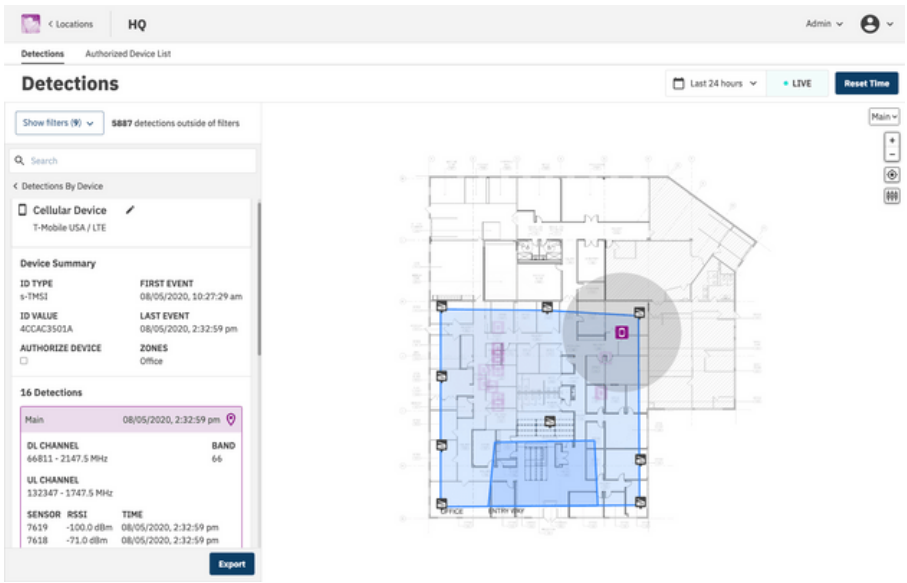
Epiq™ Flying Fox™ Deployable Kit

RF Sensing • Mobile Device Detection

GETTING STARTED GUIDE

V1.4.1 - JUNE 25, 2021

ES012-518-A



CHANGELOG

Revision	Date	Description	Author
1.4.0	2021-06-25	Initial version	GS

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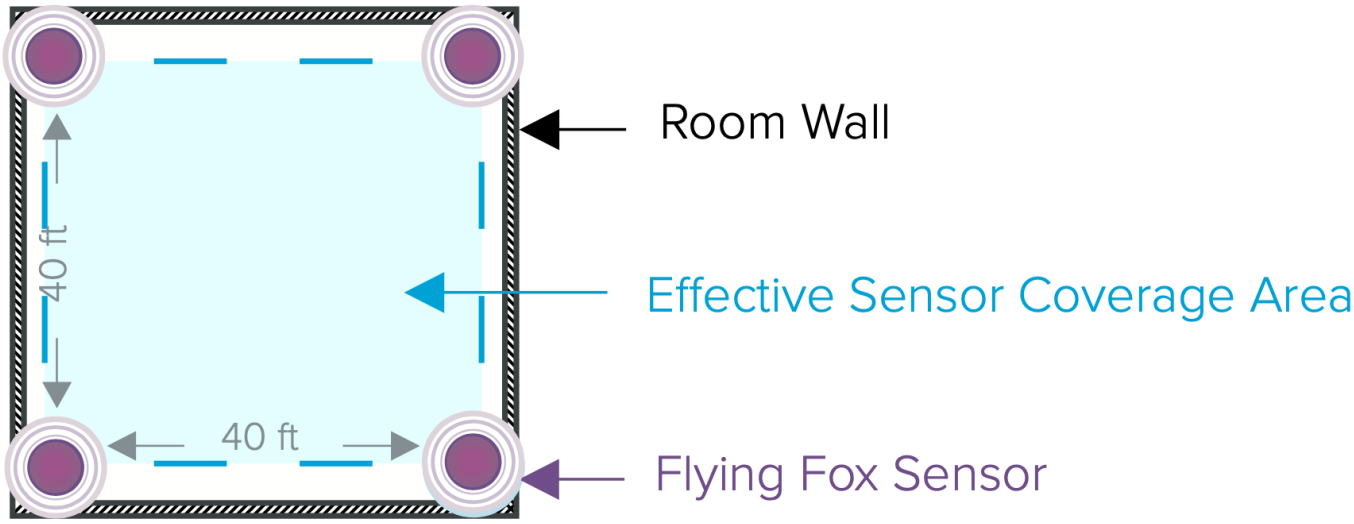
SYSTEM SETUP

SENSOR PLACEMENT

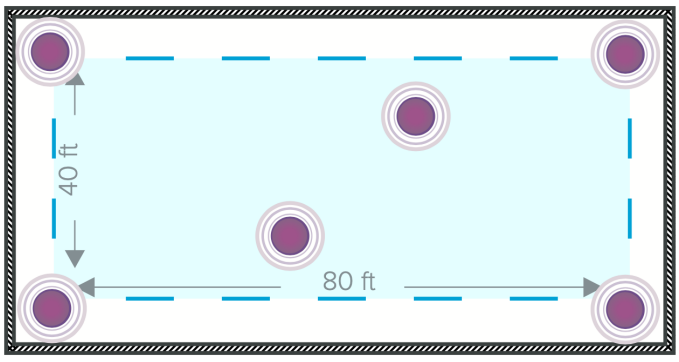
The Flying Fox Enterprise Deployable kit is designed to detect, identify and locate emissions within the perimeter of a monitored area. For optimal location accuracy, Flying Fox sensors should be placed near the the perimeter of the area to be monitored. A four sensor kit can be used to cover areas up to 6000 sq. ft. depending on the shape of the area to be monitored, building construction, and obstacles.

CORRECT PLACEMENT OF 4 SENSORS

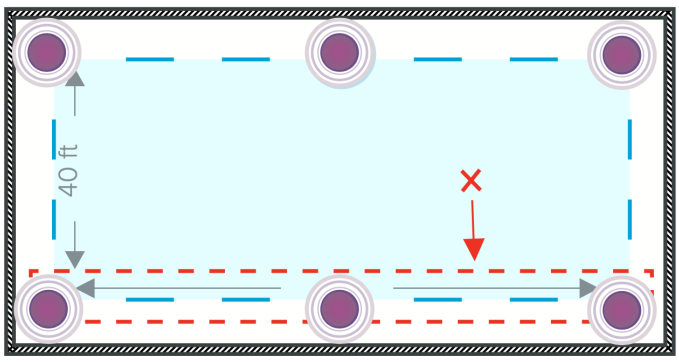


Sensor placement will vary based on the geometry of the space. When placing sensors take care that no more than two sensors are placed in a line.

CORRECT PLACEMENT OF 6 SENSORS



INCORRECT PLACEMENT OF 6 SENSORS



UNPACKING THE HARDWARE

The Flying Fox Enterprise Deployable Kit is designed for maximum versatility and has all the components needed for an operational system to be connected to a user's laptop or desktop for control and monitoring. Note that the laptop or desktop used to configure and control the system is not included in the kit, but most laptops can be stored in the case for convenience. The kit contains:

Flying Fox Deployable Controller

Based on the discreet and low-power Intel NUC, this device provides the controller function for the Flying Fox Enterprise Deployable system. The kit includes a power cable and network cable for the controller.

PoE+ Switch

The Flying Fox sensors are powered over ethernet (PoE+). In addition to powering the sensors, the switch provides connectivity to the controller and the user's laptop. A power cord for the switch is included in the kit.

Flying Fox Sensors

The sophisticated Flying Fox sensors are designed to detect and decode Bluetooth, Wi-Fi, and cellular signals and together with the controller provide accurate location estimations of the emitter. The sensors include two antennas each and a long ethernet cable for connection to the switch.

CONNECTING THE SENSORS

Attach the cellular antenna (the "flat" antenna) to the Flying Fox unit by twisting its chrome, grooved casing onto the terminal port labeled "CELLULAR." Do NOT use the antenna paddle itself to rotate the antenna onto the sensor unit. Next, attach the Wi-Fi antenna (the "round" antenna) to the Flying Fox unit by twisting its metal fastener onto the terminal port labeled "BLUETOOTH / WIFI." Use grooved screw covering at joint to secure antenna.

CAUTION!

Only use the grooved screw cover part of the knob to secure each antenna to Flying Fox.

Connect one end of the included long Cat6 ethernet cables to each of the sensors.

CONNECTING THE SWITCH

Connect the ethernet cables from each of the sensors to a PoE+ port on the switch. Connect one port of the switch to the Controller, and one port to the user laptop.

CONFIGURE THE NETWORK SETTINGS OF THE USER LAPTOP

Whether using a laptop or desktop as the user device, configure the network settings as noted below:

```
IP Address: 192.168.0.1
Netmask: 255.255.255.0
Gateway: 192.168.0.10
```

POWER UP

Power up the controller and the switch. In a few minutes activity LEDs should be blinking on the switch, the controller, and the sensors.

CONFIGURING FLYING FOX ENTERPRISE

LOGGING IN FOR THE FIRST TIME

On the user laptop, using a web browser, type in the following URL to connect to the Flying Fox Enterprise controller.

```
https://192.168.0.10
```

Note, the browser will warn you about an insecure connection. Choose to accept the warning and proceed.

The default username and password is:

```
admin:admin
```

You will be prompted to change the admin password.

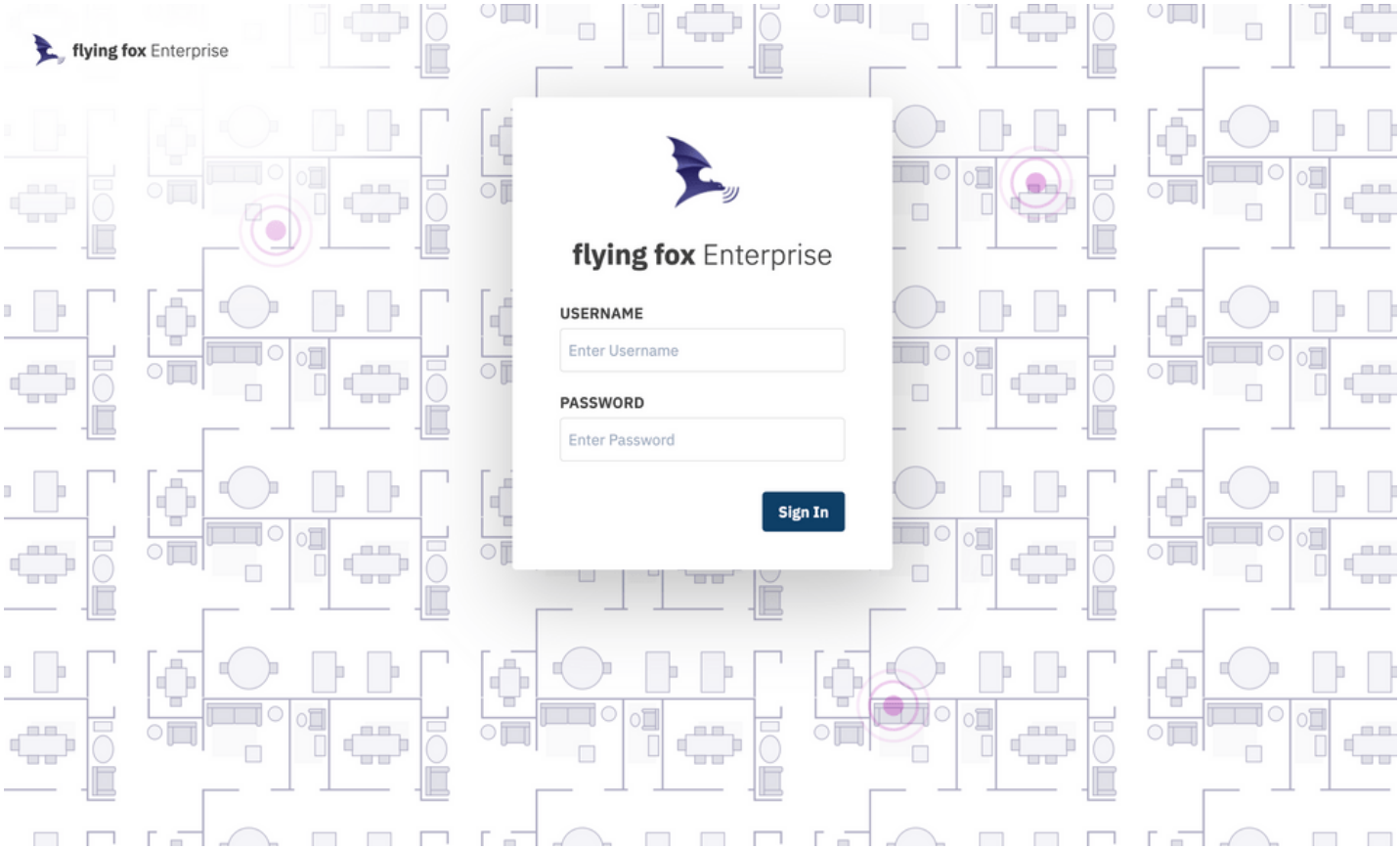


Figure 1: *Login Page*

USING THE SETUP WIZARD

When configuring the application for the first time, or when adding buildings or floors, a setup wizard will guide the user.

Monitored areas are organized hierarchically by site, building, and floor.

To begin, from the Admin Menu select Setup to create a new site.

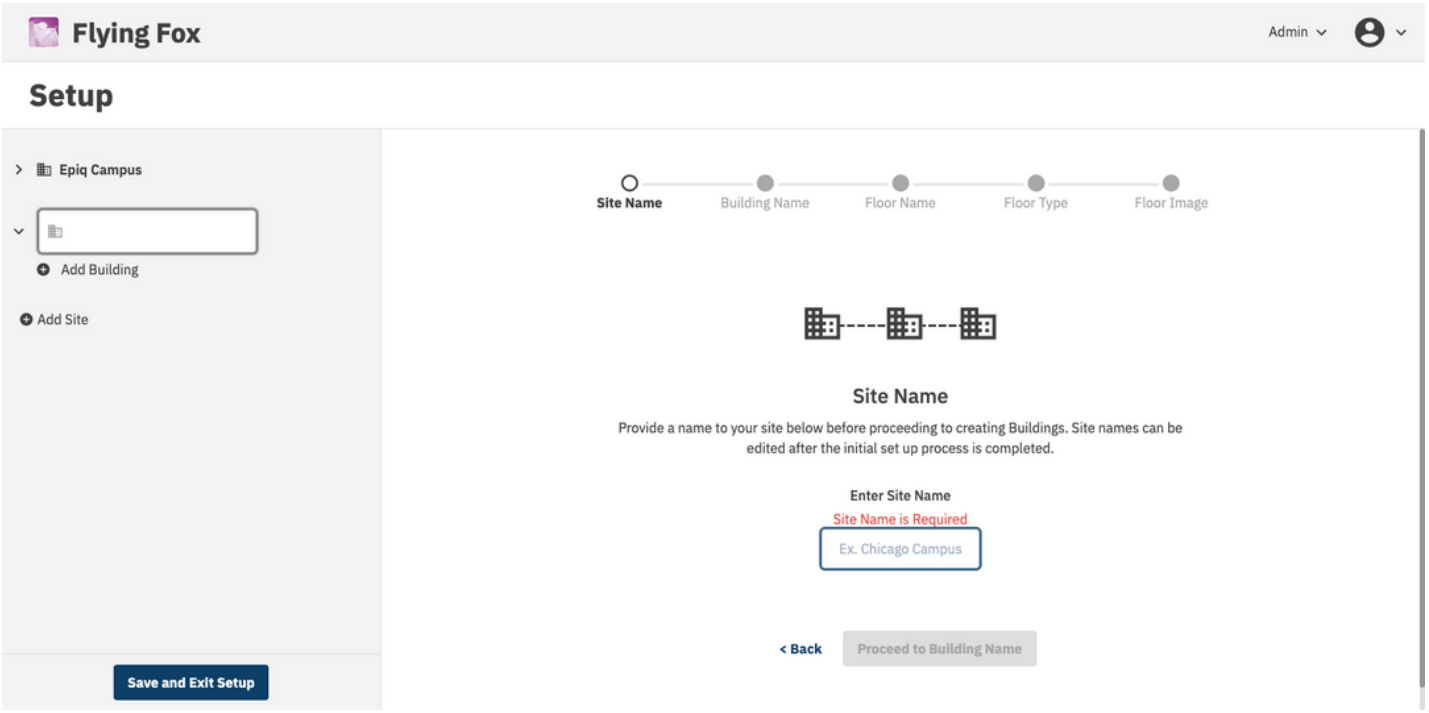


Figure 2: *Creating a Site*

Then create a building.

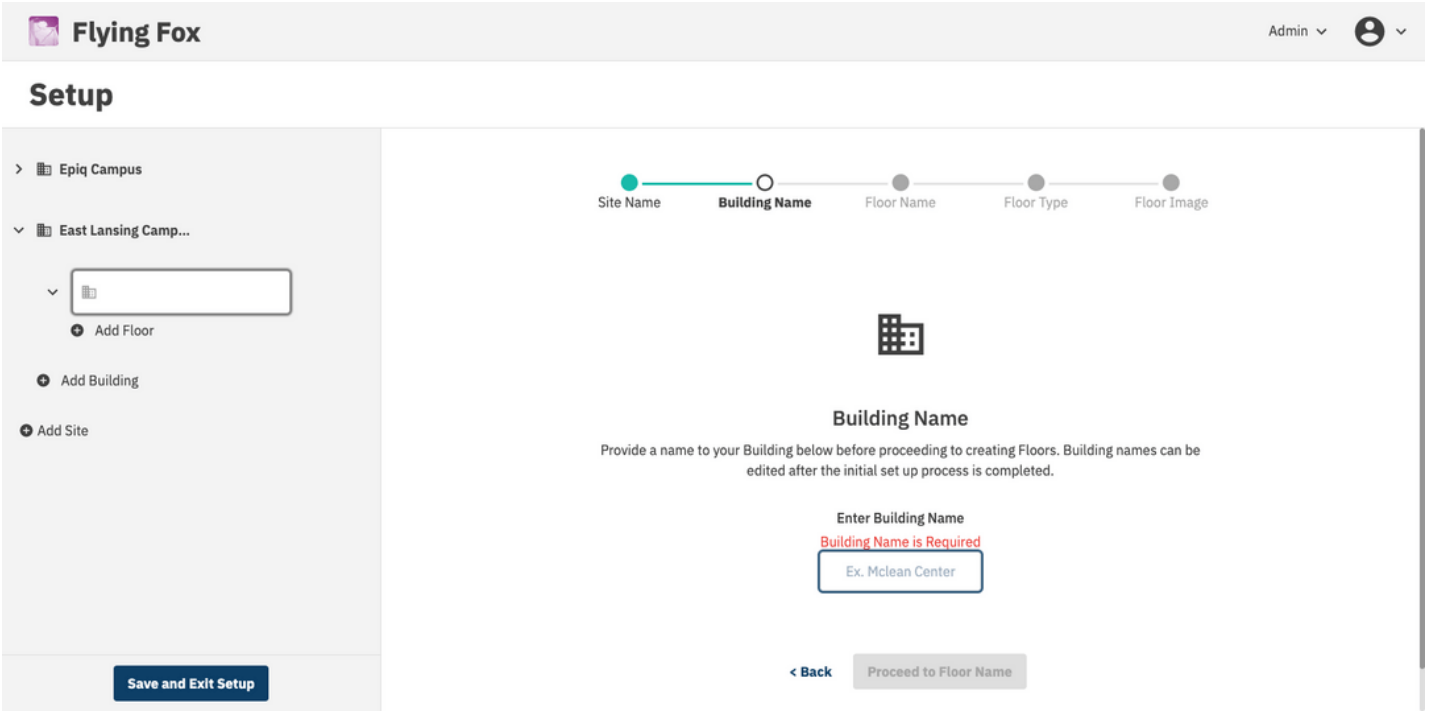


Figure 3: *Creating a Building*

Finally create a floor.

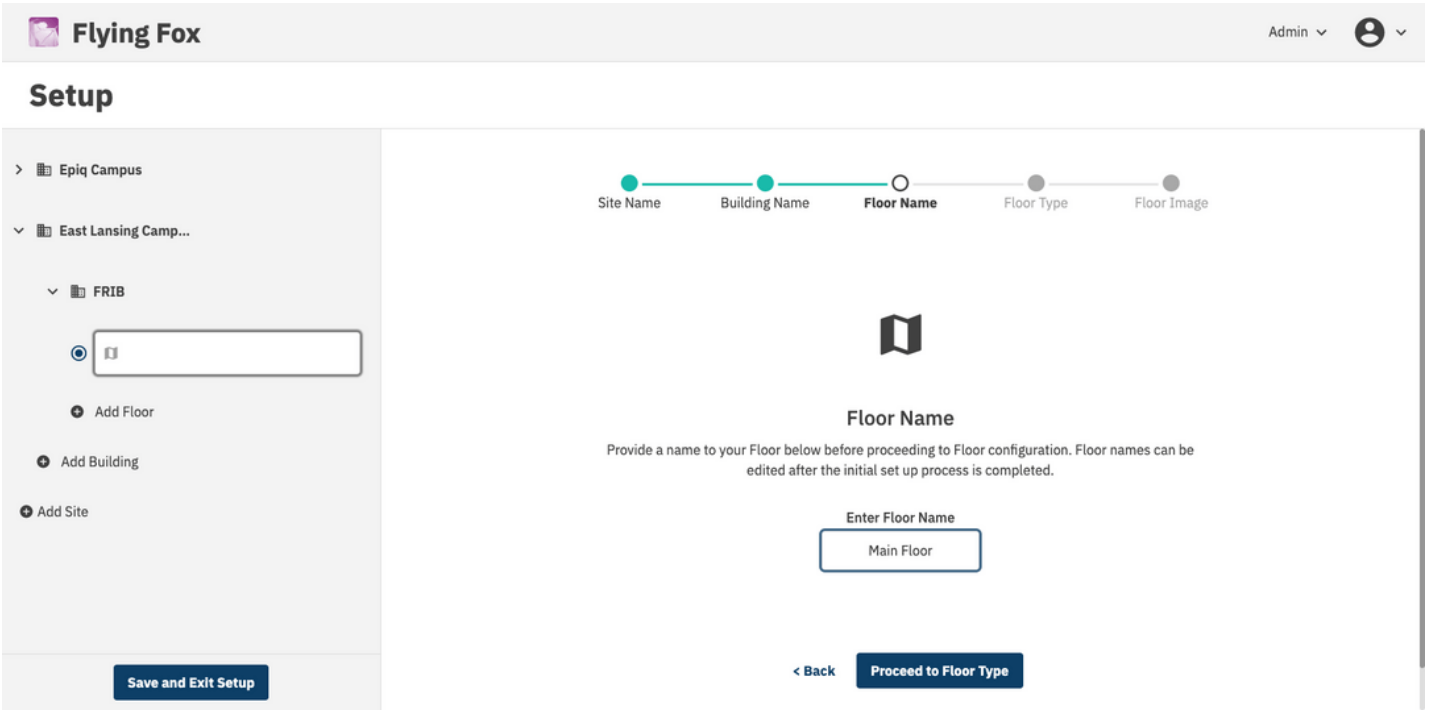


Figure 4: *Creating a Floor*

The floor will be used to map detections. The system will ask to upload a floor plan image. If an image is not available, the system will generate a rectangular grid.

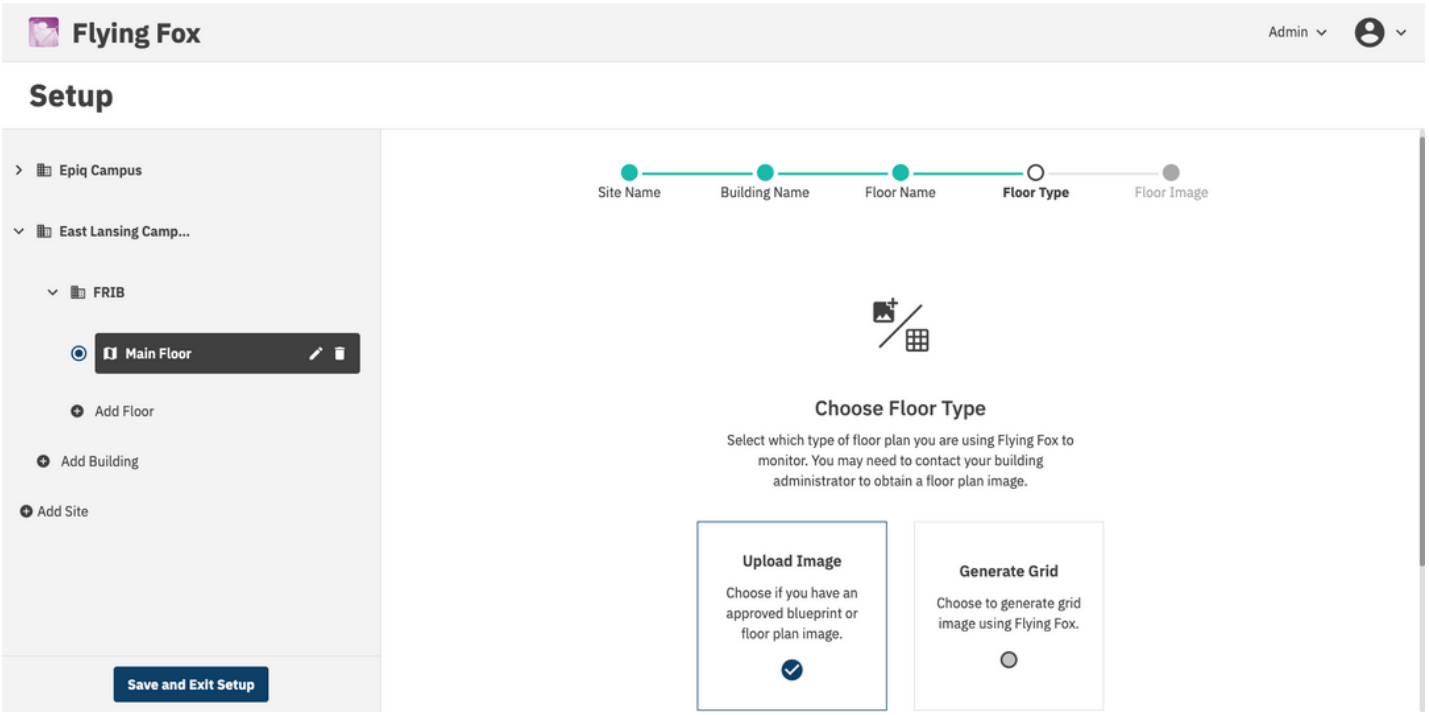


Figure 5: *Choosing a Floor Type*

If a floorplan is available, after uploading the image, configure the application with the GPS coordinates of the top left, bottom left, and bottom right corners. These coordinates will ensure that all detections will be tagged with their accurate geo-location.

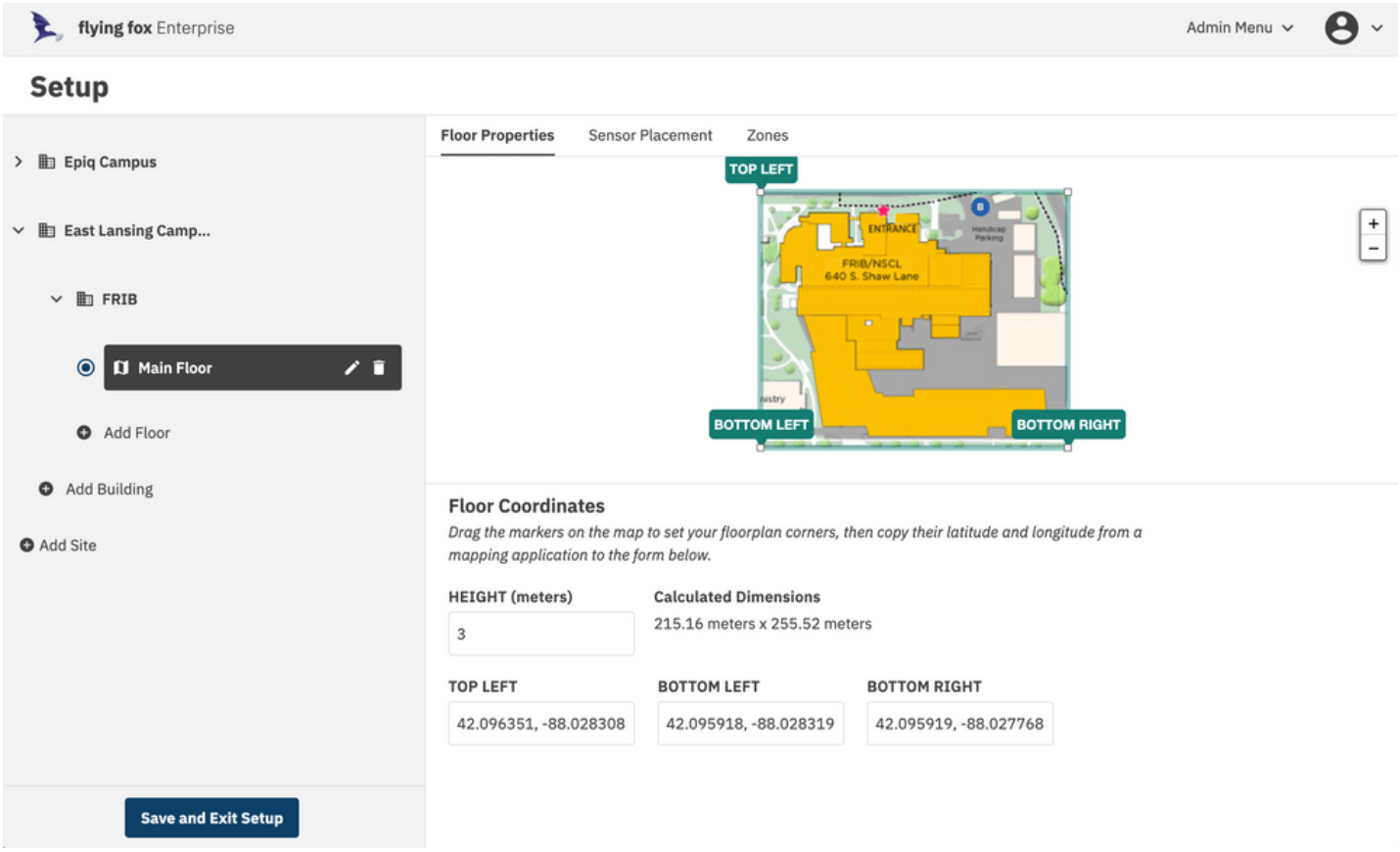


Figure 6: *Configuring Floor Properties*

If a floorplan is not available or not desired, use the grid view and configure the length and width of the space in meters. No GPS coordinates are necessary in the grid view.

PLACING SENSORS

Once the floor is configured, sensors need to be placed.

Click on the Sensor Placement header in the Setup window.

The system will present the user with a list of the sensors.

Click on the "Add to Floor" link and the sensor will be placed on the floor plan. Drag the sensor to its actual location on the floor plan or grid.

When complete be sure to click "Save and Exit Setup." Note that the server will restart after this operation, so allow about a minute for the restart before attempting to login again.

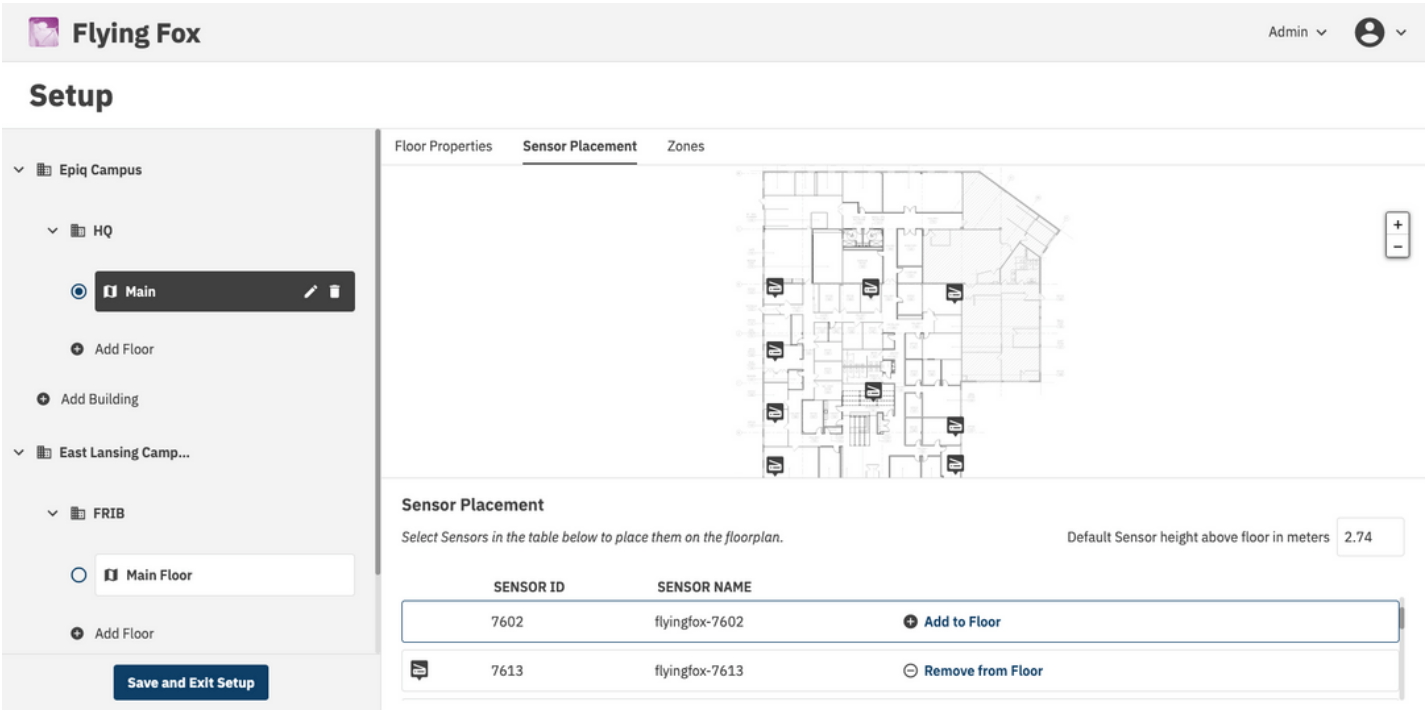


Figure 7: *Placing Sensors*

MONITORING DETECTIONS

GROUPING BY DEVICE OR EVENT

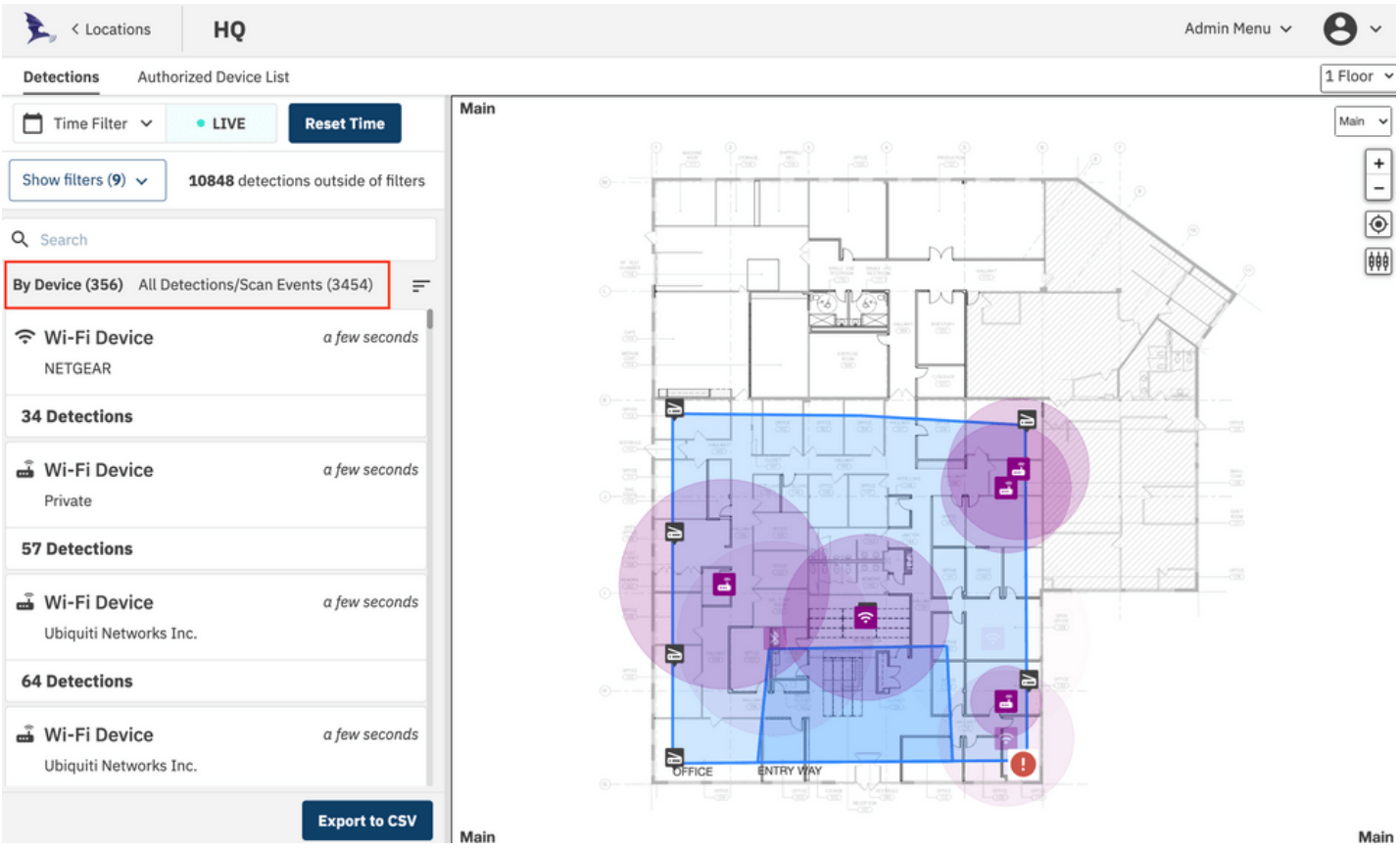


Figure 8: *Group or List View*

The list of detections can be viewed in two modes: **By Device** or **All Detections**. When viewing By Device, the list will show cards for each detected device and will list the number of recent detections for that device. This view is shown above. When viewing All Detections, the list will show individual detection events which is shown below.

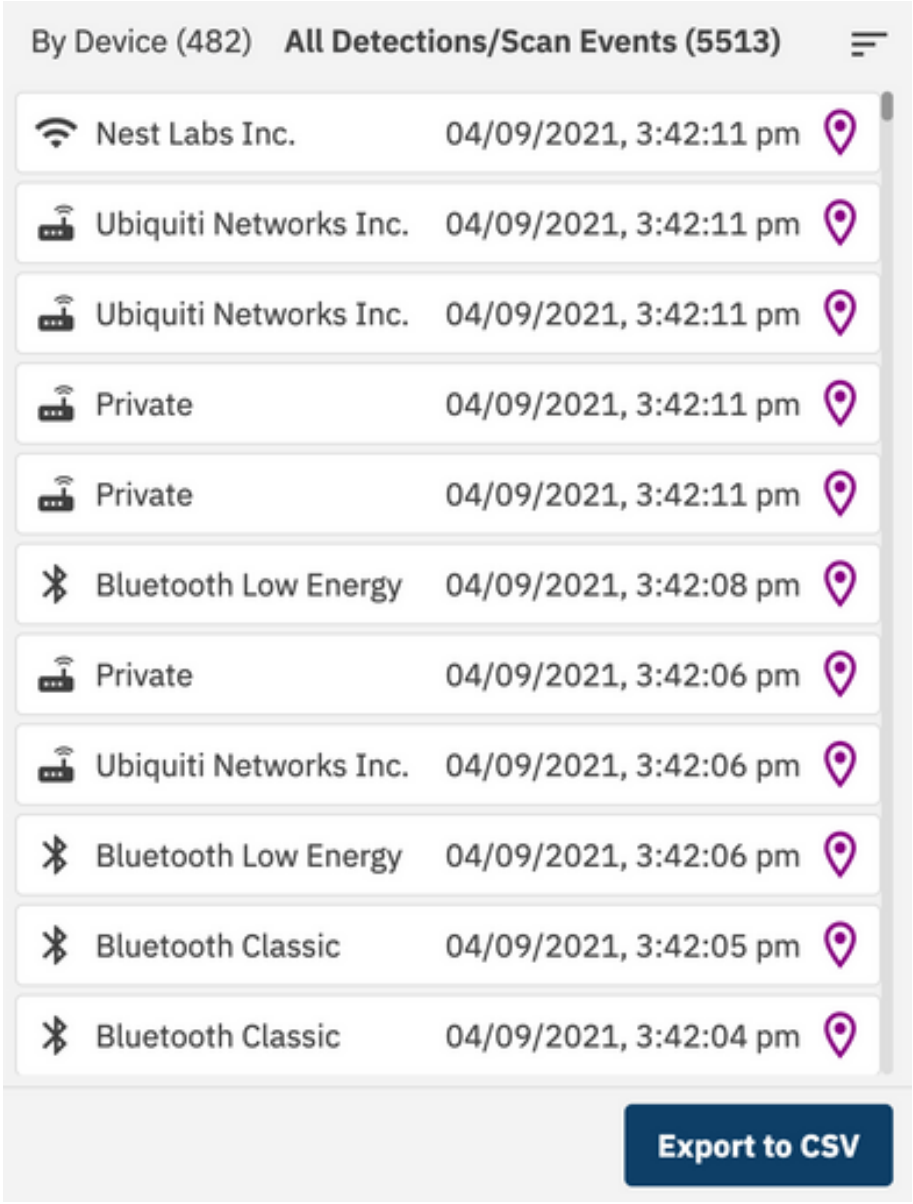


Figure 9: *All Detections List*

CELLULAR DETECTIONS

Detections of cellular devices are shown as smartphone icons on the floor plan and the detections and devices pane. Cellular devices that have been detected through an RRC Connect Procedure (See Theory of Operation in the User Manual) will have an ID value located in the device summary card. In the example below, a device was identified as a T-Mobile device with the s-TMSI listed.

Clicking on one of the detections, further expands the data available to the user.

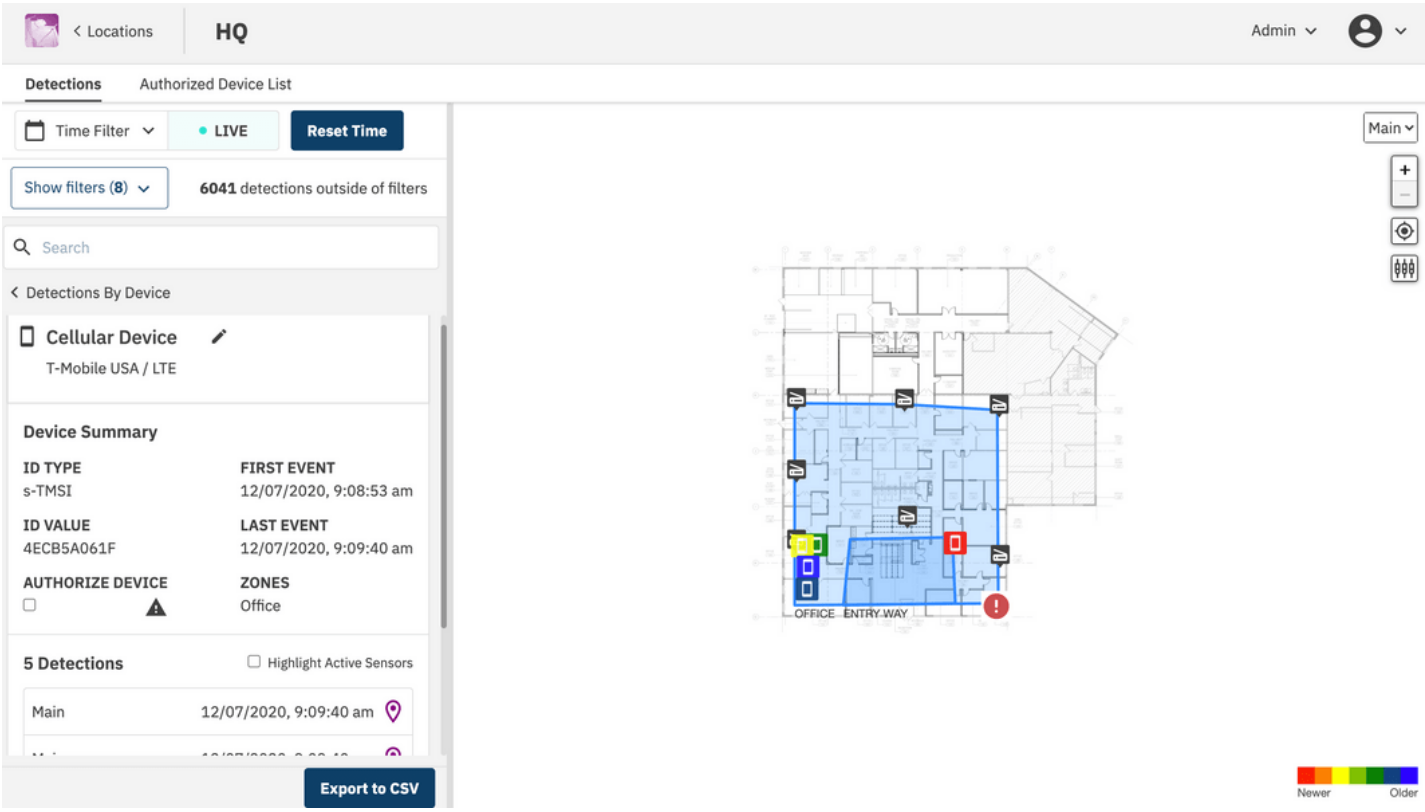


Figure 10: *Cellular Detection Example*

For each detection event associated with this device, band and channel information as well as sensors involved and power levels are presented.

Sensors that are involved in the estimate of detections can be highlighted by clicking the "Highlight Active Sensors" option.

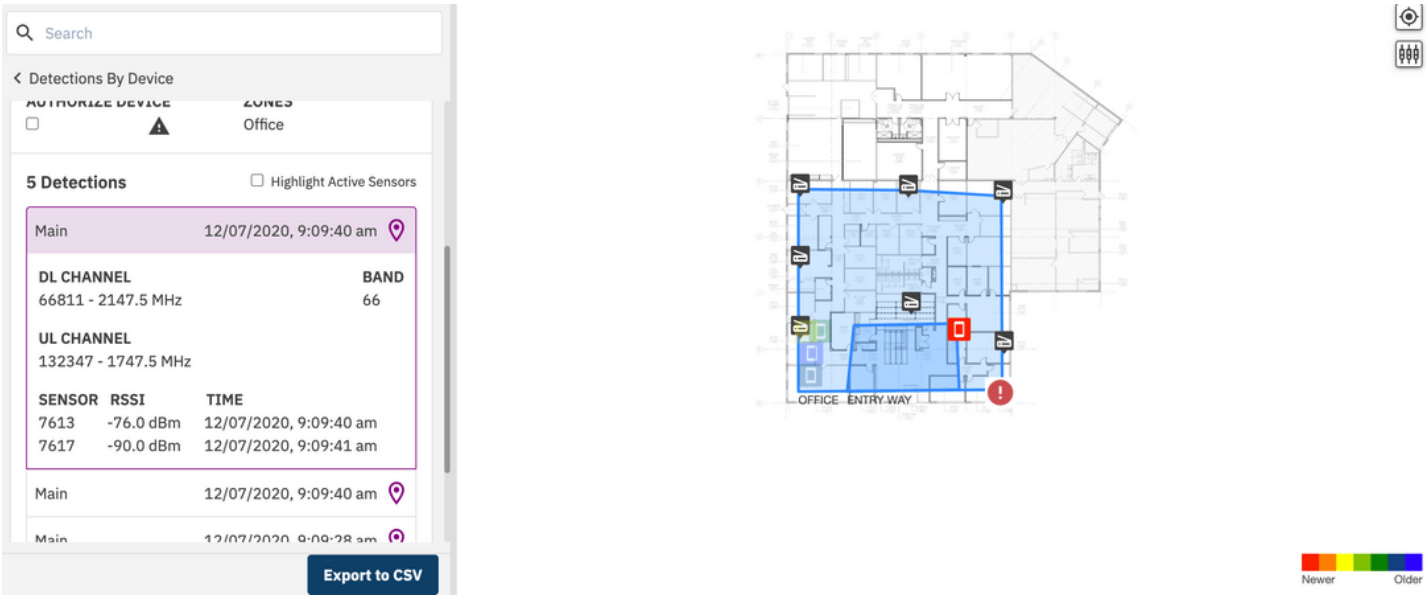


Figure 11: *Cellular Detection Example*

Unknown Cellular Detections

Cellular detections with "ID TYPE" listed as "UNKNOWN" are groups of detections where the complete RRC Connect Procedure was not fully decoded, and therefore the device's temporary

identifier was not captured. Without the identifier, the system is unable to uniquely identify each transmission. In these cases, different devices may be transmitting at the same time and therefore location data may be unreliable.

BLUETOOTH DETECTIONS

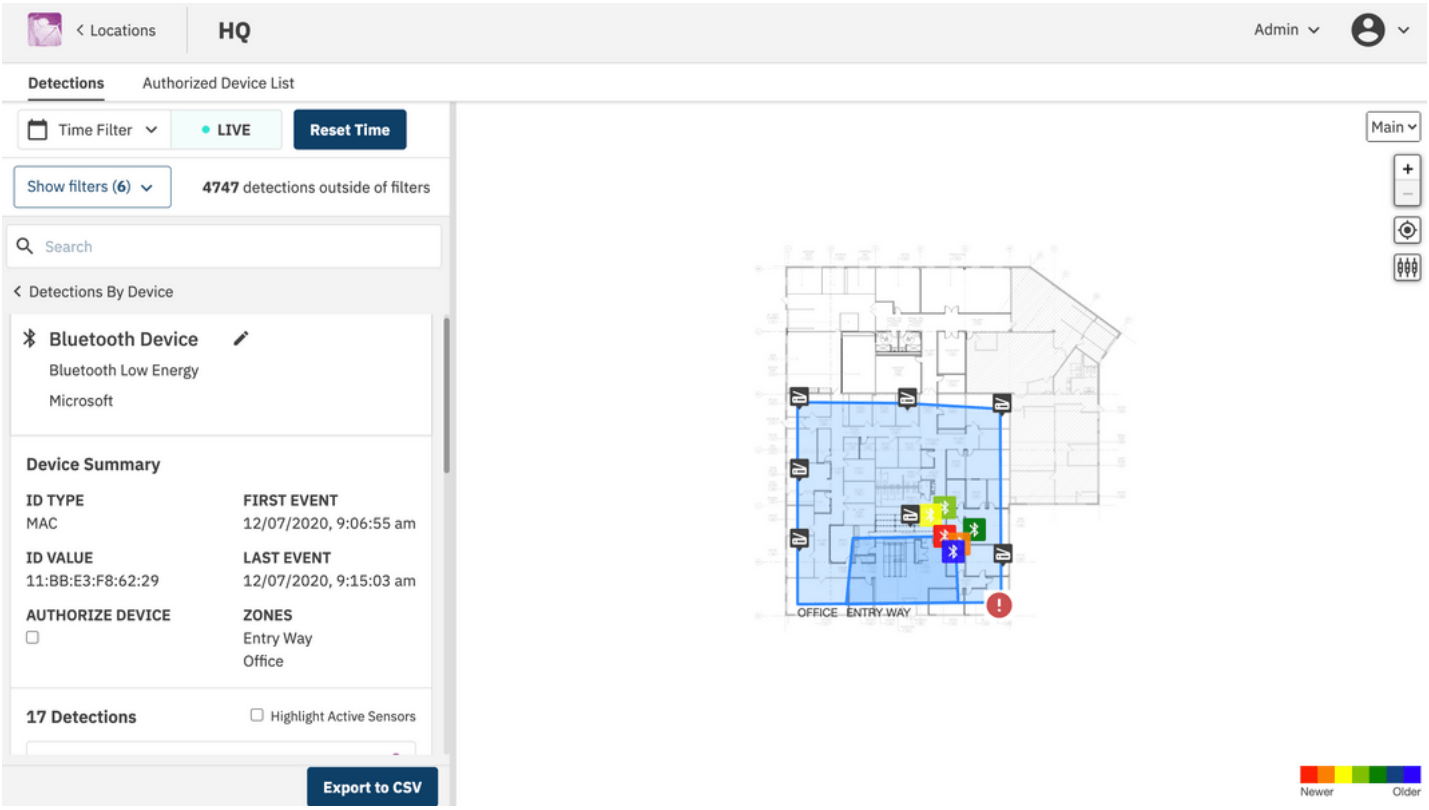


Figure 12: *Bluetooth Detection Example*

Detections of Bluetooth Classic and Bluetooth Low Energy (LE) devices will be shown on the floorpan as well as the detection and devices pane. Detected Bluetooth devices will have their MAC address in the device card, and additional information about each detection is available by clicking the detections list.

Sensors that are involved in the estimate of detections can be highlighted by clicking the "Highlight Active Sensors" option.

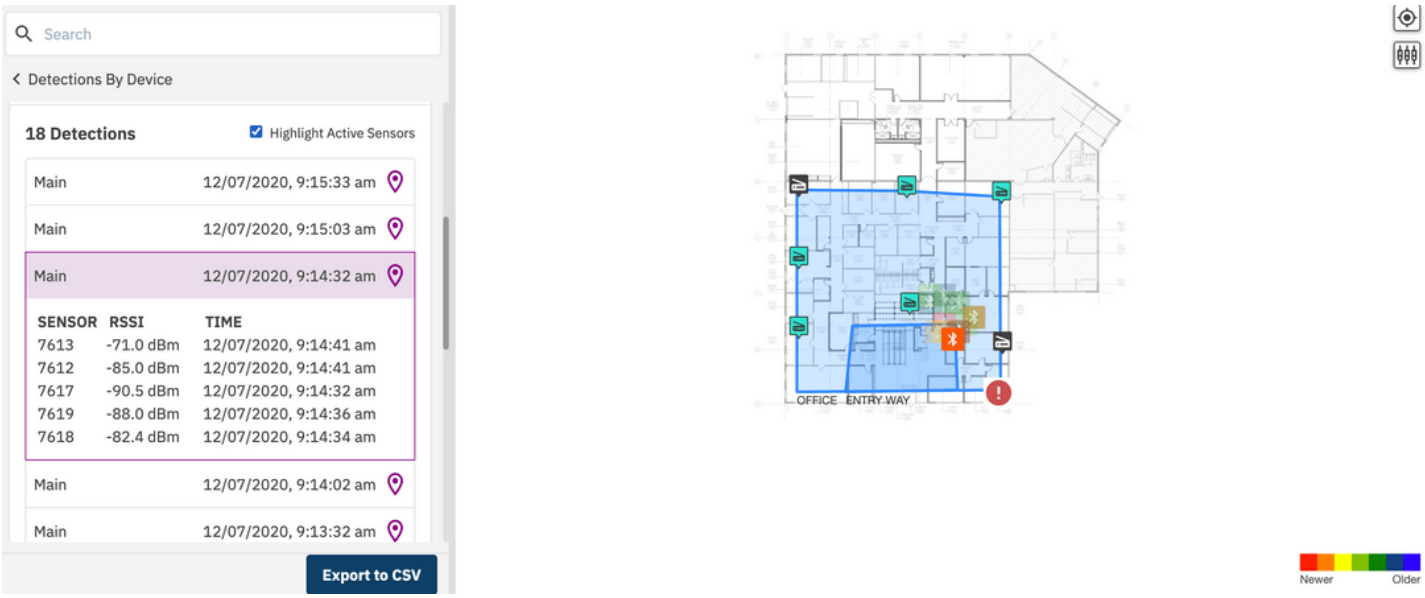


Figure 13: *Bluetooth Detection Example*

The device can be given an alias / friendly name by clicking the pencil icon beside the device name in the device card. Additionally, a user can search for devices by entering the friendly name, MAC address, carrier, technology, or manufacturer in the search bar.

WI-FI DETECTIONS

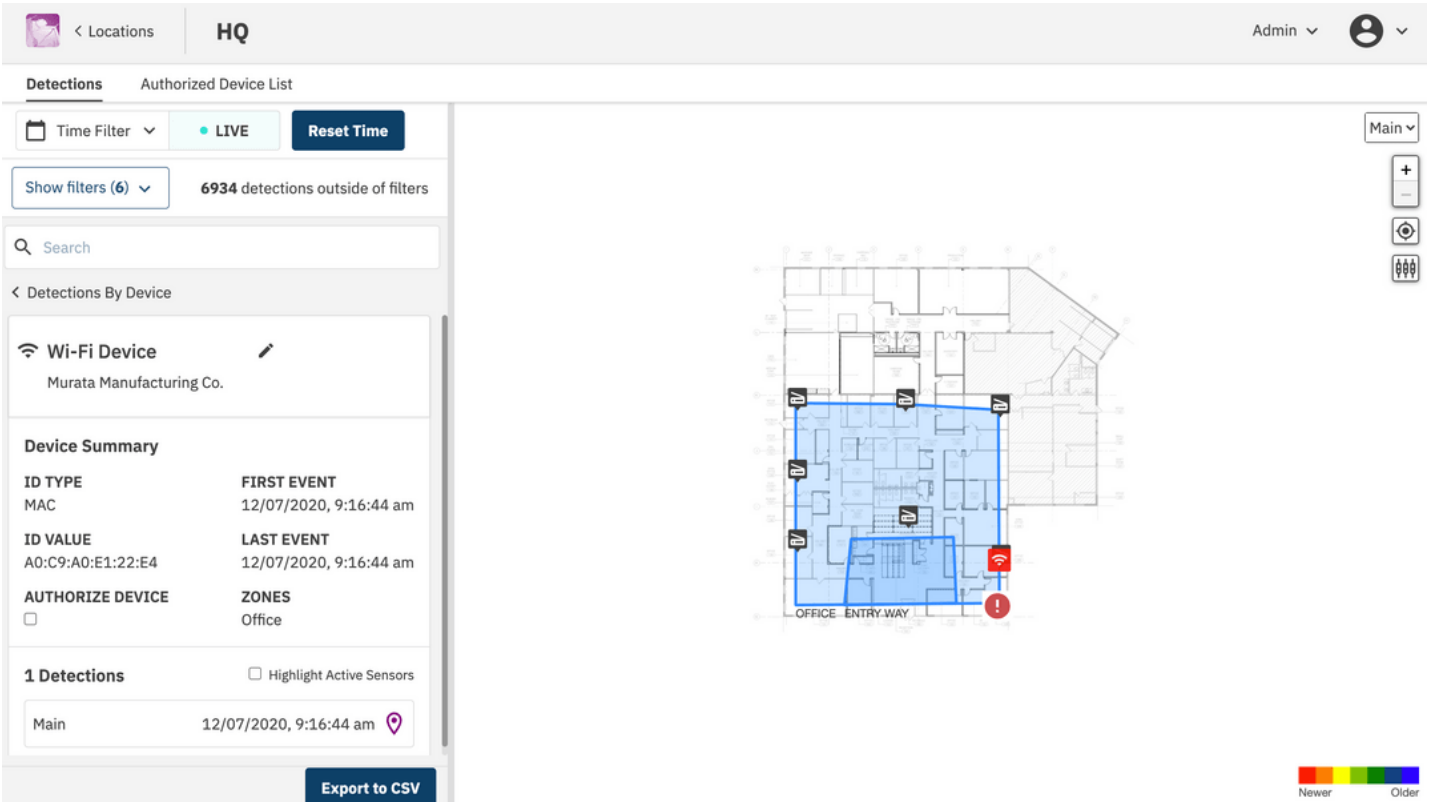


Figure 14: *technology selector*

Detections of Wi-Fi devices will be shown on the floor plan as well as the detection and devices pane. Detected devices will have their MAC address in the device card, and additional information about each detection is available by clicking the detections list.

Sensors that are involved in the estimate of detections can be highlighted by clicking the "Highlight Active Sensors" option.

The device can be given an alias / friendly name by clicking the pencil icon beside the device name in the device card.

TROUBLESHOOTING

Can't Connect to Flying Fox Enterprise Web Page

Verify the client has connectivity to the Flying Fox Enterprise Appliance.

Verify the Flying Fox Enterprise controller is running.

Sensors are Not Populating in Sensor List

Verify connectivity to the sensors.

Devices From Outside the Zone are Showing Up Inside the Zone on the Floor Plan

This is usually caused by an inaccurate location estimate. To hide these estimates see the *Excluding Possible Unreliable Location Estimates* section in the user manual.

MORE INFORMATION

Visit epiqsolutions.com to download the latest Flying Fox Enterprise User Manual for detailed instructions on operating the Flying Fox Enterprise system.

For support, contact support@epiqsolutions.com