Kontakt.IO Sensor Configuration Guide

Document Revision 01

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Terminology

Term	Definition
Kio Cloud	Kio Cloud is Kontakt.io's cloud-based platform. It's where you can manage and monitor your Kontakt.io solutions and IoT devices. This includes device management and monitoring, the mapping of the physical indoor environment, and managing user access.
Kio Setup Manager App	The Kio Setup Manager is for onsite installation, configuration, and monitoring of Kontakt.IO IoT devices; including beacons, tags, and gateways. The app is integrated with the Kontakt.IO Kio Cloud platform to provide a mobile-optimized connection to your Kio Cloud account devices.
Gateway (Portal Light)	A device that provides live and historical time-series data, enables secure communication with the Cloud, and has local storage that ensures data loss is kept to a minimum when the Internet connection is not working.
Sensor (Portal Beam)	An occupancy detection device connected to their respective resources that automatically recognizes occupant's presence.

CHAPTER 1.
Introduction

Kontakt.IO Overview

Kontakt.IO is the industry leader in indoor environmental, location, and occupancy services using Bluetooth ® Low Energy (Bluetooth® LE). It delivers human-building interfaces that provide people with delightful, useful, and safe indoor experiences to help make building work for people.

It consists of 2 platforms: Kio Cloud and Kio App Mobile which are described and configured as below sections.

CHAPTER 2.

Kio Cloud Configuration

Kio Cloud is Kontakt.IO's cloud-based platform. It's where you can manage and monitor your Kontakt.IO solutions and IoT devices. This includes device management and monitoring, the mapping of the physical indoor environment, and managing user access.

Set up your account

Sign up account

Open the browser and navigate to the address of the web server where Kio Cloud is hosted. The Login/Registration screen of Kontakt.IO will show as seen below:

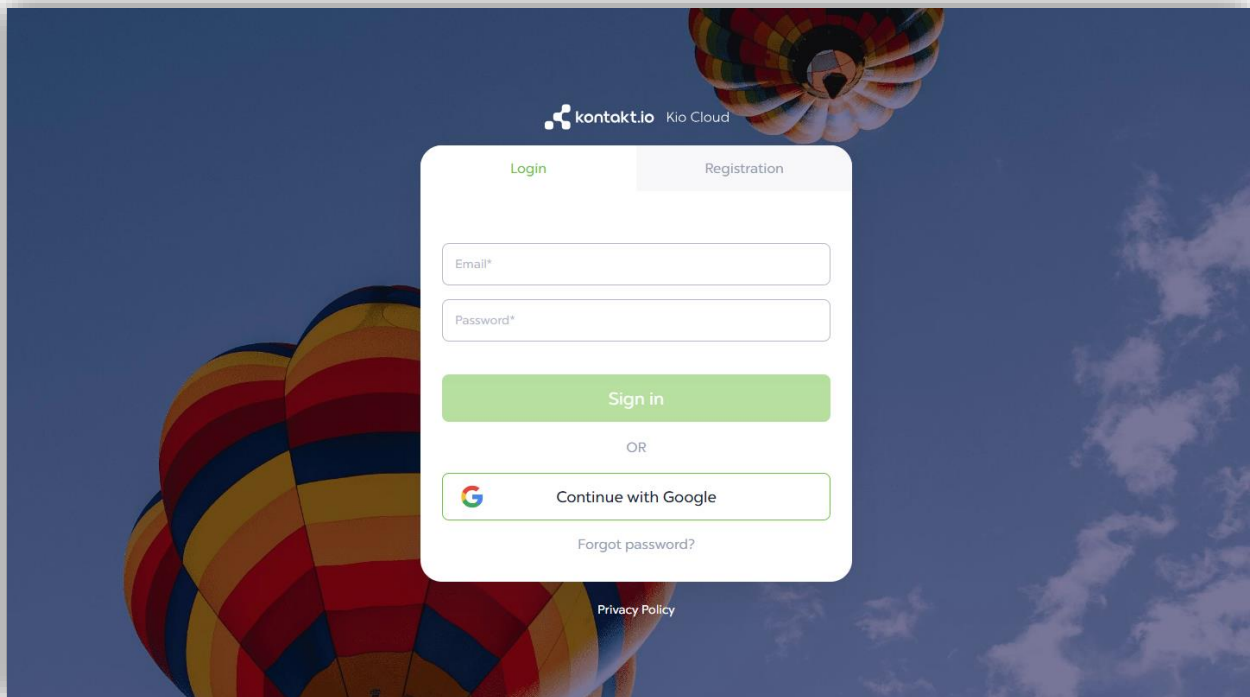**Figure 1.   Login/Registration screen**

In case you have not had an account yet, select [**Registration**] tab to set up a new account.

Fill in the blanks with your information and tick the 'Information Clause' and 'I'm not a robot' boxes. Click [**Create Account**] to register.

IMPORTANT NOTE: Accounts should not be registered using colleagues' emails, as their emails may become invalid if they resign. This would require you to re-configure your Kio Cloud.

A notification will appear informing you that your account has been created, however, not been verified yet. You will then receive an email to verify your new account. If you do not get the email in your inbox within a few minutes, please check your spam/junk folder.
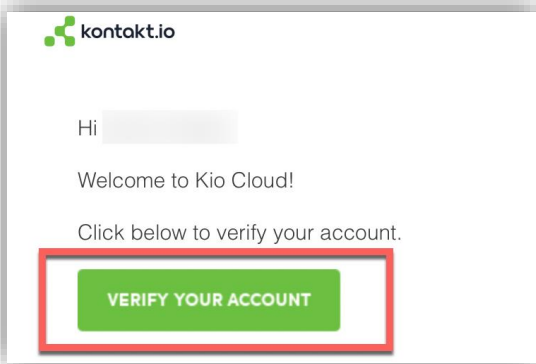
Following the link sent in your email will take you to the Kontakt.IO interface panel. Now you are able to access Kio Cloud with your new account.
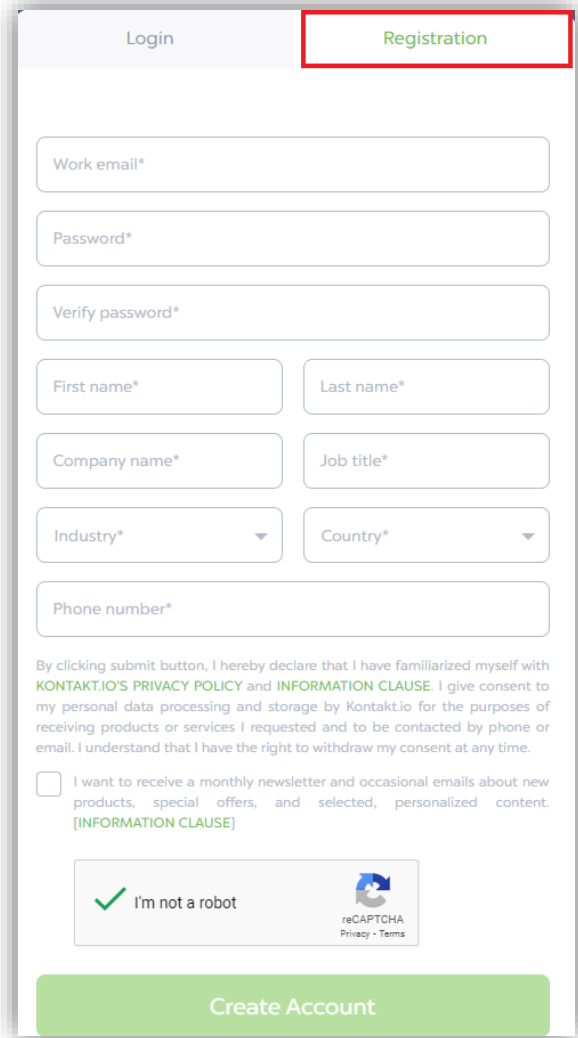

Figure 2.   Account registration

After creating a user successfully, log in to Kio Cloud with this account. The first screen will show up as follows:
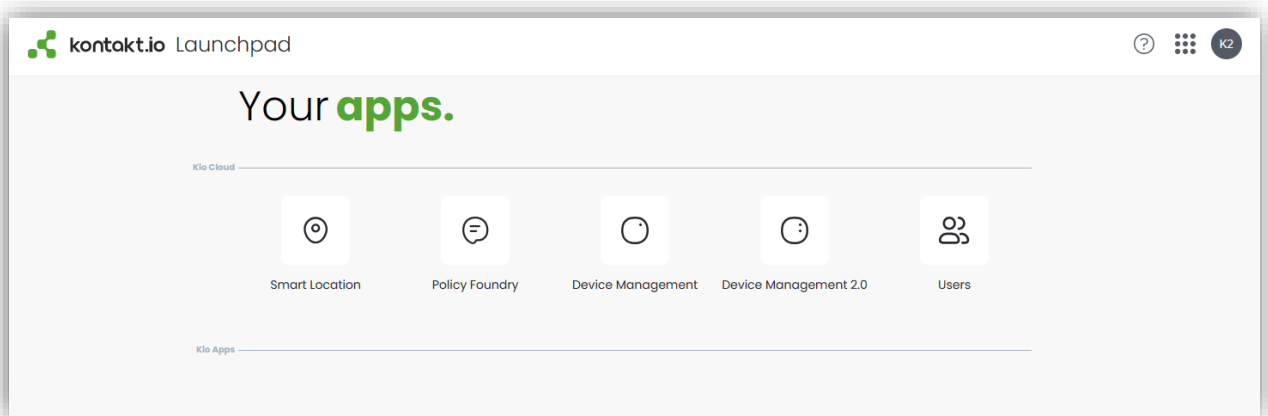

Figure 3.   Launchpad

Add Devices

When you receive an order from Kontakt.IO, you have to add the devices to your Kio Cloud account. This process is commonly referred to as claiming an Order ID. An Order ID can only be claimed once by a single account. Once claimed, the devices are successfully added to your Kio Cloud account.

On the Launchpad interface, select [**Device Management**] to enter Order ID and add devices to your account.
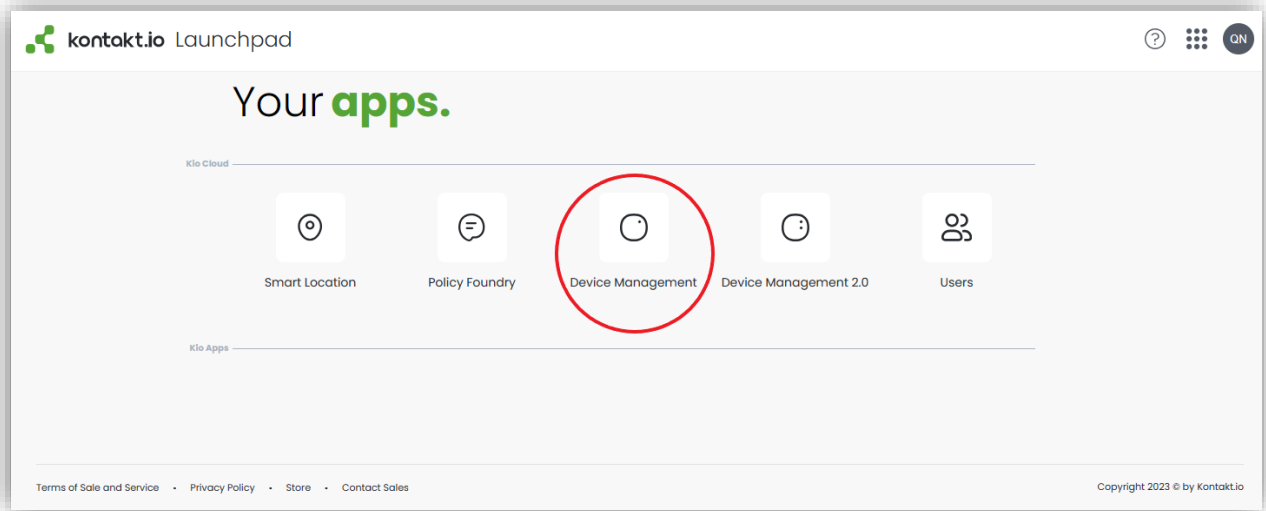
Figure 4.   Device Management

The Kontakt.IO Order ID may be found on the Quick Start Guide included in the order packing as well as in the order confirmation emails. Please do not add devices until the order shipment is received.
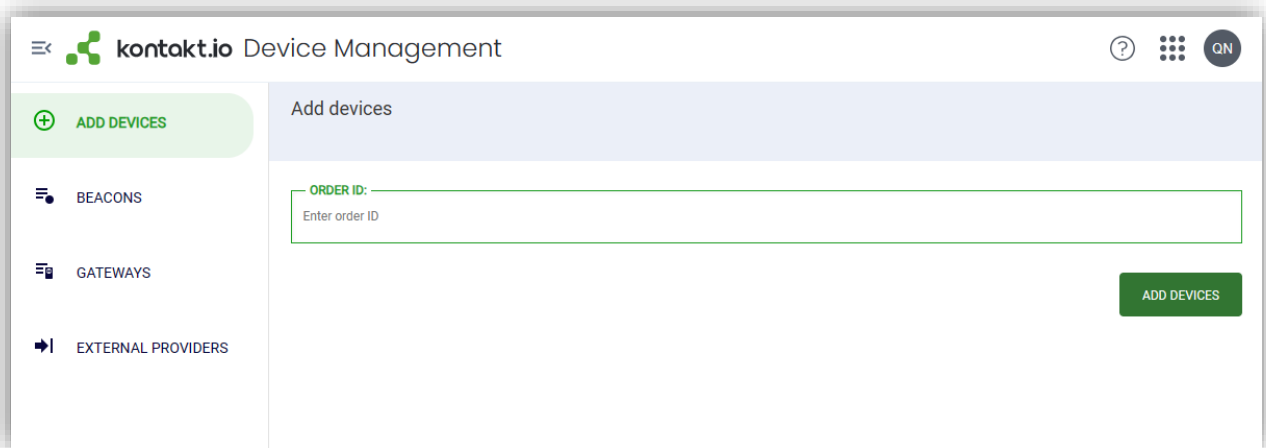
Figure 5.   Claim Order ID

When you select [**ADD DEVICES**], all the devices in your order will be presented and divided into two types:
- **Beacons** (Sensor Portal Beams and Smart Badges)
- **Gateways** (Portal Lights)

Figure 6.   Beacon list

Figure 7.   Gateway list

Set up Smart Location

Kio Cloud Smart Location is the mapping of the physical environment - from each campus, building, floors with digital floor plans, and mapping each room within the floors. This step is very important for location, occupancy, and tracking accuracy.

On the Launchpad interface, select [**Smart Location**] to start the setup:
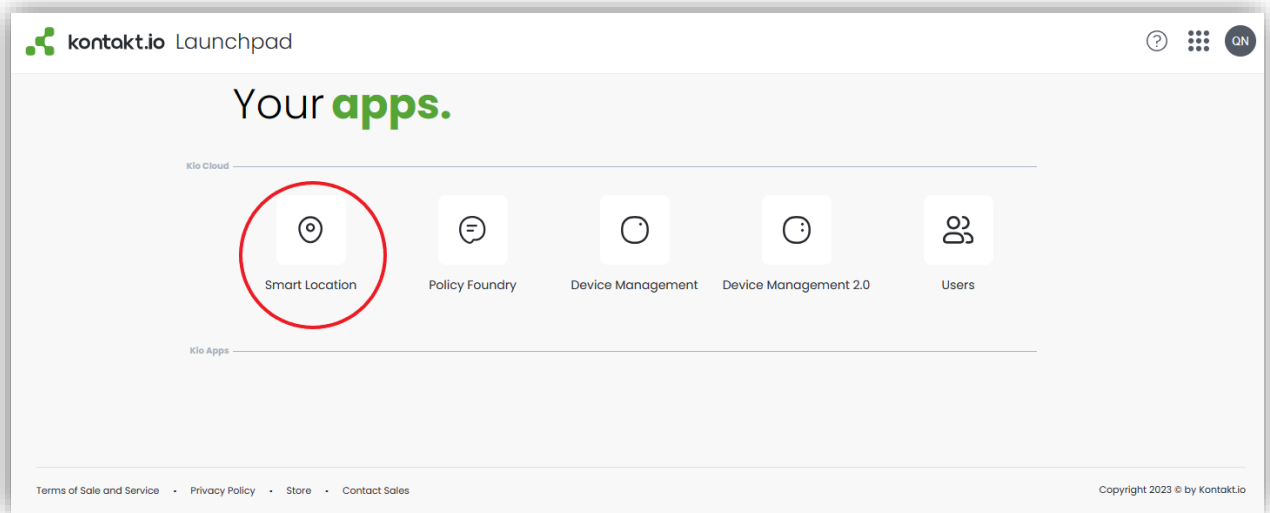
Figure 8.   Smart Location

Step 1: Add campus

A campus is a collection of buildings. Many organizations are different - you may have just one or many campuses. Regardless of your organization's facility structure, this configuration requires a single campus with a minimum of one building.

Selecting [**Smart Location**] will take you to the 'Campuses' section where you can add a new campus by clicking on [**+Add Campus**] button.
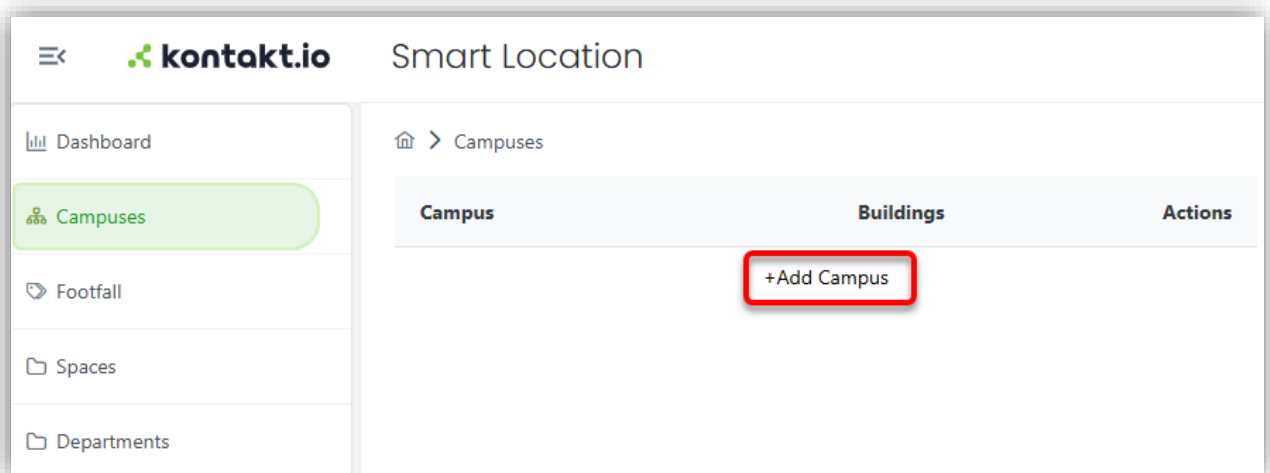
Figure 9.   Add Campus

There are 4 fields able to be filled: Address, Name, Description, and Campus image. However, the 2 latters are not mandatory.

- **Address**: where the campus is located

- **Name**: unique name of the campus
- **Description**: for information purposes only (optional)
- **Campus image** (optional)

Figure 10.   Campus information

Click [**Add**] to create a campus. It will be displayed on the Campus list as the following figure:

Figure 11.   Campus list

You can also add more campuses or take actions (**Edit/Delete**) to the existing campuses by Actions shortcuts.

Step 2: Add building

To add a building, click on the campus on the campus list to which you would like to add a building.
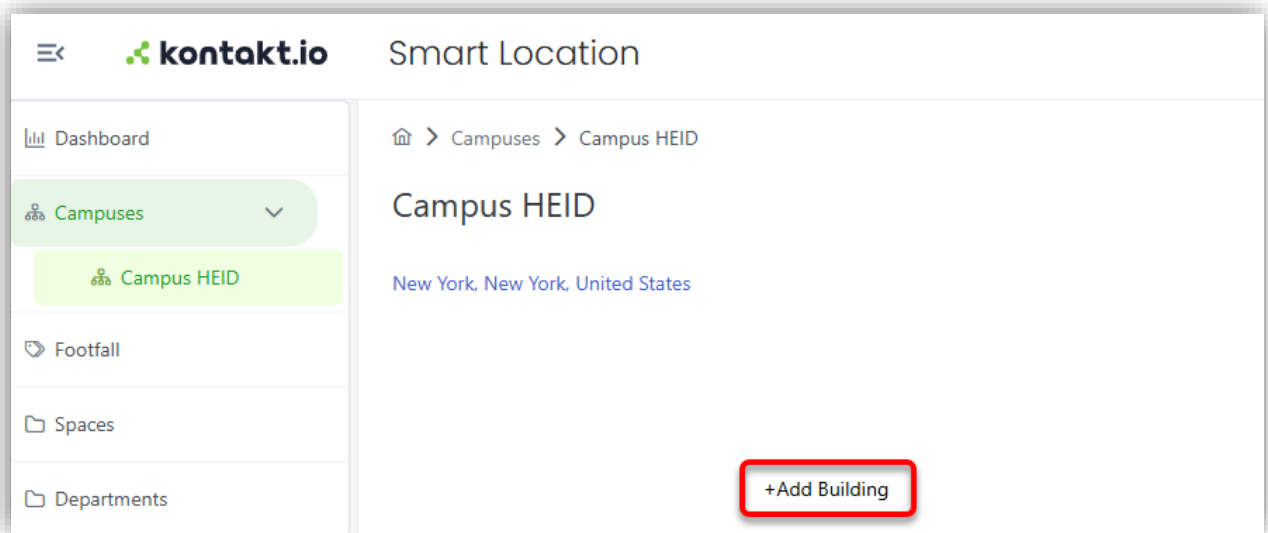
Figure 12.   Add building

Choose [**+Add Building**] to move to the 'Add new building' screen where you can fill in building information: Address, Name, Description, and Building image. Similar to **Step 1**, the latter is optional to fill.

If the Same address as campus box is checked, the Address field will be automatically populated with Campus Address. If the Same address as campus box is not checked, you can select different location for your building.
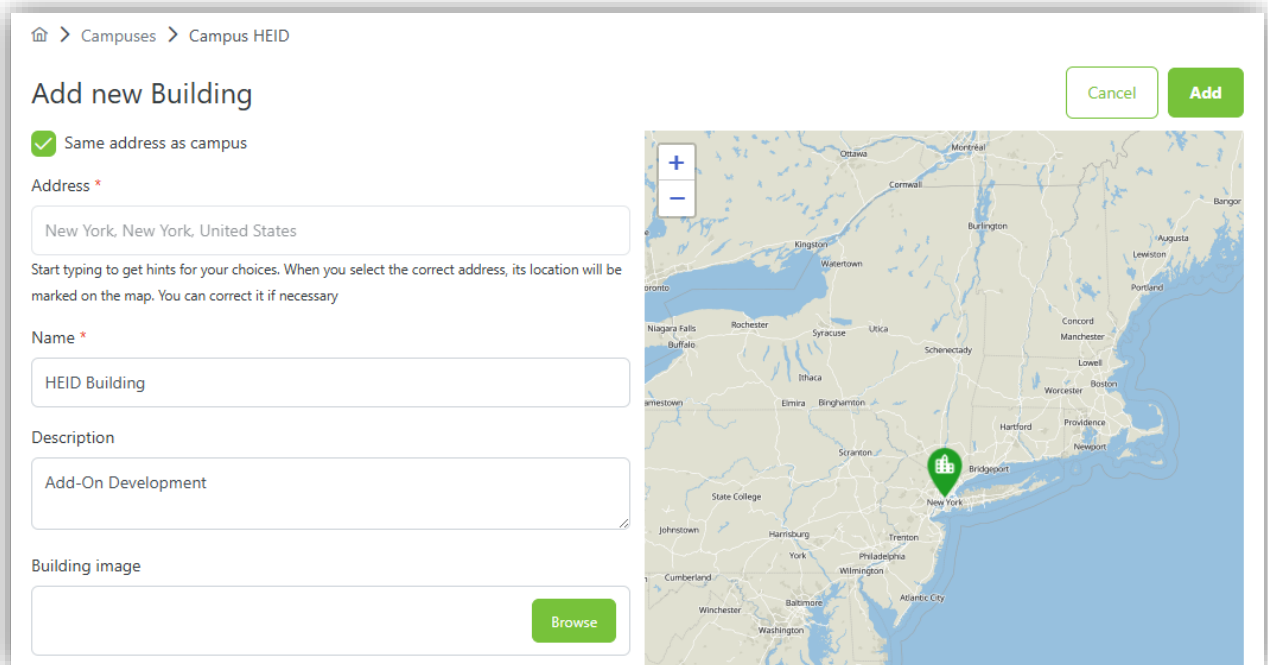
Figure 13.   Add building

After completing the required fields, press [**Add**] on the top left of the screen to finish adding a building to a campus. You can also add more campuses or take actions (**Edit/Delete**) to the existing campuses by Actions shortcuts.
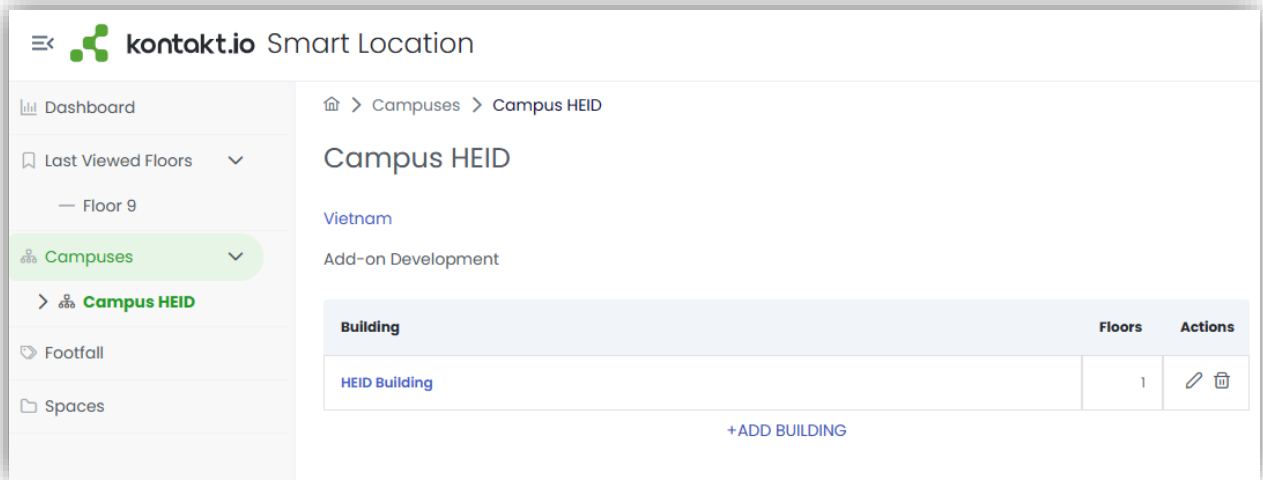
Figure 14.   Building list

Step 3: Add floor

This step is essential because you can draw the floorplan and locate the added devices.
Innitially, click on the building on the building list to which you would like to add a floor.
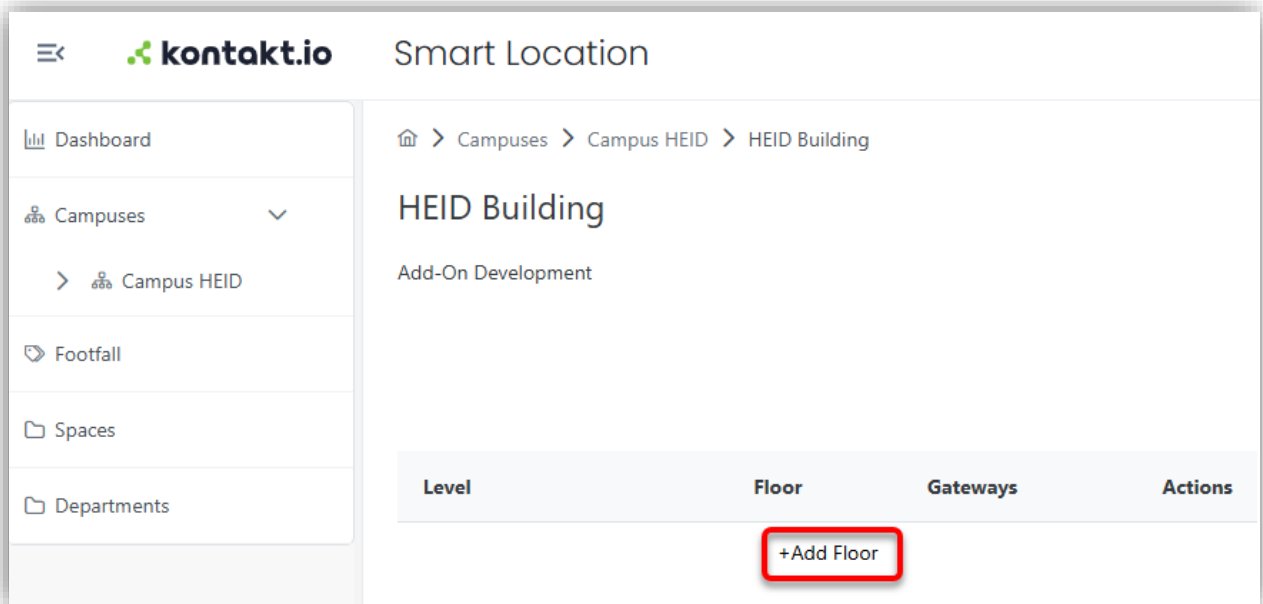
Figure 15.   Add floor

A pop-up window will appear after you select **[+Add Floor]**. In this screen, you must enter the following information:

- **Level**: what building level the floor is located on
- **Name**: unique name of the floor (optional)
- **Floor Plan image**: select [**Browse**] to upload the floor plan file

NOTE: The Kio Cloud only supports digital floor plan image files in JPG, PNG, BMP, and TIFF format. The file size cannot be larger than 800 kB.

Figure 16.   Floor information

Click [**Add Floor**] to finish. The added floor will be listed as below:

Figure 17.   Floor list

Step 4: Scale the floor

Click on the floor created in **Step 3** and the floor plan you uploaded will be displayed as followings:

Figure 18.   Configure Floor plan

Then, select [**Configure Floor**] to move to 'Reference Points' tab to measure the floor:

Figure 19.   Reference Points

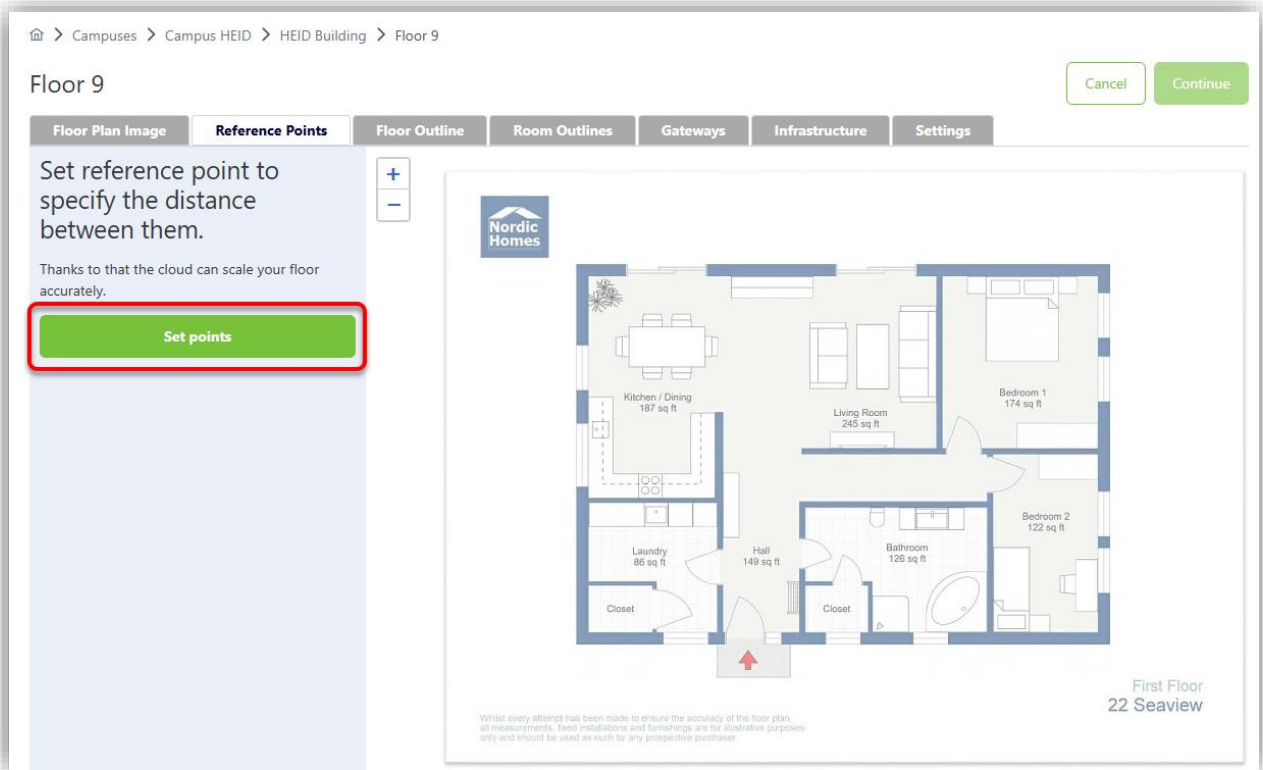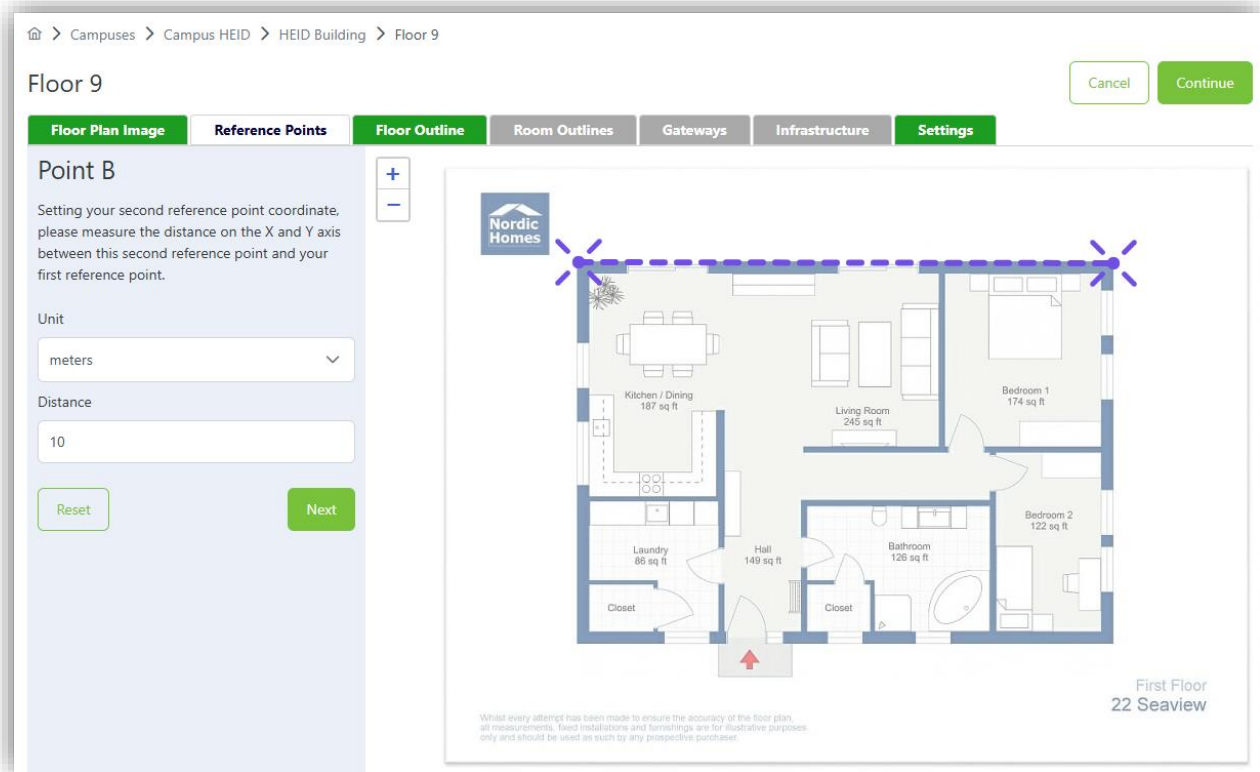The reference value is the length of a line segment in the floor plan from which the floor plan dimensions are all calculated. This ensures that Kio cloud can scale your floor accurately.
To set reference value, you must beforehand select two (2) reference points.

Figure 20.   Set Reference value

1. Select [**Set points**] and move the mouse cursor to place first reference point A on the map.
2. Continue to set point B and you will see a straight reference line connecting two points marked by purple X.
3. Enter the distance between the 2 reference points, that is the reference value.

NOTE: The longer the distance between the two reference points will result in a more accurate scale of the floor. It's recommended to set the two reference points using the entire floor length. Optionally, you can choose two reference points that are located on opposite walls. This distance between the two reference points can be provided in feet or meters.

Step 5: Draw floor outline

After creating reference value, click [**Next**] → [**Draw floor outline**] to determine the area of the floor.
Select either drawing tool rectangle ⬚ or polygon ◿, hold down your mouse pointer over the start point and release. Then drag the points around the floorplan to outline it. A blue line appears around the floor border. You can zoom the image in to draw the outline as accurately as possible.
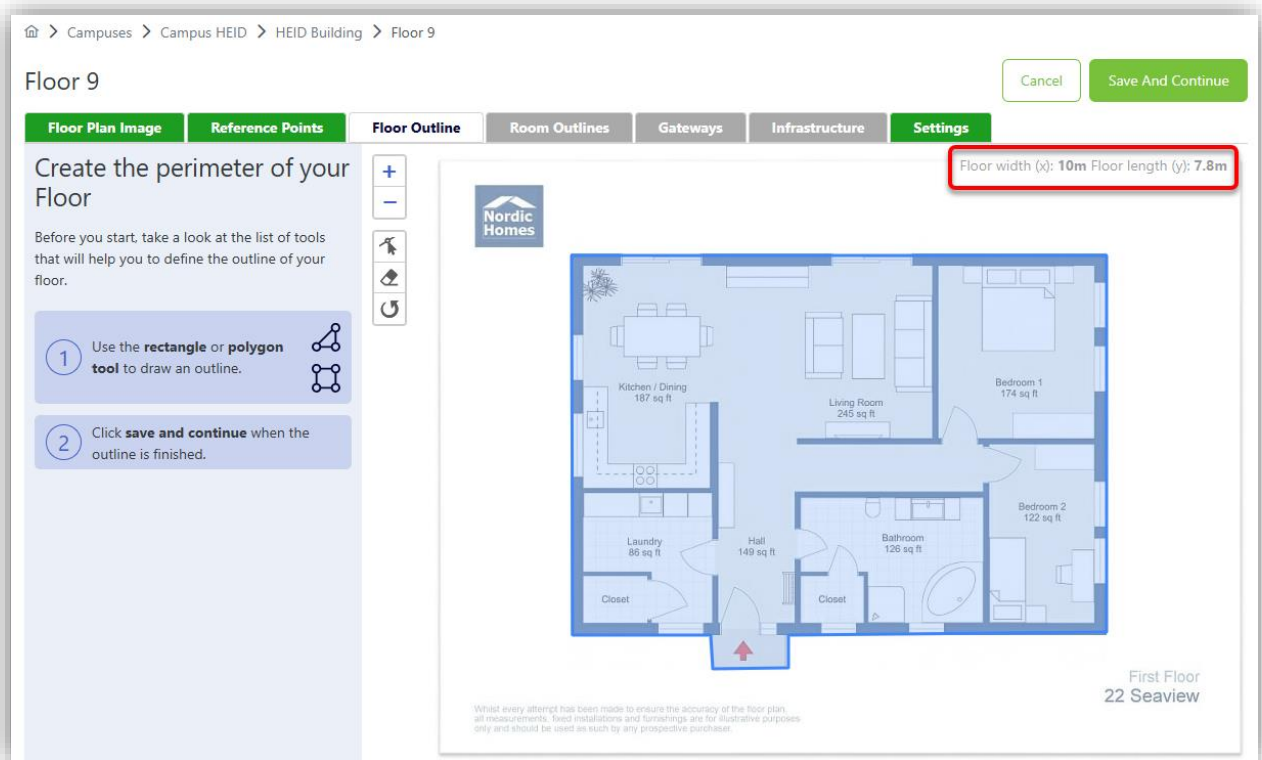
Figure 21.   Draw floor outline

You can modify the outline that you just drew by using the following tools:

Tool	Description
	Edit Layers
	Erase Layers
	Rotate Layers

When the area of the floor is determined by outlining, you can see that the calculated floor width and length measurements are displayed on top left of the map. This is calculated by the reference value measurement provided and the floor outline.

Click [**Save and continue**] to draw the floor's rooms. A message will appear to warn you that once you finish and save this step, you cannot modify the reference points/reference value as well as redraw the floor outline. Choose [**Yes, save**] to confirm.
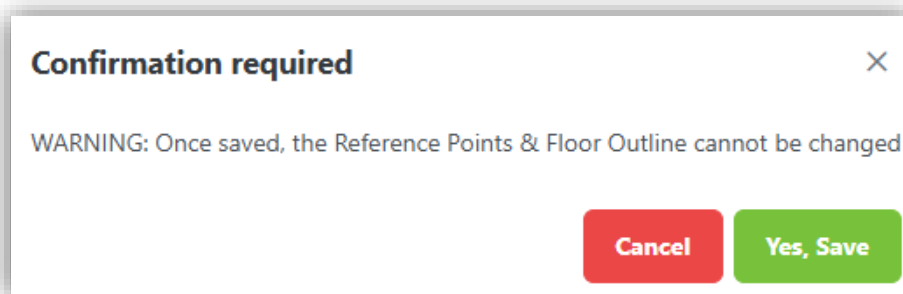

Figure 22.   Confirmation

Step 6: Add room

From the Room Outlines, select the type of room being added.

| Room type	Description
Room	An actual room with four interior walls (office, patient room, conference room).
Virtual Room	Open space or area with no walls. A workspace with sofas or other collaboration-type space or a workstation area with multiple desks being measured by Portal Beam.
Corridor	Area that is a corridor within the floor; may also be referred to as a hallway or walkway.

For this document, you will be guided to add a **normal room**.
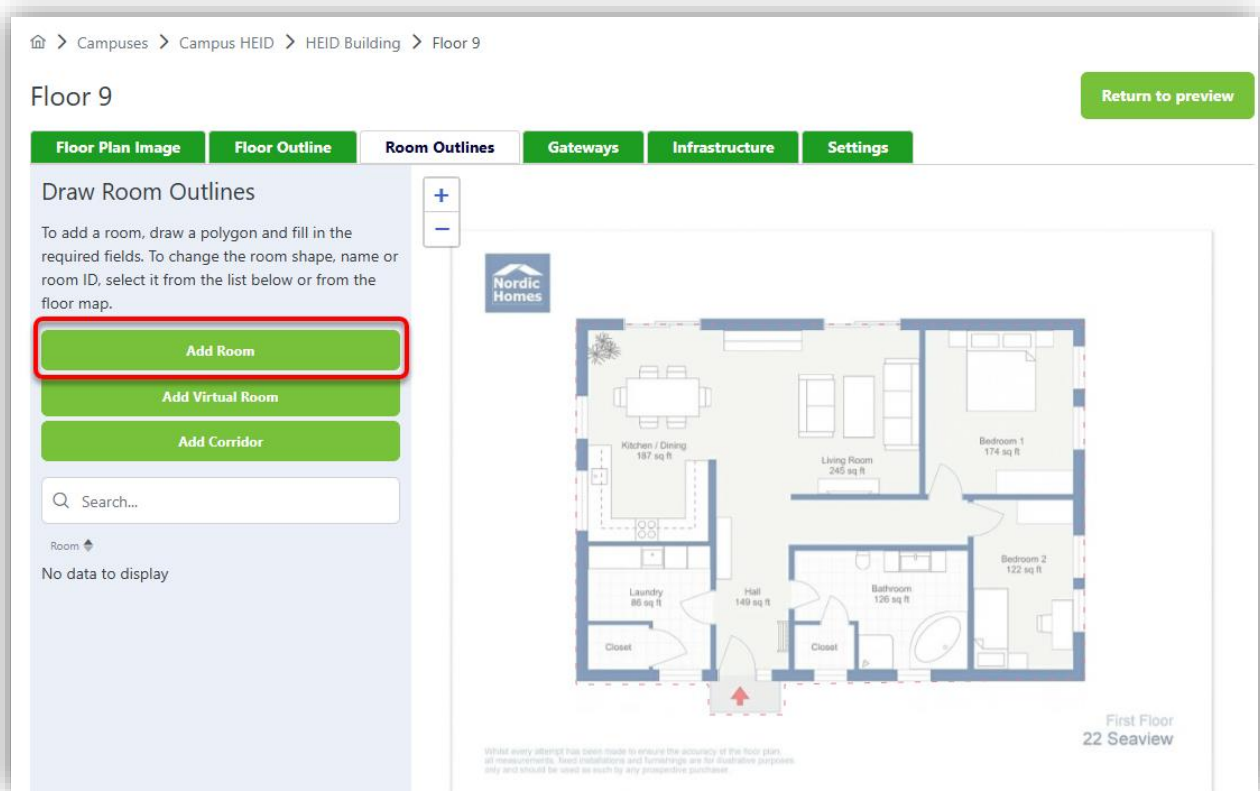
Figure 23.   Add room

Click on [**Add room**] button and select a drawing tool ⬚ or ⟆ from the floor plan, place your mouse at the left upper side of the room location and left click to begin drawing the room similarly to drawing floor outline. The drawing room will be covered with green color.

When drawing a room outline, do not encroach on the area of the existing room(s).

Room cannot overlap another room
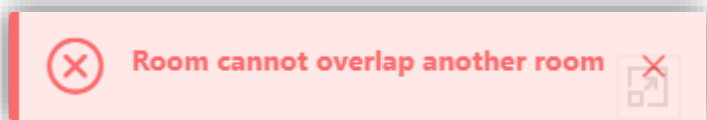
In the Define Room section, enter the following fields:
- **Name**: uniquely identifies the room.
- **Room Number**: numerical value unique to the room; duplicates are not allowed.
- **Add seats (optional)**: Draw seats in the room, maximum 6 seats per room.

If the value of 'Add seats' field is 0, there is no seat displayed in the room:
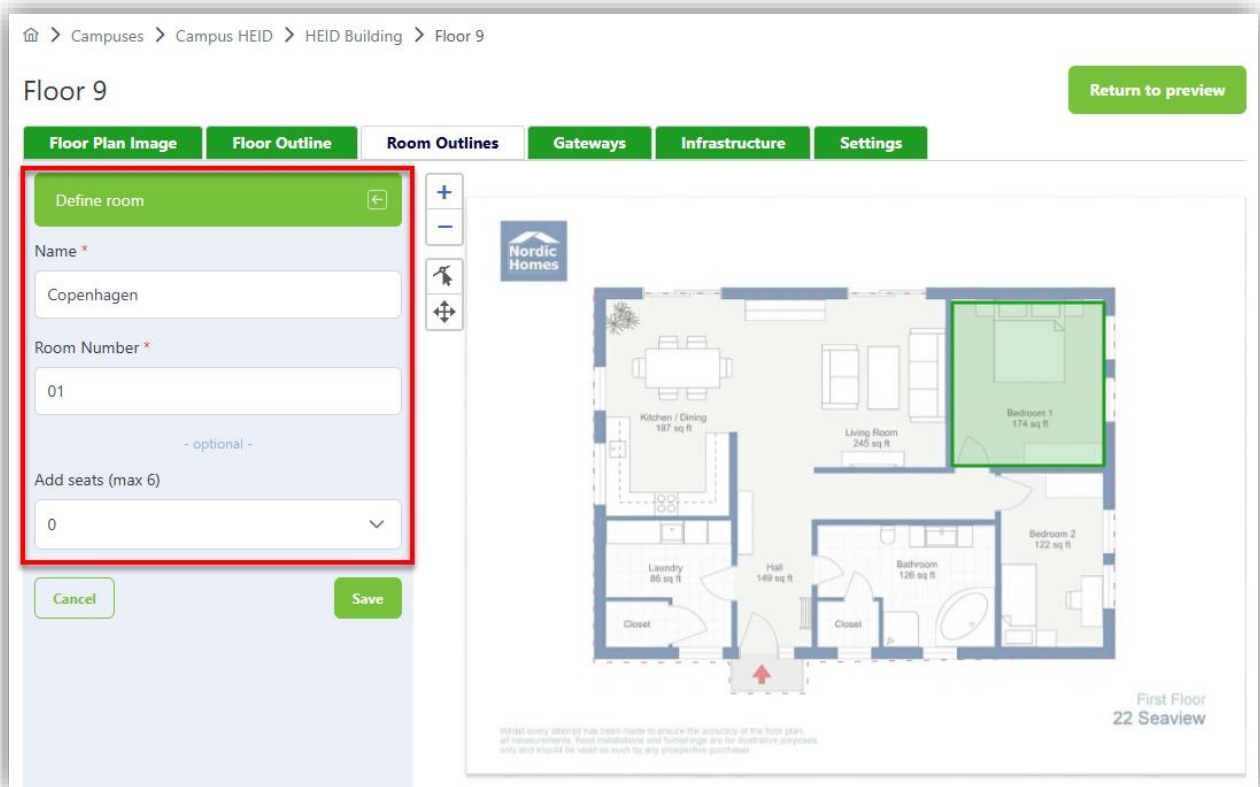
Figure 24.   Add room with no seat

Select the number of seats (from 1 to 6), the seat(s) will be drawn in the room area. You can freely name the spots to assign them to specific people and rearrange the position of the seats.
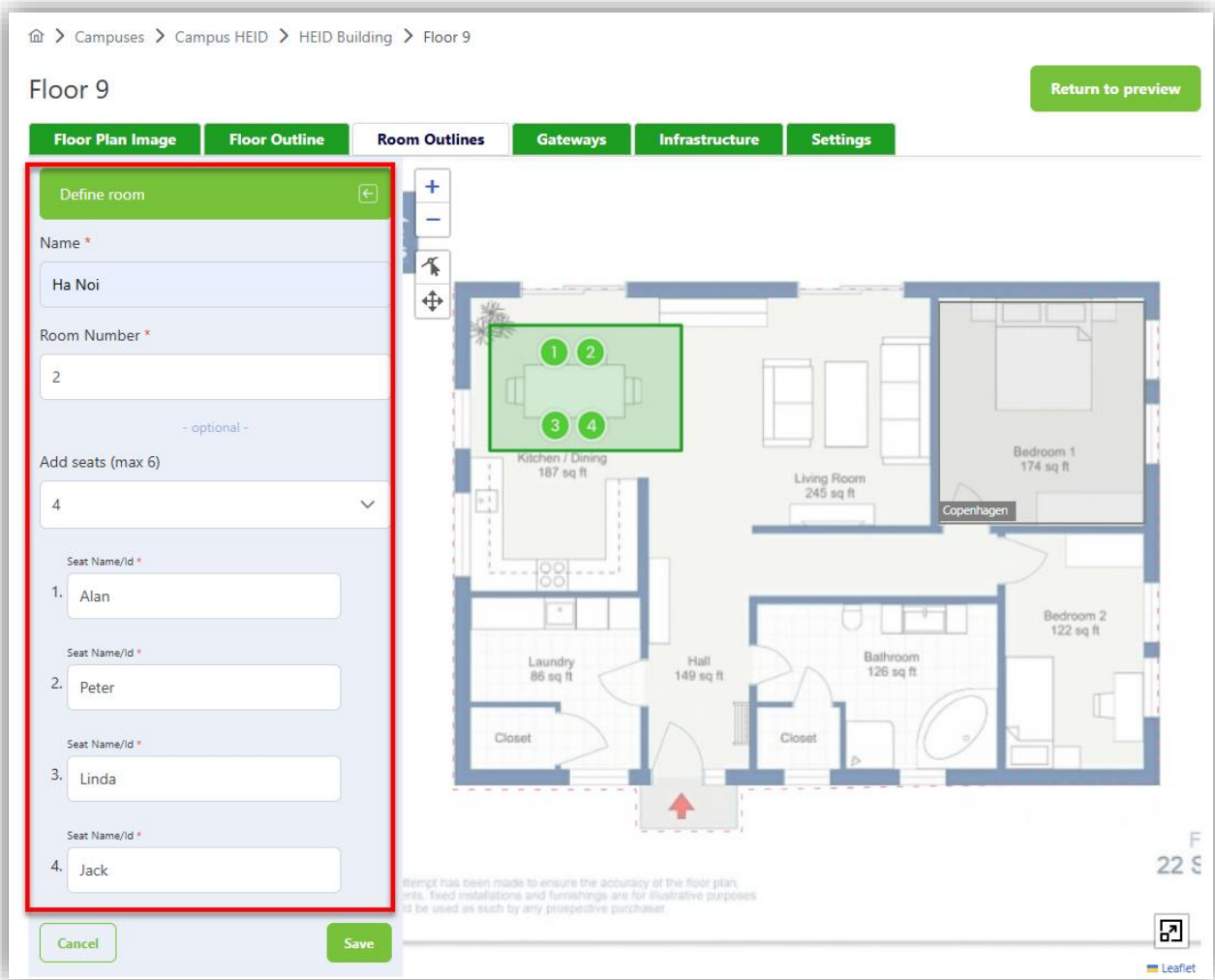
Figure 25.   Add room with seat(s)

Select [**Save**] to finish adding room. The room list that you created will be displayed under 'Room' section. You can modify the information of the room by clicking directly on it in the room list and delete a room by using the 🗑 Delete icon.
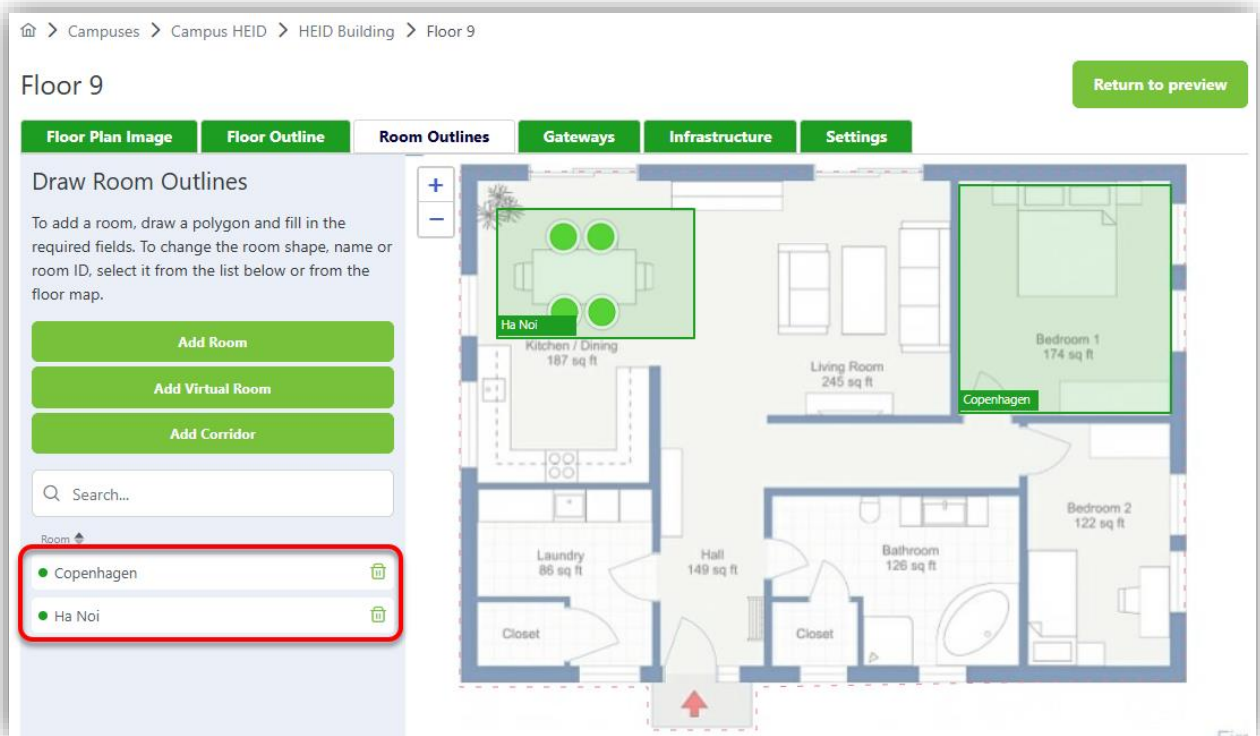
Figure 26.   Room list

When all rooms are added, you can begin to assign your Kontakt.IO devices to the rooms.

Step 7: Assign devices to the room(s)

After adding rooms, you need to assign Gateways and Portal Beams to them on the floor map.

Assign Gateways

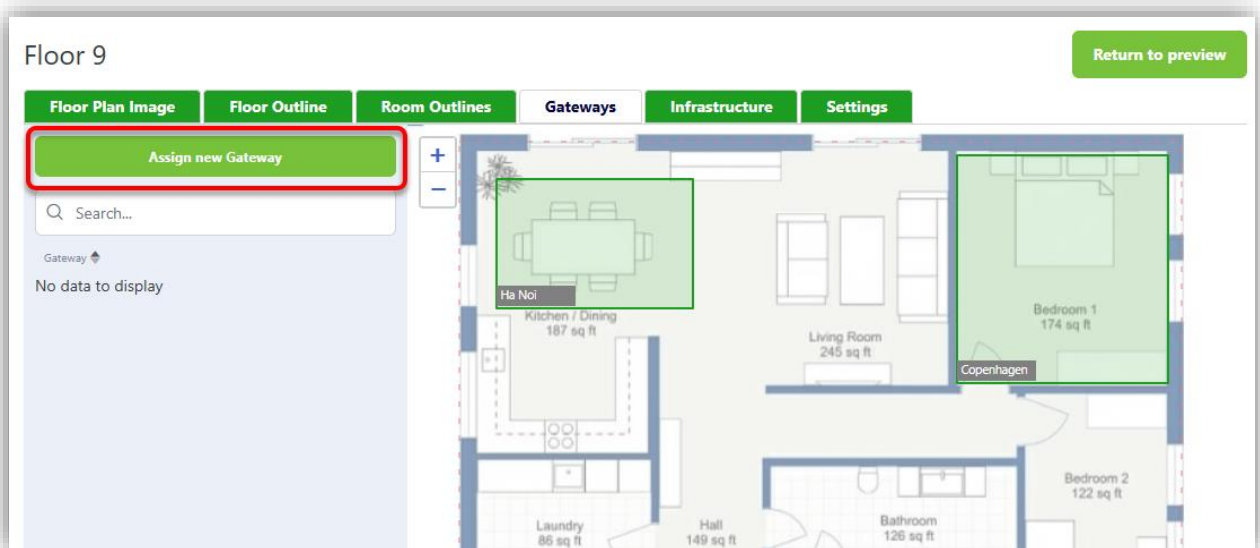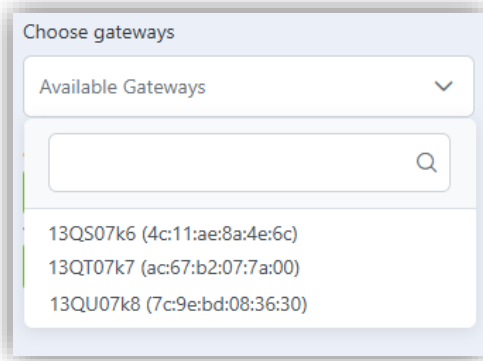To add a Gateway, switch to 'Gateways' tab, and select [**Assign new Gateway**].

Figure 27.   Gateways tab

Figure 28.   Choose Gateway

Open the drop-down list of Gateways that you added in Add Devices section and select one.

Right after you select a Gateway, a Gateway icon will be displayed on the floor plan. Additionally, the name, Unique ID, MAC, and QR code of that Gateway will also be displayed on the left panel.

Figure 29.   Place Gateway

Hold and drag the Gateway icon to anywhere you wish to put it. Press [**Add**] to finish.

Follow the same procedure to add more Gateways to the floor plan as you wish. The Gateway list will be shown under the Search bar. You can delete 🗑 or edit ✎ the Gateways by clicking on the corresponding shortcuts.

Hover the mouse pointer on the Gateway icon to see its details.

Figure 30.   Gateway list

NOTE: It is recommended that each room should have a Gateway device and the device be placed close to the room for better connection with other devices.

Assign Portal Beams

To assign a Portal Beam device to the map, go to **Infrastructure** tab, and select [**Assign device to room**]. Select one room to which you would like to add a Portal Beam device.
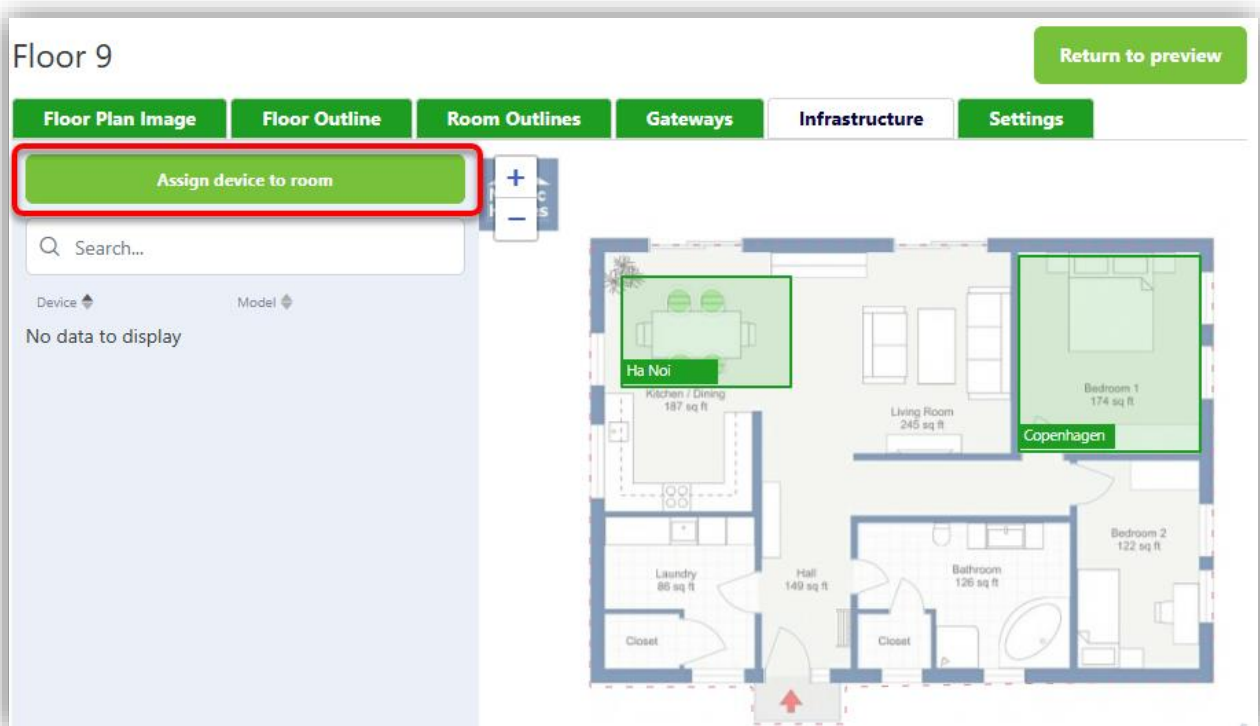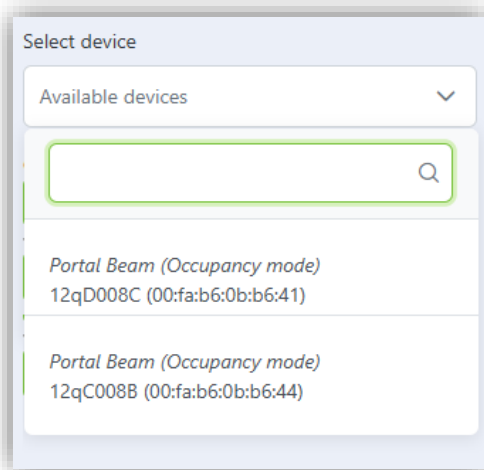

Figure 31.   Infrustructure tab

On the **Select device** section, open the drop-down list of Available Sensors and select the device that you want to add.

Figure 32.   Choose Portal Beam

Then, a Portal Beam icon will appear in the center of the chosen room and its Unique ID, MAC, assigned room, assigned date, and QR code will be shown on the left panel as below:

Figure 33.   Portal Beam infomation

Click [**Add**] to finish. Follow the same procedure to add other Portal Beams to the remaining rooms as you wish. The Portal Beams list added will be shown on the left panel. You can also take actions to the Portal Beams (**Delete** 🗑 or **Edit** ✏) similar to Gateways. Hover on the device icon to see more information about it.
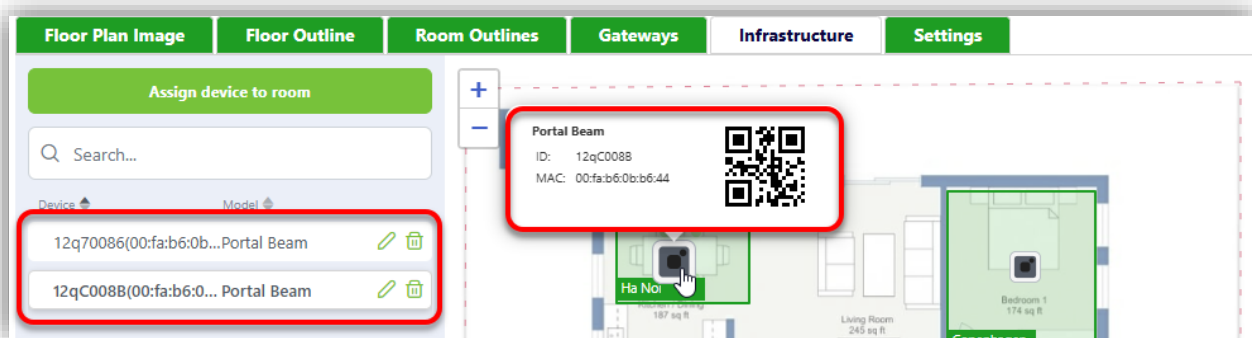

Figure 34.   Portal Beam list

When you complete to assign Gateways and Portal Beams, select [**Return to preview**] to finish configuration for Kio Cloud.
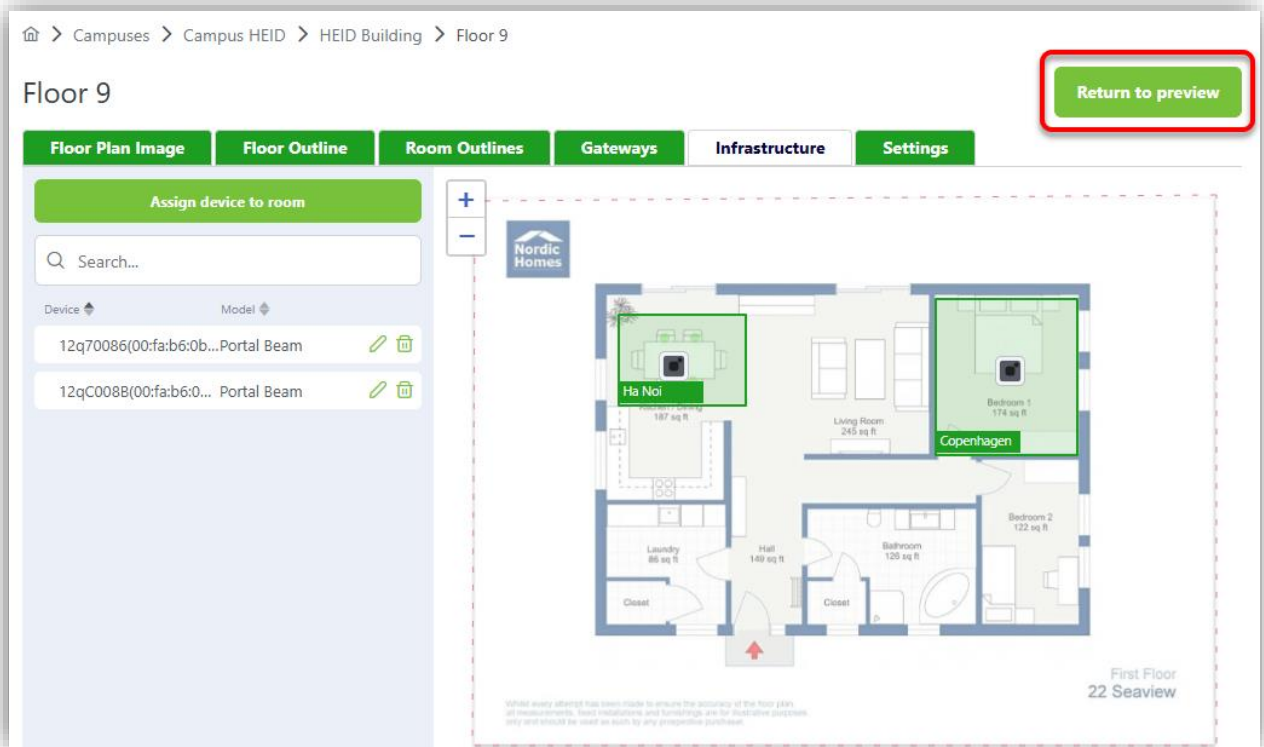

Figure 35. **Return to preview**

The preview screen will show all the devices you have added to the rooms on the floor plan. If you would like to take action to the rooms or the devices, please select [**Configure floor**] again to set up your map.

Figure 36. **Preview screen**

CHAPTER 3.
Kio Mobile App Configuration

The Kio Setup Manager is for onsite installation, configuration, and monitoring of Kontakt.IO IoT devices; including beacons, tags, and gateways. The app is integrated with the Kontakt.IO Kio Cloud platform to provide a mobile-optimized connection to your Kio Cloud account devices.

When you sign into the app using your Kio Cloud credentials, the app displays your devices and searches for Kontakt.IO devices in Bluetooth range of your mobile device.

Prerequisites

Be sure you have what is needed before you begin installing Kontakt.IO devices:
- Your Kio Cloud user account sign-in credentials.
- Site install plan that identifies the device install locations.
- Portal Light local Wi-Fi network settings. The Wi-Fi network they will connect to at their installation locations.
- Smartphone or tablet with internet and Bluetooth enabled/on.
- Computer with Internet.

Download the Kio Setup Manager app

To download this app, follow below actions:

1. From a Home screen, tap **App Store** (iOS/iPadOS/macOS) or **Google Play** (Android).

2. Type 'Kio Setup Manager' on the Search bar and press [**Search**].

3. Tap the app and choose [**INSTALL**].

NOTE: App requirements:
- Apple iPhone, iPod Touch, or iPad: iOS version 15.0 or later.
- Mac: macOS 12.0 or later and Apple M1 chip or later.
- Android phone or tablet: version 8.0 or later.
- Bluetooth and Internet connection are enabled (on).

During installation, the app may show extra actions depending on your operating system. If you already have the app, be sure you have the latest version.
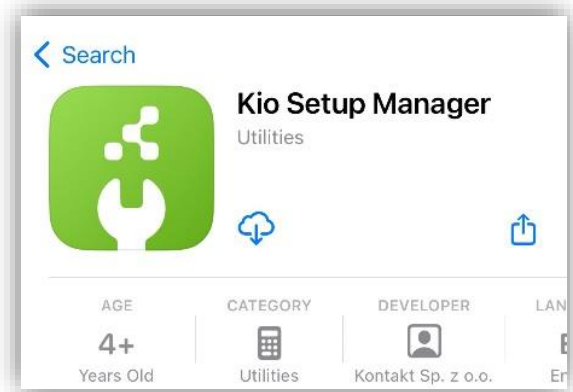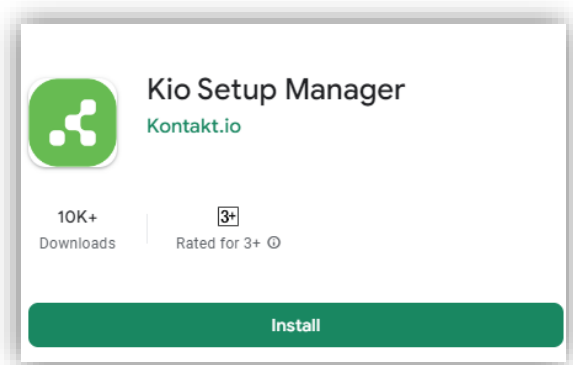

Figure 37.   Download app on App Store

Figure 38.   Download app in Google Play
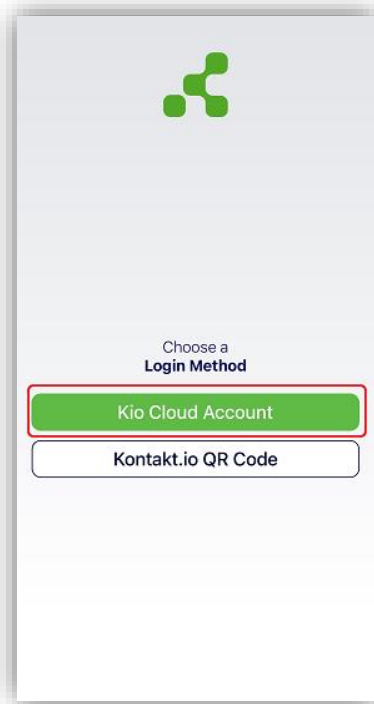
Login to Kio Setup Manager app
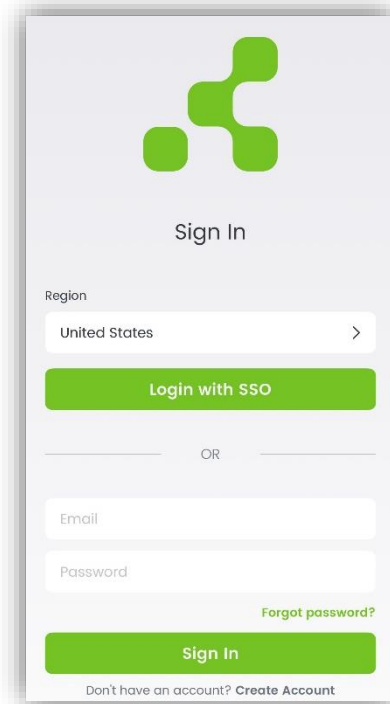

Figure 39.   Login Method

Figure 40.   Sign in

Open the Kio Setup Manager app that you have just installed to your phone and choose Kio Cloud Account as the Login method. On the Sign In screen, use your Kio Cloud user account sign-in credentials to enter Email and Password. Click [**Sign In**] to login to this app.

After signing in Kio App Mobile, the Devices section is displayed by default:
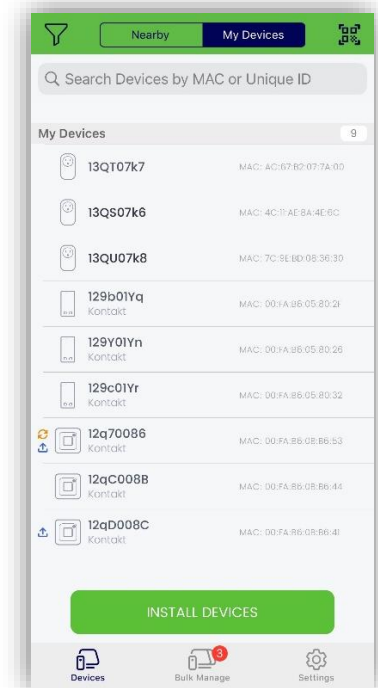

Figure 41.   Nearby devices

Figure 42.   My devices

Please refer to the table below for better understanding this app:

| Section		Description
Devices	*My Nearby Devices*	Devices within Bluetooth range of your mobile device.
	Other Nearby Devices	Devices within Bluetooth range that you to do not have access to or are not associated to the Kio Cloud account.
	My Devices	Devices that are installed in this app.
Bulk Manage		This tool lets you manage multiple devices at once with a single operation.
Settings		Show app information, settings, and user's account.
▽		This filter helps find a device by its name, model, and update status.
▦		This QR Scanner helps you find and add the device instead of entering Unique ID or MAC.
🔄		Indicates the device has a pending Kio Cloud configuration update.
⤒		Indicates a firmware update is available.

Install Gateway

Step 1: Configure Portal Light's Wi-Fi network settings

To set up Portal Light's Wi-Fi network, you can configure it on either Smartphone or Computer.

On Smartphone

1. On your smartphone, open **Settings** and go to **Connections** section.
2. Scroll down and tap on 'Mobile Hotspot and Tethering'.
3. Enable Mobile Hotspot.
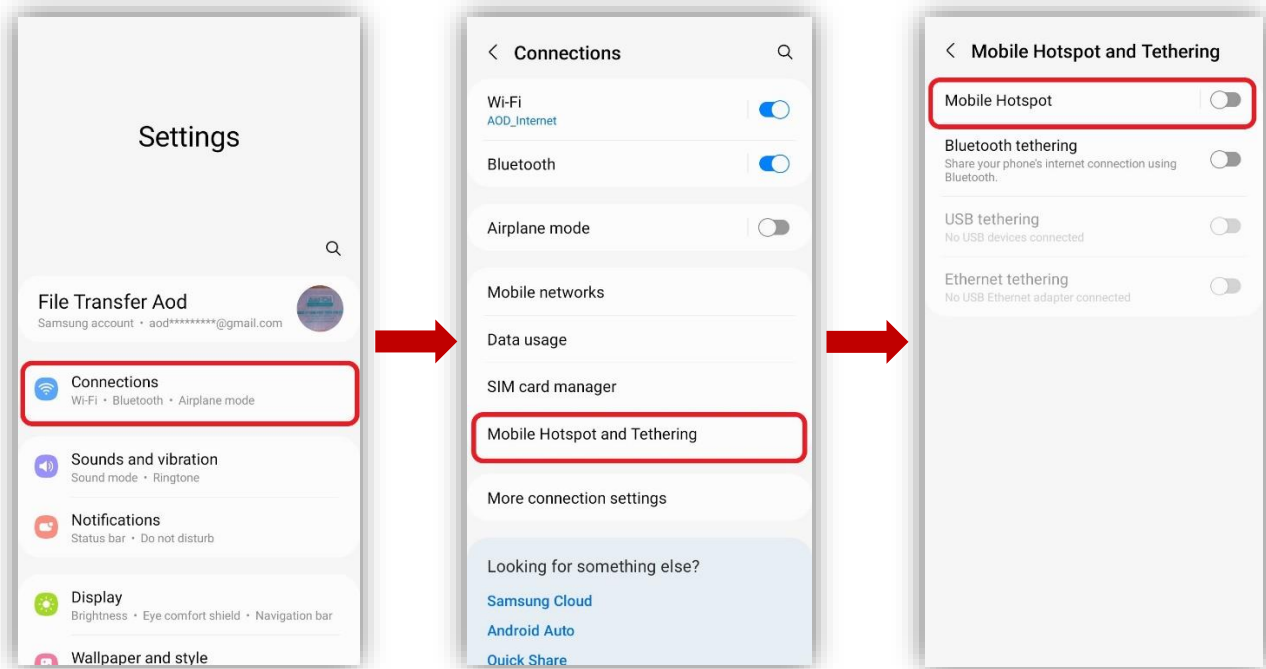
4. Select [**Configure**] to set up Hotspot.
5. Enter the Network name, Password for Mobile Hotspot, and set Band to 2.4 GHz Tap [**Save**] to finish setting.
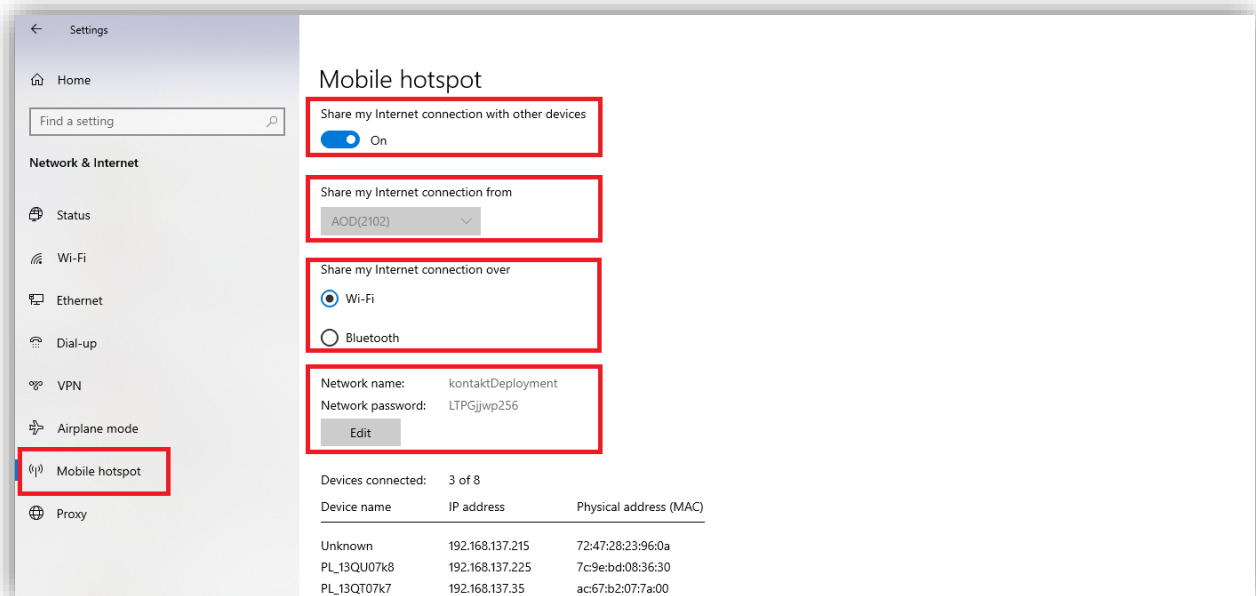
6. Swipe down from the upper of the screen and enable Mobile Hotspot.

NOTE: To use Mobile Hotspot, mobile data must always be turned on.
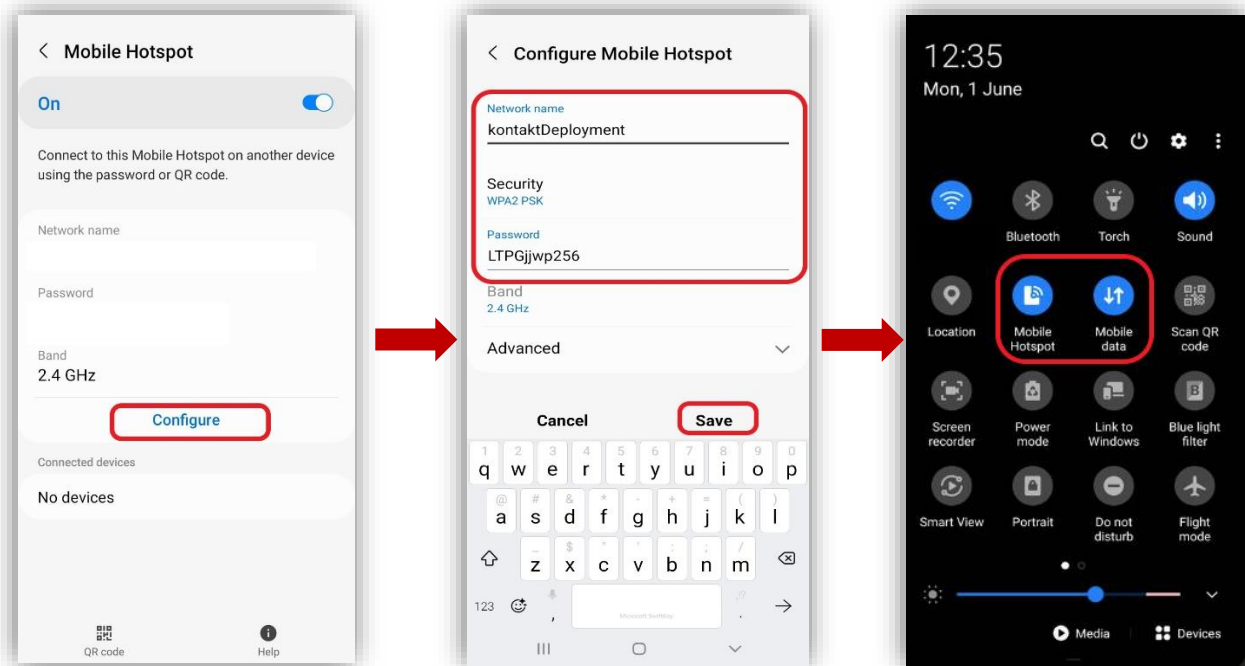
On Computer

1. Select Start ⊞ , then go to Settings ⚙. On the Window Settings panel, pick Network & Internet ➜ Mobile hotspot.
2. Turn on Share my Internet connection with other devices.

3. For 'Share my Internet connection from', choose the Internet connection you want to share.
4. In 'Share my Internet connection over' section, choose Wi-Fi.
5. Select [**Edit**] and enter new network name and password. Press [**Save**] to finish.

After creating a new hotspot, you are now able to turn on the mobile hotspot on your computer.

Click on the Network icon on the right of the taskbar and enable Mobile hotspot 📶 feature.
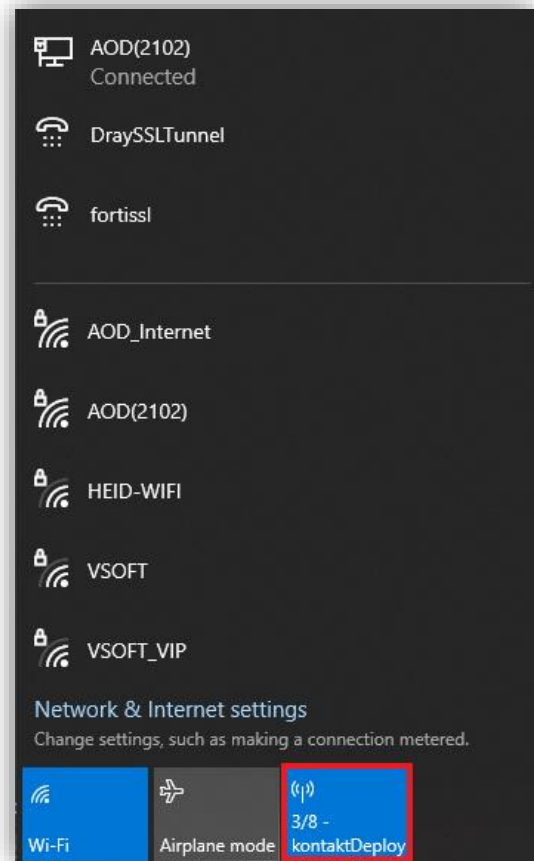
Step 2: Select device

On the Kio Setup Manager first interface, tap on [**INSTALL DEVICES**] and select 'Portal Light' as the device to install. For Portal Light model, tap [**Portal Light**]. Then, select [**End-to-end installation**] as the installation type:
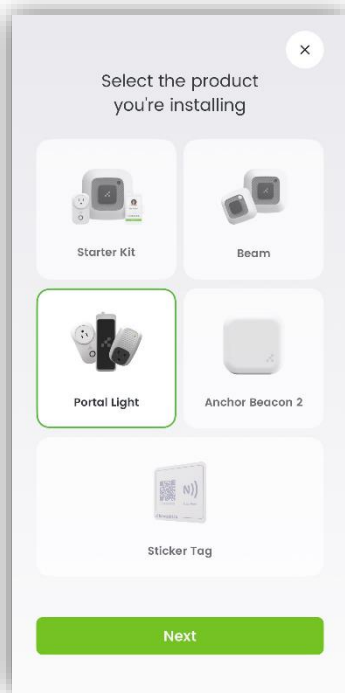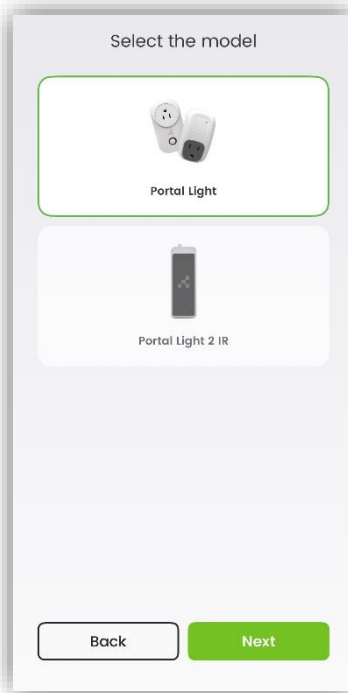
Figure 43.   Select devices

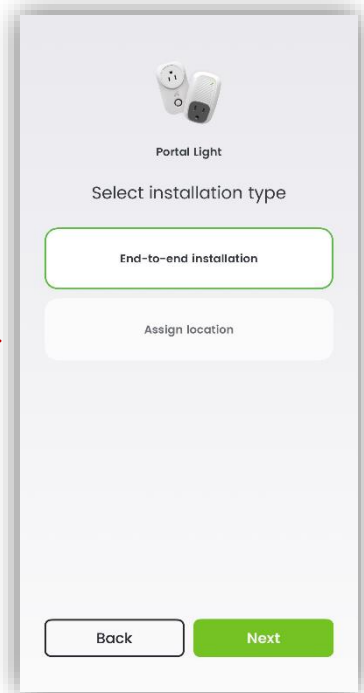**Figure 44.   Select model**

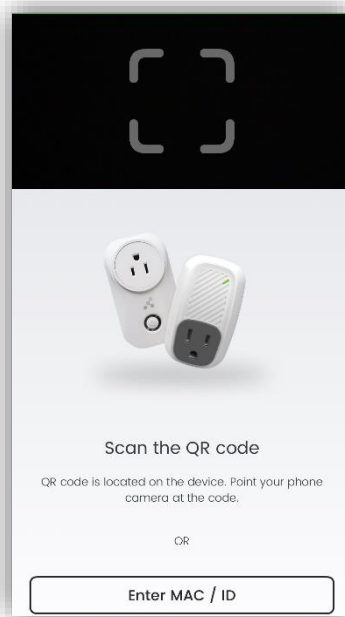**Figure 45.   Select Installation type**

Figure 46.   Scan the QR code

The Scan the QR code page will then display, allowing you to input a Portal Light. Move the camera to the QR code on the Gateway physical device or to the QR code of the allocated Gateway on Kio Cloud. You can also add a Portal Light by entering is 12-character MAC address or Unique ID, which are both printed on the device.

Then, you will receive a request to plug in your Portal Light to the electric outlet and power on the device. The LED light is SOLID RED. Tap [**Next**] to switch to Step 3.

Step 3: Connect Portal Light to Wi-Fi

On the bottom of the 'Connect Portal Light' screen, enter the Network Name and Password of the Mobile Hotspot that you configured in Step 1 and press [**Next**]. The system then will verify Wi-Fi connection to make sure Portal Light is receiving and sending data to Kio Cloud.
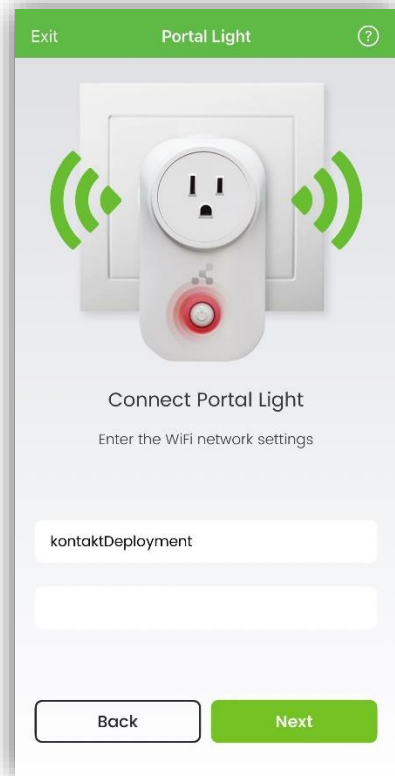

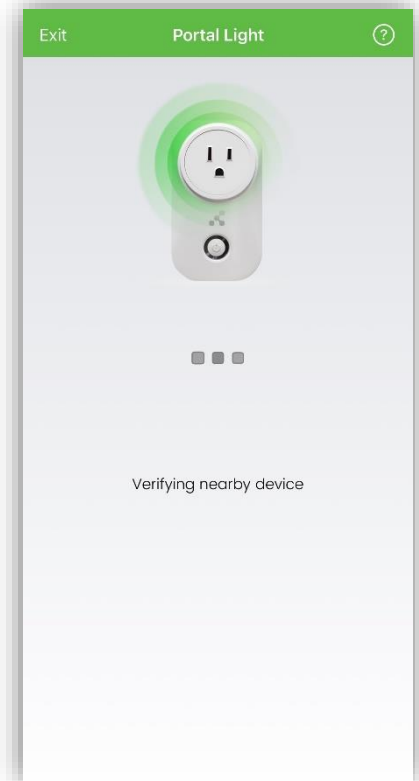
Figure 47.   Connect Portal Light to Wi-Fi

Figure 48.   Verify Wi-Fi connection

When the validation is successful, the LED will turn to **SOLID GREEN**.

NOTE: If its connection was not successful (**RED** LED), remove power from the Portal Light and retry to verify its Wi-Fi network settings (the settings are case sensitive).

Step 4: Select the device location

After connecting Portal Light to Wi-Fi successfully, the app will automatically switch to the 'Select the device location' where you assigned this device on Kio Cloud.
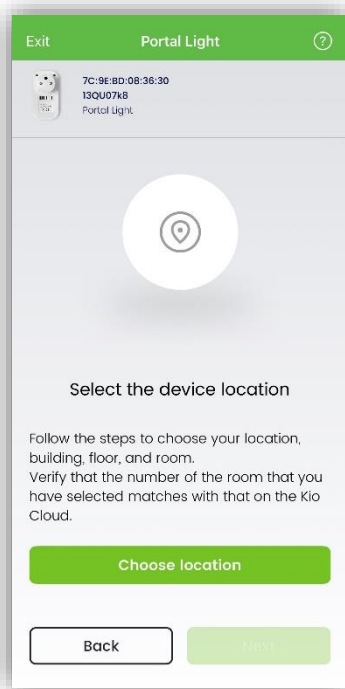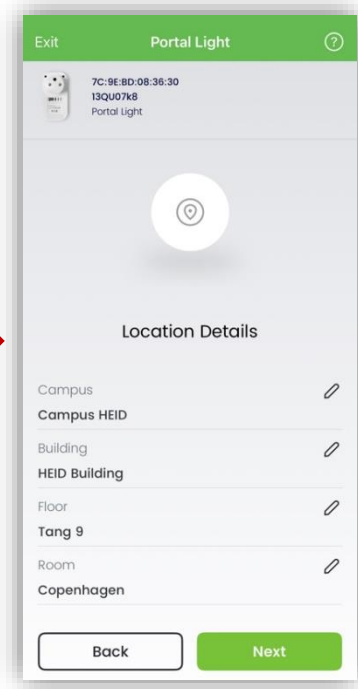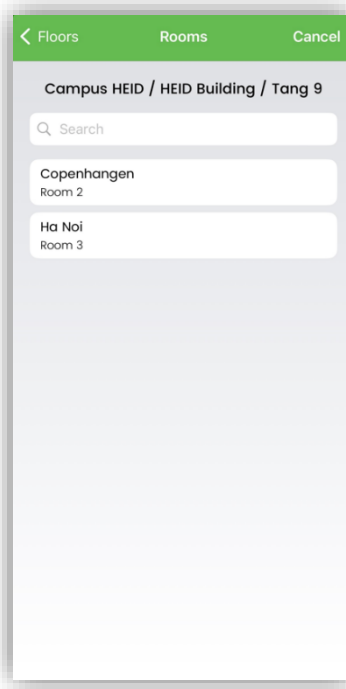
Figure 49.   Select device location

Figure 50.   Location Details

Next, tap on the Portal Light icon and drag it to the location that you select previously. Click [**Next**] and the Portal Light will be installed.

If the Portal Light is not installed successfully, please click [**Exit**] and do it again from Step 1.

Figure 51.   Confirm device location

Figure 52.   Configure successfully

Follow the same procedure to install other Gateways/Portal Lights.

Install Portal Beam for a room with no specific seat

Step 1: Select device

On the Kio Setup Manager first interface, tap on [**INSTALL DEVICES**] and select Portal Beam as the device to install. For the room with no specific seat, tap [**Room Occupancy**]:
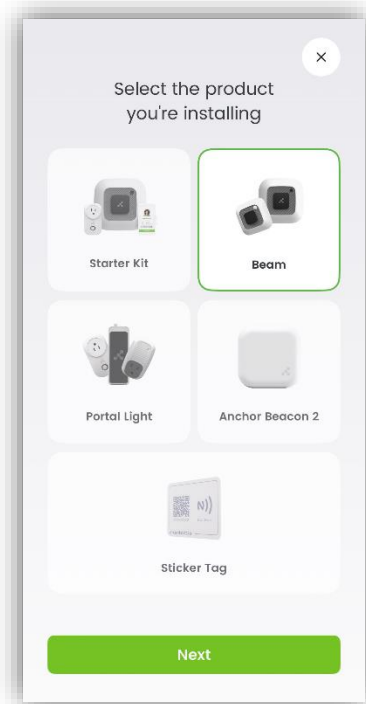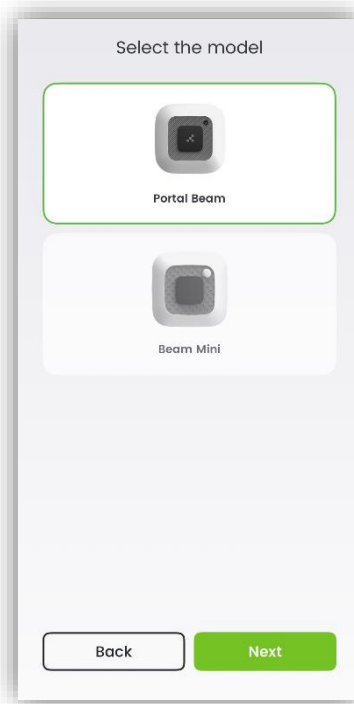

Figure 53.   Select device

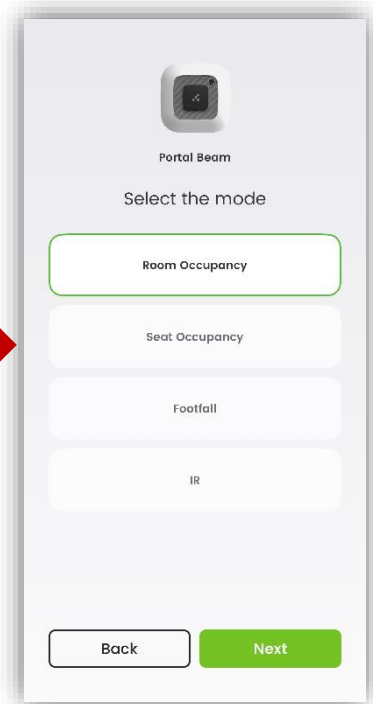**Figure 54.   Select device model**

Figure 55.   Select device mode

Power the physical Portal Beam on and move the camera to the QR code on the physical device or to the QR code of the allocated Portal Beam on Kio Cloud by tapping [**Tap here to scan**].

After scanning, the device's unique ID will show up to indicate that you have successfully scanned your device.
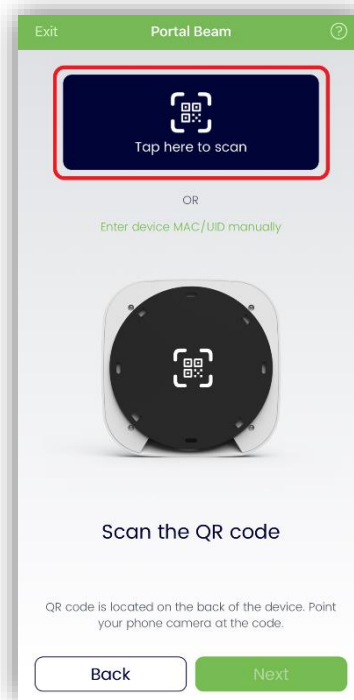
Press [**Next**] to move to the next step.

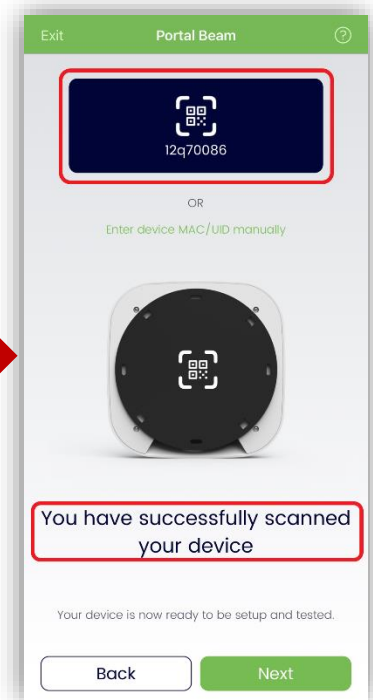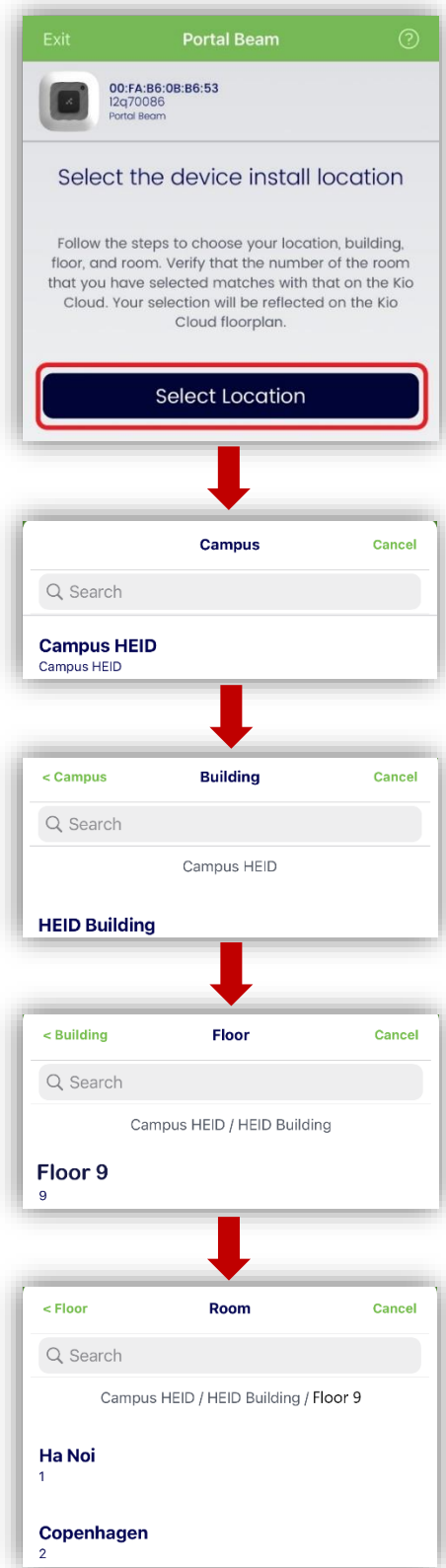**Figure 56.   Scan QR code**

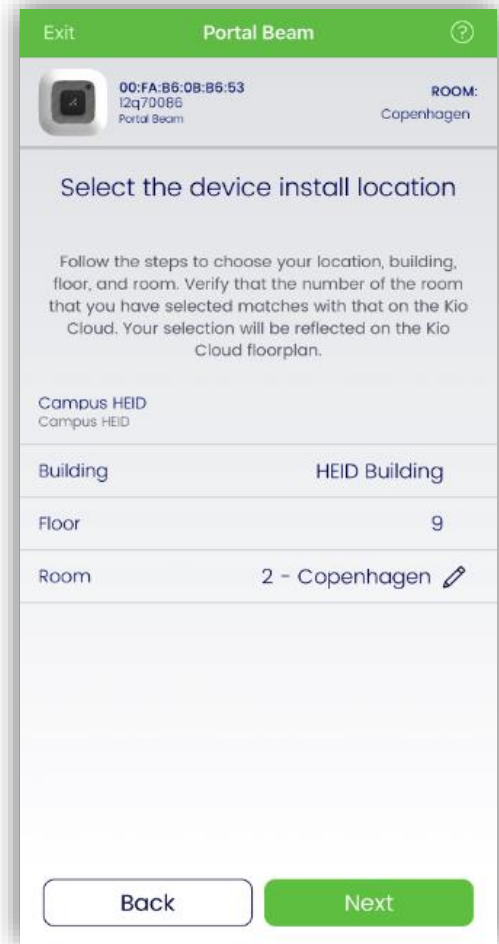**Figure 57.   Scan successfully**

Step 2: Select install location

On this stage, tap [**Select Location**] to select the **Campus** → **Building** → **Floor** → **Room** that you have attached to that Portal Beam on Kio Cloud.

The room to which you would like to install device then shown as the following figure:

Press [**Next**] to switch to Step 3.

Figure 58.   Select Location
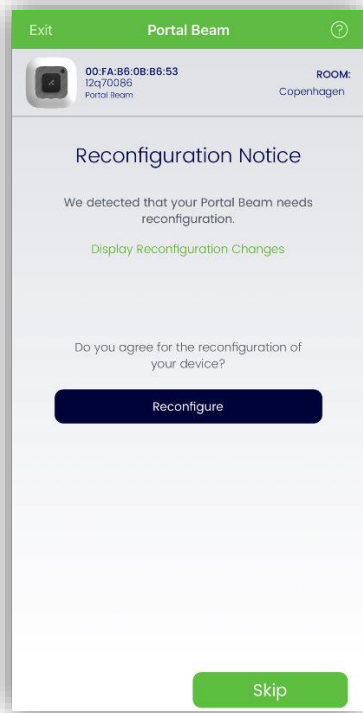
Step 3: Reconfigure and test
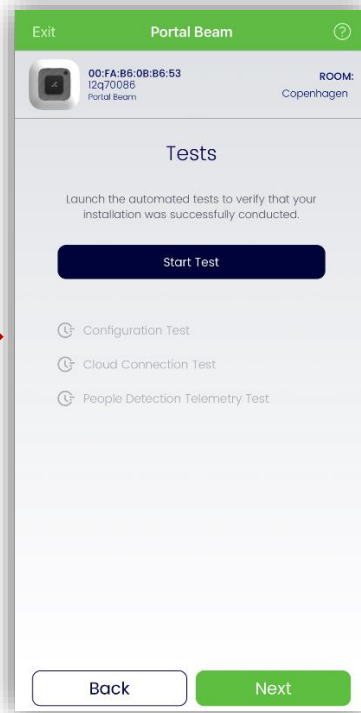

Figure 59.   Reconfigure
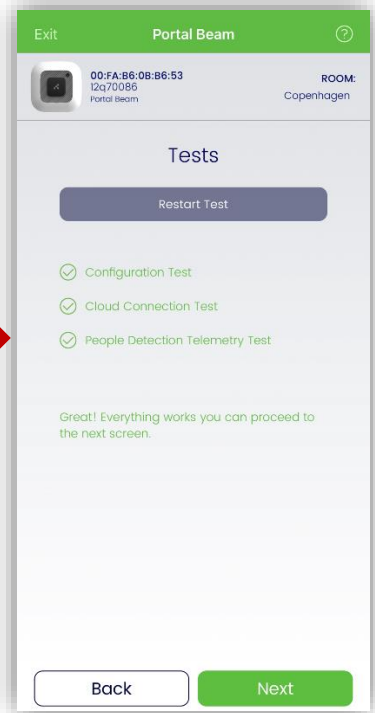

Figure 60.   Start test

Figure 61.   Test successfully

First, hit [**Reconfigure**] to detect and apply configuration adjustments required for the selected Portal Beam mode. When the Reconfiguration process is complete, 'Tests' screen will show up. Tap [**Start test**] to verify the Configuration process, connection to Cloud, and people detection telemetry. If the test is completely validated, select [**Next**].

Step 4: Mount and provide Install Height

Mount your physical Portal Beam to the ceiling of the room so that it can observe the entire room.

Then, enter the height from the floor to the ceiling.

NOTE: The number you enter must be between 250 and 325 (cm).

Tap [**Next**] to finish this step.

Figure 62.   Mount and enter Room height

Step 5: Verify hot objects

After mounting and providing Install Height, select [**Capture Image Now**] to open the Portal Beam camera and check the field of view seen by the camera. You can adjust the position of the device to obtain the best view.
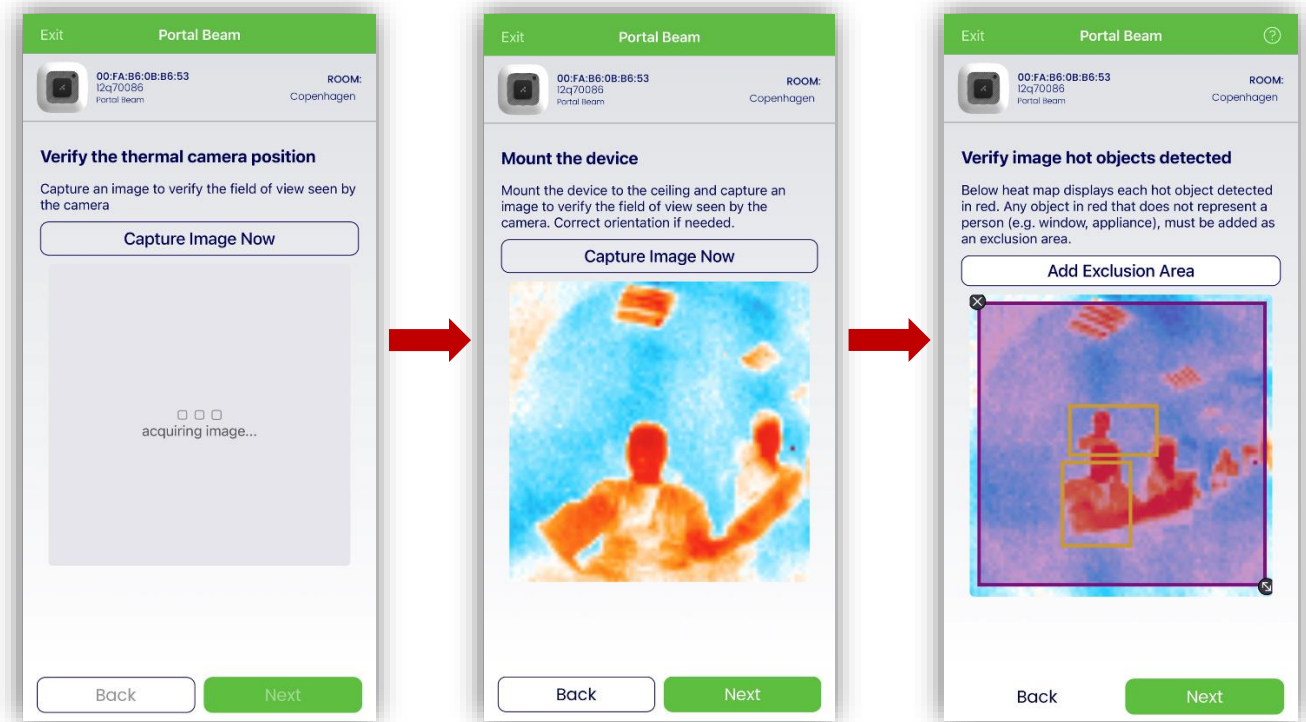

| Figure 63. | Capture image | Figure 64. | Field of view | Figure 65. | Add Exclusion Area |

Tap [**Next**] to proceed to the 'Verify image hot objects detected' screen.

This thermographic camera detects human presence in the room by scanning body temperature. However, there are numerous non-human objects in the room that radiate heat (e.g., lights, computer) so the ability to identify people will be misleading. Consequently, you must manually eliminate the camera's detection of those objects by tapping on [**Add Exclusion Area**]. A purple rectangle will emerge, and you can move and scale it to fit in the object you would like to label as 'not a person'.

Proceed to tap on [**Add Exclusion Area**] to exclude other areas as desired.

When finished, press [**Next**], and the app will allow you to add a device note that is viewable when you select this device on Kio Mobile App and Kio Cloud. Finally, hit [**Next**] to complete connecting the Portal Beam to Kio Cloud.
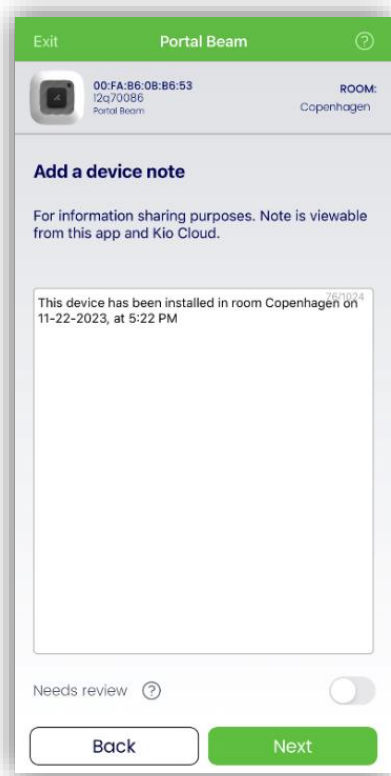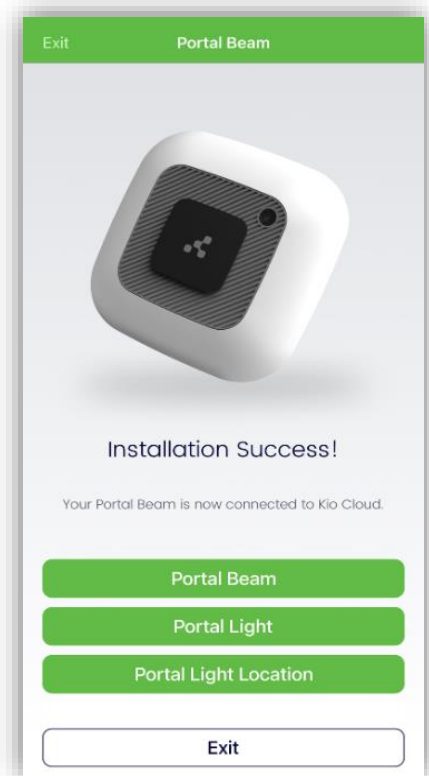
Figure 66. **Add device note**

Figure 67. **Install successfully**

Install Portal Beam for a room with specific seat(s)

Step 1: Select device

On the Kio Setup Manager first interface, tap on [**INSTALL DEVICES**] and select Portal Beam as the device to install. For the room with no specific seat, tap [**Room Occupancy**]:
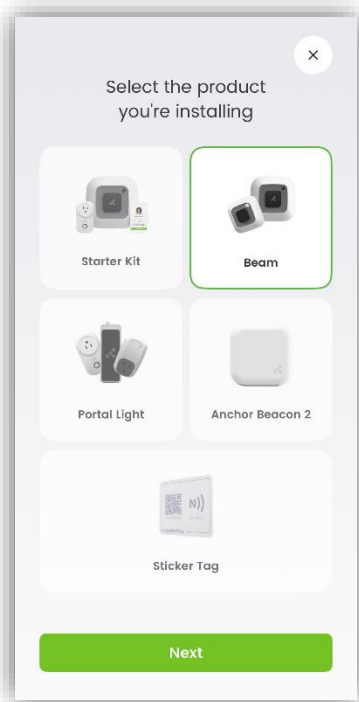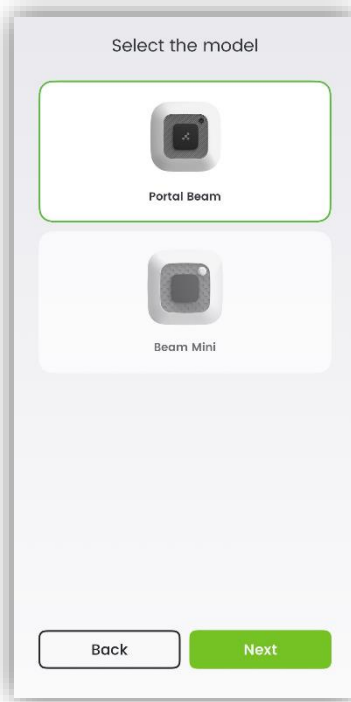
Figure 68. Select device
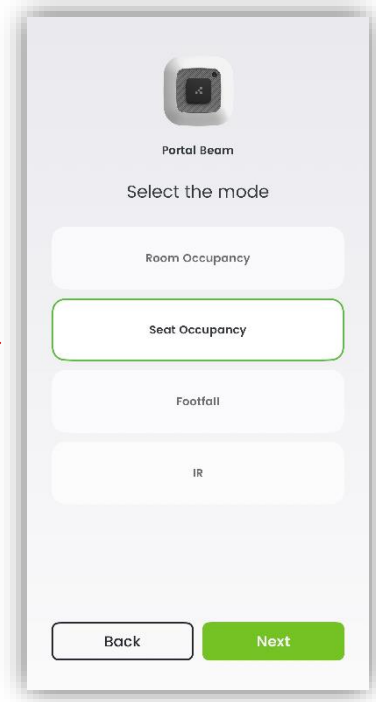

Figure 69. Select device model

Figure 70. Select device mode

Power on the physical Portal Beam and move the camera to the QR code on the physical device or to the QR code of the assigned Portal Beam on Kio Cloud.

After scanning, the Unique ID of that device will show up to notify that you have successfully inserted your device.
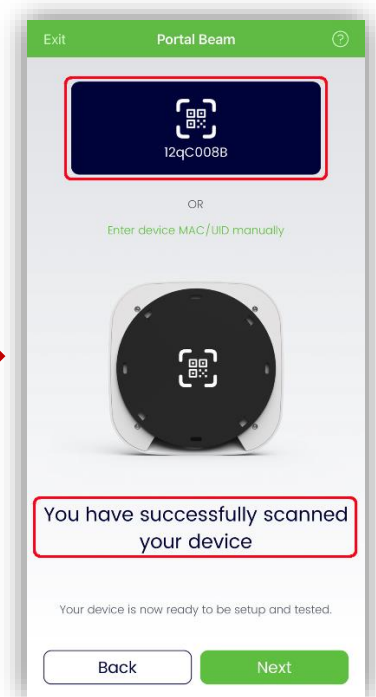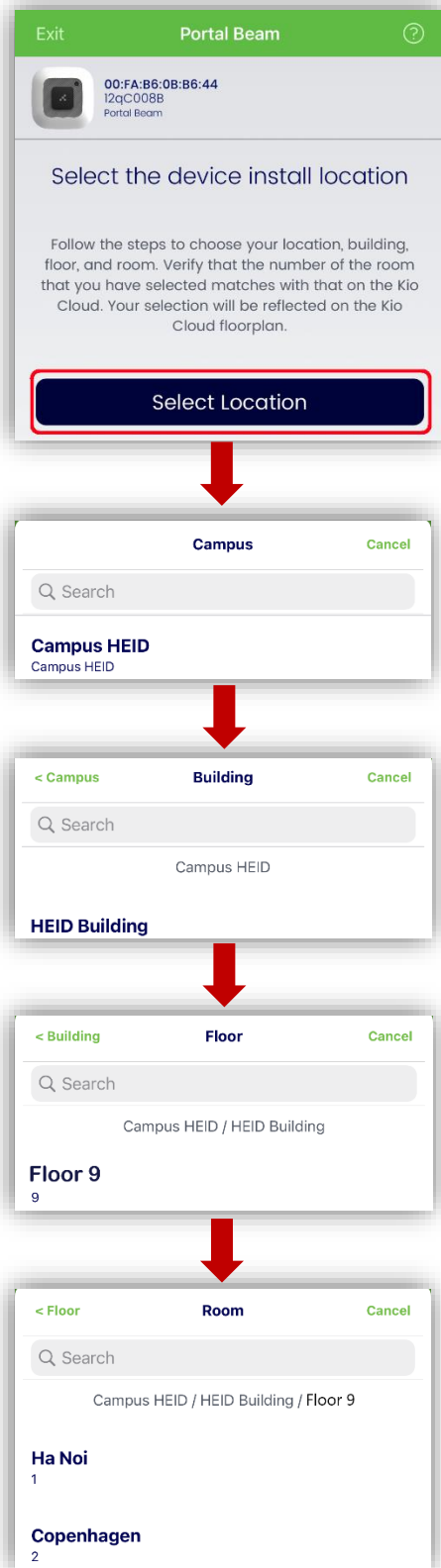

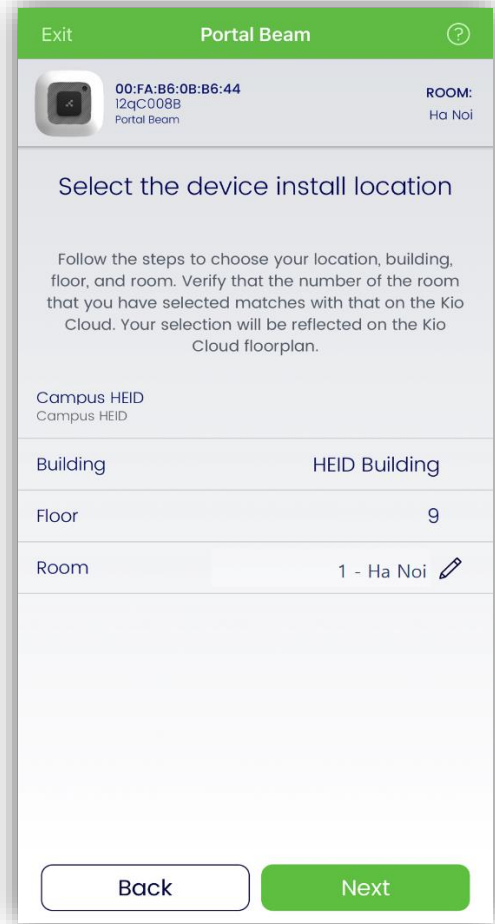**Figure 71.** Scan device

Figure 72. Scan device successfully

Press [**Next**] to move to the next step.

Step 2: Select install location

On this stage, tap [**Select Location**] to select the **Campus → Building → Floor → Room** that you have attached to that Portal Beam on Kio Cloud.

Figure 73.   Select Location

The room to which you would like to install device then shown as the following figure:

Press [**Next**] to switch to Step 3.

Step 3: Reconfigure and test
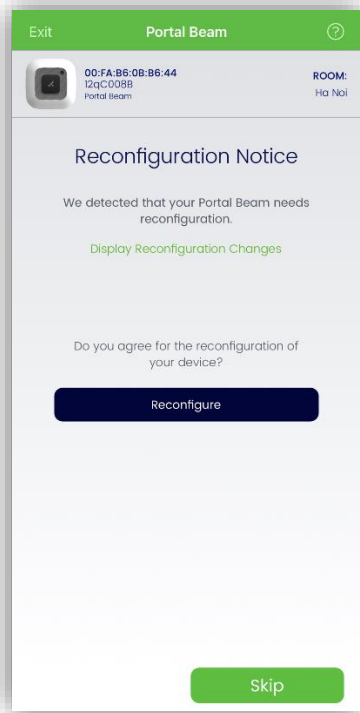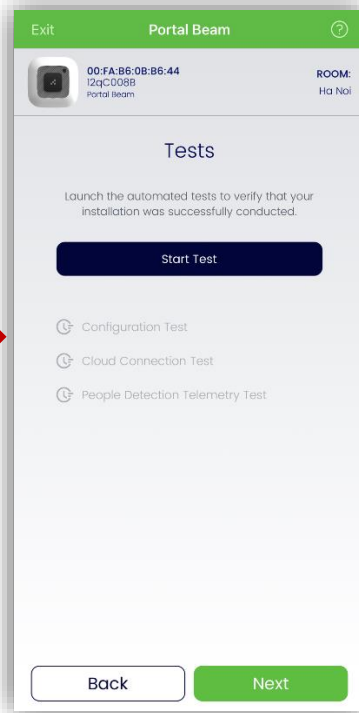

Figure 74.   Reconfigure
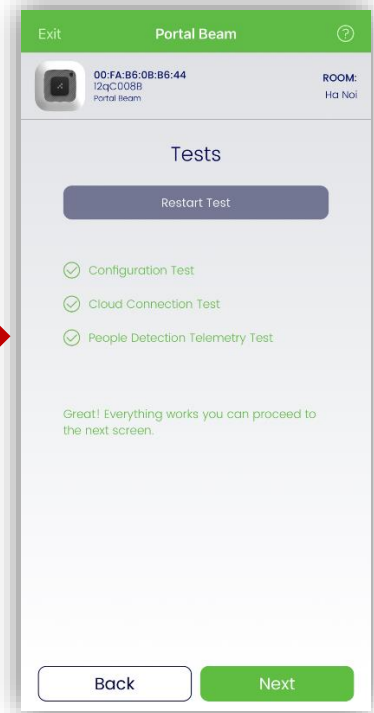

Figure 75.   Start test

Figure 76.   Test successfully

First, press [**Reconfigure**] to detect, apply configuration updates required for the selected Portal Beam mode. When the Reconfiguration process is done, 'Tests' screen will show up. Tap [**Start test**] to verify the Configuration process, connection to Cloud, and people detection telemetry. If the test is perfectly verified, select [**Next**].

Step 4: Mount and provide Install Height

Figure 77.   Mount and enter Room height

Mount your physical Portal Beam to the ceiling of the room so that it can observe the entire room.

Then, enter the height from the floor to the ceiling.

NOTE: The number you enter must be between 250 and 325 (cm).

Tap [**Next**] to finish this step.

Step 5: Assign seats to Portal Beam

After mounting and providing Install Height, select [**Capture Image Now**] to open the camera of Portal Beam and verify the field of view seen by the camera. Adjust position of the device for the whole view of the seats.

Tap [**Next**] to move to the 'Assign Seats to Portal Beam' screen. You can see the seats you created for this room on Kio Cloud here.
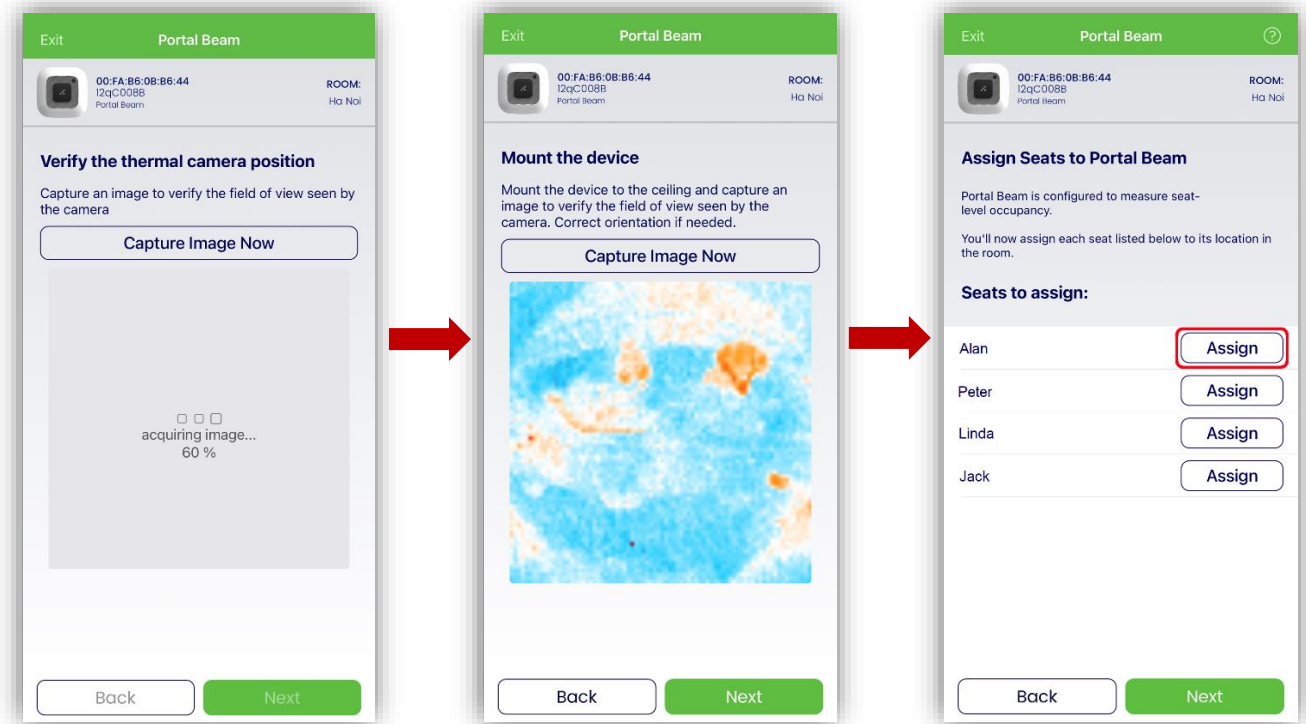

Figure 78.   Capture image   **Figure 79.   Field of view**   **Figure 80.   Seats to assign**

Press [**Assign**] button of a seat to start assigning a seat from the thermal image taken.

A green rectangle will appear that allows you to move and scale to fit the seat area in the image. When complete, tap anywhere on the screen, the name of the seat will show up on the upper left of the green rectangle.

Select [**Add Seat Location**] and follow the same procedure to assign the remaining seats to the thermal image.
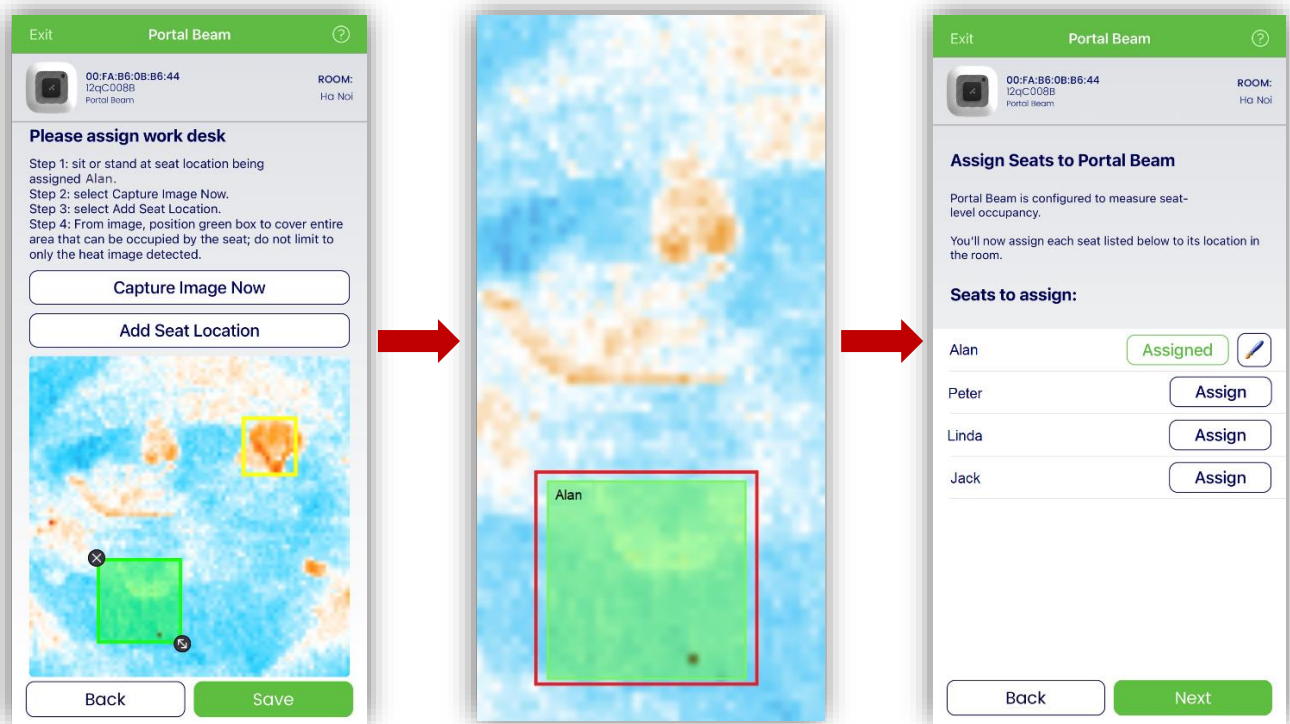
Figure 81.   Determine seat

When all the seats are assigned, choose [**Next**] to optionally add a device note that is viewable on Kio Mobile App and Kio Cloud. Hit [**Next**] to complete connecting the Portal Beam to Kio Cloud.
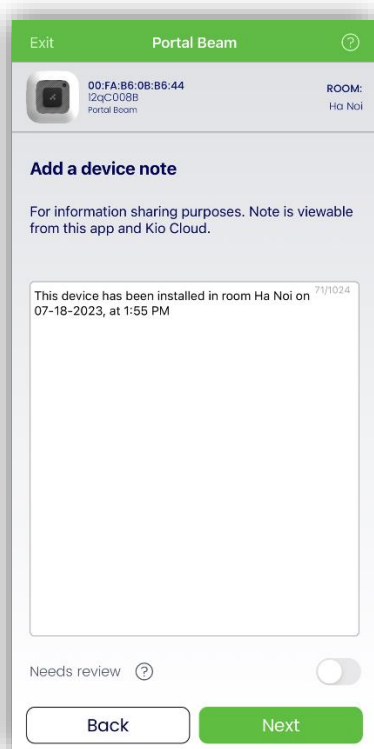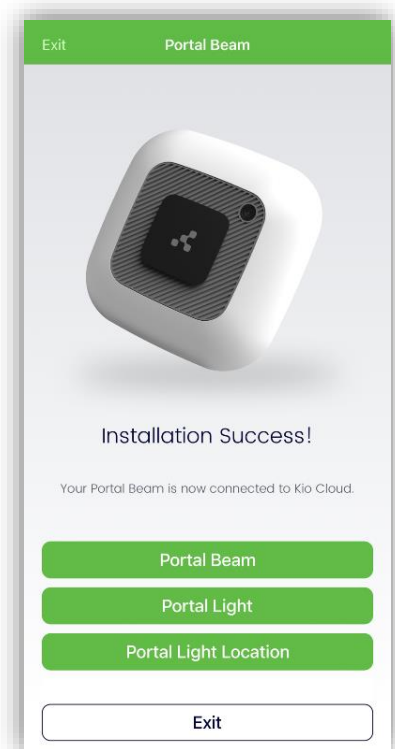

Figure 82.   Add a device note

Figure 83.   Install successfully