

# Cisco Spaces: Live Occupancy App

This chapter describes about the **Live Occupancy** app.


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# Live Occupancy Overview

The **Live Occupancy** app provides you the **Live Occupancy** report that shows the details of visitors currently present at your locations. Using the **Live Occupancy** app, you can also create **Density Rules** through which you can send notifications to business users such as employees based on the visitor density or device count in the business locations.

The **Live Occupancy** app is enhanced to address issues with counts when there are any changes in the **Location Hierarchy**. Prior to this enhancement, changes in **Location Hierarchy** such as adding new locations, removing existing locations or updating vital parameters such as **TimeZone** introduced stale or incorrect counts for Wi-Fi.

With this enhancement, the **Presence** chart count gets reset (removes all existing numbers until the current time) for the present day because the counts are invalid after the **Location Hierarchy** changes.

The **Live Occupancy** app is available for these license types:

- SEE
- EXTEND
- SWITCH_EXT
- SMART_VENUES
- SMART_OPERATIONS
- SMART_OPERATIONS_BASE
- ACT (displayed in the UI as Advantage)
- UNLIMTED

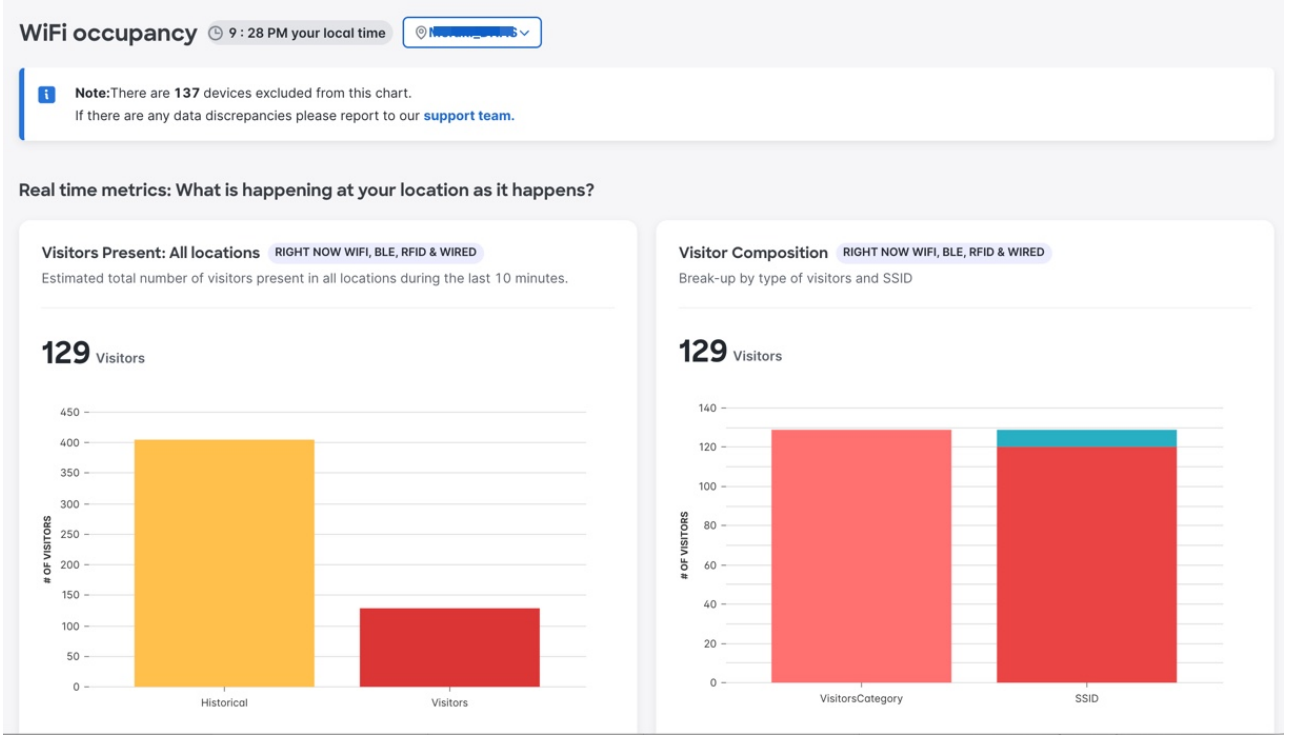
- PREMIER_W
- PREMIER_CW

# WiFi Occupancy

The **WiFi occupancy** report displays the details of the visitors currently present at your locations. By default, the report shows the details of visitors currently present at all locations. You can filter upto the floor level.

The **WiFi occupancy** is enhanced to show the count of excluded devices that are not considered as visitors or filtered during data processing. The excluded device count is displayed as a message in the **Note** section of the **WiFi occupancy**.

***Figure 1: Live Occupancy App***



**Note**

- If a location is removed or modified in the location hierarchy or timezone is changed, the existing **Presence** chart count is reset.
- For BLE processing:
  - BLE group information should be received as part the IoT updates
  - RSSI value should be greater than -85
- For probing devices:
  - **Cisco Connector** and other device types: RSSI value should be greater than -70
  - **Cisco Meraki**: RSSI value should be greater than -100.

  Only those probing devices meeting the specified signal strength thresholds are allowed to share the device location update events as part of the Firehose data stream.
- For wired device processing: Contact Cisco Spaces support to configure the IP addresses for switches in the backend.

# Viewing the Live Occupancy Report

To view the **Live Occupancy** report, perform these steps:

**Procedure**

**Step 1** In the Cisco Spaces Dashboard, choose **Live Occupancy**.

The **Live Occupancy** app is displayed.

**Step 2** From the **Location** drop-down list, select the desired network location.

The **Live Occupancy** report for the selected network location is displayed.

The local time of your system is displayed under the **Live Occupancy** section at the top of the report.

The **Live Occupancy** report displays these charts:

- **Visitors Present: All locations**: Displays an estimated total number of visitors, during the last 10 minutes, in the filtered location including its child location.
- **Visitor Composition**: Displays the composition of active visitors, in percentage, by SSID category (employee, guest, etc.) and by SSID (top 5 SSIDs).
- **Visitors Present: All Locations**: Displays a trend of the total number of visitors during the last 10 minutes for the filtered location.
- **Visitors Present: Map View**: Displays the location-wise count of active visitors in the child locations of the filtered location.

- **Map View**: The child locations of the filtered location are shown in the world map along with the total number of visitors in each of those child locations.
  - **Floor map view**: Select a specific floor to refer to the chosen floor map view as well.

    If the selected location has a map, imported from Cisco CMX, which is uploaded to Cisco Spaces, you can view the floor and the total number of visitors on the displayed floor.
- **List View**: The child locations of the filtered location are listed, and the number of current visitors for each child location is shown against that location.

**Note**

- An "active visitor" can be any visitor who is present at the location during the last 10 minutes and is connected to the network (WLAN or SSID).
- If a device has a dwell time lesser than a minute, during the 10-minute window, it is excluded from the Live Occupancy report.
- The average value for the last 51 weeks is shown as historical data for each chart in the report.

# Camera Occupancy

The Camera occupancy option shows the camera occupany report for your locations based on the data captured by the Meraki Cameras installed in your locations. This report is available only if you have configured Meraki Camera for Cisco Spaces using the **Camera** option in **Setup**.

For more information on configuring Meraki Camera, refer to the Set up Cisco Spaces to Work with Cisco Meraki Camera.

When a person comes under the vicinity of the Meraki Camera, an OID is assigned and the user movement is tracked. Meraki Camera then sends the respective coordinates to Cisco Spaces. Cisco Spaces compares the coordinates with the trip wire coordinates and calculates the corresponding entry/exit points.

The **Camera occupancy** app is refreshed every 30 seconds and takes approximately three minutes to update the latest count on the report window.

**Note** The camera occupancy report supports Cisco Meraki MV93 Cloud-Managed Smart Camera.

# View Camera occupancy report for meraki camera

To view the Camera occupancy report for Meraki Camera, perform these steps:

**Procedure**

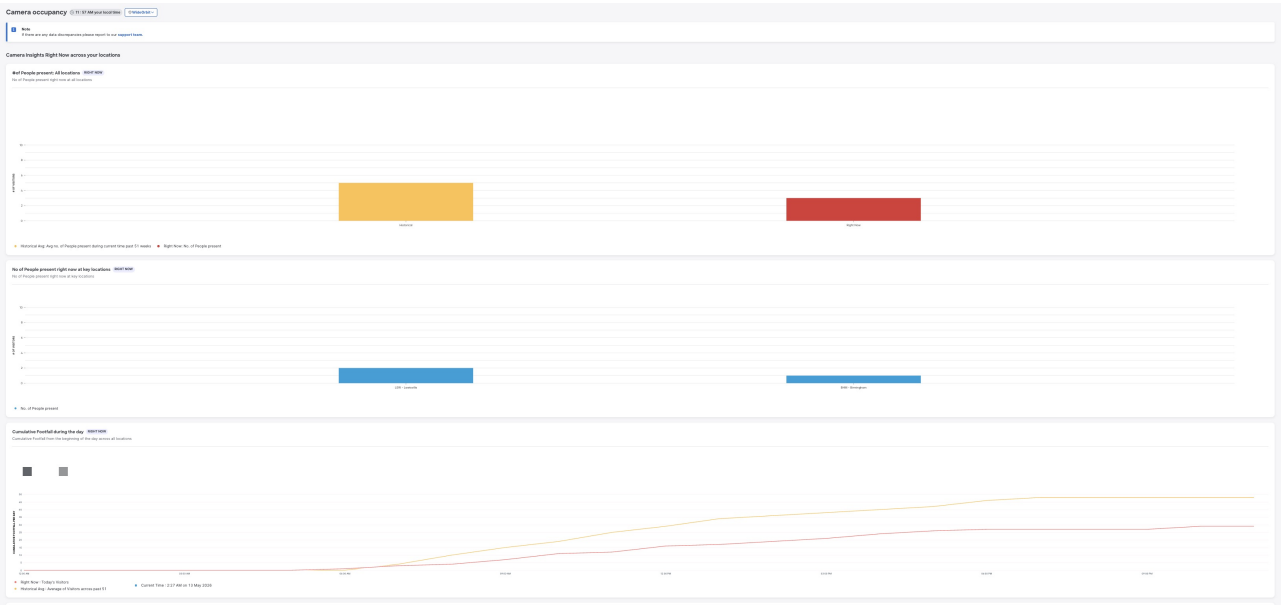
**Step 1** In the Cisco Spaces dashboard, choose **Live occupancy**.

The **Live occupancy** window appears.

**Step 2** Click the three-line menu icon displayed at the top-left of the window, and choose **Camera occupancy**.

The **Camera occupancy** window appears with the Live Occupancy report for Meraki Camera.

***Figure 2: Camera occupancy report***



**Step 3** If required, from the **Location** drop-down list, select the location for which you want to view the report.

**Note**
By default, the report will be show for the root location.

The report will be having these details:

- Your local time will be displayed at the top of the window, and the data in the report will be shown for this time.
- **No of people present: All locations**: Displays a bar graph that shows the total number of people currently present at the selected location and its child locations. The average number of people that were present at this time during the last 51 weeks at the selected location and its child locations is shown as Historical Average. The total number of people currently present will "Total number of people entered during the last 15 minutes through the tripwire entry for the cameras in the location" - "Total number of people exited during the last 15 minutes through the tripwire exit for the cameras in the location".
- **No of People present right now at key locations**: Displays a bar graph that shows the total number of people currently present at each of the child locations. If the total number of locations are more than or equal to 15, it will display the count for top and bottom three locations. This graph will appear only for the locations other than Network, Floor and Zone. The total number of people currently present will "Total number of people entered during the last 15 minutes through the tripwire entry for the cameras in the child locations" - "Total number of people exited during the last 15 minutes through the tripwire exit for the cameras in the child locations".
- **# of the people present: Key Cameras**: Displays a bar graph that shows the total number of people currently present for each Camera in the filtered location. If the total number of Cameras are more than Six, it will display the count for top and bottom three Cameras. This graph will appear only for network, floor and zone level locations.

- **# of the people present: Key Cameras Zones**: Displays a bar graph that shows the total number of people currently present for each camera zones defined for the cameras in the filtered location. If the total number of Camera Zones are more than Six, it will display the count for top and bottom three Camera Zones. This graph will appear only for network, floor and zone level locations.
- **Cumulative Footfall during the day**: Displays a line graph that shows the total footfall during each hour of the day on which the Live Occupancy report is viewed, in a cumulative manner. For example, the total number of footfall at 3 am will be total number of footfall that occurred from 00 am to 3 am.

  **Note**
  The graph is shown based on the time zone of the Network, Floor and Zone level locations. For example, if the root location XYZ has network locations in California, Tokyo and Bangalore, the report will display the data for these networks based on their curent time. When it is 8.am at India, Japan will be at 11.30 am on the same day and California will still be on previous day 7.30 pm. So if your are viewing the **Camera occupancy** report at 8 am IST, two graphs will be shown in the **Cumulative Footfall during the day** section. One with cumulative footfall count for Bangalore at 8.am and Tokyo at 11.30 am (as both are on same day), and another graph with cumulative footfall count for California at 7.30 pm on 19/07/2020.

- **Map View**: The location selected for the report, and its child locations are displayed in the Global Map, along with the count of visitors currently present at these locations in the **Map View**. You can also know the present visitor count as a hierarchy using the **List View**.

**Note**
The **# of the people present: Key Cameras Zones** chart will be based on the people on camera's vicinity, and all the remaining charts will be based on entry and exit of people through tripwire line drawn for the cameras.

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**What to do next**

You can go back to the **Camera occupancy** report using the **WiFi occupancy** option in the three-line menu that appears at the top-left of the window.

# Density Rules

**Density Rule** enables you to track the density of unique devices or visitors in your business locations.

The **Density Rule** option allows you to create rules that trigger notifications to the business users such as building administrators based on the density of visitors, count of unique devices, or occupancy in the business locations. You can configure notifications to send through SMS, email, Cisco Webex Teams, or using Trigger API.

This rule can be used to monitor the visitors in your locations to maintain the COVID 19 protocols, and can also be used to measure the impact of COVID 19 in your locations.

The **Density Rules** option also allows you to create rules that trigger notifications to business users based on the number of people captured by the Meraki Camera located in the business location.

To create a Density Rule, perform the following steps:

### Procedure

**Step 1** In the Cisco Spaces dashboard, choose **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon displayed at the top-left of the window, and choose **Density Rules**.

**Step 3** In the **Density Rule** window that appears, click **Create New Rule** displayed at the top-right of the window.

The **Create Density Rule** window is displayed.

**Step 4** In the **Rule Name** field, enter a name for the Density Rule.

**Step 5** In the **Sense** area, choose the required filter criteria from the **When a user is connect to WiFi and** drop-down list:

- **density**: Choose this option if you want to send the notifications based on the visitors density in a particular area. You can configure the area in square feet or square meters. If you choose this option, do the following configurations.
  - Set the density limit using the adjacent drop-down lists. You can configure the density limit as "more than" or "less than" a particular value, or as a value range using "between". You can choose "more than", "less than" or "between" from the first drop-down list, and manually enter the "value" or can choose the "value" from the drop-down list in the second field.
  - In the **per** field, specify the area of which the density limit is to be considered by manually entering the value or using the drop-down list. Then, from the adjascent drop-down list, choose the measurement scale. You can specify the measurement in square feet or square meter.
- **count**: Choose this option if you want to send the notifications based on the unique device count in a particular location type such as campus, building (network), floor, or zone. If you choose this option, do the following configurations.
  - Set the device count limit using the adjacent drop-down lists. You can configure the device count limit as "more than" or "less than" a particular value, or as a value range using "between". You can chooose "more than", "less than" or "between" from the first drop-down list, and you can manually enter the "value" or can choose the "value" from the drop-down list in the second field.
  - From the **at any** drop-down list, choose the location type of which the device count limit is to be considered.

    **Note**
    Cisco Meraki network and Cisco AireOS/ Cisco Catalyst connected through **Cisco DNA Spaces Connector** or **WLC Direct Connect** will not have **Campus** as a location type. So for these networks, if you are selecting **Campus** as location type, the rule will not be executed.
- **occupancy**: Choose this option if you want to send the notifications based on the occupancy in a particular location.

  You can define the occpancy limit for each location in **Location Hierarchy**.

  You can configure to trigger the notification when the occupancy in a location reaches a certain percentage of the occupancy limit defined for that location. If you choose this option, do the following configurations.
  - Set the occupancy limit percentage at which the notification is to be triggered using the adjacent drop-down lists. You can configure the occupancy limit percentage as "more than" or "less than" a particular value, or as a percentage range using "between". You can chooose "more than", "less than" or "between" from the first

drop-down list, and you can manually enter the "percentage" or can choose the "pertcentage" from the **percent** drop-down list.

**Step 6** In the Locations area, specify the locations for which you want to apply the rule.

You can configure to apply the rule for the entire location hierarchy, or a single or multiple locations such as group, floor, or zone. You can add the locations of multiple network types such as Cisco Meraki, Cisco AireOS or Cisco Catalyst in a Density rule.

You can again filter the locations based on the metadata defined for the selected location, or its parent or child locations.

You can either apply the rule for the locations with a particular metadata or exclude the locations with a particular metadata.

**Step 7** In the **Schedule** area, specify the period for which you want to apply the rule.

a) Check the **Set a date range for the rule** check box, and in the fields that appear, specify the start date and end date for the period for which you want to apply the Density rule.
b) Check the **Set a time range for the rule** check box, and in the fields that appear, specify the time range for which you want to apply the Density rule.
c) If you want to apply the rule only on particular days, check the **Filter by days of the week** check box, and from the list of days that appears, click the days on which you want to apply the rule.

**Step 8** In the **Actions** area, specify the notification frequency and notification mode.

a) From the Notify drop-down list, choose any of the following:

- Only Once: The notification is sent only once to the business user.
- Once In: The notification is sent more than once based on the interval specified. If you choose this option, from the **every** drop-down list choose the interval value, and from the adjascent drop-down list, choose any of the following interval duration:
  - Hour(s): To send the notification once in the number of hours specified.
  - Day(s): To send the notification once in the number of days specified.
  - Week(s): To send the notification once in the number of weeks specified.
  - Month(s): To send the notification once in the number of months specified.

b) Specify the mode for sending notification.

You can send the notification to the customers through Cisco Webex Teams, e-mail, SMS, or to an external API.

For more information on notification types, refer to Notification Type for a Business User.

The summary of the rule is shown in the right side of the window.

**Note**

- If you are using the **Via Email** option, you must ensure to add the e-mail ID entering in the **From** field in the allowed list of e-mail IDs.
- To include the e-mail ID in the allowed list, contact the Cisco Spaces support team.
- If you do not want to use a specific e-mail ID, you can use the default allowed e-mail ID **no-reply@dnaspaces.io**. However, the default ID is not displayed in the dashboard automatically. So, you have to enter it manually.

**Step 9** Click **Save and Publish**.

The rule gets published, and is listed in the **Density Rules** window.

If you do not want to publish the rule now, you can click the **Save** button. You can publish the rule at any time later by opening the rule, and clicking the **Save and Publish** button. Also, you can publish the rule by clicking the **Make Rule Live** icon at the far right of the rule in the **Density Rules** window.

### What to do next

You can go back to the **Live Occupancy** report using the **Live Occupancy on WiFi** option in the three-line menu that appears at the top-left of the window.

# Viewing a Density Rule Report

The Density Rule report enables you to view the report for each Density Rule.

To view a Density Rule report, perform the following steps:

### Procedure

**Step 1** In the Cisco Spaces dashboard, click **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon that appears at the top-left of the window.

**Step 3** Choose **Density Rules**.

The **Density Rules** window appears with all the existing Density rules listed.

**Step 4** Click the **Density Rule** for which you want to view the report.

The Density Rule report for that particular rule is displayed.

The **Density Rule** report will have the following details:

- **Rule Summary**
  - **# of times triggered**: Displays the total number of times the notification is triggered for the particular rule.
  - **Top 3 locations**: Displays the details of top three locations with highest number of notifications.
    - **Location**: The location name along with its location hierarchy.
    - **# of times triggered**: Total number of times the notifications have been trigered for this location for the particular Density Rule.
    - **most recent**: The date and time at which notification has been triggered recently for this location for the particular Density Rule.
- **Recent Activity**: Lists all the activities occurred for the particular rule. The recent activities will be listed at the top.
  - **Location**: The location name along with its location hierarchy for which the activity has occurred.
  - **time**: The date and time at which the activity has occured.

- **count of people**: Total number of people that were available in the location when the activity occured
- **result**: The result of the activity. For example, if a Density Rule is configured to trigger a notification every one hour if the count of people in a location exceeds 10, and at a particular hour the notification is skipped as the count of people is less than 10, the result for the activity will be "Skipped notification due to the interval set".

- **Trigger History**: Shows the notification details for each day of a particular month in the calendar.
  - **Location**: Report will be for **All Locations**.
  - **Month**: Select the month for which you want to view the report using the arrow keys. By default, it will show the month for which the notifications are triggered recently along with the cumulative notification count.
  - **Calendar**: The notifications for various location types (Campus, Building, Floor, Zone) for each date are shown in the calendar. When you click on a date in the calendar, the notification details such as location, time, count of people and result is shown for that particular day.

# Testing a Density Rule

To test a Density Rule, perform the following steps:

**Procedure**

**Step 1** In the Cisco Spaces dashboard, click **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon that appears at the top-left of the window.

**Step 3** Choose **Density Rules**.

The **Density Rules** window appears with all the existing Density rules listed.

**Step 4** Click the three-dot icon that appears at the far right of the Density Rule that you want to test.

**Step 5** Choose **Test Rule**.

The **Test Rule** window displays.

**Step 6** Click **Yes** to trigger a notification on the selected channels.

A notification is triggered and a success message is displayed.

**Step 7** Click **Continue**.

# Modifying a Density Rule

To modify a Density rule, perform the following steps:

**Procedure**

**Step 1** In the Cisco Spaces dashboard, click **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon that appears at the top-left of the window.

**Step 3** Choose **Density Rules**.

The **Density Rules** window appears with all the existing Density rules listed.

**Step 4** Click the three-dot icon that appears at the far right of the Density Rule that you want to test.

**Step 5** Choose **Edit Rule**.

The **Edit Rule** window displays.

**Step 6** Make necessary changes.

**Step 7** To save the changes, click **Save** or to publish the changes, click **Save and Publish**.

**Note**
A live rule will have only the **Save and Publish** button. When you click the **Save and Publish** button, the rule gets published with the changes.

# Pausing a Density Rule

To pause a Density rule, perform the following steps:

**Procedure**

**Step 1** In the Cisco Spaces dashboard, click **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon that appears at the top-left of the window.

**Step 3** Choose **Density Rules**.

The **Density Rules** window appears with all the existing Density rules listed.

**Step 4** Click the three-dot icon that appears at the far right of the Density Rule that you want to test.

**Step 5** Choose **Pause Rule**.

The **Pause Rule** window displays.

**Step 6** In the window that appears, confirm pausing.

The Density rule is paused.

### What to do next



**Note** To pause multiple Density rules, check the check box for the Density rules that you want to pause, and click the **Pause** button that appears at the bottom of the page.

# Restarting a Density Rule

To restart an Density rule, perform the following steps:

### Procedure

**Step 1** In the Cisco Spaces dashboard, click **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon that appears at the top-left of the window.

**Step 3** Choose **Density Rules**.

The **Density Rules** window appears with all the existing Density rules listed.

**Step 4** Click the three-dot icon that appears at the far right of the Density Rule that you want to test.

**Step 5** Choose **Make Rule Live**.

**Note**
By default the icon name will be **Pause Rule** for all rules. Only for those rules that are paused the icon name changes to **Make Rule Live** .

The Density rule is restarted.

### What to do next



**Note** To restart multiple Density rules, check the check box for the Density rules that you want to restart, and click the **Make Live** button that appears at the bottom of the window.

# Deleting a Density Rule

To delete a Density rule, perform the following steps

### Procedure

**Step 1** In the Cisco Spaces dashboard, click **Live Occupancy**.

The **Live Occupancy** window appears.

**Step 2** Click the three-line menu icon that appears at the top-left of the window.

**Step 3** Choose **Density Rules**.

The **Density Rules** window appears with all the existing Density rules listed.

**Step 4** Click the three-dot icon that appears at the far right of the Density Rule that you want to test.

**Step 5** Choose **Delete Rule**.

The **Delete Rule** window displays.

**Step 6** In the dialog box that appears, click **Delete Rule**.

The Density Rule gets deleted.

### What to do next

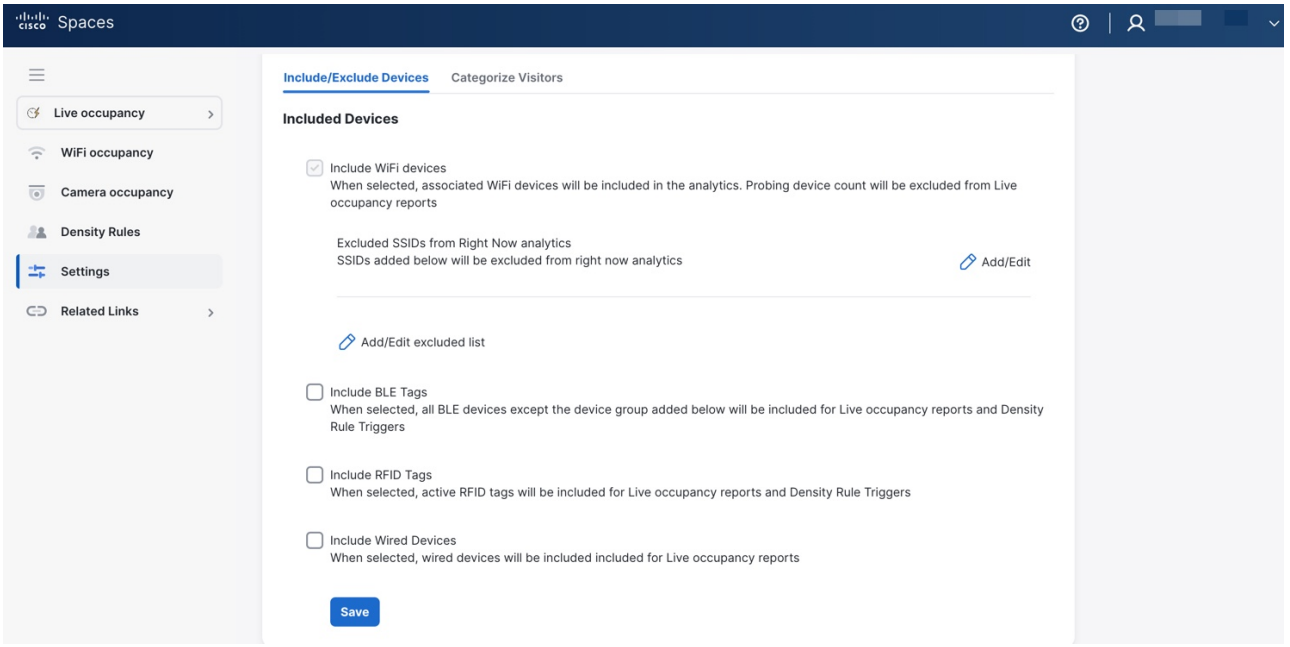


**Note** To delete multiple Density rules, check the check box for the Density rules that you want to delete, and click the **Delete** button that appears at the bottom of the window.

# Settings

The **Settings** menu helps you manage devices, SSIDs, and visitors in the **Live Occupancy** app reports. The **Settings** menu includes the **Include/Exclude Devices** and **Categorize Visitors** tabs.

*Figure 3: Live Occupancy - Settings*




## Including or Excluding Devices

Use the **Include/Exclude Devices** tab to select among the following options for Wi-Fi, BLE, and RFID devices for the **Live Occupancy** reports:

- Wi-Fi devices option is included by default and you cannot deselect the same.

  To exclude devices connected to specific SSIDs from the **Live Occupancy** analytics, click **Add/Edit** or **Add/Edit excluded list** and select the desired SSIDs from the **Exclude SSIDs** list.

- BLE Tags: To include BLE tags in the **Live Occupancy** reports, select **Include BLE Tags**.

  To exclude specific device groups from the **Live Occupancy** analytics, click **Add/Edit** or **Add/Edit excluded list** and select the desired BLE devices from the **Exclude BLE devices** list.

- RFID Tags: To include RFID tags in the **Live Occupancy** reports, select **Include RFID Tags**.

- Wired Devices: To include wired devices as part of active visitors in the **Live Occupancy** reports, select **Include Wired Devices**. By default, wired devices are excluded.

**Note**

- If you select RFID and BLE tags, then the corresponding device count is displayed in the **Live Occupancy** report.
- If you configure an SSID to be excluded here, it not only excludes the clients connected to that SSID from **Live Occupancy** but also excludes them from other applications that receive data from **Live Occupancy** such as Partner Firehose Wifi data, Space Utilisation Floor occupancy metrics, Signage Occupancy Count, and Density rules.

### Categorizing Visitors

Use the **Categorize Visitors** tab to automatically or manually classify visitors, based on the visitor type, that have joined an SSID. The options available are:

- Auto
- Guest
- Employee
- Custom

# Location-Based RBAC

A location-based RBAC role is a user access control setting that

- restricts a user's access to data and features based on assigned physical locations,
- enables administrators to specify which locations a role applies to during role creation or user invitation, and
- ensures that users can view only the data for the locations to which they are invited.

For more information, refer to Location-Based RBAC (Role-Based Access Control) in Cisco Spaces.