Bluetooth® Lighting Controls

Project Startup of Avi-on Lighting Controls

Quick Guide to Avi-on *Mobile* + *ZoneScanner*

Recommended workflows for project managers

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Quick Guide: Table of Contents

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Recommended Mobile Project Preparation

Get *helpdesk support* at Avi-on.com/contact -or- scan this QR →

Avi-on *Mobile* + *ZoneScanner* Setup

1. **Review project details & do a top-down project review**
   - Read Avi-on controls wiring diagrams at Avi-on.com/resources -or- scan this QR →
   - Review project's floorplans
   - Document project's building codes, as well as customer's desired *Sequence of Operations*
   - Verify that chosen fixtures and drivers are compatible with Avi-on controllers and sensors. Click THIS LINK or scan QR →

2. **Set up *Avi-on Mobile***
   - Download & get trained on Mobile →
   - Login & join project's Avi-on *location* →
   - Join or create project's *location address*
     TIP: do not duplicate locations
   - Connect *LTE Bridge* →

Go to Avi-on.com/Contact to join project's existing *location* -or- Scan this QR →

CLICK HERE for detailed LTE Bridge Guide -or- Scan this QR →

CLICK HERE for the Avi-on Mobile Guide & User Manual -or- Scan this QR →

3. **Download & set up *Avi-on Zone Scanner Tool***

   - Validate fixture QRs match inside & out. Check that Avi-on QRs on outside of fixtures match nodes inside
   - Create control zones
   - Practice scanning QRs

CLICK HERE for Zone Scanner Guide -or- Scan this QR →

CLICK HERE for Fixture Assembly Guide -or- Scan this QR →

4. **Host *Pre-Wire Training Meeting*** with electricians
   - Review wiring diagrams, building codes
   - Review control zone plan
   - Download and practice *ZoneScanner Tool* with electricians

5. **Disable old, legacy controls systems to ensure 24/7 power to Avi-on devices**
   - Remove any legacy occupancy sensors, wall switches, key switches, contactors, or building management systems (BMS/BCS/EMS)
   - Legacy controls can create an erratic end-customer lighting experience: emergency protocols may be activated; lights may flicker when power is restored; sensors, schedules, and wall stations may not function as expected; and groups may not function consistently

Recommended Mobile Commissioning Workflow

Click link to Mobile Guide
-or- scan QR →

Once per project -or- area by area, as needed

1) Use *ZoneScanner on Avi-on QRs* for devices & wall stations	• **Click this LINK for the ZoneScanner Electrician's Guide** ← -or- scan this QR ***TIP:*** *When scanning, please turn ON wifi or data plan*
2) Use *Mobile Commissioning* to add powered devices	• **Menu Drawer →Devices →Select (+) →Add Devices** ○ ***TIP:*** Use device naming conventions to track sensors, emergency, and special control zones
3) Use *Mobile* to import *ZoneScanner* data, link devices to groups	• **Menu Drawer→Locations→ ZoneScanner App Import→Sync Selected Zones** ○ ***TIP:*** Put ALL devices into groups–even single devices
4) Use *Mobile* to verify power and wiring by testing group response	• **Network → Groups** ***TIP:*** Turn on/off group, then check number of devices. If a node is unresponsive, select all devices in group, then DIAGNOSE REPAIR devices with incorrect GROUP ID

Repeat these settings area-by-area

5) Use *Mobile* to program Scenes → as needed →	• **Menu Drawer → Scenes**
6) Use *Mobile* to program Sensors	• **Menu Drawer → Controllers**
7) Use *Mobile* to program Wall Stations	• **Menu Drawer → Controllers** ***TIP:*** *'Wake up' battery-powered wall stations to configure*

Global project settings

8) Use *Mobile* to program Network Time Manager	• **Menu Drawer → Controllers →Network Time Manager (NTM)** *NTM is a single battery time backup for the entire network* ○ ***TIP:*** Select Target NTM, Select Refresh Period, Save Configuration
9) Use *Mobile* to program Schedules & Sensor Schedules	• **Menu Drawer → Schedules** **REQUIRES NTM (see above)**
10) Close-out : Verify power & wiring; validate settings See Electrician's Checklist at THIS LINK -or- scan QR →	• **Before leaving room (and job site),** validate that all areas are working as expected • **Check for common mistakes** like mis-wired devices; overlapping groups, schedules, sensors

Bluetooth® Lighting Controls

Use the *ZoneScanner Tool*

➔ to assign Avi-on controls to zones

➔ and to create useful names for devices

Naming conventions for groups, devices, functions

	Naming Convention	Examples	Tips for *ZoneScanner* Import

Groups -or- Zones	**Area -or- Room Number being controlled**	• Open Office 100
		• RM 120 Teaching Wall
		• Class 0927 *****
			• Avi-on will automatically include the room/group/zone number in brackets when you **Import ZoneScanner Data.** To use this function on the ***Groups Page,*** copy/paste *Group Name* into the ***Member Prefix*** **box**
			• The **Import ZoneScanner function** will automatically build the device name:
			  ○ Member Prefix (aka Group/Zone/Room)
			  ○ Last 4 digits of MAC
			  ○ Product name (like IFAC, Wall Station, etc.)
			• As you import *ZoneScanner* data, **MANUALLY add the special function** characters (!, *, **) to the device names -or- zones

Fixture Adaptors & Power Packs *IFAC* *LVFA (low voltage)* *XFAC (power pack)* 	**[Group/Zone Name] - Last 4 MAC - Device - Special Function** **Special Functions**: Add characters to make searching easier during programming • **Emergency devices:** Add ! to end of *device name*. *Example:* [RM 120 Teaching Wall] - AB12- LVFA **!** • **Daylight harvesting (ALS) CONTROLLER:** Add ** to end of device name. *Example:* [RM 120 Teaching Wall] - AB12- LVFA**!**** **<< emergency, daylight zone & controller** • **Daylight ZONE:** Add * to end of *zone or group. Example:* [RM 120 Teaching Wall] ***** - AB12- LVFA • **Example sensor use cases: hallways v. stairwells:** Add **^** on hallways and **?** on stairwells • **Example 2-button wall stations:** Add **2B** on end of name • **3rd Party "McWong" Sensor:** Add % to end of device name. *Example:* [Class0927]-3DC6-IFAC**!%**		
Wall Stations *BAT & AC*	**[Group/Zone Name] - Last 4 MAC - Device - Function**	• [RM 120 Teaching Wall] – F224- Avi-on Wall Station- AC	
GE Switches *Do not ZoneScan*	**[Group/Zone Name] - Last 4 MAC - Device - Function**	• [RM 132 Closet] – 998B-GE In Wall Dimmer	• GE switches are not recognized by *Zonescanner* import. Use *Mobile App* to manually group & name them
Avi-on "DC" Direct Connect Sensors *DC-PIR, DC-MW*	**[Group/Zone Name] - Last 4 MAC - Device - Function - Sensor**	• [RM 120 Teaching Wall] - AB12- LVFA **!**** Sensor	• *Avi-on Direct Connect (DC) Sensors* plug directly into XFAC, IFAC, or LVFA. DC sensors take the name of that device, with "***Sensor"*** appended
Schedules	**Group/Zone - Begin/End Time - Days of Week**	• Open Office 100 7am to 7pm M-F	• Enter zone being controlled, time, & days
Scenes	**Area or Room Number being controlled** **this will typically match the Zone or Group name**	• Open Office 100 • RM 152 Cafeteria	• Scenes are created after *Zonescanner* import within Avi-on Mobile. To make Scene creation easier, make sure your Zones/Groups are scanned accurately

Use *ZoneScanner Tool* to assign controls to zones

Click THIS LINK
for the Complete ZoneScanner Guide
-or- scan QR →

With the *ZoneScanner Tool*, electricians can quickly assign Avi-on controls to pre-defined zones

1) **Use email invitation** to download *ZoneScanner* to phone (not available in app stores)

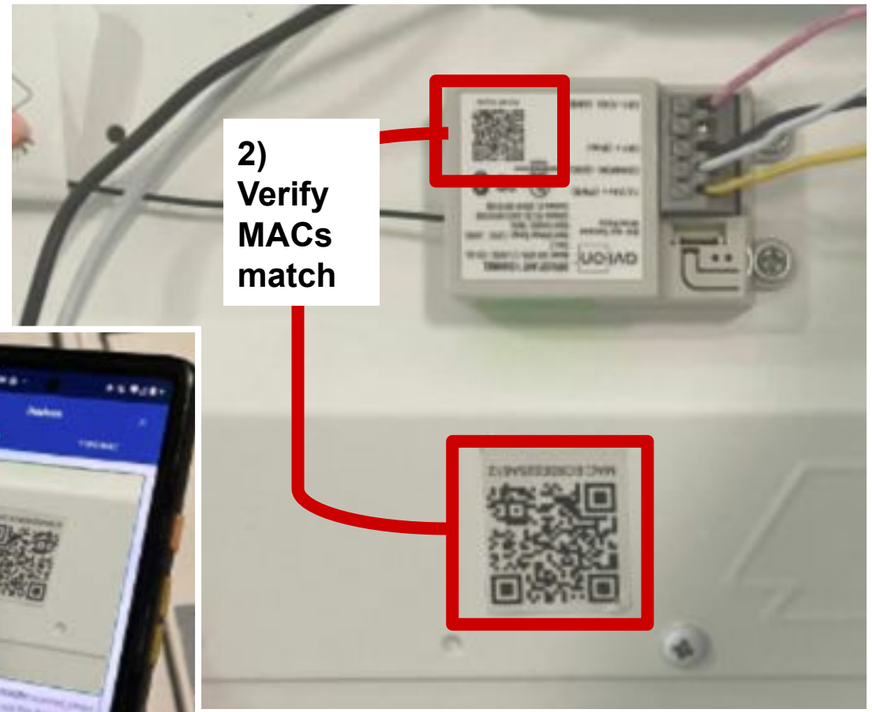
2) **For fixtures: match MACs inside & out**
   - Spot check that last 4 digits of MACs on nodes *inside* fixtures match QR stickers on *outside* of fixture

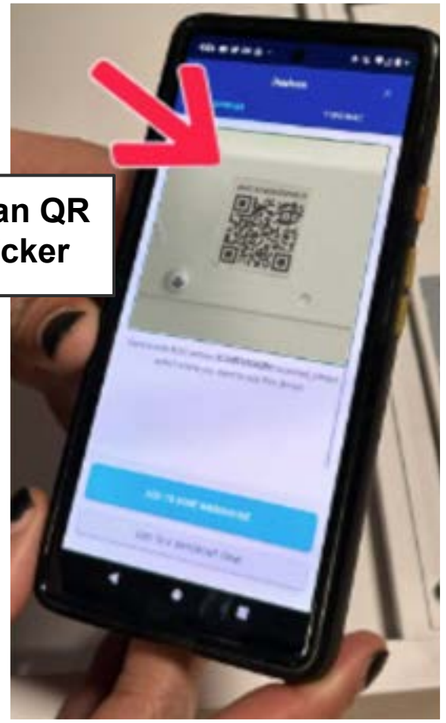
3) **Use *ZoneScanner* on fixture & wall station QRs**
   - Scan QR
   - Assign zone
   - Check for blue light

4) **Flashing blue light indicates successful scan**

5) **Install fixture or wall station**

6) **Verify that device is wired & powered correctly**





4) If device is powered, a flashing blue light indicates ready to ADD to the *App* →

Room-by-Room: *ZoneScanner* Workflow

Mobile Technician & Electrician work in parallel to resolve wiring issues & commission each area

Steps for Project Manager (PM)	Steps for Electrician
I. **Double-check fixture assembly: verify QR codes match inside & out**	↓
II. **Set up *ZoneScanner*: link your Avi-on *username* to project's *location*** ○ Request access to the Project's Avi-on *location,* or, if you are certain there is no *location*, use *Mobile App* to create a new *location* III. **Create control zones–see details below** IV. **Invite Electricians to *ZoneScanner Tool*** *–see details below*	↓ ↓ ↓
V. **Lead electricians in *ZoneScanner* set-up & scanning practice** ← →	1. **Look in email for an invitation to project's Avi-on *location* & download the *ZoneScanner Tool* to your phone** 2. **Use correct Avi-on 4-digit location for scanning** 3. **Scan→Assign Zone→Install Fixture (verify BLUE light)** 4. **Locate controls & take notes***–see instructions*
VI. **Use Avi-on *Mobile* to ADD & IMPORT ZoneScanner data** VII. **Use Avi-on *Mobile* to commission controls (aka "program settings")**	5. **BEFORE LEAVING ROOM: resolve power, wiring, & fixture issues. If you need help, ask Project Manager to assist with *Avi-on Pro***

Want to verify if a project's Avi-on location already exists?
Go to Avi-on.com/Contact or scan this QR →

Do not duplicate project *locations*. Devices cannot be transferred
Starting over means manually accessing & resetting devices

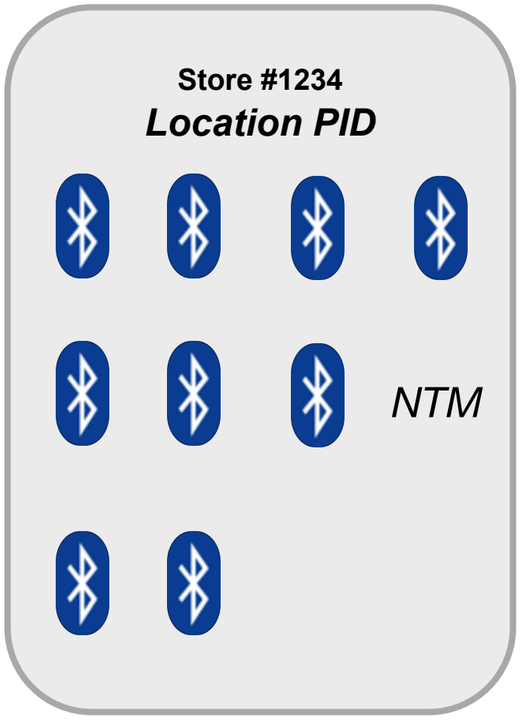
Click THIS LINK
or scan QR for the Mobile ZoneScanner Guide →

Bluetooth® Lighting Controls

Use *Avi-on Mobile* to program sensors
Troubleshoot power, wiring, & groups

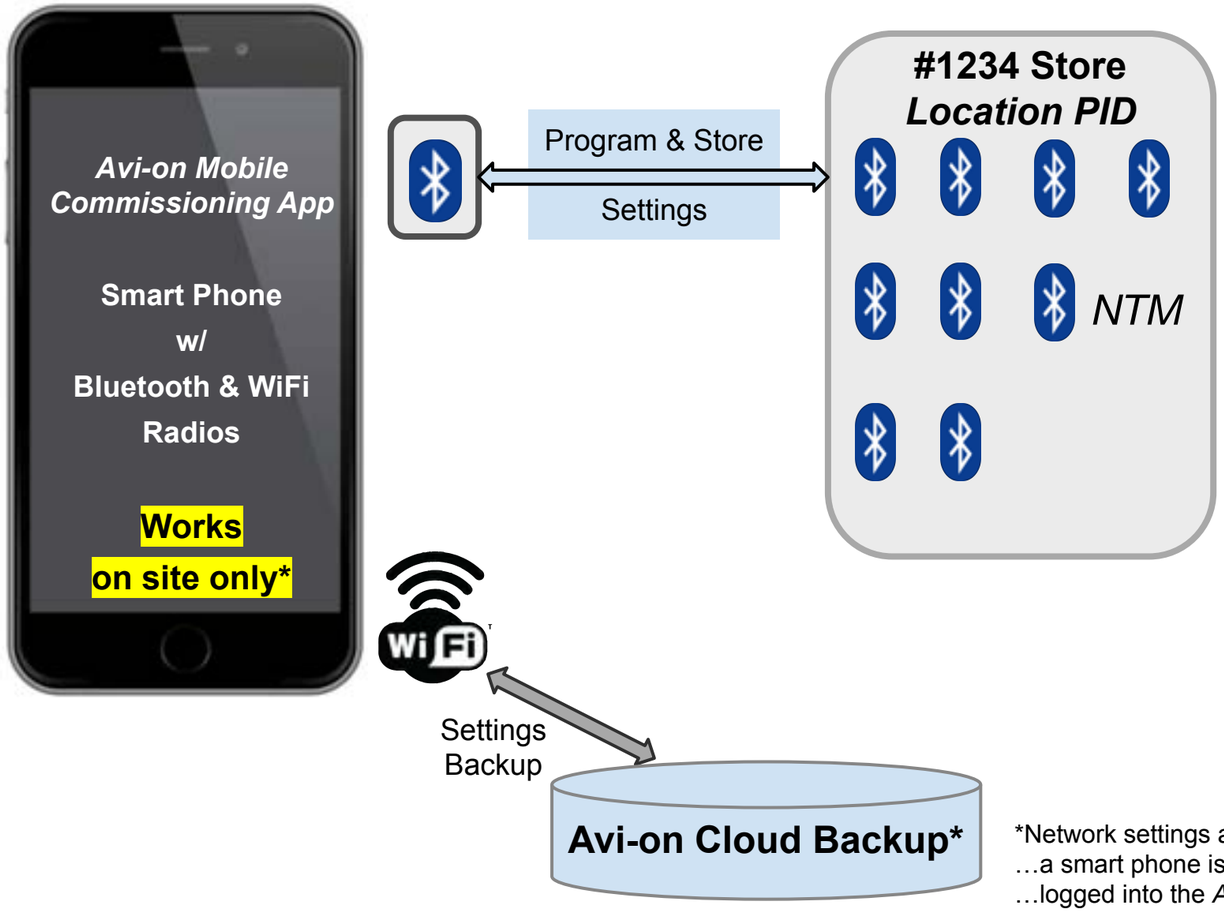
Avi-on Lighting Controls: *Set it and forget it*

Once installed and programmed,
Avi-on Bluetooth lighting controls can operate for years
without connection to the internet



How *Avi-on Mobile* Connects to Avi-on's Bluetooth® Controls

Avi-on Lighting Controls: *Local Bluetooth Mesh Network*

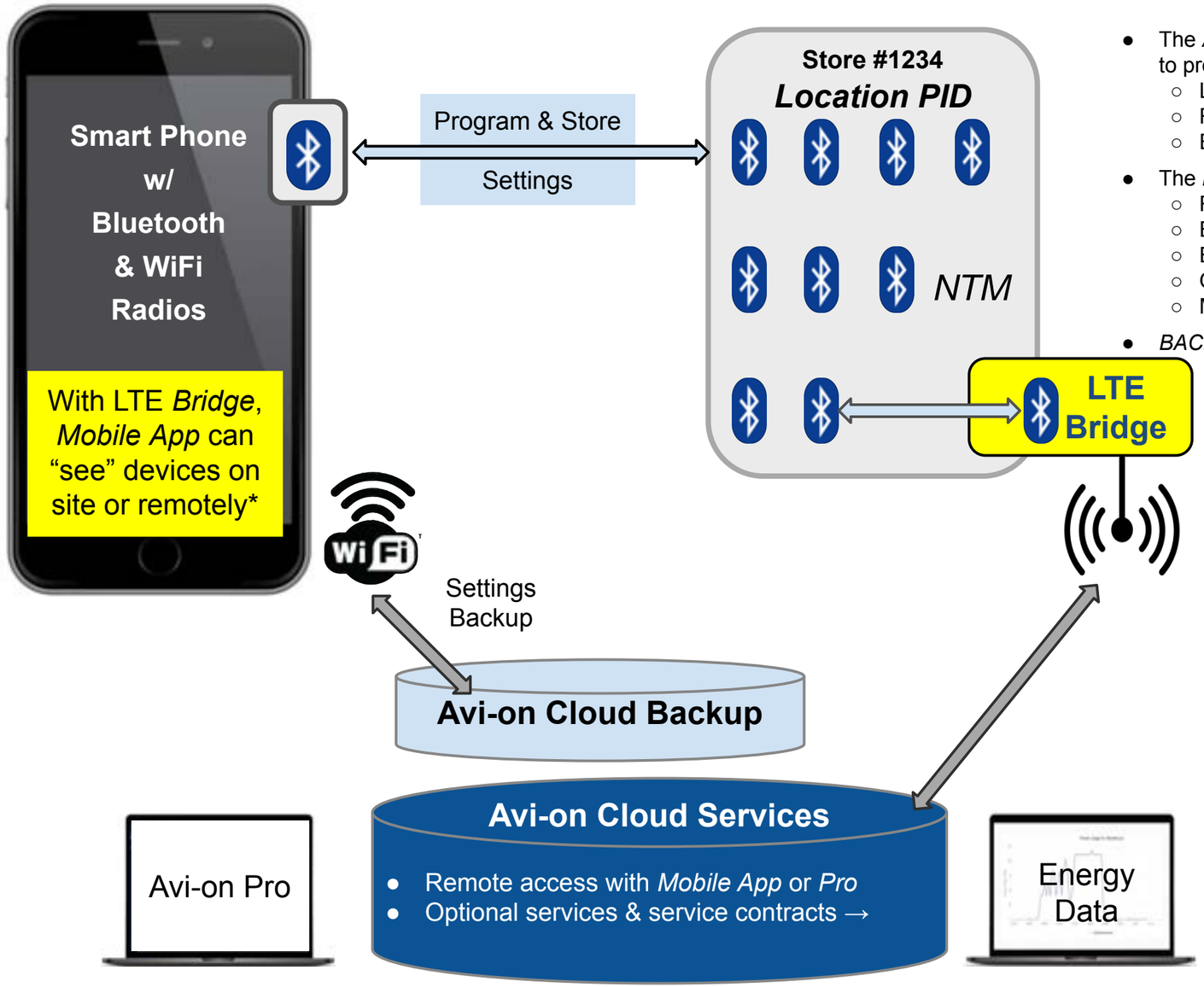


- The *Avi-on Mobile Commissioning App* uses Bluetooth to program settings
  - Local communications are *Bluetooth-to-Bluetooth*
  - Remote access is via the *LTE/Ethernet Bridge*
  - Each Avi-on device saves its settings in memory
- *Please note that when no LTE Bridge is present, the Mobile App will show the device status from the last time the Mobile App was open at the site*

*Network settings are backed up when…
…a smart phone is at the project site,
…logged into the *Avi-on Mobile App,*
…and it has BOTH Bluetooth connection to the devices
…AND solid Wi-Fi or data connection to the internet

* With the *Mobile Commissioning App,* sensors can be programmed locally, on site. To program sensors remotely, *Avi-on Pro* is required

Avi-on: *Large-Scale, Turnkey Lighting Controls*



- The *Avi-on Mobile Commissioning App* uses Bluetooth to program settings
  - Local communications are *Bluetooth-to-Bluetooth*
  - Remote access is via the *LTE Bridge*
  - Each Avi-on device saves its settings in memory
- The *LTE Bridge* is *optional;* it enables cloud services
  - Remote access
  - Energy data & utility rebates
  - Emergency lockdown mode
  - Other data/cloud services
  - Multi-year service contracts with Floorplan View
- *BACnet* & Title 24 *OpenADR* is also available

* With the *Mobile Commissioning App,* sensors can be programmed locally, onsite. To program sensors remotely, *Avi-on Pro* is required

Sensors >> **Sensor Type**

Sensor Type	Dip Switch Settings	Type of Connection	Imports w/ ZoneScanner?	Key Settings
Direct Connect PIR *AVI-DC-PIR* 	N/A	Use jack and ribbon cable to connect to XFAC, LVFA, IFAC, SIM, and RCO 	*Yes, indirectly:* the parent node (XFAC, LVFA, or IFAC) will be imported	• See *Typical Sensor Settings*
Direct Connect Microwave *AVI-DC-MW* 	N/A	Use jack and ribbon cable to connect to XFAC, LVFA, IFAC, SIM, and RCO	*Yes, indirectly:* the parent node (XFAC, LVFA, or IFAC) will be imported	• See *Typical Sensor Settings*
McWong Bluetooth *AVI-KIT-MRW-24-BLE*	Dip switch #1 & #2 set OFF — Program bi-level dimming in *Avi-on Pro*	Wired to AVI-PS-277-12-250 power supply which is connected to line voltage	NO	• **Sensitivity must be enabled** (*Low, Medium, High)* • For ALS, sensor must have onboard ALS firmware
WIRED: G2 CC-in *AVI-SEN-DUCM-24* *AVI-SEN-ICM-24* *Manually add to Mobile list using key settings at right→*	*AVI-SEN-DUCM-24:* Dip switches #1 and #7 Up/On *AVI-SEN-ICM-24:* Dip switches #1 and #4 Up/On	Wired to XFAC or SIM with 18/3 wire	*Yes, indirectly:* the parent node (XFAC, LVFA, or IFAC) will be imported	• Since G2 CC-in is an analog sensor and does not have a radio, we need to tell the *XFAC* or *SIM* that it has a sensor attached • Click the **Enable** button at the bottom of the device page

Typical Use Cases: **Occupancy, Vacancy, & Mode Settings**

Guide to the user experience created by these code-required settings

	Typical Sensor *Mode* Settings				
	Occupancy	**Vacancy**	**Last Dim DO NOT USE**	**Hold at Dim 2**	**Disable Motion**
Use Cases	Offices Classrooms Conference rooms	Hallways Stairwells Bathrooms	Offices Conference rooms	Hallways Stairwells Warehouses	Disables motion sensor
Occupant Experience	**Automatic ON/OFF**	**Manual ON to chosen level Automatic step down to OFF**	**Starts at last dim level set by wall station**	**Starts at *Dim Level 1***	**Sensors do not work**
Lighting Behavior	Fixture starts at Dim Level 1 • No motion for duration of TD1, fixture steps down to Dim Level 2 • No motion for duration of TD2, then fixture turns OFF	Fixture starts at OFF and must be turned ON manually • No motion for duration of TD1 and TD2, then fixture turns off	See above ↑↑↑ Light turns on at last dim level, then if no motion for duration of TD1 and TD2, the fixture turns OFF	See above ↑↑↑ • No motion for duration of TD1, fixture steps down to Dim Level 2 • **Fixture then holds the Dim 2 level indefinitely**	**Only wall stations or schedules operate fixtures** Neither ON nor OFF are triggered by motion sensors
Example	**Lights start at 80% Dim** • DL1 = 80% • DL2 = 20% • TD1 = 15 min • TD2 = 5 min **Fixture starts at 80% Dim** • No motion for 15 minutes, then fixture dims to 20% • No motion for 5 more minutes, fixture turns off	**Occupant will turn on to the desired level** • DL1 = N/A • DL2 = N/A • TD1 = 15 min • TD2 = 5 min **If no motion for 20 minutes (15+5), then fixture turns OFF**	**Occupant last dimmed lights to 50% at the wall station** • DL1 = Overridden by switch level • DL2 = N/A • TD1 = 15 min • TD2 = 5 min **Fixture starts at last Dim level 50%** If no motion for 20 minutes (15+5), then fixture turns OFF	**Lights start at 80% Dim** • DL1 = 80% • DL2 = 20% • TD1 = 15 min • TD2 = 1 min- indefinite No motion for 15 minutes, then fixture dims to 20%, **AND fixture holds the 20% dim level indefinitely**	**See above ↑↑↑**

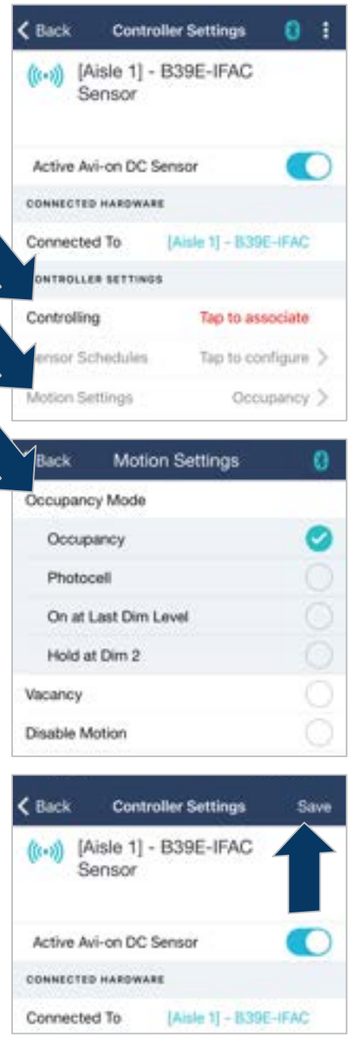
Typical Use Cases: **ALS (Daylight)**

Guide to the user experience created by these code-required settings

	Daylight Mode	
	<u>ALS</u> (Closed Loop)  *Occasionally required by Code*	**<u>ALS</u> (Open Loop)**  *Recommended: set it & forget it*
Use Cases	Offices	Classrooms Conference rooms As required by code
Occupant Experience	**Automatic light levels controlled by technician-defined *Target Lux Level*** ***Limited manual control***	**Automatic light levels, no target** ***Limited manual control***
Lighting Behavior	*Closed Loop* dims and brightens light levels according to Target Lux level *By code, wall stations turn fixtures OFF & ON at ALS value*	*Open Loop* automatically adjusts the lights when the reading is between the values of 0-1020 lux on sliding scale *By code, wall stations will turn fixtures OFF and ON at ALS value*
Example	**Target Lux: 400 (have to measure this at night)** **ALS Control Time: 30 seconds** ● As the sun rises and light filters in through the windows, the fixtures will dim or even turn off to maintain *Target Lux Level* 400 ● As the sun sets or cloud cover increases, the lights will brighten to maintain *Target Lux Level* 400	**Target Lux setting is not used** **ALS Control Time: 30 seconds** ● As the sun rises and light filters in through the windows, the fixtures will dim or even turn off to maintain an automated lux level ● As the sun sets or cloud cover increases, the lights will brighten to maintain an automated lux level

Typical Sensor Settings: **ASHRAE, IECC, Title 24**

Settings presented in the same order as they appear on Pro's sensor screen



	Typical *Mode* Settings				
	Occupancy	**Vacancy**	**Last Dim**	**Hold at Dim 2**	**Disable Motion**
Sensor per Group	Enabled	Enabled	Enabled	Enabled	N/A
Dim Level 1	80%	80%	80%	80%	N/A
Dim Level 2	20%	20%	20%	20%	N/A
Time Delay 1* (TD1)	15 minutes	15 minutes	15 minutes	15 minutes	N/A
Time Delay 2 (TD2)**	5 minutes	5 minutes	5 minutes	5 minutes	N/A
Mode	**Occupancy**	**Vacancy**	**Last Dim**	**Hold at Dim 2**	**Disabled**
Control Time***	450 seconds	450 seconds	450 seconds	450 seconds	N/A
Motion Sensitivity	Low Bay	Low Bay	Low Bay	Low Bay	N/A
Daylight Mode	Disabled	Disabled	Disabled	Disabled	N/A
Target Lux	N/A	N/A	N/A	N/A	N/A
ALS Control Time	N/A	N/A	N/A	N/A	N/A

* For Title 24 compliance, maximum total time (TD1+TD2) is 20 minutes
** FYI, TD2 needs a value to function correctly in *Hold at Dim 2*
*** Control time may need to be adjusted to pass stringent audit

Troubleshooting: **Check power, wiring, & groups**

Get *as available* helpdesk at Avi-on.com/contact -or- scan this QR →

Lights not following programming? Not operating as expected?

Step 1	**VERIFY power & wiring.** Wireless controls require constant power across all circuits • **Check for "islands of devices" created by old controls cutting power** to some or all Avi-on devices; use voltage tester to measure • **Check for emergency settings that override normal programs:** designated emergency devices will follow protocols & remain on • **Bypass old controls:** remove any contactors, timers, clocks, sensors, or hard switches that turn-off power to Avi-on controls • **Reset breaker:** check if breaker is off or breaker is failing (failing breaker makes lights erratic) • **Check batteries:** 'wake-up' battery-powered devices to add to App; check batteries are installed correctly • **Correct wiring:** do not wire hot to ground, do fix swapped dimming wires, replace devices destroyed by mis-wiring
Step 2	**INSTALL extenders to fill in network**. Install & program controls in adjacent areas. As you install, 'islands of devices' may appear. Verify all devices are powered, that antennas are not pinched or cut. Add 'extenders' to fill gaps or 'thin spots.' Use OA antennas for long runs
Step 3	**CHECK driver compatibility or failure. Check if antenna is bent, cut, crimped.** Check if the fixture or driver is damaged, wet, or failed • For LVFA applications, qualify drivers are dim-to-off (if not, swap to IFAC) PLUS verify AUX powers LVFA consistently (or add power supply)
Step 4	**Behavior doesn't match expected programming?** • **INCREASE sensor density, adjust placement.** Increase sensor density to better cover low usage areas; update PIR to dual-tech if not getting good response in cube areas. Locate away from air vents, ceiling fans, or other distractions • **REMOVE incorrect settings w/ App**. Remove overlapping settings: verify schedules, scenes, sensors map to correct devices/groups • **ADD/PROGRAM wall stations w/ App**. Associate groups to wall stations, eliminate interference from overlapping groups or sensors • **Check DATA connection, phone, & Apps.** *Using Mobile Commissioning App on phone:* turn ON data plan, Wi-Fi, and Bluetooth®; verify good cell and Wi-Fi coverage; move closer to device. Using *Avi-on Pro*: verify the 'green cloud' is syncing. • **If *Pro* doesn't match *Mobile*, SYNC** by connecting BOTH phone and laptop to Wi-Fi or data plan for 10 minutes OR until spinning stops
Step 5	**REMOVE devices with App, do not hard reset.** Save time by REMOVING devices with App INSTEAD OF doing manual reset

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Quick Guide to Avi-on *Mobile* + *ZoneScanner*

Convenient Room-by-Room Commissioning
of Large or Complex Lighting Control Projects

Avi-on wireless controls enable customers
to enjoy convenient and intuitive lighting experiences
—
Avi-on Mobile + *ZoneScanner* + *LTE Bridge* enables technicians
to rapidly program complex settings on large projects
according to building codes and user specifications

Best Practices: **Suggested Avi-on Mobile Workflow**

Table of Contents

Bluetooth® Lighting Controls

Quick Tour of Mobile Menus

A reference guide of menus & drop-downs

Avi-on Mobile: **Home Screen**

Login Screen

- If you have already created your account use your email address and password to login

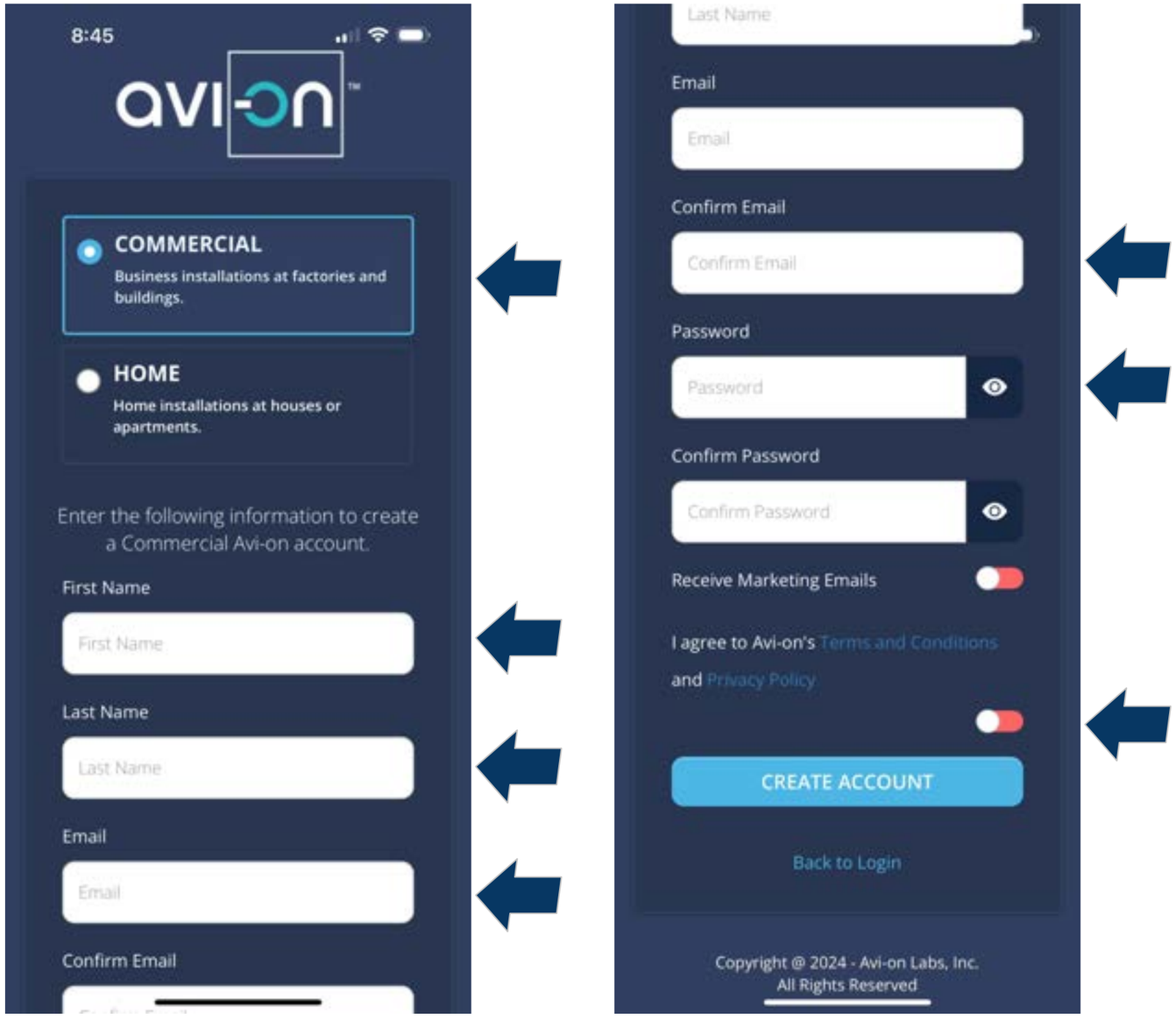
Create Account

- If this is the first time you have opened the app the first thing you need to do is create an account.
- Press the create account button near the bottom of the screen

Avi-on Mobile: **Home Screen**

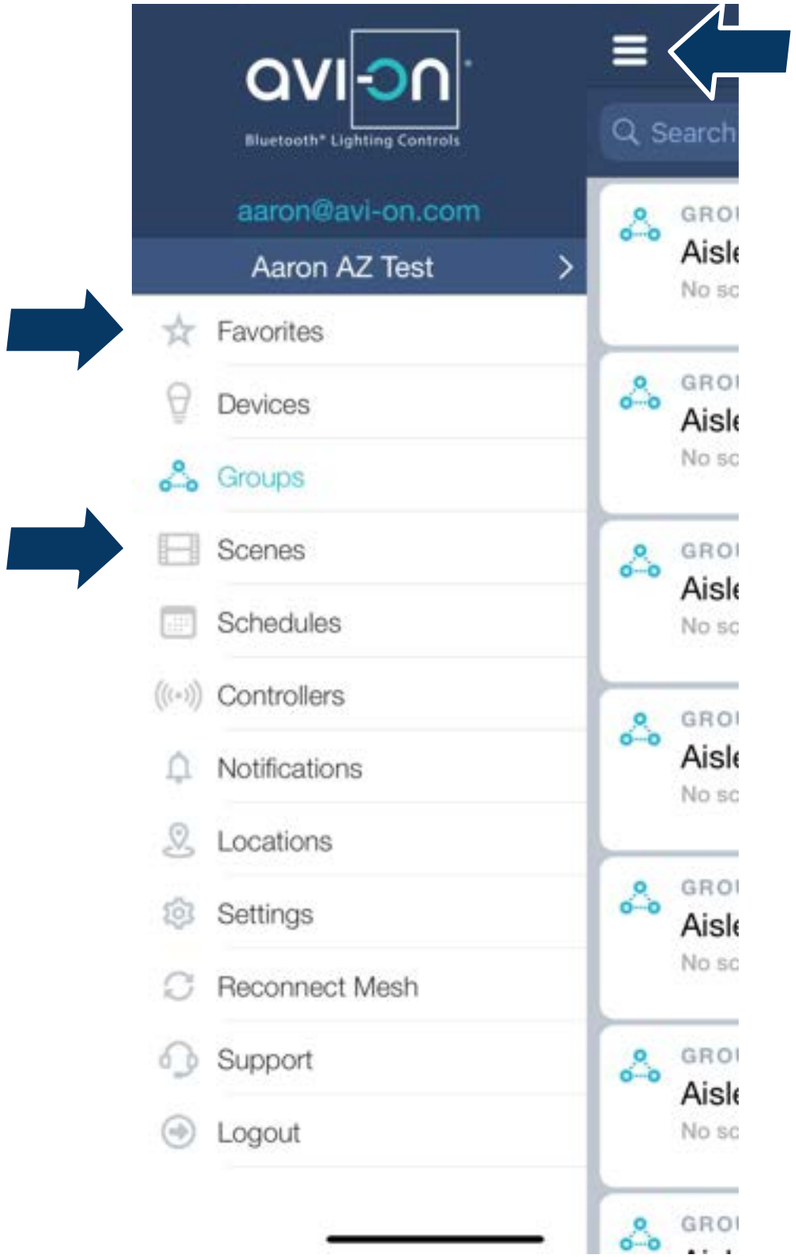
Create Account

- Select Commercial as the account type
- Enter your first and last name
- Enter a valid email address, there will be a confirmation email sent here to activate the account
- Enter your password
- Passwords must be at least 12 characters
- Password should have at least one uppercase letter, one lowercase letter, a number and a special character
- Agree to terms and conditions
- Press Create account



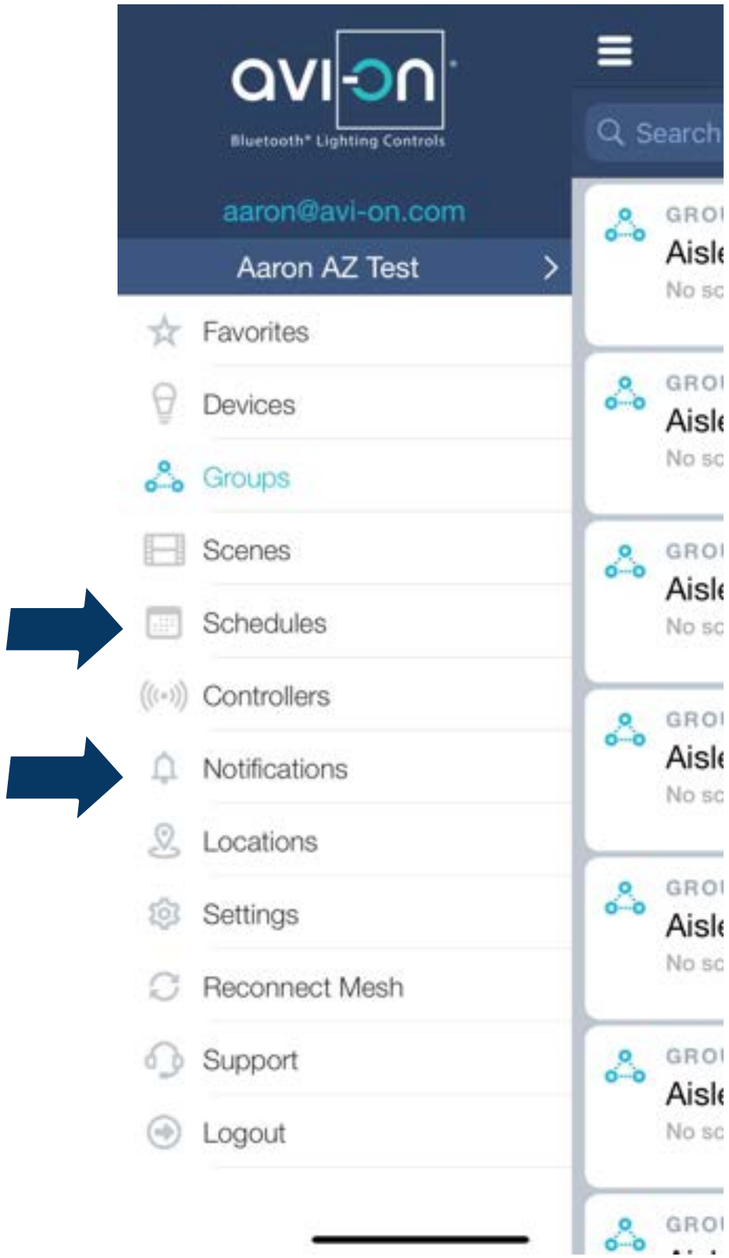
The *Avi-on Mobile* Menu Drawer 1/4

1) **Menu button in the upper left corner**
   - This will open and close the menu drawers on the left side of the app
2) **Favorites**
   - This is where you will find devices or groups that you have favorited. Until you favorite a device this section will be empty.
3) **Devices**
   - This is where you will add devices and once added see the individual devices that can control lights.
   - ie. LVFA, IFAC, XFAC CCO
4) **Scenes**
   - This is where you will create Scenes if desired.
   - Scenes can be used to set lights in a group to different levels or color temperatures if CCT



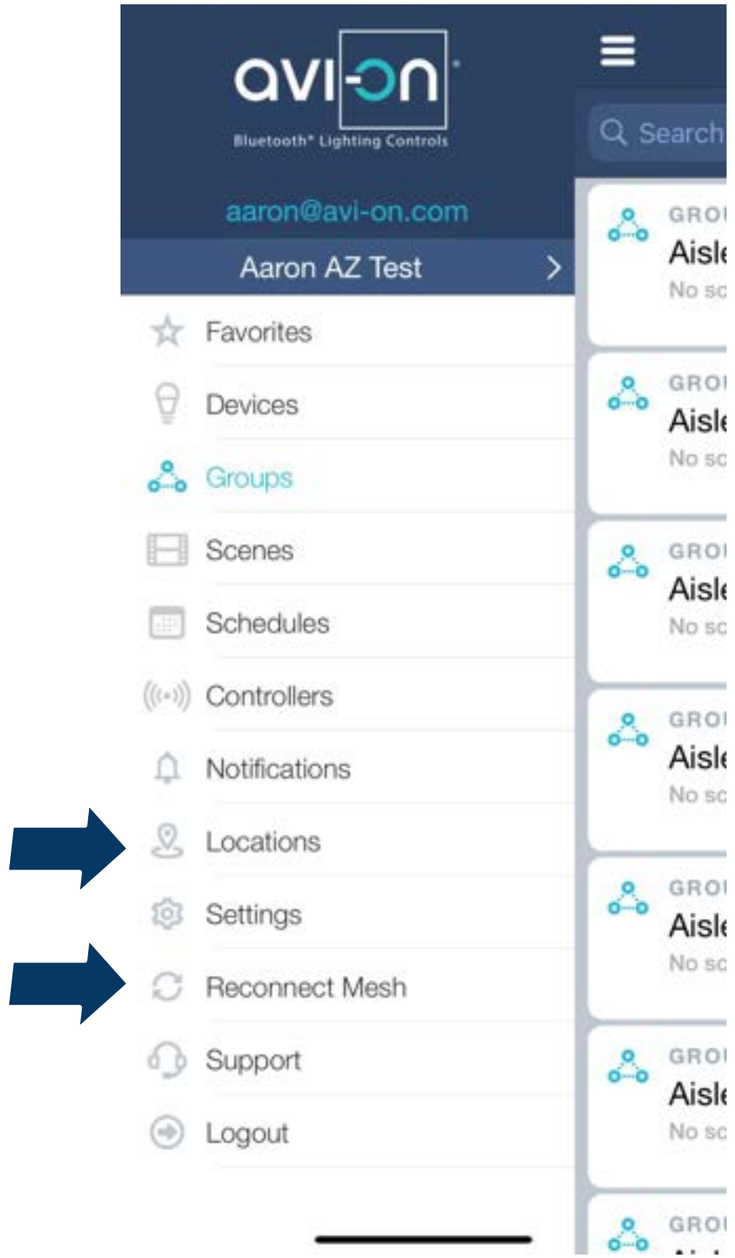
The *Avi-on Mobile* Menu Drawer 2/4

5) **Schedules**
   - This is where you set up device, group, and scene, schedules
6) **Controllers**
   - This is where you configure devices that can control devices
   - This includes motion sensors, wall stations, scene controllers
   - You will also find the LTE Bridge and Network Time Manager (NTM) in this section
7) **Notifications**
   - This is where notifications will show up if there was an error with commissioning
   - Failed devices can be re-added here



The *Avi-on Mobile* Menu Drawer 3/4

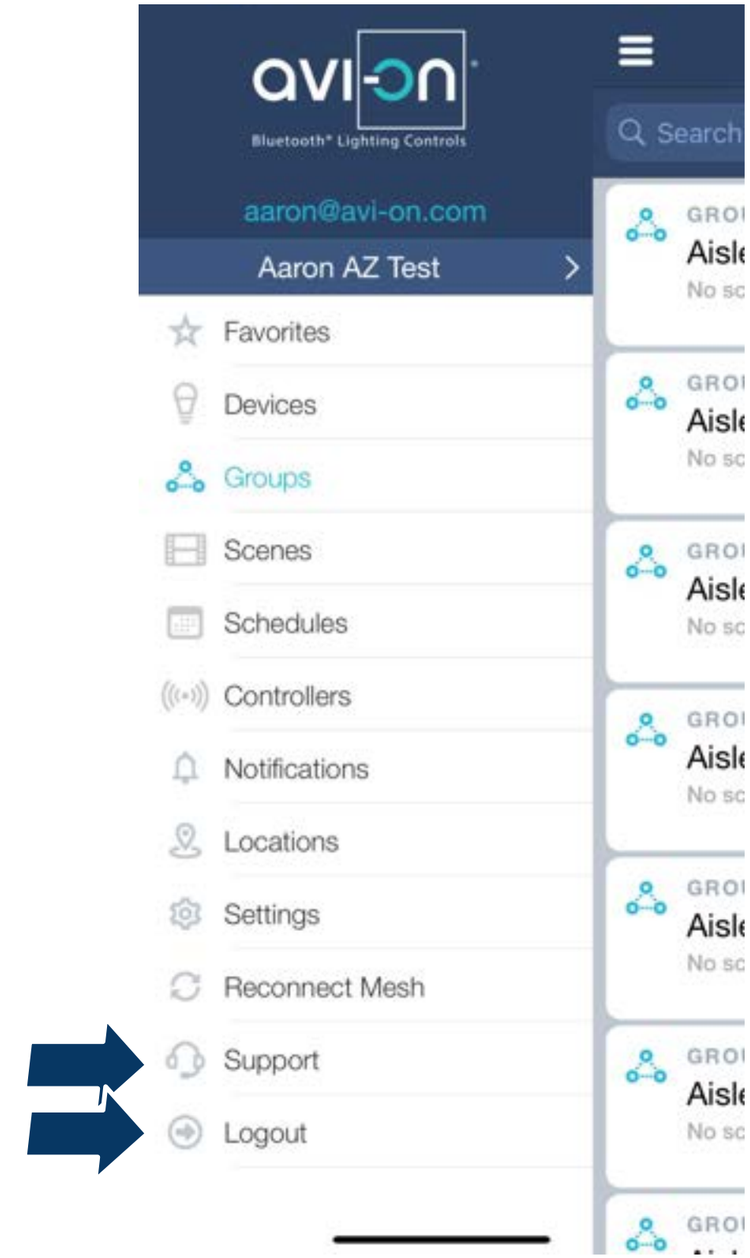
8) **Locations**
   - This is where you Select the location you want to connect to
   - This is also where you will go to import ZoneScanner Data
9) **Settings**
   - This is where you will find the About section to check App version
   - This is where you can Scan for missing devices
   - This is where you can delete your account
10) **Reconnect Mesh**
   - Use this button to refresh the bluetooth connection when you are physically onsite at you project location



The *Avi-on Mobile* Menu Drawer 4/4

11) **Support**
   - This opens the Contact Us page on Avi-on.com to ask for assistance

12) **Logout**
   - This will log you out of the app and you will need to log in again with your username and password to connect with the devices in the account



Step 1) Use *Avi-on Mobile* to set up your project

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

Project Startup: **Host a Pre-Wire Meeting**

Use Avi-on Mobile to REGISTER your personal Avi-on LOGIN

Use *Avi-on Mobile* to set up your project

1. **Use *Avi-on Mobile* to access LOCATION (-or- create new one)**
   a. Setup the *LTE Bridge/RAB* to enable remote work by Pro Technician
   b. Use https://location.avi-on.com to add users to location if you are the location manager
2. **Use *ZoneScanner Tool* to create ZONES**
   a. Create *ZoneScanner* device naming convention
   b. The *ZoneScanner* automatically names devices using the *Product Name + Last 4 Digits of MAC* on the QR sticker → → →
   c. The following naming conventions may help you to filter/program similar devices
      - *Emergency devices:* Add **!** to end of device name
      - *Daylight zones:* Add ***** to end of zone or group
      - *Daylight harvesting controller:* Add ****** to end *Devices w/ 3rd party wired Sensors* >> Add **%** to end of device name

   Example: [Class 0927]-3DC6-IFAC! = room number, the last 4 of the MAC, product, and that it is an emergency fixture
3. **Document building codes and desired *Sequence of Operations***
4. **Host *Pre-Wire Training* with electricians:** review wiring diagrams, practice *ZoneScanning*

Register Avi-on login (username)

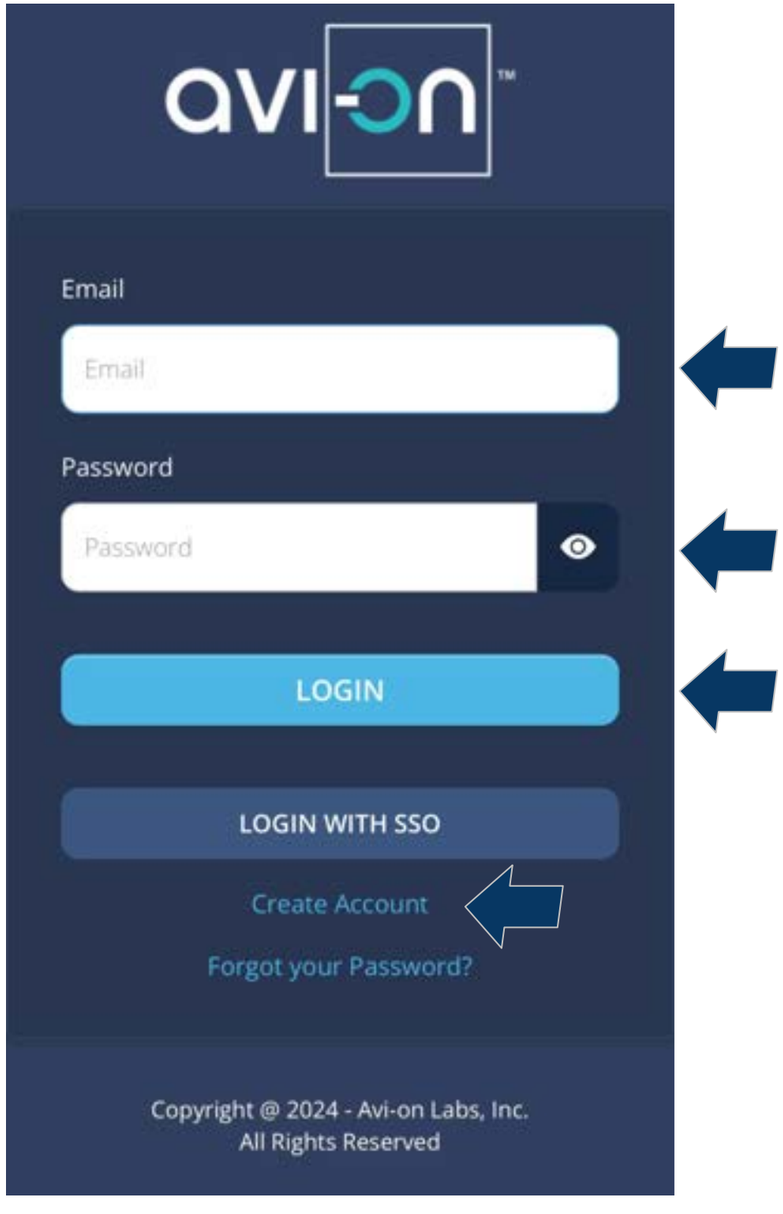
Create Login: Create Your Personal *Avi-on Login*

Login Screen

- If you have already created your account use your email address and password to login

Create Account

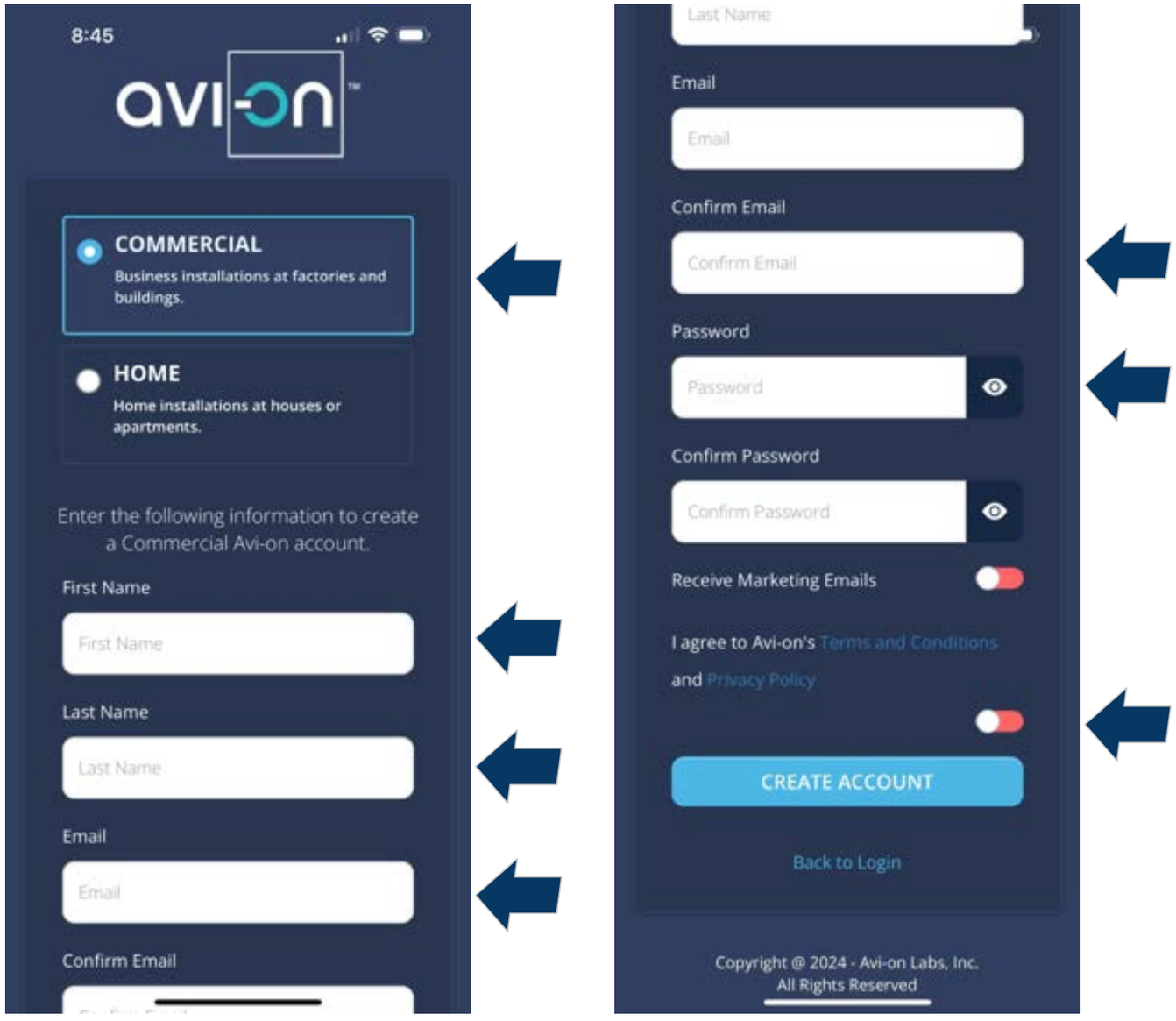
- If this is the first time you have opened the app the first thing you need to do is create an account.
- Press the create account button near the bottom of the screen



Create Login: Create Your Personal *Avi-on Login*

Create Account

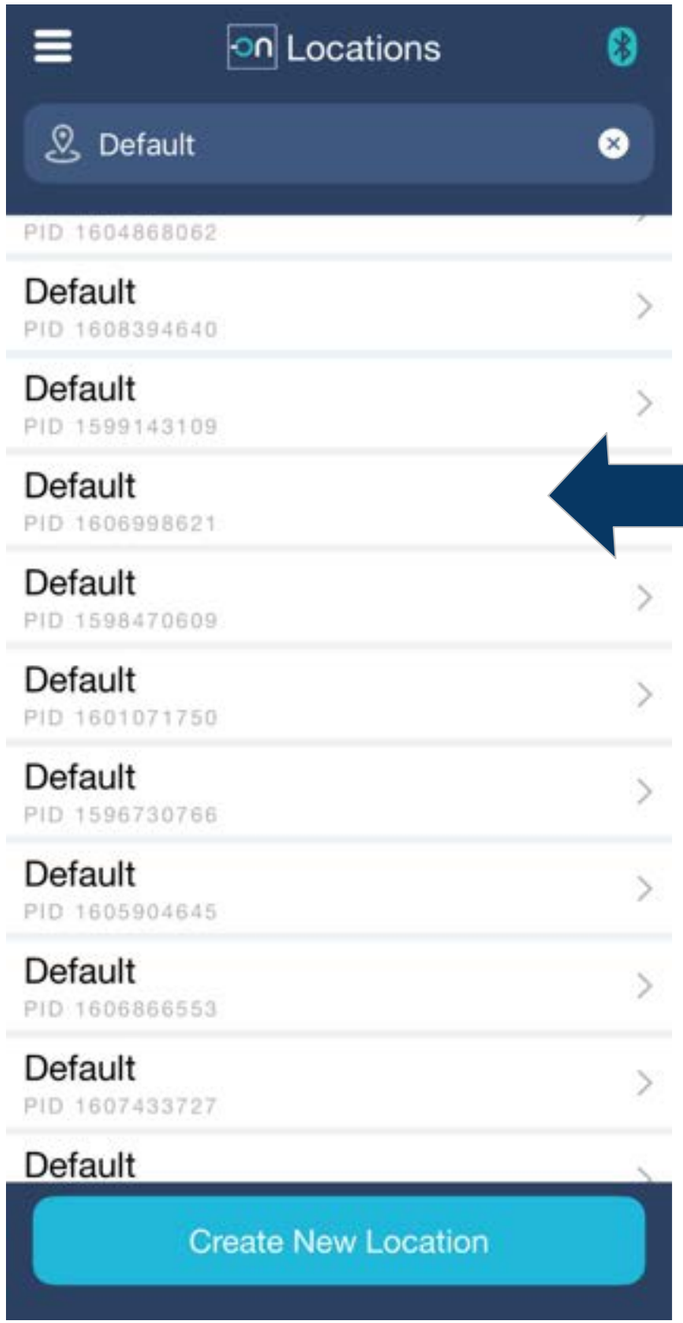
- Select Commercial as the account type
- Enter your first and last name
- Enter a valid email address, there will be a confirmation email sent here to activate the account
- Enter your password
- Passwords must be at least 12 characters
- Password should have at least one uppercase letter, one lowercase letter, a number and a special character
- Agree to terms and conditions
- Press Create account

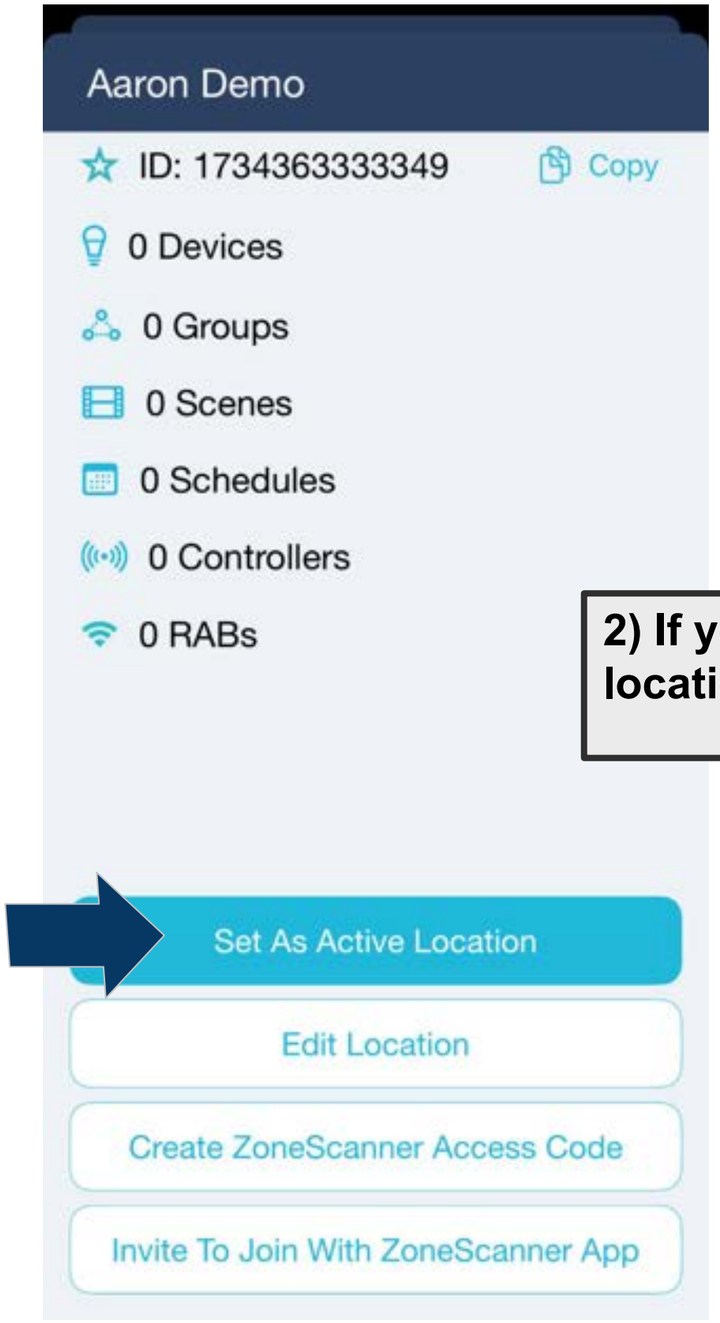


Bluetooth® Lighting Controls

Select your project's *location*

Pre-configured Locations: Use *Avi-on Mobile* to select from the *Locations* list





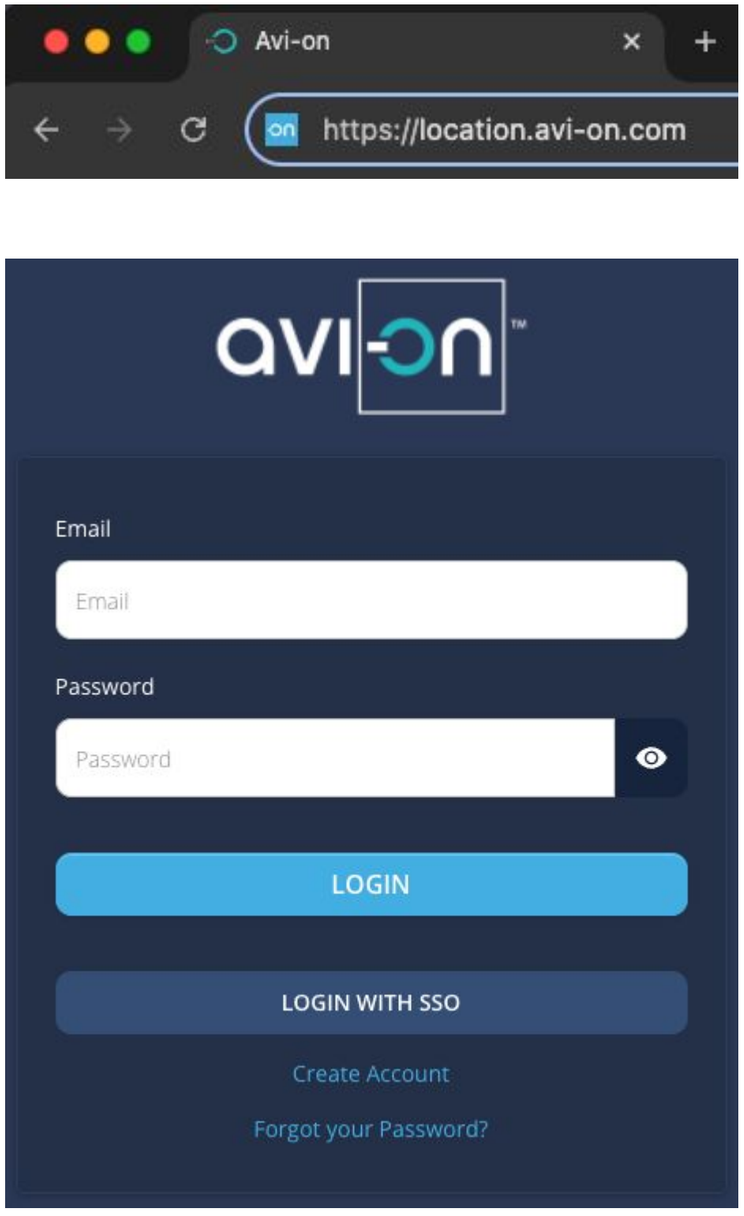
2) If you cannot find your project's location, please go to the next page →

➔ **Need access to multiple Avi-on *locations*?** If you would like access to Avi-on locations, go to Avi-on.com/contact, provide the *project's name,* and then list the email addresses that need to be provided with access

Add users to your project with location@avi-on.com

Location Managers: Add *users w/ www.location.avi-on.com* 1/3

- If you are a *location manager* and you need to add additional installers or end users, go to https://location.avi-on.com
- Login with the avi-on account credentials you previously created.
- These will be the credentials tied to your actual email address



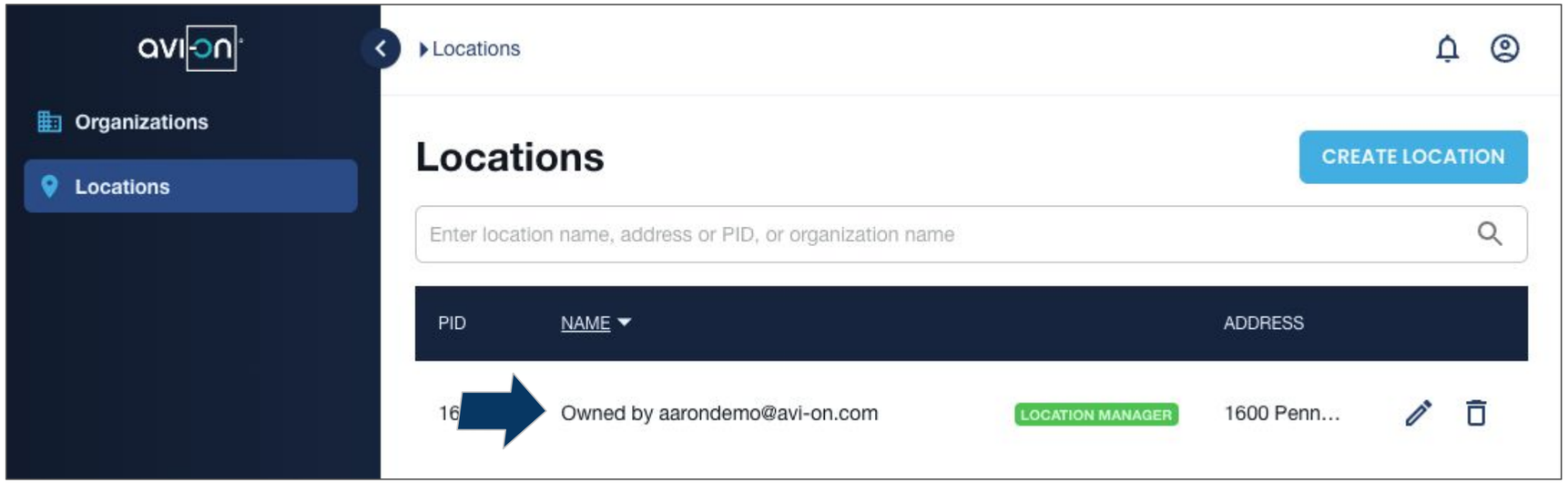
➔ **Have an existing Avi-on *location*, and need access?** Go to Avi-on.com/contact, provide the *project's name* and list the email addresses that need access

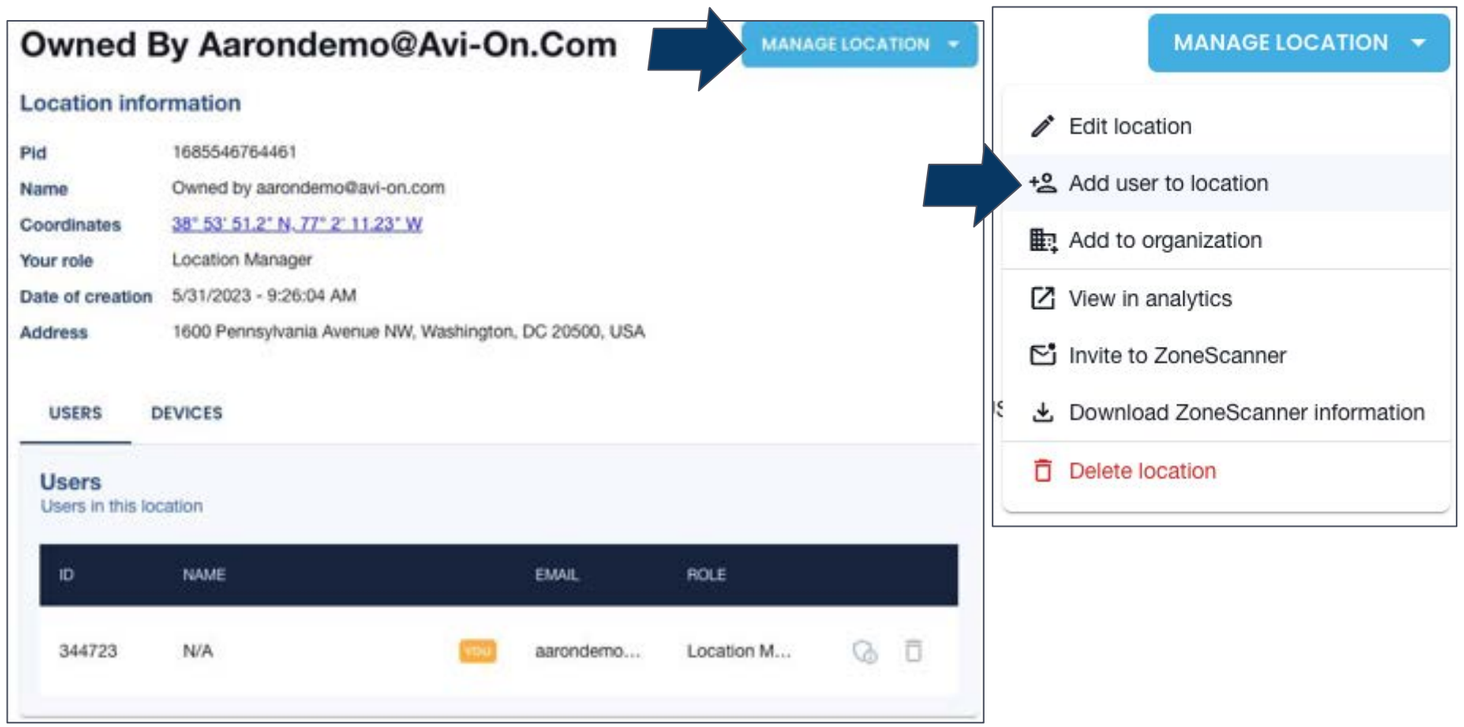
➔ DO NOT DUPLICATE LOCATIONS. Devices cannot be digitally transferred. You will have to manually reset each device

Location Managers: Add *users w/ www.location.avi-on.com* 2/3

View the list of one or more locations*

- Click your project's existing *location,* which will then show ownership and location details
- In the top right, click *Manage Location*
- Select *Add user* to location





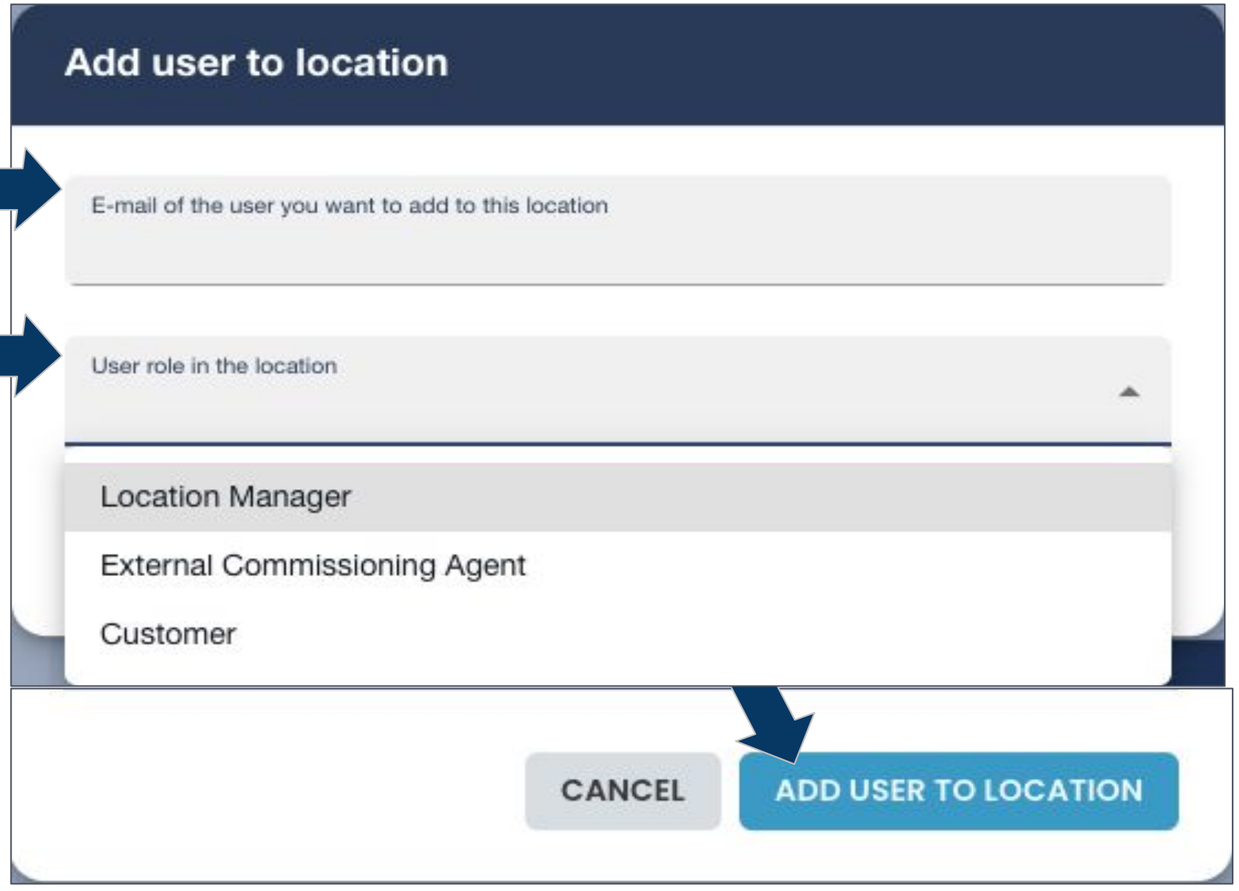
*** Have an existing Avi-on *location*, and need access?** Go to Avi-on.com/contact, provide the *project's name* and the list of email addresses needing access

➔ DO NOT DUPLICATE LOCATIONS. Devices cannot be digitally transferred. You will have to manually reset each device

Location Managers: Add *users w/ www.location.avi-on.com* 3/3

1. Enter the new user's email address
2. Assign the user a *role (see below)*
3. Add User To Location button

Location Roles	Programming Access	Ability to Add/Remove Users
Location Manager	Full	Full
External Commissioning Agent	Full	None
Customer	Limited	Limited



TIP

➔ **Have an existing Avi-on *location*, and need access?** Go to Avi-on.com/contact, provide the *project's name,* and then list the email addresses that need access

➔ DO NOT DUPLICATE LOCATIONS. Devices cannot be digitally transferred. You will have to manually reset each device

No Locations Listed: Ask to join the project's *location**

If *Avi-on Mobile* does not list your project's *location*, then…		
If YOU are NOT the Project Manager (PM), then…	**IF YOU ARE the Project Manager (PM)** ***Do one of these steps…***	
…Call/text/email the Project Manager (PM) and ask them to add you to the project's location	Look in shipment for a **pre-configured LTE Bridge**… Please check inside the Bridge's box for location information, then go to avi-on.com/contact/ and select *Option 8* 	No Bridge in shipment? **AND you are certain that no location exists?** Proceed to the *Create Locations* section → → →

*** Have an existing Avi-on *location*, and need access?** Go to Avi-on.com/contact, provide the *project's name* and the list of email addresses needing access

➔ DO NOT DUPLICATE LOCATIONS. Devices cannot be digitally transferred. You will have to manually reset each device

Verified* No Location: Create a NEW *Location Name*

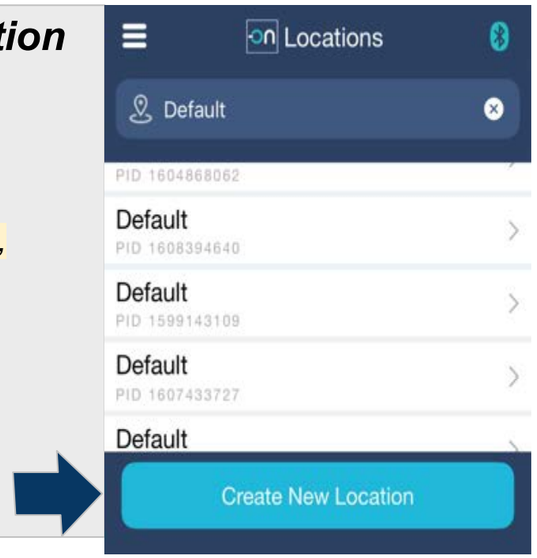
** Always verify if locations exist BEFORE creating new ones. Go to Avi-on.com/Contact, Option 8*

1) Click *Create New Location*

Each project needs a unique Avi-on *location name*

**Do not create duplicate locations, as there is no way to digitally transfer devices*

If you create duplicate or multiple locations, then you will need to manually access and reset all devices

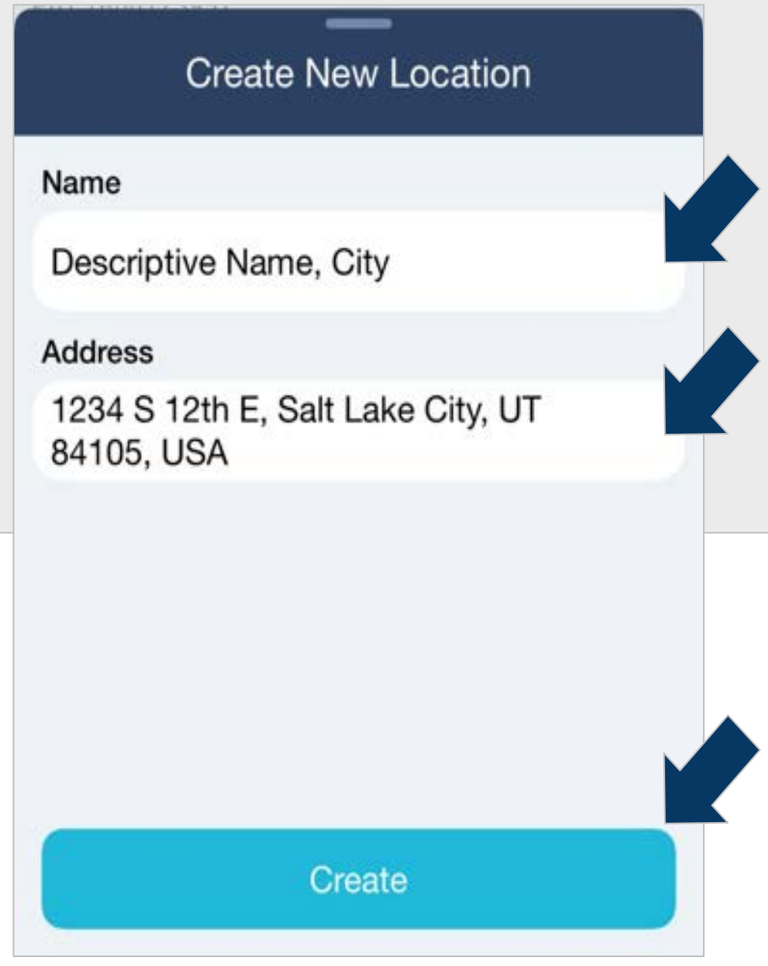


2) Give the location a descriptive name, like company name

- Do not use generic names such as *office* or *warehouse*

3) Type the address and select from the options

4) Press *Create Location*



5) After clicking create you will be taken to the new location

Location Address Configuration

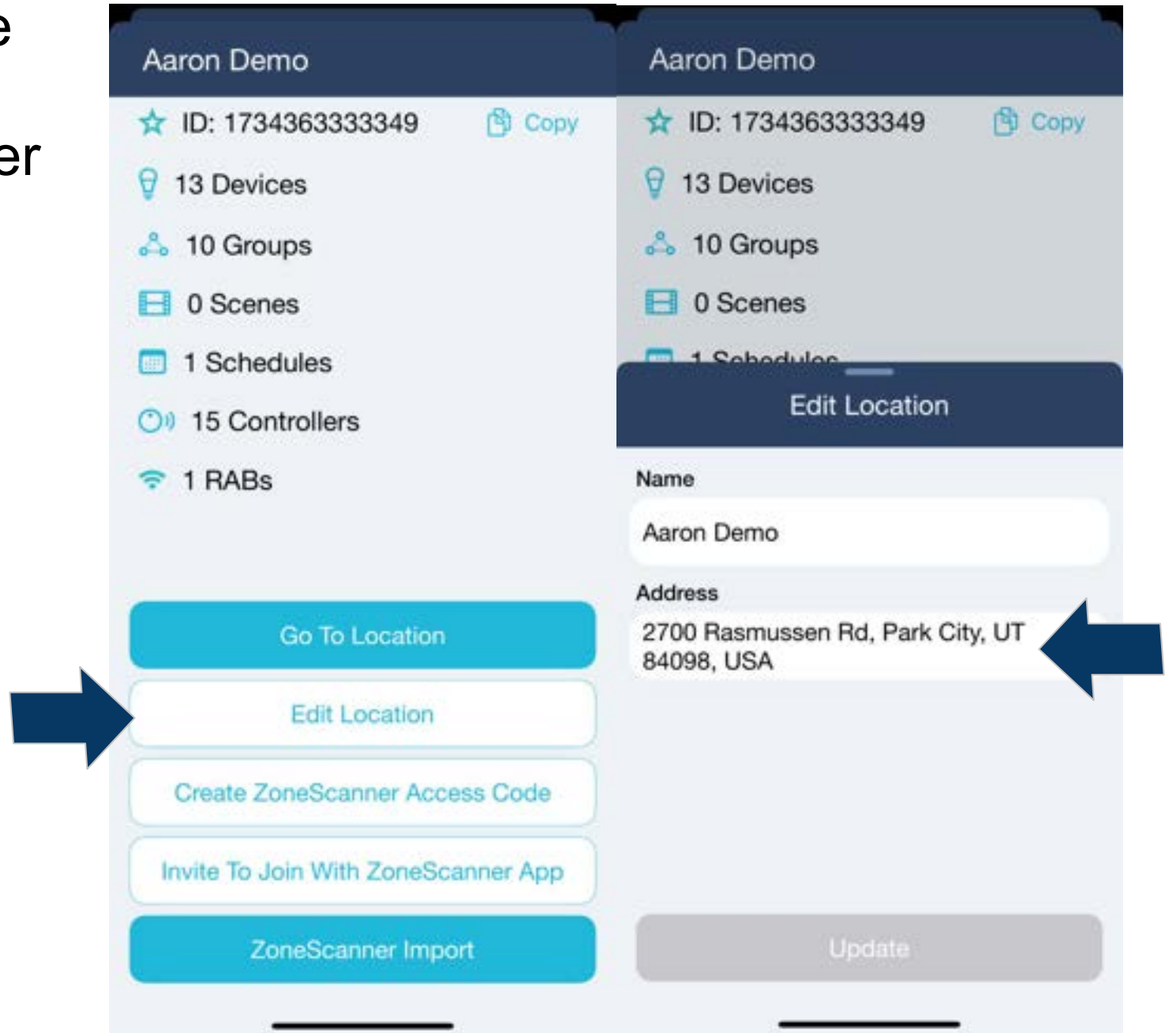
Ensure that schedules are in the correct time zone and that remote programming do not impact local settings

Installer Tools >> **Location Address Configuration**

Set a project's *location address* to ensure the correct address, latitude, and longitude to drive Time Zone, Sunrise/Sunset, schedules and other functionality

- **For projects created with Avi-on Mobile AFTER September 2023**
  - The *location address* is automatically set as part of creating the *location*
  - If needed adjust the location with the *Edit Location* button on the Location Tab

- **For projects created with Avi-on Mobile BEFORE September 2023,** you will need to set or update the *location address*



Step 2) Set up & use the *ZoneScanner*

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

Save time & money: use the ZoneScanner from the start to Scan fixture QRs→ Assign control zones→ Install controls
While you are installing fixtures, wall stations, and other controls, electricians can use the *Avi-on ZoneScanner Tool* on their smartphone to quickly scan Avi-on fixture QR stickers and assign control zones

Bluetooth® Lighting Controls

Set Up & Use ZoneScanner on Fixture & Control QRs

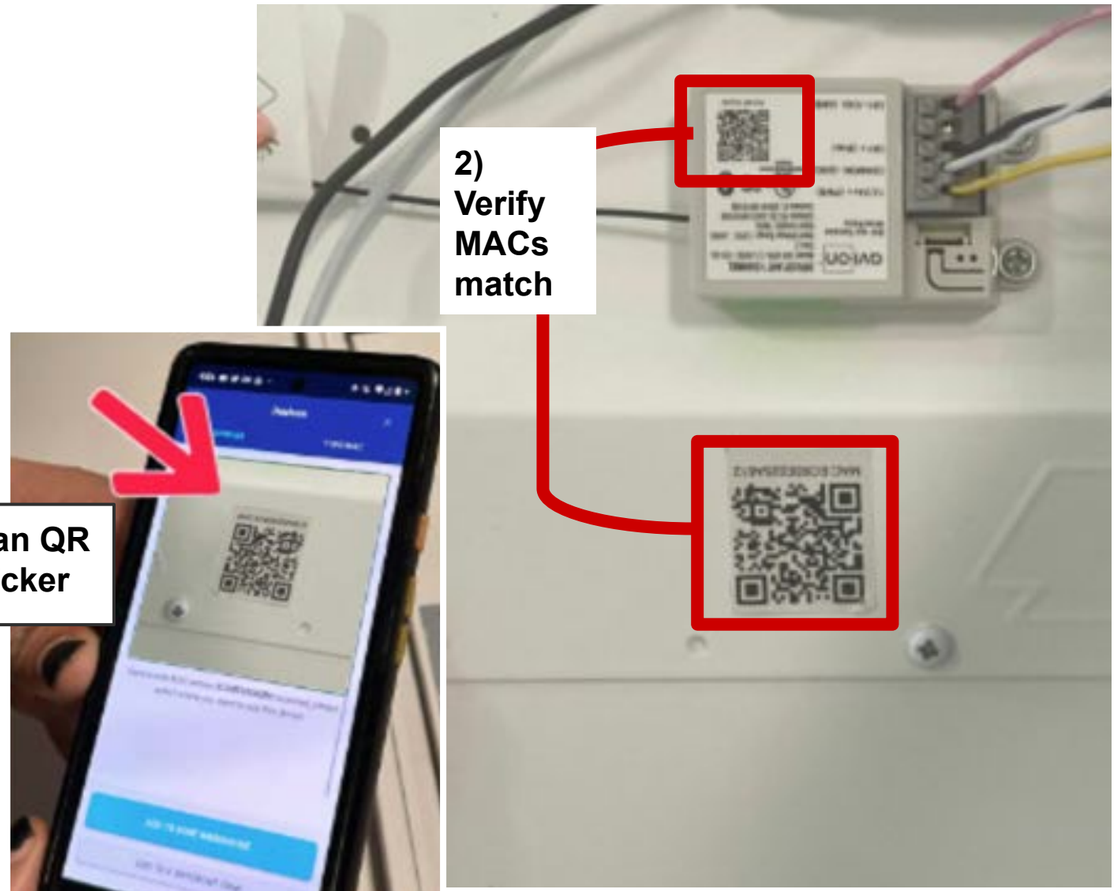
Use *ZoneScanner Tool* to assign controls to zones

Click THIS LINK
for the Complete ZoneScanner Guide
-or- scan QR →

With the *ZoneScanner Tool*, electricians can quickly assign Avi-on controls to pre-defined zones

1) **Use email invitation** to download *ZoneScanner* to phone (not available in app stores)
2) **For fixtures: match MACs inside & out**
   - Spot check that last 4 digits of MACs on nodes *inside* fixtures match QR stickers on *outside* of fixture

3) **Use *ZoneScanner* on fixture & wall station QRs**
   - Scan QR
   - Assign zone
   - Check for blue light
4) **Flashing blue light indicates successful scan**
5) **Install fixture or wall station**
6) **Verify that device is wired & powered correctly**



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Room-by-Room: *ZoneScanner* Workflow

Mobile Technician & Electrician work in parallel to resolve wiring issues & commission each area

Steps for Project Manager (PM)	Steps for Electrician
I. **Double-check fixture assembly: verify QR codes match inside & out**	↓
II. **Set up *ZoneScanner*: link your Avi-on *username* to project's *location*** ○ Request access to the Project's Avi-on *location,* or, if you are certain there is no *location*, use *Avi-on Mobile* to create a new *location* III. **Create control zones–see details below** IV. **Invite Electricians to *ZoneScanner Tool*** *–see details below*	↓ ↓ ↓
V. **Lead electricians in *ZoneScanner* set-up & scanning practice** ← →	1. **Look in email for an invitation to project's Avi-on *location* & download the *ZoneScanner Tool* to your phone** 2. **Use correct Avi-on 4-digit location for scanning** 3. **Scan→Assign Zone→Install Fixture (verify BLUE light blinking)** 4. **Locate controls & take notes***–see instructions*
VI. **Use Avi-on *Mobile* to ADD & IMPORT ZoneScanner data** VII. **Use Avi-on *Mobile* to commission controls (aka "program settings")**	5. **BEFORE LEAVING ROOM: resolve power, wiring, & fixture issues. If you need help, ask Project Manager to assist with *Avi-on Pro***

Want to verify if a project's Avi-on location already exists?
Go to Avi-on.com/Contact or scan this QR →

Do not duplicate project *locations*. Devices cannot be transferred.
Starting over means manually accessing & resetting devices

Click THIS LINK or scan QR for the Complete ZoneScanner Guide →

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Step 3) Use *Avi-on Mobile* to create *Groups*

0	1	2	3	4	5	6	7	8	9
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Avi-on is a secure lighting control system used in defense department facilities

Avi-on Mobile's Add Devices function securely adds or "claims" the devices to the project's *location*
Using *Avi-on Mobile* to *Import* the *ZoneScanner* data enables you to automatically convert the pre-defined *zones* into *groups*

Best Practices: Naming conventions for groups, devices, functions

	Naming Convention	Example	Tips for *ZoneScanner* Import

Groups -or- Zones	**Area or Room Number being controlled**	• Open Office 100
		• RM 120 Teaching Wall
		• Class 0927 *****
			• Avi-on will automatically include the room/group/zone number in brackets when you **Import ZoneScanner Data.** To use this function on the ***Groups Page,*** copy/paste *Group Name* into the ***Member Prefix*** **box**
			• The **Import ZoneScanner function** will automatically build the device name:
			  ○ Member Prefix (aka Group/Zone/Room)
			  ○ Last 4 digits of MAC
			  ○ Product name (like IFAC, Wall Station, etc.)
			• As you important *ZoneScanner* data, **MANUALLY add the special function** characters (!, *, **) to the device names -or- zones

Fixture Adaptors & Power Packs *X-FAC, LVFA, IFAC* 	**[Group/Zone Name] - Last 4 MAC - Device - Special Function** **Special Functions**: Add characters to make search easier during programming • **Emergency devices:** Add ! to end of *device name*. *Example:* [RM 120 Teaching Wall] - AB12- LVFA **!** • **Daylight harvesting (ALS) CONTROLLER:** Add ** to end of device name. *Example:* [RM 120 Teaching Wall] - AB12- LVFA**!**** **<< emergency, daylight zone & controller** • **Daylight ZONE:** Add * to end of *zone or group. Example:* [RM 120 Teaching Wall] ***** - AB12- LVFA • **Example sensor use cases: hallways v. stairwells:** Add **^** on hallways and **?** on stairwells • **Example 2-button wall stations:** Add **2B** on end of name • **3rd Party "McWong" Sensor:** Add % to end of device name. *Example:* [Class0927]-3DC6-IFAC**!%**		
Wall Stations *BAT & AC Switches*	**[Group/Zone Name] - Last 4 MAC - Device - Function**	• [RM 120 Teaching Wall] – F224- Avi-on Wall Station- AC	
GE Switches *Do not ZoneScan*	**[Group/Zone Name] - Last 4 MAC - Device - Function**	• [RM 132 Closet] – 998B-GE In Wall Dimmer	• GE switches do not have a QR code for *Zonescanner* import. These devices will need to manually be grouped and named in Avi-on *Pro*
Avi-on Direct Connect Sensors DC-PIR, DC-MW	**[Group/Zone Name] - Last 4 MAC - Device - Function - Sensor**	• [RM 120 Teaching Wall] - AB12- LVFA **!**** Sensor	• *Avi-on Direct Connect (DC) Sensors* plug directly into an XFAC, IFAC, or LVFA. DC sensors take the name of that device with ***Sensor*** appended to the name
Schedules	**Group/Zone - Begin/End Time - Days of Week**	• Open Office 100 7am to 7pm M-F	• Put in the zone being controlled, times, & days
Scenes	**Area or Room Number being controlled** **this will typically match the Zone or Group name**	• Open Office 100 • RM 152 Cafeteria	• Scenes are created after *Zonescanner* import within Avi-on Pro. To make Scene creation easier, make sure your Zones/Groups are scanned accurately

Bluetooth® Lighting Controls

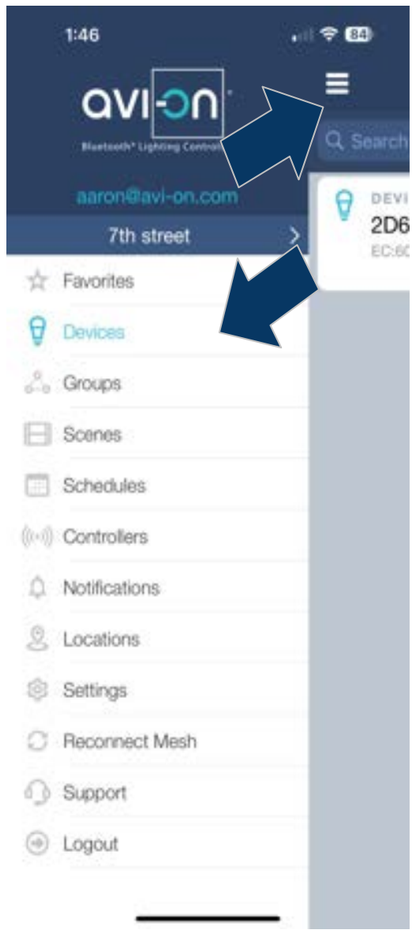
Add devices to your *location*

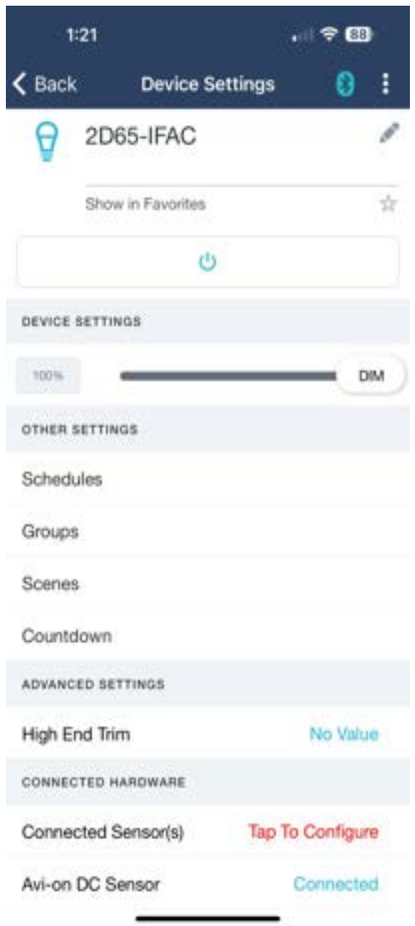
ADD DEVICES with the mobile App

Open Devices Drawer

When you are onsite add devices this way…

1. Go to the top left menu button and select Devices
2. Press the (+) button
3. Select the devices you want to add and push the Add button

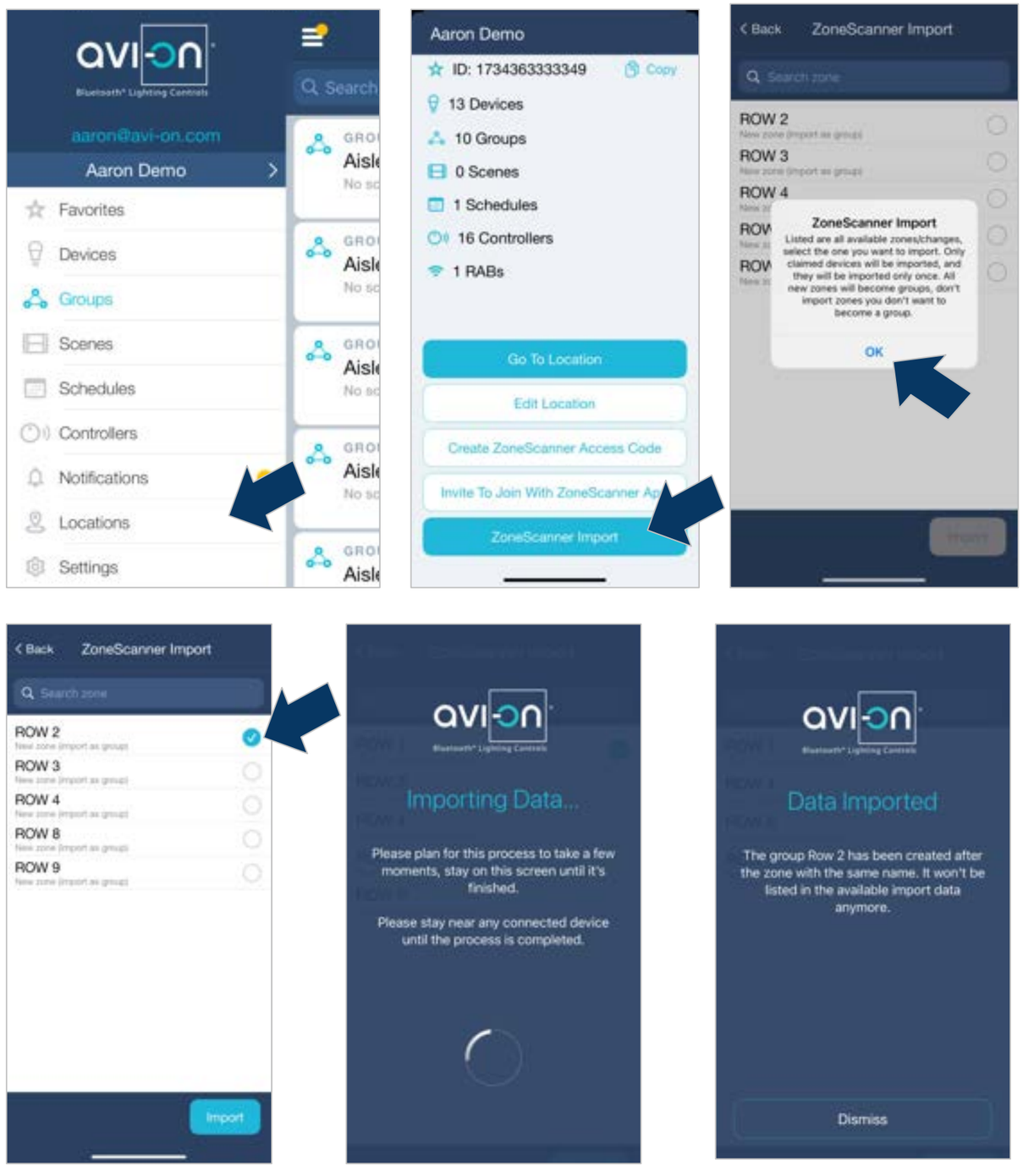




Use *Avi-on Mobile* to import *ZoneScanner* data

Import *ZoneScanner* data

1) **Once all devices are *added,*** select
   a) *Menu > Locations*
   b) *Select your location*
   c) *Select ZonesScanner Import*
   d) Acknowledge note stating you cannot import until devices are added
   e) Check the zones you wish to convert to groups one at a time
   f) Click the Import button



2) **ZoneScanner tips**
   a) After importing a zone it will be removed from the available list

Bluetooth® Lighting Controls

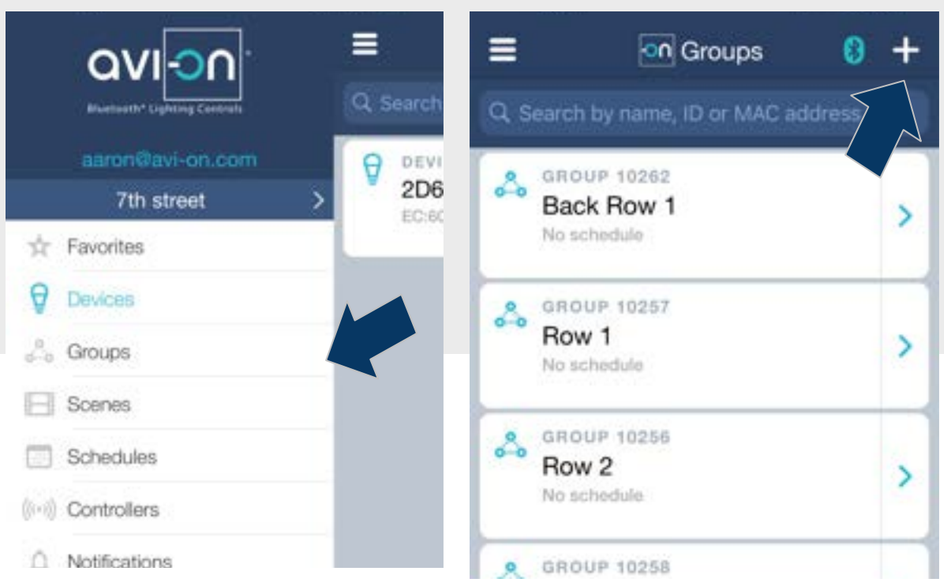
Create *groups*

Create *groups* of devices

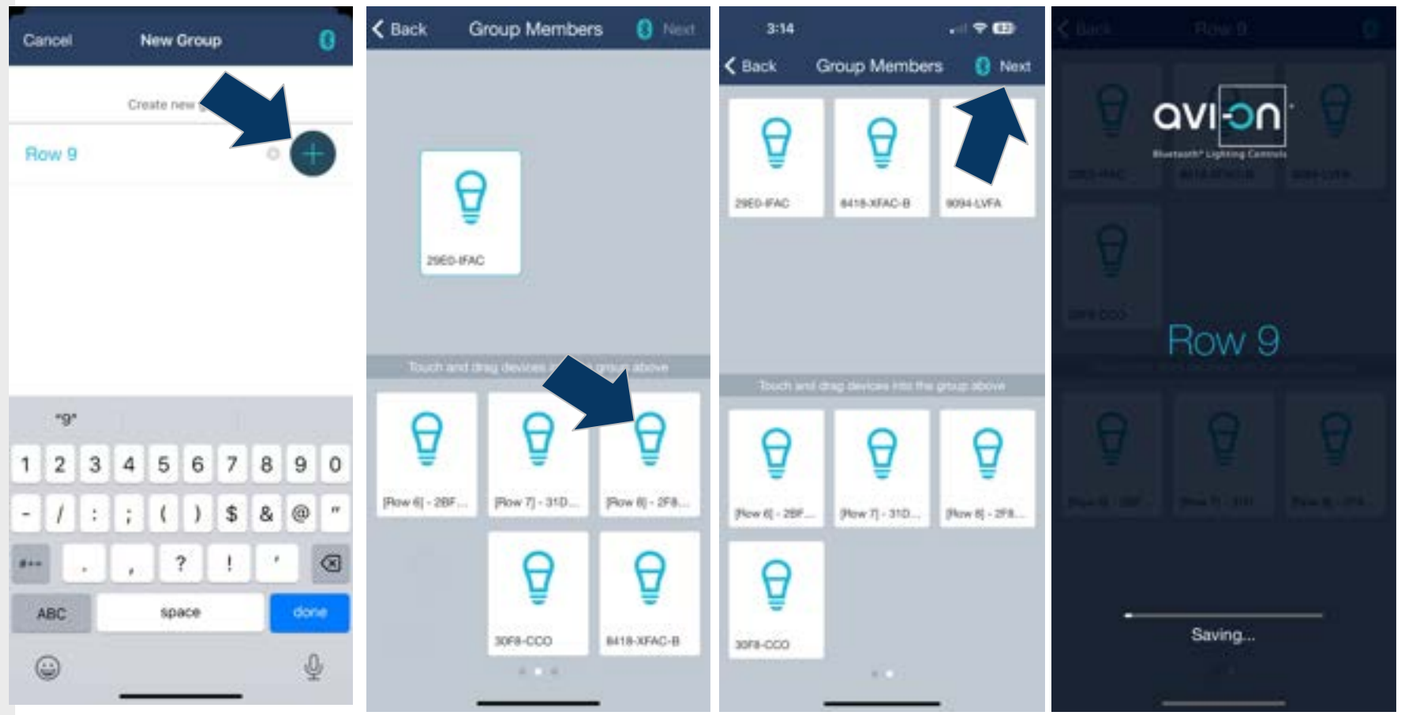
1) **Two options for moving individual devices into *groups***

- **Option A) Automatically convert *ZoneScanner* zones to groups**
  - Once all *ZoneScanner* data has been imported, go to *Menu* > *Groups*

- **Option B) Manually create groups**
  - If the ZoneScanner was not used, manually group all devices at *Menu* > *Groups*



2) **Press the (+) button to create the new group**
- Drag and drop the devices from the available list at the bottom to the group on top
- Pressing the Next button will save the group



Step 4) Use *Avi-on Mobile* to create *Scenes*

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

NOTE: AN NTM (Network Time Manager) IS REQUIRED FOR SENSOR OVERRIDES, AS WELL AS SCHEDULES, & SCENES

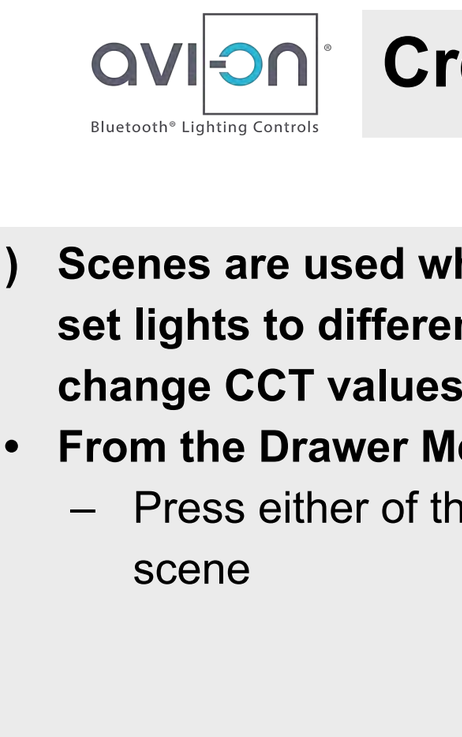
- While pure sensor function does not require a time clock, any sensor overrides, scenes, or schedules depend on constant power to maintain time
- Rather than include expensive batteries in every device, Avi-on uses a single Network Time Manager (NTM) per location
- The NTM is a single battery backup for the entire network. It keeps time in the event of power interruption like brown outputs, flickers, or outages

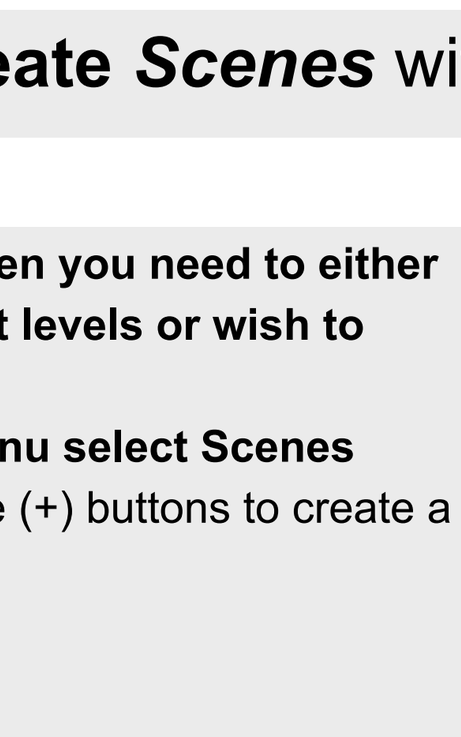
Bluetooth® Lighting Controls

Create *Scenes*

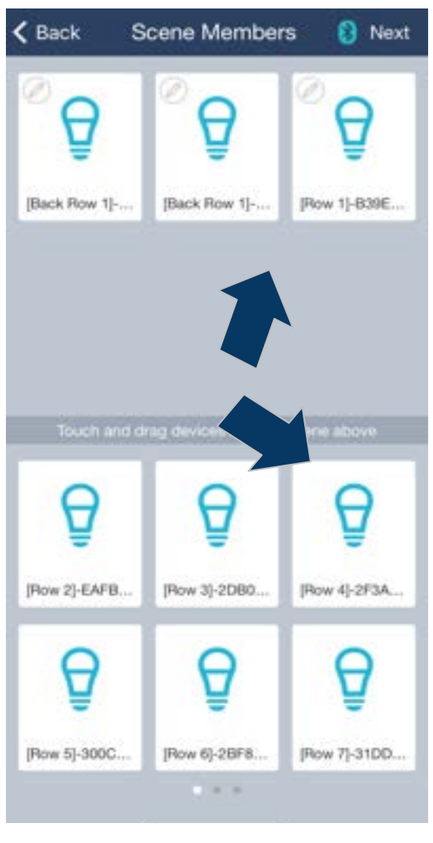
Create *Scenes* with devices

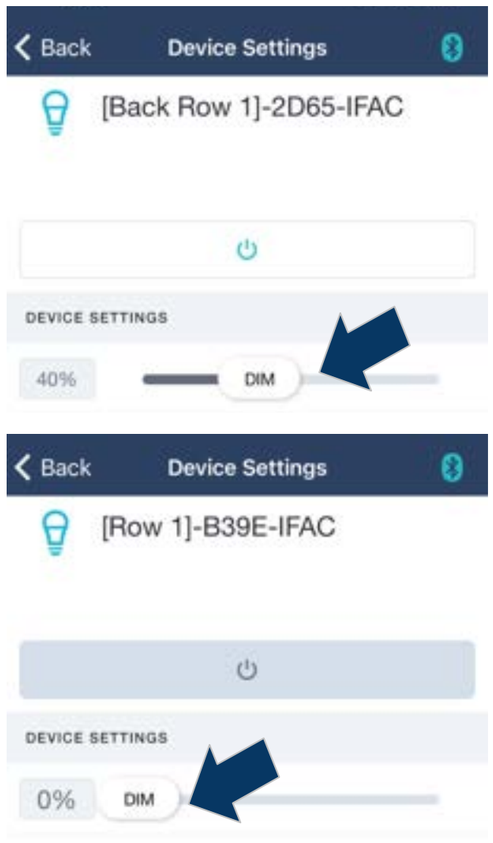
1) **Scenes are used when you need to either set lights to different levels or wish to change CCT values**
   - **From the Drawer Menu select Scenes**
     - Press either of the (+) buttons to create a scene





2) **Create a name for your Scene and press Done**
3) **Drag and drop the desired lights into the scene, dragging from the bottom to the top**
4) **Click each of the lights in the group and set the desired dim level, even if the desired level is off**

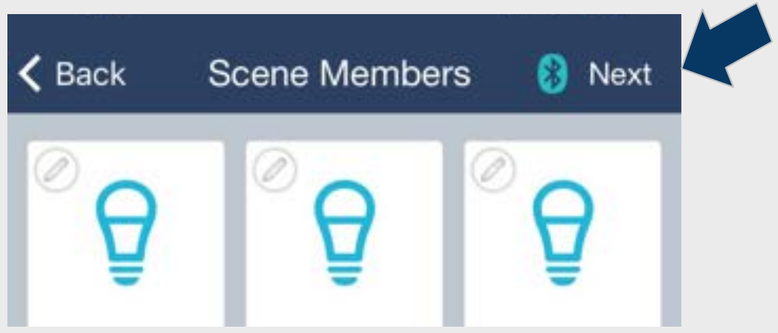


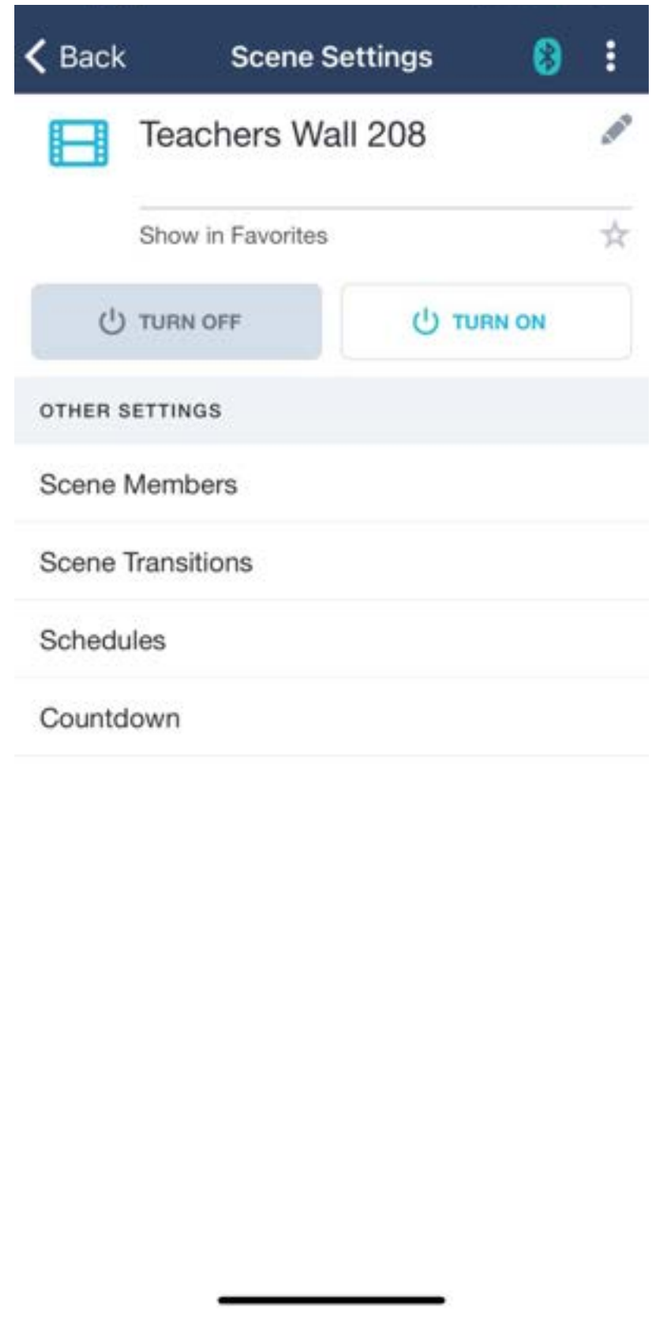


Create *Scenes* with devices

After setting all devices to the desired levels press Next

- *Wait for the App to save the changes to all devices within the scene*
- *Depending upon how many devices are in the scene, and the distance of the app to the nodes, this could take a couple minutes*

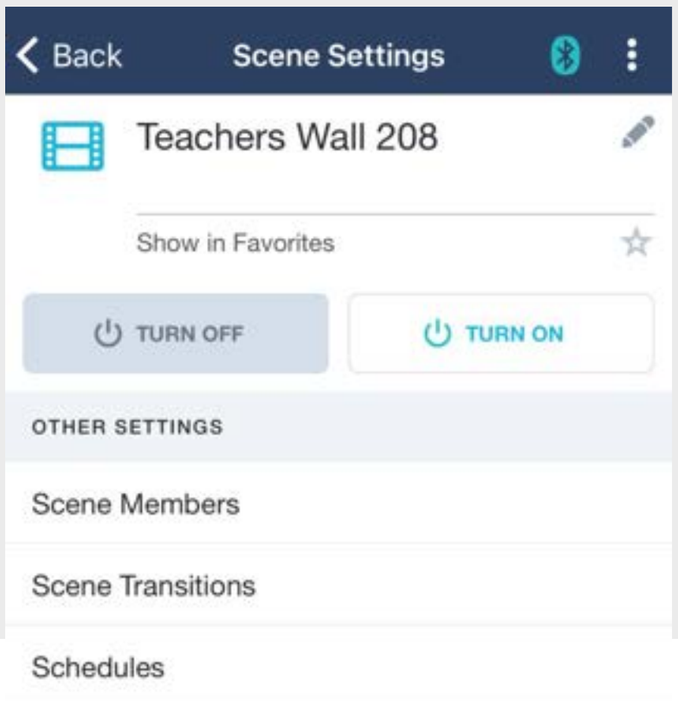


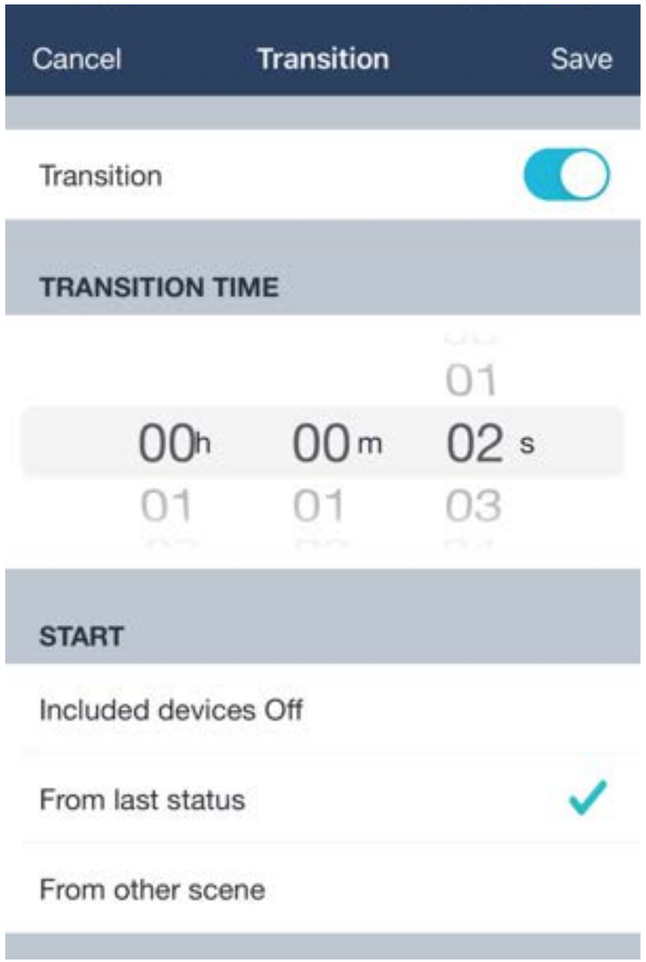


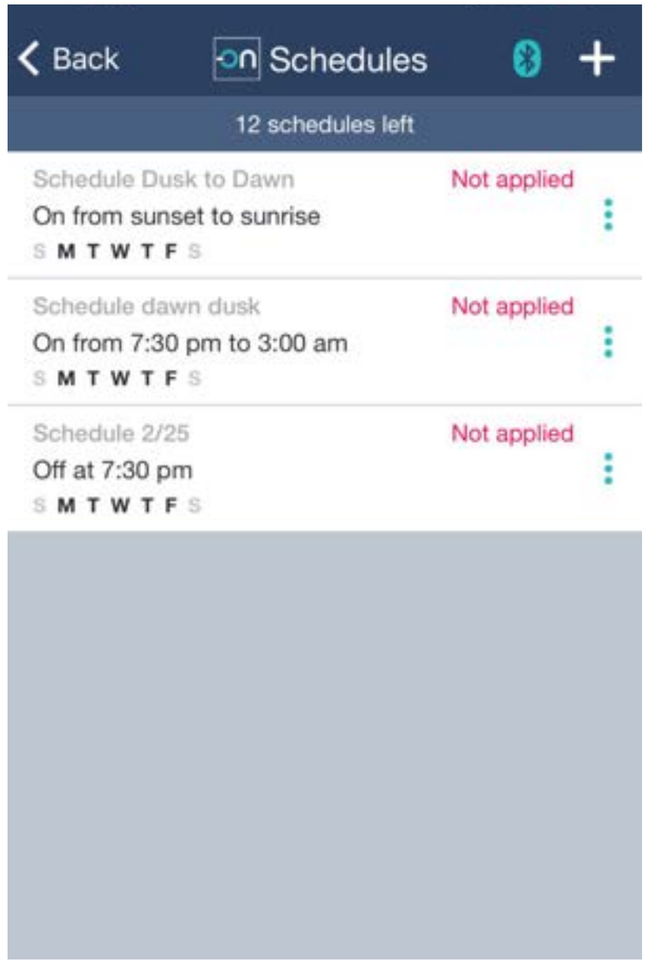
Create *Scenes* with devices

With Scene setting saved you will be taken to the main Scene page

- Here you can edit group members and their levels
- Setup Scene transitions if you would like a more gentle fade into the scene
- Open the Schedules page if you want to schedule your scene.







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Step 5) Use *Avi-on Mobile* to configure Sensors

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

NOTE: AN NTM (Network Time Manager) IS REQUIRED FOR SENSOR OVERRIDES, AS WELL AS SCHEDULES, & SCENES

- While pure sensor function does not require a time clock, any sensor overrides, scenes, or schedules depend on constant power to maintain time
- Rather than include expensive batteries in every device, Avi-on uses a single Network Time Manager (NTM) per location
- The NTM is a single battery backup for the entire network. It keeps time in the event of power interruption like brown outputs, flickers, or outages

Part I: Typical Sensor Types & Settings

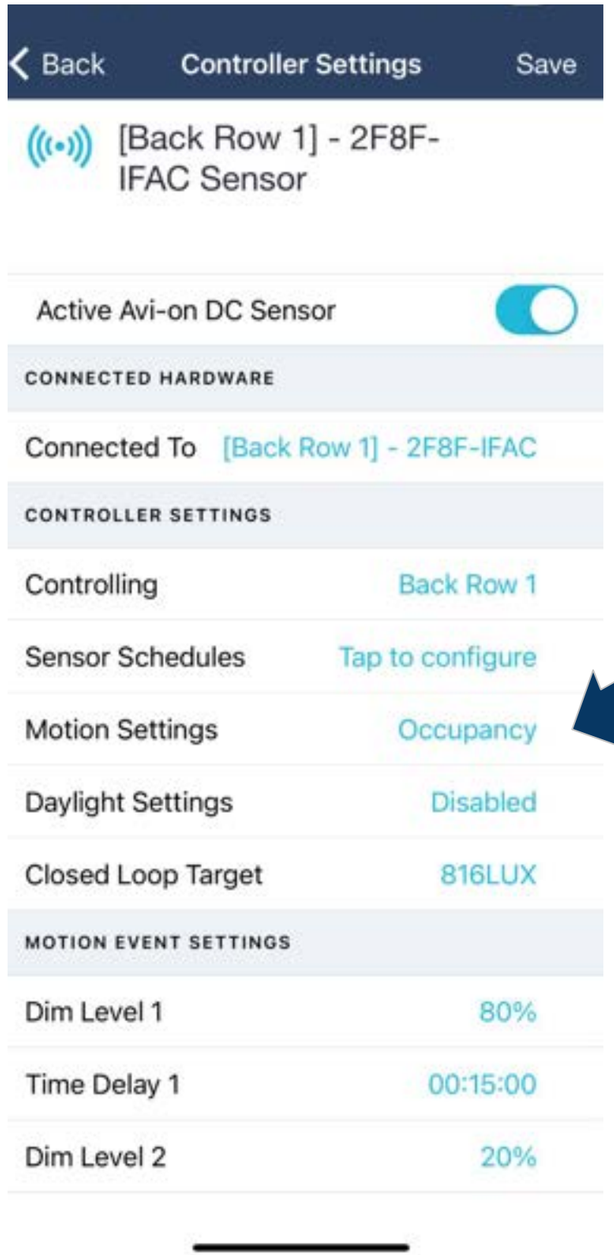
Sequence of Operations & Building Codes

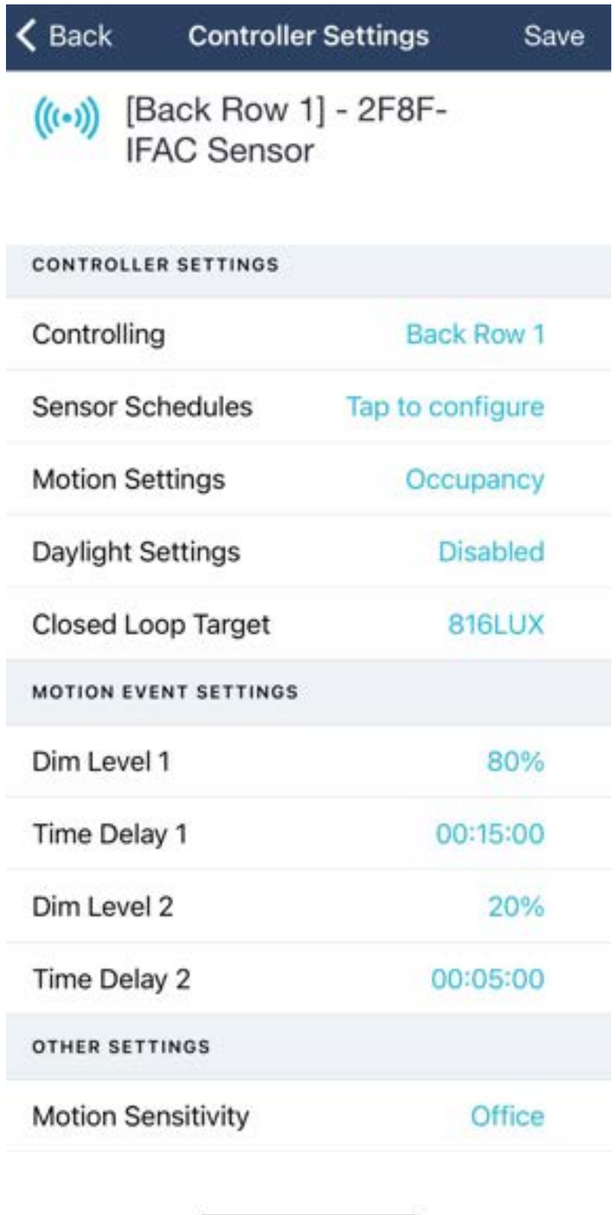
Title 24: Typical Occupancy Settings

Hallways, Bathrooms, Stairwells, Common Spaces

Typical Occupancy Settings

- Sensor per group - enabled
- Dim Level 1 - 80%
- Dim Level 2 - 20%
- Time Delay 1 - 15 minutes
- Time Delay 2 - 5 minutes
- Mode - Occupancy
- Control Time - 450 Seconds
- Motion Sensitivity - Low Bay
- Daylight Mode - Disabled
- Target Lux - N/A
- ALS Control Time - N/A





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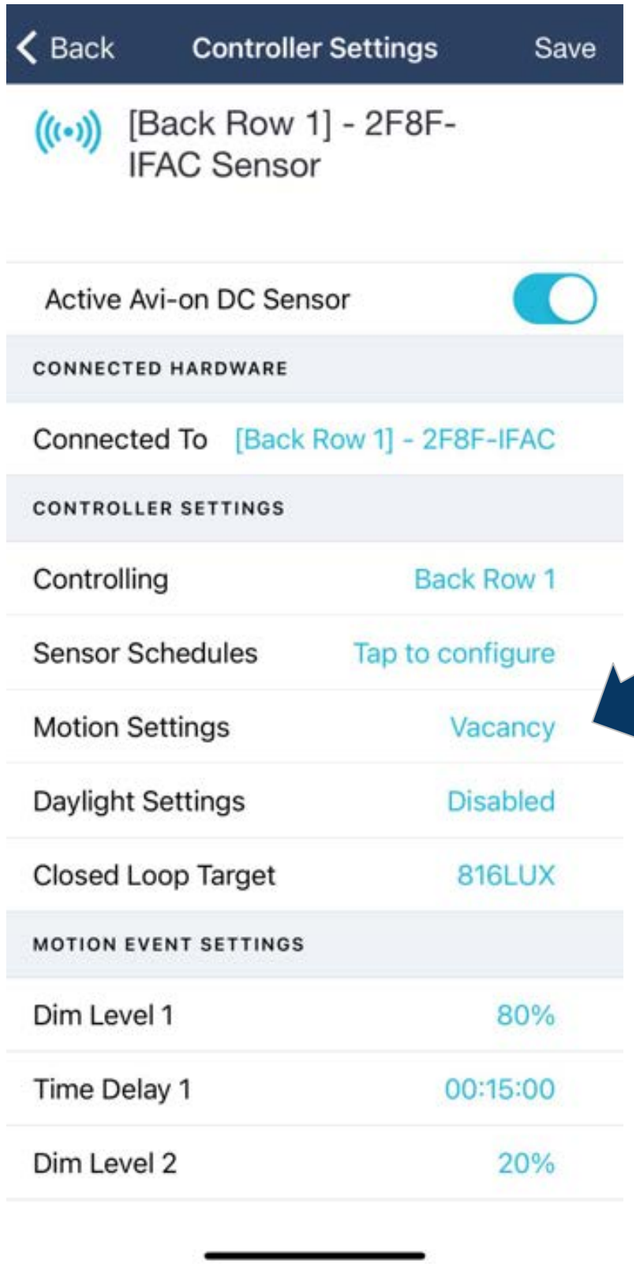
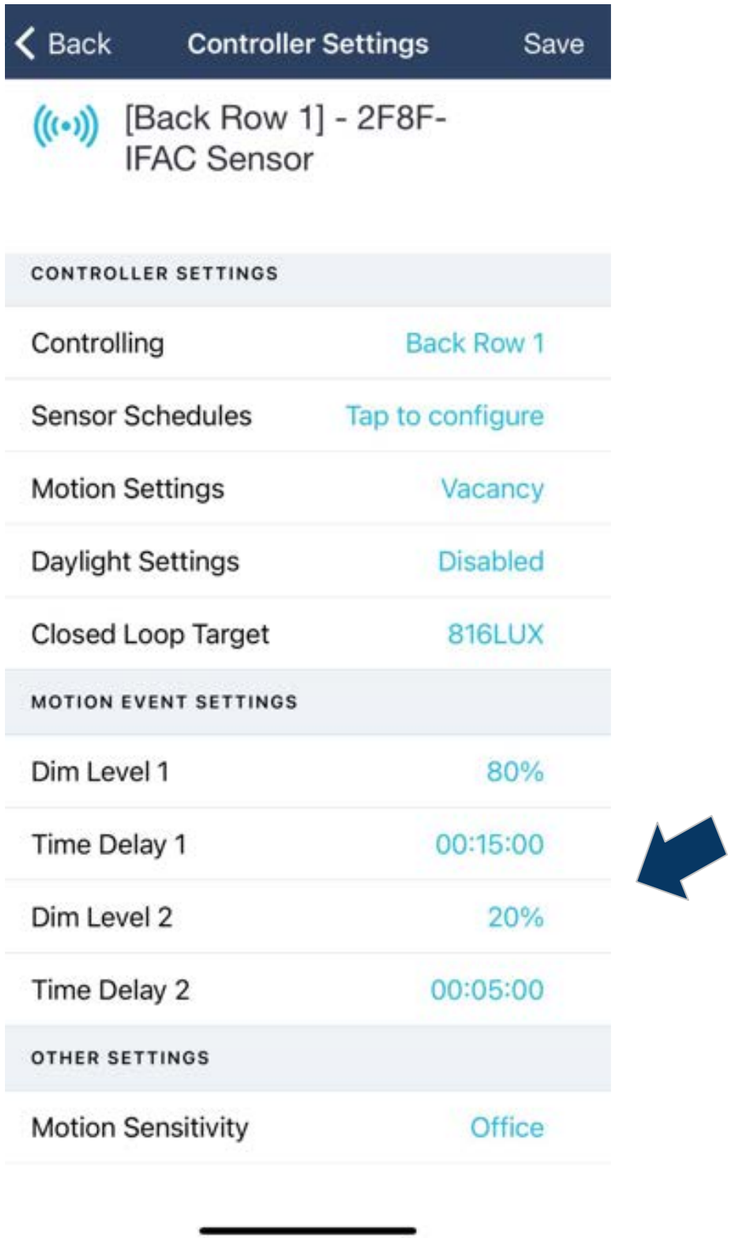
Title 24: Typical Vacancy Settings

Used in Classrooms, Offices, Conference Rooms, Closets etc.

Typical Vacancy Settings

- Sensor per group - enabled
- Dim Level 1 - 80%
- Dim Level 2 - 20%
- Time Delay 1 - 15 minutes
- Time Delay 2 - 5 minutes
- Mode - Vacancy
- Control Time - 450 Seconds
- Motion Sensitivity - Low Bay
- Daylight Mode - Disabled
- Target Lux - N/A
- ALS Control Time - N/A





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Bluetooth® Lighting Controls

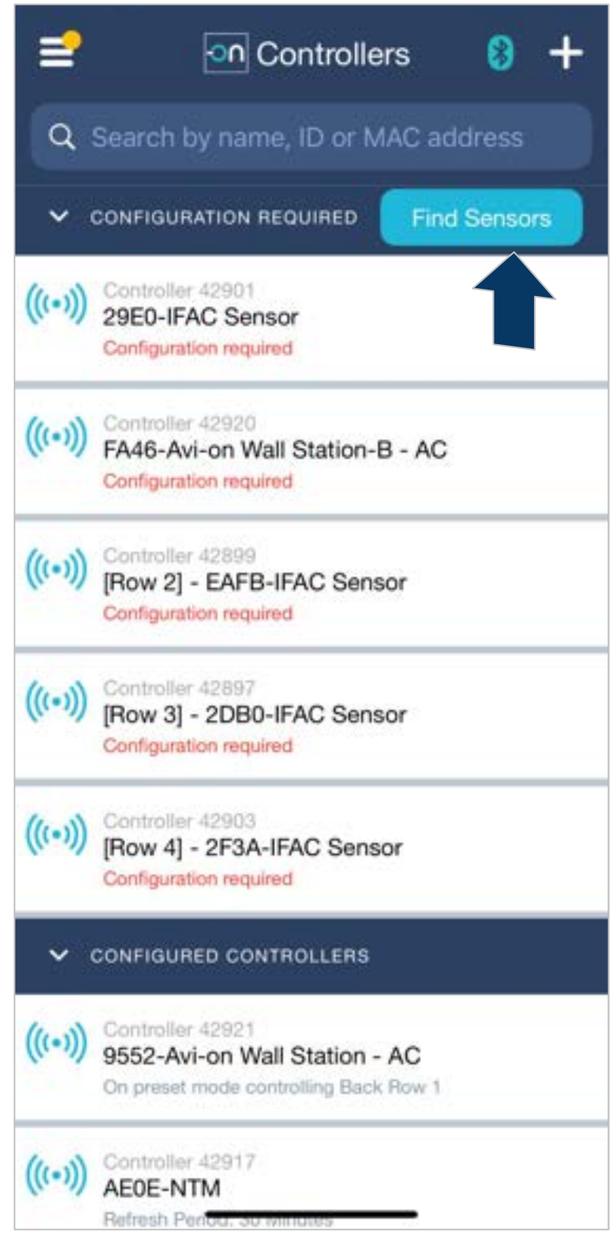
Part II: Configuring Sensors Step-by-Step

Prepare to *scan* for Sensors >> incremental v. complete install

BEFORE you start configuring sensors, please refer to the previous sections to *import, name, and edit groups (with or without the ZoneScanner)*

- **Scanning once: programming sensors after all devices are powered.** *It is easiest to find sensors if all devices are BOTH powered AND added to the location*
  - Miswiring can cause a lot of confusion when adding devices
  - Problems with wiring or power can be mistaken for control errors
  - Careful group and device naming enables you to easily search for sensors and emergency devices, and then apply the correct settings

- **Repeat scanning: programming sensors in parallel with installation.** *If your project is only partially powered or installed, you will need to repeat the sensor configuration several times during the commissioning process*



Using *Avi-on Mobile* to *scan* for *Avi-on Direct Connect (DC) Sensors*

The *Mobile Sensors* page is designed for Simplified *Sequence of Operations*

In this guide, we will use the *Avi-on DC-PIR* as an example, and the process is similar for most sensors

Avi-on DC Sensors connect directly to, and are powered by, a fixture adaptor (IFAC, LVFA) or power pack (XFAC)

1. **On Mobile main menu, select *Controllers***
2. **Click *Find Sensors,* to scan for DC sensors**

Because *DC Sensors* do not have a radio of their own, the first step is to make sure that all sensors are connected to their controller by pressing the Find Sensors button

Depending on project size, this may take some time

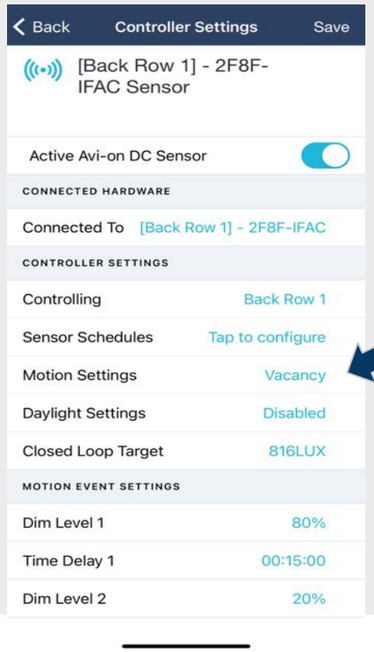
Configure Sensors >> Select *sensor*

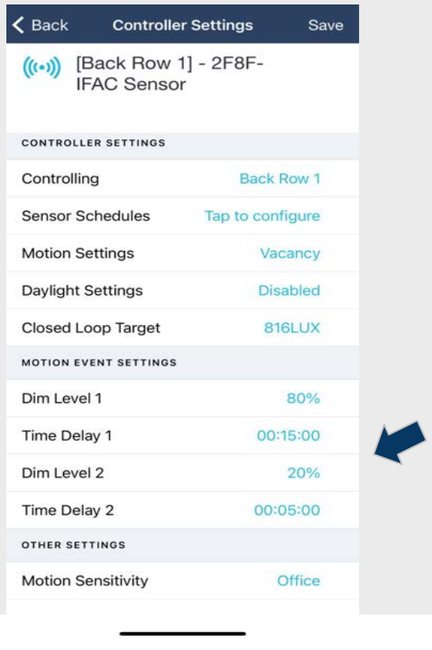
1) Select the *Sensor Type*

- **Avi-on Direct Connect PIR** *(we are using the DC-PIR as our example)*
- **Avi-on Direct Connect MW** (Microwave)
- **G1 SIM** (only legacy projects)
- **McWong Sensor** (Bluetooth)
- **G2 CC-in** (for third party sensors connected to SIM or XFAC)

2) To Program a *Single* sensor at a time

- Double click the sensor name on the list on the right to show current setting if any. *(TIP: Even single devices should be in a group of their own)*
- Choose the device or group the sensor should control
- Fill out the rest of the settings as explained in the following pages
- Save Configuration *(TIP: read all pages about sensor settings before saving)*
- For large scale changes use Sensor Per Group explained in the following pages





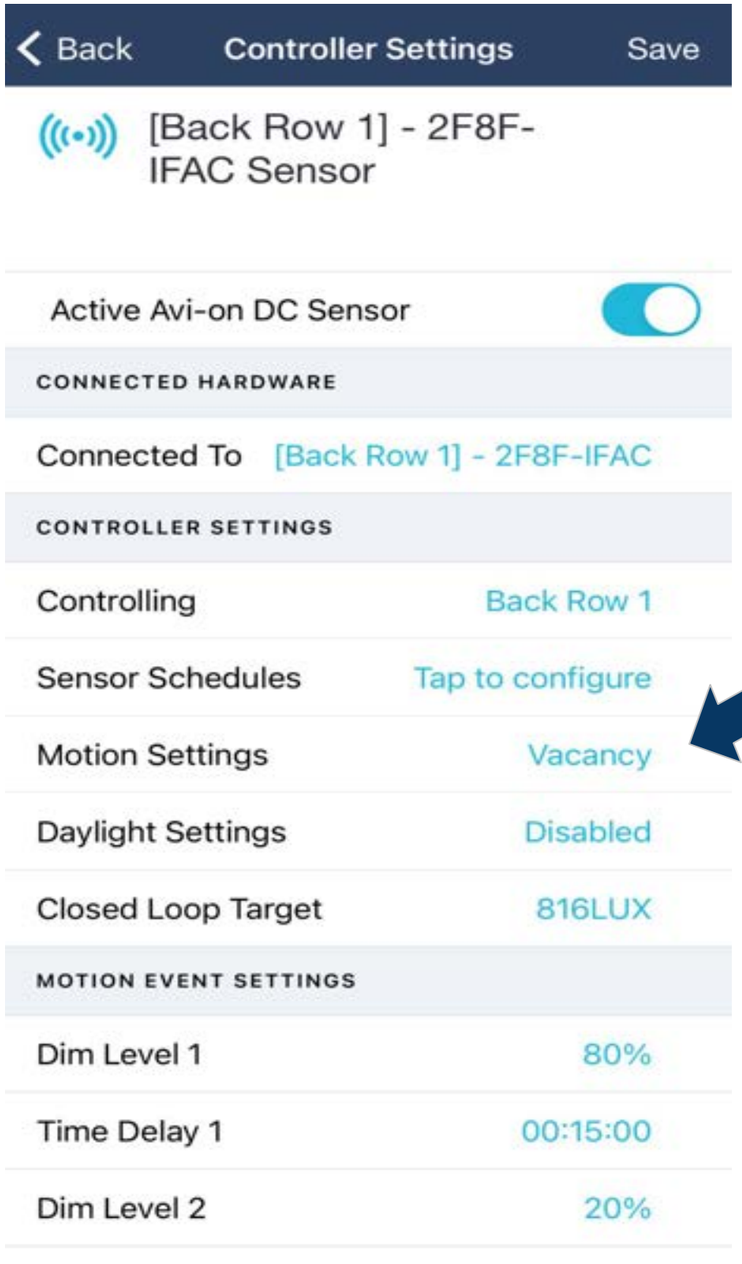
Part III: Definitions of Sensor Settings

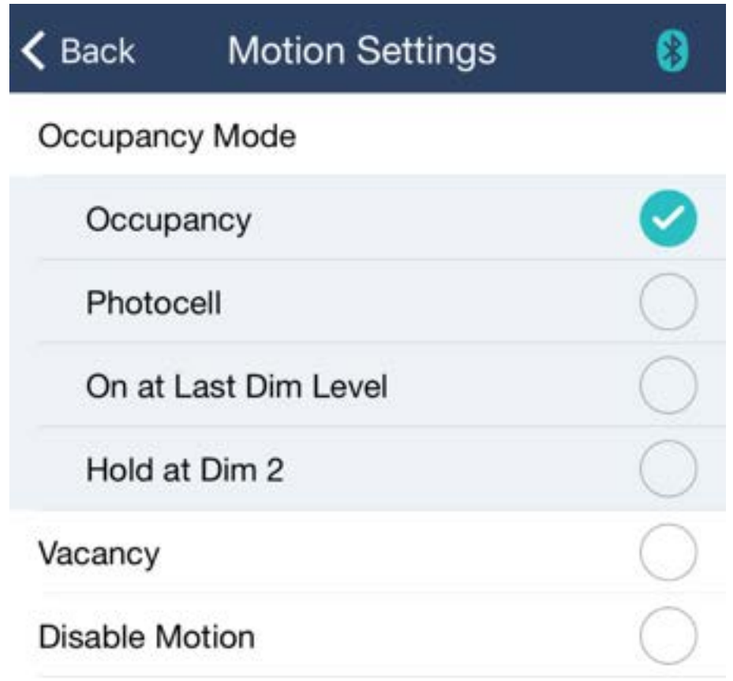
Sensor ***Modes***

Sensor *Modes* define how the sensor will act in a space

Sensor *Mode:* choices are…

- Photocell
- Last Dim
- Hold at Dim 2
- Occupancy
- Vacancy
- Disable Motion

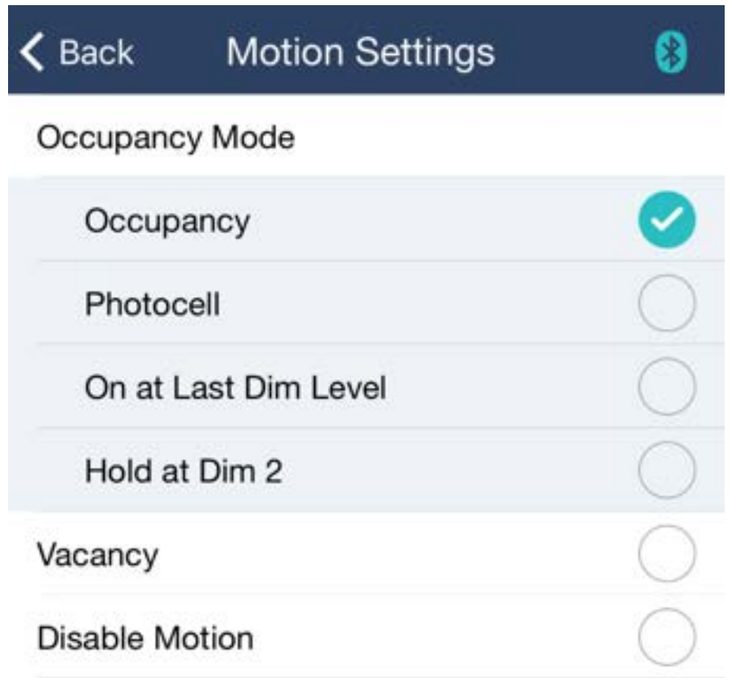




Configure Sensors >> Definitions of, and setting the *Mode*

Mode is used to set the operation of the selected sensor/s. This will dictate how the sensor behaves. Select the mode, and click the *Enable* slider

- **Photocell** – Night to Day, Day to Night setting (not used in commercial)
- **Last Dim** - Automatically turns lights on to last level of override switch when entering a room. After TD1 and TD2 timers expire lights turn off
- **Hold at Dim 2** - Automatically turns lights on when entering a room. After TD1 timer expires lights stay at TD2 level indefinitely
- **Occupancy** – Automatically turns lights on when entering a room. After TD1 and TD2 timers expire lights turn off
- **Vacancy** – ***Manual on via switch.*** Automatically turns lights off when a room is vacant. After TD1 and TD2 timers expire lights turn off
- **Disable Motion** –
  - If the customer would like to disable a motion sensor this is where that can be done



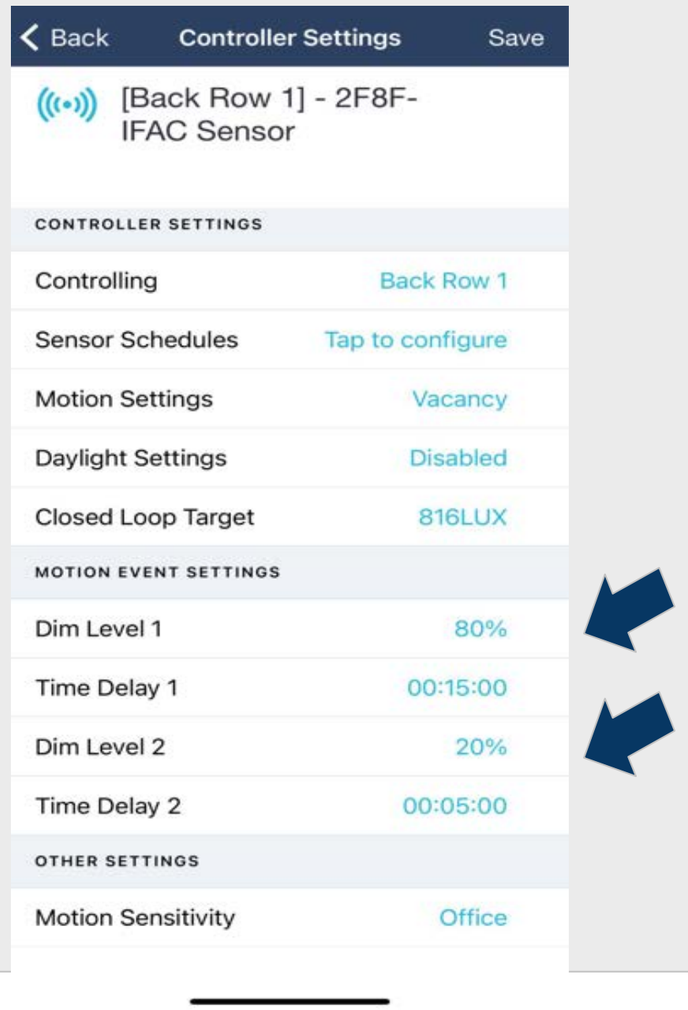
Dim Levels are governed by ***Time Delays***

Dim Levels are governed by **Time Delays** aka *TD Timers*

- The maximum time that can be set on either TD1 or TD2 is 1 hour 39 minutes and 59 seconds
- **Time Delay 1 (TD1):** how long the lights will remain on **Dim Level 1**
- **Time Delay 2 (TD2):** how long the lights will remain on **Dim Level 2** unless *Hold at Dim 2* was selected, in which case they will keep that level indefinitely

1. **Set Dim Level 1 and 2**
   - *Dim Level 1* is the brightest level that the group will turn on to when sensor is triggered in *Occupancy* -or- *Hold Dim 2 Modes*
   - ***Vacancy requires lights to be turned on manually***

2. **Set Time Delay (TD1) and (TD2) Timers**
   - After the *TD1 Timer* expires, the group will step down to *Dim Level 2 in Occupancy only*
   - When the *TD2 Timer* timer expires the lights will turn off if set to *Occupancy, Vacancy, Last Dim* -or- hold at that level if *Hold at Dim 2* was selected

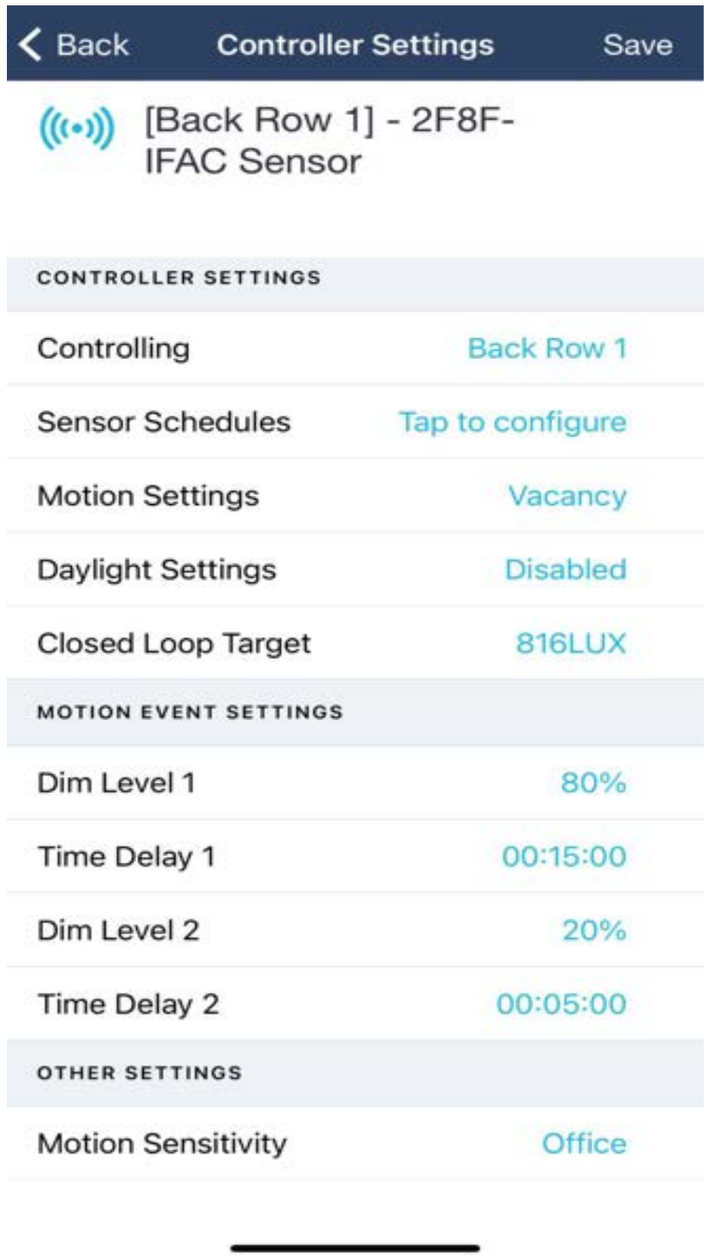


Sensors >> **Motion Sensitivity**

Motion Sensitivity controls how sensitive the motion sensor is

For most installations, a setting between 60% and 75% is perfect

- If it is set **greater than 85%,** the chance of false triggers increases
- If it is set **lower than 55%,** it will likely only see large motion events



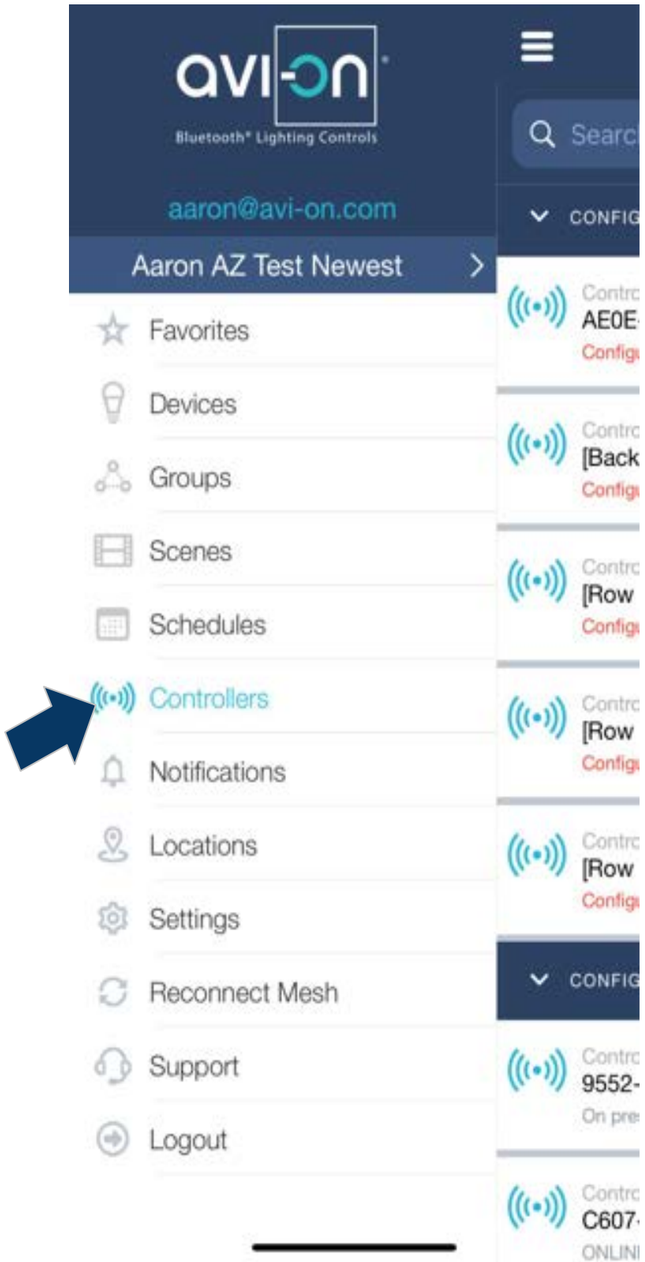
Sensors >> **Motion Sensitivity**

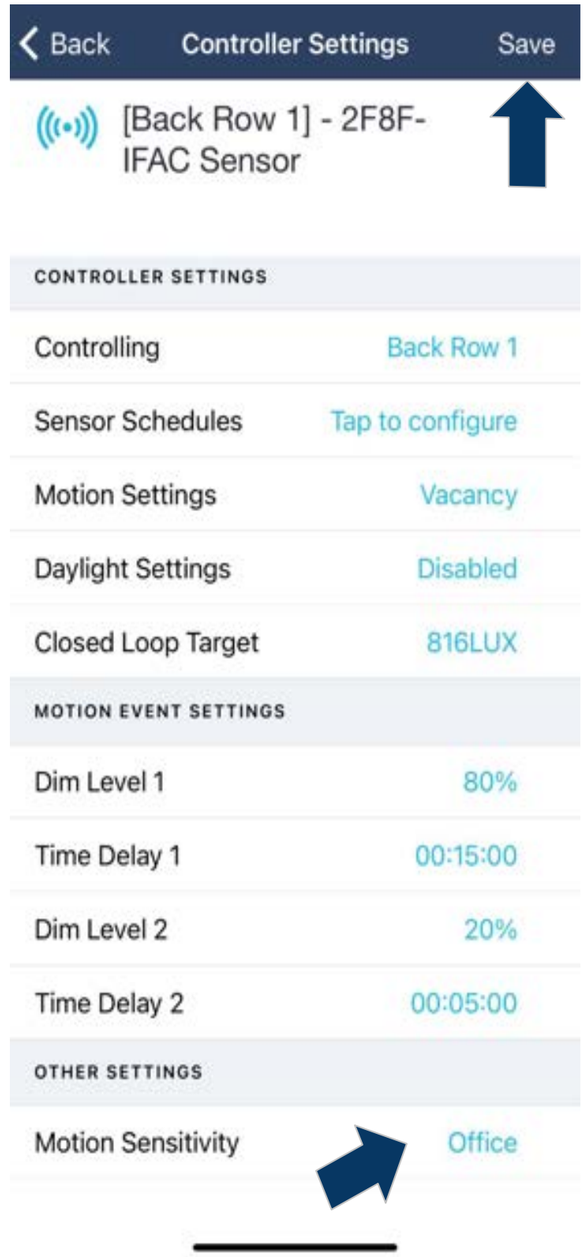
Motion Sensitivity controls how sensitive the sensor is

- To adjust the settings go to the *Menu Drawer* and select *Controllers*
- Select the sensor you need to adjust
- Sensitivity is at the bottom
- Select a preset or adjust the slider for a custom value
- Press Back and then Save

***Note**: When using the Avi-on Mobile Commissioning App, you must be physically on site to adjust sensor settings*

If you desire to adjust sensors remotely, Avi-on Pro is required





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Sensors >> **Daylight Mode (aka Daylight Harvesting or ALS)**

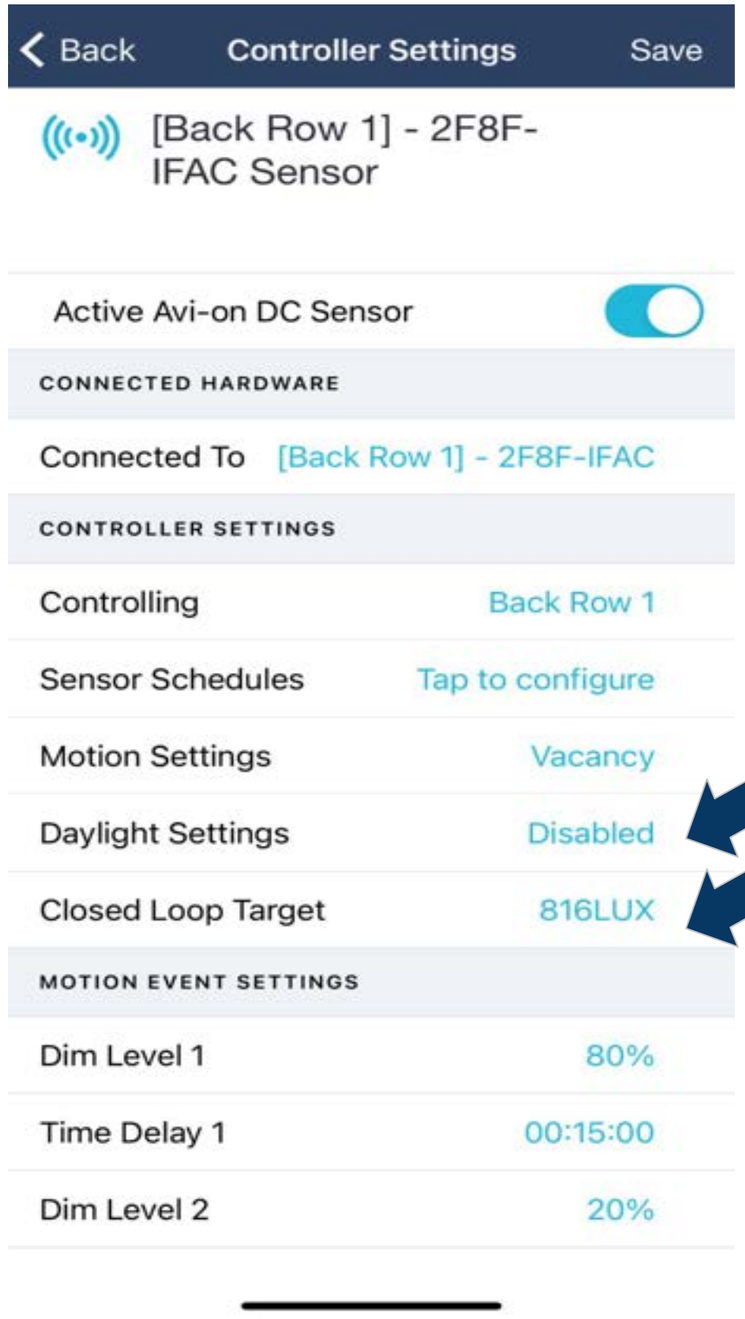
Daylight Mode is used for *Daylight Harvesting,* also known as *ALS* or *Ambient Lighting Sensor.* Daylight Mode saves energy by using sensors to detect the amount of ambient light in an area, and then adjusting light levels accordingly

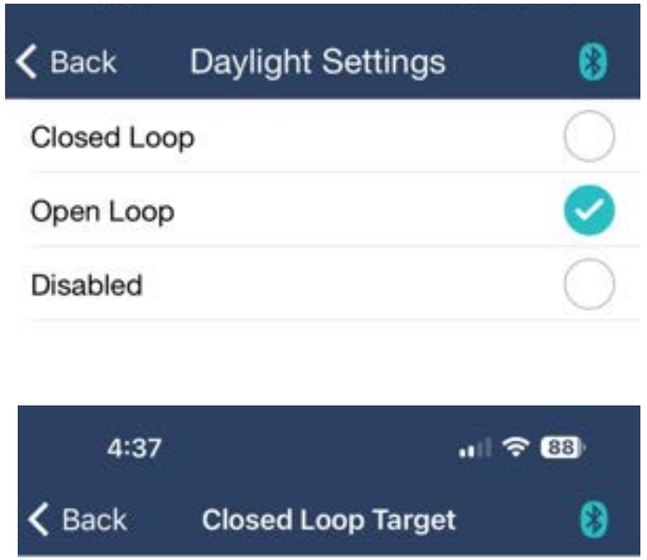
Daylight Mode has 3 options, which are explained on the next few pages

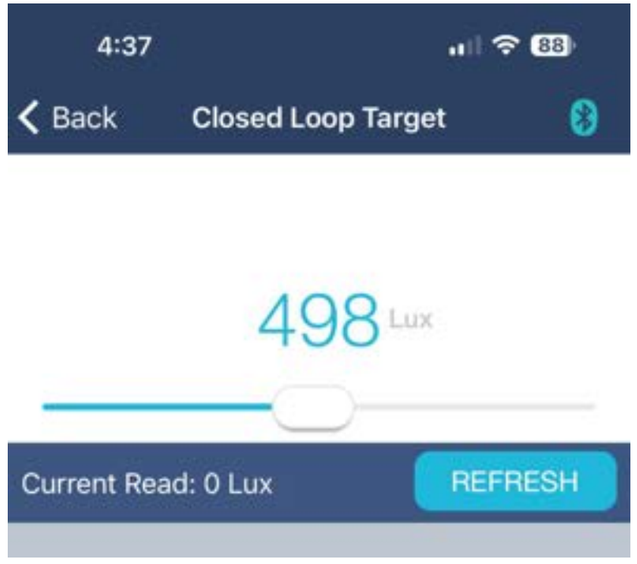
- Disabled
- Closed Loop
- Open Loop

KEY INFO

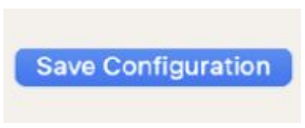
- It is recommended there only be one *Daylight Harvesting sensor* per Daylighting zone







Sensors >> **Daylight Mode (aka Daylight Harvesting or ALS)**

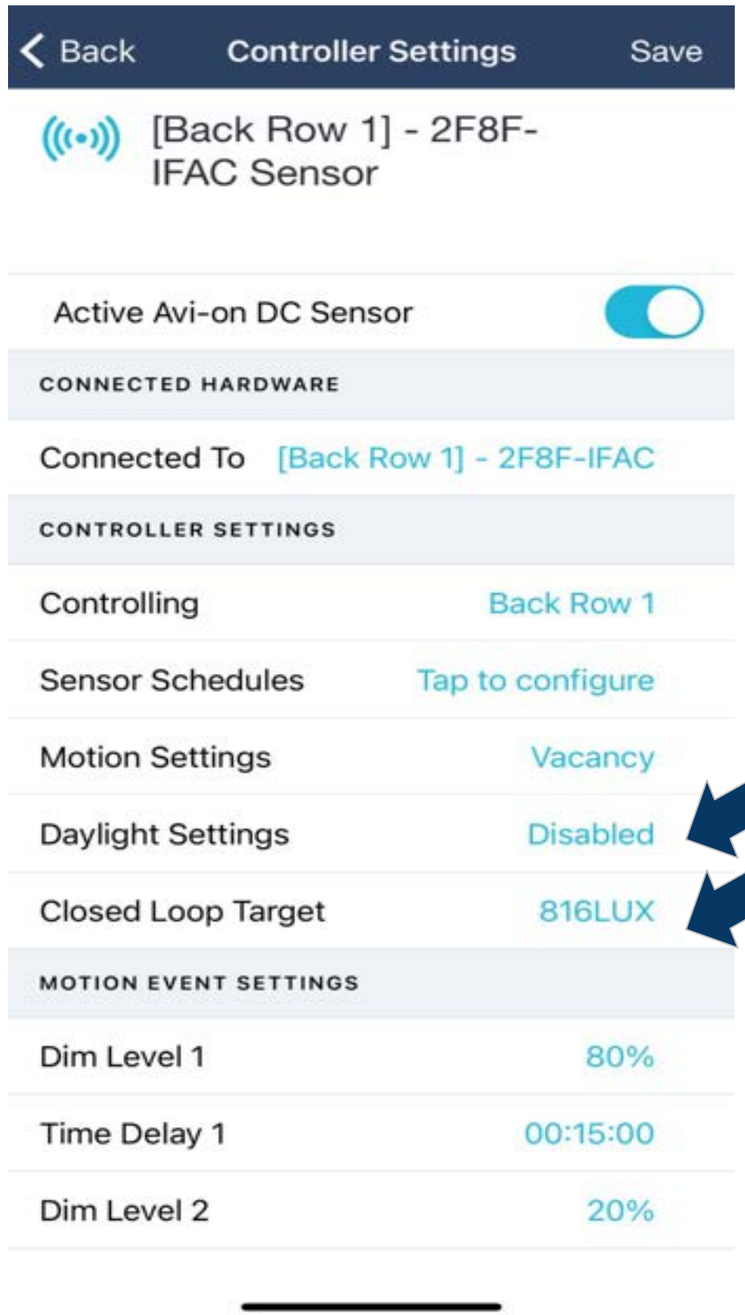
	Daylight Mode: 3 Options		
	Disabled	**Closed Loop**	**Open Loop**
Lighting Behavior	N/A	*Closed Loop* dims and brightens according to Target Lux level	*Open Loop* automatically adjusts the lights when the reading is between the values of 0-1020 lux
Target Lux	N/A	**Suggested Target: 350-800** *Available Range 0-1020* • Target Lux < ambient light → lights dim/fade completely off • Target Lux > ambient light, light will brighten until ambient light is hit	**Target Lux is not used**
ALS Control Time	N/A	**Suggested Setting: 30 seconds** Available Range: 5-60 seconds	
“Enable” Slider	N/A	**Slider “on”** turns sensor into an ALS or daylight harvesting sensor	
Save Configuration	N/A	Press **Save Configuration**	

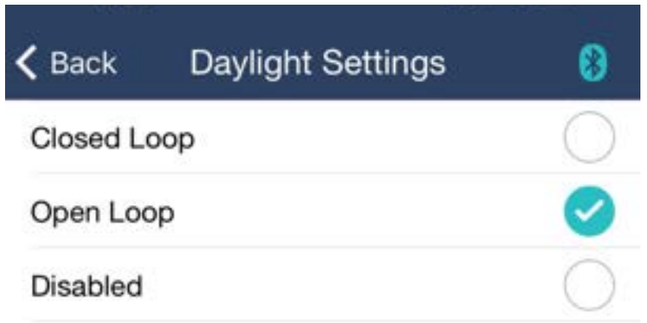
Sensors >> Daylight Mode >> **Closed Loop & Target Lux**

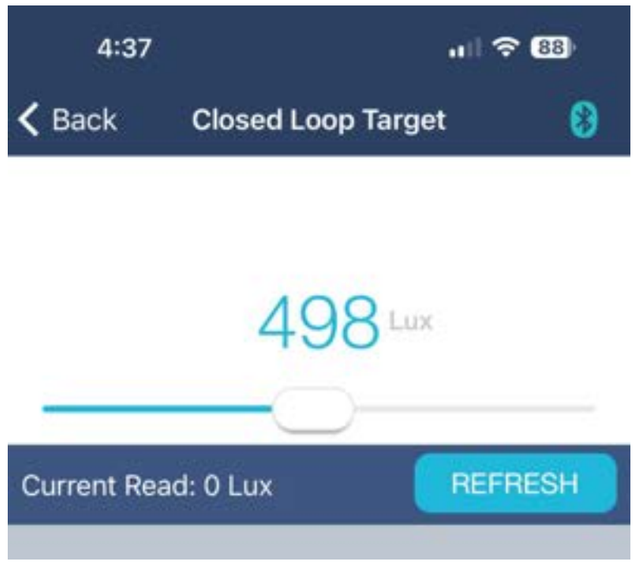
Closed Loop allows for a ***Target Lux*** to be set with a range of 0-1020

Typically, with Daylight Mode = Closed Loop, Target Lux is 350-800

- If the *Target Lux* is exceeded by the ambient light, the lights will dim completely off
- When the ambient light fades away, the lights will be increased until the *Target Lux* is hit





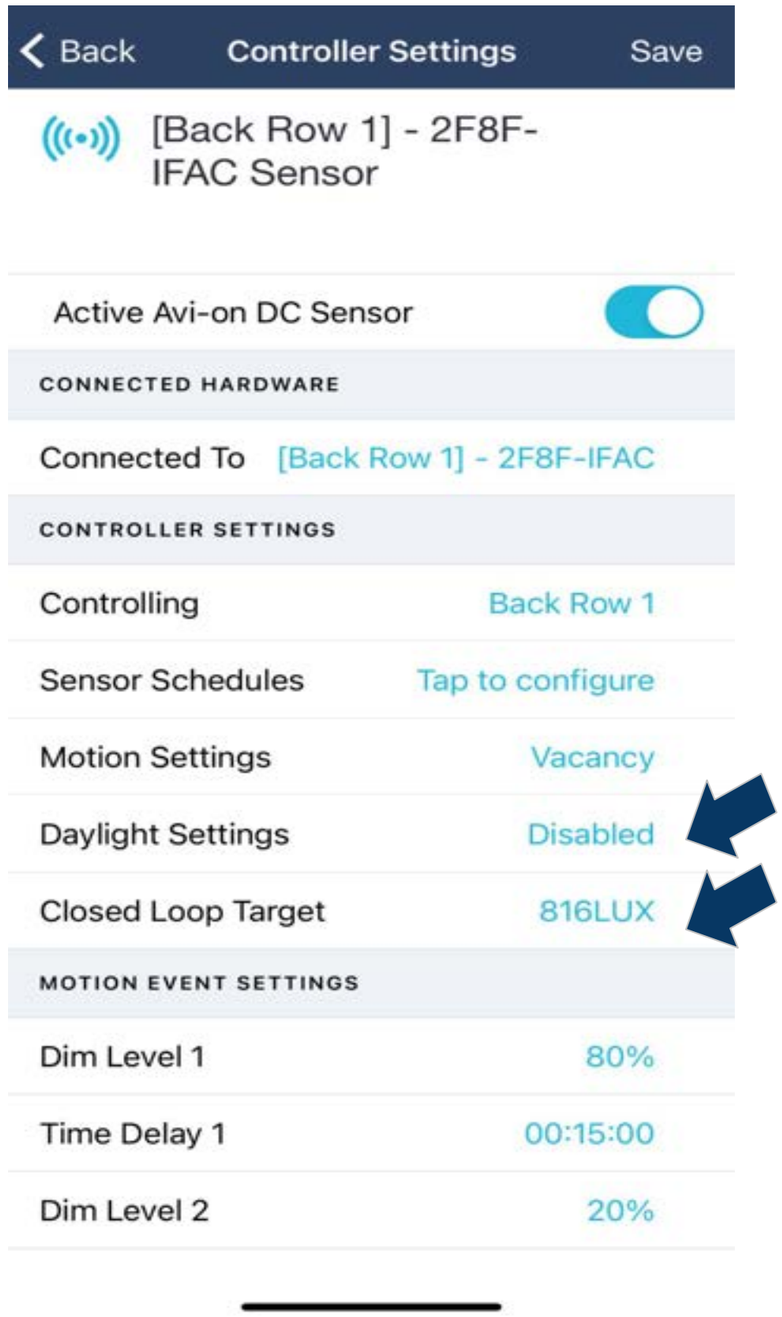


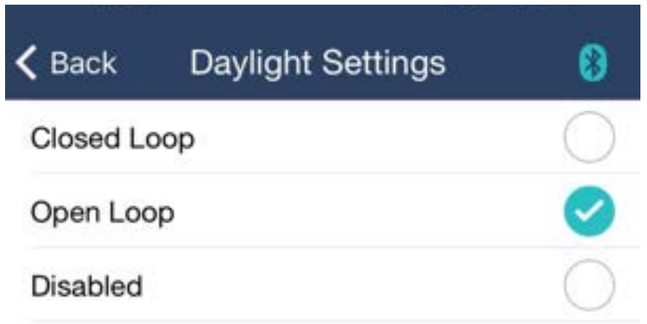
Sensors >> Daylight Mode >> **Open Loop = Automatic Lux Levels**

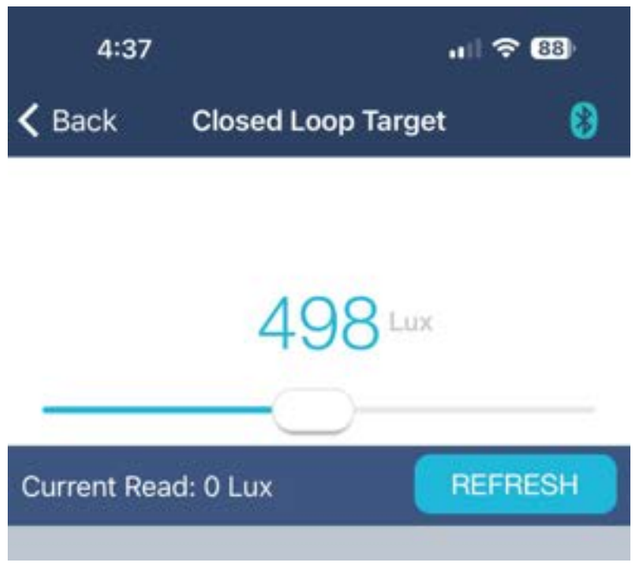
Open Loop will automatically adjust the lights when the reading is between the values of 0-1020 lux

- With Open Loop, you can not set a target lux value

Ambient Light Measurement	Automatic Light Level
1020	0%
765	25%
510	50%
255	75%
0	100%







Step 6) Use *Avi-on Mobile* to configure Wall Stations

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

Always program groups, scenes, and sensors BEFORE configuring wall stations

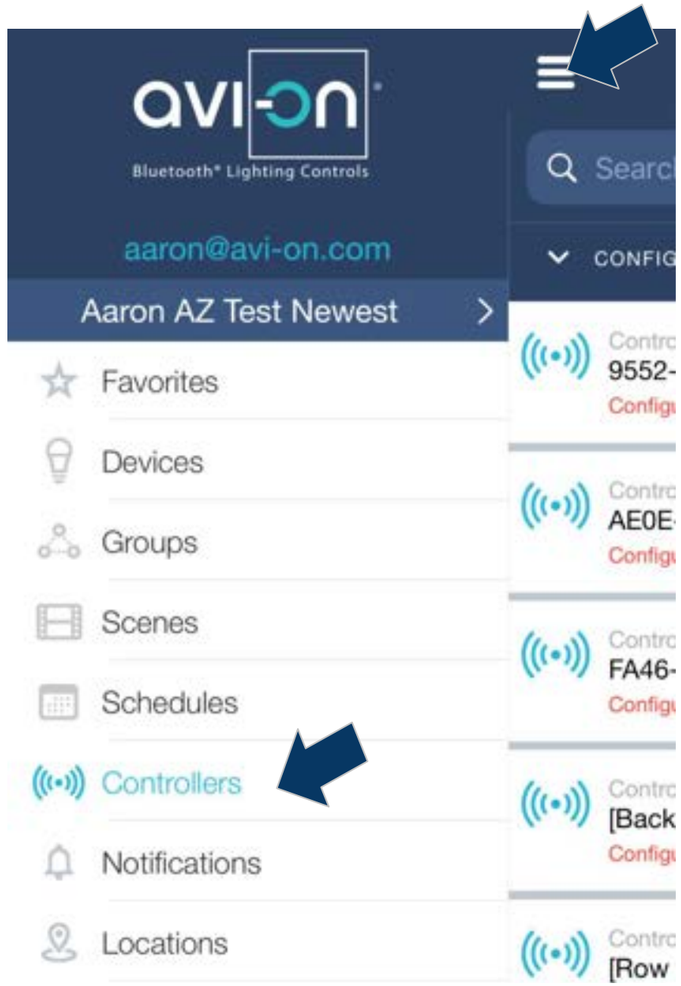
NOTE: AN NTM (Network Time Manager) IS REQUIRED FOR SENSOR OVERRIDES, SCHEDULES, & SCENES

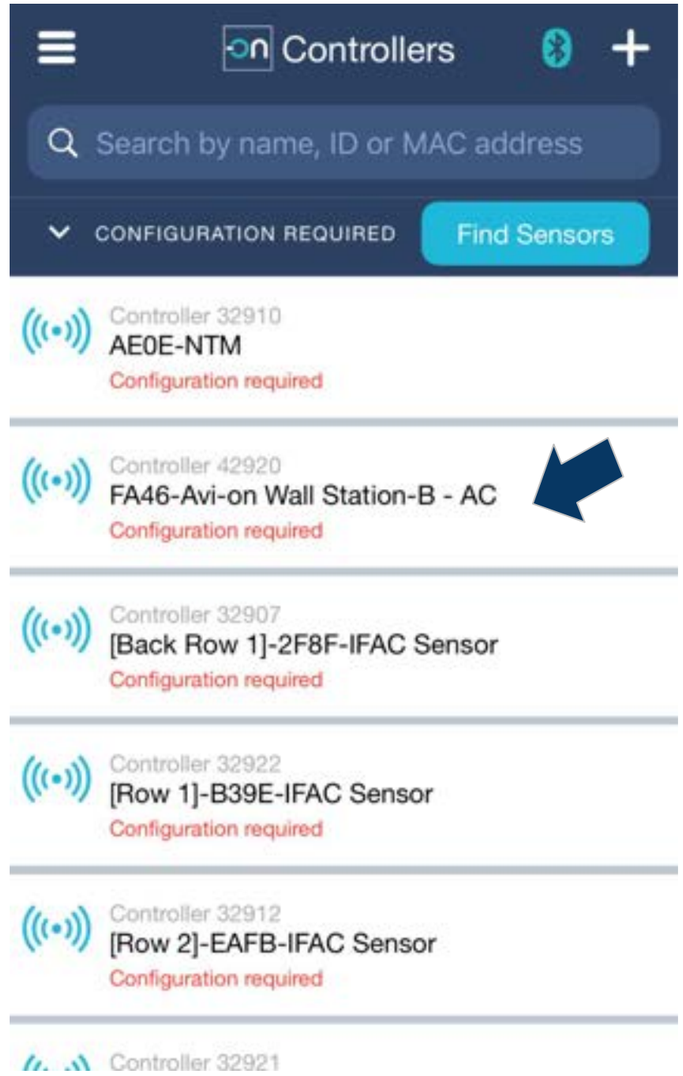
- While pure sensor function does not require a time clock, any sensor overrides, scenes, or schedules depend on constant power to maintain time
- The NTM is a single battery backup for the entire network. It keeps time in the event of power interruption like brown outputs, flickers, or outages

Configuring Wall Stations

Menu Drawer **>> Controllers (1/4)**

To configure wall stations, go to **Menu Drawer** and select ***Controllers,*** Select your wall station from the list



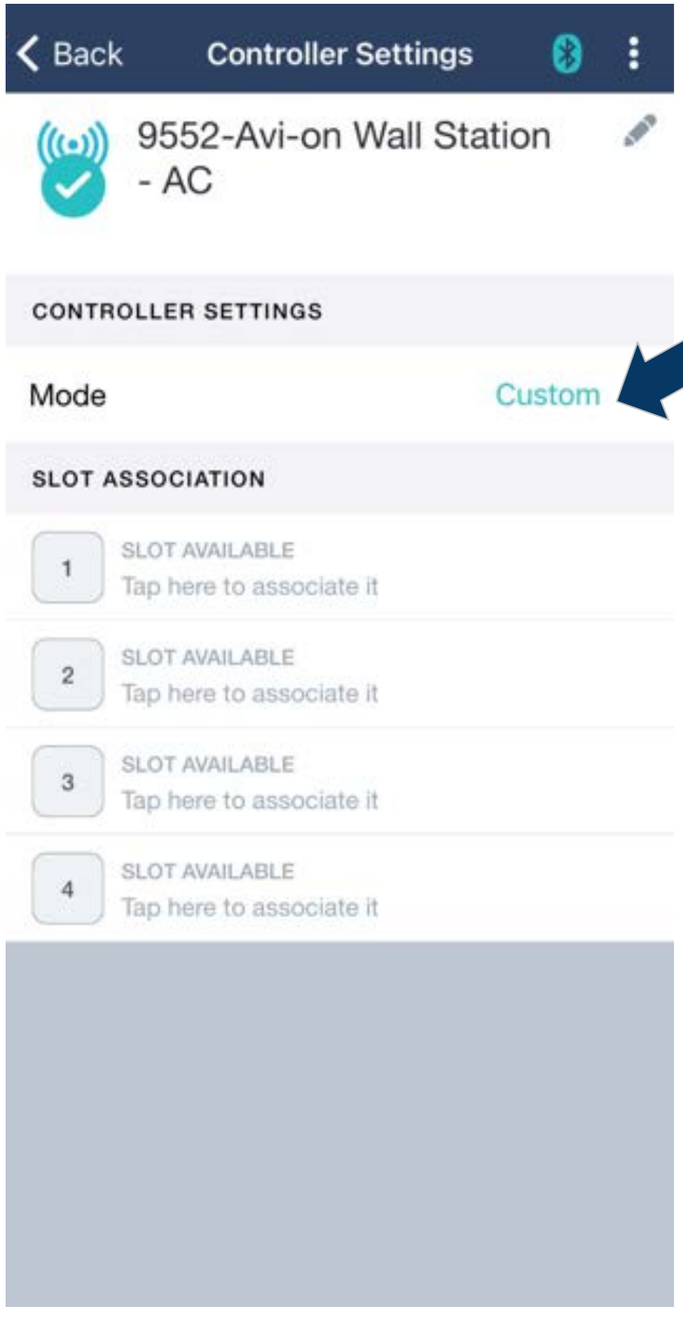


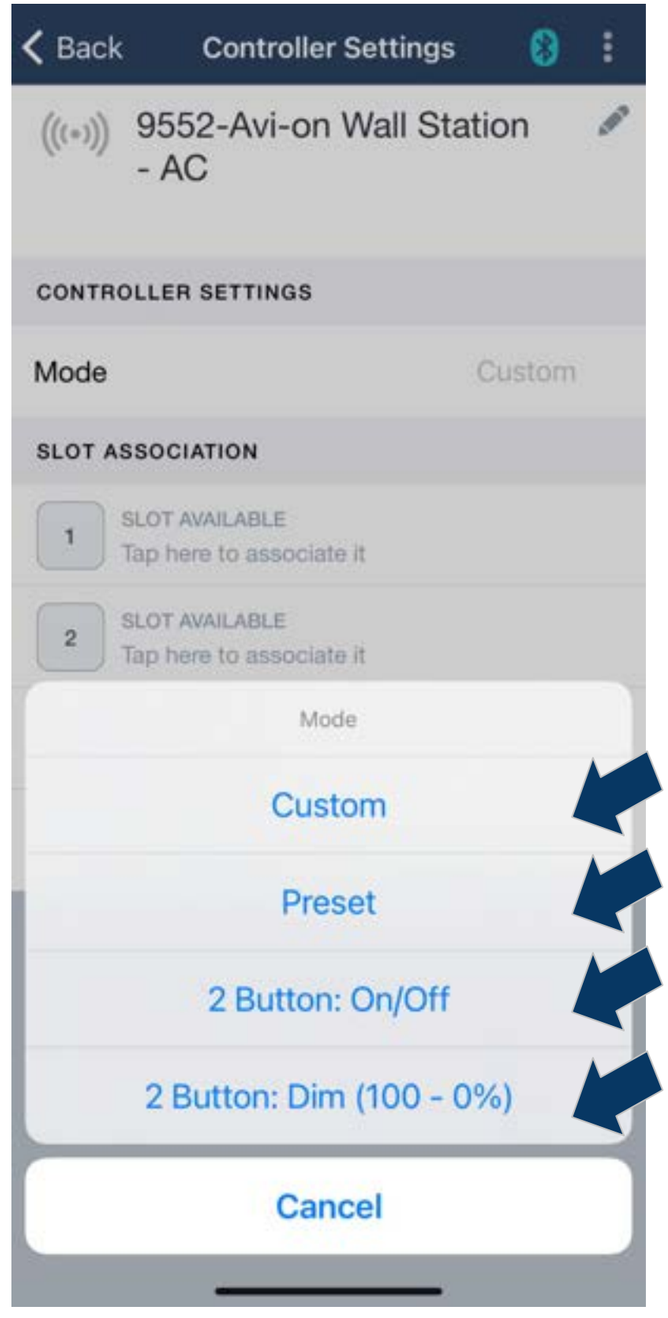
Menu Drawer **>> Controllers (2/4)**

With your wall station selected first select the ***Mode*** you want

Mode options are

- Custom
- Preset
- 2 Button On/Off
- 2 Button Dim

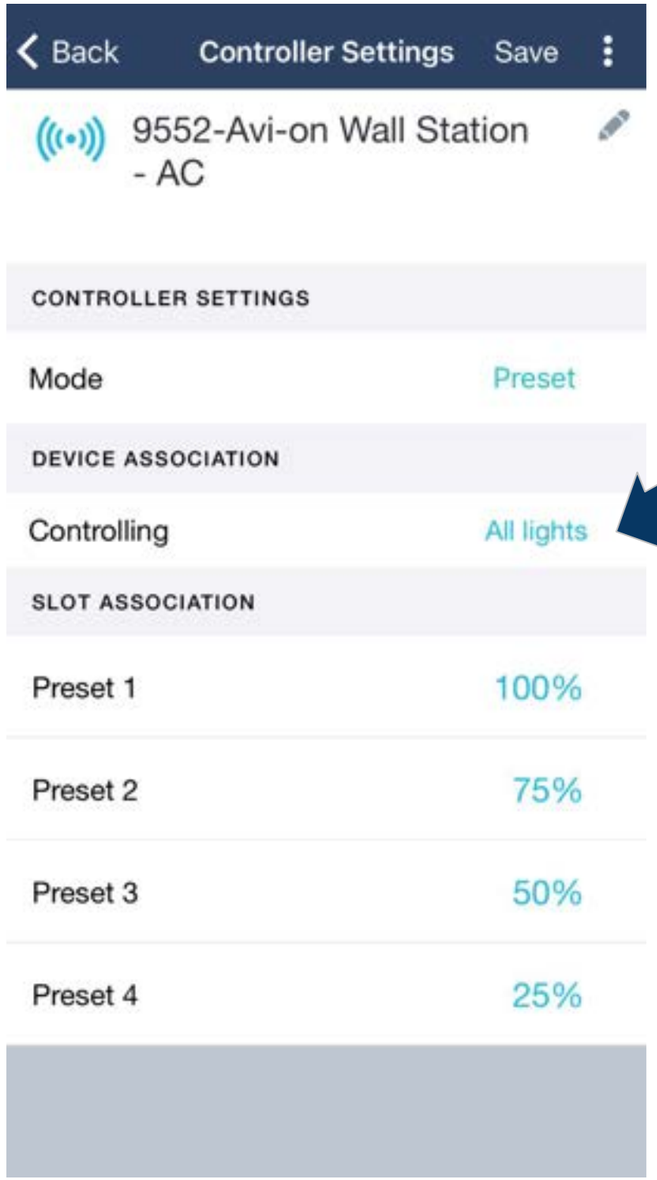


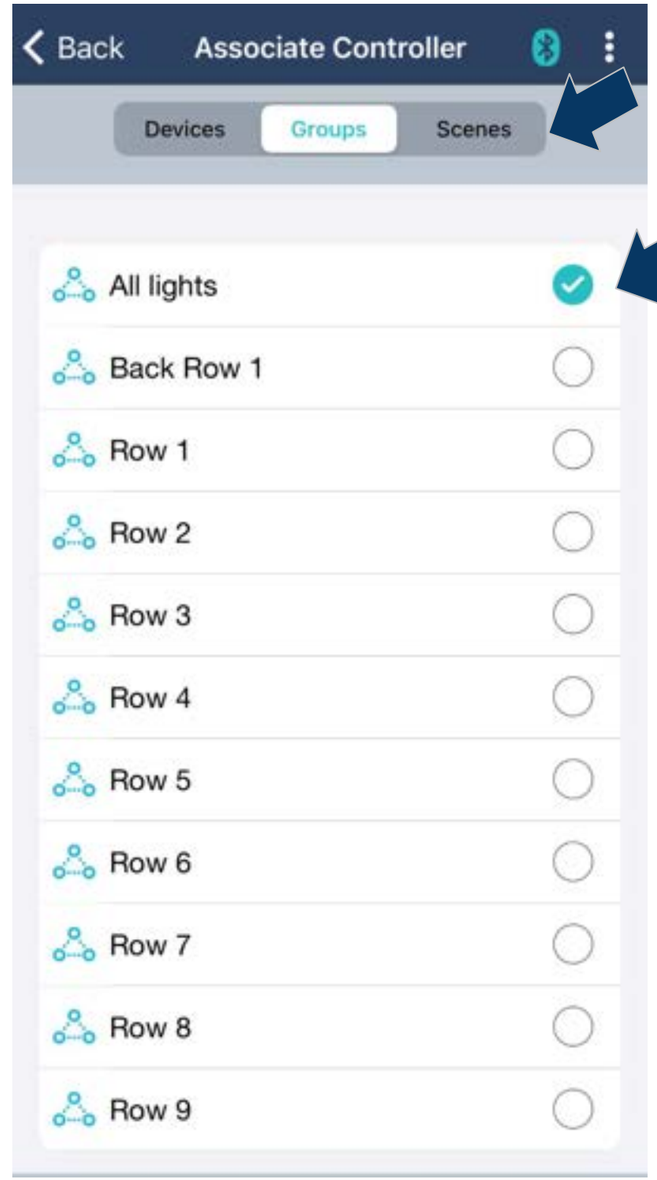


Menu Drawer **>> Controllers (3/4)**

Set the **Wall Station Association** by clicking in the Controlling box

- By default, it will show groups, but you can also select individual devices or scenes in the top menu bar.

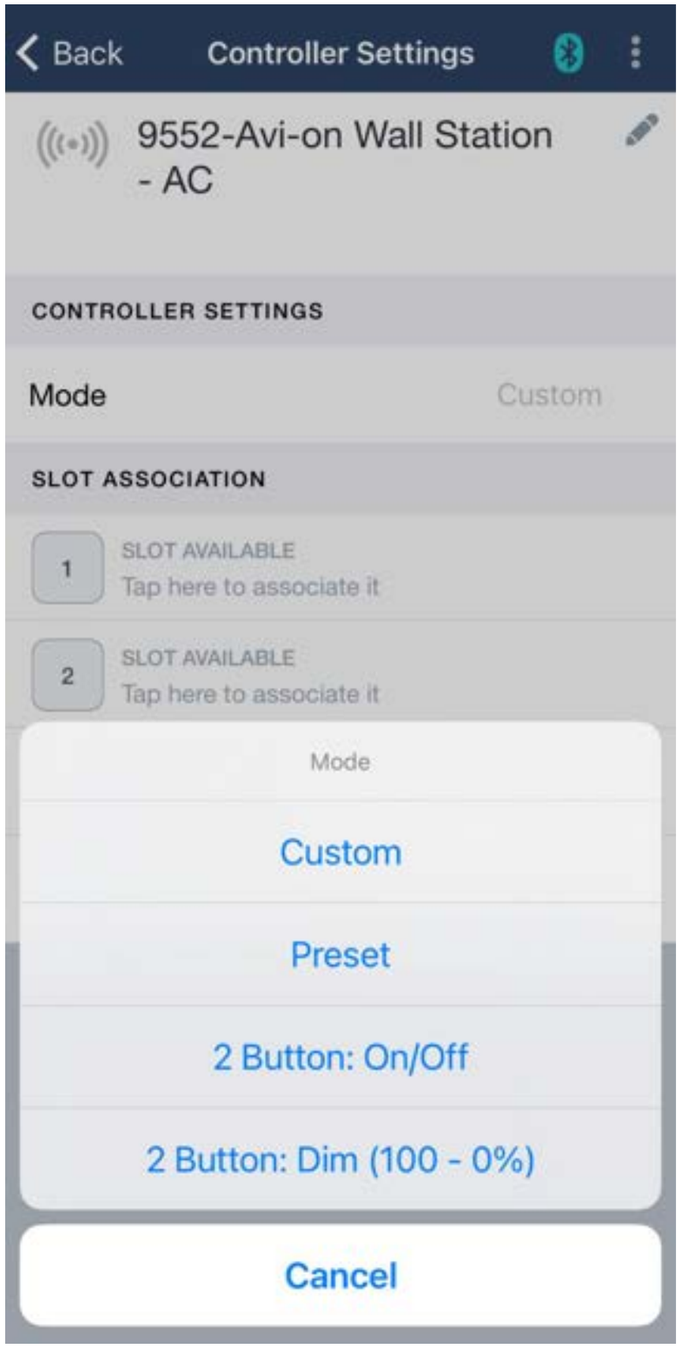




Menu Drawer **>> Controllers (4/4)**

There are 4 modes for configuring wall stations

- **Custom** – used to program any combination of Scenes, Groups and Devices
- **Presets** – used for the % controllers
- **2 Button ON/OFF** – used when there is no dimming available or wanted
- **2 Button Dim** - used when press and hold dimming is required on 2 buttons



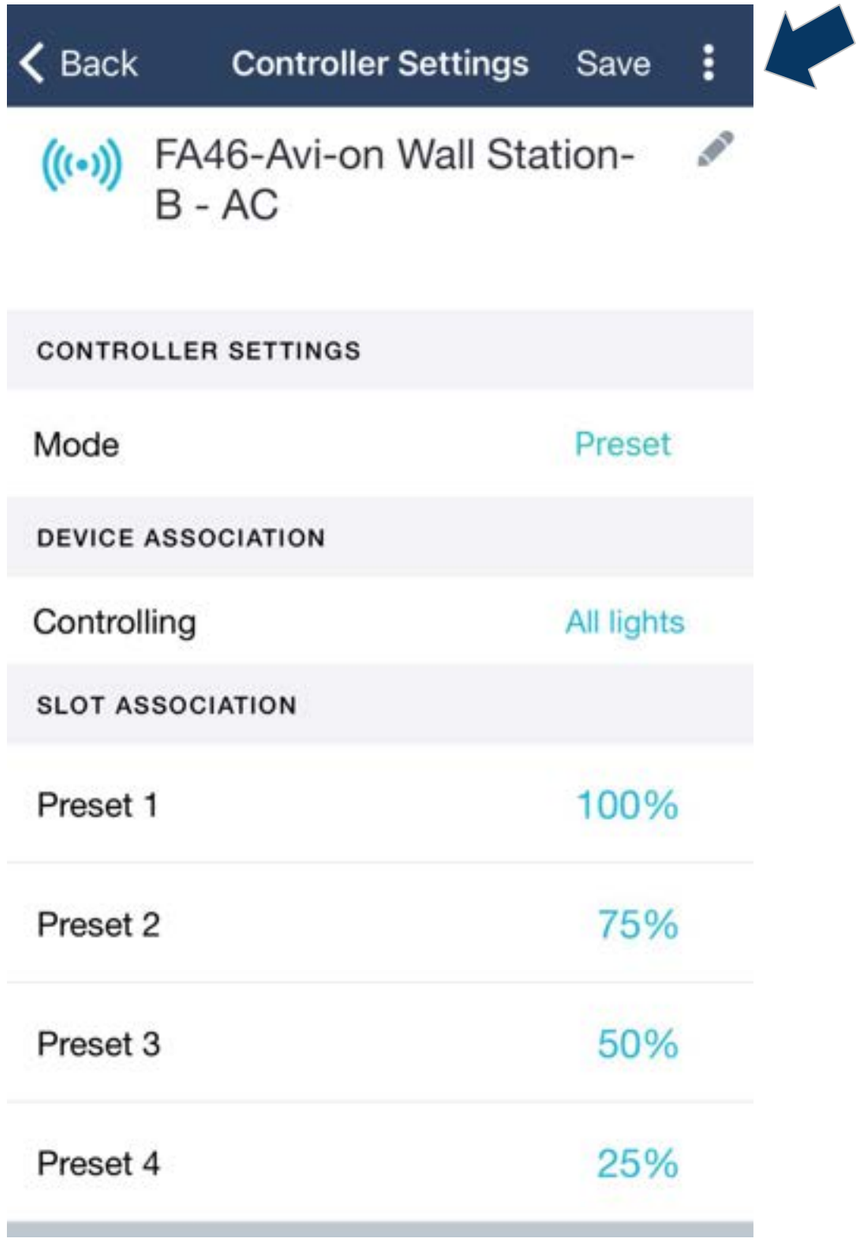
Menu Drawer **>> Controllers AC Wall Station**

AC v. BAT (Battery) Wall Stations

AC wall stations are configured differently than BAT (battery) wall stations

AC Wall Stations

- Select your mode, and what group, device, or scene you are controlling
- AC wall stations are programmed by clicking the save button in the top right corner
- There is no need to *Wake Up* an AC wall station



Menu Drawer >> Controllers BAT (Battery) Wall Station

BAT (Battery) Wall Stations

Battery wall stations save battery by going to “sleep” when not in use

- To configure battery wall stations, the switch needs to physically “wake up” by pressing the OFF button

Steps to Configure BATs

1. Stand next to the battery switch
2. Click **Save** on the *Controller* screen
3. Follow prompts guiding you to press the OFF button
4. If the device doesn’t configure, please repeat the process

Step 7) Use *Avi-on Mobile* to configure Network Time Manager

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

Always program groups, scenes, and sensors BEFORE configuring wall stations

NOTE: AN NTM (Network Time Manager) IS REQUIRED FOR SENSOR OVERRIDES, SCHEDULES, & SCENES

- While pure sensor function does not require a time clock, any sensor overrides, scenes, or schedules depend on constant power to maintain time
- The NTM is a single battery backup for the entire network. It keeps time in the event of power interruption like brown outputs, flickers, or outages

Bluetooth® Lighting Controls

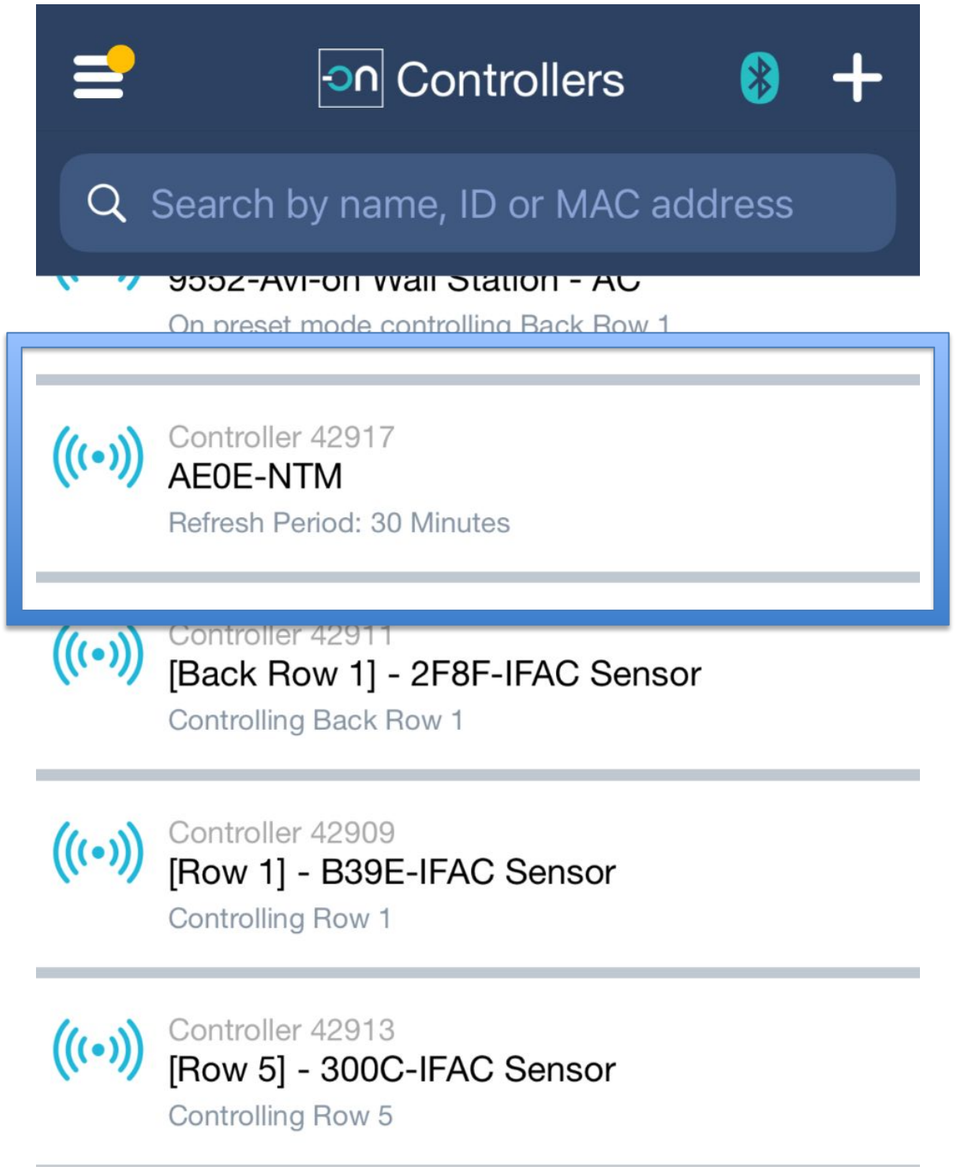
Configure Network Time Manager

Installer Tools >> **Network Time Manager**

The ***Network Time Manager (NTM)*** is required on any site that intends to use *Schedules, Scenes, or Sensor Schedules/Overrides*

The NTM is a single battery that keeps time for the entire network. In the event of a power fluctuation or outage, the NTM will sync the time across the network

To configure the NTM go to **Controllers > Network Time Manager (NTM)**

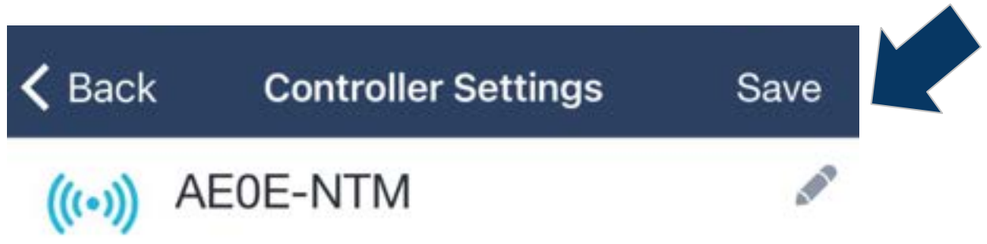


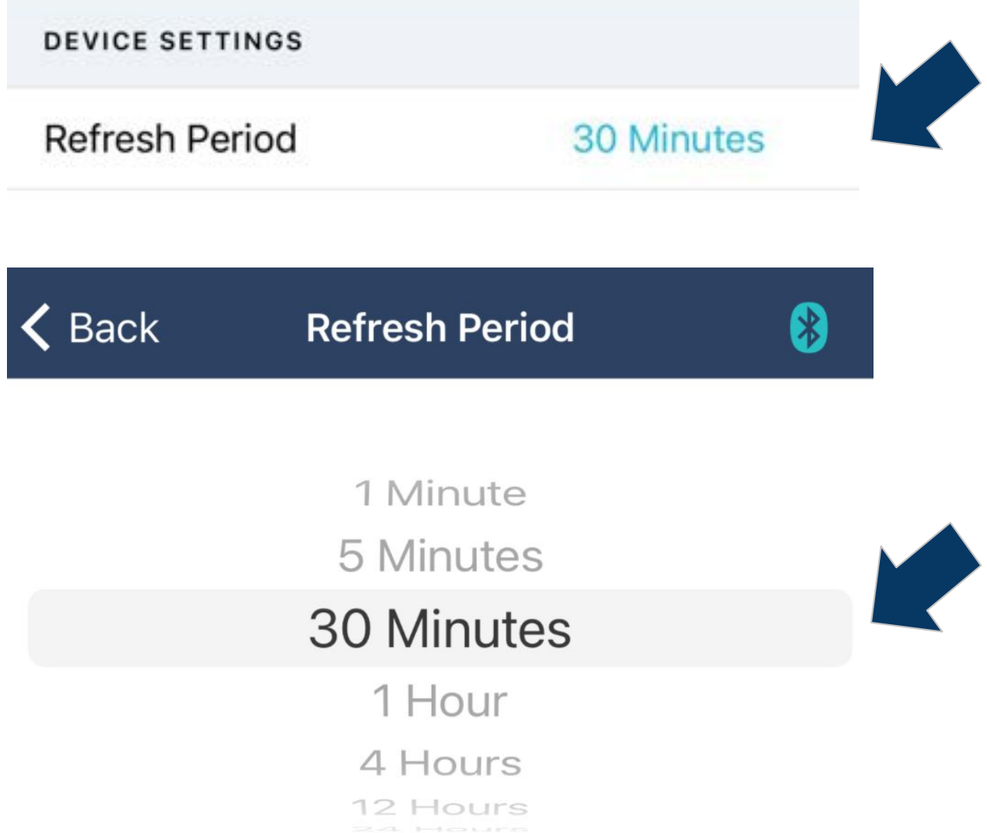
Installer Tools >> **Network Time Manager >> Refresh Period**

The Refresh Period is how often the NTM will sync the network time across the project

The default *Refresh Period* is 30 minutes

1. Choose your desired ***Refresh Period*** using the scrolling wheel. The available options range from 1 minute to 24 hours
2. With the Network Time Manager and Refresh Period selected, click the Save button in the upper right-hand side of the window





Step 8) Use *Avi-on Mobile* to configure Schedules

0	1	2	3	4	5	6	7	8	9
Quick Guide: Project Startup Workflow Quick Tour of Mobile Menus, Home Screen	Set up Mobile Login Join Location	Set Up & Use ZoneScanner on Fixture & Control QRs	Add Devices to Location Import *ZoneScanner* Data Create Groups	Create Scenes	Configure Sensors	Configure Wall Stations	Configure Network Time Manager	Program Schedules & Sensor Schedules	Trouble-shoot

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Bluetooth® Lighting Controls

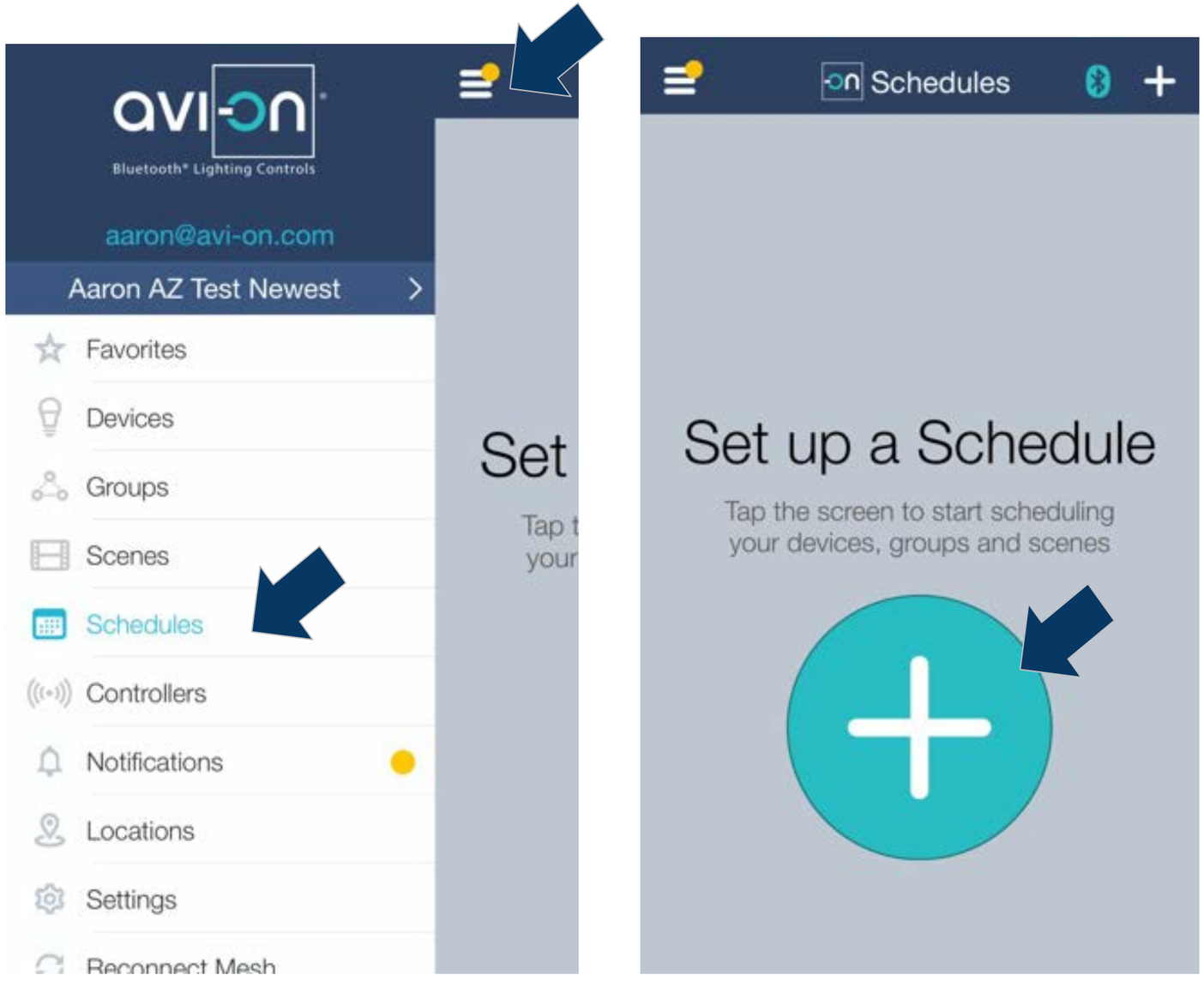
Programming Schedules

Menu Drawer >> **Schedules**

With the **Network Time Manager** configured, we can now create *Schedules* for both *devices* and *sensor modes*

Go to **Menu Drawer > Schedules**

Press the large **(+)** button to set up your first schedule

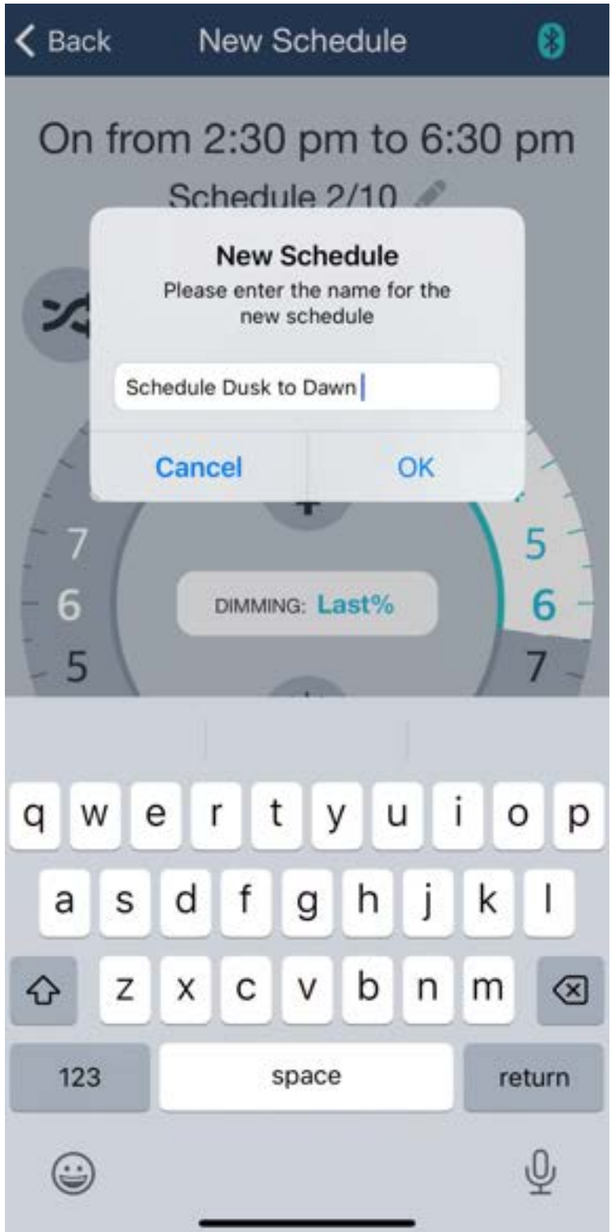


Menu Drawer >> **Schedules**

ON/OFF Schedules

After pressing the (+) button create a name for your schedule

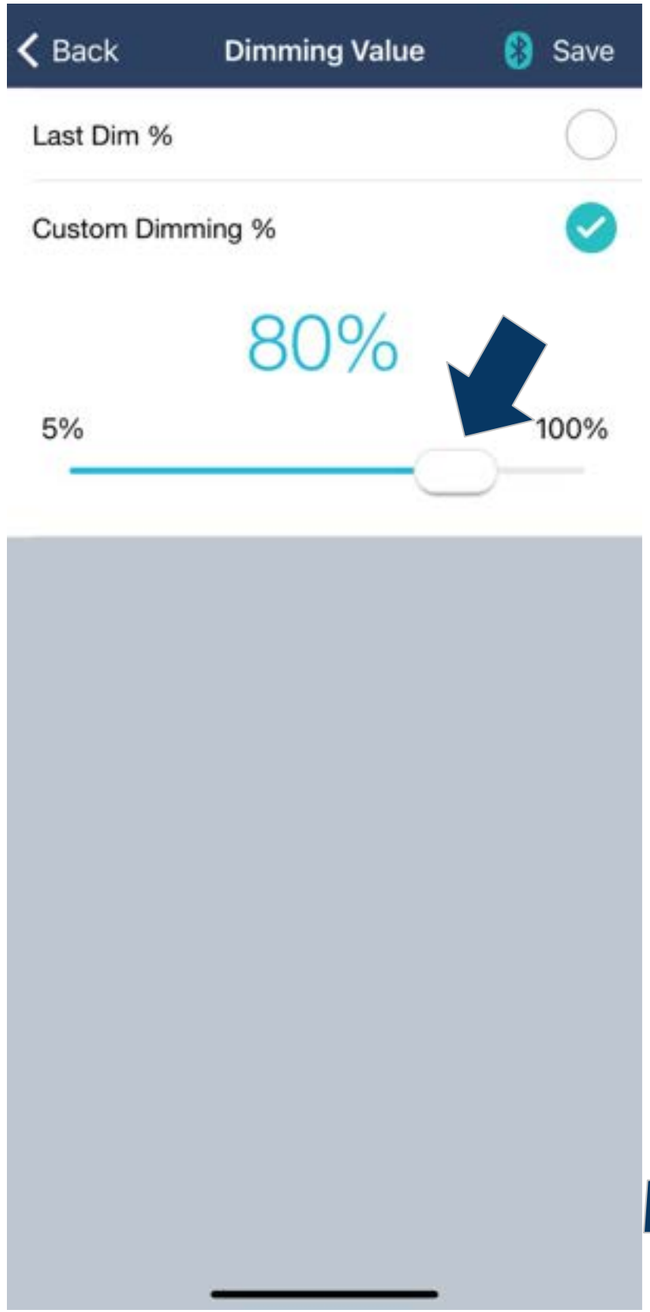
1. Choose the schedule type, on/off, on only, or off only.
   – Set the light level for the On Value by pressing the Dimming %
   – Set times for ON and OFF, if this is only an ON or OFF schedule there will only be one time.
   – Use the Sunrise Sunset icons if needed
   – Select the days you want the schedule to operate

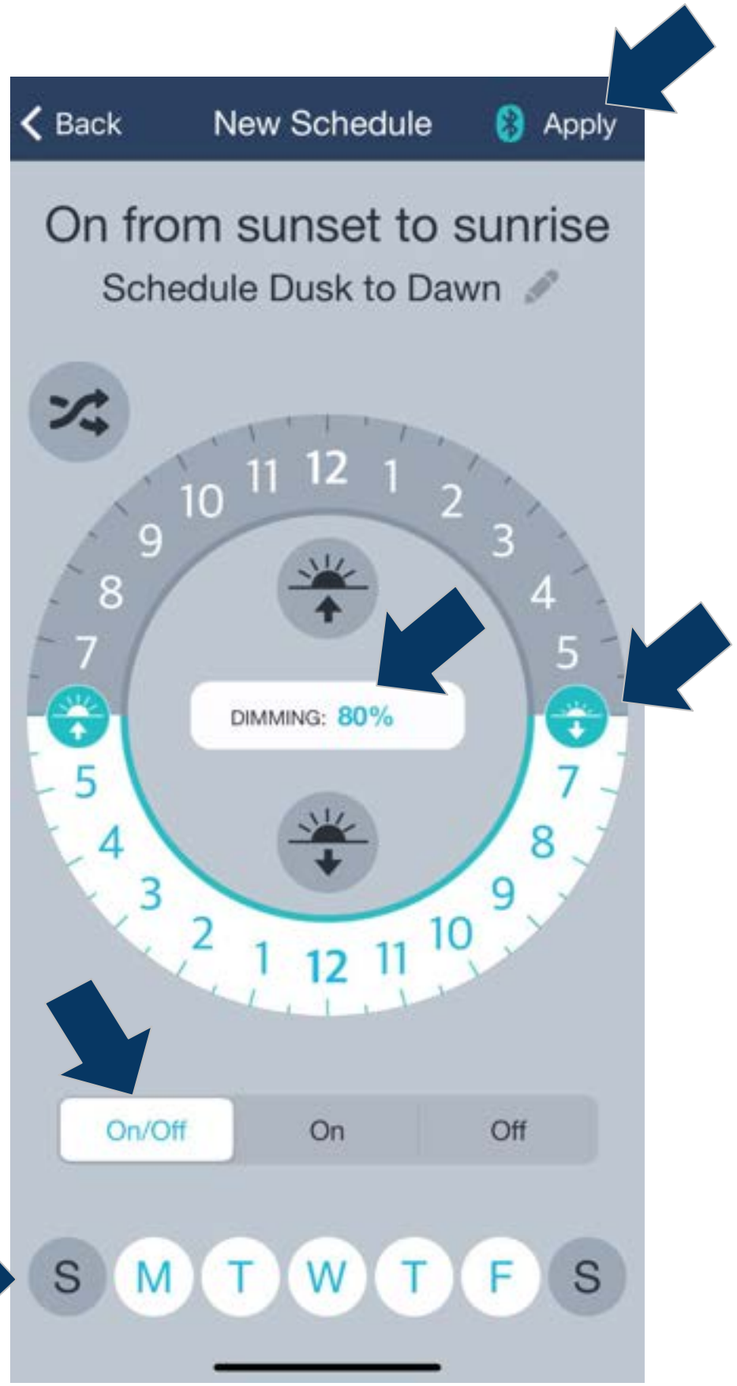


Menu Drawer >> **Schedules**

Use the slider to adjust the level you want the lights to go to when the schedule operates.

- Off only schedules do not need a percentage set.
- With changes made press Save to create the schedule
- With the schedule created we must now apply it to a group, device or scene.
- Press the apply button on the upper right corner

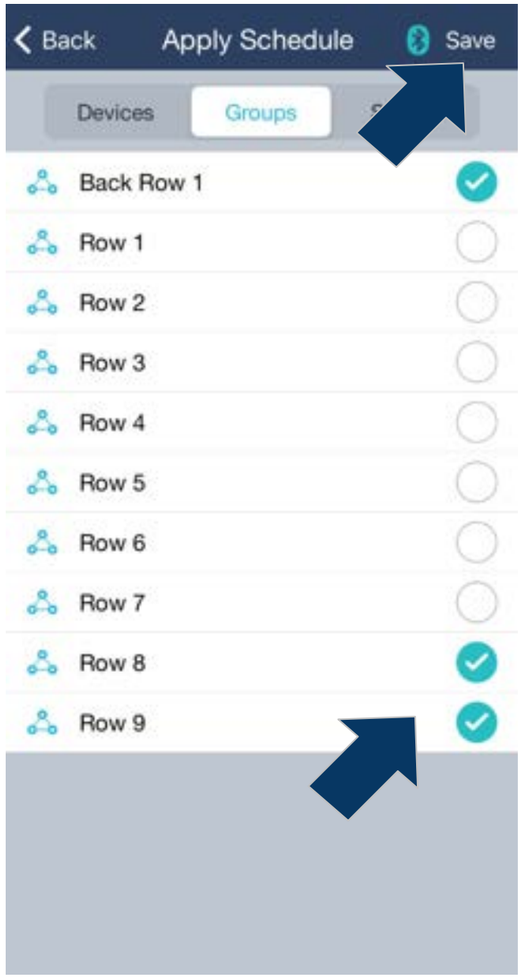


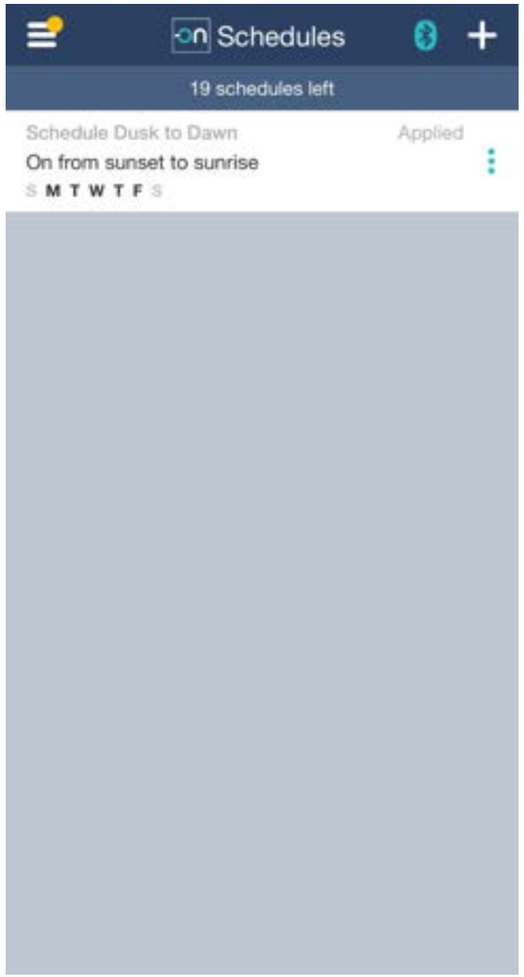


Menu Drawer >> **Schedules**

Now, select the Groups, Devices, or Scenes you would like to be controlled by the Schedule

- After clicking Save the schedule will be written to all devices selected
- The App will return to the Schedules page and you will be able to see a brief summary of the schedule and that it has been applied





Bluetooth® Lighting Controls

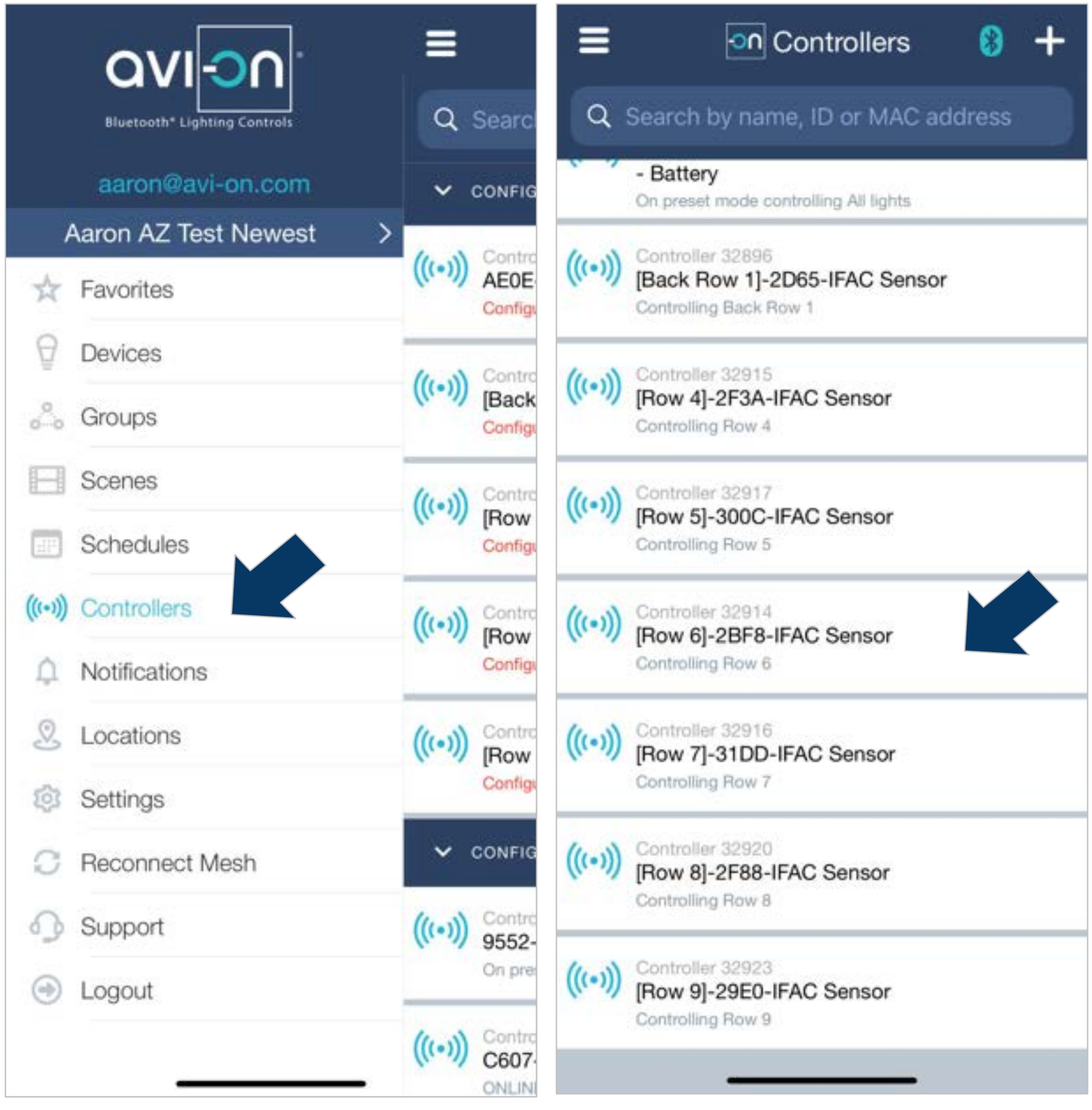
Programming Sensor Schedules

Menu Drawer >> Controllers >> **Sensor Schedules**

Sensor Schedules are used when you want to change the operational mode of the sensor from one time to another

- Sensor schedules do not allow for changing the light level set in the sensors page

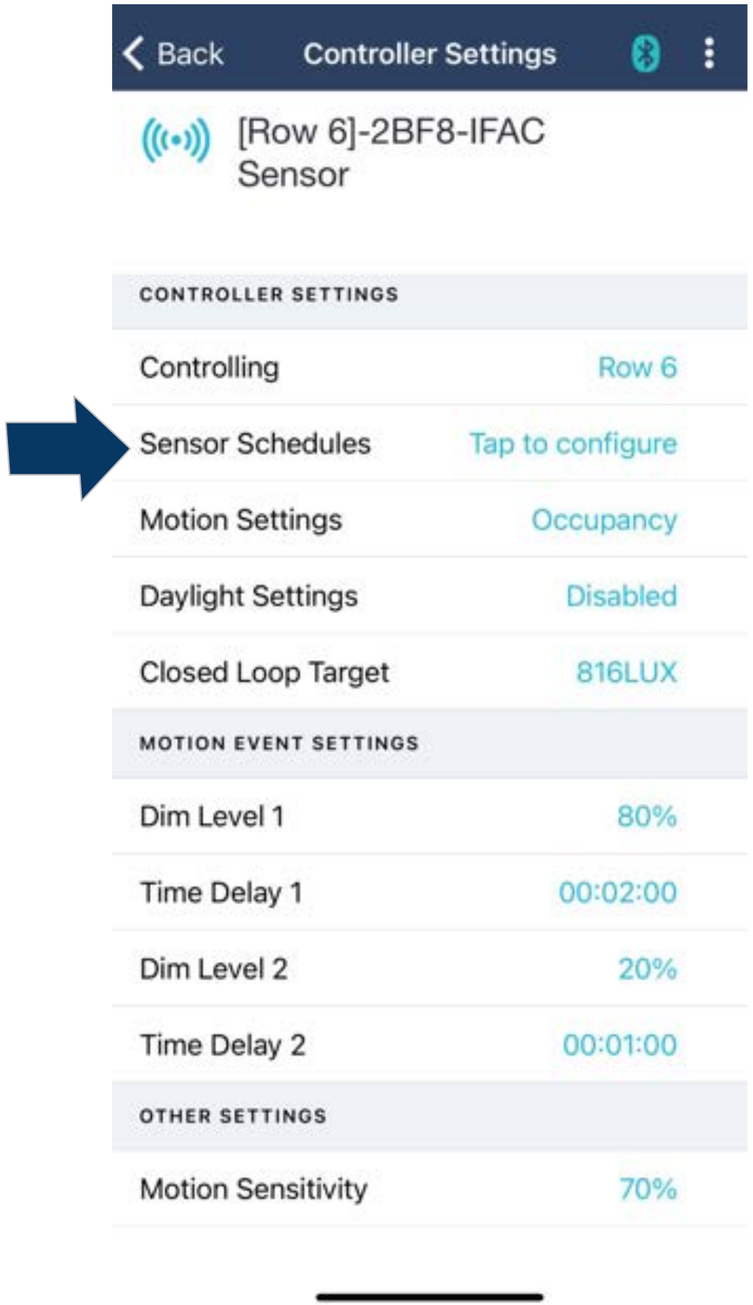
Select Controllers, and then select the sensor you would like to add a schedule to

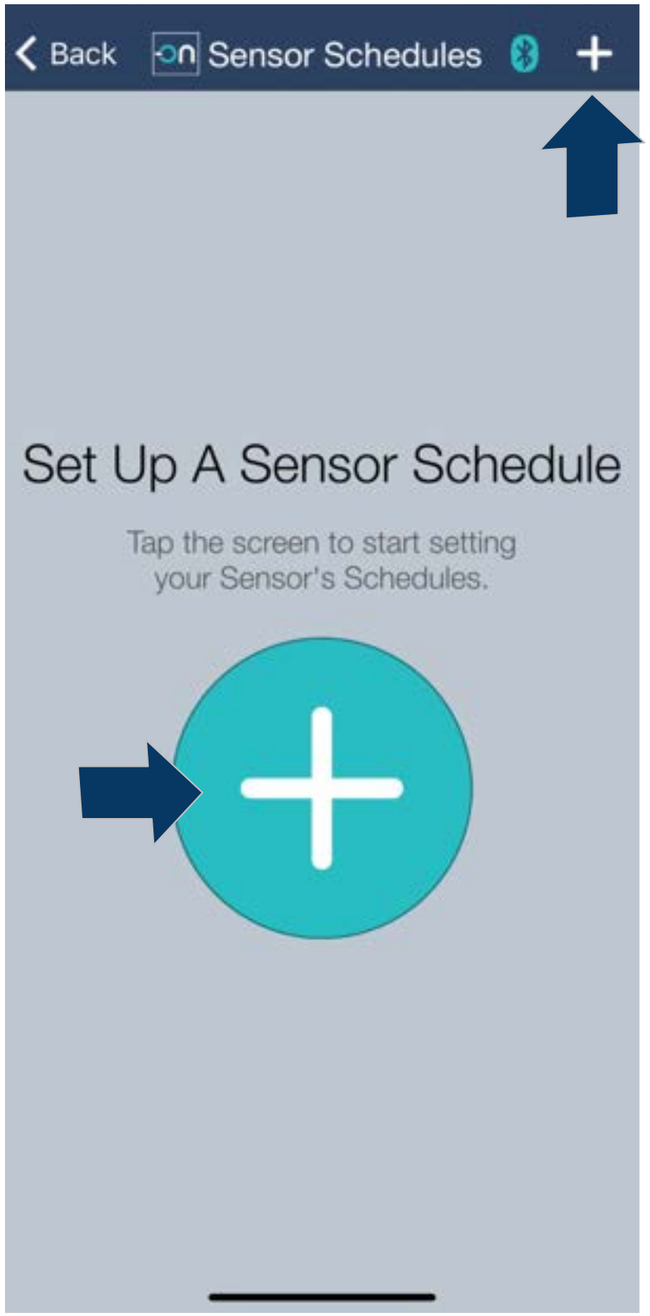


Installer Tools >> Schedules >> **Sensor Schedules**

On the sensor settings page press Tap to Configure next to Sensor Schedules

Press either (+) button to set up your first sensor schedule





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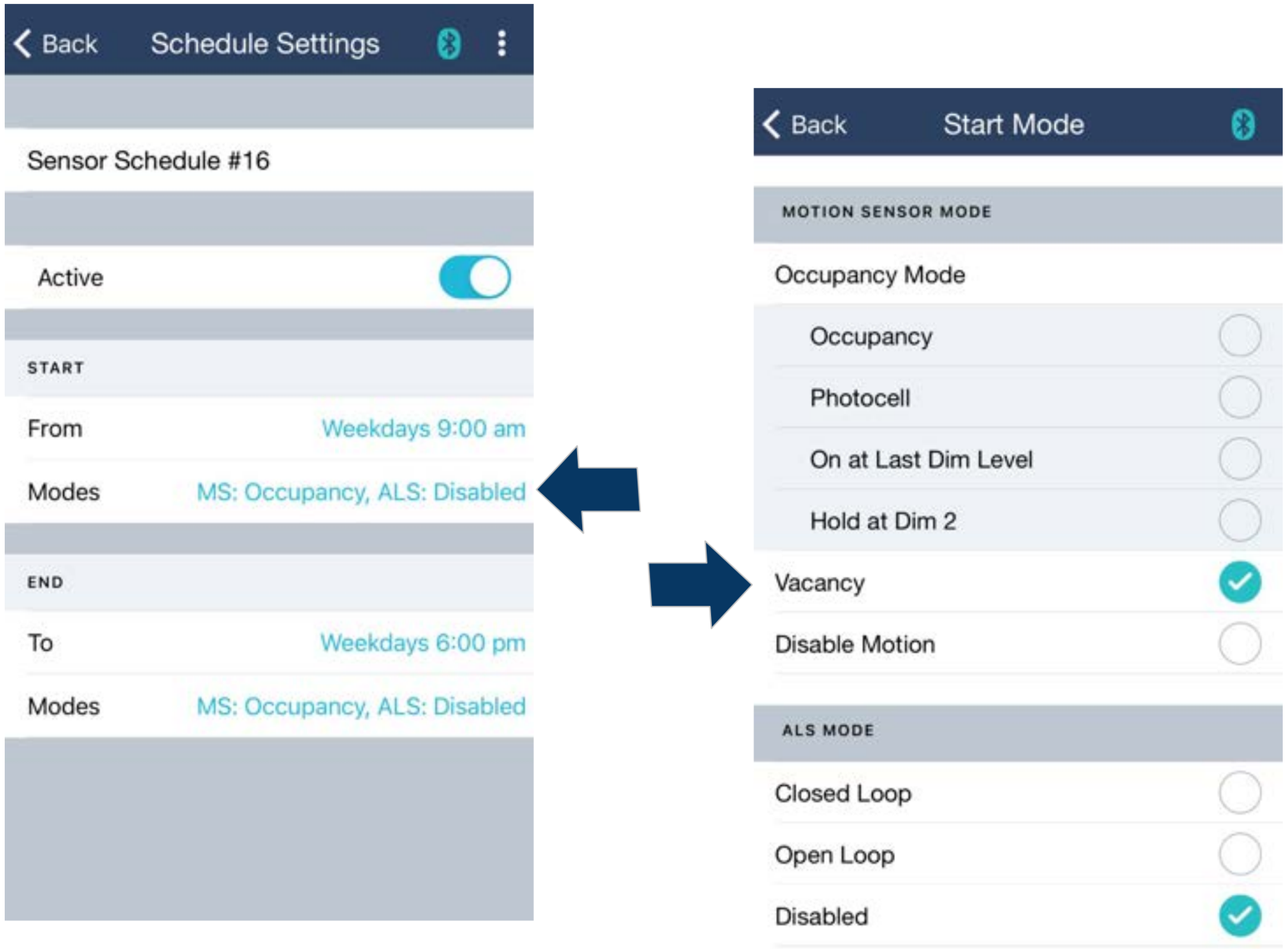
Installer Tools >> Schedules >> **Sensor Schedules**

On the Sensor Schedule creation page you can set the start and end times for the schedule and choose the start and end modes.

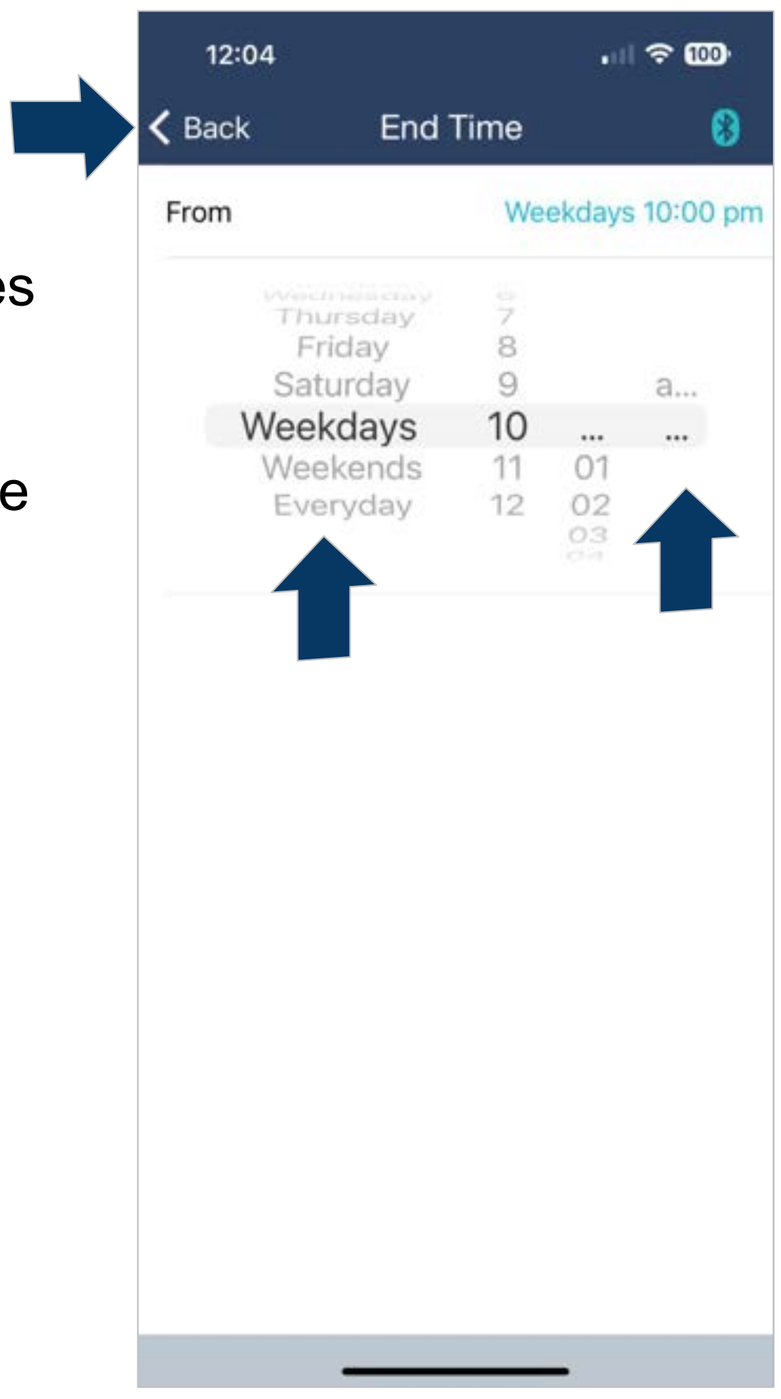
- To set the mode click the line and choose from the modes on the list.
- The most popular settings will be Occupancy and Vacancy
- ***Note*** *- Simply disabling a sensor will leave the light in whatever state it is in, when the schedule executes*

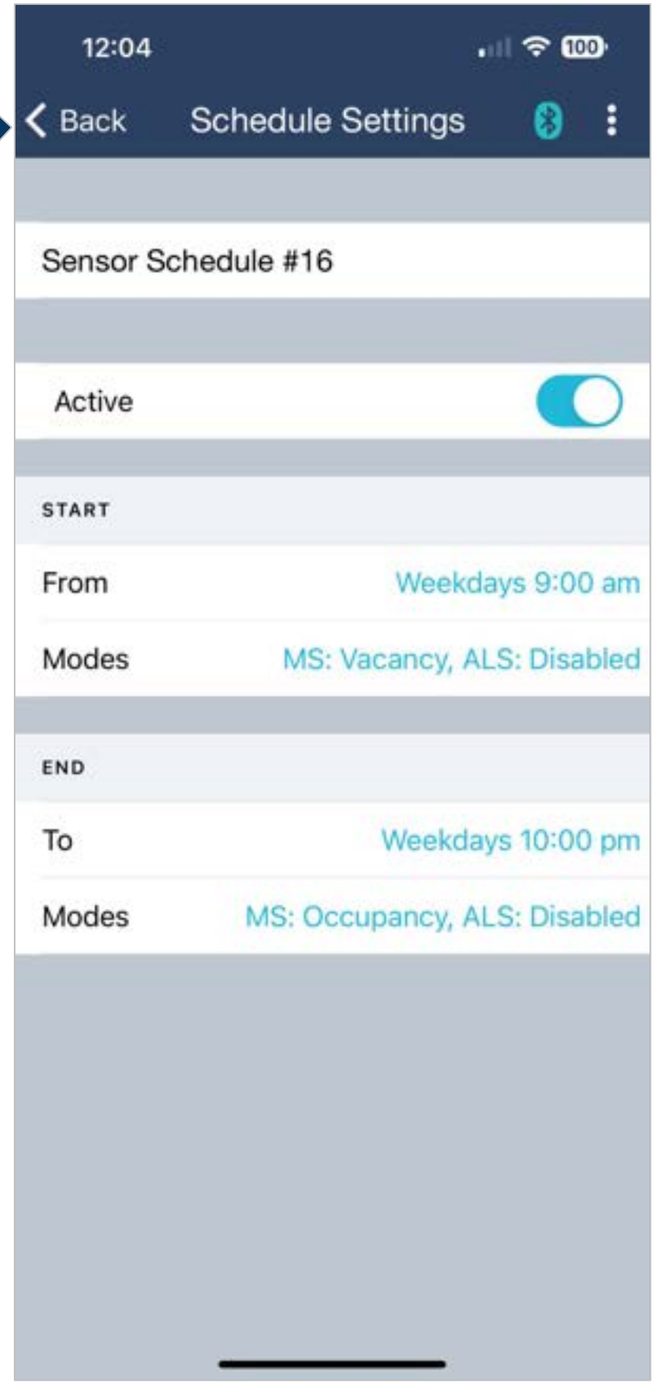


Installer Tools >> Schedules >> **Sensor Schedules**

Pressing the Start and End times will allow you to choose what day or days of the week the schedule operates as well as the times.

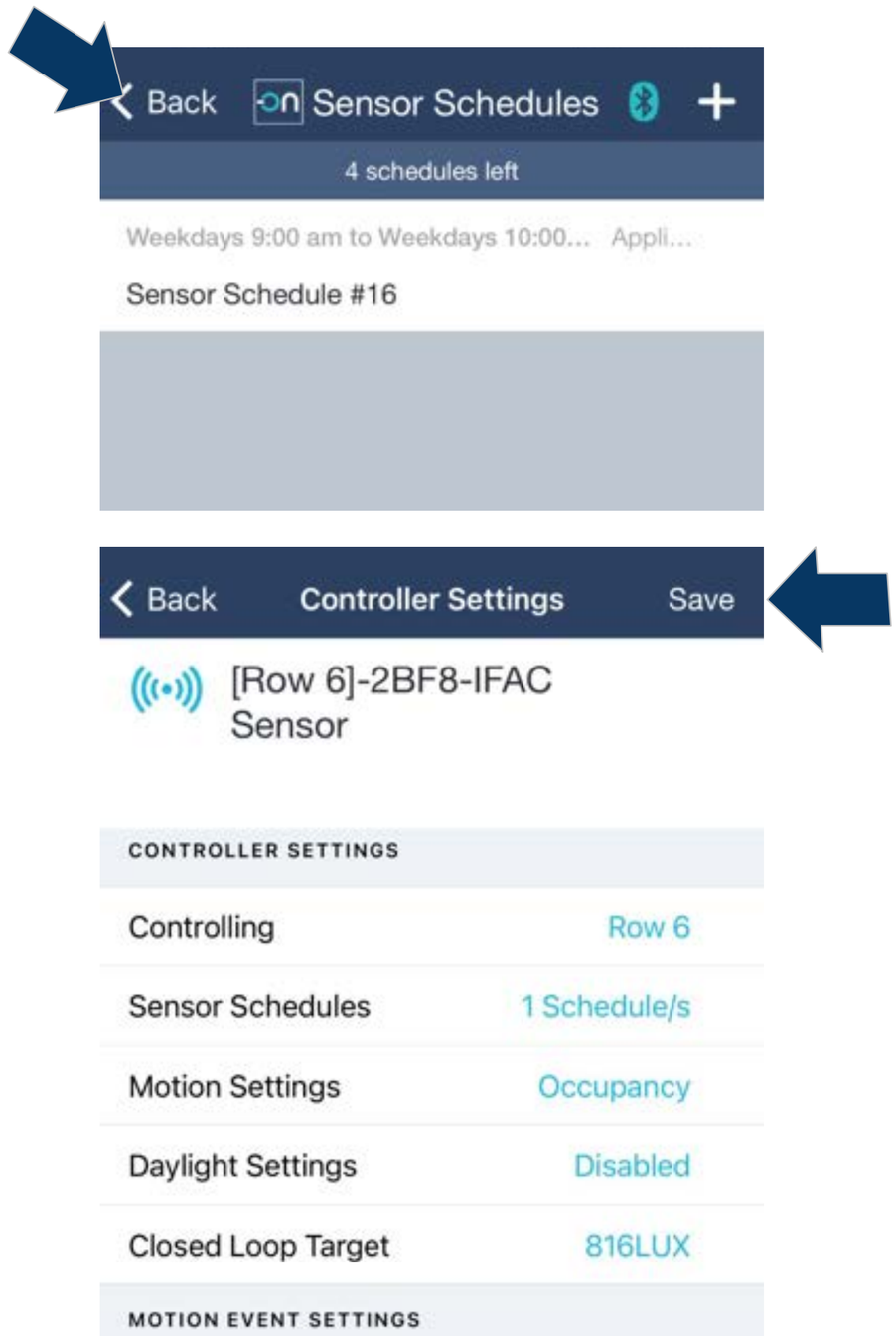
- Be sure to set AM or PM
- Once set press Back
- Check your settings and press Back again

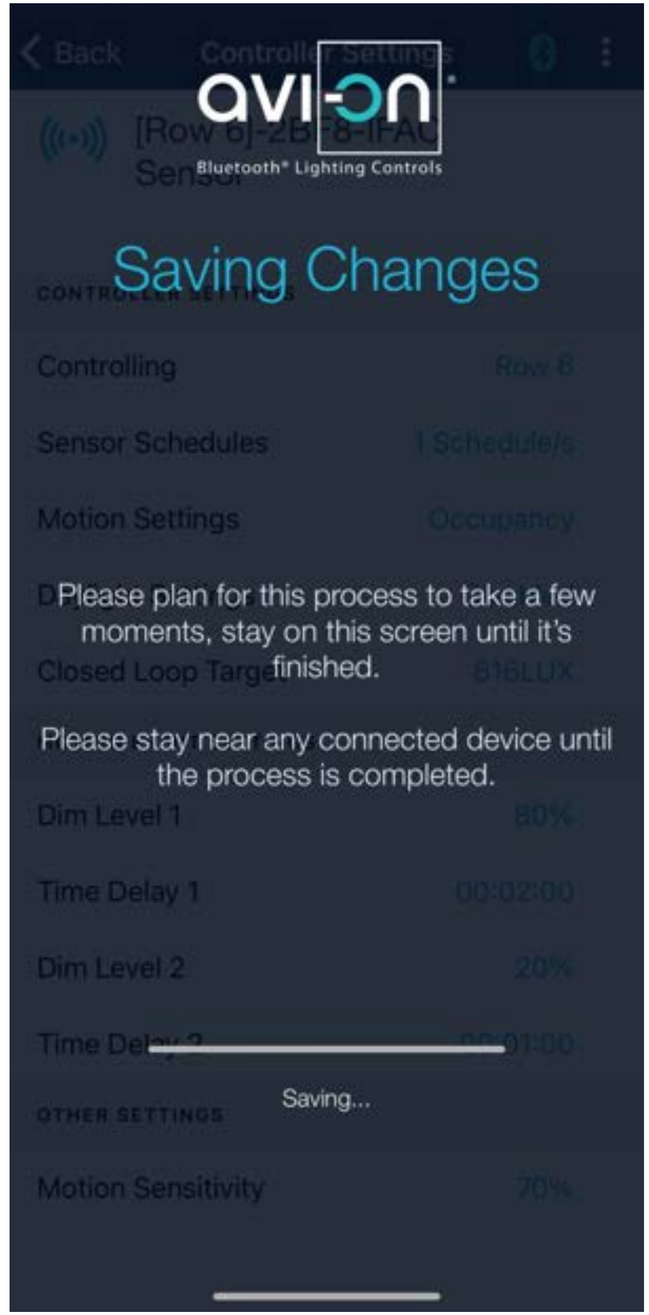




Installer Tools >> Schedules >> **Sensor Schedules**

- Check the sensor schedule summary for the correct settings
- Press Back once more
- Press Save on the main sensor page
- Wait for the app to save the changes to the sensor





Step 9) Troubleshoot

0	1	2	3	4	5	6	7	8	9
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Bluetooth® Lighting Controls

Power, Wiring, Contactors, & Other Issues

Check your work before the electrician leaves the site

Troubleshooting: **Check power, wiring, & groups**

Get *as available* helpdesk at Avi-on.com/contact -or- scan this QR →

Lights not following programming? Not operating as expected?

Step 1	**VERIFY power & wiring.** Wireless controls require constant power across all circuits • **Check for "islands of devices" created by old controls cutting power** to some or all Avi-on devices; use voltage tester to measure • **Check for emergency settings that override normal programs:** designated emergency devices will follow protocols & remain on • **Bypass old controls:** remove any contactors, timers, clocks, sensors, or hard switches that turn-off power to Avi-on controls • **Reset breaker:** check if breaker is off or breaker is failing (failing breaker makes lights erratic) • **Check batteries:** 'wake-up' battery-powered devices to add to App; check batteries are installed correctly • **Correct wiring:** do not wire hot to ground, do fix swapped dimming wires, replace devices destroyed by mis-wiring
Step 2	**INSTALL extenders to fill in network**. Install & program controls in adjacent areas. As you install, 'islands of devices' may appear. Verify all devices are powered, that antennas are not pinched or cut. Add 'extenders' to fill gaps or 'thin spots.' Use OA antennas for long runs
Step 3	**CHECK driver compatibility or failure. Check if antenna is bent, cut, crimped.** Check if the fixture or driver is damaged, wet, or failed • For LVFA applications, qualify drivers are dim-to-off (if not, swap to IFAC) PLUS verify AUX powers LVFA consistently (or add power supply)
Step 4	**Behavior doesn't match expected programming?** • **INCREASE sensor density, adjust placement.** Increase sensor density to better cover low usage areas; update PIR to dual-tech if not getting good response in cube areas. Locate away from air vents, ceiling fans, or other distractions • **REMOVE incorrect settings w/ App**. Remove overlapping settings: verify schedules, scenes, sensors map to correct devices/groups • **ADD/PROGRAM wall stations w/ App**. Associate groups to wall stations, eliminate interference from overlapping groups or sensors • **Check DATA connection, phone, & Apps.** *Using Mobile Commissioning App on phone:* turn ON data plan, Wi-Fi, and Bluetooth®; verify good cell and Wi-Fi coverage; move closer to device. Using *Avi-on Pro*: verify the 'green cloud' is syncing. • **If *Pro* doesn't match *Mobile*, SYNC** by connecting BOTH phone and laptop to Wi-Fi or data plan for 10 minutes OR until spinning stops
Step 5	**REMOVE devices with App, do not hard reset.** Save time by REMOVING devices with App INSTEAD OF doing manual reset