SERVICE BULLETIN

Goodman Air Conditioning & Heating

Amana Heating & Air Conditioning

SF – 079 Rev1

CoolCloud HVAC™ APP Technical Guide for Furnaces and Air Handlers
with integrated **ComfortBridge™** Controls

With the introduction of the **ComfortBridge** control platform we are releasing this Technical Support Guide for the **CoolCloud HVAC** APP. This guide was developed for the installer and service technician.

This Technical Guide should be used in conjunction with the installation manual for furnaces and air handlers featuring integrated **ComfortBridge** controls as a resource for proper set up when using the **CoolCloud HVAC** APP. The Installation manual supersedes this Service Bulletin SF-079Rev1 unless otherwise stated.

CoolCloud HVAC APP Technical Guide for the ComfortBridge Control Platform

Ctrl-Click on the Hyperlink above to move directly to that section.

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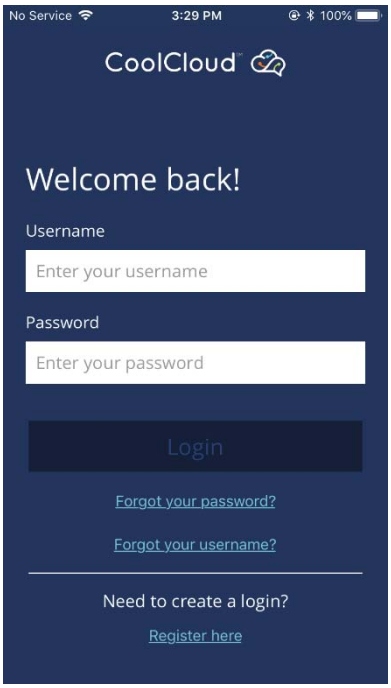
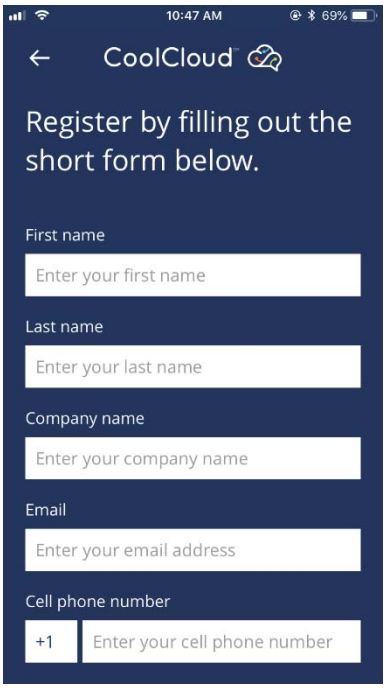
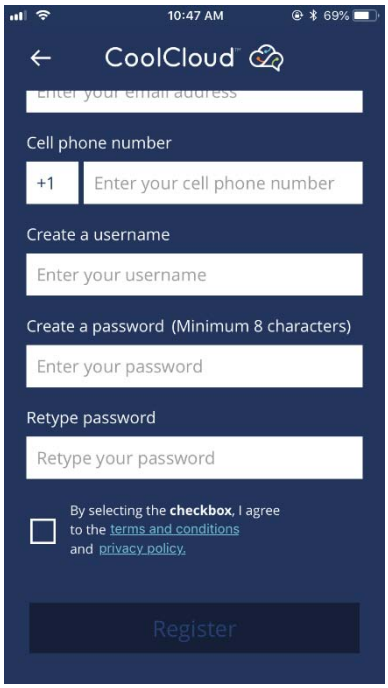
Part 1: Login and Registration Screens



Login Screen



Registration Form Top



Registration Form Bottom

When first opening the app the login screen is displayed; if the user already has an account, the login username and password can be entered at this time.

New users will first have to register for an account by providing the registration information above. Once completed and the *Register* button is depressed, a text message will be sent to the phone number provided containing a verification code. The user uses this code to verify the account. Once verified, the user will be brought back to the login screen where they can then log in with the username and password they just created.

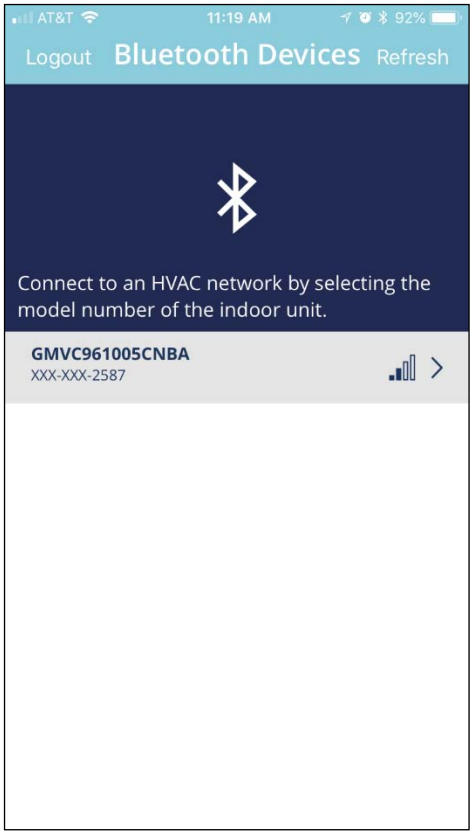
If the password is forgotten, the user can click on the "*Forgot your password?"* button below the login button. They will be prompted to provide their username. After providing their username, a text message will be sent to the phone number associated with their account containing a verification code. The verification code along with the new password will be required to reset the account.

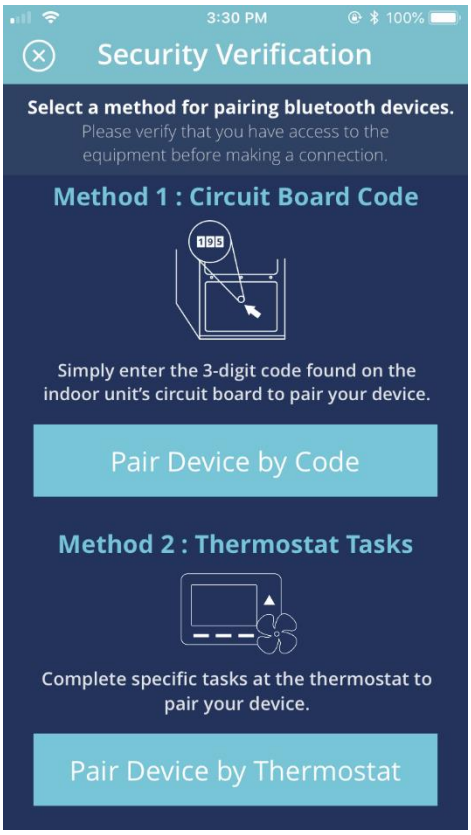
Important Note: Username information cannot be edited once selected by the user. If a user would like to make changes to the account information, a new account will need to be created.

The app will keep the user logged in as long as it can connect to the internet regularly to check for updates. The login will expire after the app has not been able to connect to the internet for 7 consecutive days, requiring the user to log in again. When traveling to a site where there may not be a reliable internet connection, be sure to

open the app before-hand somewhere where with a reliable internet connection and confirm the app has already been logged-in.

Part 2: Connecting to a Unit





After logging in, the user will be shown a list of indoor devices within **Bluetooth** range and have a connection available. Each unit can be identified by its model number and the Bluetooth board broadcast ID. A unit may not show up on the list if:

- It is out of **Bluetooth** range.
- Another user is connected to the same **Bluetooth** device.
- The indoor unit is experiencing a software issue.
- The unit is not powered on.

While rare, if the unit is experiencing software issues, the Bluetooth device may broadcast under a different name than expected. Here are three possible unexpected names and some information about the possible underlying software issues:

Furnace or Air Handler

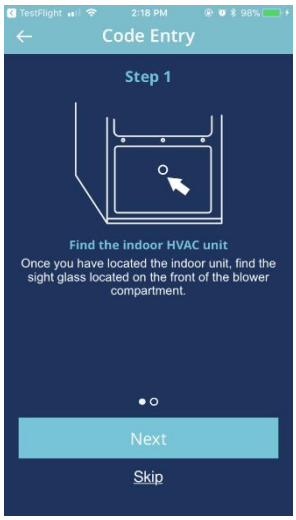
- The indoor unit is a furnace or air handler but its model number could not be retrieved.
  - In this case, the Bluetooth network will not be able to broadcast the model number and will broadcast default, unspecific values instead.
- This issue can be caused by a blower communication error or by a shared data mismatch.
  - The user should connect to the network and view the *Fault Code History* menu of the indoor unit for more information.

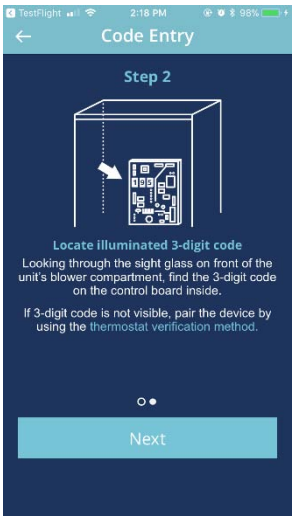
OTA Unknown

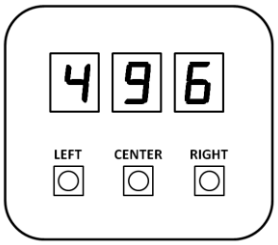
- A Bluetooth software update was attempted but was interrupted before completion.
  - The user should immediately connect and complete the software update process.

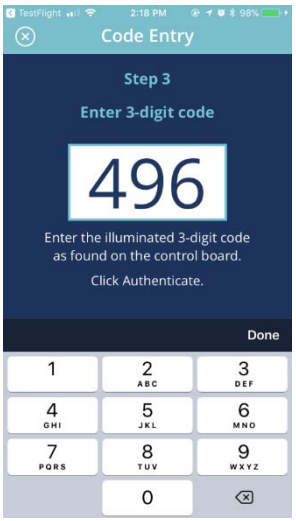
Once the user has identified the Bluetooth network (equipment) they would like to connect to, simply tap the equipment on the screen. This will push the user to the *Security Verification* screen shown on the previous page where they will be presented with two options to verify the connection.

Verification Method 1: Pair Device by Code









If the user chooses to pair using the *Pair Device by Code* method and the code on the indoor circuit board is visible, a 3-digit code will be displayed for pairing at the indoor circuit board's 7-segment display.

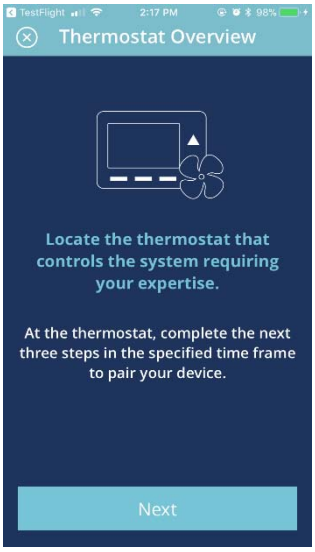
This is the same display used to change settings on the board through the board's three push buttons. If the code is not visible, the user can remove the front panel from the unit to see the code once the unit has been rebooted and

the door switch is depressed. The *Pair Device by Thermostat* method on the following page was designed and can be used as an alternative to removing the front panel, which could reset currently active fault codes.

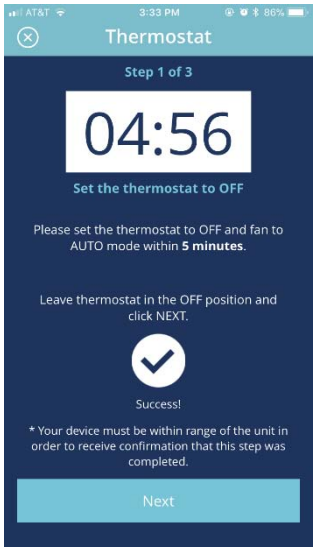
If power is interrupted to the board when the panel is removed and replaced, the device will be disconnected from Bluetooth and the user will need to restore power and wait for 30 seconds for the Bluetooth network to begin broadcasting again.

The user can make up to three consecutive inaccurate code attempts before and a new code will be displayed. Once the code is entered successfully the user will be brought to the System Overview screen.

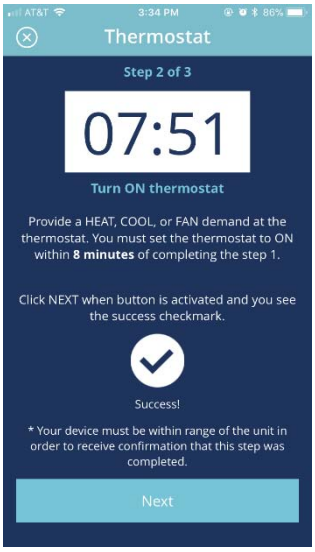
Verification Method 2: Pair Device by Thermostat



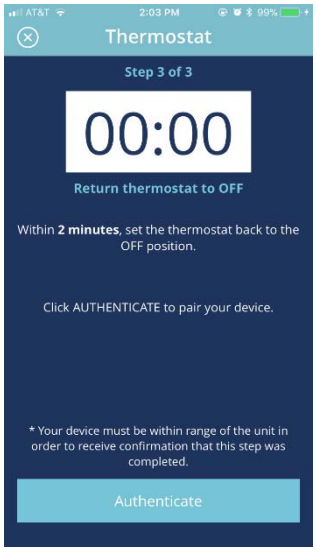
Task Screen 1



Task Screen 2



Task Screen 3



Task Screen 4

If the user chooses to connect using the *Pair Device by Thermostat* tasks method, they will need to locate the thermostat that controls the indoor unit they wish to connect to. In short, the user will have to turn the thermostat off, then on, and then off again within a certain time period. Here is a more detailed description of all the steps:

1. Select the unit you would like to connect to, select the thermostat tasks verification method, and locate the thermostat controlling the unit you are trying to connect to.
2. When ready, select "Next" (see *Task Screen 1* above) to start the first timer.
3. (*Task Screen 2* above) **Within 5 minutes**, ensure there are no calls (W, Y, G, etc.) coming from the thermostat. It may take 5 seconds for the controls to detect any changes. Once the control confirms there are no calls, the user will receive a "**Success!**" message and the "**Next**" button will become active. The user must click "**Next**" to move to the next task.
4. (*Task Screen 3* above) **Within 8 minutes**, use the thermostat to send any call to the unit. We recommend sending a G (constant fan) call as there typically aren't any on or off delays associated with these calls. It may take 5 seconds for the controls to detect any changes. Once the control confirms there is an active call,

the user will receive a "**Success!**" message and the "**Next**" button will become active. The user must click "**Next**" to move to the next task.

5. (*Task Screen 4* above) **Within 2 minutes**, remove all calls coming from the thermostat. It may take 5 seconds for the controls to detect any changes. Once the control confirms there are no calls, the "**Authenticate**" button will become active.
6. Press "**Authenticate**" to complete the connection process.

If a user fails to complete the *Pair Device by Thermostat* task verification method on their first attempt, they will be brought back to the overview screen (*Task Screen 1*).

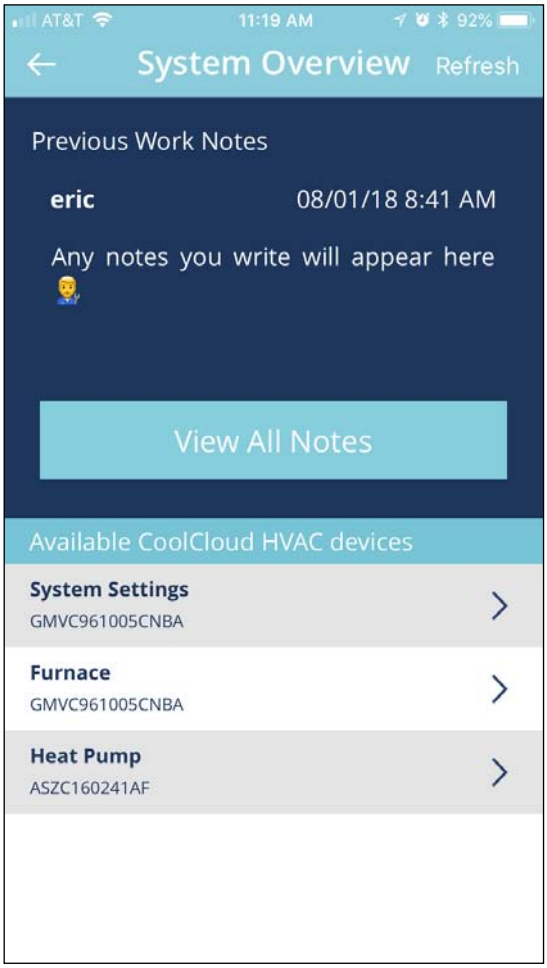
Software Updates

Once the user has successfully connected to a unit and verified their connection, they may be asked to update the software on the Bluetooth Module. They may skip any optional updates, but must apply mandatory updates before continuing. If they update the software on the Bluetooth module, they will be disconnected from the network after the update is complete.

Staying Connected

Once the user has successfully connected to a Bluetooth network, the phone app will remember that unit. The next time they want to connect to the same unit, they will not be asked to re-verify their connection. The connection will be remembered even if the indoor unit is temporarily disconnected from power or if the user updates software on the Bluetooth module.

This connection will be remembered for 8 hours or until the user connects to a different unit, whichever comes first.



Part 3: The System Overview Screen

Once the user has successfully connected to a unit and completed any software updates, they will be brought to the System Overview screen. This screen contains a list of devices connected to the system, as well as any Notes that other users may have left during previous visits to the site.

The items listed on this screen will usually appear in the same order, though this is not a guarantee. The usual order is:

1. System Settings, along with the model number of the indoor unit
2. The indoor unit type (Furnace or Air Handler) and the model number of the indoor unit
3. The outdoor unit type and the model number of the outdoor unit

Communicating outdoor units will appear on this list as an AC or Heat Pump with the model number of the unit displayed beneath it. For example, in the screenshot on the top right we can see the heat pump unit connected to this system is a communicating heat pump with the model number ASZC160241AF.

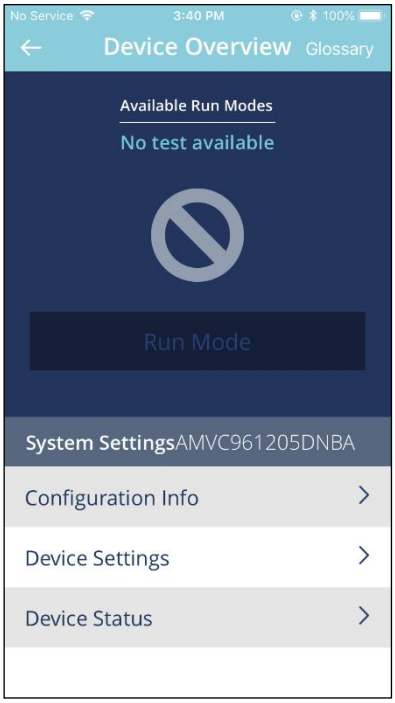
The outdoor unit may also appear as "*Click to Setup Non-Comm Outdoor*" with "*24V Outdoor*" displayed beneath it. This means that the indoor unit could not detect a communicating outdoor unit connected to its 1-2-R-C terminal block. If a non-communicating outdoor unit is installed as part of this system, it will be necessary for the installer to manually configure the settings for this unit using its device specific menus. See Part 5: Setting Up a Non-Communicating System for more information on how to configure systems with a non-communicating outdoor unit.

In rare cases the screen may say "It looks like the system is still booting up, please wait a few seconds and refresh this page." The user can refresh the page by selecting *Refresh* in the upper right hand side of the screen until the device list is visible.

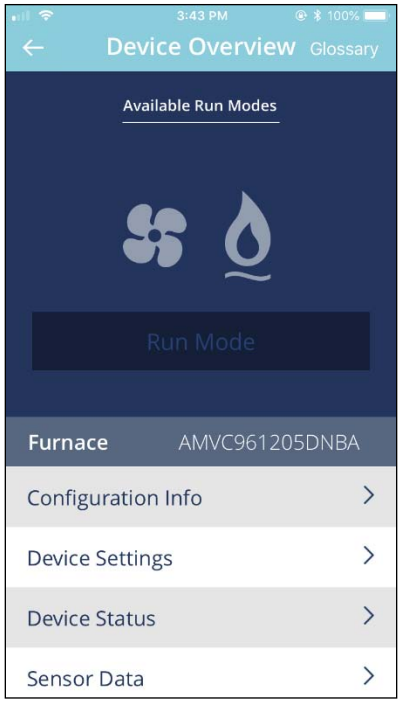
If the user does not see the model number of the indoor unit listed here, it may be necessary to correct an active fault condition on the indoor unit. The active fault will be visible in the *FAULT CODE HISTORY* section of the app and is detailed later. The user can navigate to the *FAULT CODE HISTORY* menu for the indoor unit to find more information on the active fault along with possible solutions. Some menus may not be available until the fault condition is corrected.

If the user installed a communicating outdoor unit, but *24V Outdoor* is being displayed beneath the outdoor unit type, then the communicating outdoor unit has not yet been detected. This may be due to a natural time delay for the communicating outdoor unit to be detected, which could last up to 90 seconds. If the outdoor unit has not been detected after 90 seconds then the user should check polarity of the communication wires between the indoor and outdoor unit (check that lines 1 and 2 on the 1-2-R-C terminal block are not swapped).

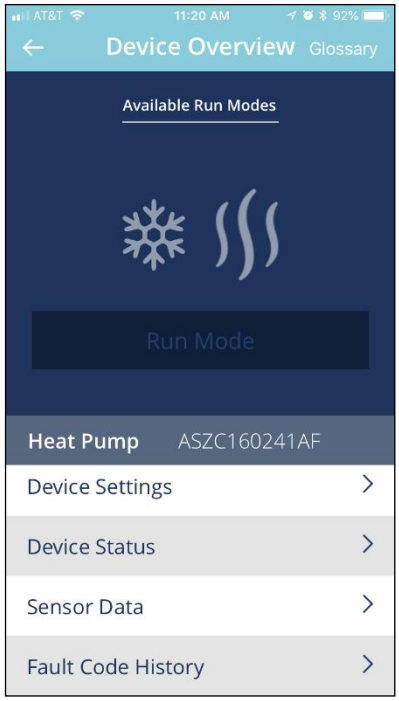
Part 4: Viewing Unit Information



Device Overview 1



Device Overview 2



Device Overview 3

Selecting any unit from the System Overview screen will take the user to the Device Overview screen. From here the user can run the unit in any available run mode or view more detailed information about the equipment.

Run Modes

Run Modes allow independent testing of specific operational modes. Each unit has a specific set of *Run Modes*, a furnace (see *Device Overview 2*) has constant fan and gas heat run modes. A heat pump (*Device Overview 3*) has cooling and heat pump heat run modes. An air handler will have the constant fan and electric heat run modes, and an air conditioner will have only the cooling run mode. Some devices, such as system settings (*Device Overview 1*), have no applicable run modes.

To run the selected unit in an available run mode, first select the desired mode and click *Run Mode* below the icon. The user can then choose a run mode capacity using the slider that appears on screen.

When activating a unit in the constant fan Run Mode, the capacity the user chooses is the percentage of maximum airflow that the unit will provide during the call. For all other run modes (gas heat, cooling, heat pump heat, and electric heat), the capacity selected represents the stage the user would like to run on the unit. All values less than or equal to 50% represent a low-stage call. All values greater than 50% represent a high-stage call. If the unit only supports single-stage operation, all values greater than 0% will activate the unit in the selected run mode.

Non-communicating outdoor units cannot be activated using run modes on the phone app. The device overview screen will still show the run modes that would typically be available on these units, but activating these run modes from the app will not cause the outdoor unit to engage. Instead, activating these run modes will cause the indoor unit to provide the airflow that it would normally provide if the outdoor unit was running in the given mode. This can be useful for confirming the indoor unit's airflow settings for cooling and heat pump heating modes.

Once the desired capacity has been selected the user can click *Run Mode* again to start the run mode sequence.

A timer will appear on-screen counting up. This timer will continue running until the user chooses to stop the run mode or they leave the application. The user can look at unit-specific menus for the selected unit while the test mode is active but will not be able to view information about other units without stopping the run mode on the current unit first.

The user can stop the run mode by pressing the *Stop Mode* button that replaces the *Run Mode* button.

If the unit continues running in a *Run Mode* when it appears the phone app has stopped *Run Mode* operation, the user can safely disconnect their app from the unit and the run mode will expire on its own after at most 5 minutes.

Unit-Specific Menus

There are currently six unit-specific menus:

1. Configuration Info
2. Device Settings
3. Device Status
4. Sensor Data
5. Fault Code History
6. Shared Data

The user may select any available unit-specific menu to see what extra information is available for that device. The following sections will cover what kinds of information the user should expect to see under each unit-specific menu.

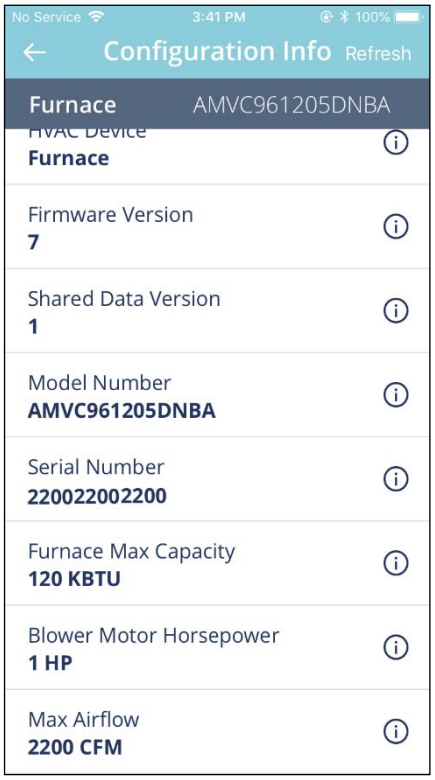
In general, if a user is attempting to view a unit-specific menu but it is taking a long time to load the menu or no menu loads, it is possible the user needs to either refresh the *System Overview* screen, force-close the application and reconnect to the system, or reboot power to the indoor equipment in that order.

Viewing Configuration Info

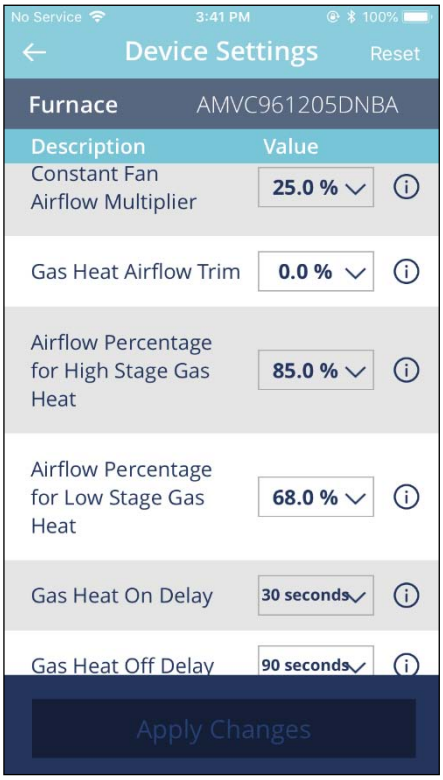
Retrieving the configuration info from a particular unit will show information from the unit that does not and cannot be changed, such as the equipment model number. This is useful for confirming shared data information and determining the max airflow of the indoor unit (see *Configuration Info* menu above). If the model number of the equipment is present in the *Configuration Info* menu then the equipment control board contains valid shared data. The user may select the (i) icon to the right of each menu item to view the glossary entry for that item.

Viewing and Changing Device Settings

Viewing the *Device Settings* menu will show the user a list of the user-modifiable settings that relate to the given unit. To change these settings, the user must click the box, use the selection tool and select the desired value for that setting. Once the user has made all of their desired setting changes, they must click the visible *Apply Changes* button at the bottom of the screen for the change to take effect. Some setting changes may cause new settings to become available. The user may have to return to the *Device Overview* screen or select *Refresh* to view any new settings. The user can press the *Reset* button in the upper right hand corner to clear any unwanted changes.



Configuration Info Menu

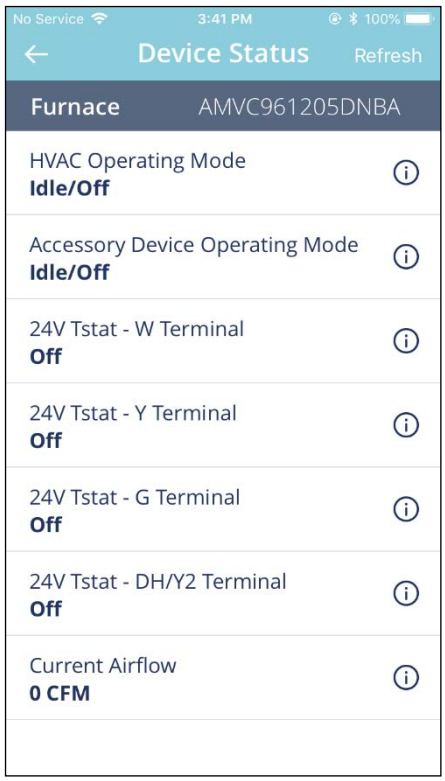


Device Settings Menu

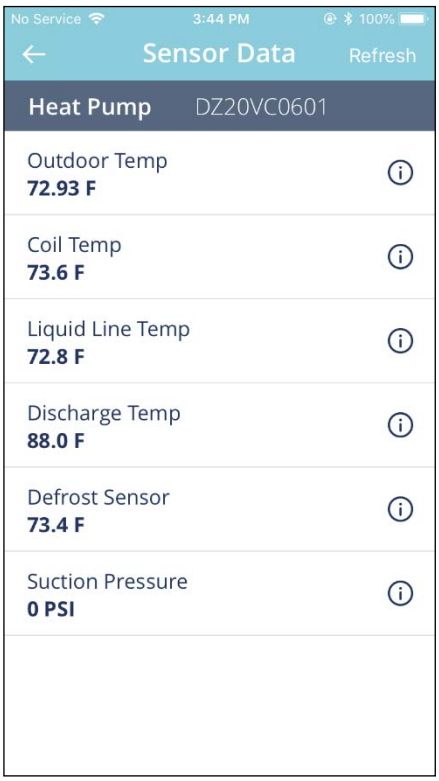
Viewing

Device Status

The *Device Status* menu will show any available information about what inputs are currently being sent to the unit and what operational characteristics are being deployed to the heating and cooling equipment. This information does not automatically refresh and must be refreshed using the *Refresh* button to see updated values.



Device Status Menu

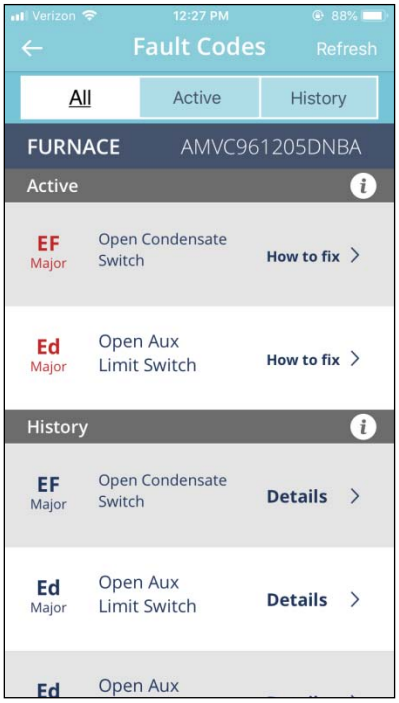


Sensor Data Menu

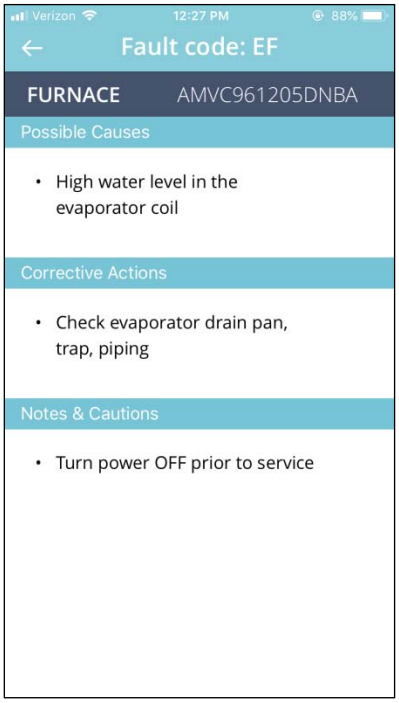
Viewing Sensor Data

If there are any sensors connected to the unit, information from those sensors will be displayed here. Currently the only units that will have sensor information are communicating outdoor units. This information does not automatically refresh and must be refreshed using the *Refresh* button to see updated values.

Viewing Fault Code History



Fault Codes



"How-to-fix" Example

The user can view any active or history faults produced by the unit in the *Fault Code History* menu. If there are any active faults, a *How-to-fix* button will appear next to the fault. Pressing this button will open up more information on the fault code with information about possible causes, corrective actions, and notes/cautions.

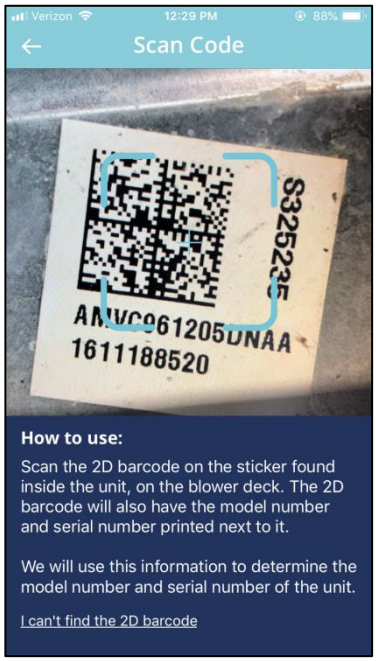
History Faults will appear beneath the Active faults on this screen. These faults are the last 6 faults stored in memory on the device. Though these faults are not active, they may still be caused by an ongoing issue with the unit. Opening the *Details* for these faults will display the same information that is displayed in the *How-to-fix* menu. Faults are displayed differently when using a tablet.

The faults displayed on each device's *Fault Code History* menu are faults for that device only. When multiple units are available at the same site the user should go to each device's *Fault Code History* menu to ensure there are no active faults affecting any of the units connected to the system.

Non-communicating outdoor units have no communication capabilities and will never report active or history faults in the app.

Shared Data

Shared Data Update Available



Barcode Scanner

Manually Select a Model Number

If a unit supports shared data, the app will display a Shared Data menu on the Device Overview screen for that unit. When the user selects Shared Data from this menu, the app will check for any Shared Data updates that may be available for that unit. If the app determines that the Shared Data of the unit is already up-to-date and the model number provided by the app is accurate, there is no reason to continue with the Shared Data update process.

If the app determines that the unit has outdated shared data, or no shared data, the user can proceed with the shared data update process. Note, however, that this will reset all previous settings on the unit. This includes any setting changes made for non-communicating outdoor units, which will have to be reconfigured after any shared data update.

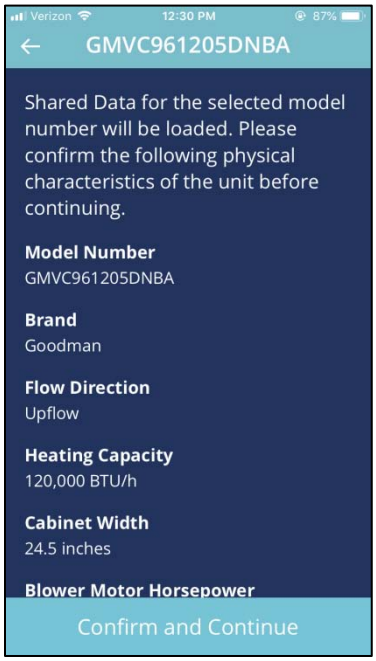
First, the user must choose whether they would like to use the camera on their device to scan the factory 2D barcode which can be found on the unit or manually select the unit's model number from a list of available device models. Using the camera is recommended to avoid the possibility of loading invalid Shared Data, which has the potential to interfere with normal system performance and void the device's warranty.

To use the camera, first locate the 2D barcode on the unit. The barcode can typically be found on the blower deck, however, accessing this sticker may involve removing the front panel from the unit. If this is the case, the user will have to remove the panel, depress the door switch, and allow enough time for the unit to reboot before reconnecting the app to continue. Once the 2D barcode has been found, the user can select "Use Camera" on the left-most screen above to open the app's barcode scanner (middle screen above). Center the capture tool over the 2D barcode, the app will capture the barcode once it comes into focus. If the camera is too close for the barcode to

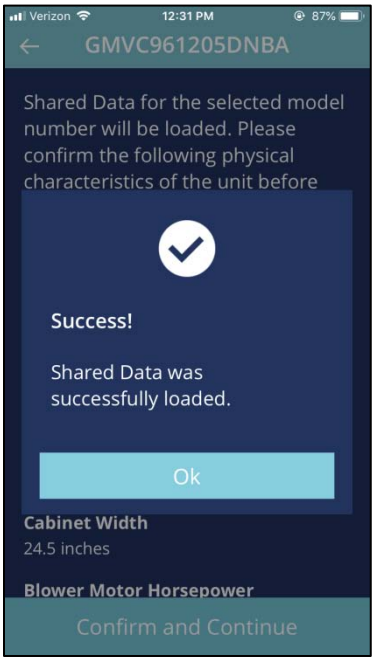
come into focus, it may be necessary to adjust the position of the phone/mobile device until the camera can focus on the 2D barcode.

If the 2D barcode cannot be scanned, it may be necessary to manually select the model number of the unit. In this case, the user can select “Manually Enter Unit Info” on the left-most screen above. The user can then scroll through all available model numbers to find the one they need. The user can type in part of the model number to filter the list.

After providing the model number (either with the camera or by manually selecting it), the user will be brought to a confirmation screen where they can review details about the unit and confirm that the correct model number was selected. See below image for an example of this confirmation screen.



Model Number Confirmation



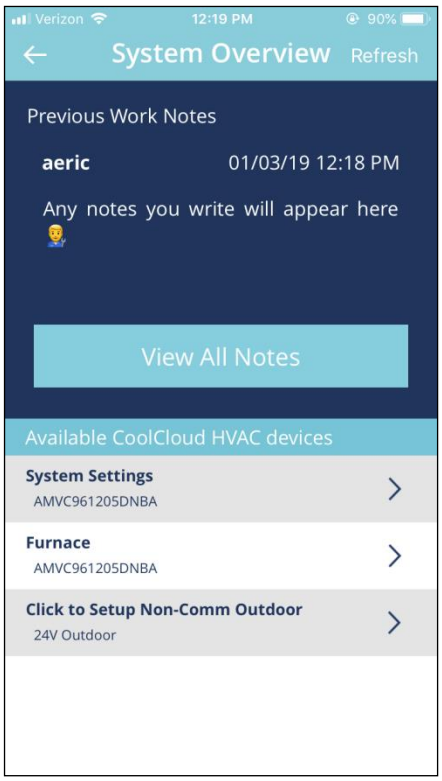
Success!

Once the user has confirmed the selected model number is accurate, they may press the “Confirm and Continue” button at the bottom of the screen. This will start the Shared Data update process which may take up to 30 seconds. Once the process is complete, the user will receive a “Success!” message and be brought back to the Device Overview screen.

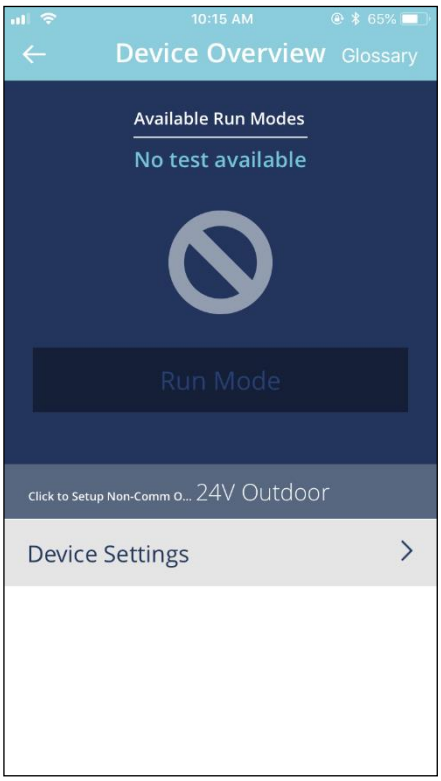
Part 5: Setting Up a Non-Communicating System

This section will explain how to set up non-communicating outdoor equipment. This will only cover what needs to be done on the phone app to complete system setup. See the indoor unit installation manual for other non-app setup requirements.

Setting up a non-communicating system



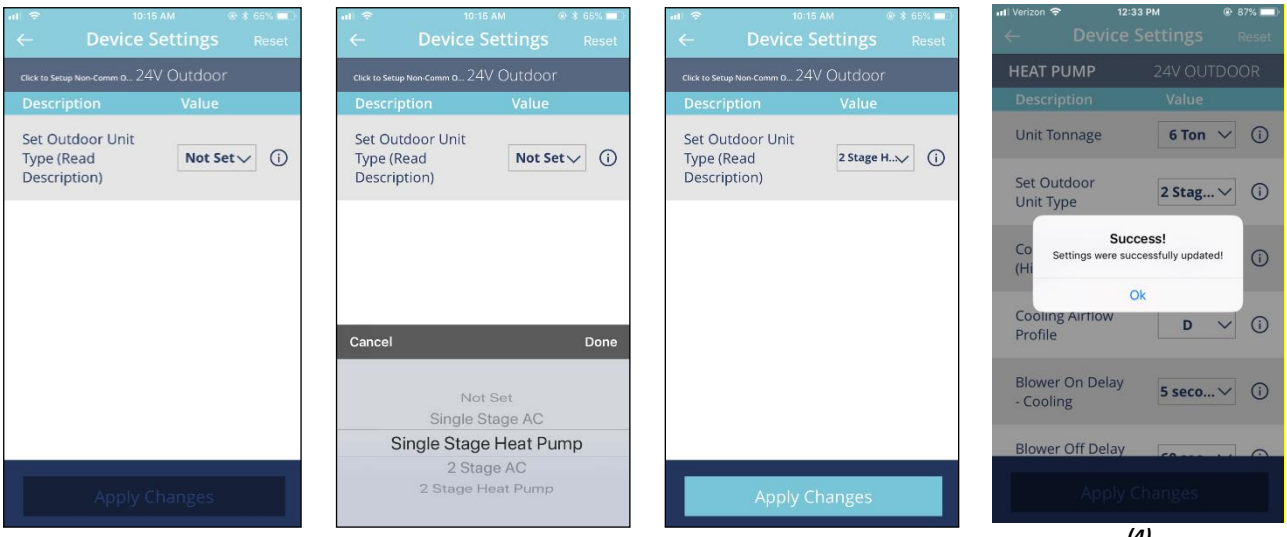
A System in need of Setup



Non-configured Outdoor Unit Device Overview

If a user has just installed a new system with a CoolCloud HVAC compatible indoor furnace and a non-communicating outdoor unit, their system's airflow will need to be configured through the phone app before the indoor unit can appropriately process calls made to the outdoor unit. This process includes setting the outdoor unit type and tonnage.

Selecting the *Click to Setup Non-Comm Outdoor* device from the *System Overview* list will take the user to the *Device Overview* screen for that unit where the only available menu is the *Device Settings* menu.



(1) *(2)* *(3)* *(4)*

(1) Select the drop down menu from the *Set Outdoor Unit Type* menu
(2) Select *Single Stage AC*, *Single Stage Heat Pump*, *2 Stage AC*, or *2 Stage Heat Pump*.
(3) Select *Apply Changes* at the bottom of the screen.
(4) The phone app will display a *Success!* message indicating the change has been applied. The selected unit type will also now be visible in the upper left hand side of the screen

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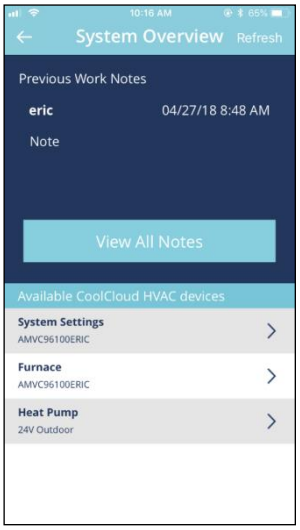
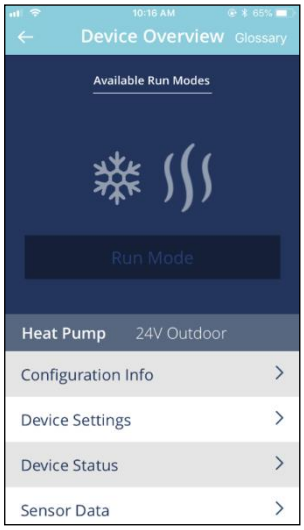
After this setting change is applied, the *Click to Setup Non-Comm Outdoor* unit will be replaced with the chosen unit type. The settings page the user is viewing will be updated to reflect these changes. The System Overview screen will also now display the unit type chosen previously.



Updated System Overview



Updated Device Overview

Unit Tonnage Selection

Once the new unit type setting has been applied, the tonnage selection for the outdoor unit will need to be confirmed. This can be found in the *Device Settings* menu of the selected outdoor unit (see the *Unit Tonnage Selection* screen image on the prior page). The indoor unit will use this value to calculate the airflow to provide during high-stage calls to the outdoor unit. The indoor unit will provide 400 CFM/Ton and provides tonnage settings in increments of 0.1 Tons (40 CFM).

For example, selecting the 3 Ton setting means the indoor unit will provide 1200 CFM of airflow during a high stage call to the outdoor unit.