

# SATELLITE™

— TRANSMITTER —

## USER MANUAL

TAKE CONTROL OF YOUR UNIVERSE.



## THANK YOU FOR CHOOSING TO INVEST IN A RATPAC CONTROLS PRODUCT.

This guide is meant to get you up and running with your new device. If you're familiar with our previous AKS products, you're familiar with the benefit of connecting your favorite programming software to your CRMX-capable devices wirelessly. The RatPac Satellite™ expands upon this level of control, allowing you to link as many universes as you need to get the job done while enjoying several design improvements.



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## **SATELLITE™**

The Satellite™ is RatPac Control's next step in bridging the gap between simple lighting control and next-level programming. This guide will explain the myriad of lighting control options made possible by the device.

While fully familiarizing yourself with your new unit is recommended, a physical or digital copy of this guide should be kept close by for reference.

## **SAFETY CONSIDERATIONS**

Equipment use only by trained electrical professionals.

**NO USER SERVICEABLE PARTS** – Contact RatPac Controls regarding technical and repair issues.

**Splash Resistant** – DO NOT EXPOSE TO TORRENTIAL OR SUBMERGED WATER CONDITIONS.

It is recommended that the unit be allowed to dry for at least 48 hours if exposed to a substantial amount of water.

Ensure any equipment placed at a high elevation is properly secured to minimize the risk of damage to persons or other equipment in the area.

## **TECH SUPPORT**

Visit the RatPac website at [www.ratpaccontrols.com](http://www.ratpaccontrols.com) for a line of products and tech support options.

Or call and ask for tech support (7AM – 5 PM PST M-F):

**(818) 387-6270**



## SATELLITE™ DEFINED

### A Power ON/OFF: Mode Toggle Switch

1. Hold for 3 seconds and then release to turn ON or OFF
2. Press rapidly (2) times to activate CLIENT mode
3. Press rapidly (3) times to activate HOST mode
4. Press rapidly (5) times to activate Ethernet mode

### B Status & Status/DMX/WiFi indicator lights

1. Green – Link Button and Status Indicator  
Press and release once to activate CRMX connection
2. Yellow – DMX Indicator Light  
Lights on when DMX sent through to connected CRMX devices
3. Red – WiFi Indicator blinks depending on what mode it is in

### C Battery Indicator Lights

1. Green – Charging Indicator  
When plugged in to charge, blinks until solid Green (100% charge)
2. Red – Low Battery Indicator  
When unit is on, flashes low when battery under 40%, solid when 20% or under

### D Internal CRMX

### E Ethernet Port

### F DiPole Paddle Antenna WiFi only

### G Internally Housed Magnets meant for mounting

### H Reset Button

### I USB charging port

### J 1/4" Threaded Mount



## CHARGING

Connect the Satellite™ to the 120 VAC to 5 VDC adapter provided using a USB to Micro-USB cable. The battery should charge fully in about two hours if you use the equipment provided. The Satellite™ can be charged by connecting to any USB port that provides power, but charge times may vary.

## ON/OFF

To turn the unit on, press and hold the center RatPac logo button for three seconds and then release. The internal light will illuminate. To turn the unit off, press and hold the center RatPac logo button for three seconds and then release. All lights will switch off once the button is released.

## POWER LEVELS

The Power indicators located at the bottom left of the Satellites™ front panel display information in a simple format: The green hexagonal indicator will blink more rapidly as the unit charges, ending in a solid green color when fully charged. When in use, the red hexagonal indicator begins flashing slowly at 40% and increases in speed until turning solid at 20%, indicating that it's time for a charge. A more accurate battery level can be found on the web GUI.

(See 7: Configuring through the Web Browser GUI)



## ACCESSING SATELLITE™ OVER WiFi

The Satellite™ blends CRMX and built-in WiFi together to grant serious customization.

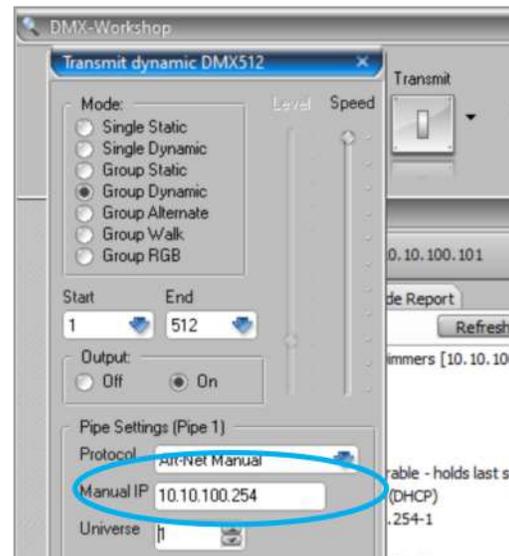
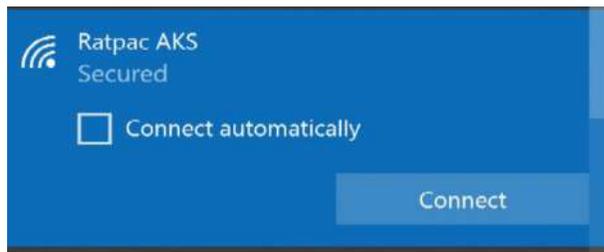
To get started, you'll need a device that is both WiFi/ethernet network capable and loaded with DMX control software that is Art-Net/sACN compatible.

Throughout this guide, we'll demonstrate examples using either a standard laptop with the DMX Workshop program and an iPad loaded with the Luminair or Blackout control application, though you could use any phone/tablet/computer that is a WiFi/Ethernet network capable device with the appropriate software.

1. Power up the Satellite™.
2. On your WiFi capable device, go to your networking options. "RatPac AKS" should appear as an available WiFi network. This is the network powered by the chip in the Satellite™. If your WiFi capable device does not connect quickly engage and then disengage airplane mode to make sure your device is not still linked to a previous network.
3. The default password for the Satellite™ network is: "quietonset"
4. Open your DMX control application.

*Note: Your application may not automatically identify and connect to the Satellite™. You may have to manually enter the Satellite™'s IP address (10.10.100.254). If you have not used your application such as Lumiair in some time, you may need to delete and reinstall the program. If operating Host/Client connections, any subsequent Satellites™ will assign themselves new IP address. These are available on the Constellation page of the web GUI.*

(See 8: Host, Client, and Constellation)



## ACCESSING THE DEVICE THROUGH ETHERNET

Should you choose, you can connect to the unit directly using the built-in Ethernet port.

This can prove useful if facing connectivity issues between your control software and the unit.

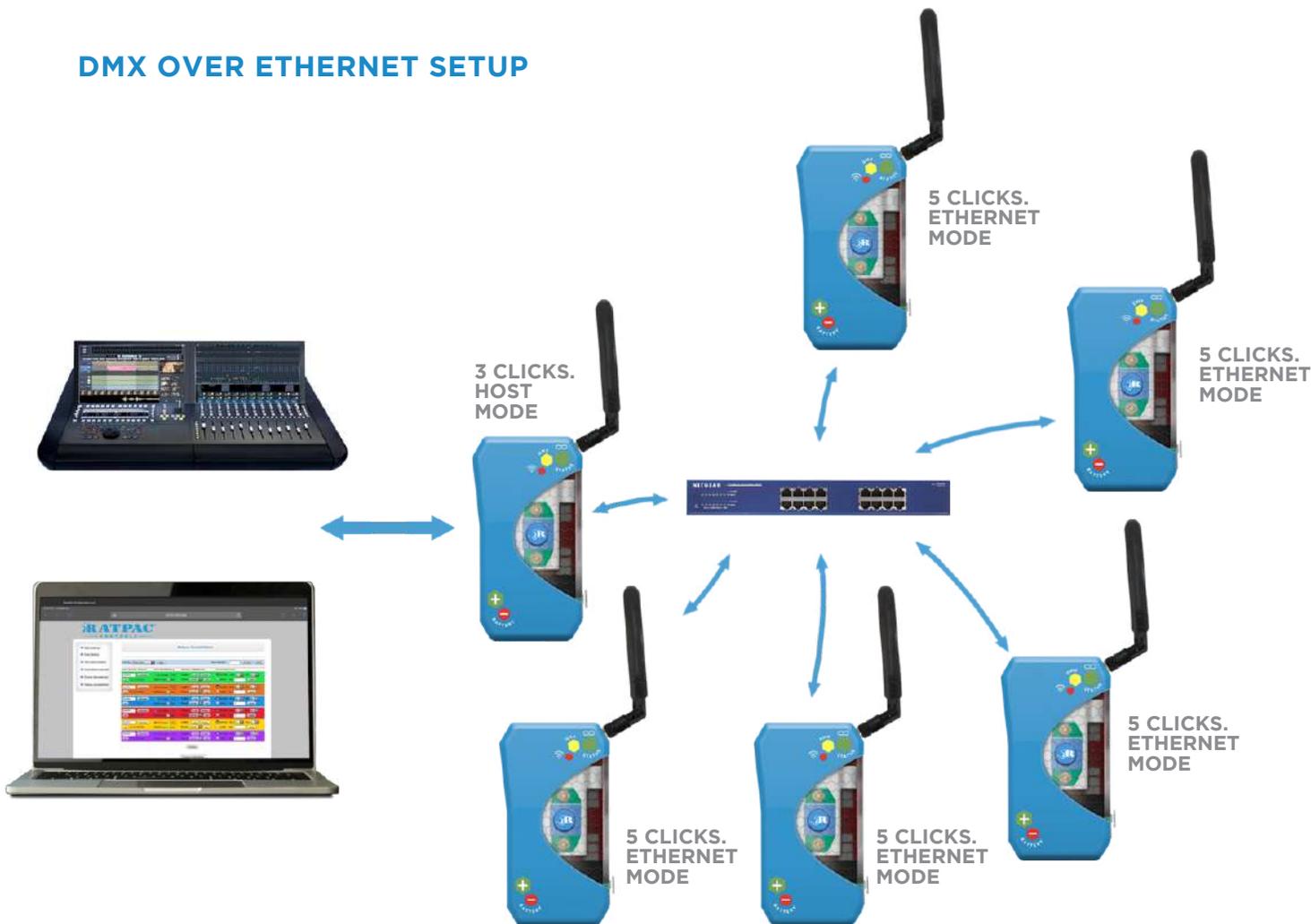
1. Power up the Satellite™.
2. Press the center RatPac Logo button rapidly (3) times for host. (Satellite can't access Ethernet Mode without a host or DHCP Router).
3. This will disable any WiFi connectivity. CRMX will still be active.
4. Connect your Satellite™ and control device (using DMX software) using an Ethernet cable.
5. Associate your control software with the Satellites™ IP address (10.10.100.254).



## SETTING UP AN ALL WIRED ETHERNET SYSTEM

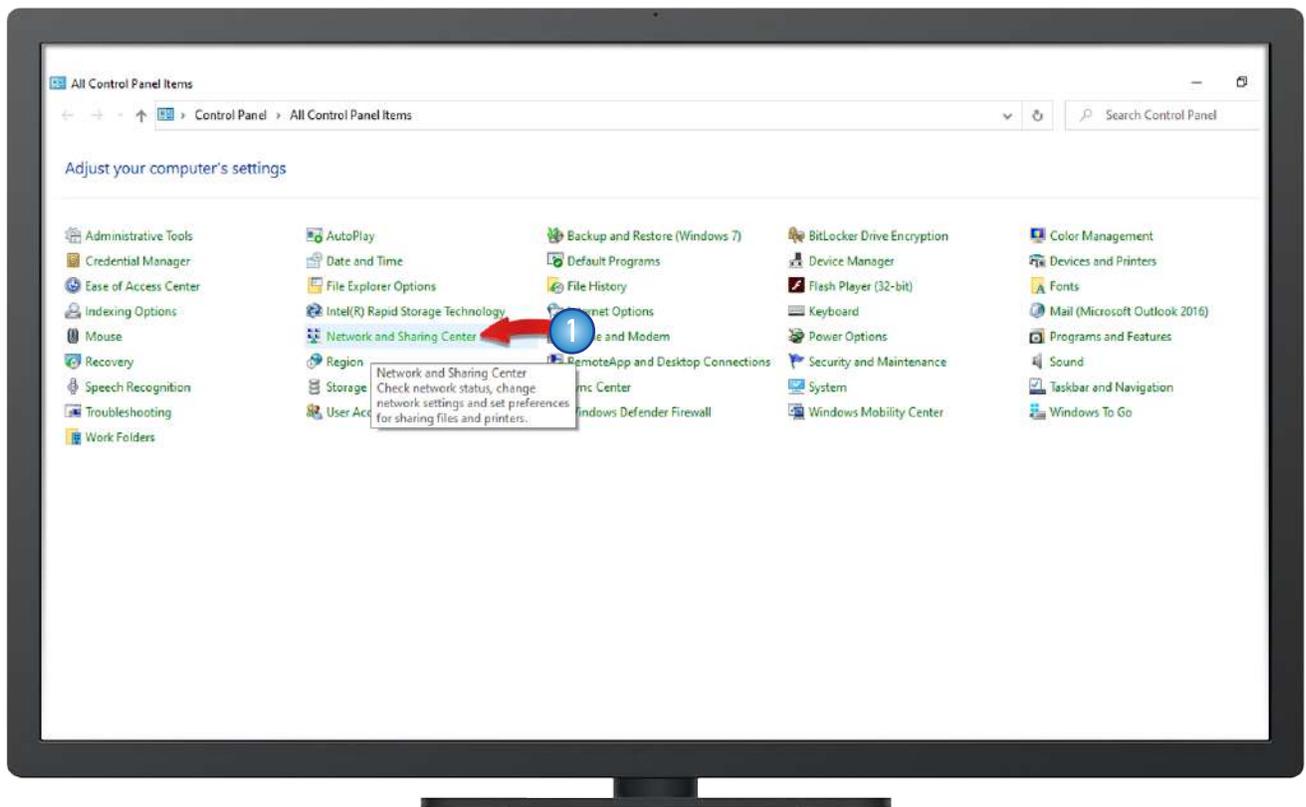
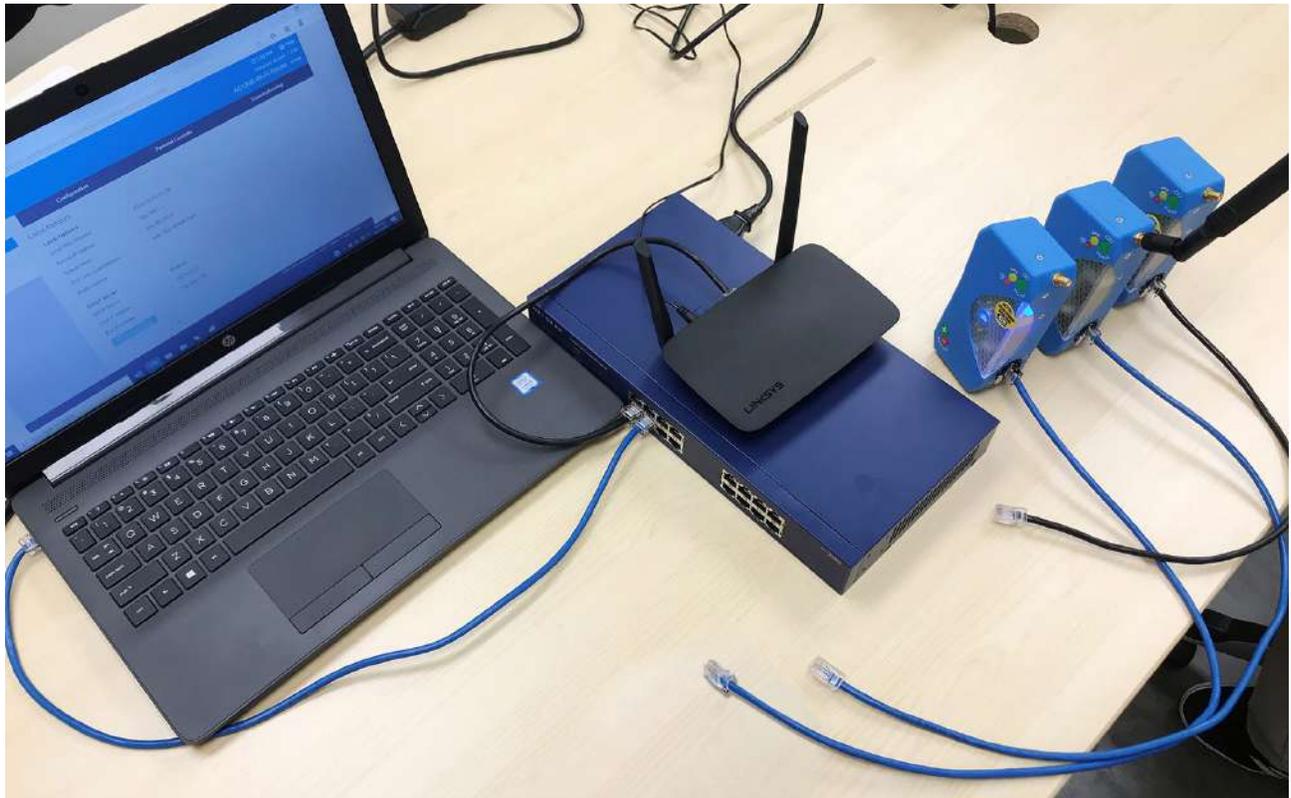
If you are running Ethernet from a console to a Satellite, DHCP server is required. A Satellite at in HOST mode can act as a DHCP server to automatically provide and assign IP addresses to the client Satellites. Each Client may now receive its DMX data over Ethernet. In the absence of a Host Satellite, you may use a Router as your DHCP server. To create a network of Satellite clients, each client must be wired to an ethernet switch and a Host satellite or router.

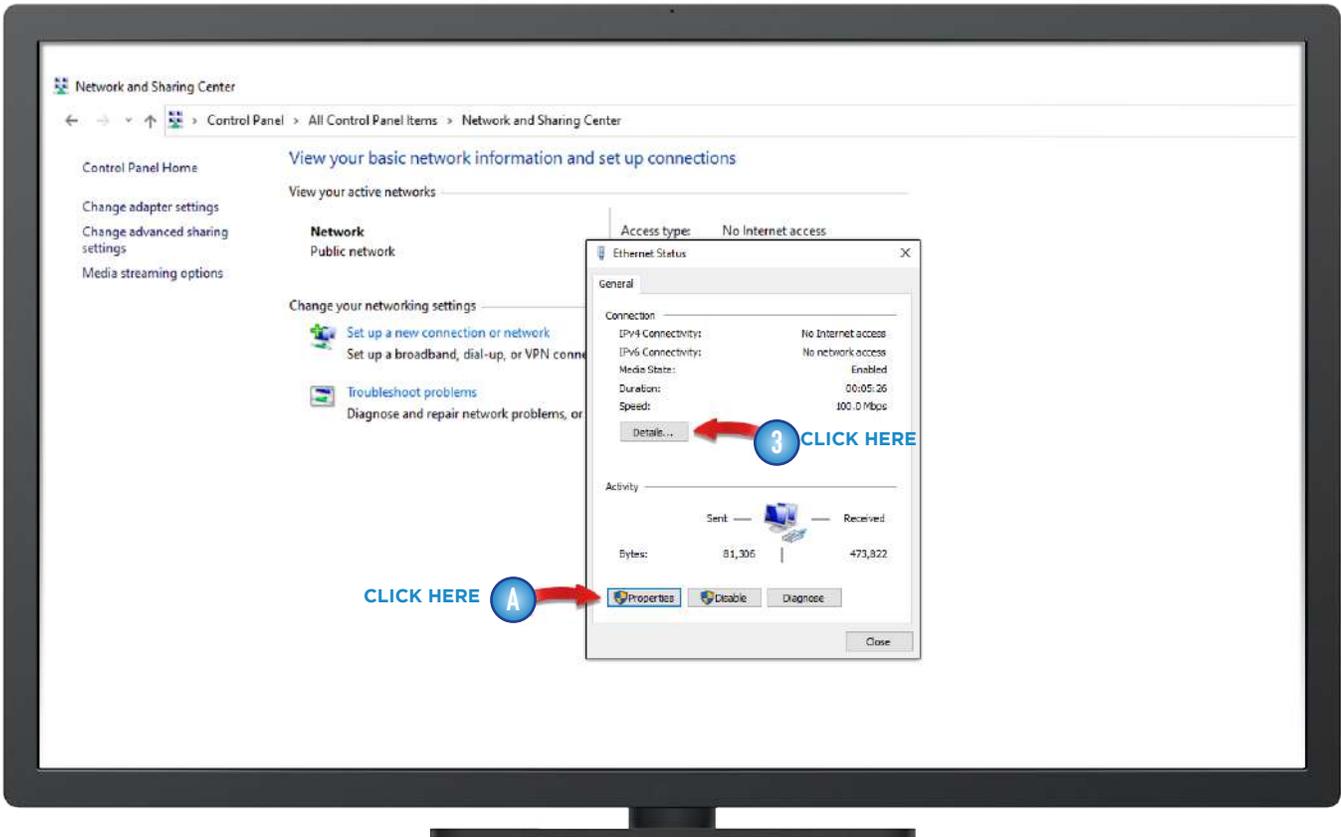
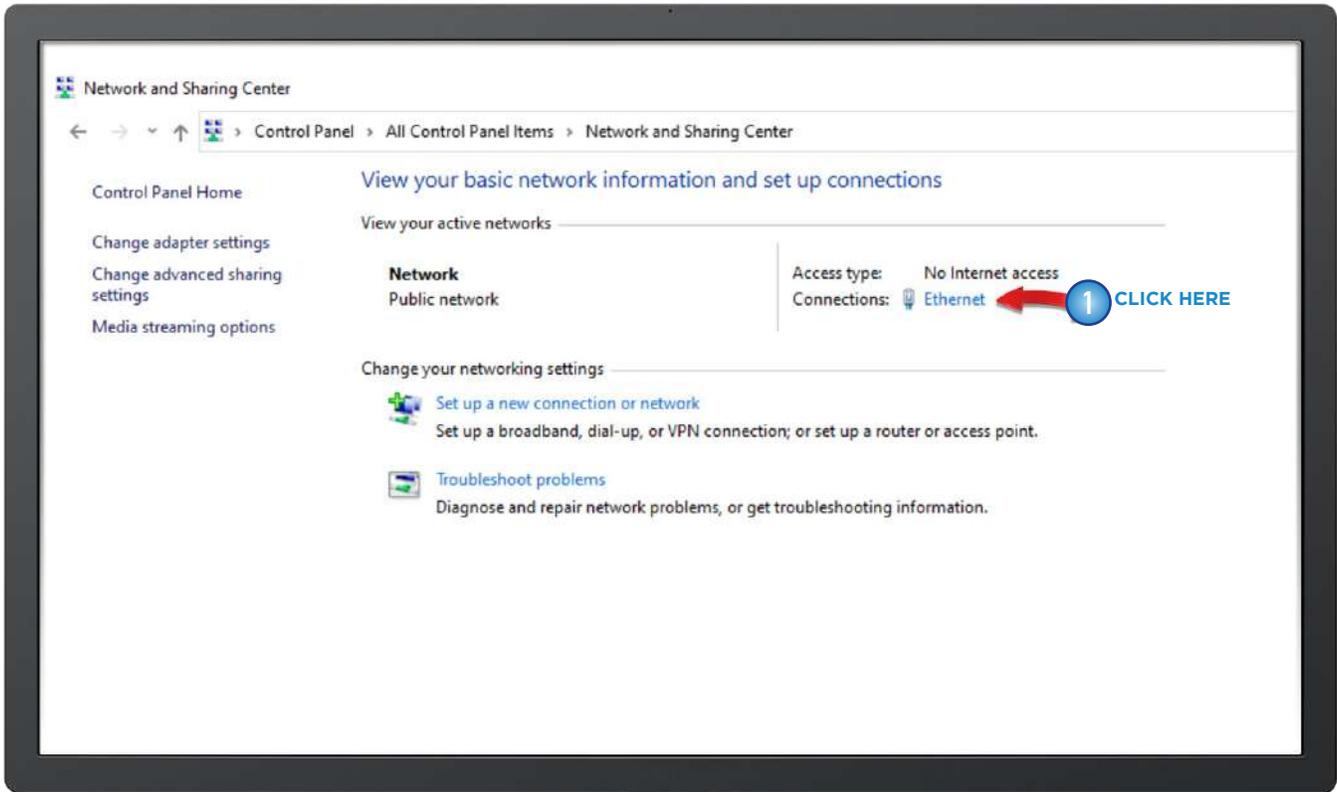
### DMX OVER ETHERNET SETUP

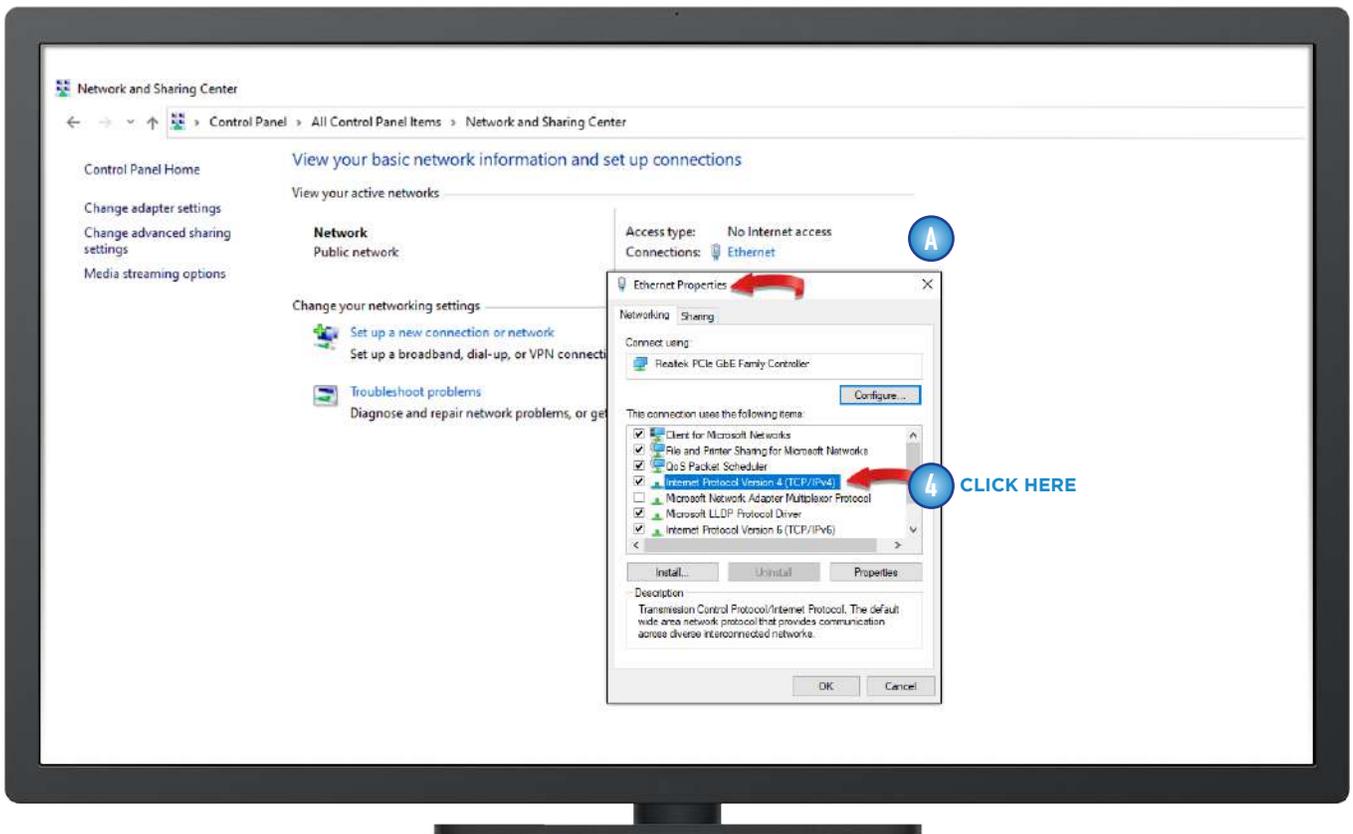
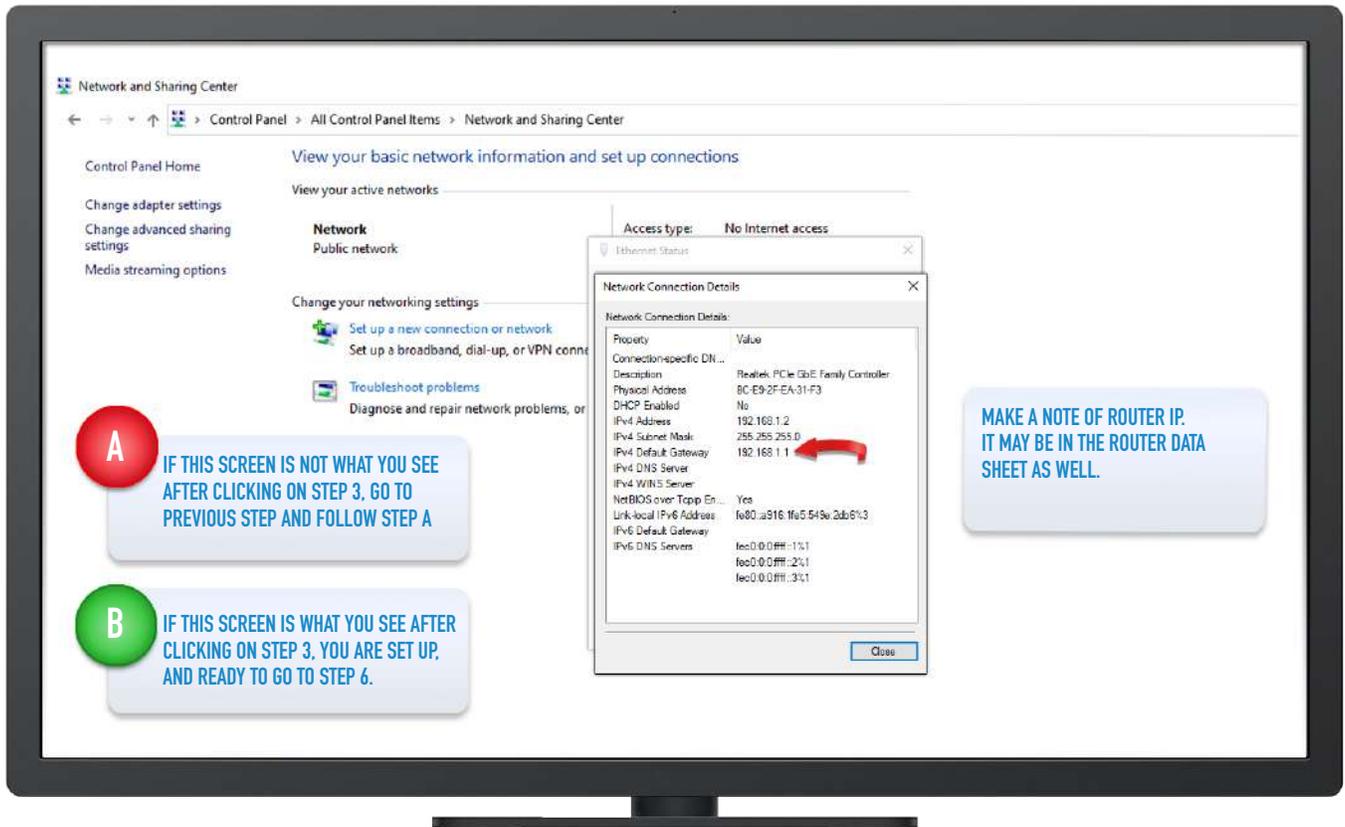


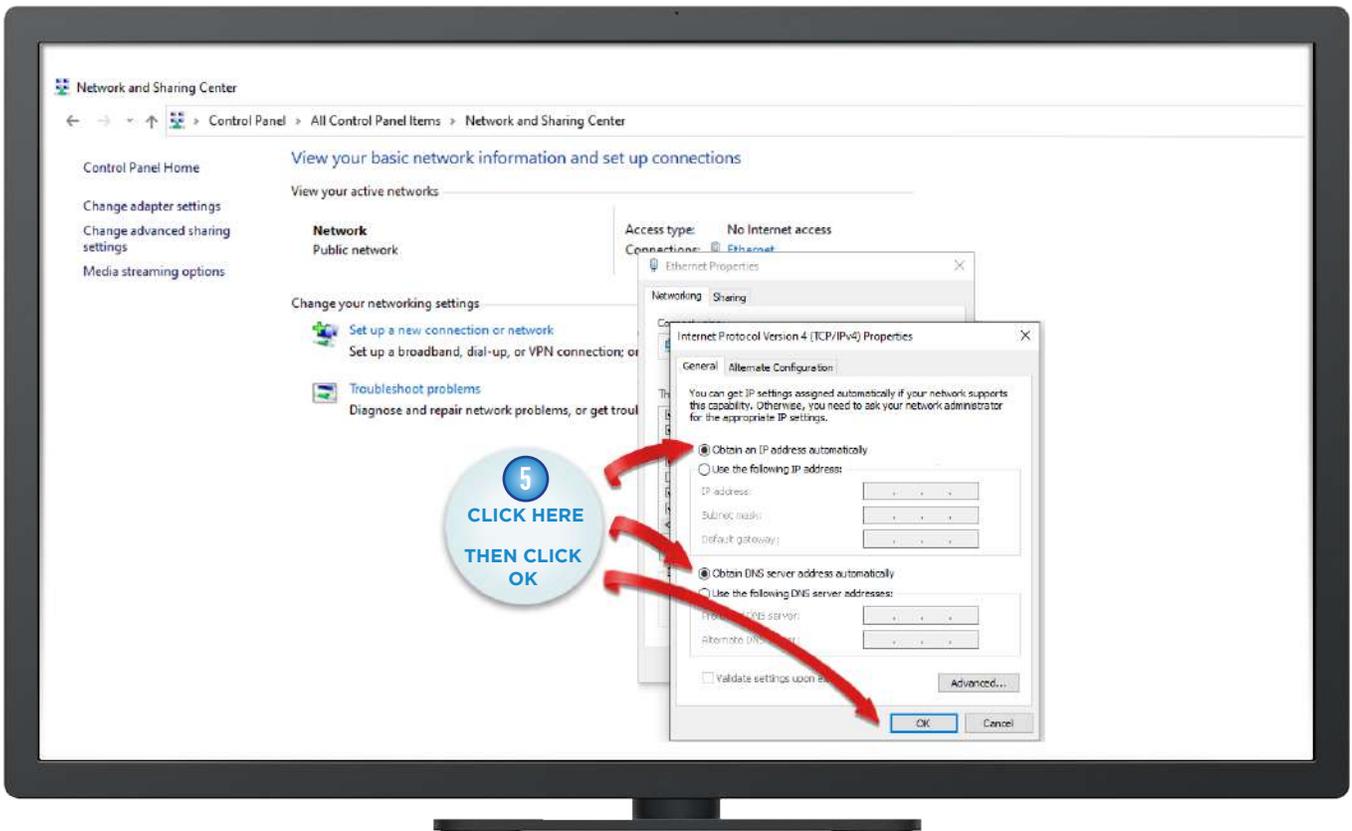
## USE ROUTER AS A DHCP SERVER

Connect the router and computer to your switch as shown. Do NOT connect the Satellite at this point.



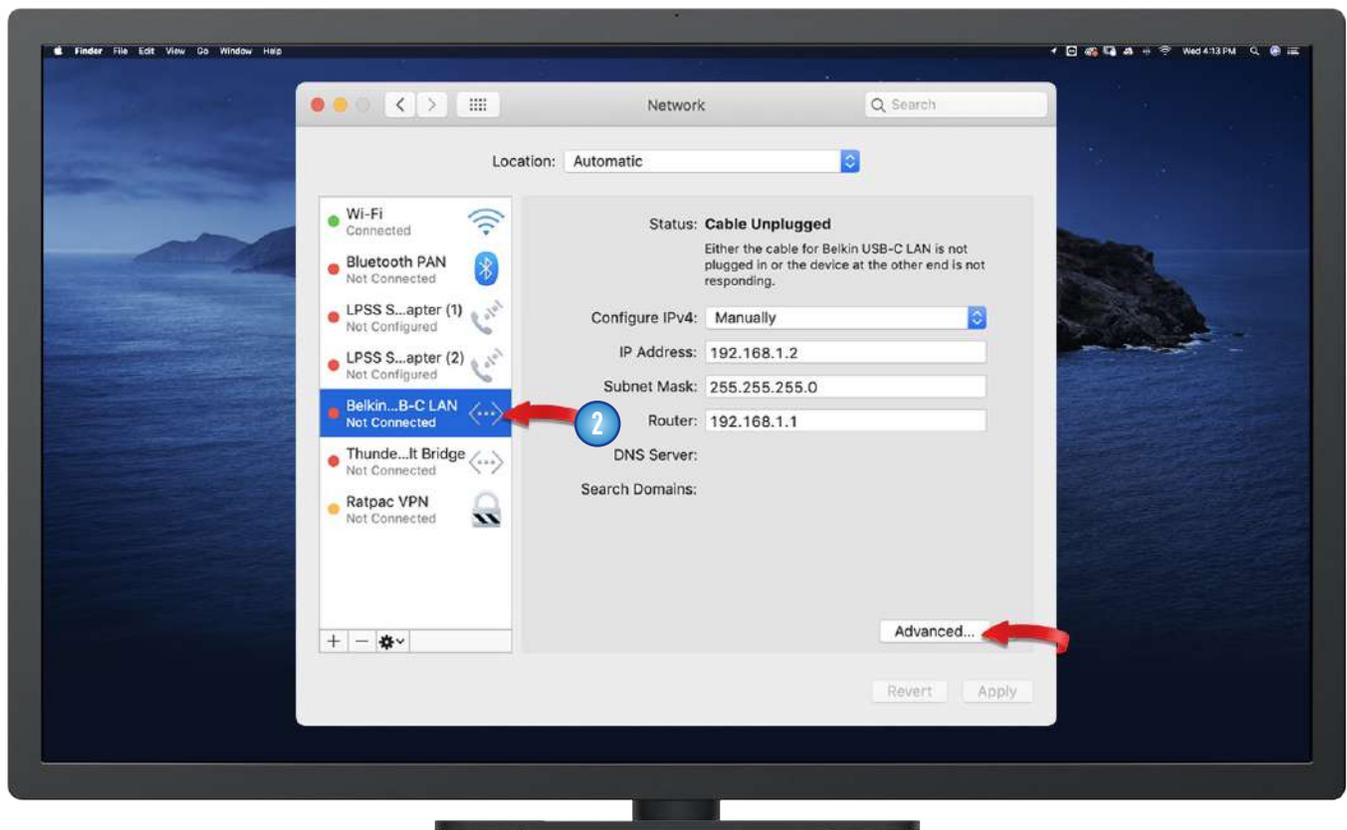


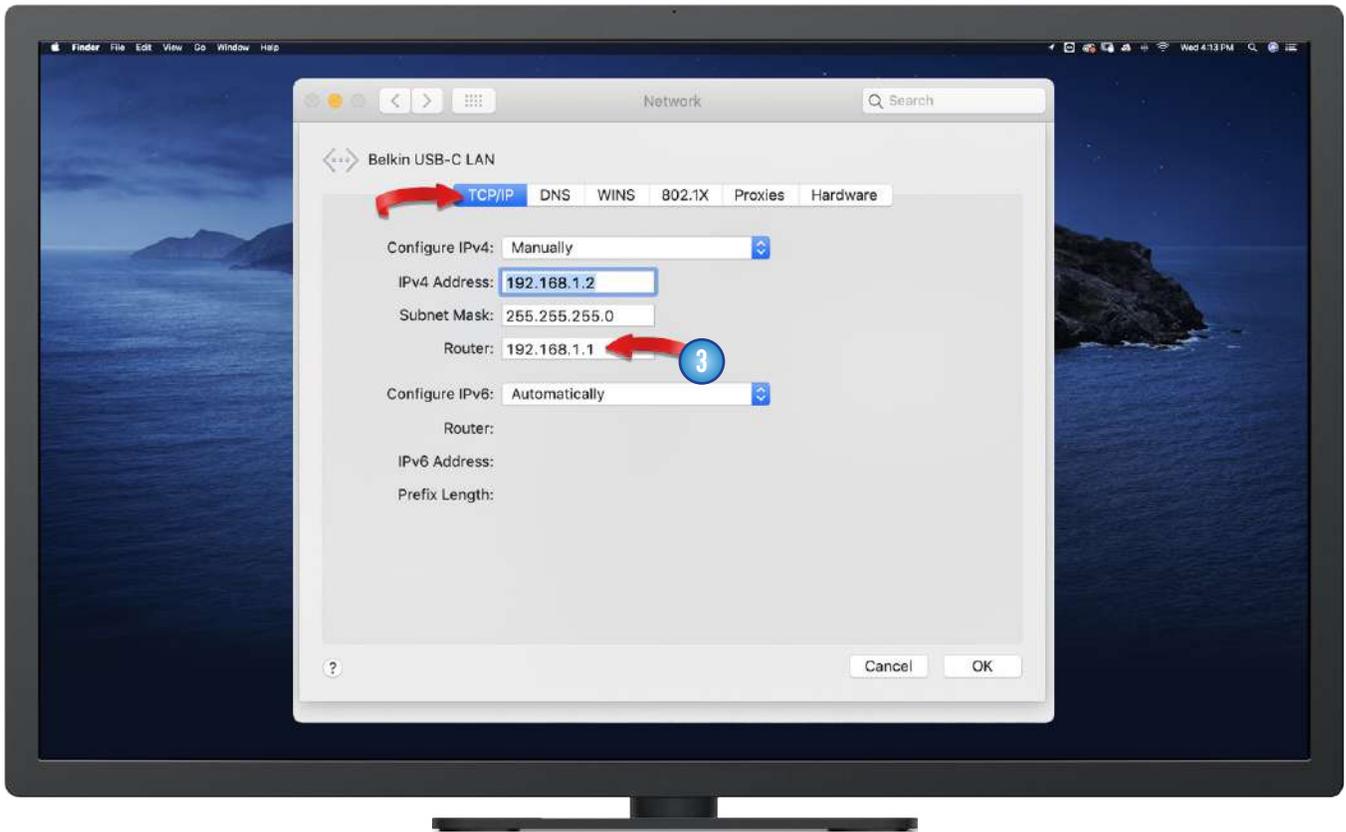




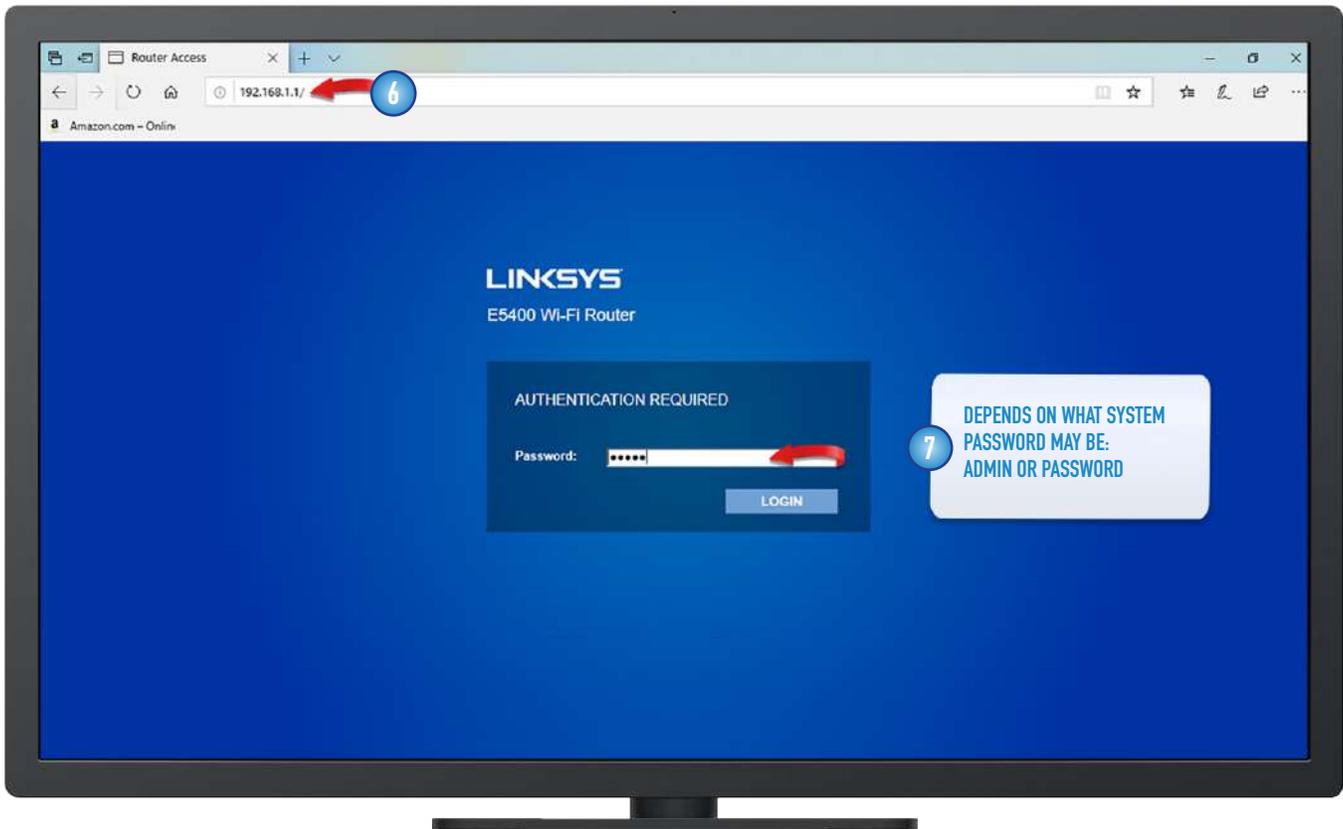
PC Users: Proceed to Page 13 to Enter Router IP and log into Router.

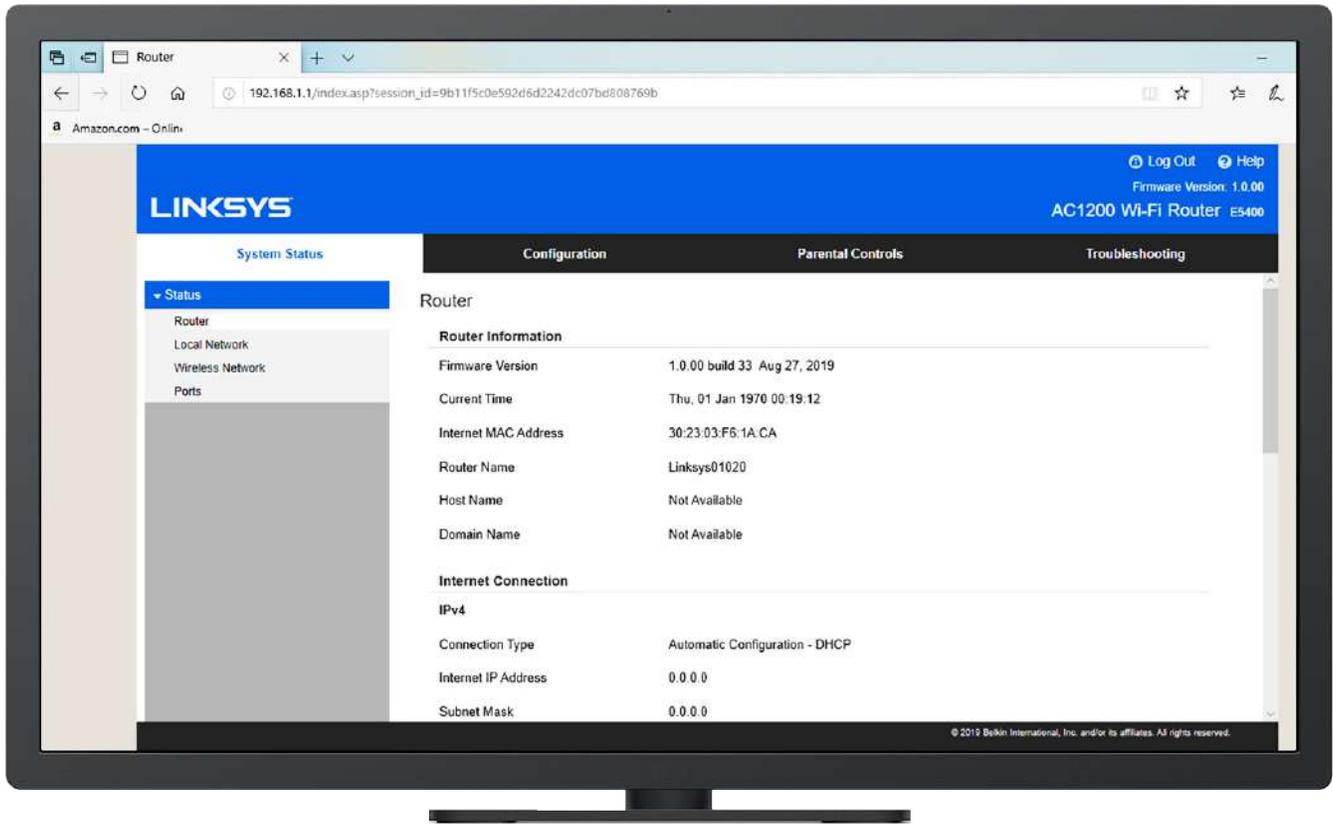
For MAC users: Open System Preferences and enter info as follows:



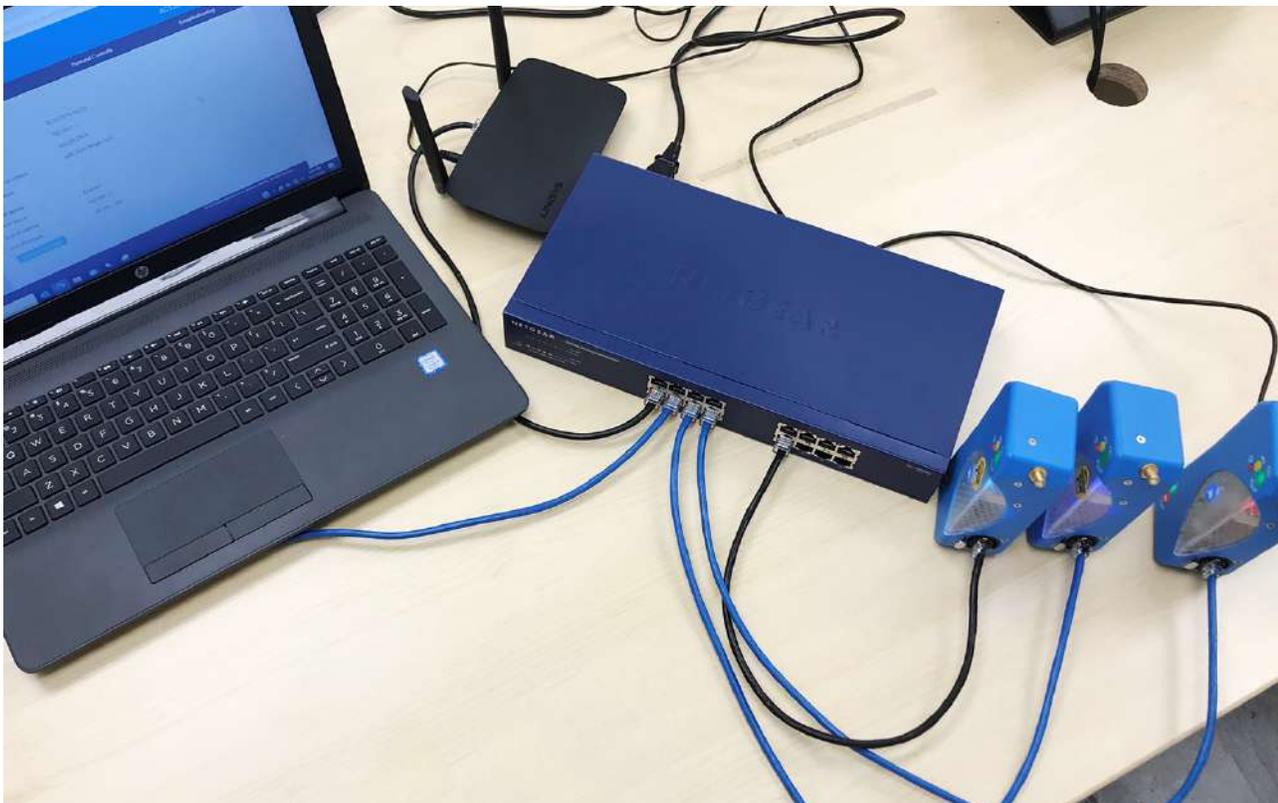


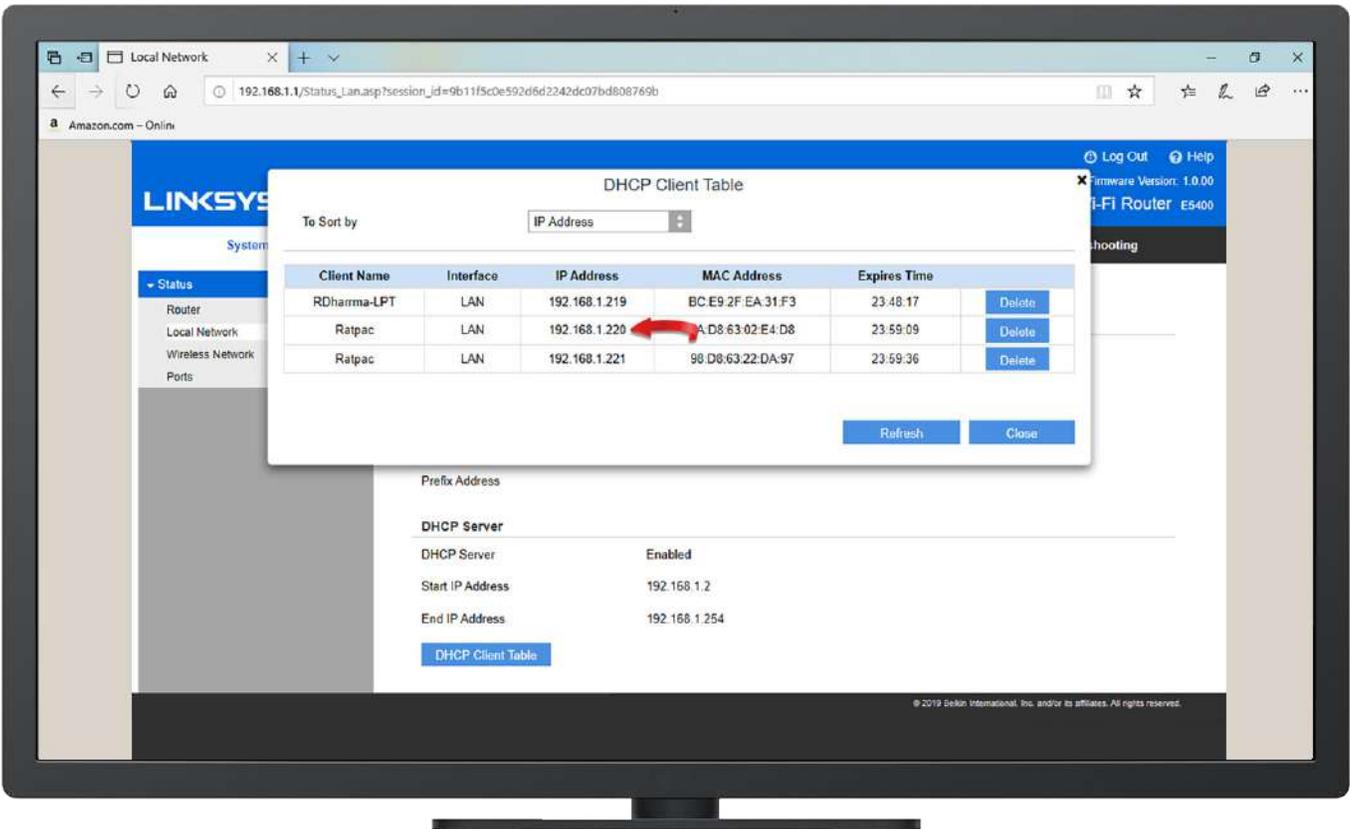
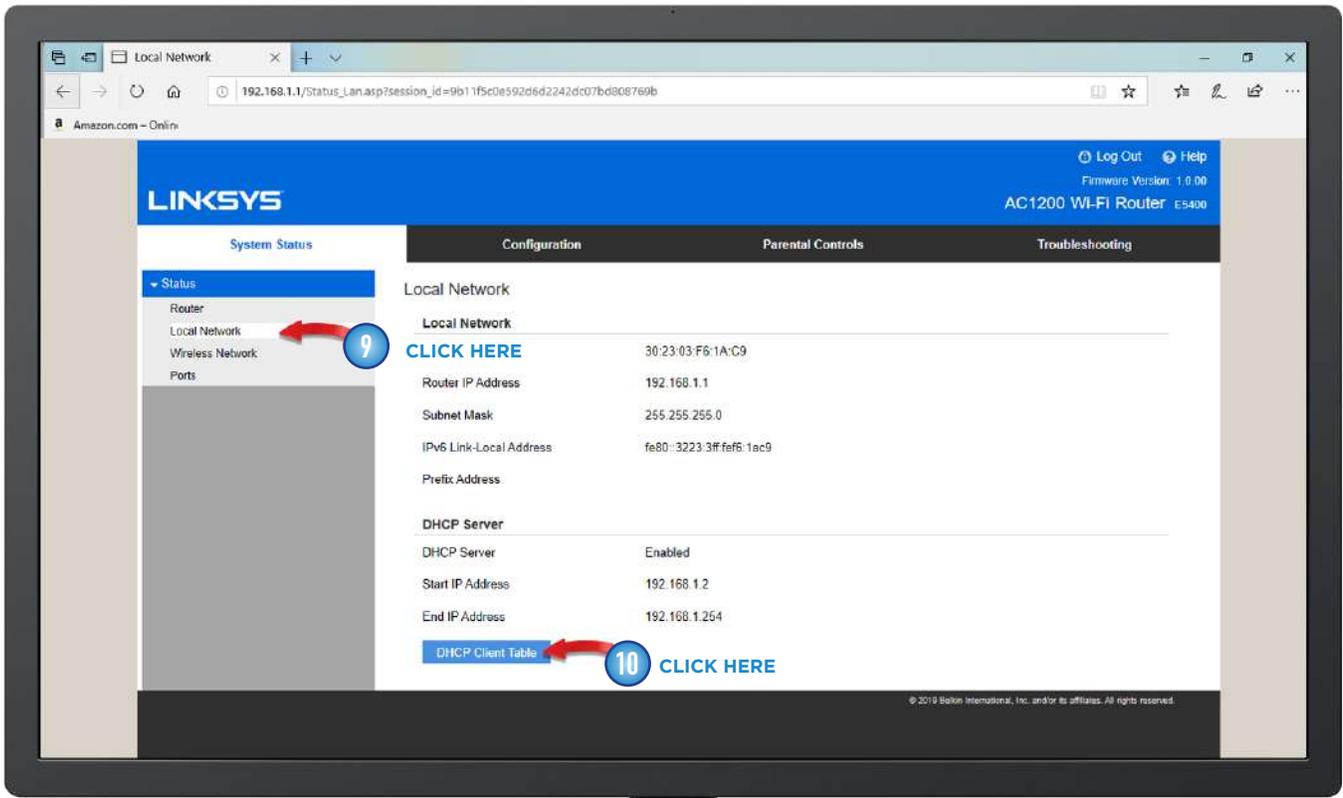
Now Enter router IP and log into the router using your router set up password.

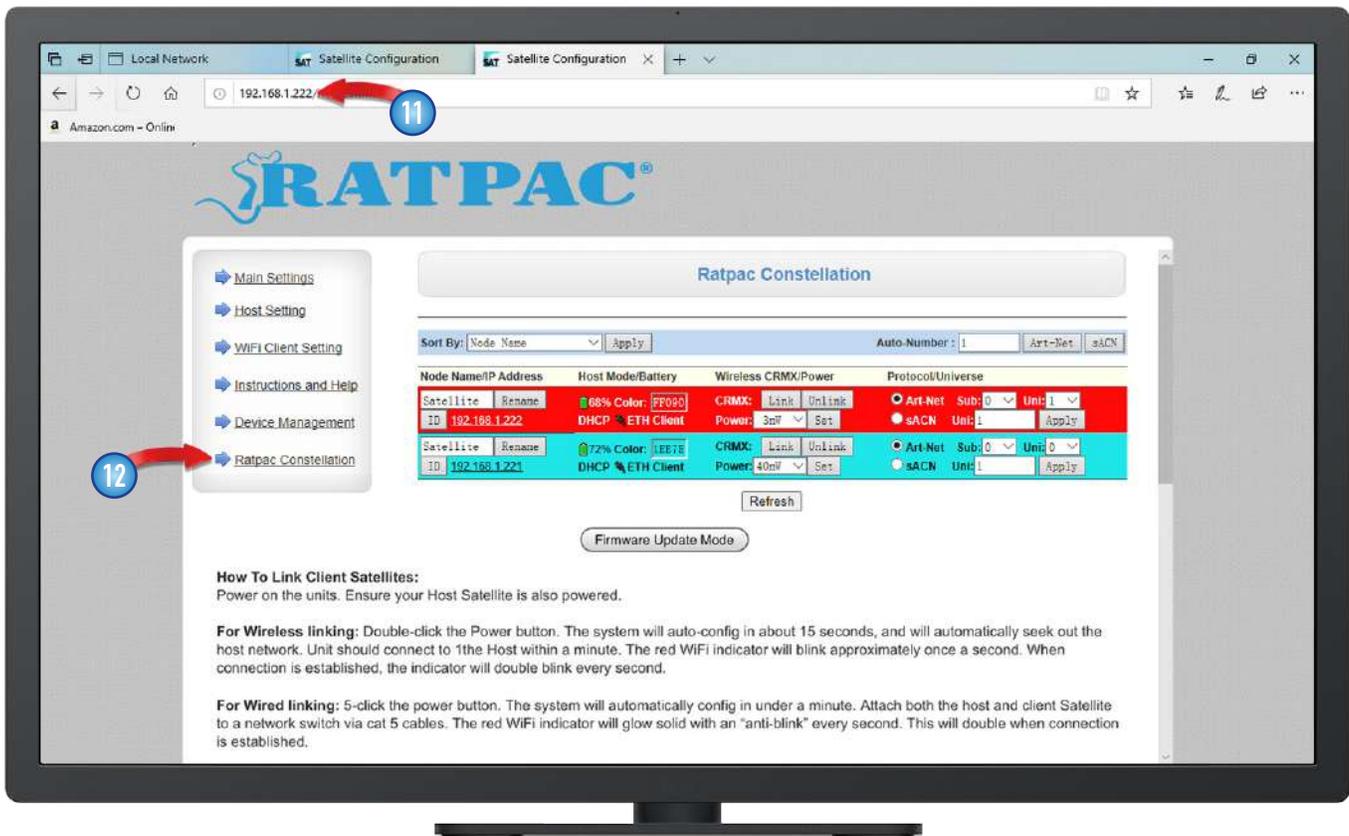




Now connect all satellites to the switch and make 5 click for Ethernet mode.

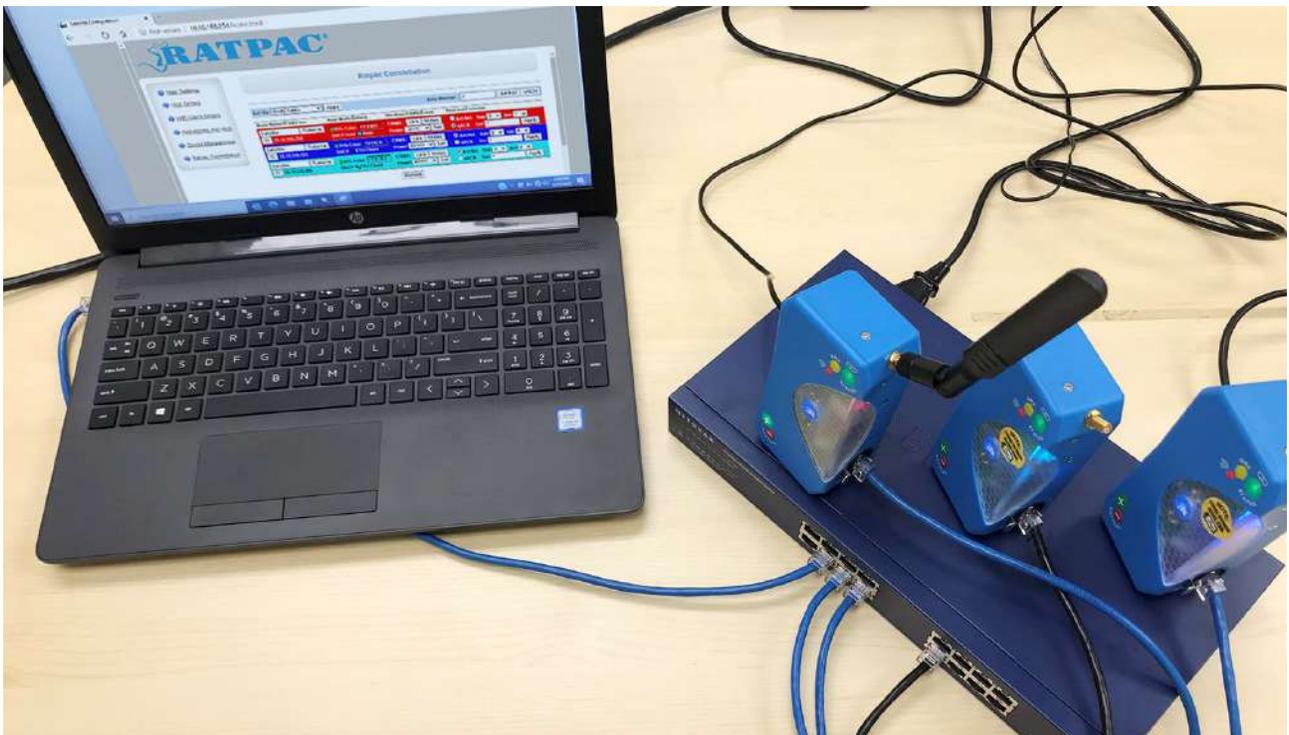




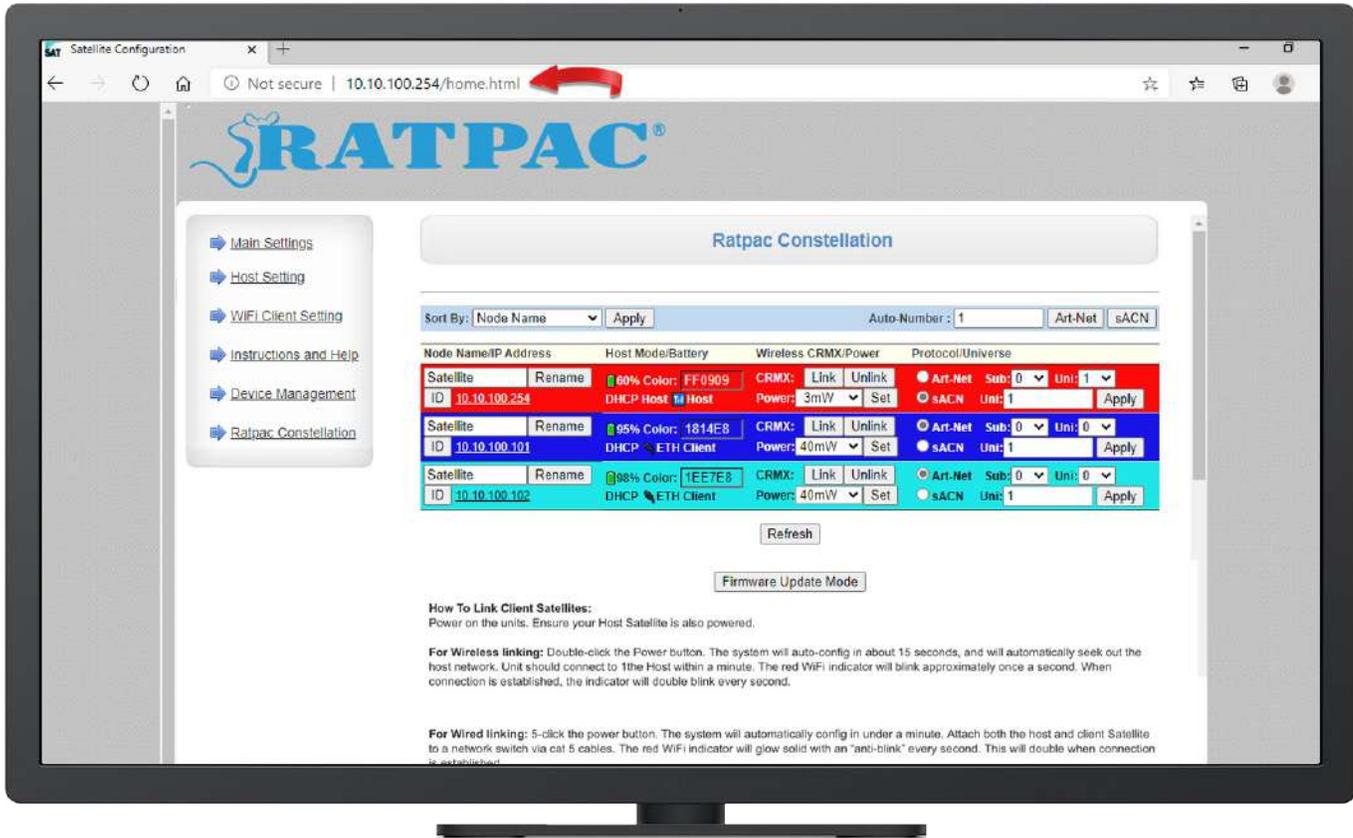


## USE ONE SATELLITE AS A DHCP SERVER

- Set up the computer as above.
- Connect computer and host satellite to the switch. 3 clicks for Host mode.
- Then connect remaining satellite to the switch. 5 clicks for ethernet client mode.



- Enter the Satellite IP address 10.10.100.254.



## CONNECTING SATELLITE™ TO CRMX DEVICES

The Satellite™ can take in multiple universes of DMX via Art-Net or sACN and connect to as many receiving CRMX devices as you need.

**Note: Adding universes of wireless DMX may increase latency, it is not recommended to connect more than 12 clients with a host when using wireless DMX.**

This amount of control can be multiplied to include many universes through Constellation.

(See 8: Host, Client, and Constellation)

## TO CONTROL DEVICES WITHIN THE LOCAL UNIVERSE:

1. Ensure all receiving devices are CRMX capable and prepared to link and receive data.  
All receiving devices must be unlinked before connecting to your host Satellite™.
2. Press the center RatPac logo button rapidly (3) times to activate host mode. This is the default mode that allows the device to transmit CRMX data. (See 8: Host, Client, and Constellation)
3. Quick press the green hexagonal LINK button located at the top of the unit.
4. The device will begin to blink. All receiving devices ready to make a connection will also begin to indicate that a connection is being established.
5. Once a solid connection is established, the link button on the Satellite™ will glow a steady green.

**Note: The yellow hexagonal DMX light on the Satellite™ will illuminate once DMX is passed through to connected receivers.**

6. In our case, we connected to a RatPac Cintenna 2 transceiver set to receive mode. The Satellite™ will transfer additional information to the Cintenna 2, most notably the color associated with the Satellites™ universe, helping to identify their connection. This color and other settings can be changed within the web GUI.

(See 7: Configuration through the Web Browser GUI)



## CONFIGURING THROUGH THE WEB BROWSER GUI

You can access internal settings and additional information about your Satellite™ device through the built-in Web GUI. Set which universe you want to operate in, change the color of that universe, set the device name to help identify it through your control software, and remotely check your battery level all from your web browser.

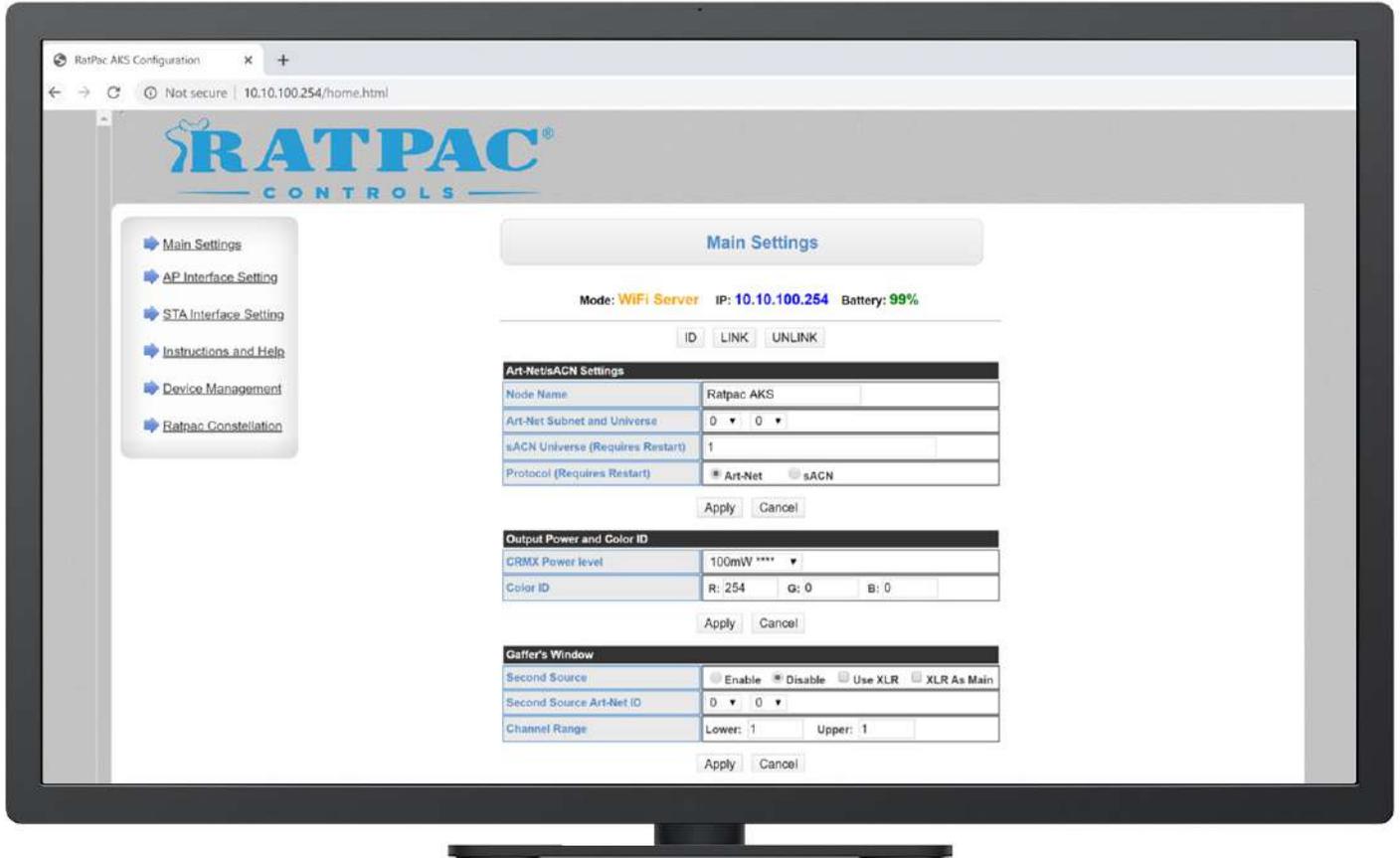
To access the Web GUI:

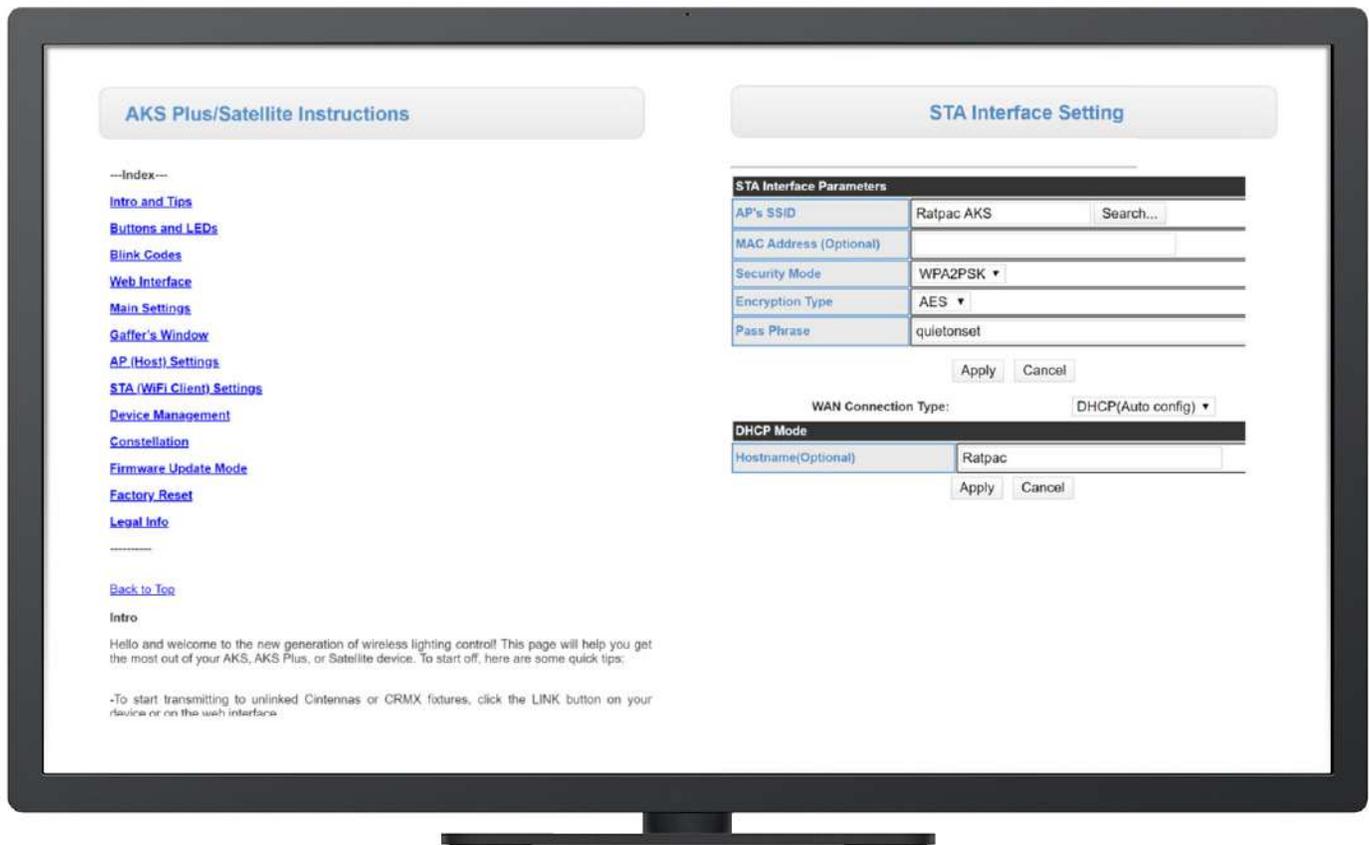
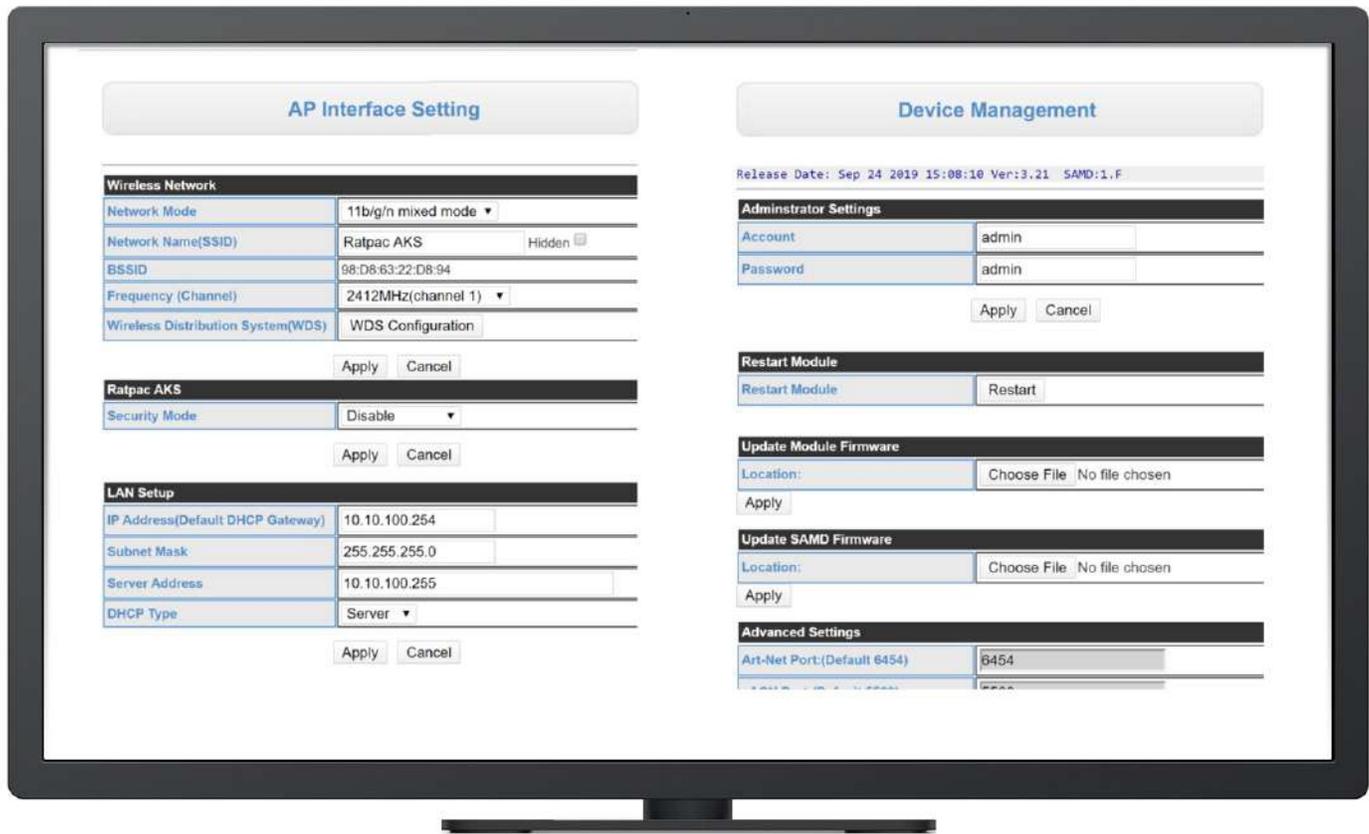
1. Power up the Satellite™.
2. Connect to the Satellite™ WiFi or through the Ethernet port.
3. Open your favorite web browser, enter the device default IP address into the search bar.

### DEFAULT SATELLITE™ IP: 10.10.100.254

4. Once the page loads, you will gain access to a main menu with different options.

**Note:** It's important to press "Apply" whenever making a change to save and activate that change.





## HOST, CLIENT AND CONSTELLATION

Satellites™ can work together to pass along a large number of universes. This is done with Host/Client modes made available on the devices.

TO ACTIVATE HOST MODE: press the RatPac logo button rapidly (3) times.

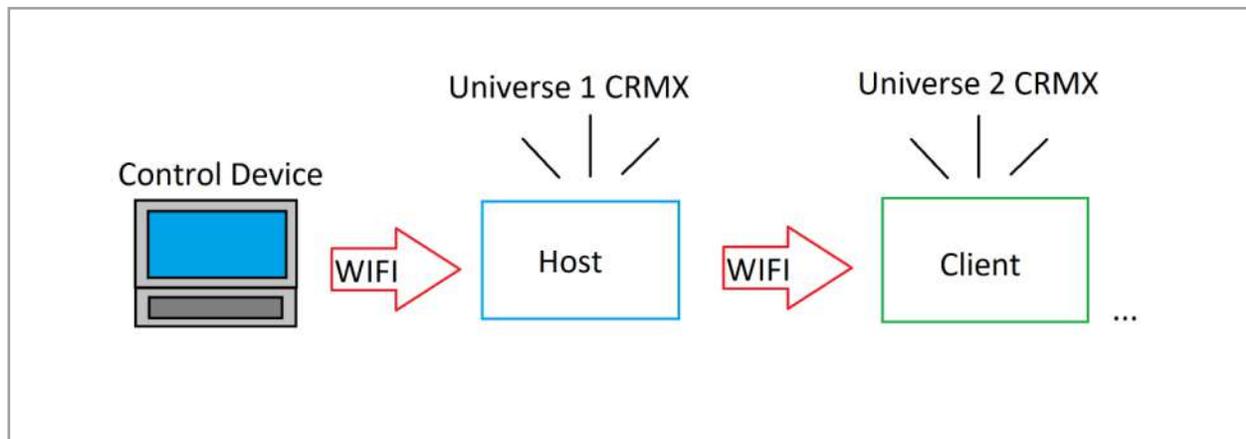
TO ACTIVATE CLIENT MODE: press the RatPac logo button rapidly (2) times.

IN HOST MODE, the Satellite™ can receive data through WiFi and interpret and send that information over CRMX wirelessly to receiving devices. It also serves as a main hub to pass on additional information through WiFi to other Satellites™ in Client mode.

IN CLIENT MODE: the Satellite™ can receive additional information through the WiFi connection it makes with a Host or another Client-set Satellite™. It will also transmit the data for its assigned universe.

Think of the Host as a router and the client as a WiFi repeater.

As shown in the diagram below, through the use of a Host, a control device with appropriate DMX software can pass along the maximum number of universes allowed in Art-Net/sACN protocols, and with enough Satellites™ you could hypothetically control that number of universes through a single wireless chain.



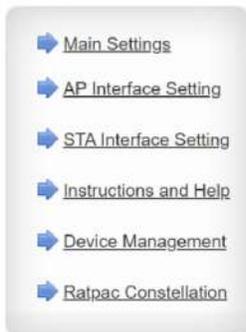
## TO SET UP AND COMPLETE A HOST/CLIENT CONNECTION:

1. With all Satellites™ powered on, press the center RatPac logo (3) times to set your host device. Allow the center logo button to stop blinking, signifying that the configuration is complete.
2. Press the center RatPac logo button (2) times on the Satellite™ that will act as the first in your chain of clients. Again, wait for the logo to stop blinking.
3. Continue setting Satellites™ into client mode, “chaining” them along.

**Note:** (It's good practice to set your Satellites™ to client in an order based on distance relative to the host, with the first client being closest to the host and the last being the furthest away. This will ensure a strong WiFi connection to every unit along the chain.) The connected clients will maintain their own universe color.

4. Access the information for the host and all its connected clients on the Constellations tab of the Host Satellites™ Web GUI. (See 7: Configuration Through the Web Browser GUI). Note the IP addresses and corresponding universes of each device are all targetable IP addresses to be used within your capable DMX-control software if your control device is connected to the host device. You can change the universe of each device, expanding your control.

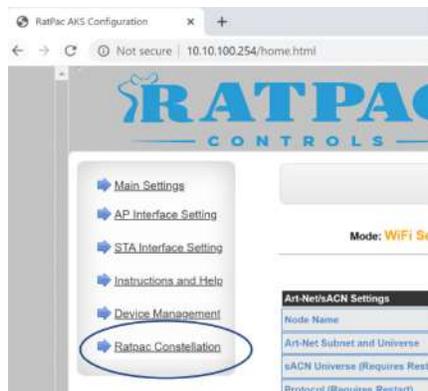
**Note:** If you're unsure which unit is the client you can always press the ID button on its information panel in the Web Browser GUI. The unit will begin to flash until you press the ID button again.



### Ratpac Constellation

Sort By: Art-Net Universe #  Auto-Number Start Universes:   Art-Net  sACN

Node Name/IP Address	Host Mode/Battery	Wireless CRMX/Power	Protocol/Universe
Ratpac AKS <a href="#">10.10.100.100</a>	WiFi <input checked="" type="checkbox"/> Station 92%	Link Unlink ID Power: 250mW <input type="text" value="Set"/>	<input checked="" type="radio"/> Art-Net Sub: 0 Uni: 0 <input type="radio"/> sACN Uni: 1 <input type="button" value="Apply"/>
Stage 1 Rig <a href="#">10.10.100.254</a>	DHCP Host <input checked="" type="checkbox"/> AP 90%	Link Unlink ID Power: 100mW <input type="text" value="Set"/>	<input type="radio"/> Art-Net Sub: 0 Uni: 1 <input type="radio"/> sACN Uni: 0 <input type="button" value="Apply"/>



## TROUBLE SHOOTING

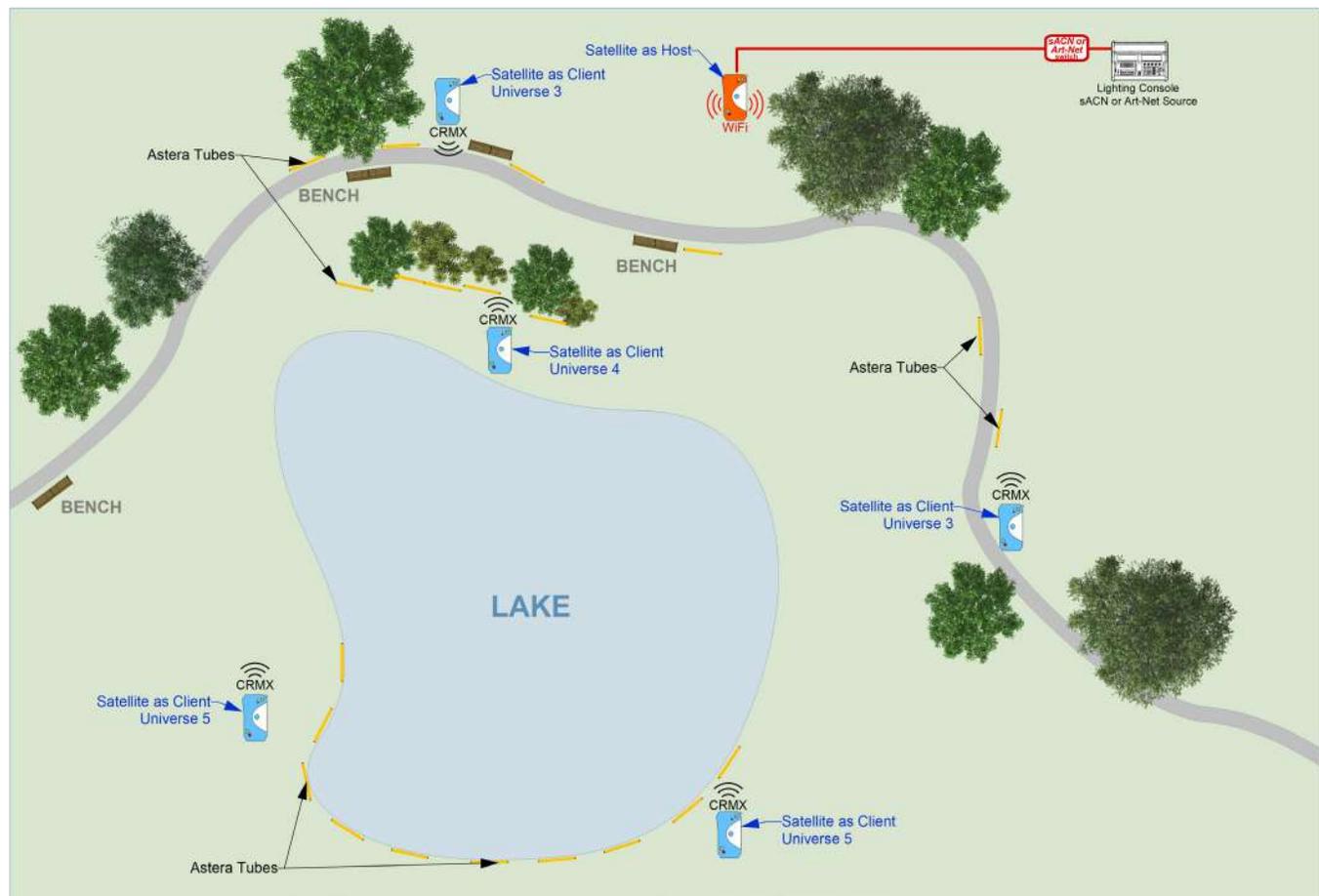
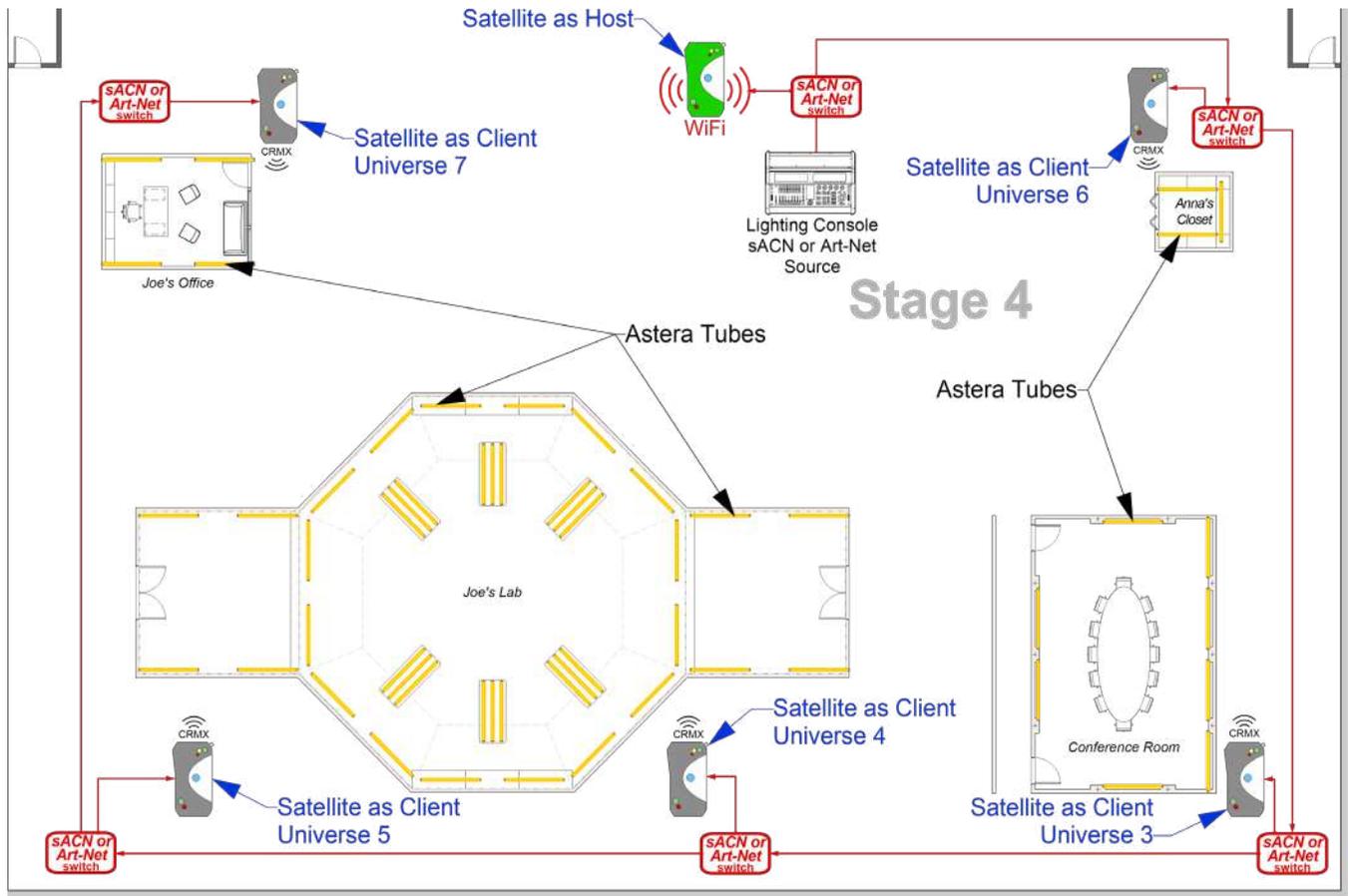
*My Satellite™ isn't sending DMX through to my CRMX receivers even though everything's powered on and connected, including my DMX control application, e.g., I'm moving sliders and nothing's happening!*

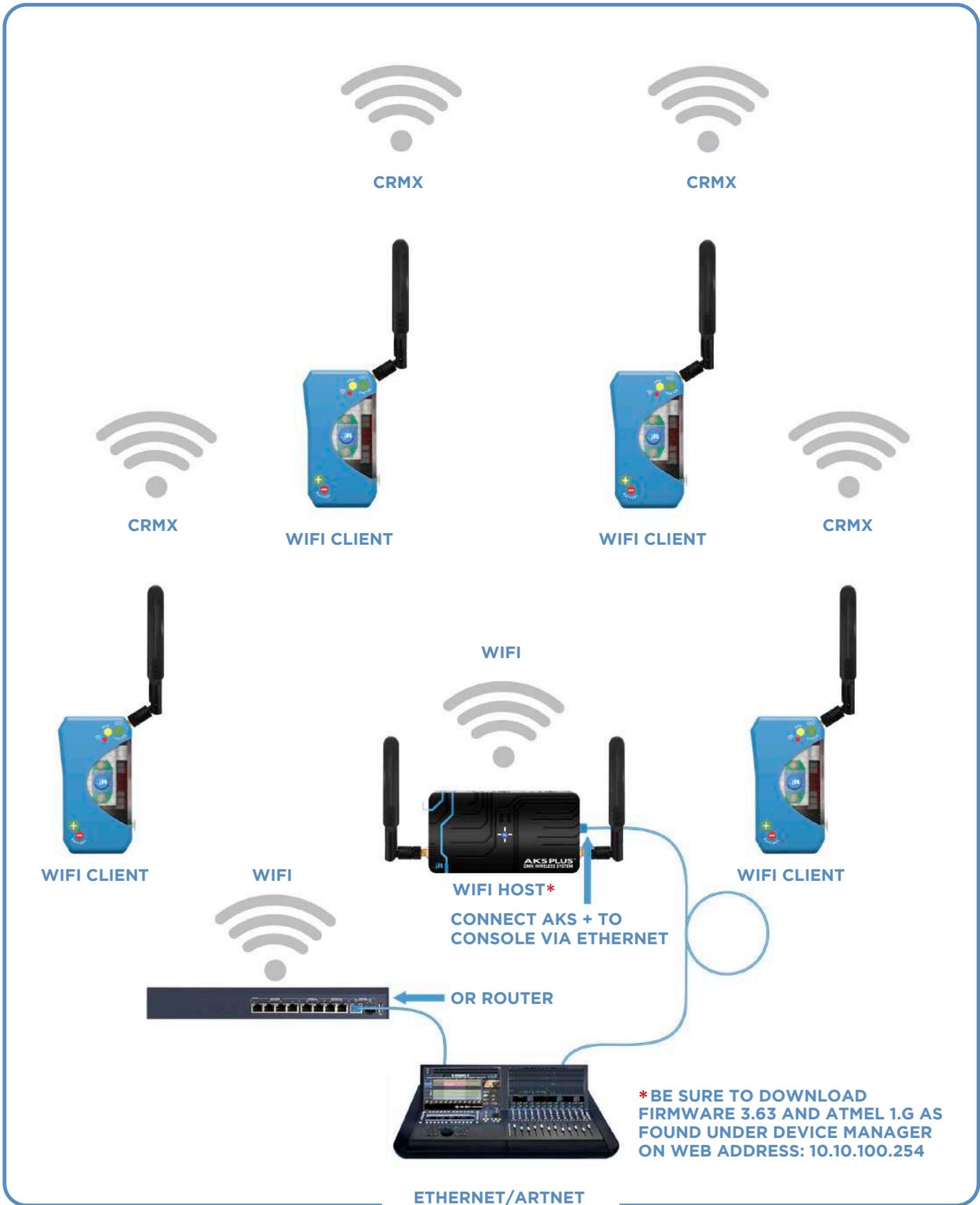
If everything seems properly connected and the signal strength seems fine, it could be that your Satellite™ is operating on an Art-Net or sACN universe that differs from that selected by your application. Remember that Art-Net universe designation starts at 0.

To check which protocol and universe the Satellite™ is operating in, access its IP address using the web browser on your tablet or laptop. Simply type the Satellites™ IP address into the search bar when connected to the Satellites™ WiFi or through Ethernet.

### THE DEFAULT IP: 10.10.100.250

Once you enter the information, you will be connected to the information home screen for the device. You'll see which connectivity protocol (sACN or Art-Net) that the device is operating in, and which specific universe it's operating in within that protocol. Make sure your app is configured to operate within that universe.





## FCC DECLARATION OF CONFORMITY

We Lumen Radio AB Svngatan 2B, 41668 Gothenburg, Sweden, declare under our sole responsibility that 800-8105, TiMo RX RDM and 800-8106, TiMo FX RDM, comply with Part 15 of FCC Rules. Operation is subject to the following two conditions:  
This device may not cause harmful interference. This device must accept any interference received, including interference that may cause undesired operation.

### FCC RADIO FREQUENCY INTERFERENCE WARNINGS & INSTRUCTIONS

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following methods:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an electrical outlet on a circuit different from that which the radio receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Modifications made to the product, unless expressly approved by Lumen Radio AB and RatPac Controls, could void the user's right to operate the equipment as per their country's regulations.

Recycling and Disposal: Device contains Li-ion battery, do not discard in trash.  
For disposal, please deposit at an appropriate recycling facility or simply send to:  
RatPac Controls 7508 Tyrone Ave. Van Nuys, CA 91405 United States of America

### INDUSTRY CANADA STATEMENT

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le resant appareil numerique német pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

### CE

RatPac Controls declares that the Cintenna product family complies with the essential requirements and other relevant provisions of CE standards for safety and RF exposure. Lumen Radio declares that 800-8105 TiMo RX RDM and 800-8106 TiMo FX RDM comply with the Essential Requirements of RED (Radio Equipment Directive) of the European Union (2014/53/EU).

TiMo RX RDM and TiMo FX RDM meet the ETSI EN 300 328 V1.8.1 and ETSI EN 300 328 V1.9.1 conformance standards for radio performance.

**FCC ID: XRSCRMXTIMO101 or FCC ID: XRSTIMOMWAN201**  
**FCC ID: 2ACSV-HF-A21-SMT**

No User Serviceable parts inside.

Please follow proper disposal and recycling procedures. Do not incinerate. For Indoor Use Only.

## RATPAC CONTROLS LIMITED WARRANTY

We warranty all workmanship and parts to be free of defect and to work as intended for the specific product's designed use for two years from the date of purchase. Accidents, deliberate breakage and/or misuse of the products voids the warranty. We will repair or replace at our discretion parts or whole units in order to remedy issues with workmanship and/or functionality of the products provided the products were used for their intended purpose and in conditions suitable for electronic devices. All buyers understand that electronics involving control via DMX or WiFi are only as good as the system in which those products work. Since it is assumed that our products will be used in conjunction with DMX controls and/or products that we do not manufacture the buyer accepts responsibility for understanding and implementing the use of our products in the context of a larger lighting control system which may or may not include third party products and RatPac Controls products. Since we have no control of the environments the products are used in we do not warranty the cosmetic finish, whether paint, vinyl or silk screen. If the product has been modified by the buyer the warranty is void. If the buyer's product has been modified at RatPac Controls the warranty will be extended 2 years on the new parts and workmanship performed by RatPac Controls. If RatPac Controls is at fault in a warranty issue we will cover the cost of shipping the products to and from the service location of our choosing provided we chose the method of shipping. If we determine that the product has been damaged by using incorrect voltage or otherwise not cared for in an appropriate manner the warranty is void. RatPac Controls is not liable for incidental or consequential damages associated with the use of this product. RatPac and Innovative Dimmers liability will not exceed the purchase value of the product. Warranty claims must be accompanied with proof of purchase including date of purchase and must be made in writing and cannot be transferred or sold to any party or individual.