



# Auriel Application Note

Subsystem:	Auriel Home Control - Climate
Manufacturer:	Multiple
Model Number(s):	Multiple
Auriel Version:	2.0 and above
Comments:	
Document Revision Date:	06/30/2016

## OVERVIEW AND SUPPORTED FEATURES

Auriel 2.0 introduces Home Automation control of Ethernet, WiFi, and ZWave thermostats. These are easily configured under the Home Control section of the Auriel Wizard. For specific instructions on configuring zWave Climate, please see the VeraEdge Application Note.

Supported features will vary based on the Thermostat you are using.

**Important Note:** Auriel's Home Control feature supports up to 3 connected and controlled thermostats. After the 3<sup>rd</sup> thermostat has been added to an Auriel system, Auriel will prevent the installer from adding a fourth by removing Climate systems from the available drivers in the wizard.

In a Situation where more than 3 thermostats have been added via auto-discovery, the Wizard may show more than 3 thermostats available, but only the first 3 discovered will appear in the User Interface.

Supported Thermostats:

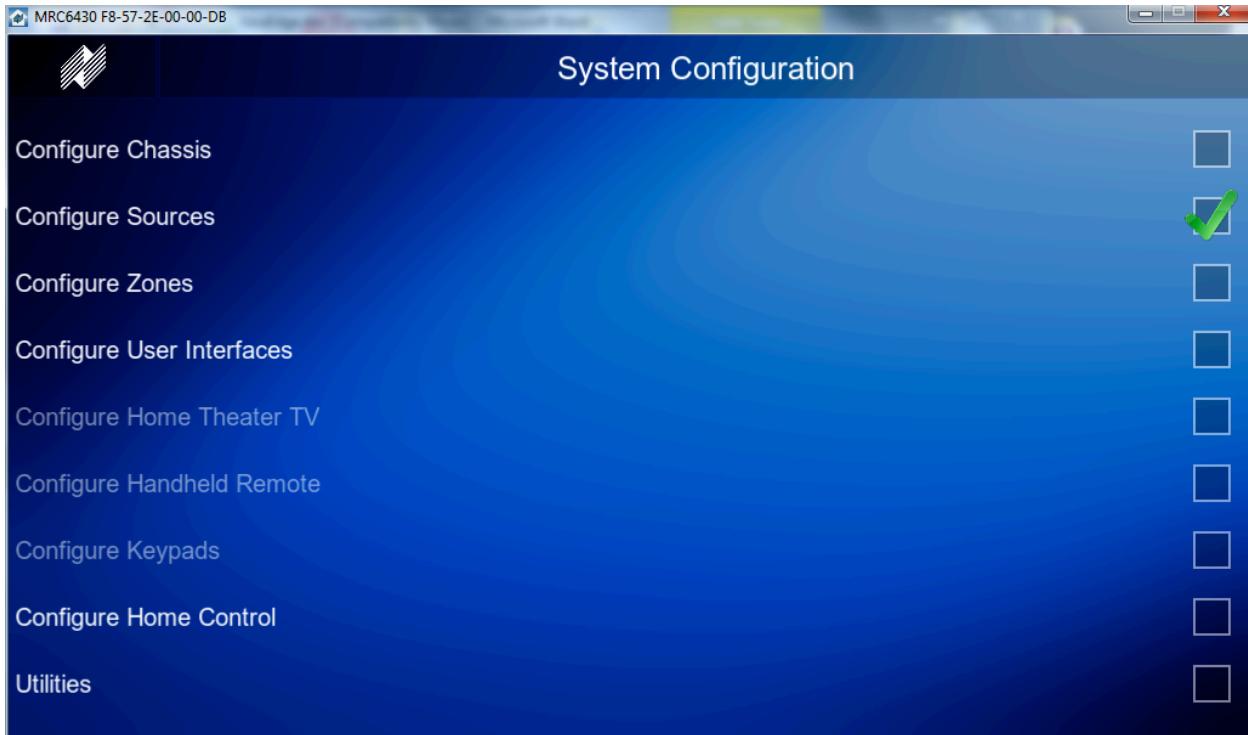
- Aprilaire 8800 Series WiFi Thermostats (8840, 8830, 8820, 8810)
- CoolMaster IP (1000D, 2000S, 3000T 4000M, 7000F, 8000I, 9000H, NET)
- Lutron RadioRA2 (LR-HVAC-1, LR-HWLV-HVAC)
- zWave Thermostats (See VeraEdge zWave Document)

Any feature not specifically noted as supported should be assumed to be unsupported.

## CONFIGURATION IN AURIEL.

Configuring thermostats in Auriel is simple and fast via the Auriel Wizard. Prior to configuring the thermostat in Auriel, make sure that you have followed your thermostat vendor's installation instructions and that the thermostat is functional outside of the Auriel Controlled environment. See Appendices for device-specific programming information.

1. Enter the Auriel Wizard via press and hold on the title bar and then entering the 3526 installer code.



2. Select "Configure Home Control"



3. Click Add



4. Select your Thermostat and enter any required information, such as IP Address



5. Select Finish – your thermostat is now ready to use in Auriel. See the Auriel Users' Manual for further detail.

## **APPENDIX 1: CONFIGURING APRILAIRE 8800 SERIES WiFi THERMOSTATS**

<b>Manufacturer:</b>	Aprilaire
<b>Model Number(s):</b>	<b>WiFi Thermostats: 8840, 8830, 8820, 8810</b>
<b>Models Tested:</b>	8820 rev 1.04
<b>Minimum Core Module Version:</b>	Auriel 2.0

*This integration note can be applied to several different Aprilaire Wi-Fi thermostat models. We will be using an “**Aprilaire 8820 Thermostat**” as our example.*

**Note:** Your configuration steps may be different depending on your thermostat model. The official Aprilaire documentation for your thermostat can be found at the following link. [Official Aprilaire Documentation](#)

**Browsers:** We recommend using the latest Google Chrome or Internet Explorer browsers for Aprilaire setup and configuration. Safari and Firefox browsers are not recommended for this process.

### **OVERVIEW AND SUPPORTED FEATURES**

#### **THE WiFi THERMOSTATS SUPPORT THE FOLLOWING FEATURES:**

**Temperature Control:** Temperature can be shown as either Fahrenheit or Celsius on the viewer interface.

**Mode Control:** The climate system can be set to run in the following heating and cooling modes: **Heat** only, **Cool** only, **Auto Heat Cool**, **Emergency Heat** or **Off**.

**Fan Mode Control:** Systems that have a fan can be set to run in **Automatic**, **Continuous** or **Circulate** mode.

**History View:** The history view shows the inside temperature, unit run and fan run times, and cooling and heating set points.

**Humidistat:** The 8800 series can be configured as fully functioning humidistat. The driver should automatically detect the configuration and the UI should show the appropriate controls for humidity.

**Auto Time and Date:** The **Niles Auriel** system will automatically update the time and date on the thermostats including daylight savings time changes.

**Celsius and Fahrenheit:** Aprilaire Thermostats support displaying Temperatures in C or F both at the stat and in the **Niles Auriel** system. The system operates in half degree increments in Celsius, and Full degree increments in Fahrenheit.

**Remote Room Temp Sensor connected directly to 8800 Thermostat:** The 8800 can be configured to utilize a remote temperature sensor in place of its on board sensor. The sensor connects directly to its T1 & T2 terminals. When properly connected and configured this sensor will override the onboard sensor and the thermostat then reports the remote sensor value to the system controller as its room temperature value. Please refer to the Aprilaire documentation for setup information.

#### **THE 8800 THERMOSTATS DO NOT SUPPORT THE FOLLOWING FEATURES:**

**Auto Thermostat Detection:** Thermostat need to be added individually.

Any feature not specifically noted as “supported” is not supported.

## **INSTALLATION OVERVIEW**

1. Install the Aprilaire WiFi thermostat and control cables during the rough-in phase. Consult the **Aprilaire Documentation for your model** for details and control cabling requirements. This document and others pertaining to this system can be found at [www.aprlairecontractor.com](http://www.aprlairecontractor.com).
2. Mount and connect the thermostats bases according to the manufacturer's instructions.
3. Thermostat power wiring:  
The 8800 thermostats are powered by the distribution panel. Refer to the Aprilaire document referenced above for details.
4. Recheck the wiring on both at the thermostat and the Distribution Panel.
5. Install and power up the thermostats one at a time, while noting the thermostat locations on the inside of the cover for the corresponding Distribution Panel. Program the thermostats as outlined in the thermostat programming section below. Do not turn on the A and B switches at this time.
6. Test the thermostat and climate system to ensure that the thermostats correctly turn on the appropriate heating or cooling equipment, and open or close the appropriate valves / dampers.
7. Configure the **Niles Auriel** system for the thermostats and confirm communication between the thermostats and the Controller.
8. Test the system by changing the set points on the viewer and various thermostats, confirming that the various components in the system are communicating with each other.

**NOTE: After upgrading your Niles Auriel core module, it may take up to 2 minutes for Niles Auriel to reestablish communication with the thermostat. Until communication is reestablished, the Aprilaire 8800 series WiFi Thermostats will show as being in an OFFLINE state.**

## **1. PHYSICAL INSTALLATION:**

1. For the physical installation of your specific thermostat, please refer to the following link. [Installation Instructions](#)
2. Select the installation manual for your thermostat and follow its instructions. For example, we would have used the document "**Model 8820 Thermostat with Wi-Fi Installation Instructions**".

### **Automation Current Manuals**

[8819 Distribution Panel Specification Sheet](#)  
[Aprilaire Model 8800 Communicating Thermostats Programmers Manual](#)  
[8826 System Controller Installation and User Manual](#)  
[New Model 8081/8082 Support Module Installation Instructions \(Rev. 3/2012\)](#)  
[Model 8800 Owners Manual \(Product Shipped after 12/15/11\)](#)  
[Model 8800 Installation Instructions \(Products Shipped after 12/15/11\)](#)  
[Model 8800/8819 System Installation Instructions Manual \(Products Shipped after 12/15/11\)](#)  
[New Aprilaire Model 8811 Installation Instructions](#)  
[Model 8810 Thermostat with Wi-Fi Owners Manual](#)  
[Model 8810 Thermostat with Wi-Fi Installation Instructions](#)  
[Model 8820 Thermostat with Wi-Fi Owners Manual](#)  
  
[Model 8820 Thermostat with Wi-Fi Installation Instructions](#)  
[Model 8830 Home Comfort Control Communicating Thermostat Owners Manual](#)  
[Model 8830 Home Comfort Control Communicating Thermostat Installation Instructions](#)

## **2. THERMOSTAT PROGRAMMING:**

***Please perform the following instructions for each of your thermostats individually.***

Once your thermostat is powered up and running properly, you need to make a few changes to its settings in order to properly integrate with the Niles Auriel System.

### **2.1.1 Wi-Fi Setup Overview:**

Configuring your Aprilaire thermostats network settings involves the following.

1. Turn your thermostat into a Wi-Fi hotspot.
2. Connect a wireless device to your thermostat's Wi-Fi hotspot as a wireless IP client.
3. Connect to your thermostat's web interface.
4. In this web interface, configure your thermostat to become a client on your network.

The subsequent steps will tell you in detail how to do this.

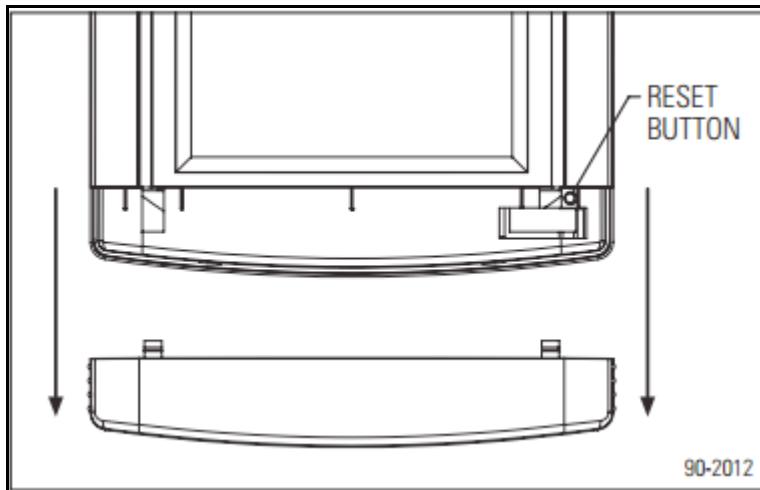
### **2.1.2 Turn Your Thermostat Into a Wi-Fi Hotspot**

#### **2.1.3 Factory Reset:**

Before you begin, it's recommended that you factory reset your thermostat. This will also turn your thermostat into a hotspot.

You will find a reset button, under the cover, on the front of your thermostat. This button will be used to reset your thermostat to factory default settings.

1. Press and hold the reset button for 10 seconds then release.



2. Your thermostat should now be at its factory default settings.

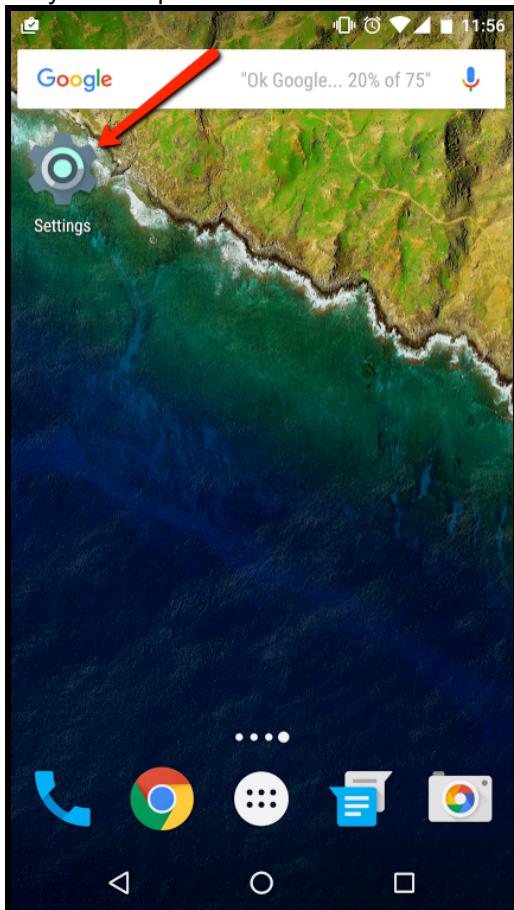
3. Your thermostat by default will be in Wi-Fi Connection Mode. To confirm that your thermostat is in Wi-Fi Connection Mode verify that the radio bars on your thermostat are strobing as shown below.



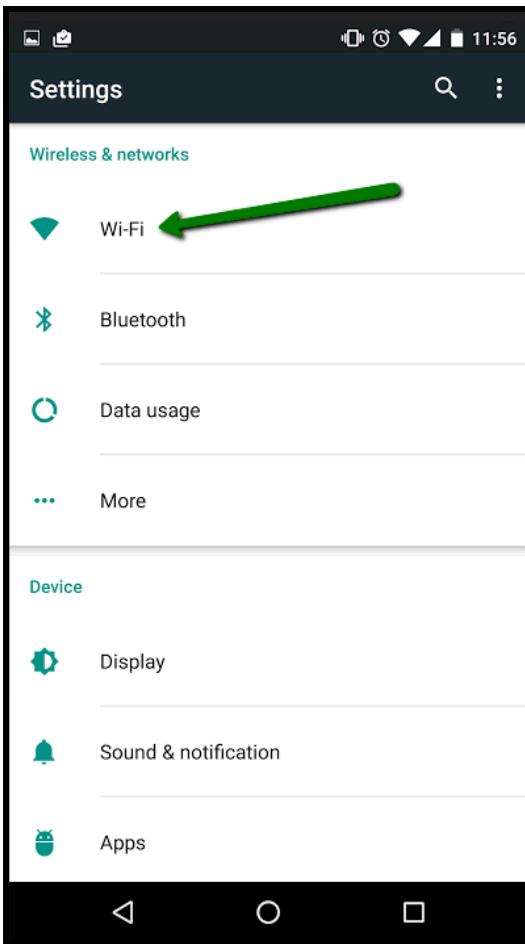
#### **2.1.4 Connect a Wireless Device to Your Thermostat's Wi-Fi Hotspot as a Wireless IP Client:**

We will be using an Android device as our example. Your exact setup will most likely be different but the idea remains the same.

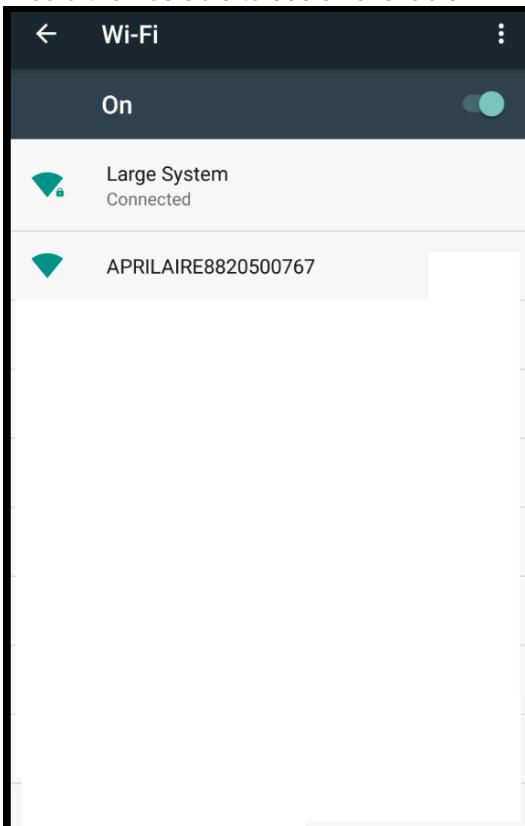
1. On your computer or mobile device scan for available Wi-Fi networks. On Android, you would click Settings.



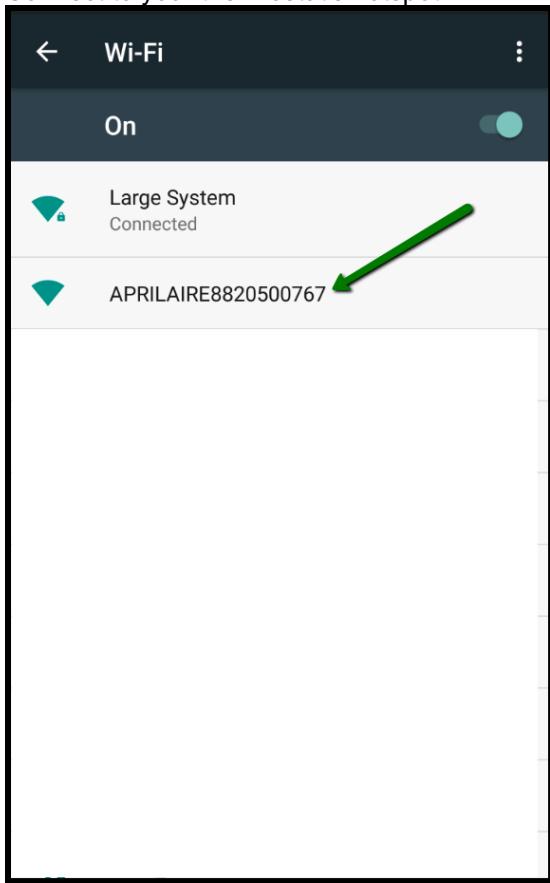
2. Then select Wi-Fi.



You would then be able to see all available Wi-Fi networks available to you.



3. Your thermostat's hotspot should appear as **APRILAIRE8820** followed by a unique identifier corresponding to the last 6 digits of its MAC address.
4. Connect to your thermostat's hotspot.



If you are installing multiple thermostats, the MAC address of each thermostat will be displayed in the message center on the display of the thermostat. This information can be used to identify each individual thermostat when scanning for wireless networks.

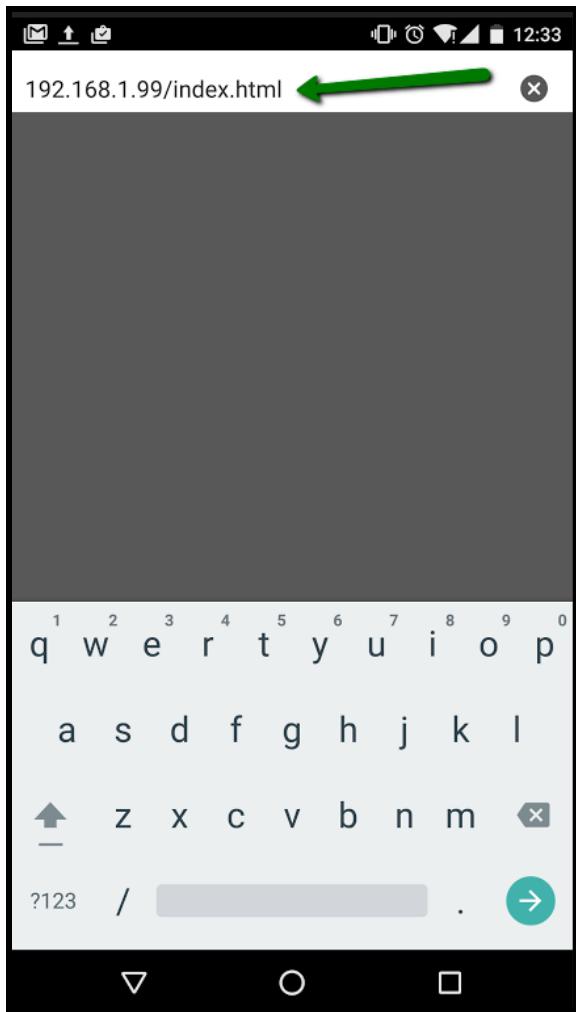
The MAC address can also be discovered by removing the cover on the front of the thermostat.

## ***Connect to Your Thermostat's Web Interface:***

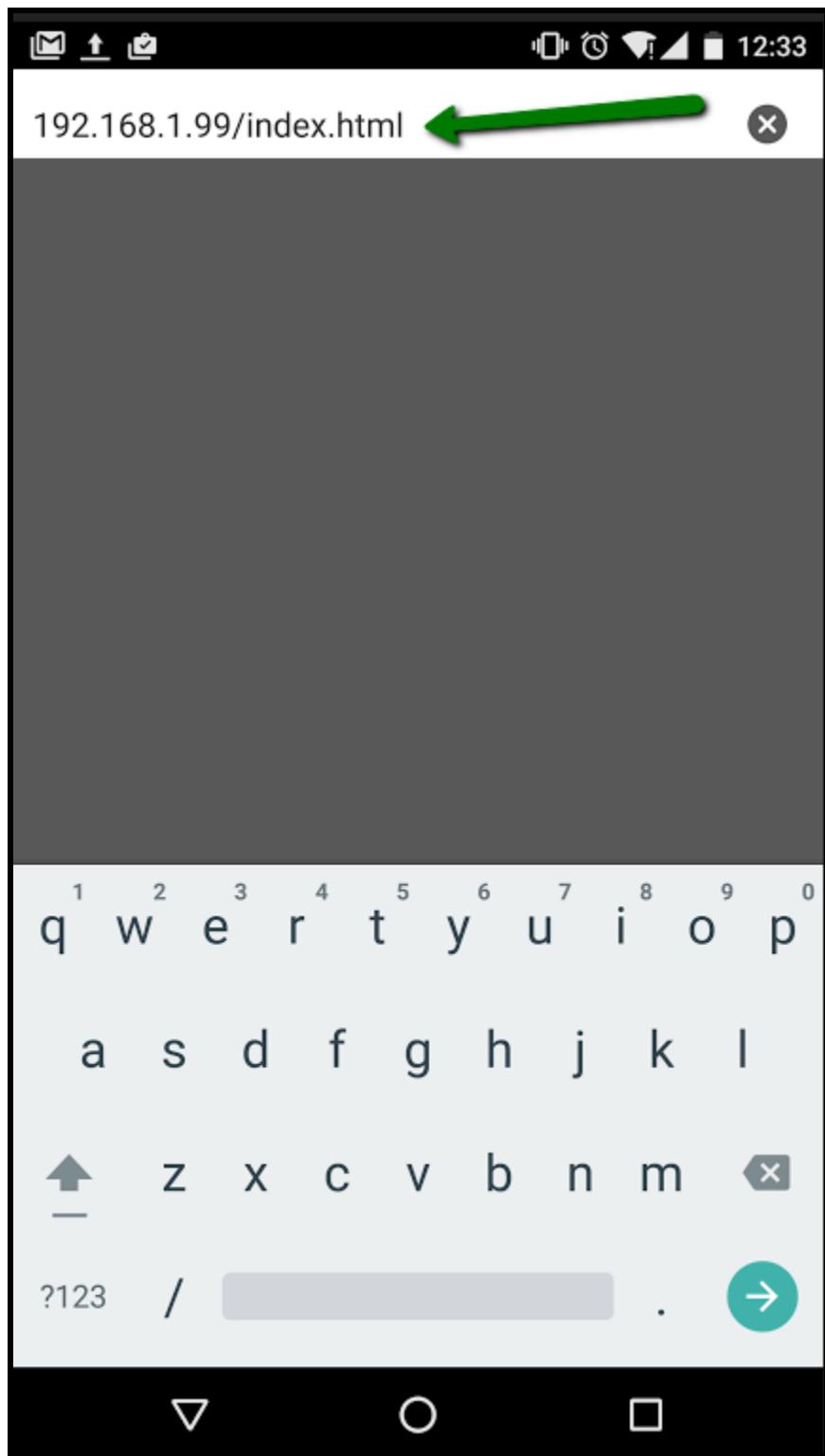
1. Open a web browser on your computer or mobile device.



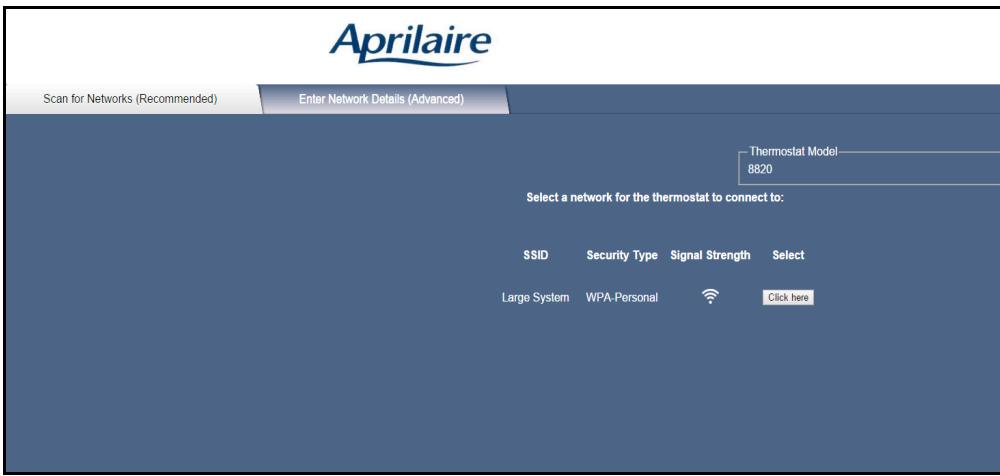
2. In the browser enter: <http://192.168.1.99/index.html>



***Configure the Thermostat to Become an IP Client on Your Wireless Network:***



1. You should see the following web interface after entering **http://192.168.1.99/index.html** into a web browser's URL box.

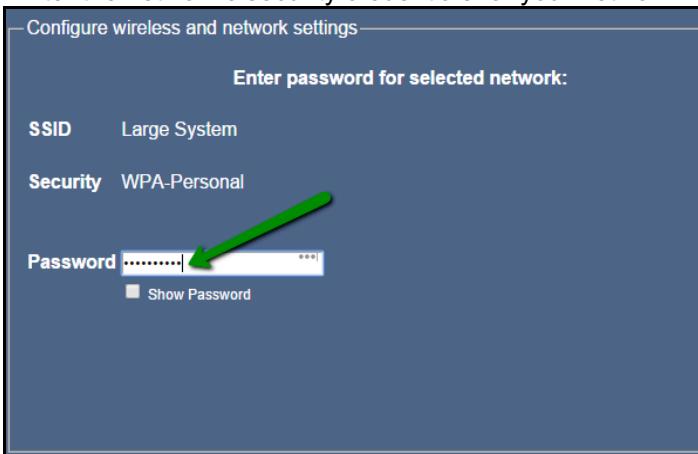


2. In this interface, select the network that you want your thermostat to connect

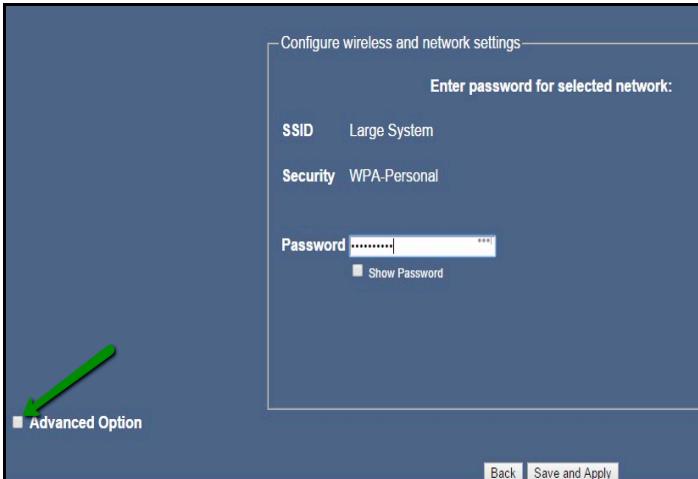


to.

3. Enter the network's security credentials for your network.

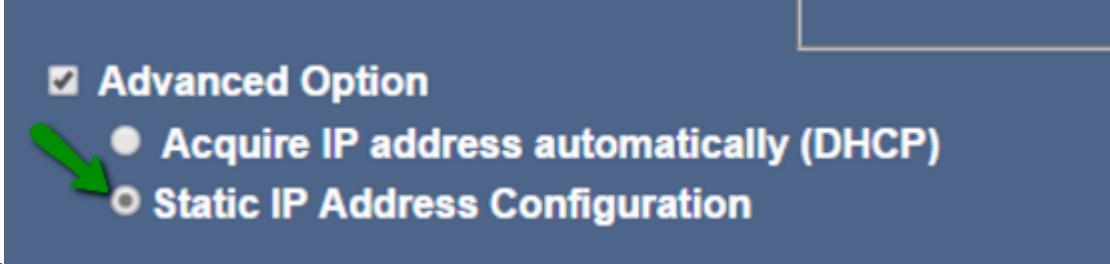


6. Check the “Advanced Options” check box.



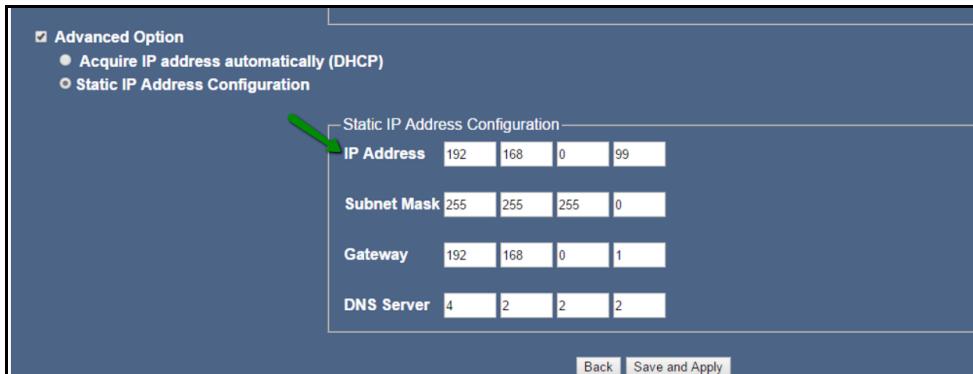
7.

Click the “Static IP Address Configuration” radio



button.

- Now enter the appropriate IP information for your network. Take note of the IP address that you assigned to your thermostat.



Static IP Address Configuration			
IP Address	192	168	0
			99
Subnet Mask	255	255	255
			0
Gateway	192	168	0
			1
DNS Server	4	2	2
			2

Back | Save and Apply

- Press “Save and Apply”

## **2.1.5 Verify the Thermostat is Connected to Your Wi-Fi Network:**

- Once all the required information is entered in the web browser interface, your thermostat should connect to the Wi-Fi network that you previously selected.
- After your thermostat is connected to your Wi-Fi network, your thermostat will display radio bars based on the Wi-Fi signal strength of the network that its connected to.

### **APRILAIRE COMMON MISTAKES**

- Programming two thermostats with the same address. Each thermostat must have a unique network address.
- Bending the pins on the thermostat. Removing the thermostat from its base has a tendency to bend the pins. This can result in a poor connection when the thermostat is replaced in its base. Gently bend the pins so they are straight and square to correct the problem.
- Mounting the thermostat base on an uneven surface. Be sure the surface that the base is mounted to is flat. An uneven surface can cause connection issues when the thermostats are seated in the base.
- No Auto Mode: Auto Changeover must be enabled in the thermostat’s settings to allow “Auto” as an available mode in Niles Auriel.

## **APPENDIX 2: CONFIGURING COOLMASTER**

Manufacturer:	Coolmaster
Model Number(s):	<b>1000D, 2000S, 3000T 4000M, 7000F, 8000I, 9000H, NET</b>
Minimum Core Module Version:	2.0

### **OVERVIEW AND SUPPORTED FEATURES**

This driver allows a **Niles Auriel** system to communicate with a Coolmaster climate system via Ethernet.

#### **COOLMASTER CLIMATE SYSTEMS SUPPORT THE FOLLOWING FEATURES:**

Any feature not specifically noted as “supported” is not supported.

**Temperature Control:** Temperature control can be managed by the viewer. Temperature can be shown as either Fahrenheit or Celsius on the viewer interface, and show one decimal place or whole numbers only.

**Mode Control:** Depending on the Coolmaster interface being used, the modes Cool, Dry, Heat, Auto, Fan and Off may be supported.

**Fan Control:** Depending on the Coolmaster interface being used, Fan modes of Low, medium, High, Top and Auto may be supported.

**Device Discovery:** Discovery of connected devices.

**History View:** The history view shows the inside temperature, unit run times, and the current set point.

#### **COOLMASTER MODEL MODE SUPPORT:**

Model	Supported Climate Modes	Supported Fan Speed Modes
1000D	Off, Cool, Heat, Dry, Fan, Cool, Auto	Low, Medium, High
2000S	Off, Cool, Heat, Dry, Fan, Cool	Low, Medium, High, Auto
3000T	Off, Cool, Heat, Dry, Fan, Cool	Low, Medium, High, Auto
4000M	Off, Cool, Heat, Dry, Fan, Cool	Low, Medium, High, Auto, Top
7000F	Off, Cool, Heat, Dry, Fan, Cool	Low, Medium, High, Auto
8000I	Off, Cool, Heat, Dry, Fan, Cool	Low, Medium, High, Top
9000H	Off, Cool, Heat, Dry, Fan, Cool	Low, Medium, High
NET	Off, Cool, Heat, Dry, Fan, Cool, Auto	Low, Medium, High, Auto

### **CONFIGURATION OVERVIEW**

The Coolmaster climate system must first be installed and configured by a suitable qualified and experienced installer. Further information about Coolmaster installation can be found here: <http://www.coolautomation.com/>.

The CoolmasterNet Ethernet-controlled device can be configured to support multiple “lines” of thermostats. This is NOT supported in the driver. All thermostats must be installed on the same line, and the line number (“L1” – “L6”), must be defined in the driver’s properties.

#### Groups

Coolmaster systems use groups to allow several thermostats to be controlled together. If you have groups already defined in Coolmaster, these will be automatically detected when you discover devices in **Niles Auriel**. If a thermostat is assigned as a Group Master, all Group Slave thermostats will mirror any configuration changes made to the Group Master. You can then choose to display only the Group Master thermostat in the user interface.

## **COMMON MISTAKES**

- Not entering the correct IP address and port number into the driver properties.
- Not selecting the correct COM port in the driver properties.
- Not selecting the correct “line” number in the driver properties.

## **APPENDIX 3: CONFIGURING LUTRON RADIORA2**

<b>Manufacturer:</b>	Lutron
<b>Model Number(s):</b>	<b>RadioRA 2</b>
<b>Minimum Core Module Version:</b>	<b>Niles Auriel</b>
Comments:	RadioRA2 Software 0.9.17 or newer

### **OVERVIEW AND SUPPORTED FEATURES**

The Lutron RadioRA2 system is a wireless, RF based communicating lighting system.

**Installing a Lutron lighting system can be broken down into the following steps:**

- Work with the client to determine what lights will be controlled, where switches will be installed, and where keypads will be installed. Follow Lutron guidelines.
- Install and test the Lutron system, again according to Lutron standard procedures. See **Installation Overview** below for details on wiring the Lutron hardware to the **Niles Auriel** system.
- Program the Lutron system: refer to **Lutron Programming Overview** below. Also see the **Connection Diagrams** for details on communication setup.
- Integrate the lighting system into the **Niles Auriel** system and test proper operation. See **Niles Auriel Configuration Details** below.

#### **LUTRON LIGHTING SYSTEMS SUPPORT THE FOLLOWING FEATURES:**

**Lighting Control:** Control and feedback of lighting devices in the RadioRA2 system are supported.

**Switch Control:** Control and feedback of individual loads from virtual and simulated keypads.

**Devices Supported:** The devices in the table below are supported for control and feedback in the **Niles Auriel** system.

#### **LUTRON LIGHTING SYSTEMS DO NOT SUPPORT THE FOLLOWING FEATURES:**

Any feature not specifically noted as "supported" is not supported.

**Phantom Buttons:** Basic control of Phantom Buttons is available; however a Lutron software update has changed the abilities available and affected integration. See below.

**Virtual Keypads:** The system contains some pre-designed templates to emulate real Lutron keypads.

**Advanced Keypad/Phantom Button Types:** **Niles Auriel** controls basic Scene and Toggle buttons types only. Additional button types were added after the **Niles Auriel** driver was created and are not supported. In addition, this has affected control of Phantom buttons in RA2, which must now be controlled using the ON function as a toggle.

**Input/Output:** Control of Input/Outputs through devices like the VCRX is not supported.

**Devices not listed below:** RA2 Devices that are not listed in the table below are not compatible with control from the **Niles Auriel** System.

**Control types not listed above:** **Niles Auriel** controls RA2 devices in the subsystem category listed above. Other device types (HVAC, etc.) are not supported.

Supported Radio RA2 Devices	
Main Repeater/Aux Repeater	RR-MAIN-REP-WH, RR-AUX-REP-WH
Dimmers & Switches	RRD-6D, RRD-10D, RRD-10ND, RD-RD, RRD-3LD
Thermostats	LR-HVAC-1, LR-HWLV-HVAC
<i>Devices not present in this table are not supported</i>	

## INSTALLATION OVERVIEW

Installing a Lutron lighting system in conjunction with a **Niles Auriel** system includes the following steps:

- During the rough-in phase, **in addition** to the wire runs needed for the Lutron system, add a single Cat5 cable from the HomeWorks Processor to the **Niles Auriel** System Enclosure.
- Complete the Lutron installation, and test according to Lutron procedures.
- Terminate, test, and connect the Cat5 cable from the Lutron system and the **Niles Auriel** system.
- Configure the **Niles Auriel** system.

**IMPORTANT:** RadioRA2 systems must be programmed using RadioRA2 software, or they are not compatible with external control. Do NOT program manually with key-presses.

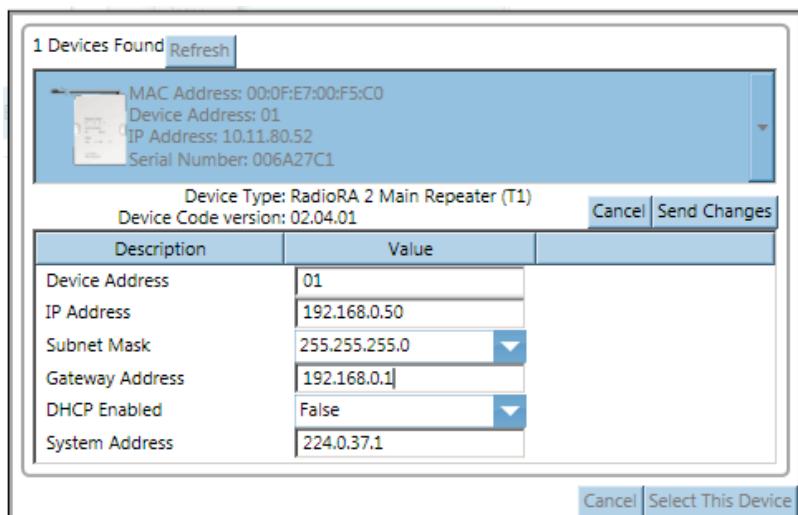
When done Programming, disconnect the PC used to program the RadioRA2 system. If it is left connected to the RadioRA system, the RadioRA system will not respond to Niles Auriel commands.

## LUTRON PROGRAMMING OVERVIEW

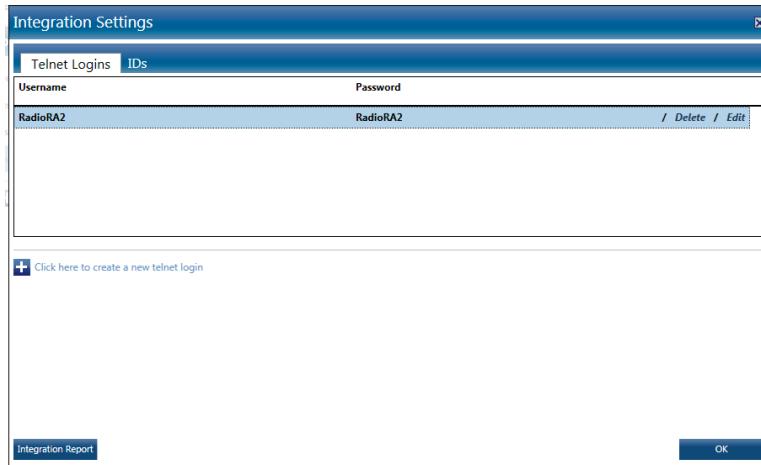
The Lutron RadioRA2 system must be fully programmed using Lutron software prior to integration with **Niles Auriel**. Program the RadioRA 2 according to standard Lutron programming procedures, with the following additional steps:

**Ethernet Control:** For reliable control, assign the Master Repeater a static IP address on the same network as the **Niles Auriel** Controller. Elan recommends assigning the first Ethernet Lighting Device to 192.168.0.50, the second to 192.168.0.51, and so on. You must also assign a login for Ethernet control.

- Assign the static IP during the “Design” phase of the programming.
- Find the repeater on the network using the “Find Main Repeater” button.
- When the repeater is found, click the Edit Details button to alter the IP information:
  - Set DHCP Enabled to FALSE.
  - Set the 1<sup>st</sup> lighting controller IP Address to 192.168.0.50, the second to 192.168.0.51 etc.
  - Subnet mask is typically set as 255.255.255.0
  - Enter the Router IP as the Gateway Address (Default: 192.168.0.1)
  - Finally, click the Send Changes button to assign the new settings.



- Enter a login and password under Settings>Integration.



- Enter the username and password as **RadioRA2**.
- Enable for Integration must be checked under the ID's tab for all devices if it is not already done (this should be the default setting.).

**IMPORTANT:** RadioRA2 systems must be programmed using RadioRA2 software, or they are not compatible with external control. Do NOT program manually with key-presses.

**When done Programming, disconnect the PC used to program the RadioRA2 system. If it is left connected to the RadioRA system, the RadioRA system will not respond to Niles Auriel commands.**

## **COMMON MISTAKES**

1. Failing to create the proper login for Ethernet control. You must enable a telnet login with username and password RadioRA2 as described above.
2. Incorrect Integration ID's. Ensure the ID's entered match the device you are trying to control. Note that sometimes Lutron assigns a new ID for each scene on a dimmer, but this number will not work from a **Niles Auriel** Dimmer device—the main unit ID must be used instead.
3. Leaving the RA2 system connected to the PC used to program it. RA2 will not respond to Niles Auriel Commands if the PC used to program it is still connected to the lighting system.