Add-On Products
OfficePlace

Disruptive Technologies Sensor Configuration Guide

Document Revision 01

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Terminology

Term	Definition
Cloud Connector (Gateway)	The Cloud Connector is the gateway that relays sensor data to the Cloud via cellular or Ethernet connection.
Desk Occupancy Sensor	An occupancy detection device that accurately monitors desk usage, while maintaining employee privacy.
Motion Sensor	A sensor device that accurately detects the presence of people in a space while maintaining privacy.

CHAPTER 1.

Introduction

Disruptive Technologies Overview

The goal of Disruptive Technologies (DT) is to simplify the process of collecting vast amounts of data. New events from the wireless sensors are transmitted to a Cloud Connector, which then broadcasts them to an IoT cloud. From there, you can use DT Studio or a variety of APIs to retrieve the data. There is no need for setup or pairing because the sensors securely connect to any available Cloud Connectors within range.

In this document, we only concentrate in 2 types of Sensor which are Desk Occupancy Sensor and Motion Sensor. The following diagram describes the overall interaction of these Sensors with other stakeholders:

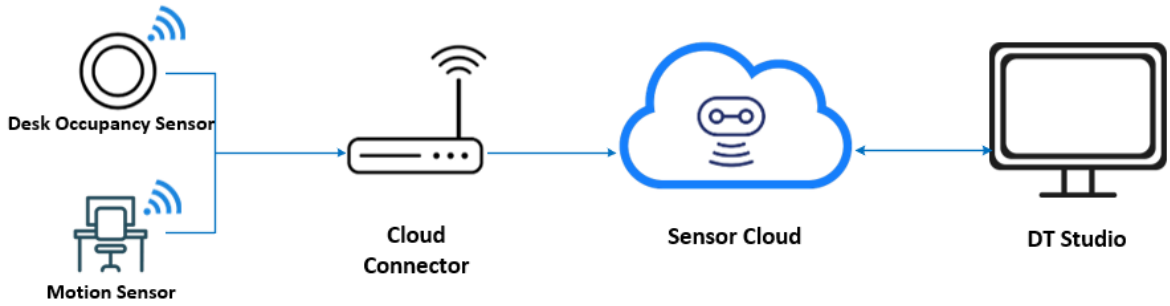


Figure 1. Disruptive Technologies Data Flow Chart

Admin users can log in to the Disruptive Technologies Studio interface to observe the real-time Signal/State as well as historical data/connectivity of integrated Sensors and Cloud Connectors.

CHAPTER 2.

Disruptive Technologies Sensor Configuration

For this configuration, you need to set up your Disruptive Technologies account, organization, claim and install devices.

Set up Studio account and Studio Organization

To view and manage your devices, you need both a Studio account and a Studio Organization. Once you have registered a new account, you will be able to establish an Organization within Studio.

Sign up Studio account

Open the browser and navigate to the address of the web server where Disruptive Technologies Studio is hosted. It will display the Login screen as below:

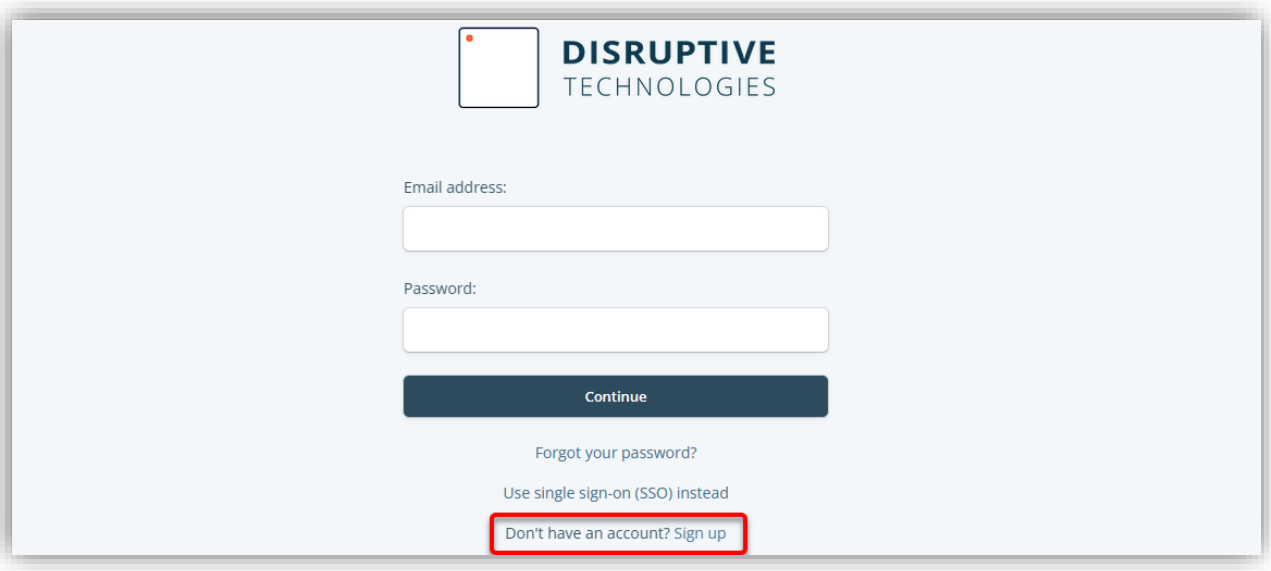


Figure 2. Login Screen

In case you have not had an account yet, click [**Sign up**] to register.

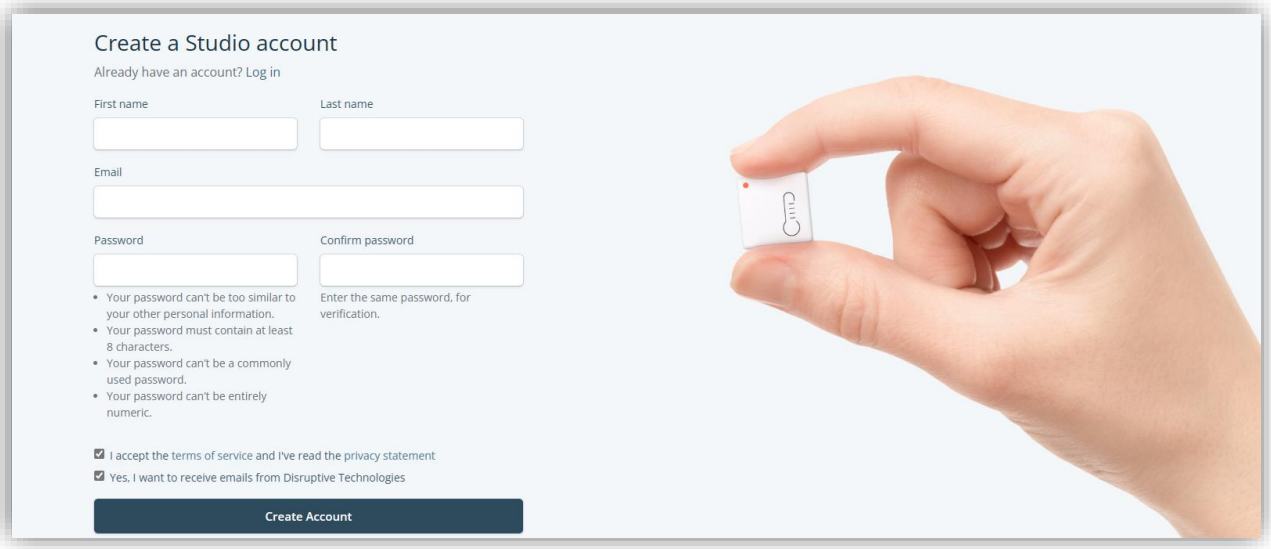


Figure 3. Create Account

The fields in *Figure 3* will now be visible in your browser. Fill in your information and click the agreement boxes to accept the platform's terms and conditions as well as to receive important emails from Disruptive Technologies. Press [**Create Account**]. A confirmation pop-up will request your permission to verify your email:

Figure 4. Email Verification

You will then receive an email to activate your account by clicking [**Verify your email address**]. If you do not get the email in your inbox within a few minutes - please verify the mail is not in your spam/junk folder.

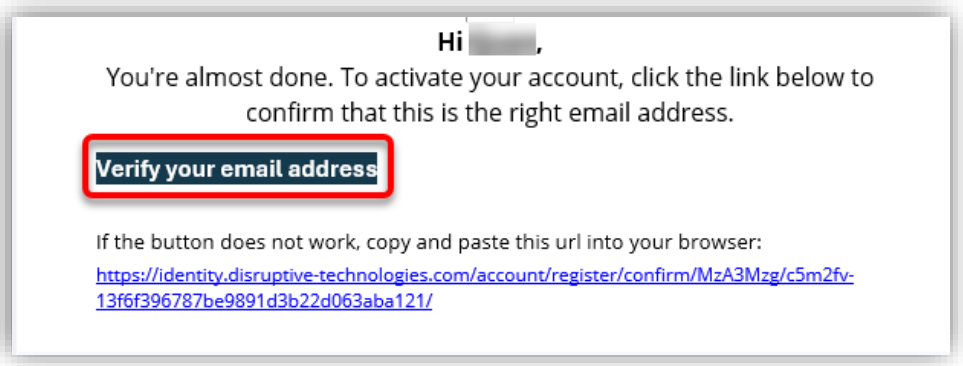


Figure 5. Email Verification

Following the link sent in your email will take you to the below screen notifying that your account has been activated.

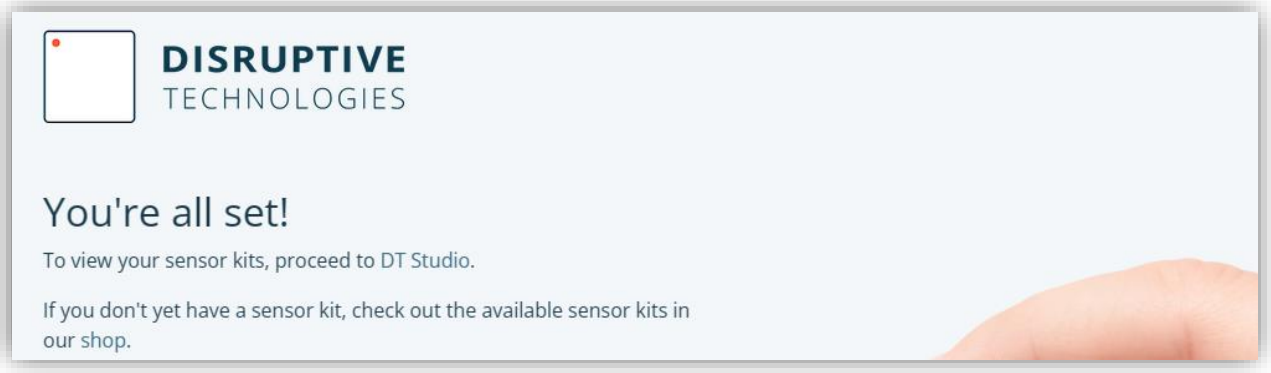
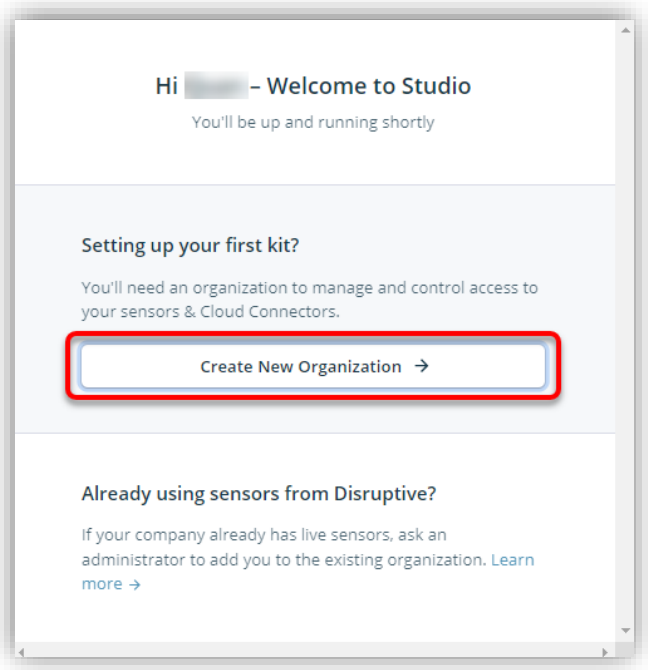


Figure 6. Create Studio account successfully

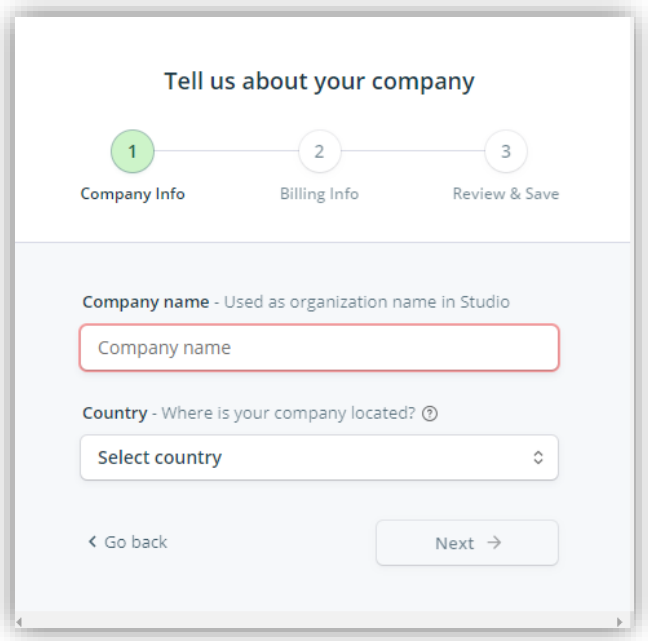
Create Studio organization

The organization represents the legal entity that owns the sensors and receives device subscription invoices. This might refer to an organization, a department within an organization, or an individual.



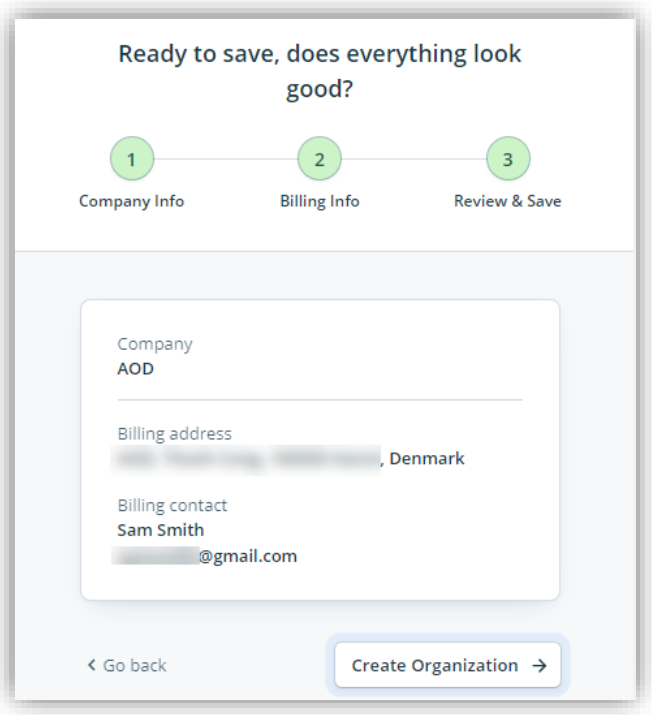
Log in to Disruptive Technologies Studio with your new account and select [**Create New Organization**] to manage and control access to your Sensors and Cloud Connectors.

Figure 7. Create New Organization



To establish a new organization, enter Company and Billing information, then click [**Next**] to proceed to the "Review & Save" phase.

Figure 8. Fill in Organzation information



In this step, check the Company and Billing Information again. Click [**Go back**] to adjust the previous information. Finally, press [**Create Organization**] to complete.

Figure 9. Review and Save Organization

Claim your Sensors and Cloud Connectors in Studio

To claim Sensors and Cloud Connectors, you must first have a Project. You can utilize the default project (Inventory) that is made available for you right after you have created an Organization, or you can build a new project as guided below:

Create new Project

Click the dropdown [**Select Project**] in the header and click **[+ New Project**] button.

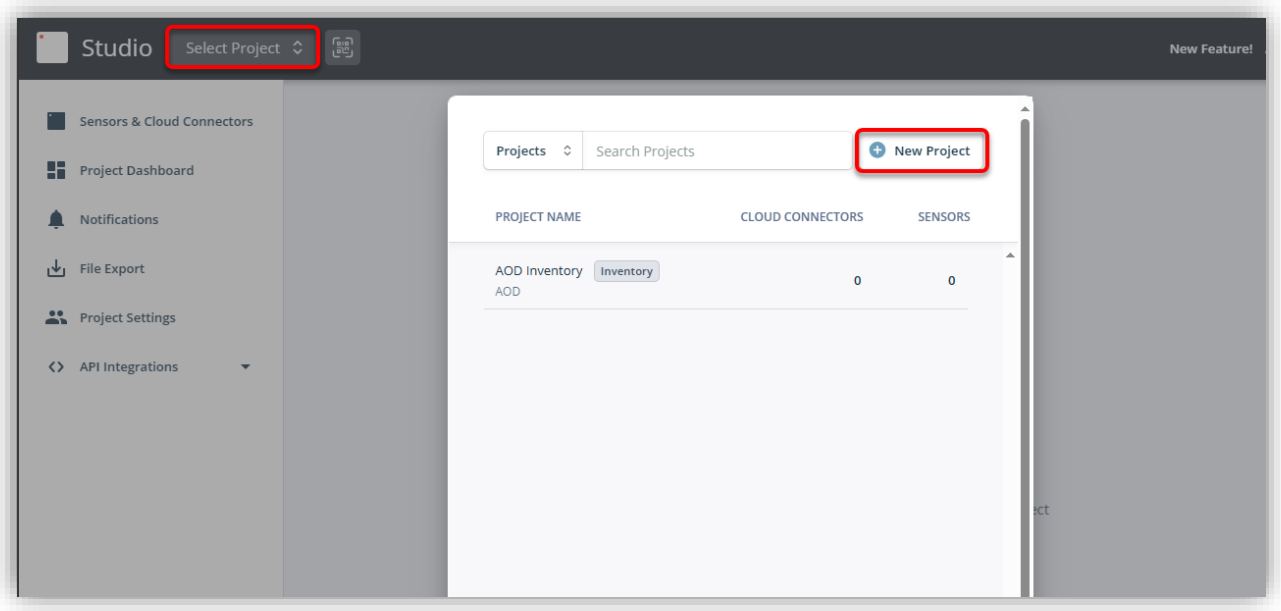


Figure 10. Create new project

Name the new project (maximum 64 characters) and click [**ADD**] to finish the creation.

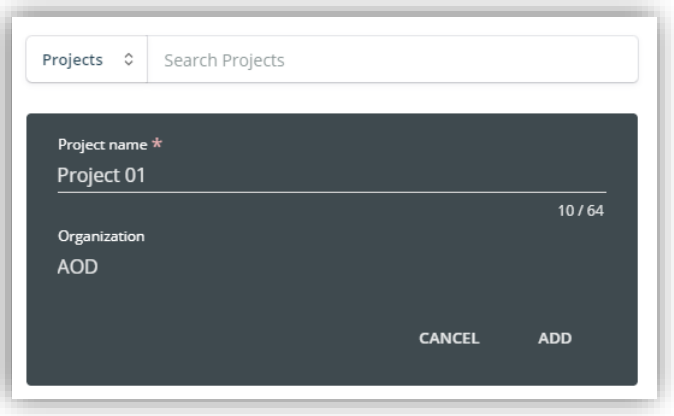
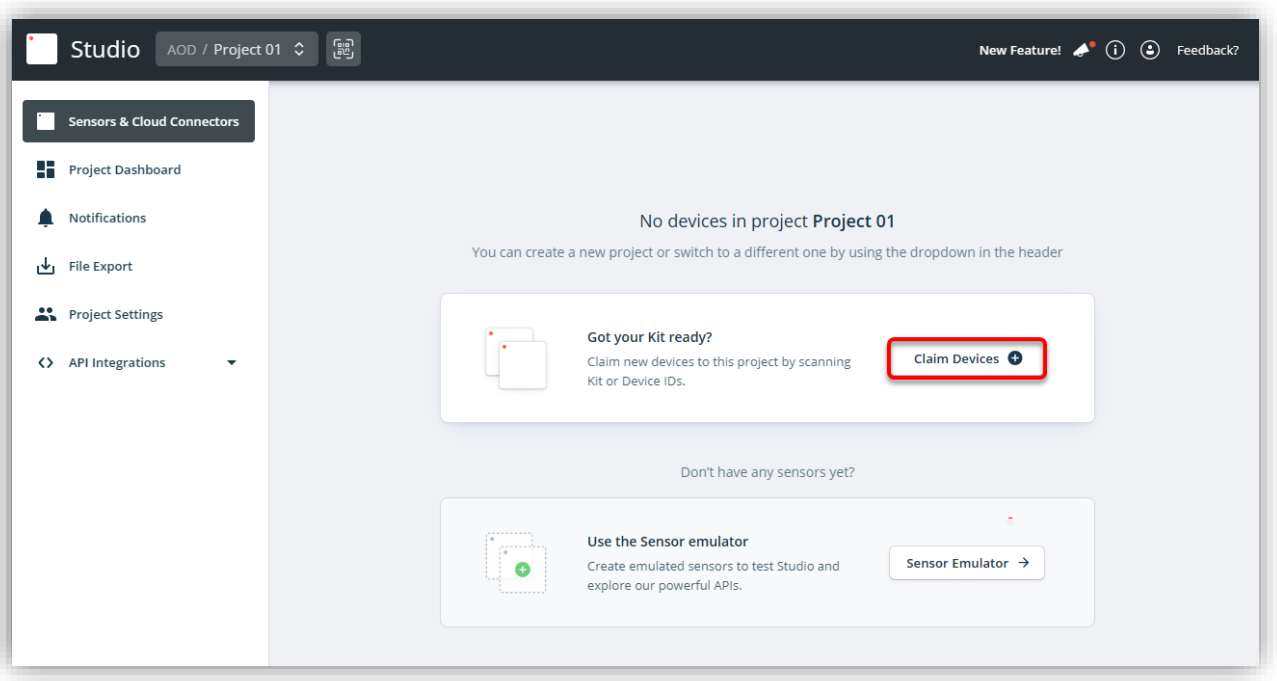


Figure 11. Name the project

Claim devices

After selecting a project, the following step is to register your devices (Sensors and Cloud Connectors) in Studio, which is referred to as "claiming" by clicking [**Claim Devices**].



You can accomplish this by either scanning the Kit ID found on the packaging or by scanning individual Device IDs. Claiming essentially associates these devices with your Organization in Studio.

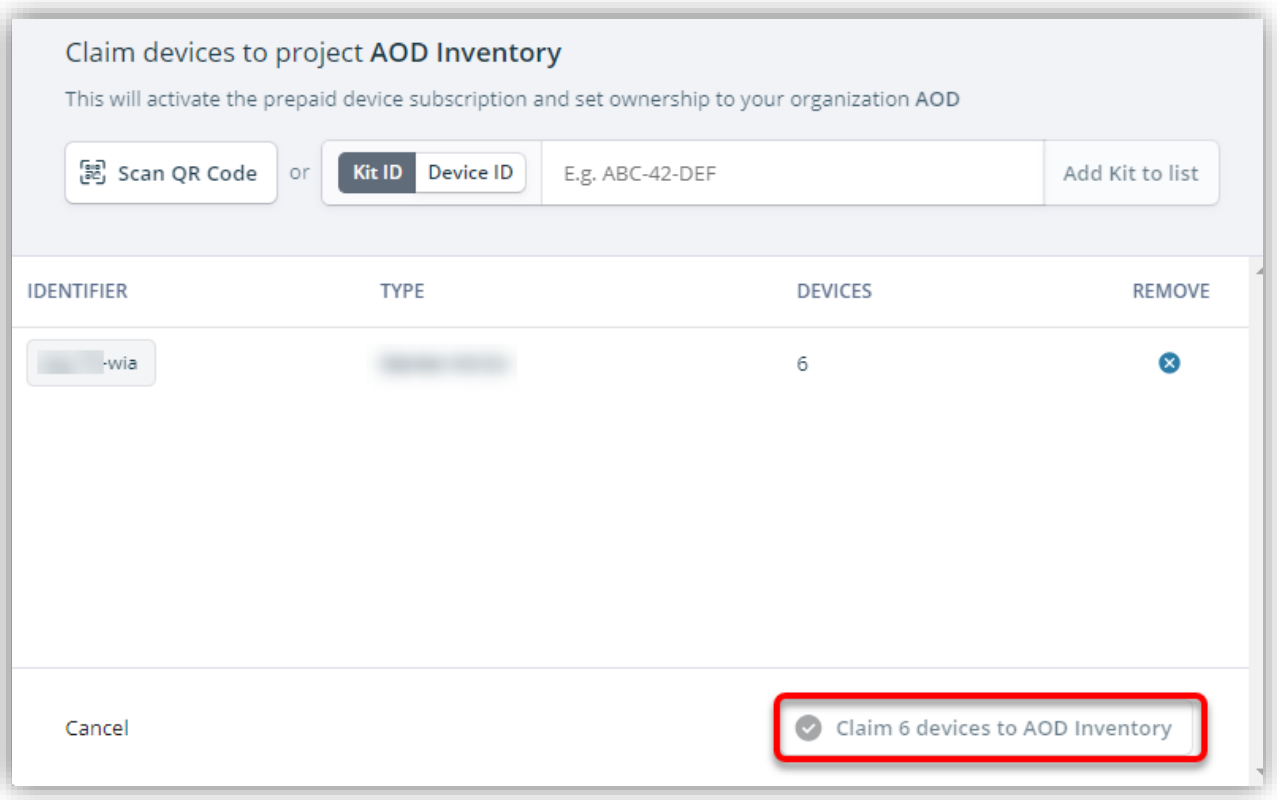


Figure 12. Claim devices in Studio

After adding the Kit/Devices to the list, click [**Claim … devices to (your project)**] to complete.

Install Cloud Connectors

Figure 13. Cloud Connector

Mount Cloud Connectors

An optimal Cloud Connector placement ensures a stable connection to sensors and may avoid the need for additional Cloud Connectors.

- Cloud Connectors should be mounted at an elevated position (wall or ceiling mounting or drop ceiling mounting) using screws, tape, or zip ties.

- Placement in the center of the installation area gives effective coverage, whereas a corner placement limits sensor coverage. Install the Cloud Connector avoiding obstructions, typically high on the wall or ceiling.
- A Cloud Connector can cover sensors within 40 m in a typical office setting. However, it may diminish in areas with thick walls, metal structures, or other elements that prevent radio waves from passing freely.

Connect Cloud Connectors

With the placement ready, ensure that the Cloud Connectors can be mounted robustly at each installation location, including an internet connection and a power source.

- Plug the Ethernet cable (local network) into the LAN port of the Cloud Connector.
- Then, connect the other port of the Cloud Connector to the electrical Outlet.

Wait for the Cloud Connectors to start. Then, if the Cloud Connectors is properly connected, its LED light will be SOLID WHITE.

NOTE: If your organization has restricted MAC addresses from external devices, please add the addresses of those Cloud Connectors to the company's MAC list.

Verify if Cloud Connectors are online

On Studio, under **Sensors & Cloud Connectors** section, you can see all Cloud Connectors (represented by icon) with their **SIGNAL** state. If the SIGNAL indicates green “Ethernet”, the Cloud Connector is online.

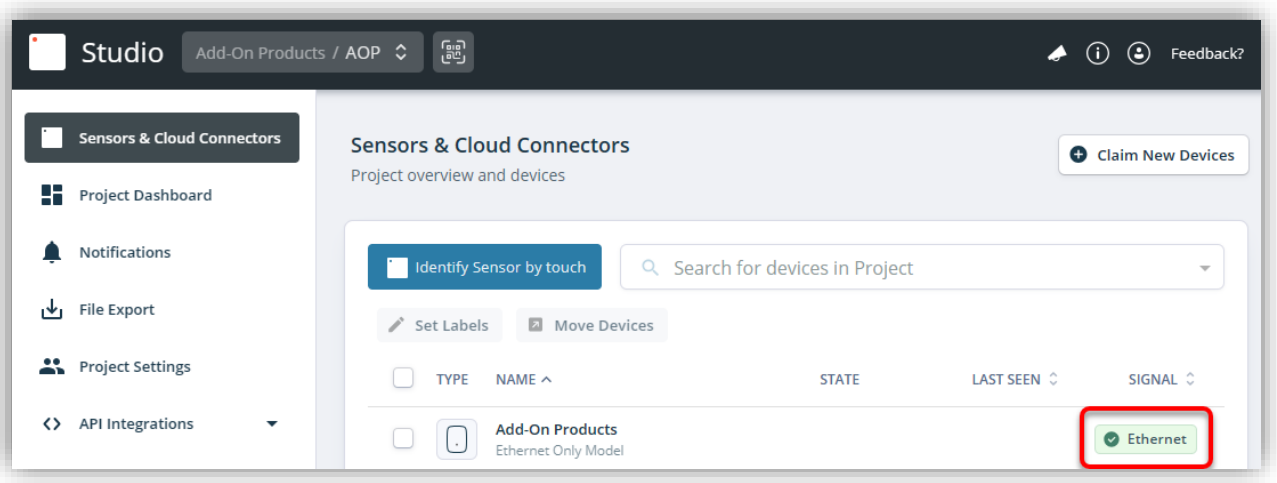


Figure 14. Cloud Connectors network signal

Install Sensors

Mount Sensors

Figure 15. Desk Occupancy Sensor

• **Desk Occupancy Sensor**: The sensor should be installed under the desk, approximately 2 to 4 cm from the edge of the desk, at the center where a person often sits. Clean the installation surface, peel the protective film from the back of the sensor, stick the sensor to the table, and press it firmly for a few seconds to ensure good adhesion. Plan to use clay glue or similar for temporary installations for easier removal and repositioning as the sensor has strong tape on the back and sticks permanently on dry and clean surfaces.

NOTE: If sensors are placed directly onto metal surfaces, the signal strength will suffer. In this situation, consider placing a Cloud Connector next to the sensors.

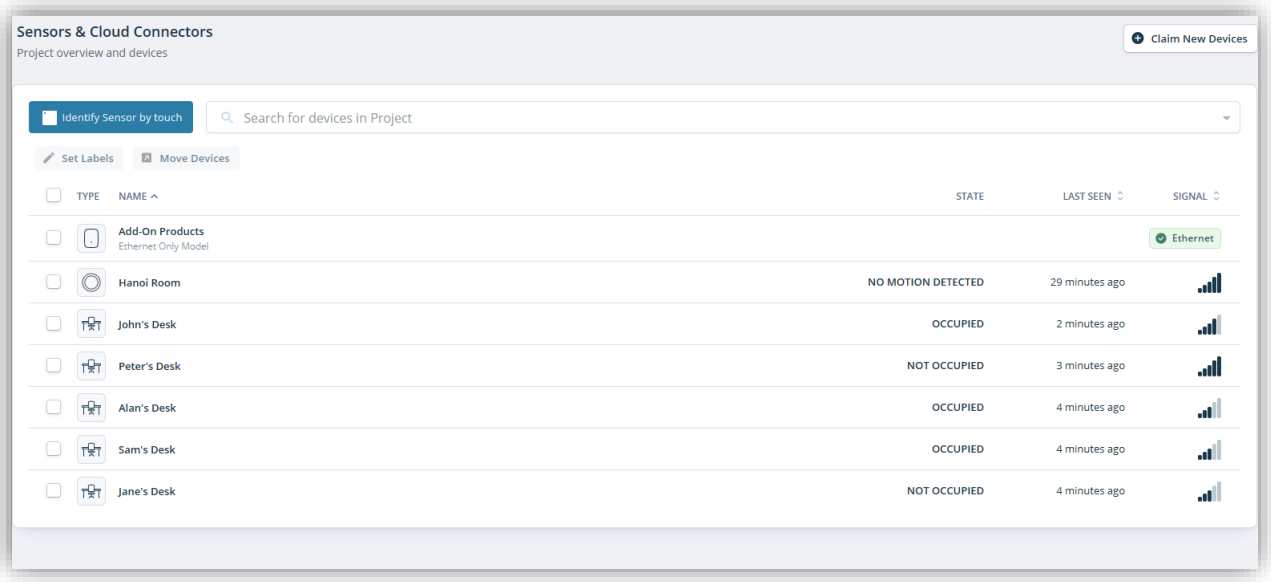
Figure 16. Motion Sensor

• **Motion Sensor**: It can cover a huge area of up to 14 meters in diameter and should be mounted on the ceiling in the center of the room to monitor the entire room's motion. The sensor also contains strong adhesive on the back that adheres firmly to dry and clean surfaces. For temporary installations, consider using clay glue or something similar to make removal and repositioning easier.

IMPORTANT NOTE: Both sensor types determine the wireless range which can vary up to 40 meters, so please position these Sensors and Cloud Connectors within this range for optimal transmission.

Check Cloud Connectors coverage

When the Cloud Connector is online, nearby sensors will automatically send encrypted data to your account in the cloud. A Cloud Connector will cover sensors within 40 meters in a typical office environment. However, it can diminish in areas with thick walls, metal constructions, or other elements that limit radio waves from traveling freely so ensuring that each sensor connects reliably to Cloud Connectors for data transmission during installation is essential.



The **SIGNAL** column represents the Cloud Connectors' coverage level for the Sensors. Thanks to this signal presentation, you can adjust the Cloud Connector's placement in order to ensure its best coverage to the sensors.

NOTE:

• If a Sensor is in High Power Boost Mode (represented by icon), the battery life will be reduced because the sensor is consuming more energy to reach the Cloud Connector. Either move the Cloud Connector or consider using a Range extender accessory to amplify the sensor range.

• If the sensor is not reporting data (represented by icon), the sensor is outside the range of the Cloud Connector. Install another Cloud Connector to extend the coverage.

Manage Sensors data

On Studio, you can access Sensors data management by clicking on each Sensor icon.

1. For **Desk Occupancy Sensor**, you can view the product's information, Signal strength, Historical connectivity with Cloud Connectors, and Historical Data (Occupied/Unoccupied chart) of the Sensor.

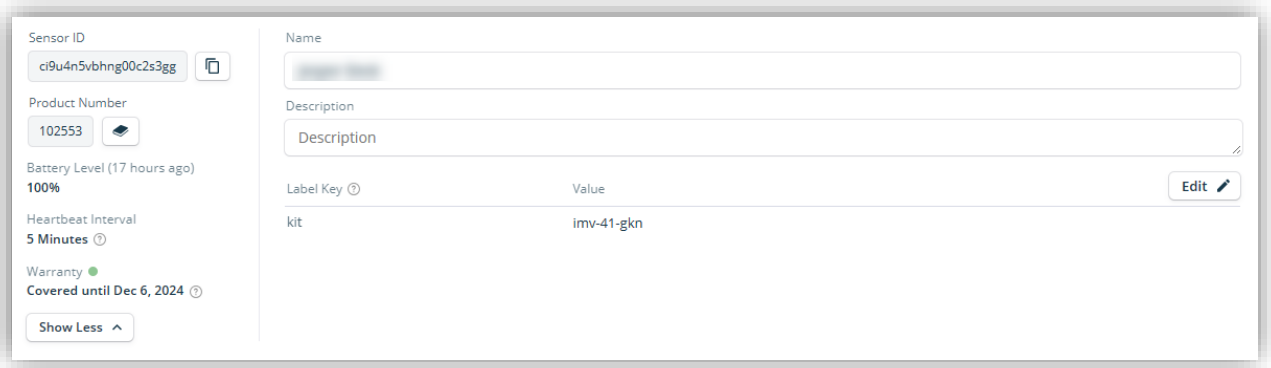


Figure 17. Desk Occupancy Sensor - Sensor's information

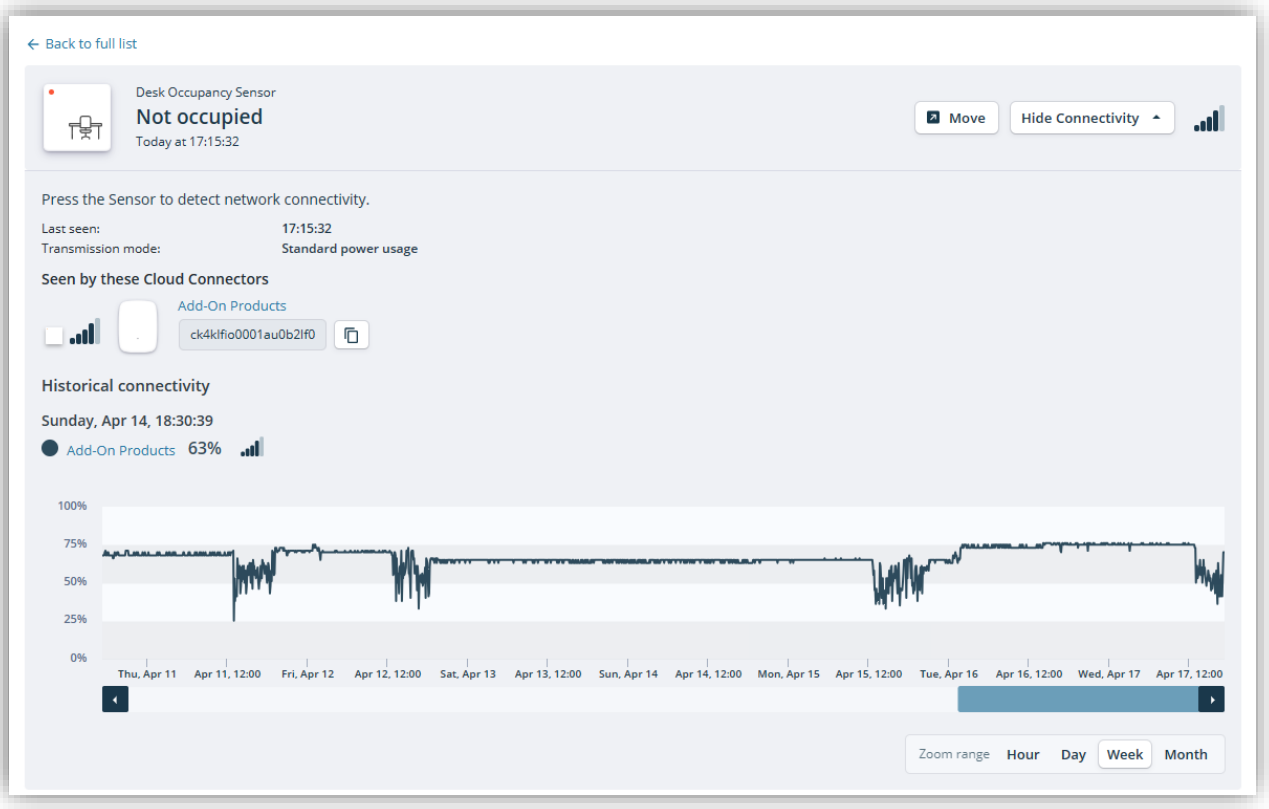


Figure 18. Desk Occupancy Sensor - Historical connectivity

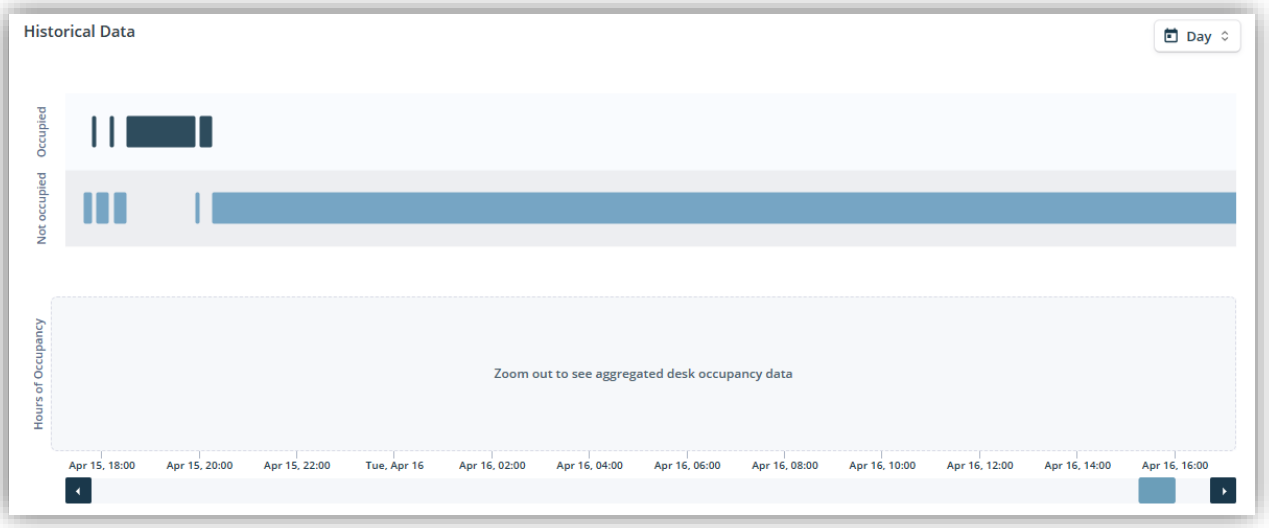


Figure 19. Desk Occupancy Sensor - Historical data

2. For **Motion Sensor**, you can view the same data management as Desk Occupancy Sensor. Additionally, you can adjust Motion Sensitivity, Motion Activity Timer, and Heartbeat Interval for Motion Sensor under ***Sensor Configuration*** section.

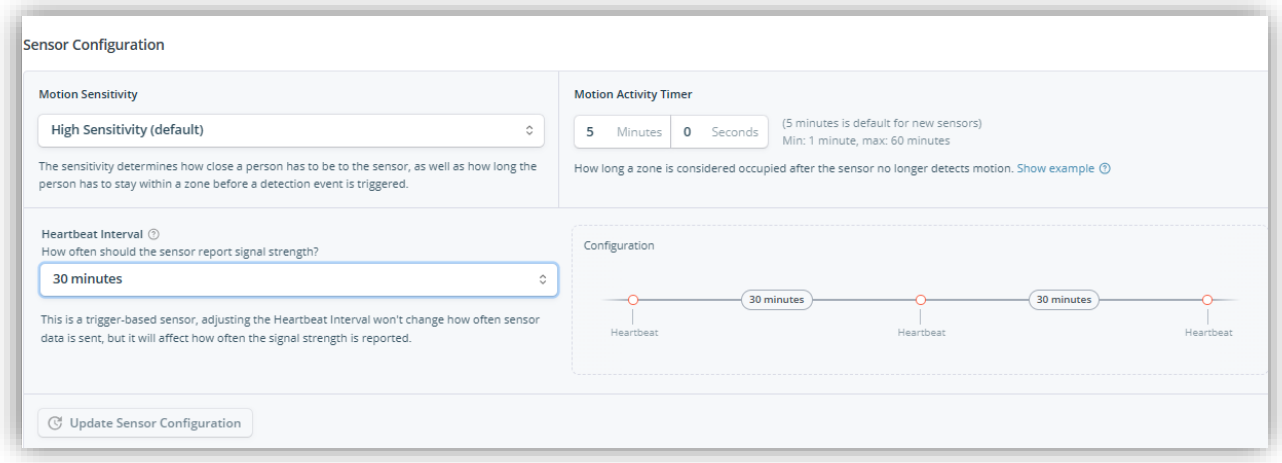
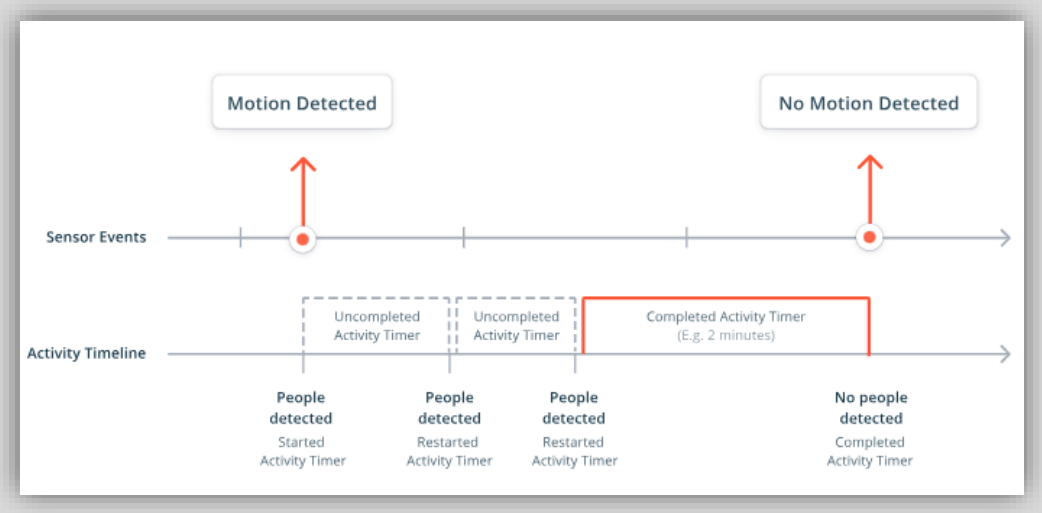


Figure 20. Motion Sensor – Sensor Configuration

Field	Description
Motion Sensitivity	Determines how close a person has to be to the sensor, as well as how long the person has to stay within a zone before a detection event is triggered. It is devided into 4 levels, which are listed below: • **Low Sensitivity**: Only large movements in front of the sensor will trigger a sensor event. • **Medium Sensitivity**: Small movements in front of the sensor will trigger a sensor event. • **High Sensitivity**: Minimal movement in front of the sensor will trigger a sensor event. • **Very High Sensitivity**: The highest sensitivity available. Experimental, can in very rare cases cause false positive motion events. **NOTE**: It is recommended that High Sensitivity be selected because of its accuracy and battery saving.
Motion Activity Timer	Determines how long a zone is considered occupied after the sensor no longer detects motion. When the sensor detects the presence of people, it will send a MOTION_DETECTED event to the cloud and start a pre-set Activity Timer. If the sensor continues to detect the presence of people before the Activity Timer expires, the timer will restart. When the Activity Timer expires, the sensor will send a NO_MOTION_DETECTED event to the cloud.

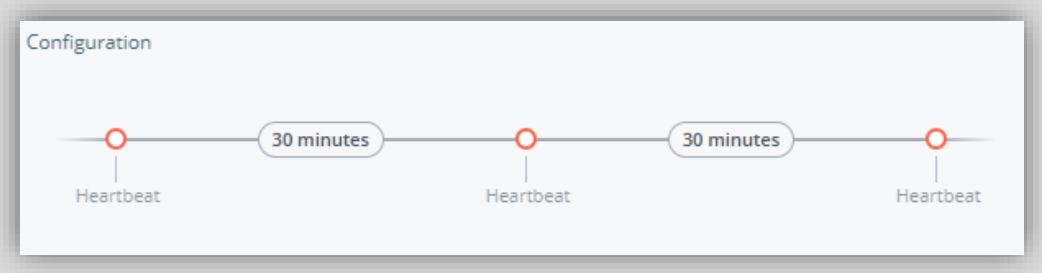


The value of this field can vary between 1 and 60 minutes. The smaller the value is, the faster the event is sent to the Cloud.

NOTE: The duration of the Activity Timer will not impact the 10 year battery life of the Motion sensor.

Heartbeat Interval

Determines how often the sensor should report signal strength. The value could be 30 minutes, 45 minutes, or 60 minutes.



NOTE: This is a trigger-based sensor, adjusting the Heartbeat Interval won't change how often sensor data is sent, but it will affect how often the signal strength is reported.

To save the configurations, click [**Update Sensor Configuration**] at the end of the section.