



User Guide

CROWD Insights™

Version 4.1.1 | Sept 2020

Get back to work with real-time monitoring of social distancing

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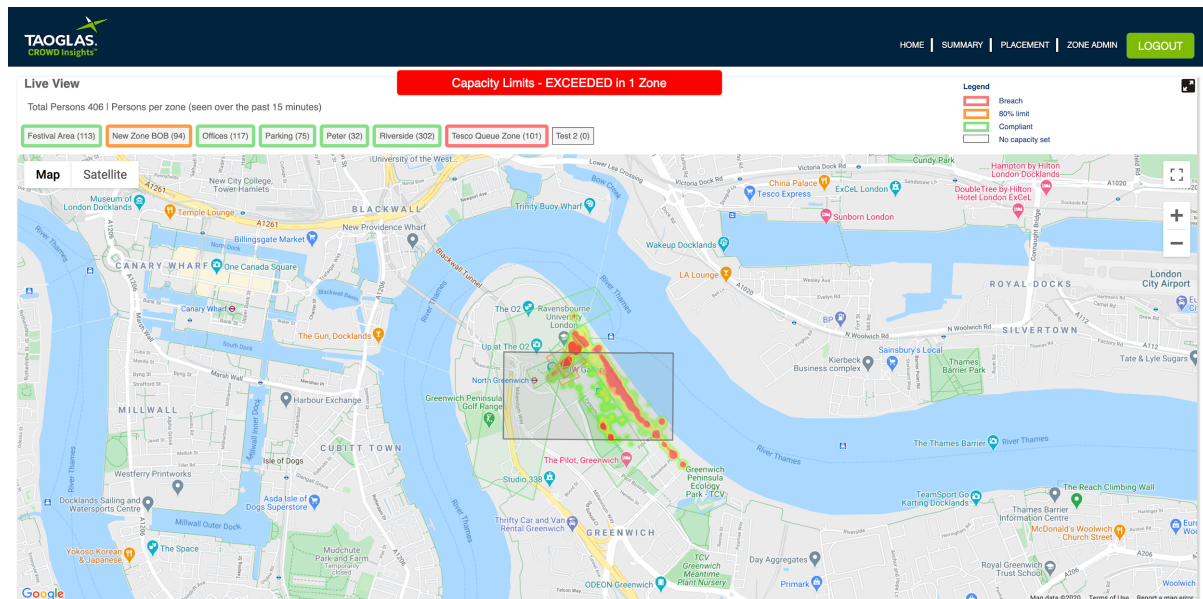
Release Notes

Version	Date	Description
4.1.1	September 2nd, 2020	<p>This release improves the onboarding process and includes a new multi-floor heatmap visualization.</p> <p>New features include:</p> <ul style="list-style-type: none">● Onboarding – allows the user to easily locate their Access Points (APs) on different floor plans● E-mail Alerts – users can now setup e-mail alerts that notify them when the capacity level of zones has become near to or beyond established capacity limits● Multi-floor Visualisation – In buildings with multiple floors, users will now be able to visualise people with a heatmap for each floor. This helps users identify, by floor, areas in which social distancing issues are occurring.

1. Introduction

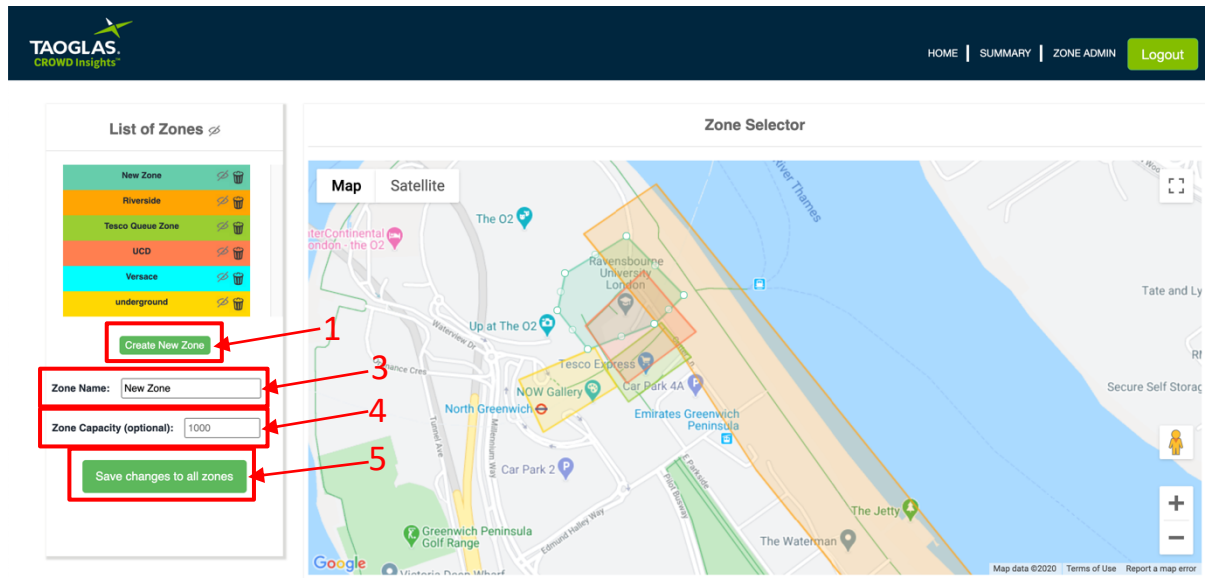
The Taoglas® CROWD Insights™ solution helps businesses and enterprises get back to work safely. Focused on social distancing compliance, it utilizes existing Wi-Fi infrastructure to measure, monitor, predict, alert and notify when capacity limits in different areas are exceeded.

CROWD Insights provides two main analytics insights from Wi-Fi, the Live View with user created zones, and Summary, which features graphs and reports from recent data. This guide describes the main features of the product.





2. Zone Set Up

The **Zone Admin** page allows you to create multiple zones, name them, and add capacity limits that can alert you through the Live View page.



2.1 Creating a Zone

1. To create a zone, click on **Create New Zone**.
2. Use the zone shape tools buttons ( ) to draw the zone in the area you are interested in monitoring.
3. In the **Zone Name** input box, provide a name for the zone.
4. If desired, in the **Zone Capacity (optional)** input box, provide the maximum number of individuals that can be within a zone. Once the number of individuals has reached the entered zone capacity, an alert warning will be activated, and you will be notified through the Live View page.
5. Click on **Save Changes to All Zones** to save your updates.
6. Return to **Live View** and the new zone will be shown on the Live View. This zone will be populated with the number of devices over the next few minutes. Additionally, the newly created zone will be in the list of zones on the **Summary** page.

Note: Reports for newly created zones require 24 hours of data collection prior to viewing in reports.

2.2 Setting Up Zone Capacity Alerts - E-mail Notification

Every minute, CROWD Insights monitors the number of devices seen in each zone over the past 15 minutes. This number is compared to any capacity constraints imposed and an appropriate coloured border is put on that zone in the Live View widget on the Home Page.

There are two types of E-mail alerts that can be setup on the **Zone Admin** page:

1. **Instant Notification E-mails** - Whenever an orange alert (80% of capacity) or red alert (100% of capacity) for a zone is detected, an E-mail will be sent to specified recipients.
2. **Daily Digest E-mails** - A digest of alerts is compiled and sent at the end of the day to the specified E-mail recipients.

Capacity alerts (for all zones)

Instant notification e-mails (separated by commas):


Daily digest e-mails (separated by commas):

Save changes to all zones

E-mail Alert Example

An E-mail alert notification will be sent from Alert@taoglasmailer.com with a subject line of “Alerts Detected”.

Alerts detected > Inbox x

**alert@taoglasmailer.com**
to me ▾

Capacity alerts have been detected in some areas:

- Alarms:
 - New Zone BOB:
 - Alarm detected between 20:08 and 20:39, with a number of visitors between 100 and 130.
 - Alarm detected between 20:05 and 20:06, with a number of visitors between 102 and 106.
 - Alarm detected between 12:32 and 20:02, with a number of visitors between 103 and 238.
 - Tesco Queue Zone:
 - Alarm detected between 09:00 and 20:59, with a number of visitors between 71 and 232.
- Warning:
 - New Zone BOB:
 - Warning detected between 20:53 and 20:57, with a number of visitors between 80 and 93.
 - Warning detected between 20:45 and 20:50, with a number of visitors between 81 and 90.
 - Warning detected between 20:40 and 20:43, with a number of visitors between 86 and 97.
 - Warning detected at 20:07, with 94 visitors.
 - Warning detected between 20:03 and 20:04, with a number of visitors between 96 and 98.

3. Live View

The Live View page displays the number of devices detected over the previous 15 minutes for the entire coverage area, and for individual zones.

When logging in, the default page is the Live View page. Additionally, selecting **Home** from the top menu at any time will bring you back to the Live View page.

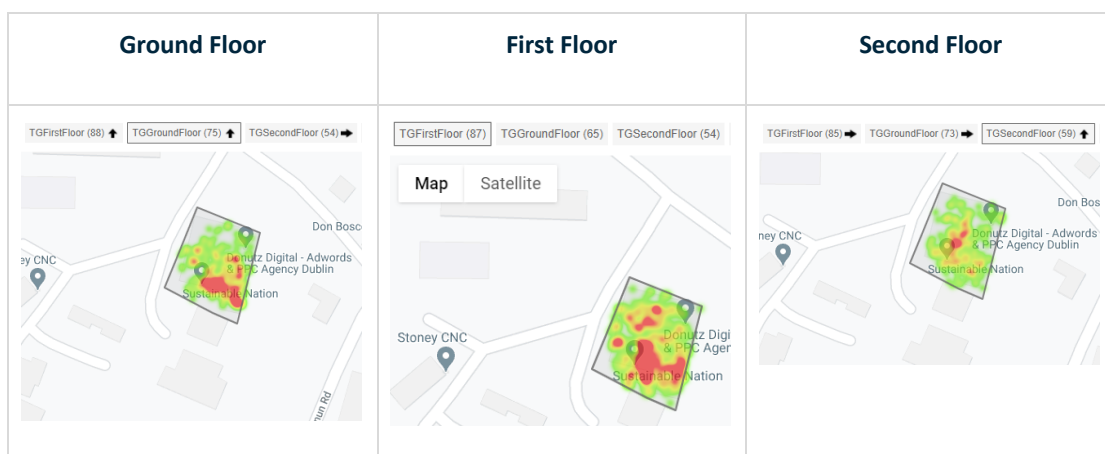
1. **Capacity Flow and Indicator** button displays both the current capacity number in parenthesis. The button also displays an upward, downward, or straight arrow icon to indicate whether the capacity of a specific zone has increased, decreased, or remained the same since the past refresh cycle. This calculation is rerun every minute, always looking back for the past 15 minutes.

The 'Live View' zone button also displays a border colour to indicate specific capacity levels. The following button border indicators are related to the number of devices within a specified zone and is calculated based on the optional Zone Capacity level located within the Zone Admin page:

- a. A **green border** indicates the capacity level is normal.
 - b. An **orange border** indicates the capacity level is at 80% capacity approaching the set capacity limit
 - c. A **red border** indicates the capacity level is at or breached the 100% set capacity limit
2. **Heatmaps** represent all the points at which the devices were seen over the past 15 minutes. The screen refreshes every 15 minutes.

Multi-floor Heatmaps are vertically overlapping zones, such as different floors in a building. Since visualising a heatmap is difficult to distinguish on a 2D map, each individual zone requires a method to isolate that zone. The Live View widget provides the ability to turn off/on any heatmap by zone by clicking on the respective zone buttons.

In the figures below, when a zone button is selected for a specific floor, the distinct heatmap for that floor is displayed.

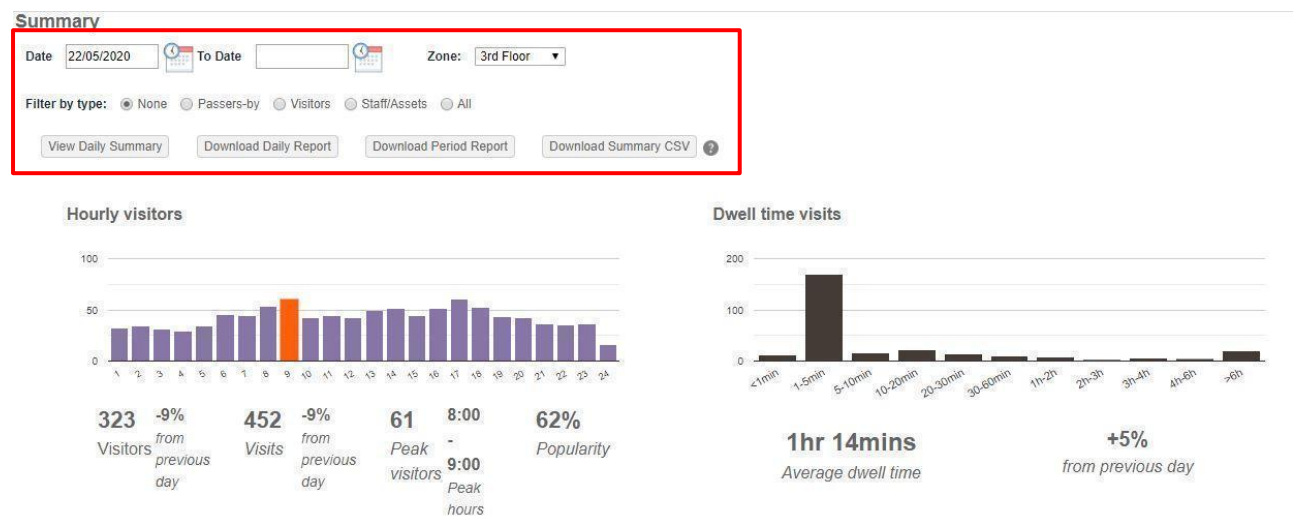


4. Summary

The Summary area provides the user with access to graphs and reports from the previous days with historical data in an aggregated and summary manner. It is populated with the daily information from the previous day. Previous day is defined as midnight to midnight, local time.

The information is arranged in the form of graphs and charts as well as Key Performance Indicators (KPIs). The information can be analysed by using the **Date**, **Zone** and **Type** filters (based on how long someone spends in a specific area).

The summary information can be viewed within the Summary section, downloaded as a PDF report, or as a CSV file.



4.1 Summary Filters in Detail

The data can be viewed through several the following complementary and additive filters:

1. **Date** allows any previous day to be selected for analysis, for which there was data.
2. **To Date** is used when a period report is required.
3. **Zone** allows the analysis to be focussed on one of the predefined areas of the venue, defined during setup.
 - a. **Everywhere** is always present as a Zone option and refers to all data collected.
4. **Type**, in conjunction with **Zone**, allows the analysis to be focussed on a specific group of visitors. This group is determined by how long (Dwell Time) an individual has spent in the chosen zone.
 - a. **Passers-by** are considered to have spent less than 5 minutes over the whole day in the Zone. This is commonly found for passing cars or pedestrians picked up outside a venue.
 - b. **Visitors** are considered to have spent greater than 5 minutes and less than 6 hours in a zone.
 - c. **Staff/Assets** are devices which have been in the Zone for more than 6 hours.
5. **View Daily Summary** presents the results in the form of tables, graphs and charts within the dashboard.
6. **Download Daily Report** and **Download Period Report** both generate PDF files of the analytic results for a selected day or period.
7. **Download Summary CSV** packages all summary data into an Excel readable file. This option allows you to continue your own analysis or present the results in a customized manner.

The screenshot shows the 'Summary' filter section of a dashboard. It includes a 'Date' field with a calendar icon, a 'To Date' field with a calendar icon, and a 'Zone' dropdown menu. Below these are radio buttons for 'Type': 'None', 'Passers-by', 'Visitors' (selected), 'Staff/Assets', and 'All'. At the bottom are four buttons: 'View Daily Summary', 'Download Daily Report', 'Download Period Report', and 'Download Summary CSV' with a help icon. Red arrows with numbers 1 through 7 point to each of these elements respectively.

Summary

1 → Date: 02/08/2020

2 → To Date:

3 → Zone: Everywhere

4 → Type: ☐ None ☐ Passers-by ☒ Visitors ☐ Staff/Assets ☐ All

5 → View Daily Summary

6 → Download Daily Report

7 → Download Period Report

Download Summary CSV ?

4.2 Summary Bars and Graphs in Detail

The following bars and charts are available to analyse CROWD Insights data.

1. **Hourly Visitors** – this bar chart shows the number of unique devices seen within each hour.
 - a. **Visitors** are the total number of devices seen for the whole day, as well as the percentage change from the previous day.
 - b. **Visits** are continuous periods of time an individual is detected within a zone. If a device is not seen for more than one hour, then a visit is closed. A second visit may be established if the same device then returns. This measure comes with a percentage change from the previous day.
 - c. **Peak Visitors/ Peak Hours** are the maximum number of devices seen in a specified hour.
 - d. **Popularity** is number devices seen in a Zone, as a percentage of all the devices seen Everywhere.
2. **Dwell Time Visits** – this bar chart shows the breakdown of dwell time into specific time intervals. The average dwell time can give some measure of how long people are spending in a Zone. This measure is most useful when focused on a specific type of visitor, as many passers-by can skew the average results
3. **Weekly Trend Visitors** – this bar chart shows the total devices seen (based on the filter selection) for the previous 7 days. The total visitors are the summation of all visitors of each day. Visitors are only unique within a day, not across days.
4. **Weekly Trend Dwell Time** – this bar chart shows the average dwell time for each of the previous 7 days (based on filter selection).
5. **Top Zones** – this pie chart shows the relative popularity of each Zone. Popularity is defined by the number of devices seen in a defined zone.



5. Administrator - Placement of Access Points (APs)

Note: The following section is available for users with administrator access only.

5.1 Setting up Access Points (APs)

The location of Wi-Fi devices depends on the signal strength, and knowledge of where the APs are located. Determining the latitude and longitude of each AP requires accurate indoor GPS positions. This is not always easy.

Within the Placement page, located in the navigation bar menu, we provide an administrator placement utility which allows a floor plan image to be uploaded and overlaid on top of a map. In turn, using the AP management tool, APs can be positioned on this floor plan overlay, and have their latitude and longitude values automatically calculated and stored.

5.1.1 Add Floor Plan

Note: A floor plan is not required but highly recommended for location accuracy.

1. To add a floor plan, click on **Add Floor Plan** under the Load Floor Plan section.
2. Click **Choose File** to select a floor plan image for upload.
The floor plan image must be in JPG or PNG format and less than 4MB in size.
3. In the **Floor Plan ID** text box, type a description of the floor plan. For example, this could be the floor level of the building, or a specific area of a building.
4. Click **Upload**.

The screenshot shows a 'Load Floor Plan' dialog box. It contains the following elements:

- Add Floor Plan**: A dark blue button at the top, highlighted with a red box and labeled '1'.
- Choose File**: A button below 'Add Floor Plan', highlighted with a red box and labeled '2'. To its right is the text 'No file chosen'.
- Floor Plan ID**: A text input field below the 'Choose File' button, highlighted with a red box and labeled '3'. It contains the placeholder text 'e.g., Bldg - Floor #'. Above the input field is the label 'Floor Plan ID:'.
- Upload** and **Cancel**: Two dark blue buttons at the bottom, both highlighted with red boxes and labeled '4'.

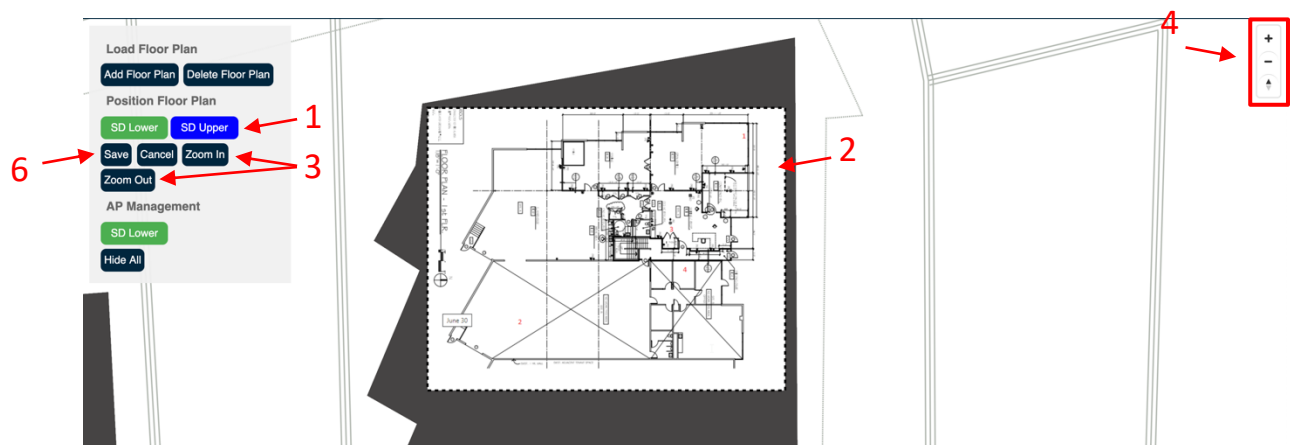
Below the 'Choose File' button, there is a small line of text: 'JPG or PNG file formats only. File size cannot exceed 4MB'.

5.1.2 Position Floor Plan

Note: The map must be scaled as close as possible to the building outline to ensure location precision.

1. To position the floor plan, in the **Position Floor Plan** section, click the name of the floor plan.
2. To move the floor plan image within the map, position your mouse pointer over it, and click to drag the image around.
3. To fine-tune the positioning of the floor plan image, use the **Zoom In**, **Zoom Out** buttons, and/or,
4. the +/- and up/down arrow map controls.
5. To rotate, hover the mouse over the top portion or left portion until a double-sided arrow is displayed. From there, you can rotate the image upwards or downwards to control the rotation.
6. When finished, click **Save**.

You can add multiple floor plans if required.



5.1.3 AP Management

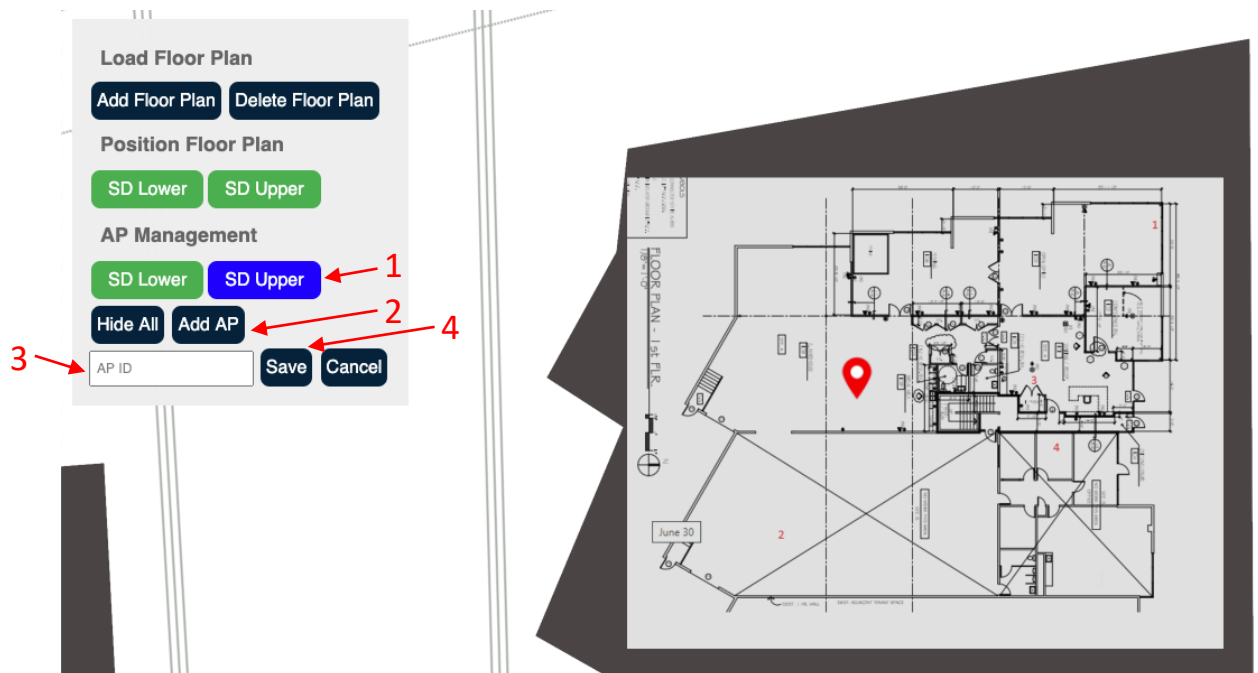
1. In the **AP Management** section, select the name of the floor plan to add access points.
2. Select **Add AP**.

A red location dot appears on the map to represent the access point. Move the access point to the appropriate location on the floor plan.

3. Add the access point ID in the **AP ID** text box. The access point ID is the MAC address of the device, for example, 00:aa:00:bb:00:cc.
4. When finished, click **Save**.

The red access point location dot will then turn green.

Repeat these steps to add all your access points with their corresponding MAC address to each floor plan as required.



6. Appendix

6.1 FAQ

For FAQ's about CROWD Insights information, please visit

<https://www.taoglas.com/product/crowd-insights/>

For technical support, please visit: <https://www.taoglas.com/shared/support.php>