



CHAPTER 13

Running Reports

WCS reporting is necessary to monitor the system and network health as well as troubleshoot problems. A number of reports can be generated to run on an immediate and scheduled basis. Each report type has a number of user-defined criteria to aid in the defining of the reports. The reports are formatted as a summary, tabular, or graphical layout. Once defined, the reports can be saved for future diagnostic use or scheduled to run and report on a regular basis.

Reports are saved in either CSV or PDF format and are either saved to a file for later download or emailed to a specific email address. Reports are saved on the WCS server.

The reporting types include the following:

- Current, which provides a snap shot of the data from the last polling cycle without continuously polling
- Historical, which retrieves data from the device periodically and stores it in the WCS database
- Trend, which generates a report using aggregated data. Data can be periodically collected based from devices on user-defined intervals, and a schedule can be established for report generation.

With WCS, you also have the ability to export any report that you can view, sort reports into logical groups, and archive for long-term storage.



Note

If you want the report to print as it appears on the window display, you must choose landscape mode.

From the Reports menu, you can access any of the following types:

- [Client Reports, page 13-5](#)
- [Access Point Reports, page 13-4](#)
- [Inventory Reports, page 13-7](#)
- [Mesh Reports, page 13-8](#)
- [Performance Reports, page 13-9](#)
- [Security Reports, page 13-11](#)

Choosing a Report

If you choose one of the above options from the Reports menu, a window with a list of created report tasks displays. Perform one of the following operations:

- If you want to enable or disable a report schedule, refer to the “[Enabling or Disabling a Schedule](#)” section on page 13-2.
- If you want to delete a report, refer to the “[Deleting a Report](#)” section on page 13-3.
- If no reports are defined, you can create a report by selecting **New** from the Select a command menu. After clicking **GO**, two new panels appear: General and Schedule. The General panel allows you to configure data gathering parameters. The Schedule panel allows you to control when and how often the report runs, based on what you specify. Refer to the “[Accessing the Schedule Panel](#)” section on page 13-3.

After running the report, a Results tab shows the report data (see [Figure 13-1](#)).

Figure 13-1 Results Tab

The screenshot displays the Cisco Wireless Control System interface. The top navigation bar includes the Cisco logo, the title "Wireless Control System", and user information: "Username: root | Logout | Refresh | Print View". Below the navigation bar are tabs for "Monitor", "Reports", "Configure", "Location", "Administration", and "Help". The left sidebar lists various report categories, with "Mesh Packet Error Stats" selected. The main content area shows the "Mesh Packet Error Stats > New" configuration page. It has tabs for "General", "Schedule", and "Results", with "Results" currently active. The "Results" tab displays the following information:

- Generated: Fri Apr 06 08:53:57 PDT 2007
- Report By: AP By Controller
- Reporting Period: Last 1 hours
- Aggregation Frequency: N/A
- The specified criteria did not match any data for the report. Please modify the criteria.

At the bottom of the interface, there is an "Alarm Summary" table:

Alarm Summary			
Rogue AP	0		139
Coverage Hole	1	0	0
Security	1	0	0
Controllers	0	1	0
Access Points	1	0	2
Mesh Links	0	0	0
Location	0	0	0

A History Tab appears after there has been some scheduled executions.

Enabling or Disabling a Schedule

To enable a defined report, check the check box next to the report and select **Enable Schedule** from the Select a command menu. Click **GO**. If the scheduled time period for the report has passed, then *Expired* appears in the Schedule column. To remedy, click the report title and enter new time parameters in the window that appears.

To disable a defined report, check the check box next to the report and select **Disable Schedule** from the Select a command menu. Click **GO**. The disabled state appears in the Schedule column.

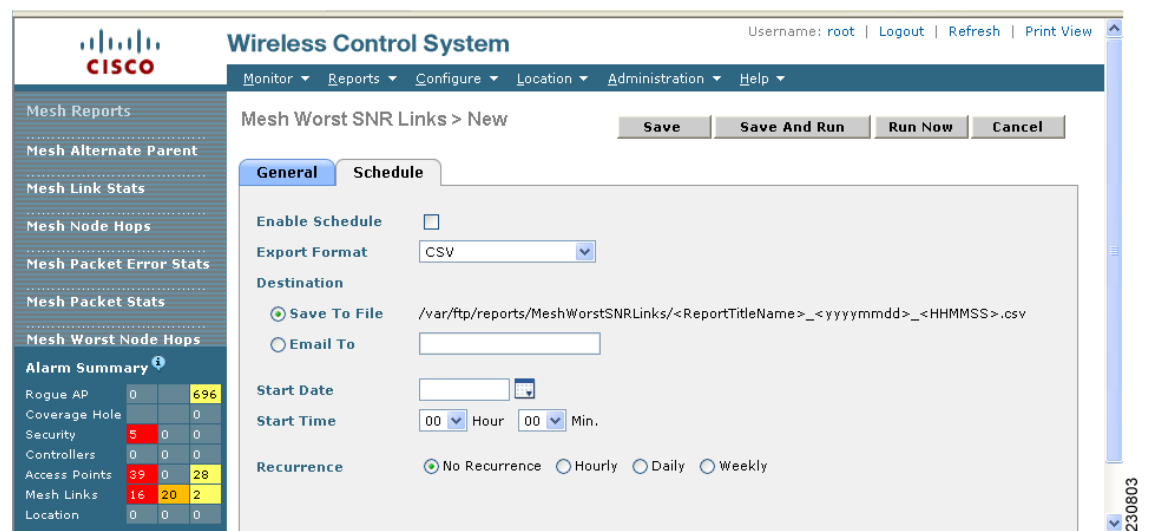
Deleting a Report

To delete a defined report, check the check box next to the report and select **Delete** from the Select a command menu and click **GO**. The report is deleted from the listing.

Accessing the Schedule Panel

The schedule panel is the same for any report. After choosing the Schedule tab, the Schedule window appears (see Figure 13-2).

Figure 13-2 Schedule Tab



Follow these steps after choosing the **Schedule** tab within any report type.

- Step 1** Check the **Enable Schedule** check box.
- Step 2** Specify if you want the export format to be .csv (a file containing the MAC addresses of access points) or .pdf from the Export Format drop-down menu.
- Step 3** Choose either the **Save to File** or **Email To** option as the destination type.
 - If you select the Save to File option, a destination path must first be defined at the **Administration > Settings > Report** page. Enter the destination path for the files in the Repository Path field.
 - If you select the Email to option, an SMTP Mail Server must be defined prior to entry of the target email address. Choose **Administrator > Settings > Mail Server** to enter the appropriate information.
- Step 4** Enter a start date (MM:DD:YYYY format) in the provided field or click the calendar icon to select a date. The report will begin running on this date.
- Step 5** Specify a start time using the hour and minute drop-down menus.
- Step 6** Click on one of the recurrence buttons to select how often the report is run.

- Step 7** When entry is complete, do one of the following:
- Click **Save** to save the entry.
 - Click **Save and Run** to save the changes and run the report now. The report is run, and the results are either emailed or saved to a designated file as defined in the Schedule tab. The report runs again at the scheduled time.
 - Click **Run Now** if you want to run the report immediately and review the results in the WCS window. The report runs regardless of any scheduled time associated with the report.



Note You can use the Run command to check a report scenario before saving it or to run ad hoc reports as necessary.

Access Point Reports

In the left sidebar menu, all of the access point report options are listed. The choices are as follows:

- **AP List by SSID and Location Report**—Displays information on access points located in specific physical areas and specific SSIDs.
- **AP Profile Status Report**—Displays information on access points located in specific physical areas and with specific SSIDs.
- **Busiest APs Report**—Allows you to view information on the busiest access points in terms of total utilization. The total utilization is the sum of transmitting, receiving, and channel utilization.
- **Traffic Stream Metrics Report**—Shows voice traffic stream metrics and high density related reports. The controller keeps multiple records of the voice metrics data for each client. The access points update the controller with traffic stream metric information every 90 seconds, and 10 minutes of data is stored at one time to generate an on-demand report. WCS polls the data from the controllers and aggregates it as hourly, daily, and weekly. The generated data that is returned includes but is not limited to the following: the level of QoS, the percentage of packet loss ratio on the downlink and uplink, and any queuing delays.
- **Graphical Traffic Stream Metrics Report**—The Traffic Streams Metrics (Graphs) report is equivalent to the Traffic Streams Report, but the information is displayed in graph form.

Viewing or Modifying Access Point Reports

Follow these steps to view or modify existing access point reports.

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- Step 1** Choose **Reports > Access Point Reports**. The Access Point Report page appears.
- Step 2** Choose the Access Point Report type from the left panel.
- Step 3** Define (or modify) the conditions for the report in the General panel.
- Step 4** Refer to the [“Accessing the Schedule Panel” section on page 13-3](#) to complete the scheduling process.
- Step 5** Click the **History** tab if you want to review details of the current and past runs of the report.
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Creating a New Access Point Report

Follow these steps to create a new access point report.



Note Some of these steps or options are not required for every report.

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- Step 1** Choose **Reports > Access Point Reports**. The Access Point Reports page appears.
- Step 2** Click on one of the report types summarized under Access Points Reports (left-side).
- Step 3** Choose **New** from the Select a command drop-down menu and click **GO**.
- Step 4** Specify a report title.
- Step 5** Use the Report By drop-down menu to choose the physical area to report on. The following options are available:
- AP By Outdoor Area—Generates the report of the outdoor area on a per-access point basis.
 - AP by Floor Area—Generates the report of the floor area on a per-access point basis.
- Step 6** Perform one of the following:
- If you chose outdoor, you need to specify in which campus and outdoor area it is located.
If you chose floor area, you need to choose in which campus, building, and floor the area is located.
- Step 7** Determine which access points you want to include in the report.
- Step 8** Specify if you want to include 802.11a/n or 802.11b/g/n radios in the report.
- Step 9** Click the **Schedule** tab to complete the scheduling process. Refer to the [“Accessing the Schedule Panel” section on page 13-3](#).
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Client Reports

You can run reports of all unique clients that have accessed the network for a specified duration. For example, you may want to show all clients that were on a certain floor in the last three days and see detailed information network activity. The client report options are as follows:

- **Busiest Clients Report**—Displays information on the busiest clients in terms of total throughput of clients during a given period of time.
- **Client Association Report**—Shows a detailed association history of the clients as collected from the controller. The generated data that is returned includes but is not limited to the following: the username and MAC address of the client, which access point it is associated with, and a status.
- **Client Count Report**—Displays data on the numbers of clients that connected to the network through a specific device, in a specific geographical region, or through a specific SSID.
- **Traffic Stream Metrics Report**—Shows voice traffic stream metrics and high density related reports for clients. The controller keeps multiple records of the voice metrics data for each client. The generated data that is returned includes but is not limited to the following: the level of QoS, the percentage of packet loss ratio on the downlink and uplink, and any queuing delays.

- **Unique Client Report**—Shows which unique clients have accessed the network within a specified duration. For example, you could show all clients on a particular floor in the last three days and view detailed information about their network activity. The generated data that is returned includes but is not limited to the following: the vendor and MAC address of the client, which access point it is associated to, and the CCX version supported by the client.

Viewing or Modifying Client Reports

Follow these steps to view or modify existing client reports.

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- Step 1** Choose **Reports > Client Reports**. The Client Report page appears.
 - Step 2** Choose the Client Report type from the left panel.
 - Step 3** Define (or modify) the conditions for the report in the General panel.
 - Step 4** Refer to the [“Accessing the Schedule Panel” section on page 13-3](#) to complete the scheduling process.
 - Step 5** Click the **History** tab if you want to review details of the current and past runs of the report.
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Creating a New Client Report

Follow these steps to create a new client report.



Note Some of these steps or options are not required for every report.

- Step 1** Choose **Reports > Client Reports**. The Client Reports page appears.
- Step 2** Click on one of the report types summarized under Client Reports (left-side).
- Step 3** Choose **New** from the Select a command drop-down menu and click **GO**. The two-tabbed entry panel appears.
- Step 4** Specify a report title.
- Step 5** Enter the number of clients you want displayed in the report.
- Step 6** Choose ALL SSIDs or choose a specific SSID to restrict the report to access points using that SSID.
- Step 7** Enter a specific client MAC address. If no MAC address is specified, then all the clients per specified SSID would be reviewed.
- Step 8** Specify if you want the report listed by controller, floor area, outdoor area, AP by floor, AP by outdoor area, or SSID. The floor area and outdoor area report generates the report on an area basis while the AP by floor or AP by outdoor area generates the report on a per-access point basis.
- Step 9** If you chose controller, you need to enter a controller IP address.
If you chose floor area or AP by floor area, you need to enter the campus, building, and floor location.
If you chose outdoor area or AP by outdoor area, you need to enter the campus and outdoor area.
- Step 10** Determine which access points you want to include in the report.
- Step 11** Specify if you want to include 802.11a/n or 802.11b/g/n radios in the report.

- Step 12** In the Reporting Period section, choose **Last** to determine the timeframe the report should encompass or choose **Between** and use the calendar icon to choose a date and set the hour and minutes.
- Step 13** Click the **Schedule** tab to complete the scheduling process. Refer to the [“Accessing the Schedule Panel” section on page 13-3](#).
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Inventory Reports

In the left sidebar menu, all of the inventory report options are listed. These reports are generated based on the data already stored in the WCS database. Because inventory reports are not on-demand reports, some configuration changes may have occurred since the storage and may not duplicate the attributes of the controller that are reflected in the stored data. The choices are as follows:

- **Access Point Inventory Report**—Provides data on deployed access points. The data that is returned includes but is not limited to the following: the access points’ MAC address, model, location, and radio status.
- **Combined Inventory Report**—Provides data on all deployed controllers, access points, and location appliances.
- **Controller Inventory Report**—Provides data on deployed controllers. The data that is returned includes but is not limited to the following: the model, IP address, and serial number of the controller, what software version it is running, and where it is located.
- **Location Server Inventory Report**—Provides data on deployed location appliances. The data that is returned includes but is not limited to the following: the IP address and version of the location appliance, which port is being used, and the time the appliance starts up.

Viewing or Modifying Inventory Reports

Follow these steps to view or modify existing inventory reports.

- Step 1** Choose **Reports > Inventory Reports**. The Inventory Reports page appears.
- Step 2** Choose the Inventory Report type from the left panel.
- Step 3** Define (or modify) the conditions for the report in the General panel.
- Step 4** Refer to the [“Accessing the Schedule Panel” section on page 13-3](#) to complete the scheduling process.
- Step 5** Click the **History** tab if you want to review details of the current and past runs of the report.
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Creating a New Inventory Report

Follow these steps to create a new inventory report.



Note Some of these steps or options are not required for every report.

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- Step 1** Choose **Reports > Inventory Reports**. The Inventory Reports page appears.
 - Step 2** Click on one of the report types summarized under Inventory Reports (left-side).
 - Step 3** Choose **New** from the Select a command drop-down menu and click **GO**. The two-tabbed entry panel appears.
 - Step 4** Specify a report title.
 - Step 5** Click the **Schedule** tab to complete the scheduling process. Refer to the [“Accessing the Schedule Panel” section on page 13-3](#).
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Mesh Reports

Mesh reports are used to analyze and diagnose mesh networks. In the left sidebar menu, all of the mesh report options are listed. The following reports can be generated for 1510 mesh access points.

- Mesh Alternate Parent—Lists the number of alternate parents available for a mesh access point. A value of zero (0) indicates the mesh access point has no alternate parents.
- Mesh Link Stats—Lists link statistics for a mesh access point such as packets transmitted, packet error rate, parent changes, SNR, and hops from the root access point.
- Mesh Node Hops—Lists the number of hops between a mesh access point and its root access point.
- Mesh Packet Error Statistics—Notes the percentage of packet errors for packets transmitted by the neighbor mesh access point. Packet error rate percentage = 1 - (number of successfully transmitted packets/number of total packets transmitted).
- Mesh Packet Statistics—Generates a graph of the total number of packets transmitted and the total number of packets successfully transmitted by the neighbor mesh access point.
- Mesh Worst Node Hops—Lists mesh access points by name and MAC address and notes those that are 10 hops (default) away from the root access point. Number of hops can be modified.
- Mesh Worst SNR Links—Lists the 10 (default) mesh access point-to-neighbor links that exhibit the worst signal-to-noise ratio (SNR). The number of links displayed can be changed.

Viewing or Modifying Mesh Reports

Follow these steps to view or modify existing inventory reports.

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- Step 1** Choose **Reports > Mesh Reports**. The Mesh Reports page appears.
 - Step 2** Choose the Mesh Report type from the left panel.
 - Step 3** Define (or modify) the conditions for the report in the General panel.
 - Step 4** Refer to the [“Accessing the Schedule Panel” section on page 13-3](#) to complete the scheduling process.
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Creating a New Mesh Report

Follow these steps to create a new mesh report.



Note Some of these steps or options are not required for every report.

- Step 1** Choose **Reports > Mesh Reports**. The Mesh Reports page appears.
- Step 2** Click on one of the report types summarized under Mesh Reports (left-side).
- Step 3** Select **New** from the Select a command menu. Click **GO**. The two-tabbed entry panel appears.
- Step 4** Specify a report title.
- Step 5** If you want to report more items than the default setting, enter a new value. For example, you could enter a new value at the Mesh Worst SNR Links field which is currently configured by default to report the 10 worst links.
- Step 6** Specify if you want the report listed by controller, floor area, outdoor area, AP by floor, AP by outdoor area, or SSID. The floor area and outdoor area report generates the report on an area basis while the AP by floor or AP by outdoor area generates the report on a per-access point basis.
- Step 7** If you chose controller, you need to enter a controller IP address.
If you chose floor area or AP by floor area, you need to enter the campus, building, and floor location.
If you chose outdoor area or AP by outdoor area, you need to enter the campus and outdoor area.
- Step 8** If necessary, enter which access points to include in the report.
- Step 9** Select the neighbor type and display option (table or graph).
- Step 10** At the Graph Type parameter, choose either packet count or packets per minute.
- Step 11** Enter the reporting period for the report. You can define the report to collect data for an hourly or weekly period or select a specific date and time range for reporting.



Note Hours are defined on a 24-hour basis rather than a 12-hour basis with AM and PM. For example, select hour 13 for 1 PM.

- Step 12** Click the **Schedule** tab to complete the scheduling process. Refer to the [“Accessing the Schedule Panel” section on page 13-3](#).
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Performance Reports

In the left sidebar menu, all of the performance report options are listed. The choices are as follows:

- 802.11 Counters Report—Shows a graph of data transmission and reception information for access point 802.11 interfaces based on the parameters you selected for the 802.11 counters.
- Controller Utilization Report— Shows a report of all controller memory and CPU utilization at configurable intervals.

- Coverage Hole Summary Report—Provides a summary of all coverage hole alarms by access point, floor, etc. This report helps troubleshoot where coverage issues occurred with the client. The data that is returned includes but is not limited to the following: the base radio MAC address of the alarming access point, the radio type, and the coverage threshold.
- Location Server Utilization—Provides all location appliance memory and CPU utilization at configurable intervals. The data that is returned includes but is not limited to the following: the radio type, channel number, and average RSSI value.
- RF Interference Summary Report—Shows all past interference, power, and channel changes seen on certain access points, floors, etc. This is a trend report that shows the RSSI for different channels on a per access point basis over a given period of time. It allows you to troubleshoot RRM from WCS. The data that is returned includes but is not limited to the following: the radio type, the channel where RSSI was measured, and the average RSSI value.
- Radio Utilization Report—Shows all utilization of the radio at configurable times.
- Tx Power Level and Channel Report—Shows all transmit power level and channel number changes seen by access points, by a given floor, etc. The data that is returned includes but is not limited to the following: the transmit power level for 802.11a and 802.11b/g interfaces, the channel number used for 802.11a and 802.11b/g interfaces, and the grouping types.
- Voice Statistics Report—Shows radio utilization of voice traffic for selected access points.

Viewing or Modifying Performance Reports

Follow these steps to view or modify existing performance reports.

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- Step 1** Choose **Reports > Performance Reports**. The Performance Reports page appears.
 - Step 2** Choose the Performance Report type from the left panel.
 - Step 3** Define (or modify) the conditions for the report in the General panel.
 - Step 4** Refer to the [“Accessing the Schedule Panel” section on page 13-3](#) to complete the scheduling process.
 - Step 5** Click the **History** tab if you want to review details of the current and past runs of the report.
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Creating a New Performance Report

Follow these steps to create a new performance report.



Note Some of these steps or options are not required for every report.

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- Step 1** Choose **Reports > Performance Reports**. The Performance Reports page appears.
 - Step 2** Click on one of the report types summarized under Performance Reports (left-side).
 - Step 3** Choose **New** from the Select a command drop-down menu and click **GO**. The two-tabbed entry panel appears.
 - Step 4** Specify a report title.

- Step 5** Specify if you want the report listed by controller, floor area, outdoor area, AP by floor, AP by outdoor area, or SSID. The floor area and outdoor area report generates the report on an area basis while the AP by floor or AP by outdoor area generates the report on a per-access point basis.
- Step 6** If you chose controller, you need to enter a controller IP address.
If you chose floor area or AP by floor area, you need to enter the campus, building, and floor location.
If you chose outdoor area or AP by outdoor area, you need to enter the campus and outdoor area.
- Step 7** If necessary, enter which access points or location server to include in the report.
- Step 8** Specify if you want to include 802.11a/n or 802.11b/g/n radios.
- Step 9** Enter the reporting period for the report. You can define the report to collect data for an hourly or weekly period or select a specific date and time range for reporting.
- Step 10** Click the **Schedule** tab to complete the scheduling process. Refer to the [“Accessing the Schedule Panel” section on page 13-3](#).
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Security Reports

In the left sidebar menu, all of the security report options are listed. The security reports display information about the security of the wireless network. The choices are as follows:

- **Rogues Detected by APs Report**—Displays information about specific rogue access points detected on the network, rather than having to look into each rogue alarm and manually assemble a list. The data that is returned includes but is not limited to the following: the name of the detecting access point, the MAC address of the rogue, and the location of the rogue.
- **Security Summary Report**— Shows the number of association failures, rogues access points, ad hocs, and access point connections or disconnections over one month.

Viewing or Modifying Security Reports

Follow these steps to view or modify existing security reports.

- Step 1** Choose **Reports > Security Reports**. The Security Reports page appears.
- Step 2** Choose the Security Report type from the left panel.
- Step 3** Define (or modify) the conditions for the report in the General panel.
- Step 4** Refer to the [“Accessing the Schedule Panel” section on page 13-3](#) to complete the scheduling process.
- Step 5** Click the **History** tab if you want to review details of the current and past runs of the report.
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Creating a New Security Report

Follow these steps to create a new security report.



Note Some of these steps or options are not required for every report.

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- Step 1** Choose **Reports > Security Reports**. The Security Reports page appears.
- Step 2** Click on one of the report types summarized under Security Reports (left-side).
- Step 3** Choose **New** from the Select a command drop-down menu and click **GO**. The two-tabbed entry panel appears.
- Step 4** Specify a report title.
- Step 5** Specify if you want the report listed by controller, floor area, outdoor area, AP by floor, AP by outdoor area, or SSID. The floor area and outdoor area report generates the report on an area basis while the AP by floor or AP by outdoor area generates the report on a per-access point basis.
- Step 6** If you chose controller, you need to enter a controller IP address.
If you chose floor area or AP by floor area, you need to enter the campus, building, and floor location.
If you chose outdoor area or AP by outdoor area, you need to enter the campus and outdoor area.
- Step 7** If necessary, enter which access points or location server to include in the report.
- Step 8** Enter the reporting period for the report. You can define the report to collect data for an hourly or weekly period or select a specific date and time range for reporting.
- Step 9** Click the **Schedule** tab to complete the scheduling process. Refer to the [“Accessing the Schedule Panel” section on page 13-3](#).
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