



**XICATO<sup>®</sup>**

# Notes

- This presentation shows screen captures from multiple software versions. I have only updated the screen capture if it has changed between versions in a way that impacts the lesson being taught.
- This is one of several documents that describe the setup and use of the Xicato XIM control network. Also see the following documents on the Xicato website:
  - XIM Gen4 QA: frequently asked questions and answers
  - XIM OTA update: how to perform Over The Air updates of device firmware
  - Xicato Software Installation: how to install BLE dongle drivers and the Control Panel
  - XIMtroller user guide: how to download and use the XIMtroller iOS control software

# Basic Concepts



**XICATO®**

# What is stored in the XIM?

- Name (“scan value”) and manufacturer (Xicato) are always “in the clear” (unencrypted)
  - But Xicato software ignores secured devices until it is given permission to see them
- Secure Network encryption key, if any, which enables permitted user access to:
  - Unique Device ID (per network)
  - Configuration details (serial number, model, FW versions, etc.)
  - Group membership by NUMBER (not name)
  - Scene membership by NUMBER (not name)
  - Rules about how to respond to inputs\*
    - Sensors and switches
    - Scenes
  - Histograms of intensity, temperature, and LED forward voltage

\* provisioning and administrative users only

# What is stored in XIMtroller and Control Panel software?

- Secure Network names and associated encryption keys
  - Passwords themselves are not stored
  - AES-128 encryption key is generated through a mathematical algorithm applied to name and password
- Group names and Mapping to group numbers
  - Can be different for each user
  - For now, are associated with EVERY group of the same number in all secure networks
- Scene names and Mapping to scene numbers
  - Can be different for each user
  - For now, are associated with EVERY scene of the same number in all secure networks
- (Control Panel): temporary storage of monitoring data as long as CP remains open
  
- Everything else is advertised periodically to the software by the XIMs, or provided by the XIMs in response to application requests
- Software can only hear and talk to devices in range – extension is through gateways
  - This is a major difference between current Bluetooth and Mesh

# Preparing to Provision

# Before you Provision

## **DON'T**

- Don't start provisioning a large space without a plan
- Don't use the same group or scene number in multiple super-groups (public and secure networks)
- Don't use 0 (zero) as a Device ID, Group number or Scene number
- Avoid having multiple provisioners in the same space, provisioning the same devices

## **DO**

- **PLAN AHEAD**
  - Secure Network names and passwords
  - Group names and numbers
  - Scene names and numbers
  - Control behavior and rules
- **KEEP YOUR SECURE NETWORK NAMES AND PASSWORDS IN A SAFE PLACE**
- Assign and Secure your modules as soon as possible after installation
- Consider network reach, obstructions, etc.
- Share network, group and scene names and numbers with users

# Provisioning with Control Panel



# First Steps after Luminaire Installation

**First, even ahead of time and away from the devices, in CP Settings tab...**

1. Switch from Basic mode/Tablet view to Expert View\*
2. Create your Secure Networks (save network names and passwords!)
3. Create the Group names and numbers within each Secure Network
4. Create the Scene names and numbers within each Secure Network

**Within the lit space...**

5. From CP Dashboard, provision module Addresses and Names (scan values)

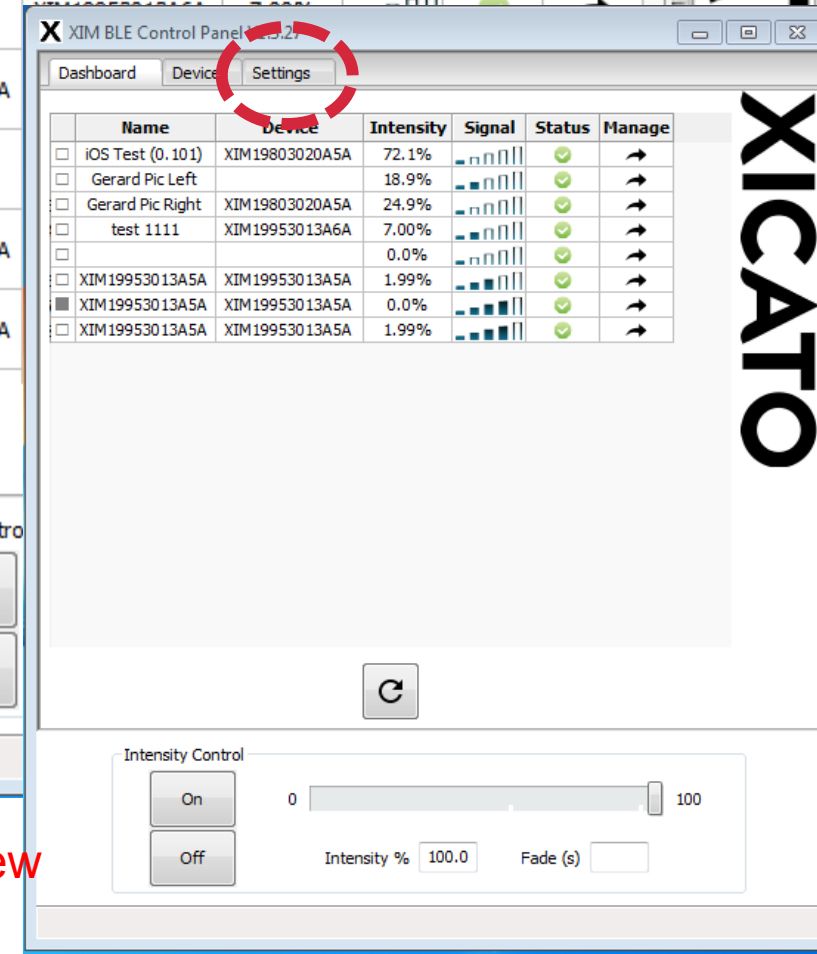
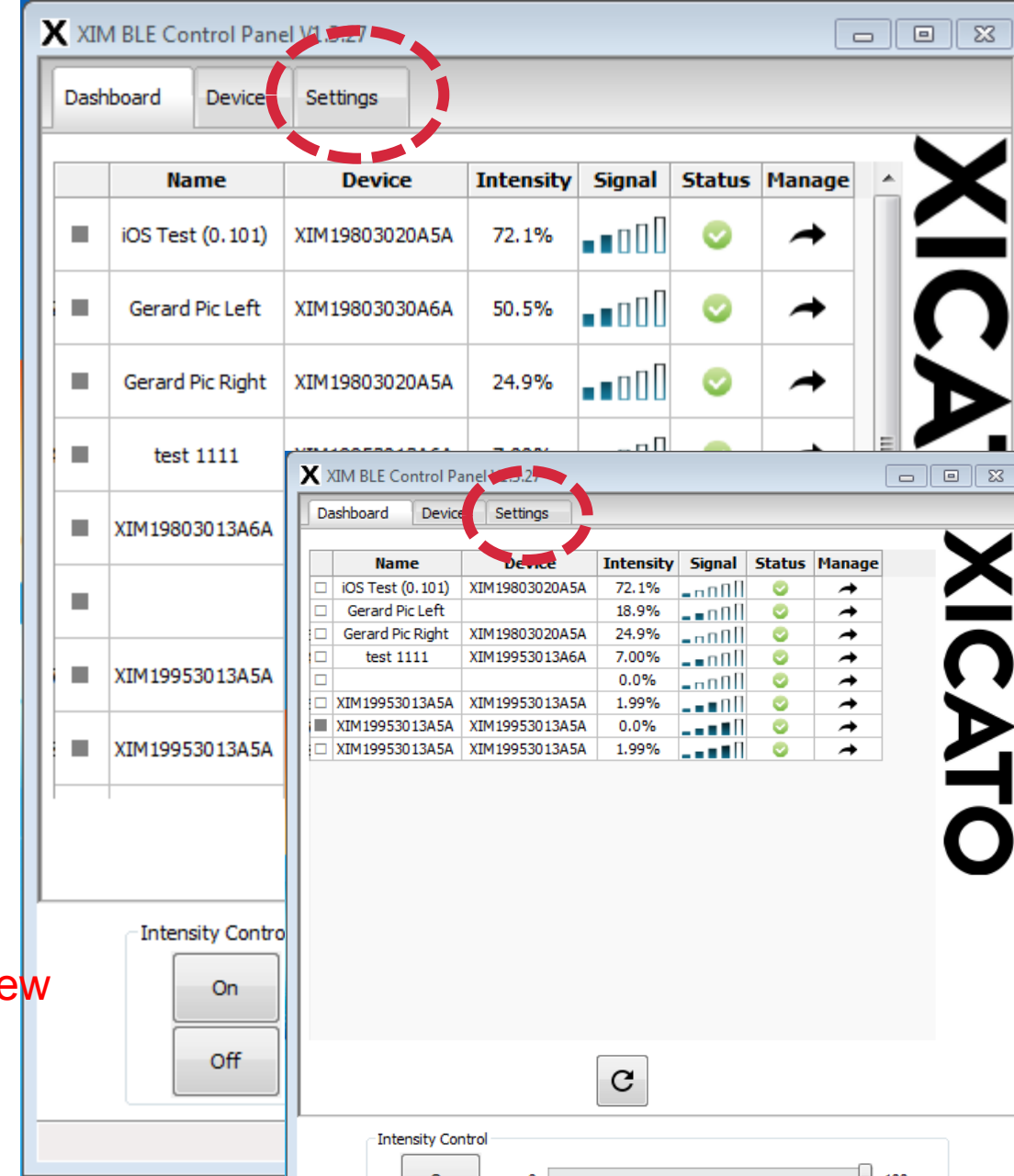
**For each module...**

6. Assign Secure Networks to devices
7. Assign Groups to devices
8. Assign Scenes to devices and program scene behavior

Switching to Expert View

# Basic View, Tablet Mode

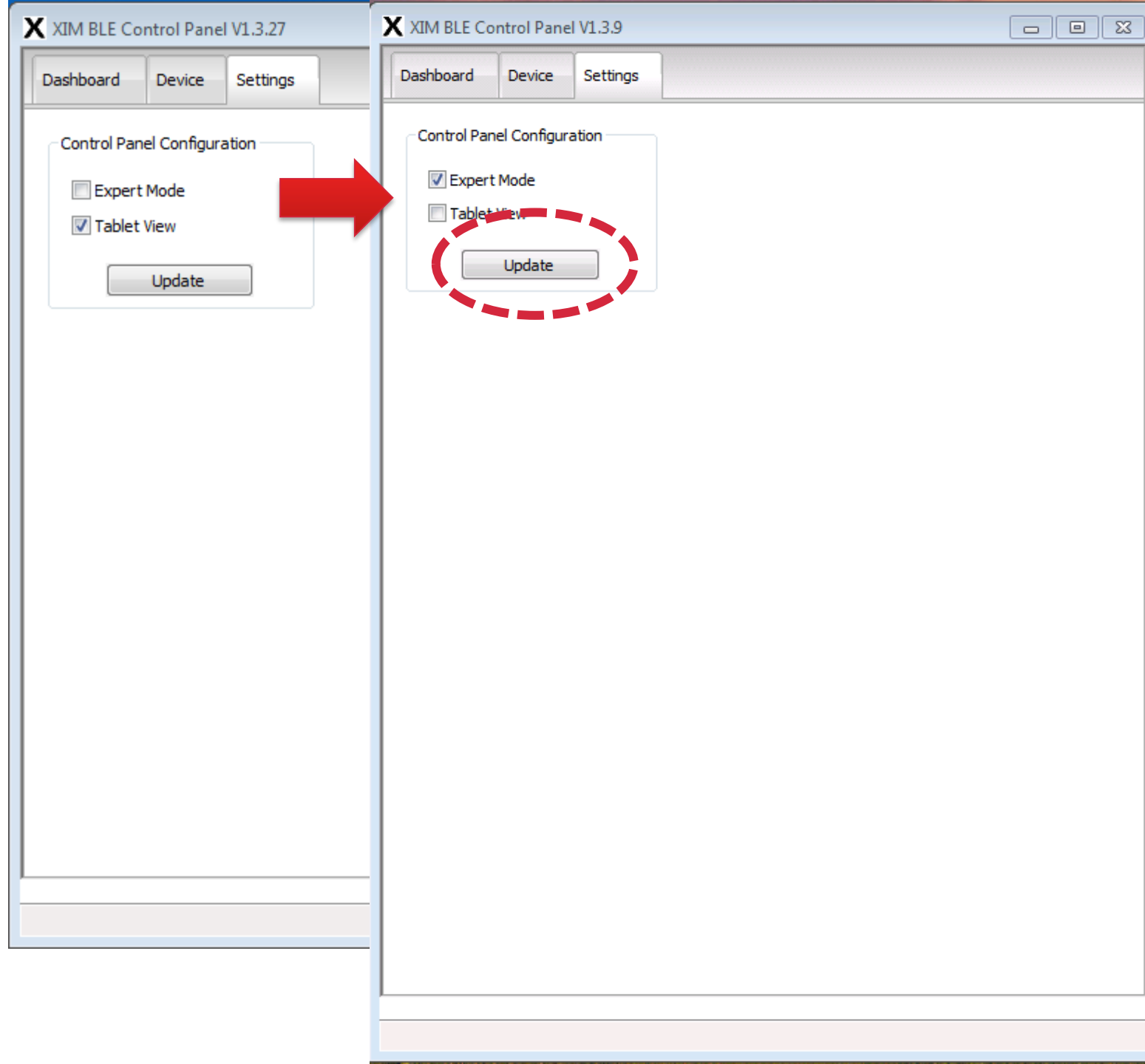
- Basic mode is a simpler, less powerful view with fewer fields and functions
- Tablet view increases the size of fields to accommodate the touch screen and fat fingers
- Default module names are the same as the Device (Xicato model numbers)
  - These have already been changed in this image
- First step: **Go to Expert View** by selecting the Settings tab



# Switching Modes

1. Check the Expert Mode box
2. Uncheck the Tablet View box
3. Click the Update button

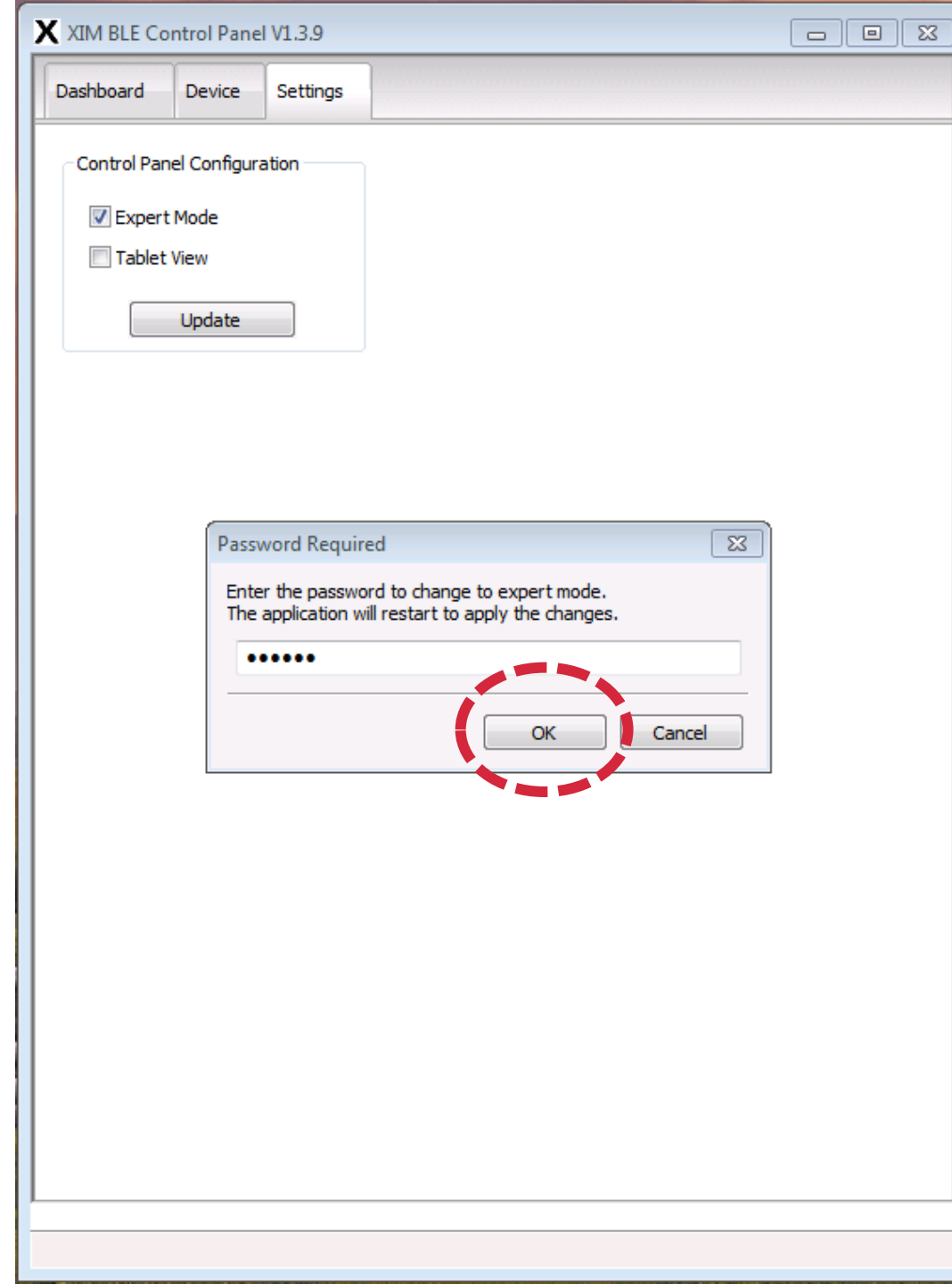
This will open a Password dialog box



# Secure Access to Expert Mode

1. Enter Password
  - Password to switch to Expert Mode is XIMGUI
  - This is CaSe SeNsItIvE – must be all capital letters
2. Click OK

Application will automatically quit and reopen to the Dashboard in Expert Mode



# Creating Secure Networks

# About Secure Networks

- Secure Networks are “super groups” of modules that share a common AES-128 (128-bit) encryption key
  - Key is generated through a mathematical algorithm based on the network name and password
  - Password is then promptly forgotten by software
- You can create up to  $2^{32} = 4,294,967,296$  (over 4 billion) Secure Networks!
- They do NOT overlap – a module or sensor can only be Unsecured or in one Secure Network at a time
  - You can move a device between them through provisioning, but it will carry its Group and Scene numbers with it unless you delete the Groups and Scenes from the device
- Each Secure Network contains its own Modules, Groups, and Scenes
  - Up to **32,768** modules ( $2^{15} - 1$ )
  - Up to **16,383** groups ( $2^{14} - 1$ )
  - Up to **65,535** scenes ( $2^{16} - 1$ )
- However, the current version of Control Panel can only remember one name per group and scene number – it will give the same name to all groups and scenes of the same number
- Devices must be Assigned a unique, valid address before they can be Secured or Grouped
  - But they remember their previous Secure Network and Group if you manually “Unassign” them by changing their Device ID to a 3-byte value. If you reassign a valid Device ID, they will rejoin their former Secure Network and Group(s)

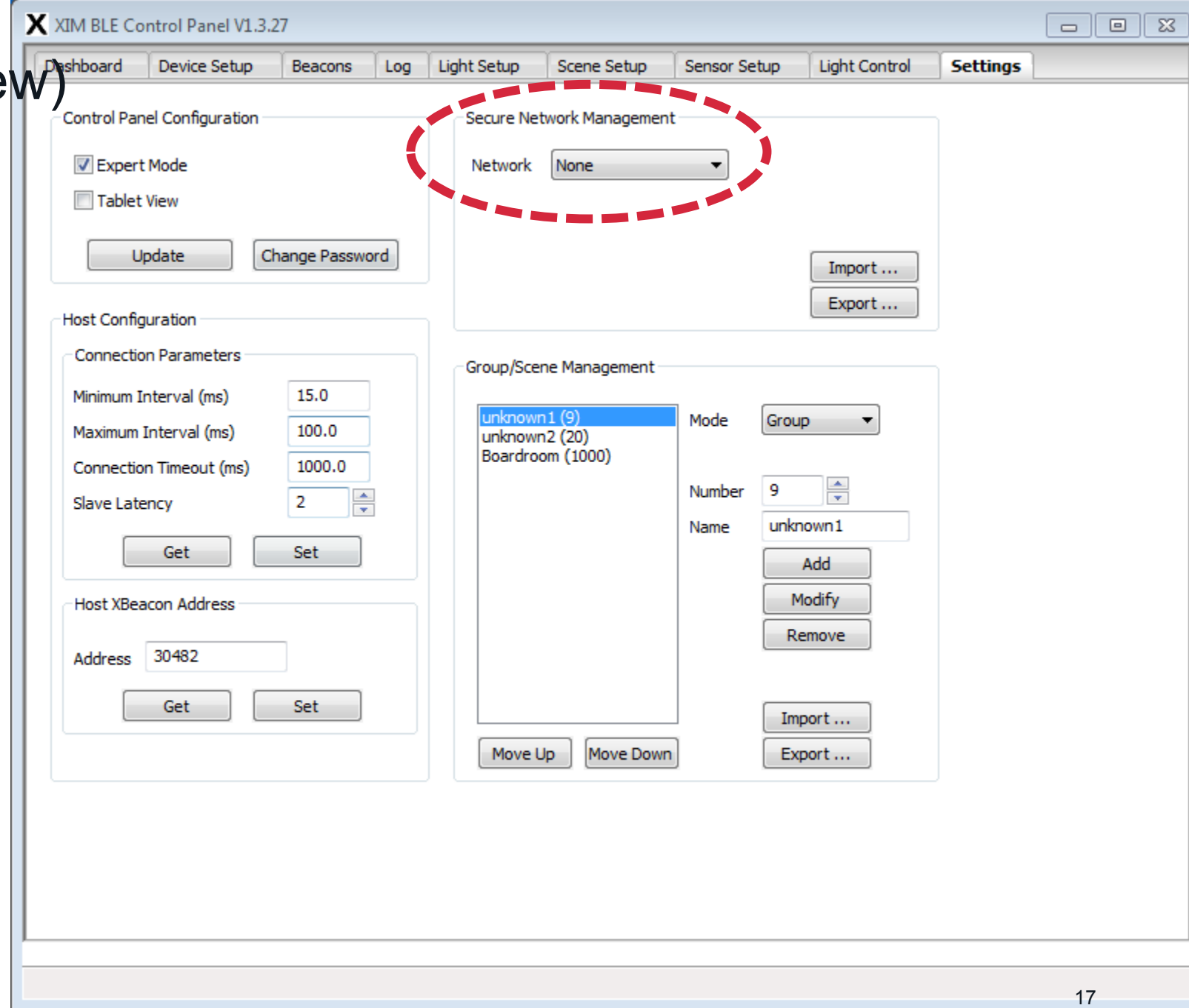
# Why Secure Networks?

- It keeps anyone with XIMtroller from messing with your lights!
  - Do it EARLY to maintain control over provisioning and control
- Use multiple secure networks to manage who controls which lights
  - Hand out names and passwords only to people you want to be able to control devices in that network
- Examples:
  - Personal spaces
  - Office vs. Conference Rooms vs. Restrooms vs. Shipping vs. Warehouse vs. ...
- Leaving some lights Public (unsecured) is okay, but realize that someone could theoretically get their hands on Control Panel and secure them away from you!



# Settings Tab (Expert View)

- Notice how much more information is on the Settings tab in Expert Mode
- This is where you define Secure Networks and Groups, as well as set parameters for host computer communications with XIM modules
- To create a Secure Network, pull down the Network menu to “Add...”



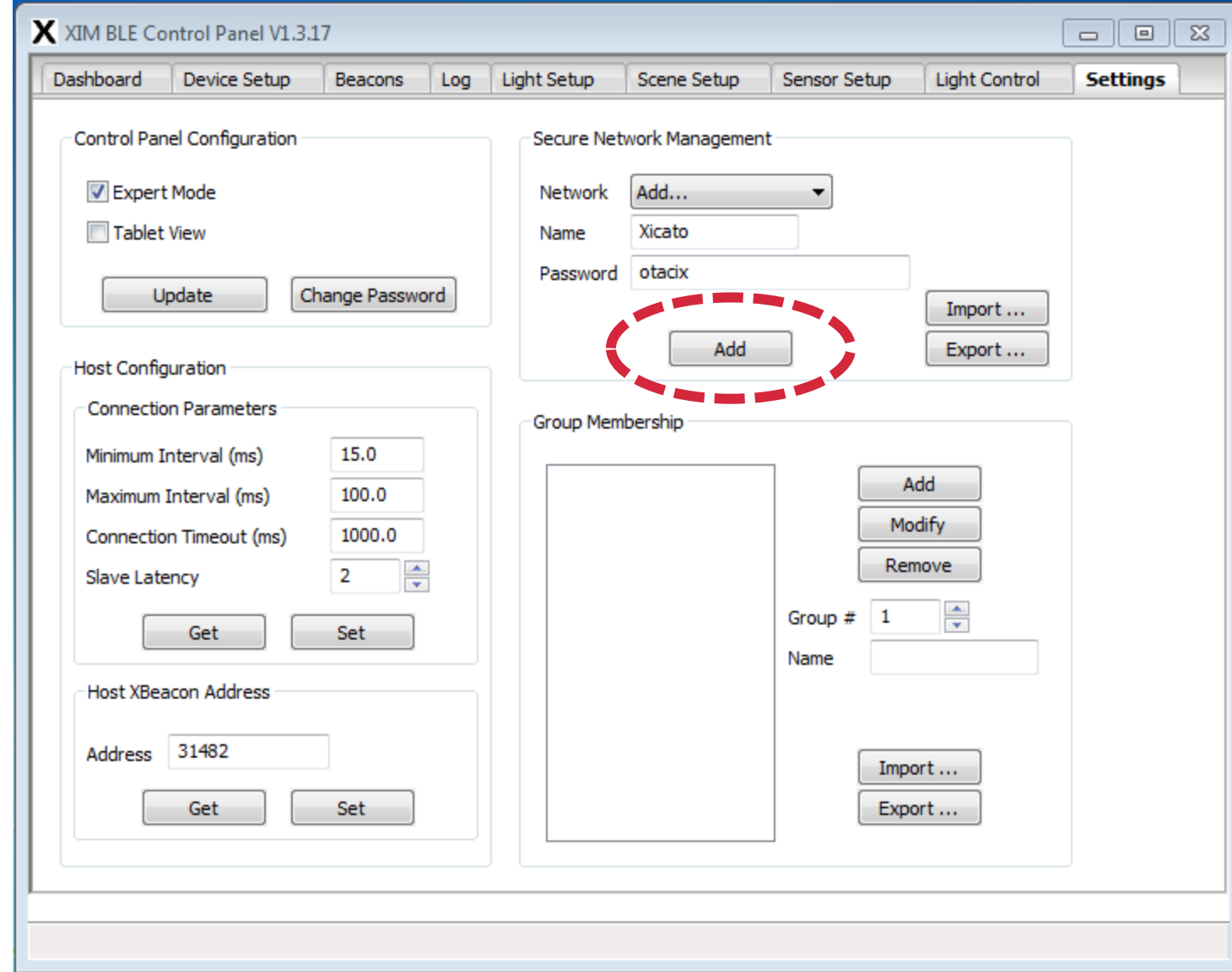
# Add Secure Network

- Pulling down to Add... reveals fields where you can enter the Name and Password of your new Secure Network

The screenshot displays the 'XIM BLE Control Panel V1.3.27' software interface. The 'Settings' tab is active, and the 'Secure Network Management' section is highlighted with a red dashed circle. This section includes a 'Network' dropdown menu with 'Add...' selected, and input fields for 'Name' and 'Password'. Below these fields are 'Add', 'Import ...', and 'Export ...' buttons. Other sections visible include 'Control Panel Configuration' (with 'Expert Mode' checked), 'Host Configuration' (with 'Connection Parameters' and 'Host XBeacon Address' sub-sections), and 'Group/Scene Management' (with a list of groups and 'Add', 'Modify', 'Remove', 'Import ...', and 'Export ...' buttons).

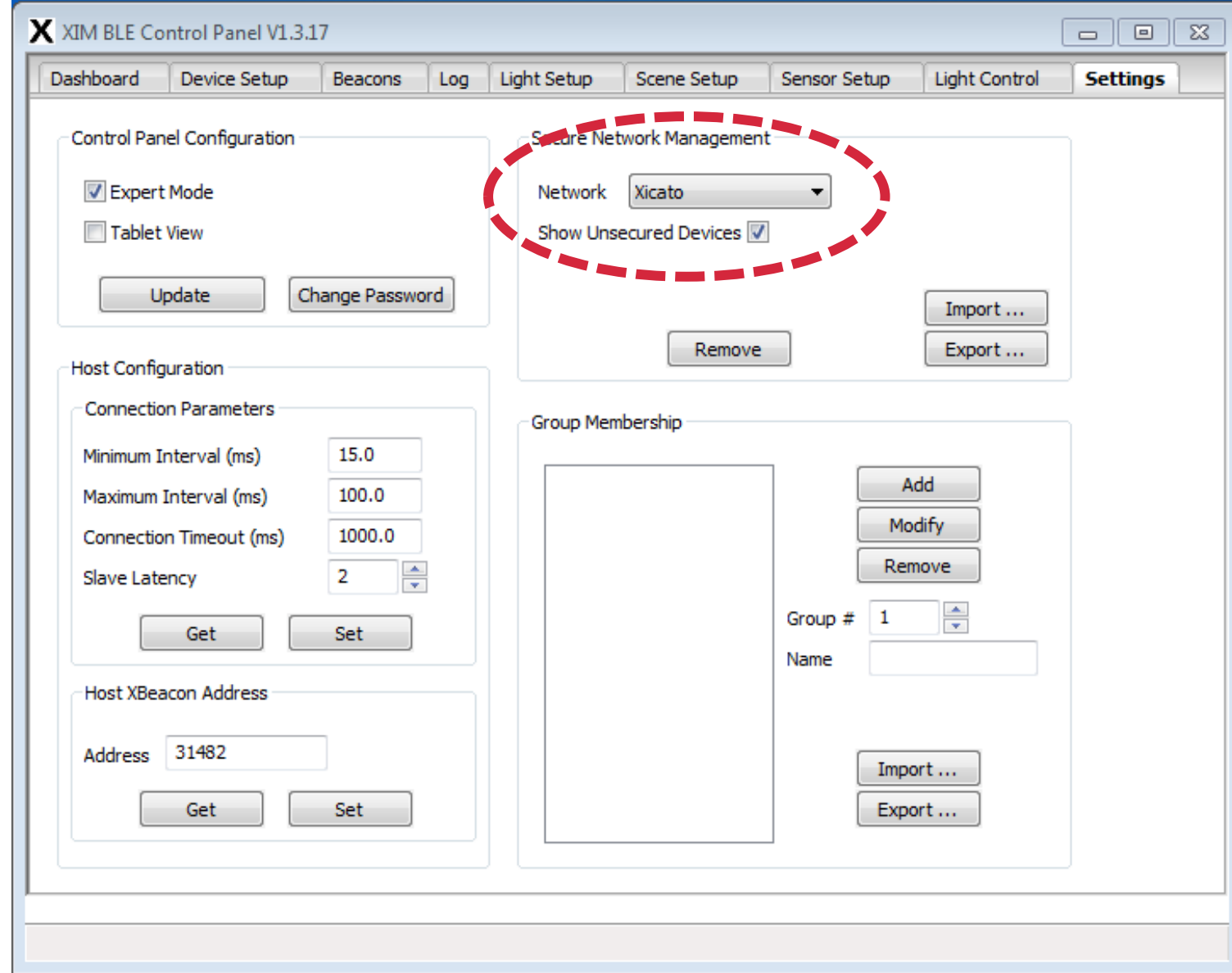
# Adding “Xicato”

- Enter network name (Xicato)
- Enter password (otacix)
- **REMEMBER THIS PASSWORD**
  - If you forget this password, you will not be able to see or control secured XIM units without physical access to the devices
- **KEEP THE PASSWORD IN A KNOWN, SAFE PLACE**
- Click “Add”



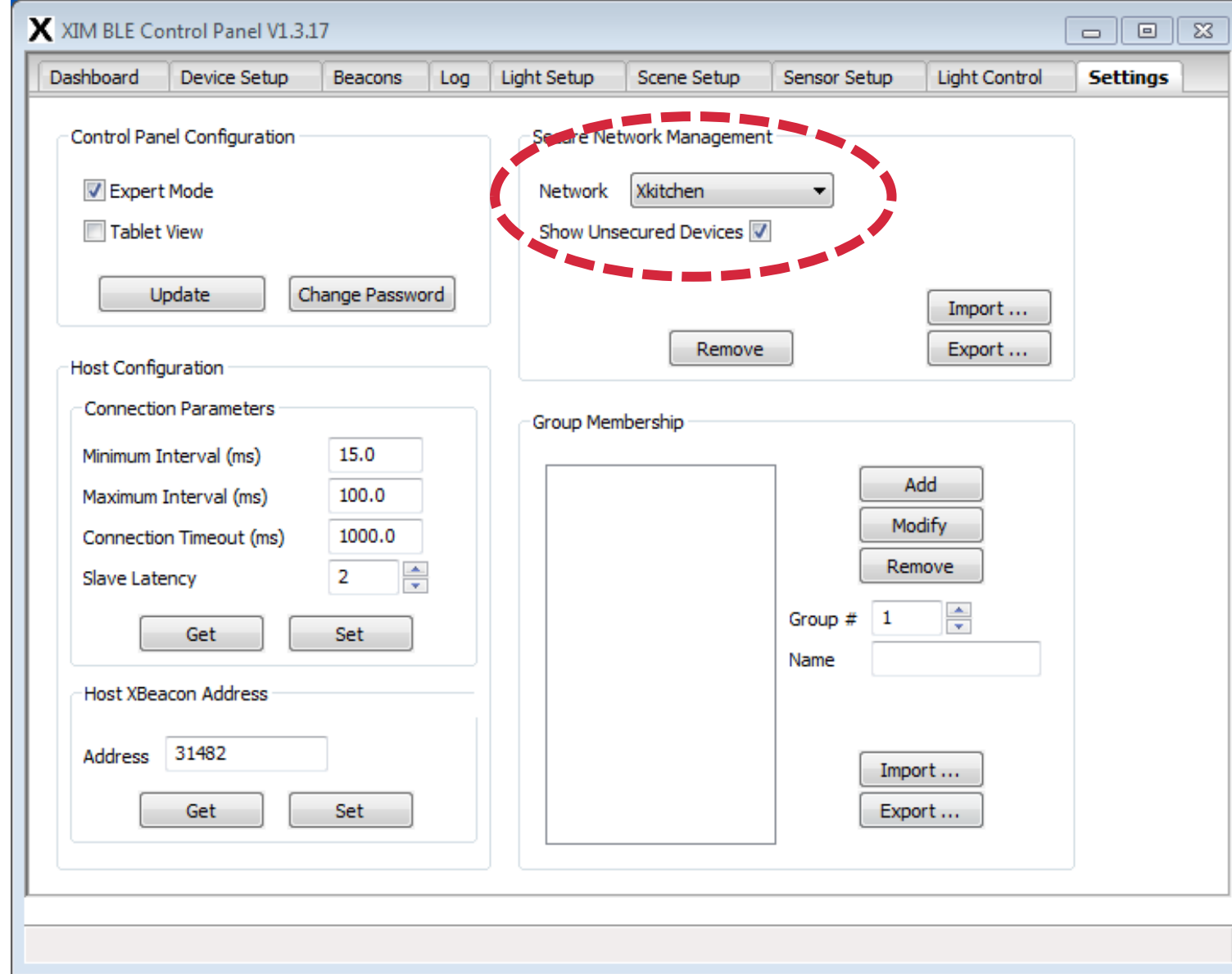
# Xicato Added

- Notice that Network now says “Xicato” AND...
- There is a check-box option to Show Unsecured Devices (or not)
- This impacts the Dashboard and the pull-down menus at the bottom of several other screens
- Now, let’s add another Secure Network called “Xkitchen”
- Follow the previous steps, and...



# Xkitchen Added

- We now have another new Secure Networks called Xkitchen
- We can now assign modules to these Secure Networks
- But first, while we are on this screen, let's create a few Groups...



# Creating Groups

# About Groups

- Create Groups when you want to be able to:
  - Simplify your view: see (only) a particular subgroup of devices (within a network) at a time
  - Control a subgroup of devices with a single command
- Groups are fully contained within a single Secure or Unsecure (Public) Network
  - This is because they are uniquely encrypted within each Network
- Within a Secure Network, group membership can overlap
  - The same XIM can be a member of multiple groups that contain different combinations of XIMs
- Each XIM can be a member of up to 16 Groups
- Group Number must be between 1 - 4095, and must be UNIQUE for that Network
  - All XIMs in the Network with the same Group number will react to the same Group commands
- **Group Name is not stored by XIM.** XIM stores only its own group numbers.
  - Name is only remembered by the software application

# Temporary Software Issues

- Control Panel ties the same Group Name to the Group of the same Group Number in EVERY Secure Network.
- Therefore, for the time being, avoid using the same Group Number in different Secure Networks
- This is mostly a confusing inconvenience –
  - You can still technically assign the same Group # to modules in different Secure Networks.
  - Commands to a particular group number in a particular Secure Network will be encrypted according to the key for that group. The modules in a group of the same number (and apparent name) in other Secure Networks will not respond.
  - But if you move a module from one Secure Network to another, it will remember its old group numbers and join the equivalent groups (if any) in its new network. This is true even if you move devices into the Public (unsecured) network, or to Unassigned
- Devices will “drop out” of their Secure Networks AND their Groups if you assign them an Unassigned-type Device ID (xxx.xxx.xxx), but will **rejoin both** as soon as you reassign them a unique, proper Device ID



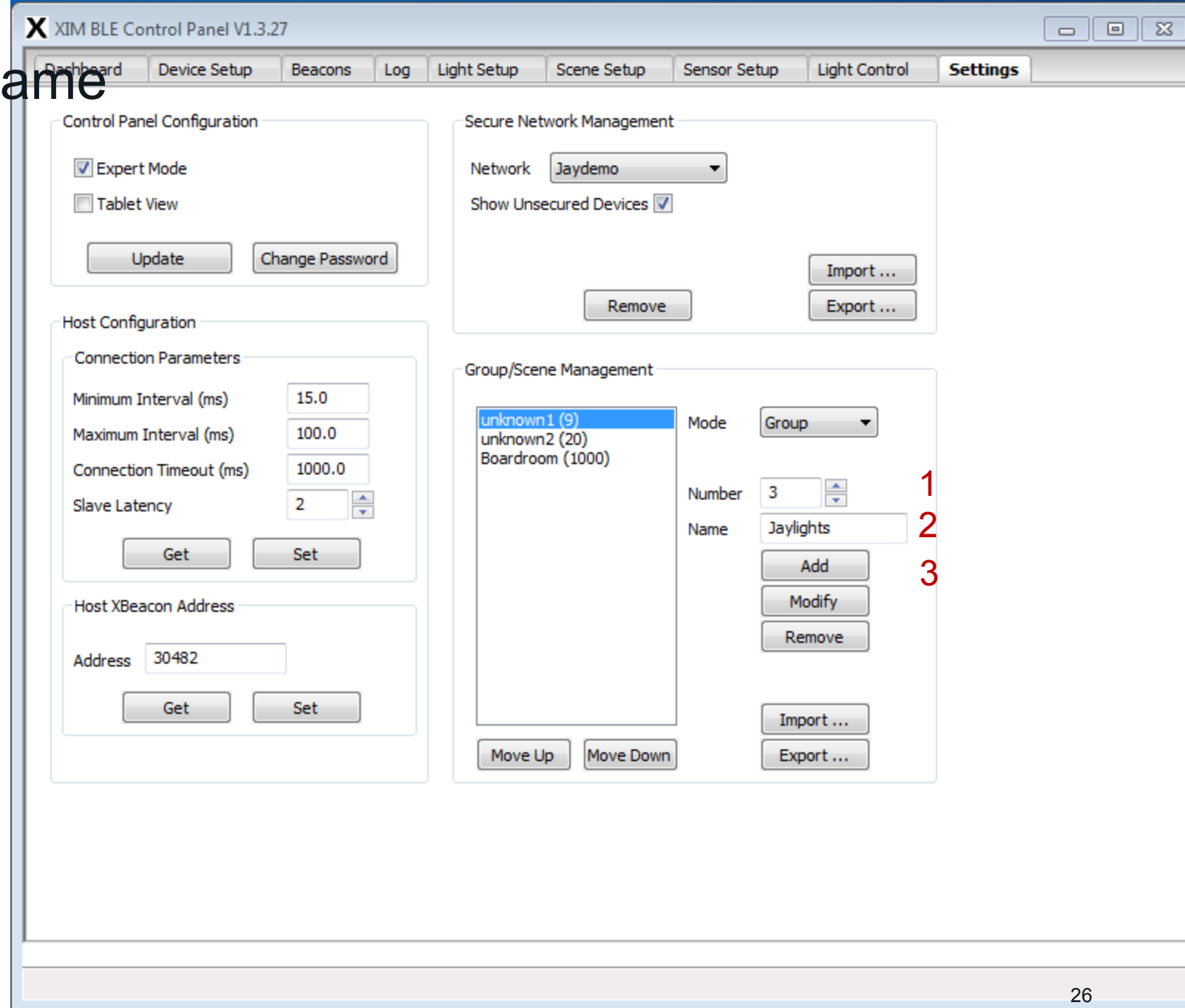
# Creating Groups

- Groups names should be meaningful – either what they are illuminating, or some other common attribute
- We have planned (remember, we said you should plan...) to create a group called Jaylights
- First, make sure that the Mode is “Groups”. This will show all the groups that this Control Panel is aware of
- First, choose a unique number, then give it a name

The screenshot shows the 'Settings' page of the XIM BLE Control Panel V1.3.27. The interface includes several sections: 'Control Panel Configuration' with 'Expert Mode' checked and 'Tablet View' unchecked; 'Secure Network Management' with 'Network' set to 'Jaydemo' and 'Show Unsecured Devices' checked; 'Host Configuration' with 'Connection Parameters' (Minimum Interval: 15.0, Maximum Interval: 100.0, Connection Timeout: 1000.0, Slave Latency: 2) and 'Host XBeacon Address' (30482); and 'Group/Scene Management'. The 'Group/Scene Management' section is highlighted with a red dashed circle, showing a list of groups: 'unknown1 (9)', 'unknown2 (20)', and 'Boardroom (1000)'. The 'Mode' dropdown is set to 'Group', and the 'Number' is 9 and 'Name' is 'unknown1'. Other buttons include 'Add', 'Modify', 'Remove', 'Import ...', 'Export ...', 'Move Up', and 'Move Down'.

# Entering Group # and Name

1. Enter the Group #, either directly or by clicking the arrows
2. Enter the Name
3. Click the “Add” button



# Group “Jaylights” Added

- Jaylights is now in the list
- You can move groups up and down the list with the “Move Up” and “Move Down” buttons below the list
- Once you are done creating Groups, you can Export the Groups file so that you can save it an Import it later, or to another Control Panel instance

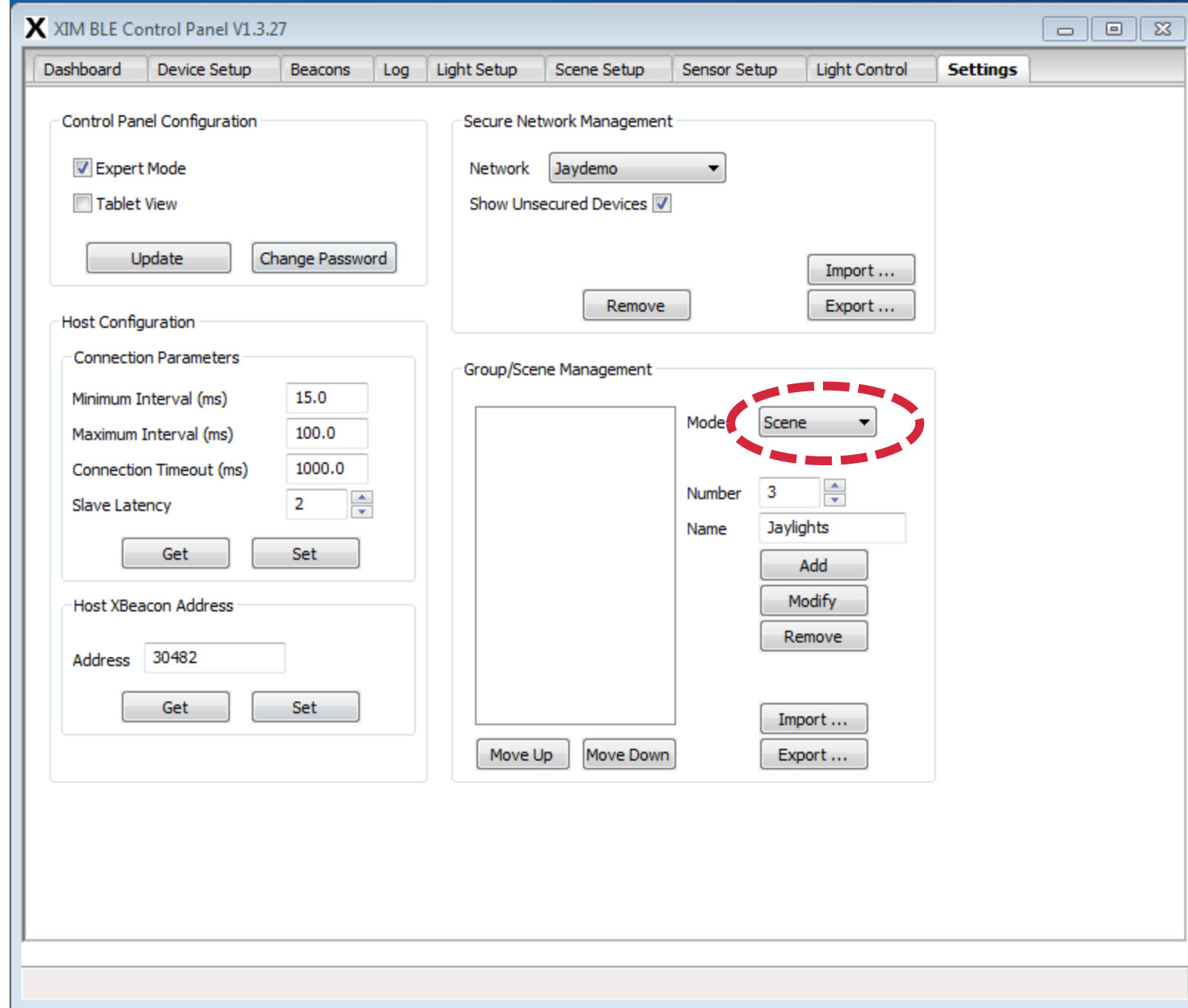
The screenshot displays the 'Settings' page of the XIM BLE Control Panel V1.3.27. The interface is divided into several sections:

- Control Panel Configuration:** Includes checkboxes for 'Expert Mode' (checked) and 'Tablet View' (unchecked), with 'Update' and 'Change Password' buttons.
- Secure Network Management:** Shows 'Network' set to 'Jaydemo' and 'Show Unsecured Devices' checked. It includes 'Import ...', 'Export ...', and 'Remove' buttons.
- Host Configuration:** Contains 'Connection Parameters' (Minimum Interval: 15.0, Maximum Interval: 100.0, Connection Timeout: 1000.0, Slave Latency: 2) and 'Host XBeacon Address' (Address: 30482), each with 'Get' and 'Set' buttons.
- Group/Scene Management:** Features a list of groups: 'unknown1 (9)', 'unknown2 (20)', 'Boardroom (100)', and 'Jaylights (3)'. The 'Jaylights (3)' group is selected. To the right of the list are 'Mode' (set to 'Group'), 'Number' (3), and 'Name' (Jaylights) fields, along with 'Add', 'Modify', and 'Remove' buttons. Below the list are 'Move Up' and 'Move Down' buttons. To the right of the 'Move Up/Down' buttons are 'Import ...' and 'Export ...' buttons.

# Creating Scenes

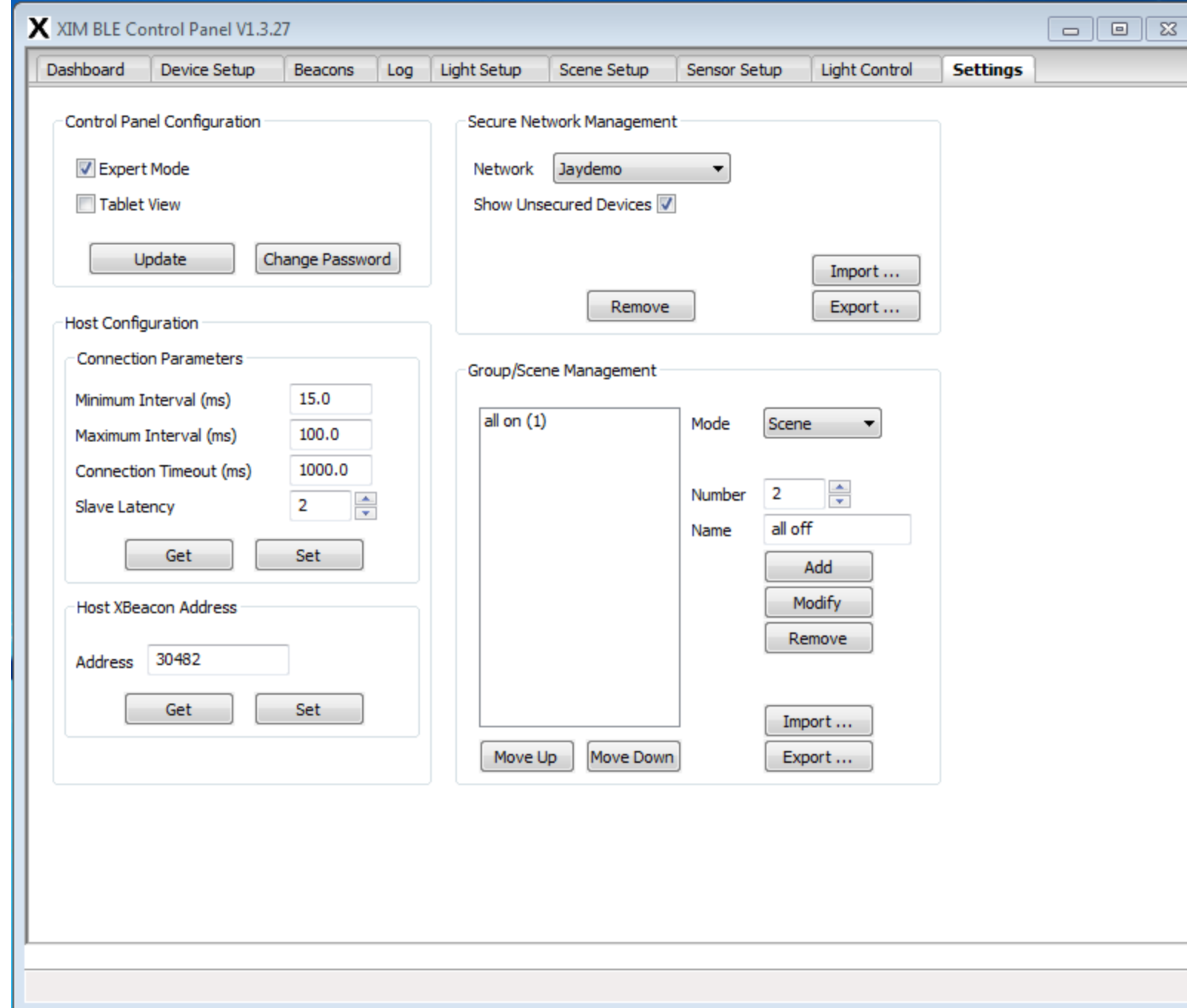
# Creating a Scene

- Change Mode to “Scene”



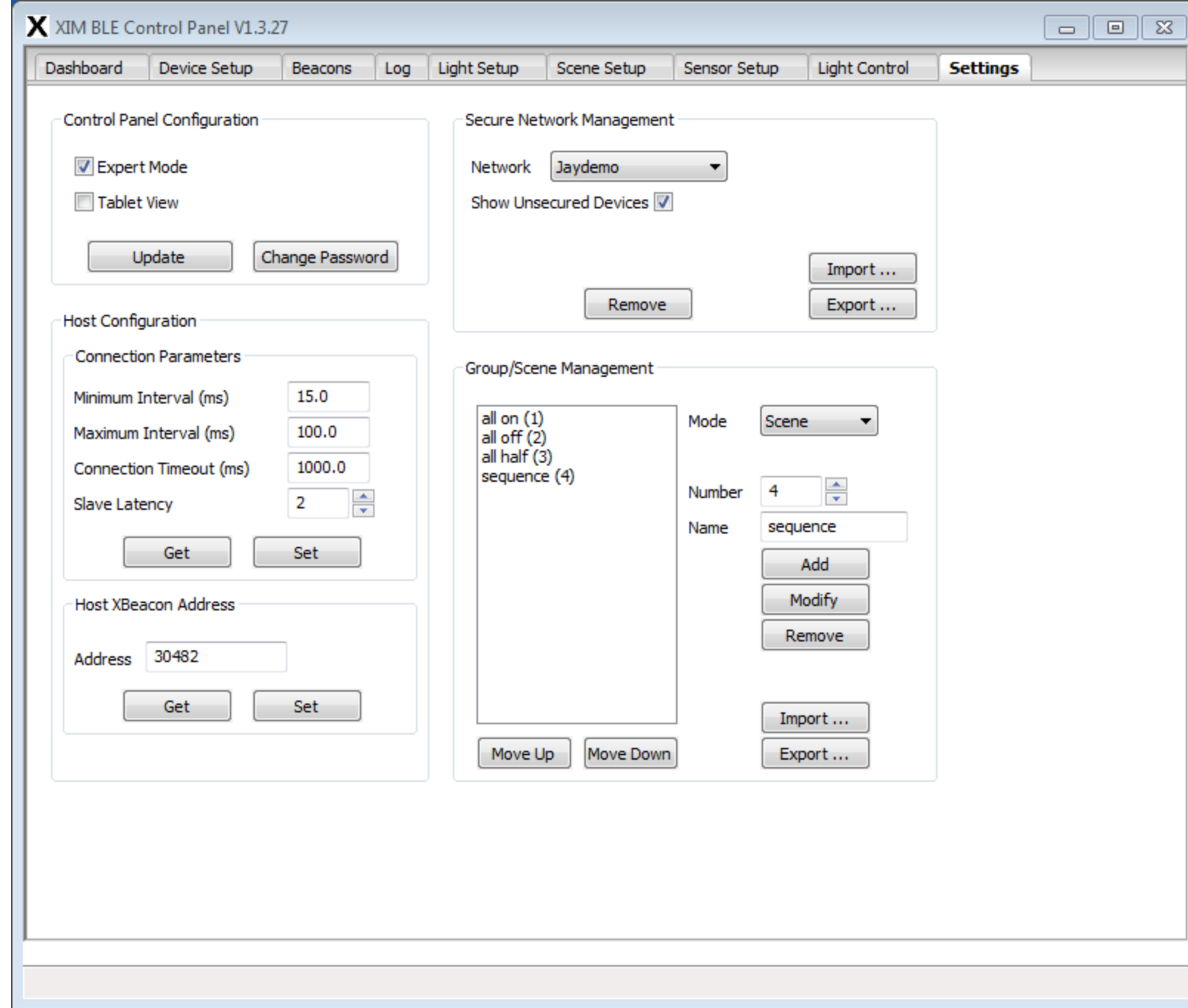
# Creating Scenes

- Just as with Groups, choose a unique number, give it a name, and click “Add”
- I am creating multiple scenes...
  - One to turn all the lights on
  - One to turn them all off
  - One to turn them on to 50%
  - One fancy sequential scene (stay tuned!)



# Done with Scenes

- Here they are
- However, no lights have been PROGRAMMED yet to respond to these scenes at this point
- Remember that all of what we have done so far can be done before the lights are even installed
  - Create Secure Networks
  - Create Groups
  - Create Scenes
- Now, let's go provision some lights!...



# Addressing and Naming Modules



# About Device IDs and Names

- Device ID must be unique. This is the device's individual address.
- **Unassigned** Device ID is a 3-byte number separated by decimal (xxx.xxx.xxx)
  - Each byte value is 0-254 (DO NOT use 255 – it is reserved)
- **Assigned** Device ID must be a single number between 1 and 32767
  - Don't use zero (0) – it is reserved for the Host Computer, by convention
  - Don't use commas or periods in the number!
- Names can be duplicated
  - Although we recommend you also name them uniquely and meaningfully
  - Name is initially the same as Device type (model, e.g. XIM19953013A5A)
- Device IDs can be reused between Secure Networks
  - Although switching a device to a different network where its Device ID is already being used will create an Alarm

# Dashboard: Expert View

- Shows all the modules and sensors at a glance, as well as:
  - Unique Device ID
  - Default or provisioned Name
  - Device model
  - Output intensity %
  - Power consumption (W)
  - LED temperature
  - Input voltage
  - Operating hours
  - Received signal strength
  - Status
  - DALI Short Address (if any)

Device ID	Name	Device	Intensity	Power	Temp	Vin	Hours	RSSI	Status	DSA
0.68.97.118	David	XIM19953013A5A	23.5%	4.4	36	49.38	2738		NS, OK	53
0.239.104.225	Kim	XIM19953013A5A	16.5%	3.2	33	49.15	2696	-82	NS, OK	48
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.7	26	47.88	4731	-71	NS, OK	N/A
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.5	25	48.17	2918	-79	NS, OK	UNA
2.3.254	XIM09953007A5A	XIM09953007A5A	1.00%	0.4	24	47.90	56	-69	NS, OK	UNA
108.72.254	XIM09953013A5A	XIM09953013A5A	1.00%	0.6	32	46.15	4	-86	NS, OK	8
135	ExpRm5		0.0%	0.3	26	48.33			NS, OK	
137	ExpRm7		0.0%	0.3	26	48.52			NS, OK	
307	Kitchen 2-1	XIM19953013A5A	0.50%	0.4	27	48.15	1511	-76	SM, OK	UNA
533	Kitchen 2-2	XIM19953013A5A	0.50%	0.4	26	48.40	1582	-73	SM, OK	UNA
1111	Kitchen 1-1	XIM19803013A6A	0.99%	0.5	26	48.63	3013	-77	SM, OK	N/A
1112	Kitchen 1-2	XIM19803013A6A	0.99%	0.5	27	48.40	3014	-77	SM, OK	N/A

Device ID	Name	Device	Last Motion	Motion Count	Lux	Temp	Vin	RSSI	Status
30003	XSensor	XSensor	None		23	17	45.55	-81	OK

# Dash: Device IDs and Names

4-byte address xxx.xxx.xxx.xxx indicates a **Legacy** module – one that has old firmware that needs to be updated

3-byte address xxx.xxx.xxx, also shown in Yellow, indicates an **Unassigned** module. Needs a proper address and (preferably) a descriptive name.

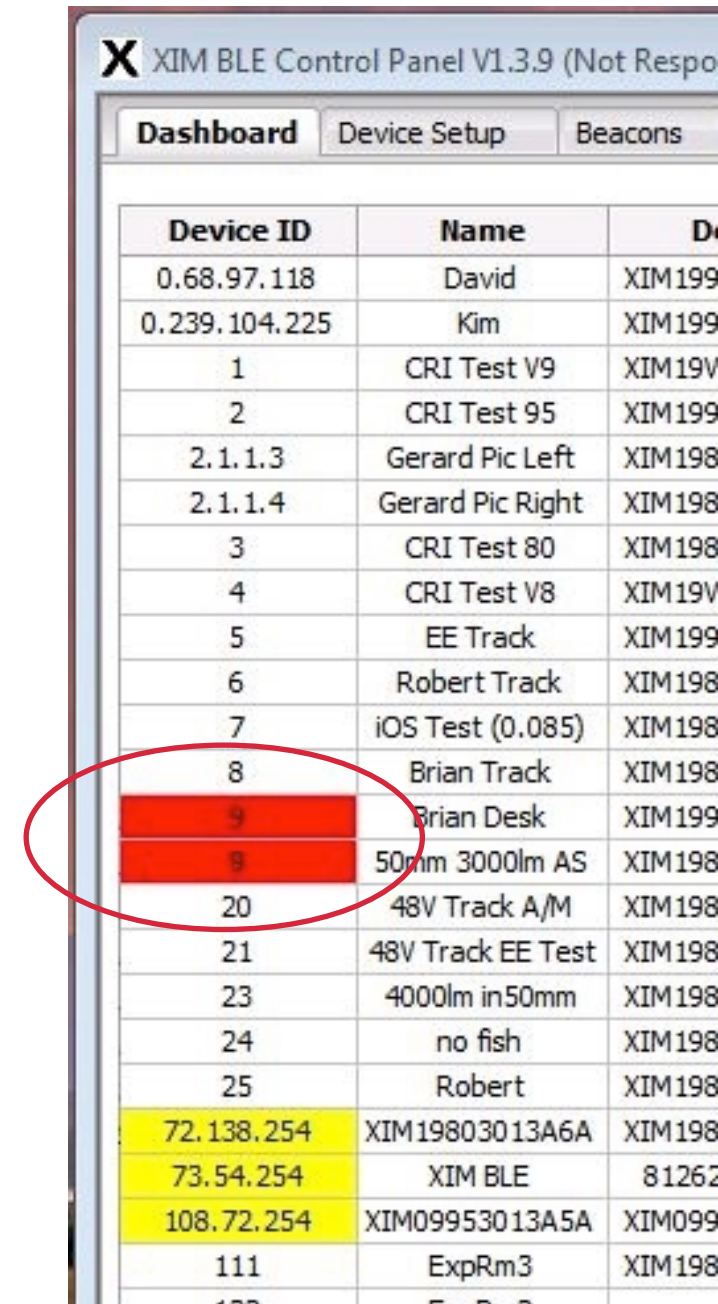
An **Assigned** address should be a single number between 1-32767 (don't use 0). Each secure network can contain up to 32767 devices.

Device ID	Name	Device	Intensity	Pow
0.68.97.118	David	XIM19953013A5A	23.5%	4.
0.239.104.225	Kim	XIM19953013A5A	16.5%	3.
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.
9	Brian Desk	XIM19952713A6A	84.9%	15
101.3.61	XIM09953007A5A	XIM09953007A5A	1.00%	0.
112	ExpRm1	XIM19803020A5A	0.0%	0.
132	ExpRm2	XIM19803020A5A	0.0%	0.
134	ExpRm4	XIM19803020A5A	0.0%	0.
135	ExpRm5	XIM19803020A5A	0.0%	0.
137	ExpRm7	XIM19803020A5A	0.0%	0.
12000	STX50-Test	XIM09803007A5A	0.0%	0.

Both Device ID and Name are directly editable in Dashboard view. Name starts out the same as the Device model.

# Dashboard: Device ID

- Change one or more addresses by highlighting the Device ID field (double-click or click-and-drag) and typing a new unique address.
- **Field will turn blue**, meaning the value has been changed but not updated. You can change multiple Device IDs before updating.
- Update the value by clicking the “Send updates” button in the lower left of the screen.
- **Red Device ID field indicates duplicate addresses.** Duplicate Names are allowed, but not duplicate Device IDs.
  - Red in another field indicates an alarm
- Change one of the red Device IDs to a unique value, then update. Let's do that...



Device ID	Name	D
0.68.97.118	David	XIM199
0.239.104.225	Kim	XIM199
1	CRI Test V9	XIM19V
2	CRI Test 95	XIM199
2.1.1.3	Gerard Pic Left	XIM198
2.1.1.4	Gerard Pic Right	XIM198
3	CRI Test 80	XIM198
4	CRI Test V8	XIM19V
5	EE Track	XIM199
6	Robert Track	XIM198
7	iOS Test (0.085)	XIM198
8	Brian Track	XIM198
9	Brian Desk	XIM199
9	50mm 3000lm AS	XIM198
20	48V Track A/M	XIM198
21	48V Track EE Test	XIM198
23	4000lm in50mm	XIM198
24	no fish	XIM198
25	Robert	XIM198
72.138.254	XIM19803013A6A	XIM198
73.54.254	XIM BLE	81262
108.72.254	XIM09953013A5A	XIM099
111	ExpRm3	XIM198

# Updating Device ID

- Notice that the edited field has turned blue, to indicate that it has been changed in the Control Panel, but the XIM has not been updated.
- Click Send Updates to update the XIM
- Success! Notice that the red and blue Device ID fields have cleared

XIM BLE Control Panel V1.3.9

Dashboard Device Setup Beacons

Device ID	Name	Devic
0.68.97.118	David	XIM199530
0.239.104.225	Kim	XIM199530
1	CRI Test V9	XIM19V930
2	CRI Test 95	XIM199530
2.1.1.3	Gerard Pic Left	XIM198030
2.1.1.4	Gerard Pic Right	XIM198030
3	CRI Test 80	XIM198030
4	CRI Test V8	XIM19V830
5	EE Track	XIM199530
6	Robert Track	XIM198030
7	iOS Test (0.085)	XIM198030
8	Brian Track	XIM198030
9	Brian Desk	XIM198030
10	50mm 3000lm AS	XIM198030
20	48V Track A/M	XIM198030
21	48V Track EE Test	XIM198030
23	4000lm in50mm	XIM198030
24	no fish	XIM198035
25	Robert	XIM198030
72.138.254	XIM19803013A6A	XIM198030
73.54.254	XIM BLE	81262202
108.72.254	XIM BLE	81262202
111	ExpRm3	XIM198030
132	ExpRm2	
134		
Device ID	Name	Devic
352	Battery Pwr Sensor	XSens
16000	XSensor	XSens

Send Updates Clear Updates Get De

XIM BLE Control Panel V1.3.9

Dashboard Device Setup Beacons

Device ID	Name	D
0.68.97.118	David	XIM199530
0.239.104.225	Kim	XIM199530
1	CRI Test V9	XIM19V930
2	CRI Test 95	XIM199530
2.1.1.3	Gerard Pic Left	XIM198030
2.1.1.4	Gerard Pic Right	XIM198030
3	CRI Test 80	XIM198030
4	CRI Test V8	XIM19V830
5	EE Track	XIM199530
6	Robert Track	XIM198030
7	iOS Test (0.085)	XIM198030
8	Brian Track	XIM198030
9	Brian Desk	XIM198030
10	50mm 3000lm AS	XIM198030
20	48V Track A/M	XIM198030
21	48V Track EE Test	XIM198030
23	4000lm in50mm	XIM198030
24	no fish	XIM198035
25	Robert	XIM198030
72.138.254	XIM19803013A6A	XIM198030
73.54.254	XIM BLE	81262202
108.72.254	XIM BLE	81262202
111	ExpRm3	XIM198030
132	ExpRm2	
134		
Device ID	Name	D
352	Battery Pwr Sensor	XS
16000	XSensor	XS

Send Updates Clear Updates Ge

## Filtering the Dashboard

# Filtering

- Notice that we can see all types of modules.
- There are two pull-down menus that allow you to change which modules you can see
  - (Secure) Network selector
  - Device type filter
- Network is now set to allow us to see the Xicato secure network
- Filter is set to see ALL devices, both Assigned and Unassigned
- Go to Filter and select All Assigned...

XIM BLE Control Panel V1.3.17

Dashboard Device Setup Beacons Log Light Setup Scene Setup Sensor Setup Light Control Settings

Device ID	Name	Device	Intensity	Power	Temp	Vin	Hours	RSSI	Status	DSA
0.68.97.118	David	XIM19953013A5A	23.5%	4.4	37	49.38	2667	-81	NS, OK	53
0.239.104.225	Kim	XIM19953013A5A	16.5%	3.2	34	49.15	2625	-80	NS, OK	48
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.7	26	47.90	4659	-69	NS, OK	N/A
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.5	25	48.17	2846	-76	NS, OK	UNA
9	Brian Desk	XIM19952713A6A	0.0%	0.4	74	48.27	563	-81	NS, Thermal Shut Down	N/A
53	Engineering Cube	XIM09953007A5A	1.00%	0.4	25	47.90	4	-72	NS, OK	UNA
112	ExpRm1	XIM19803020A5A	0.0%	0.3	27	48.48	1937		NS, OK	6
132	ExpRm2	XIM19803020A5A	0.0%	0.3	26	48.42	1948		NS, OK	48
134	ExpRm4	XIM19803020A5A	0.0%	0.3	27	48.42	1922	-85	NS, OK	40
135	ExpRm5	XIM19803020A5A	0.0%	0.3	27	48.33	1982	-86	NS, OK	3
137	ExpRm7	XIM19803020A5A	0.0%	0.3	27	48.52	1983		NS, OK	47
12000	STX50-Test	XIM09803007A5A	0.0%	0.3	25	47.83	209	-80	NS, OK	UNA

Device ID Name Device Last Motion Motion Count Lux Temp Vin RSSI Status

Send Updates Clear Updates Get Devices Info Stop Scanning Network None Filter All Devices

XICATO

# Show Xicato

- Pull down Network to add modules from a Secure Network to the list
- If there is no Secure network, one will not show

The screenshot shows the XIM BLE Control Panel V1.3.9 interface. At the top, there are navigation tabs: Dashboard, Device Setup, Beacons, Log, Light Setup, Sensor Setup, Light Control, and Settings. The main area contains a table with the following data:

Device ID	Name	Device	Intensity	Power	Temp	Vin	Hours	RSSI	Status	DSA
0.68.97.118	David	XIM19953013A5A	23.5%	4.4	36	49.38	2496		NS, OK	53
0.239.104.225	Kim	XIM19953013A5A	16.5%	3.2	32	49.15	2453	-85	NS, OK	48
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.7	28	47.90	4488	-76	NS, OK	N/A
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.5	26	48.17	2675	-76	NS, OK	UNA
9	Brian Desk	XIM19952713A6A	0.0%	0.4	43	48.30	496	-84	NS, OK	N/A
132			0.0%	0.3	37	48.42		-87	NS, OK	
135	ExpRm5	XIM19803020A5A	0.0%	0.3	33	48.30		-86	NS, OK	
12000	STX50-Test	XIM09803007A5A	0.0%	0.3	39	47.83	140	-69	NS, OK	UNA

Below the table is another table header with columns: Device ID, Name, Device, Last Motion, Motion Count, Lux, Temp, Vin, RSSI, Status. The main content area below this header is empty.

At the bottom of the interface, there are several buttons: Send Updates, Clear Updates, Get Devices Info, Stop Scanning, and a 'Network' dropdown menu set to 'None'. The 'Network' dropdown is highlighted with a red dashed circle. To the right of the 'Network' dropdown is a 'Filter' dropdown menu set to 'All Assigned'.

XICATO



# Show Xicato

- Modules in secure Network “Xicato” are now showing
- How was “Xicato” created?
- In the Settings menu

**XICATO®**

The screenshot displays the XIM BLE Control Panel V1.3.9 interface. The top navigation bar includes tabs for Dashboard, Device Setup, Beacons, Log, Light Setup, Sensor Setup, Light Control, and Settings. The main content area features a table with columns: Device ID, Name, Device, Intensity, Power, Temp, Vin, Hours, RSSI, Status, and DSA. The table lists various devices with their respective metrics. A red dashed circle highlights the 'Network' dropdown menu in the bottom right corner, which is currently set to 'Xicato'. Below the table, there is another table with columns: Device ID, Name, Device, Last Motion, Motion Count, Lux, Temp, Vin, RSSI, and Status. The bottom of the interface contains several buttons: Send Updates, Clear Updates, Get Devices Info, Stop Scanning, and a Filter dropdown set to 'All Assigned 41'.

Device ID	Name	Device	Intensity	Power	Temp	Vin	Hours	RSSI	Status	DSA
0.68.97.118	David	XIM19953013A5A	23.5%	4.4	36	49.38	2496		NS, OK	53
0.239.104.225	Kim	XIM19953013A5A	16.5%	3.2	32	49.15	2454	-81	NS, OK	48
1	CRI Test V9		3.94%	1.0	27	48.15		-81	OK	
2	CRI Test 95		3.94%	1.0	27	48.33		-82	OK	
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.7	28	47.90	4488	-78	NS, OK	N/A
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.5	25	48.17	2675	-72	NS, OK	UNA
3	CRI Test 80	XIM19803013A5A	3.94%	0.8	26	48.25	925	-79	OK	UNA
4	CRI Test V8	XIM19V83020A5A	3.94%	1.0	26	48.13	1568	-80	OK	UNA
5	EE Track	XIM19953013A5A	41.7%	7.6	37	48.80	955	-60	OK	UNA
6	Robert Track	XIM19803020A5A	4.10%	1.0	26	47.85	4392	-58	OK	UNA
7	iOS Test (0.085)	XIM19803020A5A	4.10%	1.1	29	48.15	3899	-56	OK	4
8	Brian Track	XIM19803020A5A	4.10%	1.0	28	48.38	4256	-61	OK	UNA
9	Brian Desk	XIM19952713A6A	0.0%	0.4	36	48.30	496	-84	NS, OK	N/A
10	50mm 3000lm AS	XIM19803030A5A	20.0%	6.3	34	48.33	3437	-64	OK	UNA
19	Robert	XIM19803030A6A	20.0%	6.4	34	47.98	3821	-80	OK	N/A
20	48V Track A/M	XIM19803013A5A	100.0%	13.3	65	47.95	1553	-74	OK	UNA
21	48V Track EE Test	XIM19803013A5A	20.0%	2.9	33	48.27	908	-66	OK	UNA
23	4000lm in50mm	XIM19803030B5A	20.0%	8.3	34	48.30	3341	-73	OK	UNA
24	no fish		20.0%	4.4	36	48.02		-80	OK	
132			0.0%	0.3	32	48.42		-89	NS, OK	
135		XIM19803020A5A	0.0%	0.3	31	48.30	1888	-87	NS, OK	3
137		XIM19803020A5A	0.0%	0.3	30	48.52			NS, OK	
888	Wadensee	XIM09952713A5A	0.0%	0.3	23	48.05	52	-66	OK	UNA
12000	STX50-Test	XIM09803007A5A	0.0%	0.3	33	47.83	140	-71	NS, OK	UNA

Device ID	Name	Device	Last Motion	Motion Count	Lux	Temp	Vin	RSSI	Status
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Send Updates Clear Updates Get Devices Info Stop Scanning Network Xicato Filter All Assigned 41

**XICATO**

# Changing Device IDs and Names

- Here I have chosen three lights (my demo kit, as a matter of fact)
- Given them Device IDs (I have chosen my demo kit to be numbered in the 8000's)
  - Double-click to select field
- Given them names
  - Double-click to select field
- Note that they are blue – I have not yet Sent these Updates to the units

XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup Scene Setup Sensor Setup Light Control Settings

Device ID	Name	Device	Intensity	Power	Temp	Vin	Hours	RSSI	Status	DSA
2	iOS Test (0.101)	XIM19803020A5A	72.1%	16.0	59	48.00	5414	-79	NS, OK	4
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.7	34	47.88	6564	-81	NS, OK	N/A
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.5	28	48.17	4744	-85	NS, OK	UNA
1111	test 1111	XIM19953013A6A	7.00%	1.6	29	48.27	98	-85	NS, OK	N/A
1116	XIM19803013A6A	XIM19803013A6A	0.0%	0.4	31	48.65	0	-85	NS, OK	N/A
8510	Jay1	XIM19953013A5A	1.99%	0.6	28	48.17	6	-70	NS, OK	UNA
8520	Jay2	XIM19953013A5A	0.0%	0.3	26	48.02	5	-55	NS, OK	UNA
8530	Jay3	XIM19953013A5A	1.99%	0.6	27	48.00	6	-67	NS, OK	UNA

Device ID	Name	Device	Last Motion	Motion Count	Lux	Temp	Vin	RSSI	Status
8500	JaySense	XSensor	00:00:02	70	112	25	8.55	-59	OK

Send Updates Clear Updates Get Devices Info Stop Scanning Network Jaydemo Filter All Devices

# Updated Device IDs

- After pressing “Send Updates”, Control Panel will communicate with each module and program the new Device IDs and Names
- Notice that there is another device at the bottom – this is my sensor, which I have named JaySense, with a device ID of 8500

XIM BLE Control Panel V1.3.27

Dashboard | Device Setup | Beacons | Log | Light Setup | Scene Setup | Sensor Setup | Light Control | Settings

Device ID	Name	Device	Intensity	Power	Temp	Vin	Hours	RSSI	Status	DSA
2	iOS Test (0.101)	XIM19803020A5A	72.1%	16.0	59	47.98	5414	-88	NS, OK	4
2.1.1.3	Gerard Pic Left	XIM19803030A6A	0.99%	0.7	34	47.88	6564	-79	NS, OK	N/A
2.1.1.4	Gerard Pic Right	XIM19803020A5A	0.99%	0.5	28	48.17	4744	-79	NS, OK	UNA
1111	test 1111	XIM19953013A6A	7.00%	1.6	29	48.27	98	-81	NS, OK	N/A
1116	XIM19803013A6A	XIM19803013A6A	0.0%	0.4	31	48.65	0	-86	NS, OK	N/A
8510	Jay1	XIM19953013A5A	1.99%	0.6	28	48.17	6	-68	NS, OK	UNA
8520	Jay2	XIM19953013A5A	0.0%	0.3	26	48.02	5	-55	NS, OK	UNA
8530	Jay3	XIM19953013A5A	1.99%	0.6	27	48.00	6	-67	NS, OK	UNA

Device ID	Name	Device	Last Motion	Motion Count	Lux	Temp	Vin	RSSI	Status
8500	JaySense	XSensor	00:00:06	74	112	25	8.55	-60	OK

Send Updates | Clear Updates | Get Devices Info | Stop Scanning | Network: Jaydemo | Filter: All Devices

XICATO

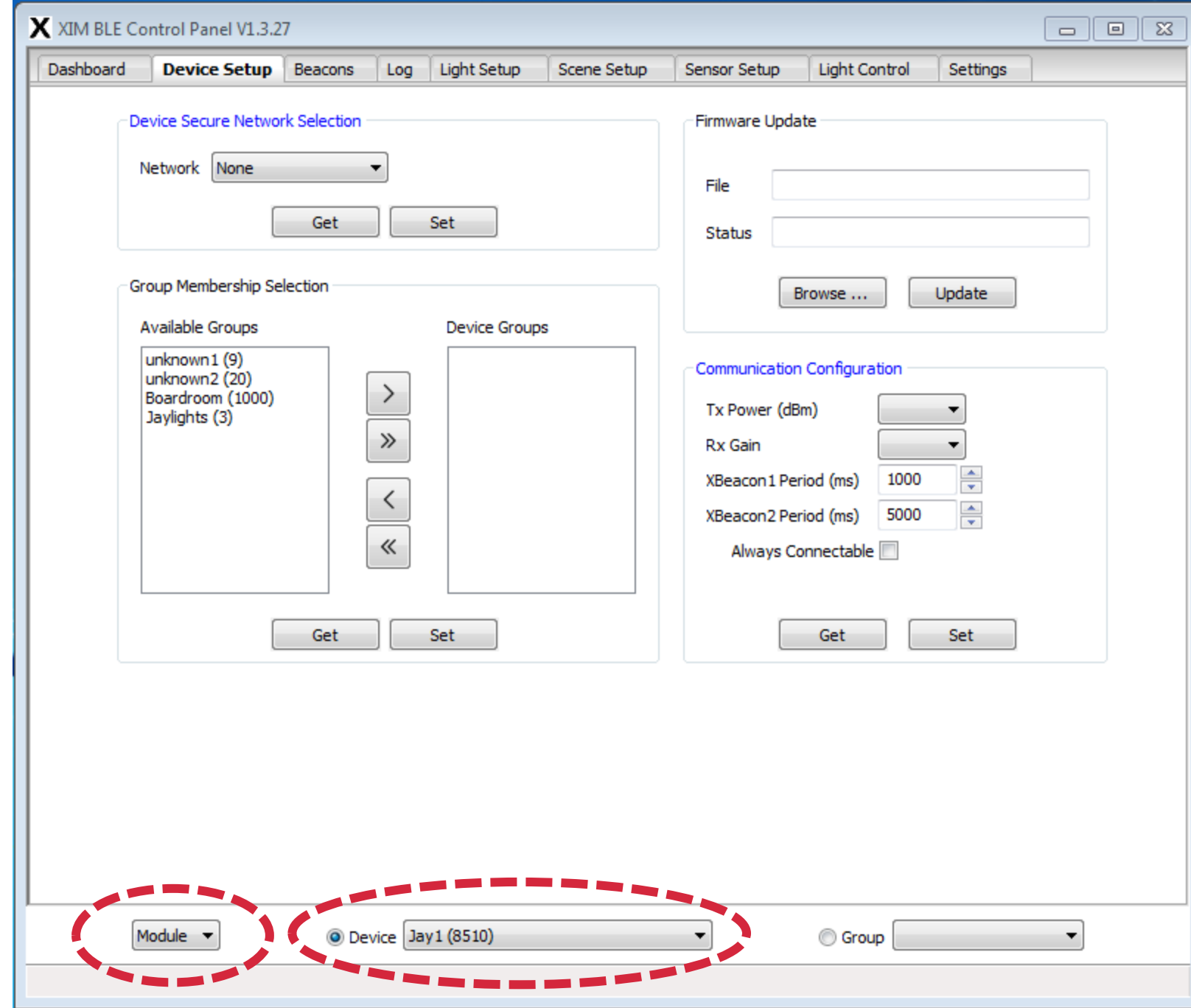
# What next?

- So far, in Settings, we have
  - Created Secure Networks – but not assigned any devices to them!
  - Created Groups – but not assigned any devices to them!
  - Created Scenes – but neither assigned devices to them, nor programmed each device's scene behavior
- Then, in the Dashboard, we have
  - Assigned unique Device IDs
  - Assigned meaningful device Names
- Let's go put them into Networks, Groups, and Scenes!
- For this, first, we go to the Device Setup tab...

# Assigning Secure Networks and Groups to Devices

# Device Setup

- On this tab, we assign Secure Networks and Groups
- This is also where we update Firmware on devices (but this is another lesson)
- Note at bottom, we have selected Module Jay1
  - This might be carried over from the Dashboard, or selected here
- First, let's assign a Network...



# Selecting Network

- Pull down the Network menu to select from among the Secure Networks you have already set up
  - If you haven't created the network yet, do so in the Settings tab
- Click on the Set button under Device Secure Network Selection to program the network in the device
- Here we have already
  - (1) selected Jaylights from Available Groups, and
  - (2) clicked the right arrow button to move it to Device Groups list
- Now, we have to click the Set button to program the device with the selected group(s)
- Each device can join up to 16 groups

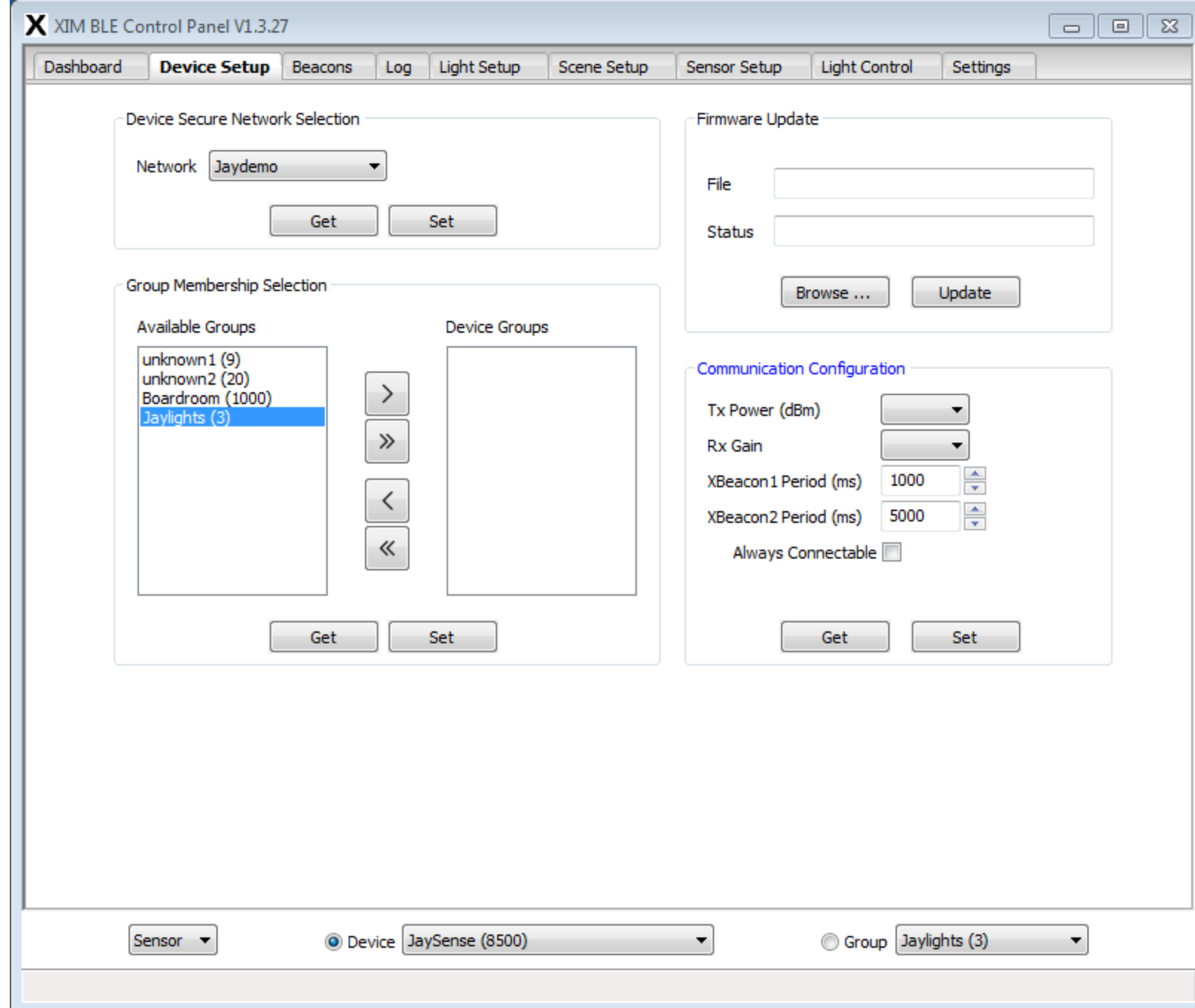
The screenshot displays the 'Device Setup' tab of the XIM BLE Control Panel V1.3.27. The interface is divided into several sections:

- Device Secure Network Selection:** A dropdown menu labeled 'Network' is set to 'Jaydemo' (marked with a red '1'). Below it are 'Get' and 'Set' buttons (the 'Set' button is marked with a red '2').
- Group Membership Selection:** This section contains two lists: 'Available Groups' and 'Device Groups'.
  - 'Available Groups' lists 'unknown1 (9)', 'unknown2 (20)', and 'Boardroom (1000)' (marked with a red '1').
  - 'Device Groups' lists 'Jaylights (3)'.
  - Between the lists are navigation buttons: a right arrow (marked with a red '2'), a left arrow, and a double left arrow.
  - At the bottom of this section are 'Get' and 'Set' buttons (the 'Set' button is marked with a red '3').
- Firmware Update:** Includes input fields for 'File' and 'Status', and 'Browse ...' and 'Update' buttons.
- Communication Configuration:** Includes dropdowns for 'Tx Power (dBm)' and 'Rx Gain', and input fields for 'XBeacon1 Period (ms)' (set to 1000) and 'XBeacon2 Period (ms)' (set to 5000). There is also an 'Always Connectable' checkbox and 'Get' and 'Set' buttons.

At the bottom of the window, there are dropdown menus for 'Module', 'Device' (set to 'Jay1 (8510)'), and 'Group'.

# Sensor Setup

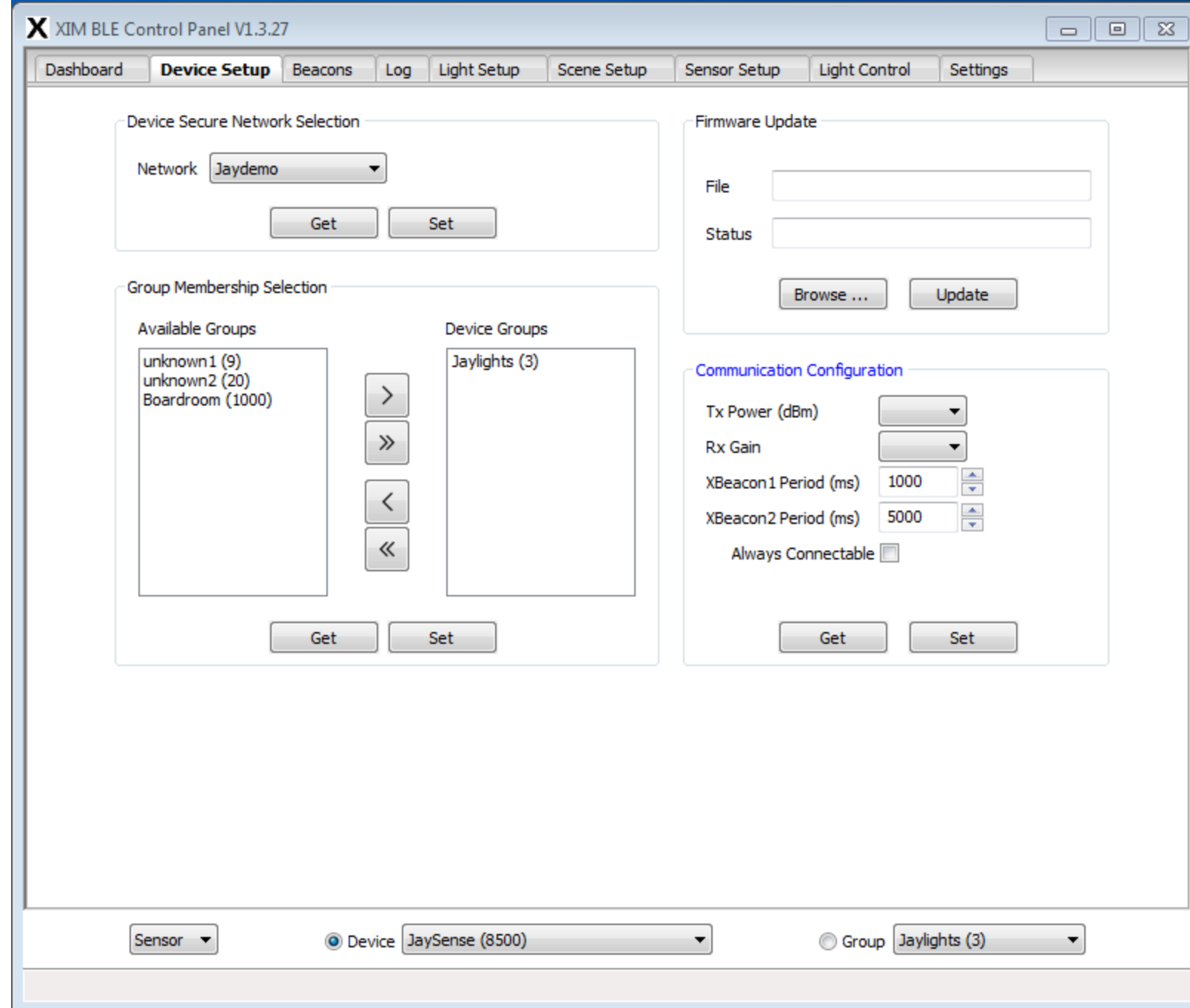
- Sensors can also be part of Secure Networks and Groups
- In fact, they must be part of the Network of any device that they want to control, since this determines how their data is encrypted
- Here, we are joining the Jaydemo network, and are preparing to join the Jaylights group
- We just need to click Jaylights to the right, then click the two Set buttons for Network and Group





# JaySense updated

- JaySense is now in Jaydemo and Jaylights
- You can check this by clicking on the Get buttons. This causes Control Panel to request the currently programmed settings from the device.
- It is a good idea to do a Get before programming devices, to make sure you are not overwriting something you want to keep

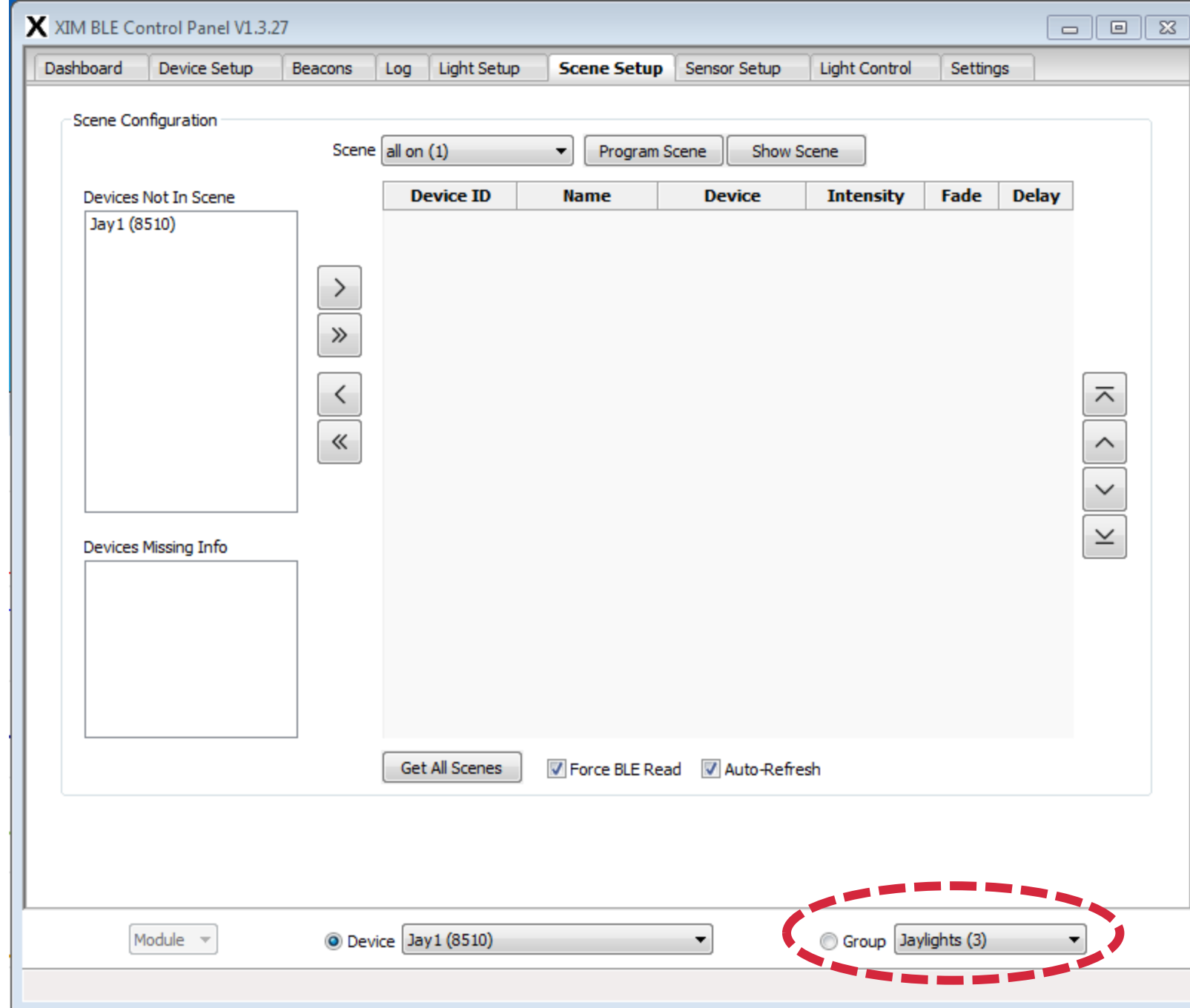


# What next?

- So far, we have
  - Created Secure Networks, Groups and Scenes in the Settings tab
  - Assigned unique Device IDs and Device Names in the Dashboard tab
  - Assigned Secure Networks and Groups to Device in the Device Setup tab
    - You need to perform Network and Group assignment for EACH DEVICE, one at a time
- Now, we are ready to program Scenes
- Go to the Scenes tab...

# Scenes tab

- What we see here is
  - Device Jay1 is selected at bottom center
  - Scene “all on (1)” is selected as the scene
  - Jay1 is listed as Not In Scene
- We can program Jay1 individually for scene “all on”, OR, we can program an entire group at once
- Select Group Jaylights (3) in the bottom right, and click Get All Scenes...



# Jaylights, Scene 1

- Now, we see all three lights in Jaylights (Not In Scene)
- To program them all for this scene, click the double arrow. This sends all of the Devices Not In Scene into the programming area

XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup **Scene Setup** Sensor Setup Light Control Settings

Scene Configuration

Scene: all on (1) Program Scene Show Scene

Devices Not In Scene

- Jay1 (8510)
- Jay2 (8520)
- Jay3 (8530)

Devices Missing Info

Device ID	Name	Device	Intensity	Fade	Delay
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Get All Scenes  Force BLE Read  Auto-Refresh

Module Device Jay1 (8510) Group Jaylights (3)

# Devices Added

- Now, all three lights are ready for programming
- Note that they are listed under Intensity as “Not in scene”
- Note that we can program not only a final Intensity value for the scene, but also a Fade time and a Delay
  - Fade = time to move from current intensity to final intensity
  - Delay = time before starting the Fade
- This allows us to create individualized responses to a scene command

XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup **Scene Setup** Sensor Setup Light Control Settings

Scene Configuration

Scene: all on (1) Program Scene Show Scene

Devices Not In Scene

Device ID	Name	Device	Intensity	Fade	Delay
8510	Jay1	XIM19953013A5A	Not in scene	0.0	0.00
8520	Jay2	XIM19953013A5A	Not in scene	0.0	0.00
8530	Jay3	XIM19953013A5A	Not in scene	0.0	0.00

Devices Missing Info

Get All Scenes  Force BLE Read  Auto-Refresh

Module Device Jay1 (8510) Group Jaylights (3)

# Scene All On

- For “all on” we want all the lights to go to 100% intensity over 2 seconds
- Type in those values
- Note that the fields turn blue, indicating that they are edited but not Set
- Click “Program Scene” to set these values in the devices
- You can click “Show Scene” to see what you have done

XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup **Scene Setup** Sensor Setup Light Control Settings

Scene Configuration

Scene: all on (1) Program Scene Show Scene

Devices Not In Scene

Device ID	Name	Device	Intensity	Fade	Delay
8510	Jay1	XIM19953013A5A	100.0%	2.0	0.00
8520	Jay2	XIM19953013A5A	100.0%	2.0	0.00
8530	Jay3	XIM19953013A5A	100.0%	2.0	0.00

Devices Missing Info

Get All Scenes  Force BLE Read  Auto-Refresh

Module Device Jay1 (8510) Group Jaylights (3)

# “all on” Saved

- When you Program Scene, Control Panel communicates individually with each device, programming it, and the blue fields clear
- You can see the programming progress in the lower left corner of the window

XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup **Scene Setup** Sensor Setup Light Control Settings

Scene Configuration

Scene: all on (1) Program Scene Show Scene

Devices Not In Scene

Device ID	Name	Device	Intensity	Fade	Delay
8510	Jay1	XIM19953013A5A	100.0%	2.0	0.00
8520	Jay2	XIM19953013A5A	100.0%	2.0	0.00
8530	Jay3	XIM19953013A5A	100.0%	2.0	0.00

Devices Missing Info

Get All Scenes  Force BLE Read  Auto-Refresh

Module Device Jay1 (8510) Group Jaylights (3)

**Programming Progress**

# All Off

- Pull the Scene menu to “all off”
  - Note that devices stay in programming area
- Set Intensity, Fade, and Delay values
  - This shows “instant off”
- Click “Program Scene”
- Test by clicking “Show Scene”
  
- This is easy!

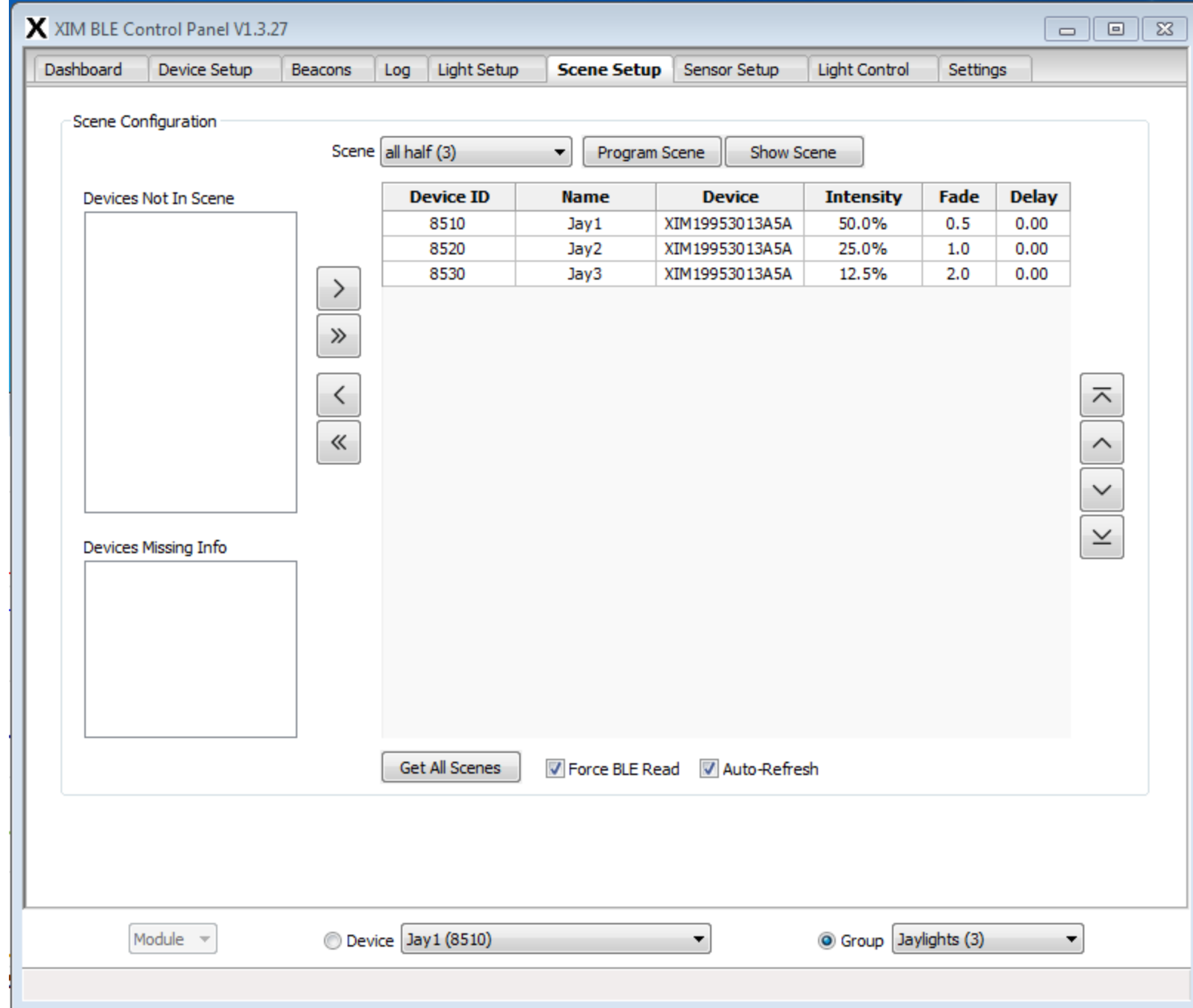
The screenshot shows the XIM BLE Control Panel V1.3.27 interface. The 'Scene Setup' tab is active, displaying a configuration for the 'all off (2)' scene. The 'Scene Configuration' section includes a dropdown menu for the scene name, 'Program Scene' and 'Show Scene' buttons, and a table of device settings. The table lists three devices: Jay1 (8510), Jay2 (8520), and Jay3 (8530), all with 0.0% intensity, 0.0 fade, and 0.00 delay. The interface also features navigation buttons for adding and removing devices, a 'Get All Scenes' button, and checkboxes for 'Force BLE Read' and 'Auto-Refresh'. At the bottom, there are dropdown menus for 'Module', 'Device' (set to Jay1 (8510)), and 'Group' (set to Jaylights (3)).

Device ID	Name	Device	Intensity	Fade	Delay
8510	Jay1	XIM19953013A5A	0.0%	0.0	0.00
8520	Jay2	XIM19953013A5A	0.0%	0.0	0.00
8530	Jay3	XIM19953013A5A	0.0%	0.0	0.00



# All Half

- I'm messing with you, here
- Do we mean...
  - Half as in 50% intensity?
  - Half perceived intensity according to the IES (25%)
  - Half perceived intensity according to Stevens' Power Law? (12.5%)
- Also note the different Fade times, but still no delay
- Now let's get really fancy...



XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup **Scene Setup** Sensor Setup Light Control Settings

Scene Configuration

Scene: all half (3) Program Scene Show Scene

Devices Not In Scene

Device ID	Name	Device	Intensity	Fade	Delay
8510	Jay1	XIM19953013A5A	50.0%	0.5	0.00
8520	Jay2	XIM19953013A5A	25.0%	1.0	0.00
8530	Jay3	XIM19953013A5A	12.5%	2.0	0.00

Devices Missing Info

Get All Scenes  Force BLE Read  Auto-Refresh

Module Device Jay1 (8510) Group Jaylights (3)

# Sequence

- Pull down Scene to “sequence”
- Devices stay in programming area at previous values
- Set 20% Intensity and 5.0 second Fade time for all three, but...
- Set Delay times in 5 second increments
- Click “Program Scene”
- This will cause each light to fade to 20% *sequentially*, every 5 seconds
- Note that the fade will start from the existing intensity value, so you might want to command “all on” or “all off” before you issue the “sequence” scene command

XIM BLE Control Panel V1.3.27

Dashboard Device Setup Beacons Log Light Setup **Scene Setup** Sensor Setup Light Control Settings

Scene Configuration

Scene: sequence (4) Program Scene Show Scene

Devices Not In Scene

Device ID	Name	Device	Intensity	Fade	Delay
8510	Jay1	XIM19953013A5A	20.0%	5.0	0.00
8520	Jay2	XIM19953013A5A	20.0%	5.0	5.00
8530	Jay3	XIM19953013A5A	20.0%	5.0	10.00

Devices Missing Info

Get All Scenes  Force BLE Read  Auto-Refresh

Module Device Jay1 (8510) Group Jaylights (3)

# There's more

- This has been a basic provisioning presentation, but the capabilities of the Xicato XIM control system are very deep. We have ignored several things, including:
  - Lighting Control using the Dashboard and Light Control tabs
  - Operation performance monitoring (the Log tab)
  - Beacon management
  - Sensor setup
  - Device settings such as
    - Advertising transmit power and
    - Advertising frequency
    - Dim curve setting (log or linear)
    - Maximum and Minimum Intensity settings
    - Power On behavior
  - Alarm conditions such as thermal foldback and thermal overload
  - DALI and 1-10V wired control settings
- These are lessons for another presentation...

Thank you for allowing  
us to enlighten you.

