectangle over just a portion of the image. This is particularly important if your image has white space around the building or conference room because it helps Location Manager more accurately determine the location of any interferers.

Related Topics

- [Adding Devices to the Floor, page 10-12](#)
- [Importing an Image of the Building or Floor, page 10-8](#)
- [Adding Building Information, page 10-6](#)

Adding Devices to the Floor

After you add a new building and new floor and import an image map, you can place the devices on the floor map for each floor.

**Note**

You must discover, inventory, and manage all devices before adding them to Location Manager. See [Managing Devices, page 3-1](#).

To add devices to the floor map, from the list of devices in the Unspecified Location list, click and hold on a device name and drag it to its approximate location on the image of the floor map.

You do not need to place the devices in the exact location on the image map, but the closer the device on the map matches its location on the floor, the more accurate coverage displays will be and the more accurate Location Manager is when giving information about unknown radios and interferers.

Related Topics

- [Understanding Location Manager Device Icons, page 10-12](#)
- [Understanding the Location Manager Window, page 10-3](#)

Understanding Location Manager Device Icons




After you have placed the devices on the floor map, the devices are represented by icons as shown in [Table 10-2](#). The color of the icons correspond to the devices' fault status:

- Red indicates the device has major (P1 or P2) faults.
- Yellow indicates the device has minor (P3, P4, or P5) faults.
- Green indicates the device has no faults.

The color of the buildings and icons in the location tree also correspond to their fault status.

For more information about faults, see [Viewing Fault Information, page 2-2](#).

Table 10-2 Device Icons Used in Location Manager

| Icon | Meaning |
|---|---|
|  | AP with no faults |
|  | Interference reporting AP with minor faults |
|  | Scanning-only AP with major faults |

Based on the different options you select in the **View** menu, the information that is displayed with the device icons might be different (see [Modifying Information Displayed with Device Icons](#), page 10-13).

You can right-click on any AP and select **Device Details**. A new browser opens displaying the AP Summary Report for the AP you selected.

Related Topics

- [Modifying Information Displayed with Device Icons](#), page 10-13
- [Displaying Information About Rogue Access Points](#), page 10-17

Modifying Information Displayed with Device Icons

From the **View** menu, you can select what information to display with the device icons on the Location Manager floor map. [Table 10-3](#) explains what information is displayed with each View option.

Table 10-3 Location Manager View Menu Options






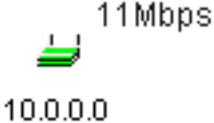
| Location Manager Menu Sequence | Option Selected | Information Displayed on the Floor Map | Example |
|--|----------------------|---|--|
| View > AP Label | Name | Device name |  ap-1.cisco.com |
| | IP Address | Device IP address |  10.0.0.0 |
| | Ethernet MAC Address | Device Ethernet MAC address |  000c8515xxxx |
| View > Radio Band ¹ See Understanding Radio Band Display Options , page 10-16. | Show All | View options for both 2.4GHz and 5.0 GHz radio interfaces | Depending on which option you select, displays the view options for all radios, 2.4 GHz radios, or 5.0 GHz radios. |
| | Show 2.4 GHz | View options for devices with 2.4 GHz radio interfaces | |
| | Show 5.0 GHz | View options for devices with 5.0 GHz radio interfaces | |

Table 10-3 Location Manager View Menu Options (continued)

| Location Manager Menu Sequence | Option Selected | Information Displayed on the Floor Map | Example |
|---------------------------------|-----------------|---|---|
| View > Radio Channel | n/a | Radio channel of each radio interface (channel 9 in the example). The color corresponds to the channel color (see Using Location Manager Channel Color Key , page 10-35). |  <p>Note Scanning-only APs have an “S” in place of the radio channel.</p> |
| View > Transmit Power | n/a | Transmit power (in mW) of each radio interface (100 mW in the example) |  <p>Note Scanning-only APs display “N/A.”</p> |
| View > Data Rate | n/a | Data rate (in Mbps) of each radio interface (11 Mbps in the example). See Using the Location Manager Coverage By Data Rate Color Key , page 10-36. |  <p>Note Scanning-only APs display “N/A.”</p> |

1. This menu option is available only when you click on a floor. These options are also available from the Radio Band pulldown menu.

Understanding Radio Band Display Options

When you click on an option from the **View > Radio Band** menu or from the Radio Band pulldown menu, you are specifying which radio band's view options you want to display in the Location Manager window:

- Show All—Displays view options for all devices, including AP labels for both 2.4 GHz and 5.0 GHz radios
- Show 2.4 GHz—Displays view options and AP labels for devices with 2.4 GHz radio interfaces
- Show 5.0 GHz—Displays view options and AP labels for devices with 5.0 GHz radio interfaces



Note

Because APs can have a 2.4 GHz and a 5.0 GHz radio interface, the same View information might appear if you select to display 2.4 GHz radios and later select to display 5.0 GHz radios. If you place your mouse over an AP, information about each interface (called Radio 1 and Radio 2) is displayed.

If you have not selected to view Radio Channel, Transmit Power, or Data Rate, the display does not change when you select different Radio Bands from the **View > Radio Band** menu or from the Radio Band pulldown menu.

Depending on what radio band you select from the **View > Radio Band** menu or from the Radio Band pulldown menu, the AP label that is displayed on the Coverage Display pulldown, or on the Coverage Display On menu when you right-click on an AP, changes as shown in [Table 10-4](#).

Table 10-4 Radio Band Selection

| Radio Band Selected ¹ | AP Labels Displayed ² | Available Options in Coverage Display Menu ³ |
|----------------------------------|----------------------------------|---|
| All | Both 2.4 GHz and 5 GHz | None, 2.4 GHz, and 5 GHz |
| 2.4 GHz | 2.4 GHz | None, 2.4 GHz |
| 5 GHz | 5 GHz | None, 5 GHz |

1. From either the **View > Radio Band** menu or from the Radio Band pulldown menu.
2. For information about modifying what AP label information is displayed, see [Modifying Information Displayed with Device Icons](#), page 10-13.
3. You can see the Coverage Display options by selecting **Coverage > Coverage Display**, by clicking on the Coverage Display pulldown menu, or by right-clicking on an AP and viewing the Coverage Display On menu. For more information, see [Modifying AP Coverage Display Options](#), page 10-28.

Displaying Information About Rogue Access Points

When Radio Monitoring detects a rogue AP, a new fault is generated. (See [Understanding Rogue AP Detection](#), page 9-10 for more information.) When you select the link in the Address, Description, or Timestamp fields in the Fault Summary Table for an unknown access point, the Rogue Access Point Details window displays information about the rogue AP such as details about the unknown access point, beacon and location information, switch port tracing, reporting access points, and fault history. You access the faults window from WLSE, not from within Location Manager.

You can also view this information, except for switch port tracing, from the Location Manager Unknown Radio List (see [Displaying the Location of Unknown or Rogue Radios](#), page 10-18).

Procedure

- Step 1** From WLSE, select **Faults > Display Faults**. The Fault window appears.
- Step 2** Click the link in the Description or Timestamp fields in the Fault Summary Table for an unknown access point.

A new window displays the Rogue Access Point Details report. For information about this report, see [Unknown AP Details, page 2-15](#)

For more information about faults, see [Viewing Fault Information, page 2-2](#).

Related Topics

- [Unknown AP Details, page 2-15](#)
- [Understanding Rogue AP Detection, page 9-10](#)
- [Displaying the Location of Unknown or Rogue Radios, page 10-18](#)
- [Changing Display Options for Unknown Radios, page 10-21](#)

Displaying the Location of Unknown or Rogue Radios

Location Manager helps you see the approximate location of unknown or rogue radios in your network by using the received signal strength from all detecting APs to locate the unknown radio relative to the detecting APs.

Location Manager can also estimate the distance between the detecting AP and the unknown radio.

Procedure

- Step 1** In the Location Manager window, click on the Unknown Radio List icon or select **Rogue > Unknown Radio List**. The Unknown Radio List window opens displaying a list of all unknown radios interfaces.



Note If you click on a floor, the Unknown Radios pulldown menu lists the unknown radios on the floor that you are currently viewing. You can click on a unknown radio from this pulldown menu.

Step 2 At the top of the Unknown Radio List window, select which devices you want to view:

- **Rogue**— APs that have not been identified as Friendly. By default, all unknown radios are classified as Rogue until you change them to Friendly.
- **Friendly**—APs that you know exists, for example, a neighboring network's AP, but that you are not going to modify in any way.

The window refreshes to display the devices of the unknown radio type you selected.

Step 3 Click on a device name. The Unknown Radio List window refreshes with data specific to that device.

The **Reported By** field shows the device(s) that detected the unknown radio:

- If the **APs** checkbox is selected, the Reported By field displays the APs that detected the selected unknown radio.
- If the **Clients** checkbox is selected, the Reported By list contains the AP the detecting client is associated to.

If the device you selected does not have a building name listed in the Building field, the **Location Estimation** field indicates the estimated location as unknown.

Step 4 Click **Change to Friendly** (if you selected Rogue from the Unknown Radio Type pulldown) to change the status of the selected unknown radio from Rogue to Friendly.

If you selected Friendly from the Unknown Radio Type pulldown, you can click **Change to Rogue** to change the status of the selected unknown radio from Friendly to Rogue.

- Step 5** Click **Display Location** to view the approximate location of the unknown radio on the floor map. The possible location of the unknown radio shaded is in color where the darkest shade indicates the most probable location.

**Note**

If the Estimated Location indicates “Unknown,” the Display Location button is greyed out. The location might be unknown because you didn’t specify the location of the reporting APs on the floor map before the APs detected the unknown radio. In this case, after specifying the location of the reporting APs on the Location Manager floor map, run Radio Monitoring again to get the estimated location (see [Using Radio Monitoring to Collect RM Data, page 9-52](#)).

Because Location Manager does not know the transmit power of the unknown radio, you might need to change the display options as explained in [Changing Display Options for Unknown Radios, page 10-21](#).

**Tip**

If the Unknown Radio List dialog box is covering the Location Manager window, you might need to close the dialog box to see the unknown radio displayed on the building map in Location Manager.

- Step 6** To delete a rogue AP when you have determined that it no longer exists, you can remove it by clicking **Delete**.
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Related Topics

- [Assigning Rogue AP Detection Network Settings, page 2-82](#)
- [Modifying AP Coverage Display Options, page 10-28](#)
- [Displaying Information About Rogue Access Points, page 10-17](#)

Changing Display Options for Unknown Radios

You can select different display options for the unknown radios to change the information that is displayed on the floor map. Changing display options can help you find the unknown radio by increasing the area in which you're likely to find the unknown radio.

Procedure

- Step 1** Click on a floor, and then select the unknown radio type whose display options you want to modify. The pulldown menu contains MAC addresses of the unknown radio interfaces on the specific floor you are viewing.
- Step 2** Click **Options**. The Unknown Radio Display options form appears. The default transmit power is 50mW and 100mW.
- Step 3** Click on different transmit power options to see a different area on the floor map in which the unknown radio might be located. If you select all transmit powers, the floor map displays all possible areas that the selected unknown radio might be located.
- Step 4** Select whether to use the Exclusion Algorithm. By default, the Exclusion Algorithm is selected so that, in its calculations, Location Manager includes the APs in the general area that did not detect the unknown radio. If you deselect the Exclusion Algorithm option, only the APs that detected the unknown radio are used in the location calculation.
- Step 5** Click **OK** to save the display options and to view the unknown radio on the floor map.



Note You might need to zoom out if you cannot see the possible location of the unknown radio in the Location Manager window. See [Zooming In and Out, page 10-36](#).

Related Topics

- [Changing Display Options for Unknown Radios, page 10-21](#)

Using the Assisted Site Survey Wizard

The Assisted Site Survey walks you through the process of determining the optimal radio transmit power and channel selection. It helps you select APs, run an AP radio scan job, perform a client walkabout, and generate radio parameters for the selected APs.

The Assisted Site Survey takes you through the following steps:

1. **AP Selection**—See [Selecting the APs, page 10-22](#).
2. **AP Radio Scan**—See [Performing AP Radio Scan, page 10-23](#).
3. **Client Walkabout**—See [Performing a Client Walkabout, page 10-25](#).
4. **Radio Parameter Generation**—See [Generating Radio Parameters, page 10-26](#).

**Note**

Because the more devices included in an Assisted Site Survey Wizard session increases the time required for completion, it is recommended that you run a separate Assisted Site Survey Wizard session for each building or for each floor.

Selecting the APs

Procedure

- Step 1** From the Location Manager window, select **Wizard > Assisted Site Survey**. The Assisted Site Survey Wizard appears.
- Step 2** Select the APs you want to participate in the site survey:
- To select all APs in a building, click on the building name, then click **Add**.
 - To select all APs on a floor, click on the floor name, then click **Add**.
 - To select individual APs, click on the AP name, then click **Add**.
- Step 3** To remove an AP that you previously selected, click on the AP name, then click **Remove**.
- Step 4** Click **Next** to go to the next step, **Filter By PHY**.

- Step 5** Select the type of 802.11 radio, either 2.4 GHz or 5 GHz, that will participate in the assisted site survey.



Note Only radios of the selected types take part in the assisted site survey. If a selected AP has no interfaces of the desired radio types, this is noted in the job run log.

- Step 6** Click **Next** to go to the next step (see [Performing AP Radio Scan](#)).

Performing AP Radio Scan

After you selected the APs to participate in the assisted site survey, the wizard checks to see if there is any existing radio scan data for the APs you selected. If there is no previous scan data, the wizard asks you to run a new radio scan setup. In addition, the following information is displayed in the table:

| Field | Description |
|----------------|--|
| Name | Name of the AP |
| IP Address | IP address of the AP |
| Radio Type | The type of radio |
| Radio MAC | The MAC address of the radio |
| Last Scan Time | Time the most recent radio scan job started. If this field indicates <i>None</i> , you need to run a new radio scan. |

Procedure

- Step 1** Select one of the following options:
- Start new radio scan setup—The wizard starts a new radio scan job. Select this option if there is no previous radio scan date for the selected APs.
 - Use previous radio scan data—The wizard uses the data collected from the most recent radio scan job. Use this option if all APs have a time stamp in the “Last Scan Time” field.



Note A running scan job temporarily degrades wireless LAN service, which might affect client associations. To minimize any disruption, run scan jobs during off-hours.

- Step 2** If you select to start a new radio scan setup, you need to specify the AP’s maximum transmit power setting for the radio scan procedure. The default is 100mW. See [Understanding AP Radio Scans, page 9-7](#).
- Step 3** To start the new radio scan, click **Start**. You’ll see informational messages appear in the text box and when the scan is complete, the form will display the following information:

| Field | Description |
|----------------|---|
| Name | Name of the AP |
| IP Address | IP address of the AP |
| Radio Type | The type of radio |
| Radio MAC | The MAC address of the radio |
| Last Scan Time | Time the most recent radio scan job started |

- Step 4** Click **Next** to go to the next step (see [Performing a Client Walkabout](#)).

Performing a Client Walkabout

Performing a client walkabout is an optional procedure in the Assisted Site Survey Wizard. If the APs you selected have data from a previous Client Walkabout session, this information is displayed in the wizard. For more information, see [Understanding Client Walkabouts, page 9-9](#).

Procedure

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- Step 1** Select one of the following options:
- Start Client Walkabout Setup—The wizard walks you through the steps of setting up a client walkabout. See [Guidelines for Running a Client Walkabout, page 9-49](#).
 - Skip Client Walkabout—If the location data is accurate, you can skip the client walkabout and go directly to [Generating Radio Parameters, page 10-26](#).
- Step 2** If you select to start client walkabout Setup, you need to enter at least one client MAC address, and up to five addresses, that will move around during the walkabout.
- Step 3** Select the AP power setting. You might choose to enter a lower power setting when, for example, the default power level might affect a neighboring network.
- Step 4** Click **Start** to start the client walkabout. When the client walkabout is complete, click **Stop** and the following information is displayed:

| Field | Description |
|---------------|--|
| Name | Name of the AP |
| IP Address | IP address of the AP |
| Radio Type | The type of radio |
| Radio MAC | The MAC address of the radio |
| Total WA Data | Accumulated data from previous walkabouts. |
| New WA Data | Data from the current walkabout session. |

While you are running a client walkabout session, the data in the Total WA Data and New WA Data fields should increase. If these fields remain at zero, make sure you have set up the walkabout session correctly (see [Guidelines for Running a Client Walkabout, page 9-49](#)).

Step 5 Click **Next** to go to the next step (see [Generating Radio Parameters](#)).

Generating Radio Parameters

You need to set channel constraints and transmit power constraints for the APs you selected. The wizard can help you configure your APs by internally utilizing measurement data collected from a client walkabout and AP radio scanning. The wizard recommends optimal radio transmit power, channel selection, and beacon interval (optional), and then applies these configuration settings to the APs, if desired. For more information, see [Creating a New Assisted Configuration Task, page 9-59](#).



Tip

To get optimal channel settings, run the radio parameter generation on a per building basis. That is, include all APs in one building in a single radio parameter generation job.

Procedure

- Step 1** Click on one of the Constraints options:
- All APs—Applies the constraints to all APs you selected to participate in the site survey
 - Individual AP—Allows you to specify constraints for individual APs.
- Step 2** Select the Channel Sets. Use ctrl-click to select more than one channel set. The radio parameter generation feature will give you a suggested channel within the channels you select. Click **Presets** to chose from a pre-selected set of channels.
- Step 3** If you click **Presets**, the Select Channel Sets window appears. Click on a channel set, then click **Select**. The channels you selected appear in the Channel Sets field.

- Step 4** Enter a value in the Minimum and Maximum Transmit Power fields. You might choose to enter a lower power setting when, for example, the default power level might affect a neighboring network. You must enter a numerical value greater than zero and less than 100.
- Step 5** Under Goal, enter a numerical value for the expected maximum number of clients per AP, and a numerical value for the expected average number of clients per AP. You must enter a numerical value greater than zero and less than 500.
- Step 6** Select whether to enable black hole mitigation. If you select this option, Radio Manager recommends a beacon interval, which is slightly altered from what the AP is configured to, for the APs. If you do not select the Black Hole Mitigation option, Radio Manager will not recommend a beacon interval.
- Step 7** Click **Start** to start the configuration parameter calculation. A status bar appears indicating the progress of the parameter generation. When the radio parameter generation is complete, a message appears at the bottom of the screen.
- Step 8** Click **Next** to view the calculation results and apply the configuration to the APs.
- Step 9** After reviewing the calculation results, click **Preview** to preview the changes in the Location Manager window or click **Apply Configuration** to apply the configuration changes to the APs.



Note The configuration on your devices will not change unless you click **Apply Configuration**.

The Apply Status column in the table indicates if the configuration was successfully applied.

Related Topics

- [Understanding AP Radio Scans, page 9-7](#)
- [Understanding Client Walkabouts, page 9-9](#)

Modifying AP Coverage Display Options

You can modify which APs' coverage to display and how to display the coverage in the floor map. The colors used to represent an AP's coverage area let you see what areas are covered by which data rate and where you might have holes in your coverage. In areas of overlapping coverage, the highest data rate is displayed.



Tip

If you do not perform a client walkabout, you *must* provide the dimensions of the floor (see [Adding Building Information, page 10-6](#)). It is also recommended that you import a floor image that includes the distances between APs (see [Importing an Image of the Building or Floor, page 10-8](#)).



Note

You cannot display the coverage area of a scanning-only AP. For more information about Scanning APs, see [Understanding Scanning-Only AP Mode, page 9-16](#).

Procedure

Step 1

Select which radio's coverage you want to display:

- To display the coverage of 2.4 GHz APs, select **Coverage > Coverage Display > Show 2.4 GHz coverage** or select **2.4 GHz** from the Coverage Display pulldown menu.
- To display the coverage of 5.0 GHz APs, select **Coverage > Coverage Display > Show GHz coverage** or select **5 GHz** from the Coverage Display pulldown menu.
- If you don't want to display any coverage areas, select **Coverage > Coverage Display > None** or select **None** from the Coverage Display pulldown menu.



Note

If the radio band you want is greyed out, see [Radio Bands Available in Coverage Menus, page 10-31](#) for more information.

Step 2

Next to the Coverage Display pulldown, click **Options** or select **Coverage > Coverage Display Options**. The Coverage Display Options form appears.

- Step 3** Chose one of the display options (see [Table 10-5](#) for information about how the coverage display options compare):
- **Display Selected Data Rates**

Select a data rate to see that coverage area displayed on the floor map. If you have a hole in your coverage, a white spot appears on the map. You can also click one of the buttons under Quick Selection Choices to view the data rates for a particular radio band.
 - **Display Received Signal Strength**

Select Display Received Signal Strength to view how strong a signal is for a particular area. The darker the color, the stronger the signal strength.

Select whether you want to display overlaps. If you select to not display overlaps, the color of the strongest signal is displayed. If you have a hole in your coverage, a white spot appears on the map.

When you display overlaps, you get an additional pulldown menu that lets you control the display of the each AP's signal strength. For example, if you select 80% (-55dBm), the floor map displays the area in which the AP signal strength is at least 80% (-55dBm).
- Step 4** To see the received signal strength in any area on the floor, select **Coverage > Show RSS from Selected AP** and click on an AP. A grid appears on the floor map, and the selected AP's received signal strength appears in each square of the grid.
- Step 5** Change the Calculation Grid Size by clicking on a value in the pulldown menu. Changing the size to a larger value, for example 8 ft., gives you a more general coverage that is not as granular as if you had picked a smaller value, for example 2 ft. The smaller the value you choose, the more time it will take for the floor map to refresh because it will display a more specific coverage area.
- Step 6** Click **Apply** to see the changes on the floor map while keeping the Coverage Display Options form open.
- Step 7** Click **OK** to close the form. The floor map refreshes to show the display options you selected.
- Step 8** To turn Coverage display off for a specific AP, right click on the AP and select **Coverage Display Off**. To turn the coverage display back on, right click on the AP and select **Coverage Display On**. The Coverage Display pulldown menu now says Selective.
-

Table 10-5 shows you the relationship between the coverage display options and the features available with each option.

Table 10-5 Coverage Display Options

| Coverage Display Option | Can I selectively turn display on/off per AP? ¹ | Can I control the display of the signal strength based on a percentage of signal strength? ² | Given a location, can I see which AP gives the strongest signal and what its signal strength is? ³ | What color key is used with this option | Is gradient color used or one color? |
|---------------------------------|--|---|---|---|---|
| Data Rate | Yes | No | No | Data Rate Color Key ⁴ | One color |
| Signal Strength with Overlap | Yes | Yes | No | Channel Color Key ⁵ | Gradient color. The darker the color, the stronger the signal strength. |
| Signal Strength without Overlap | No | No | Yes | Channel Color Key ⁶ | Gradient color. The darker the color, the stronger the signal strength. |

1. See Step 8 in [Modifying AP Coverage Display Options](#), page 10-28.
2. See Step 3 in [Modifying AP Coverage Display Options](#), page 10-28.
3. See Step 3 in [Modifying AP Coverage Display Options](#), page 10-28.
4. See [Using the Location Manager Coverage By Data Rate Color Key](#), page 10-36
5. See [Using Location Manager Channel Color Key](#), page 10-35
6. See [Using Location Manager Channel Color Key](#), page 10-35

Related Topics

- [Radio Bands Available in Coverage Menus](#), page 10-31

Radio Bands Available in Coverage Menu

There is a direct relationship between the radio band you select in the **View > Radio Band** menu or the Radio Band pulldown menu and what radio band options you see in the Coverage Display menu. For example, if you select **View > Radio Band > Show 2.4 GHz** or if you select **2.4 GHz** in the Radio Band pulldown menu, you get the following options in the Coverage Display menu:

- None
- 2.4 GHz

5 GHz is greyed out because you have 2.4 GHz selected in the Radio Band pulldown menu.

If you select **View > Radio Band > Show All** or if you select **All** in the Radio Band pulldown menu, you get the following options in the Coverage Display menu:

- None
- 2.4 GHz
- 5 GHz

See [Table 10-4](#) for more information about the relationship between these options.

Moving Devices on Location Manager Image Map

If you already placed a device on your Location Manager image map and need to change its location, you can move it to a new location by following these steps:

Procedure

- Step 1** Click on the Enable Edit Location Mode icon or select **Edit > Enable Edit Location**.
- Step 2** Click on the device you want to move.
- Step 3** You can either drag the device to a new location on the map, or you can select **Edit > Cut** from the menu or by right-clicking on the device.
- Step 4** If you select **Edit > Cut**, click on the new location for the device (or to move it to a different floor but at the same location, click on different floor), then select **Edit > Paste** from the menu or by right-clicking on the device.

The device appears in the new location on the image map.

Related Topics

- [Adding Devices to the Floor, page 10-12](#)

Locating Devices in Location Manager

You can search for devices in the Location Manager window.

Procedure

- Step 1** From the Location Manager window, select **Tools > Find AP**. The Find AP window appears.
- Step 2** From the pulldown menu, select whether to search by device name, IP Address, or MAC Address.
- Step 3** Select either Containing or Exactly Matching.
- Step 4** Enter the text string to search for in the text field.

Step 5 Click **Search**. The Find AP form displays the device or devices that match your search criteria.

Step 6 Click on the name of the device you want to locate, then click **Locate AP** at the bottom of the form.

The AP you selected appears in the center of the floor map.

You can right-click on any AP and select **Device Details**. A new browser opens displaying the AP Summary Report for the AP you selected.

Related Topics

- [Adding Devices to the Floor, page 10-12](#)
- [Understanding Location Manager Device Icons, page 10-12](#)

Obtaining Server Information

From Location Manager, you can:

- Verify Server Status

To verify the status of your server, select **Server > Status**. The Server Status window appears displaying the IP address of the server and the time the server was started. The Server status form also displays the following information:

- UserID—Username of the person who launched Location Manager
- Client Address—Address of the client machine that launched Location Manager
- Login Time—Time that the user launched Location Manager

- View Server Messages

To view server messages after you configure your floor plan with APs, select **Server > Message**. The Message Server Message Log window appears displaying messages about your server. This information might be helpful when troubleshooting issues, for example, if the AP display coverage isn't correct.

Using Location Manager Tools

Location Manager includes several tools that you can use:

- Measuring Tool (See [Using Location Manager Measuring Tool, page 10-34.](#))
- Modify Contrast Tool (See [Using Location Manager Contrast Sliding Tool, page 10-35.](#))
- Channel Color Key (See [Using Location Manager Channel Color Key, page 10-35.](#))
- Unknown Radio Location Color Key (See [Using Location Manager Radio Location Color Key, page 10-35.](#))
- Coverage by Data Rate Color Key (See [Using the Location Manager Coverage By Data Rate Color Key, page 10-36.](#))

Using Location Manager Measuring Tool

The Location Manager Distance Measure Tools allow you to measure the distance (in either feet or meters) between APs and perform other measure functions.

**Note**

The Distance Measure Tool icons appear only when you have added floor information to your building(s). (See [Adding Floor Information, page 10-11.](#))

Procedure

Step 1 In the Location Manager window, click on either Distance Measure Tool icon. The icon with *ft* indicates feet, and the icon with *m* indicates meters.

The icon you selected is shaded grey, and the bottom of the Location Manager displays the following message:

Distance Measure Tool: On

Step 2 Click and drag your mouse anywhere on the building map to start your measurement from.

Step 3 Drag your mouse to the desired location. You'll see the measurement display as you're dragging the mouse.

Step 4 To end the measurement, lift your finger from the mouse.



Note

If the Distance Measure Tool is enabled, the Edit Location tool is disabled automatically.

Using Location Manager Contrast Sliding Tool

You can modify the background contrast in the image of your floor map by using the Location Manager Contrast sliding tool.

- To make the background image lighter, move the sliding bar to the left.
- To make the background image darker, move the sliding bar to the right.

Using Location Manager Channel Color Key

When you select **View > Radio Channel** or when you view coverage by received signal strength, the color of the channel label and the coverage display indicate the channel the AP is transmitting on. To verify which color corresponds with which channel, click on the Channel Color Key icon or select **Help > Channel Color Key**. The Channel Color Key legend appears showing you which color represents which channel.

Using Location Manager Radio Location Color Key

The Location Manager Unknown Radio Location Color Key displays what the Unknown Radio Location color values mean. The color gradations correspond to the percentage of probability that the unknown radio exists in the specified region. Click on the Unknown Radio Location Color Key icon or select **Help > Unknown Radio Location Color Key** to view this information.

Using the Location Manager Coverage By Data Rate Color Key

The Location Manager Coverage By Data Rate Color Key shows you what colors correspond to which data rates. A check mark next to a color indicates that you specified to include this data rate in the Coverage Display. For example, if you selected 11 Mbps and 5.5 Mbps in the Options menu, which is next to the Coverage Display pulldown menu, these data rates are shown with a check mark (in the Data Rate Color Key window) and are displayed in Coverage Display by Data Rate. Click on the Coverage By Data Rate Color Key icon or select **Help > Coverage By Data Rate Color Key** to view this information.

Zooming In and Out

When using Location Manager, you might need to zoom in and out to see APs displayed on the floor map. You can zoom in and out by selecting a radio button to the left of your floor image. There are 7 radio buttons that correspond to the following zoom levels:

- 32 pixels per foot
- 16 pixels per foot
- 8 pixels per foot
- 4 pixels per foot
- 3 pixels per foot
- 2 pixels per foot
- 1 pixel per foot

To return to the normal view, select the fourth radio button (4 pixels per foot) in the list.