



BBN BACnet Setup - Local Control

BubblyNet BACnet, Touchscreen Controls System, Gateway

Owner: BubblyNet LLC

Author: Joe Gorecki

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Documentation for System Setup:

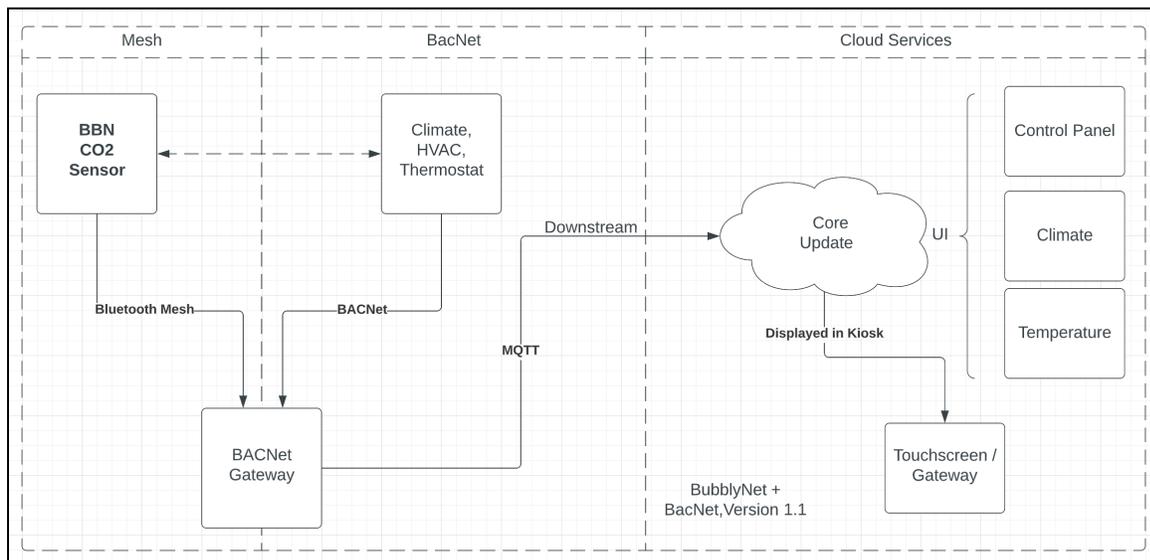
This document is an instruction set for installing and customizing a BubblyNet touchscreen with **Local Control Touchscreen** and configuring a control panel for deployment with a BACnet component. Please see the **BBN Local Control Setup Guide** for additional steps.

The sample used for screenshots in this document are of a 7" screen in landscape mode and the Cloud control system in a browser. All steps for any size or orientation are the same.

Configuration on a Local Control Panel is a three step process. Create the BACnet network, create the control panel for the touch screen, and then access the control panel for daily usage.

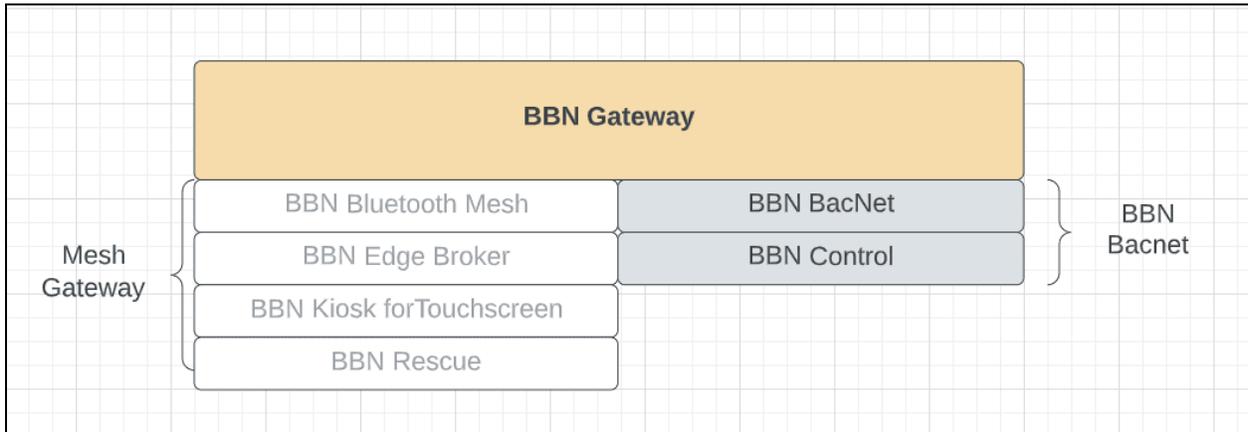
Step 1: Configure the BACnet software

Warning! BACnet objects should be aligned with the touchscreen group or the HVAC system will not work correctly.



A BubblyNet CO2 sensor is used to demonstrate the Mesh Interaction with the Gateway to the BACnet network.

A BubblyNet BACnet installation is an optional software system for addition to the BubblyNet Touchscreen system. It uses Cloud services or Local Gateway services to communicate with the mesh network and messaging systems. For more information please contact your sales representative.



Application Configuration

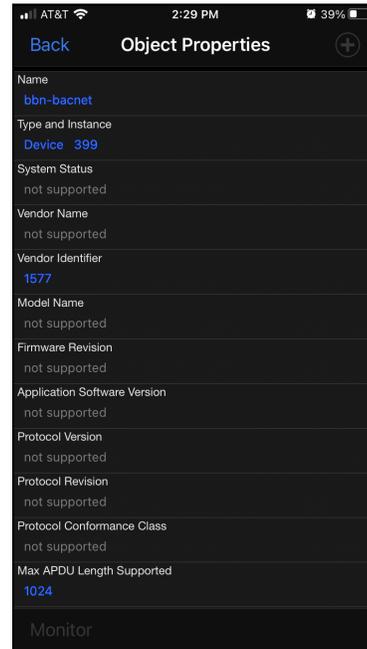
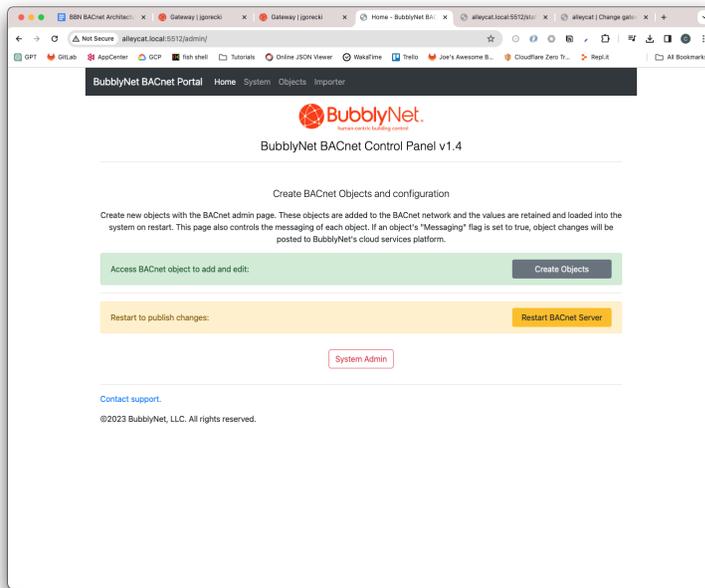
The BubblyNet BACnet Software uses BACnet-over-IP to interact with or create a BACnet network that a user can interact with using multiple input interfaces. It can range from a single home heating controller using a thermostat controlling a domestic boiler to large industrial control systems which are used for controlling processes or machines.

BubblyNet BACnet includes a Web based application for modifying the BACnet objects it reads and writes to and configures messaging to the BubblyNet Cloud Services portal or for local display and configuration. Below are screenshots of sample configurations and a BACnet explorer application in a side-by-side view.

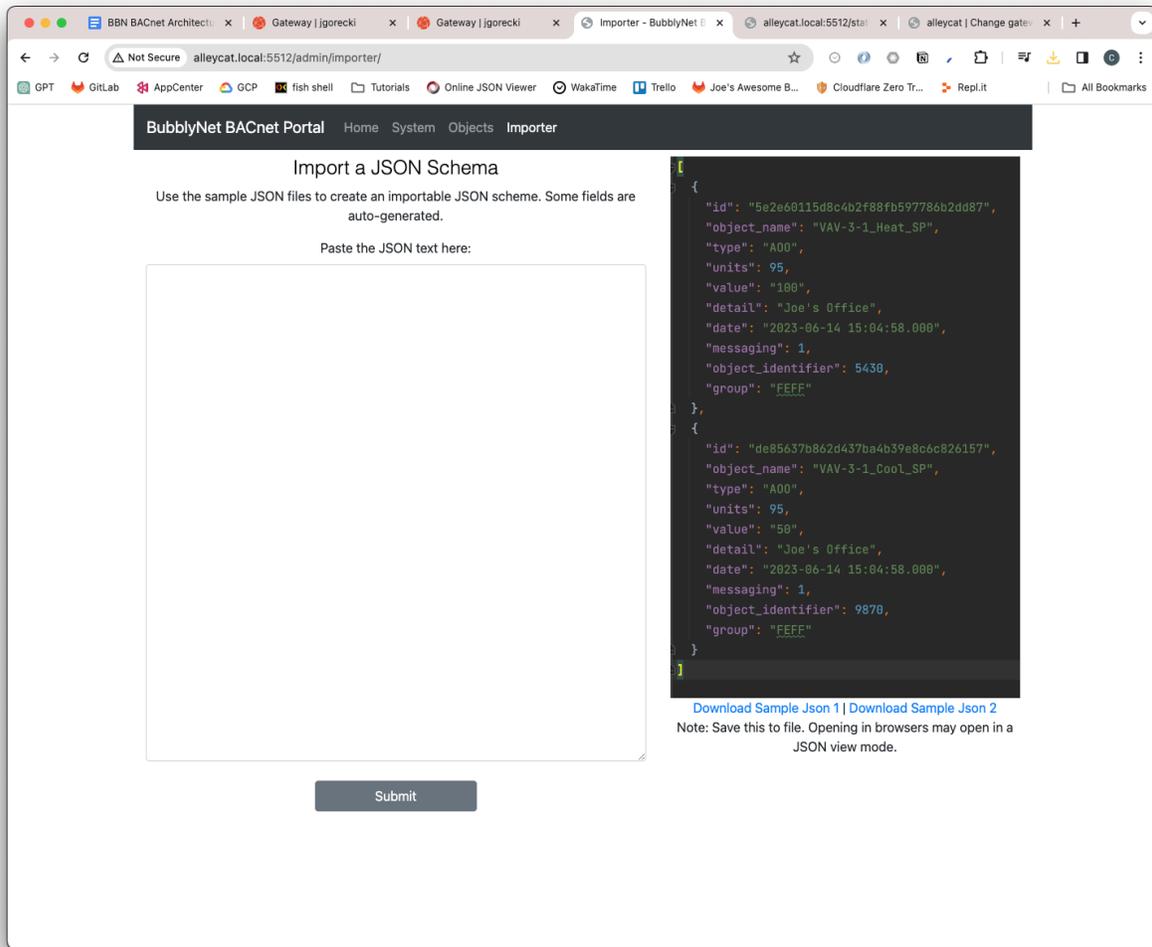
A BubblyNet BACnet can be configured as a local control panel with a set of objects for connection and control with that control panel. This allow the BubblyNet Touchscreen panel to monitor the BACnet network for changes.

An admin can access the Control Panel to create a BACnet device and objects for the gateway to serve or an map to messaging. A BACnet object can be modified by a BACnet system and the change will be displayed on the Touchscreen.

BBNControl Network Creation Tool



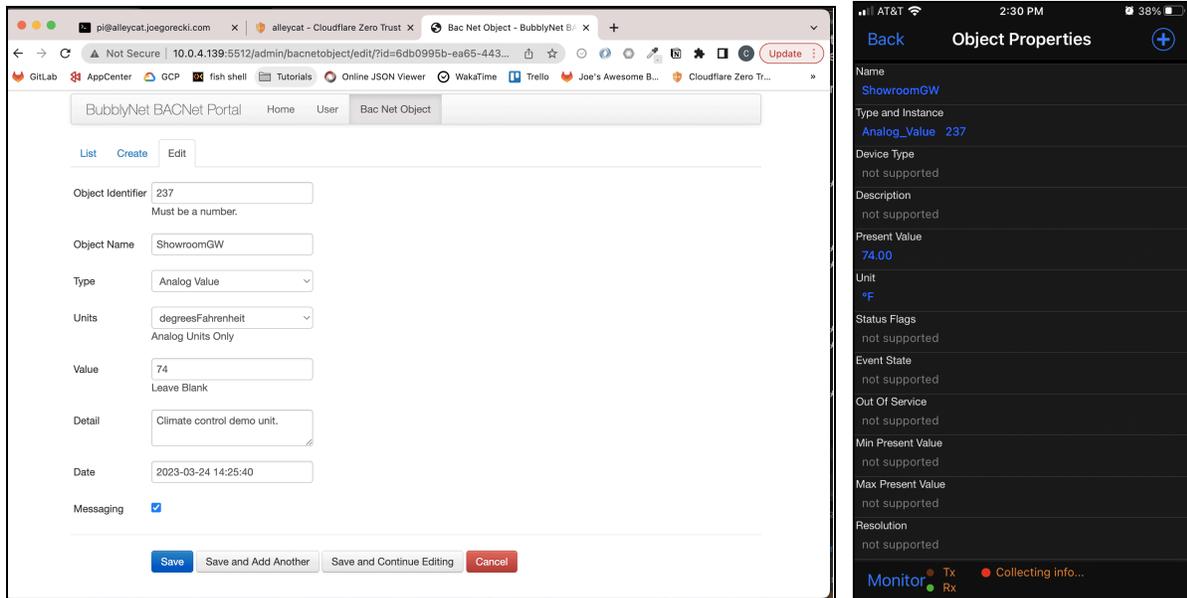
To configure the device, an admin will design the entire network using a sample, and paste into the BACnet control panel. This will implement the network and make it available for WHOIS/IAM messages on the network.



BBNControl Object Configuration

After Selecting BACnet Object from the top navigation of the control panel, you will be presented with a list of all objects in the BACnet network.

These objects can be deleted, modified, and new objects can be added if the BBNControl platform was used to create the BACnet network objects.



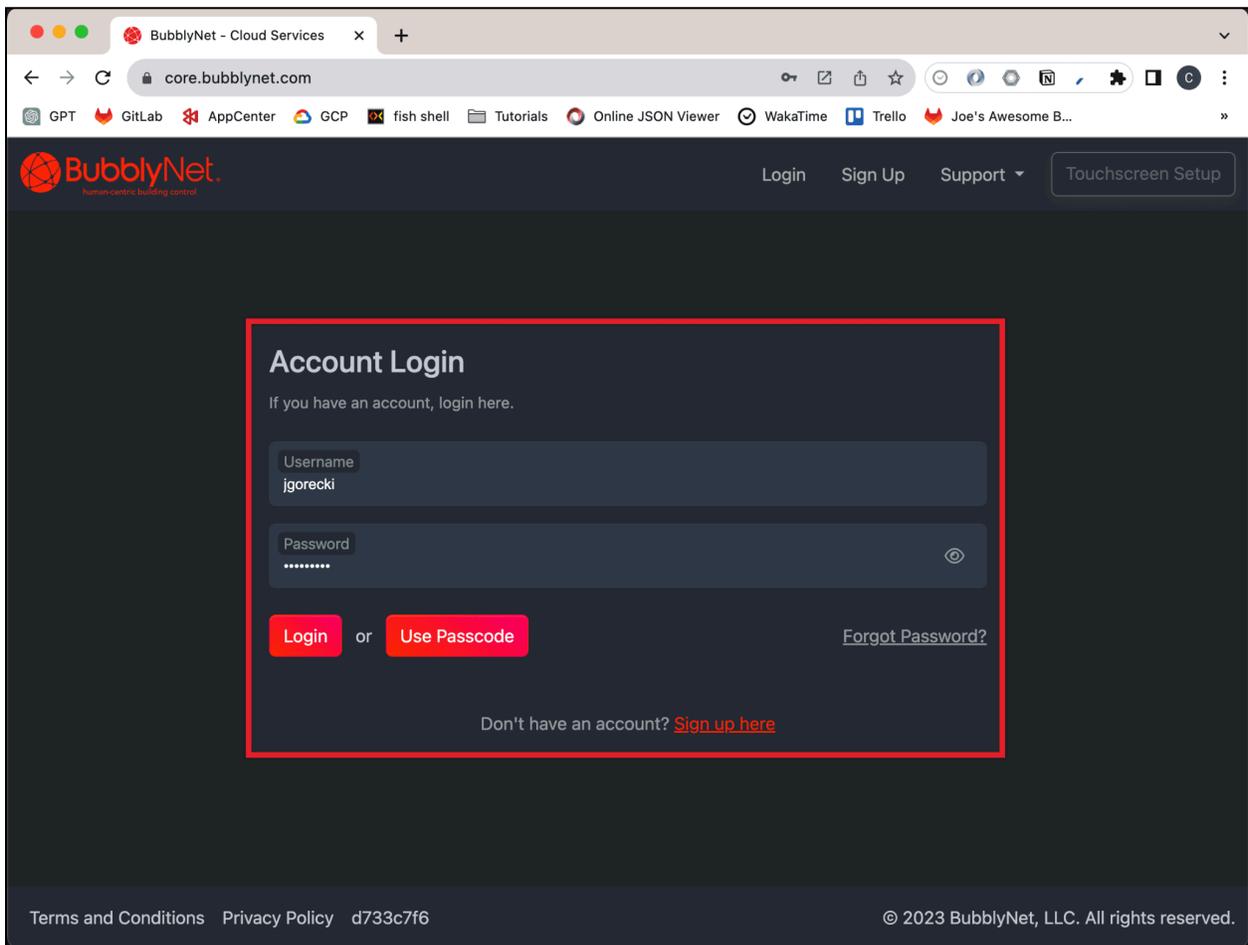
You can add a new object to the network by populating the provided webpage. The following fields are used to define the BACnet object:

- **ID**: A UUID for datastore. Auto-generated at the time of creation into the BBN-BACnet system.
- **Object Identifier**: BACnet label. Used to identify the object in the BACnet network.
- **Object Name**: BACnet label. Used to name the object in the BACnet network.
- **Type**: BACnet object type. Supports main BACnet objects. Example: Binary Output, Binary Input, Analog Value, etc.
- **Units**: BACnet property type. Engineering units for object definition. Example: Cubic Feet, Millibars, Minutes, Degrees Celsius, etc.
- **Value**: BACnet property value. Set by BACnet object State Changes. Loaded to the generated BACnet objects and retained through future loads on the network.
- **Detail**: BACnet label. Used to describe the describe the object on the network.
- **Date**: BBN Timestamp on objects created to or loaded to the BBN database.
- **Messaging**: Enables MQTT messaging for objects in the database. When a object state changes, a MQTT message is generated for BubblyNet Cloud Services.

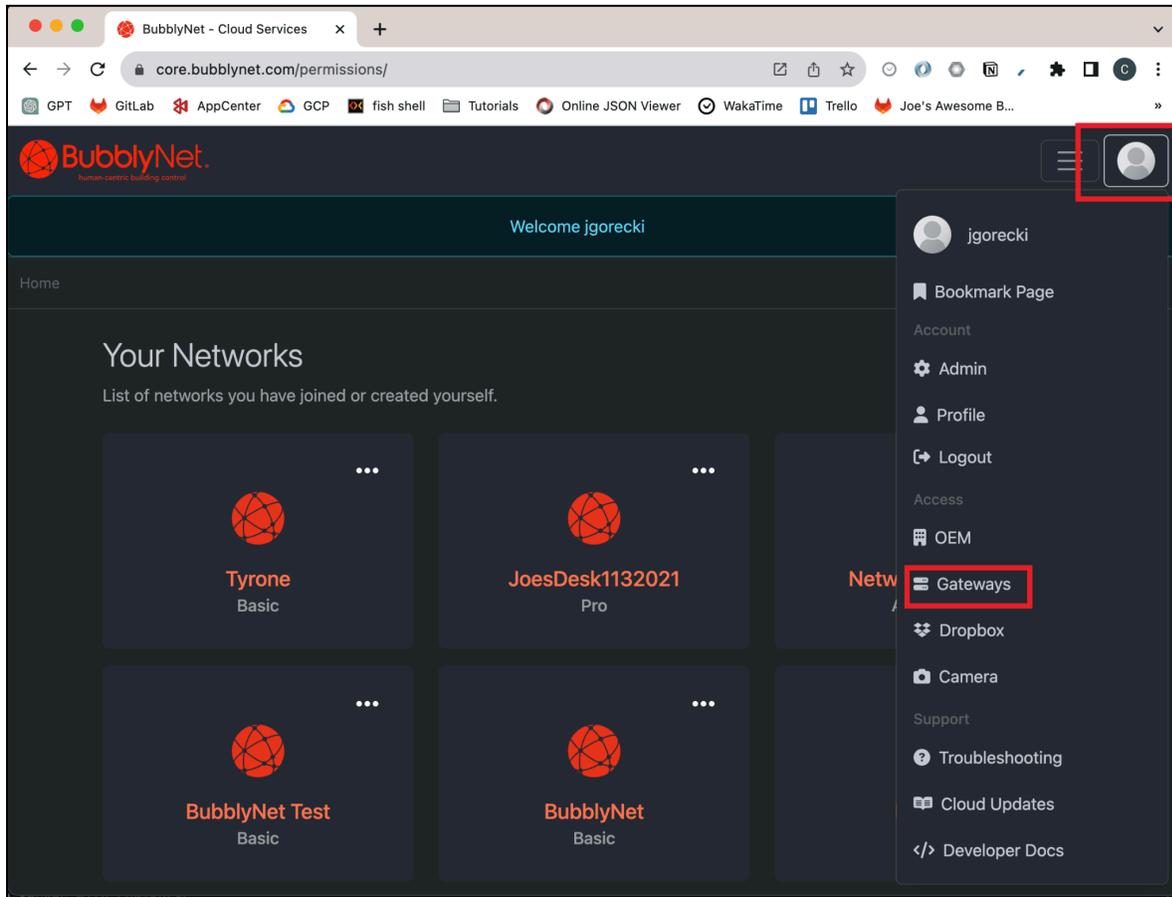
- **Group:** The group identifier the object connects to in the control panel.
- **Category:** The type of object the group is for control panel interaction (exp: Specific types: Heat Set Point, Occupied Command versus generic: Object, Command, Action).

Step 2: Configure the Control Panel from Cloud Services

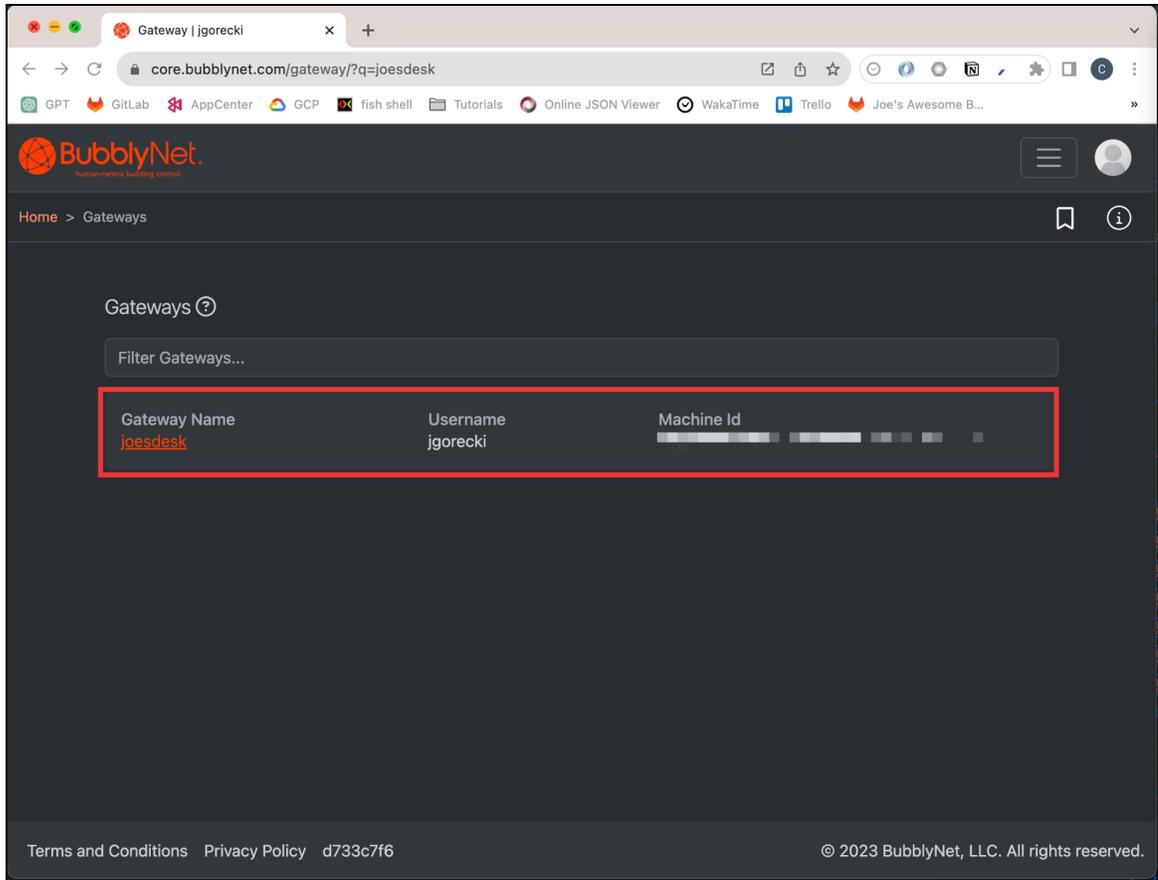
On BubblyNet's cloud services platform, a control panel can be configured for layout and deployment. Once completed, this control panel will be published to the selected touchscreen for control.



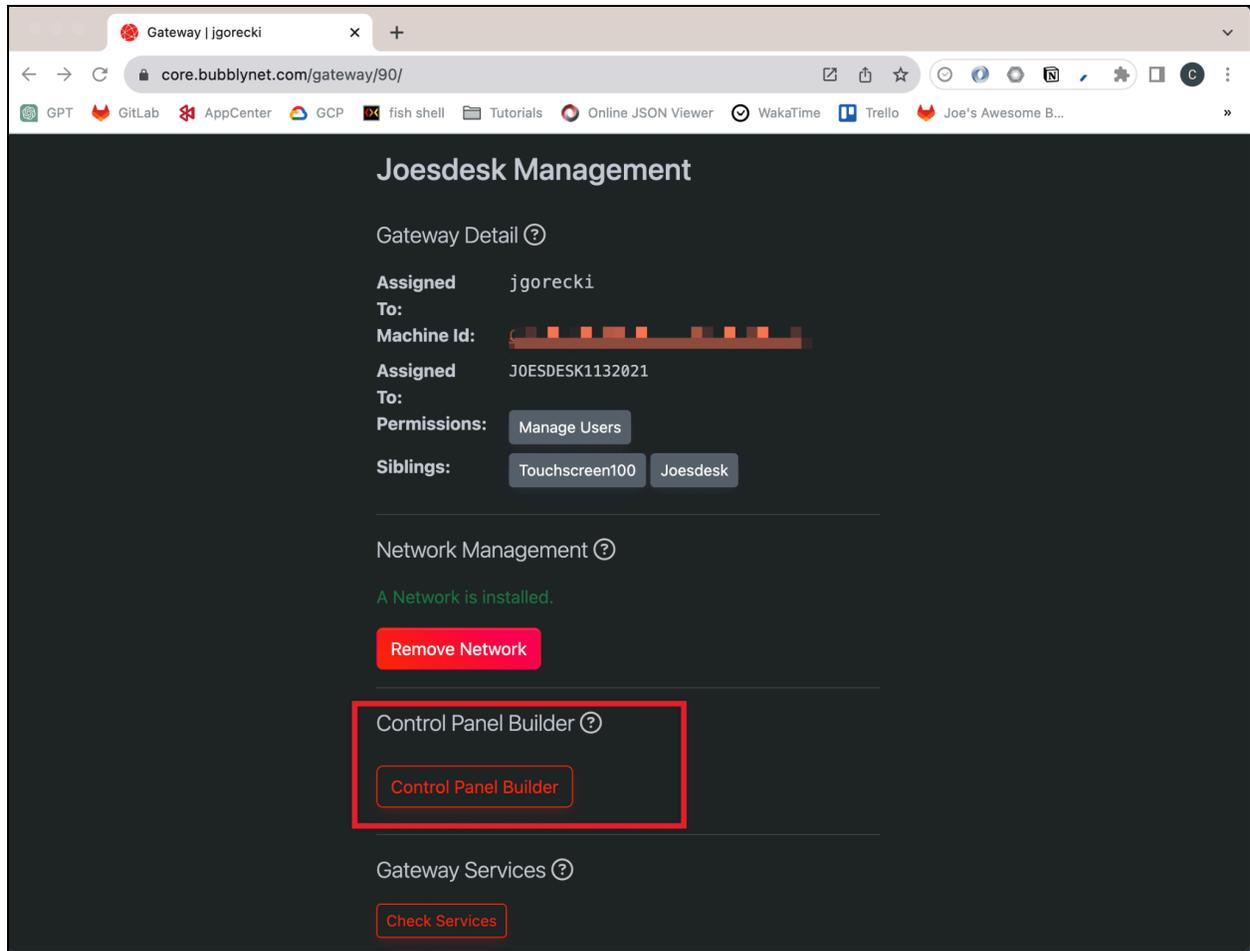
- Sign-in to the Cloud services with the username and password for core.bubblynet.com
- **Warning: This must be registered as the owner of the touchscreen/gateway device.**



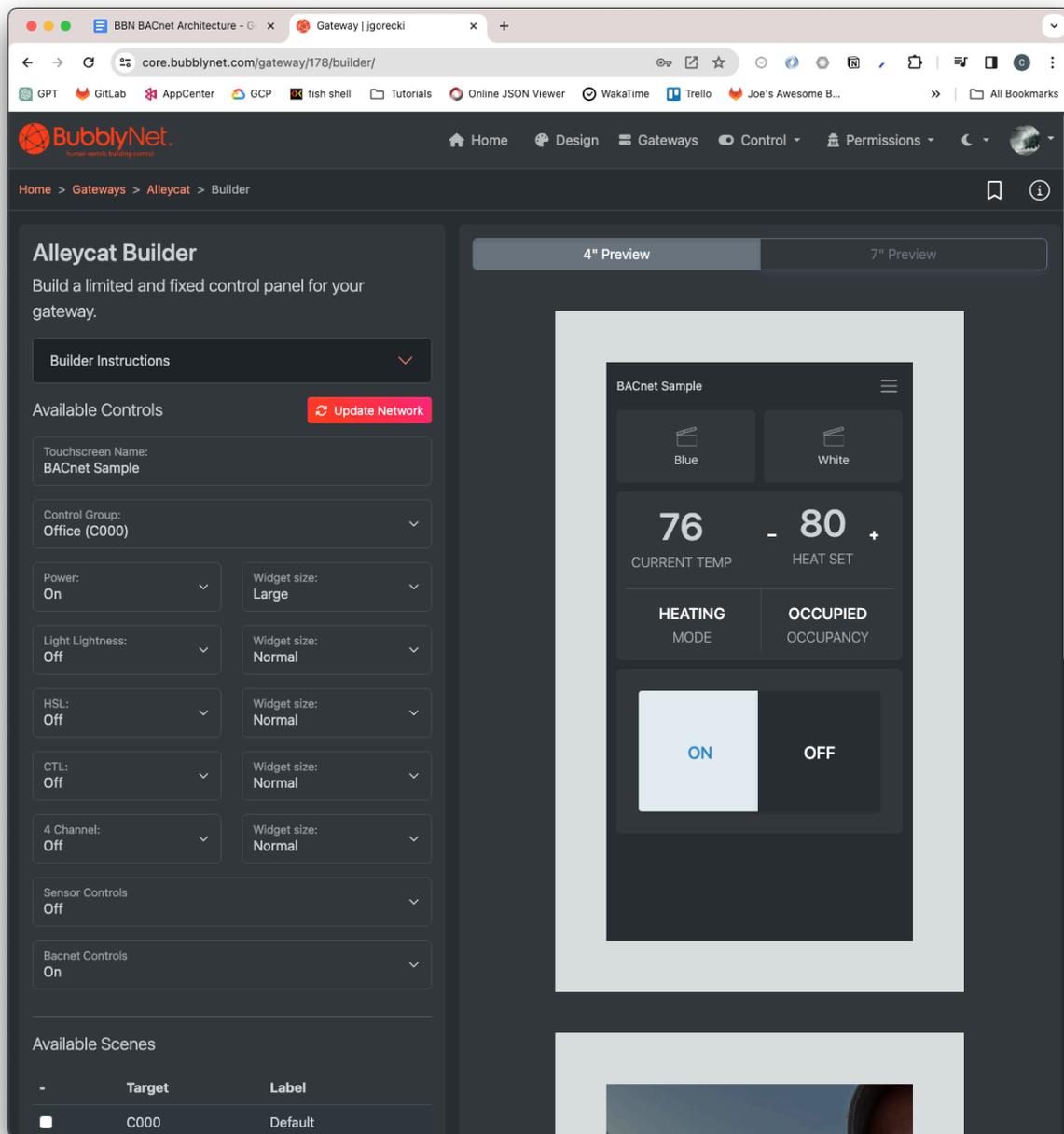
- Access the Gateway List screen from the top navigation and clicking the user icon.



- Choose the gateway for configuration.

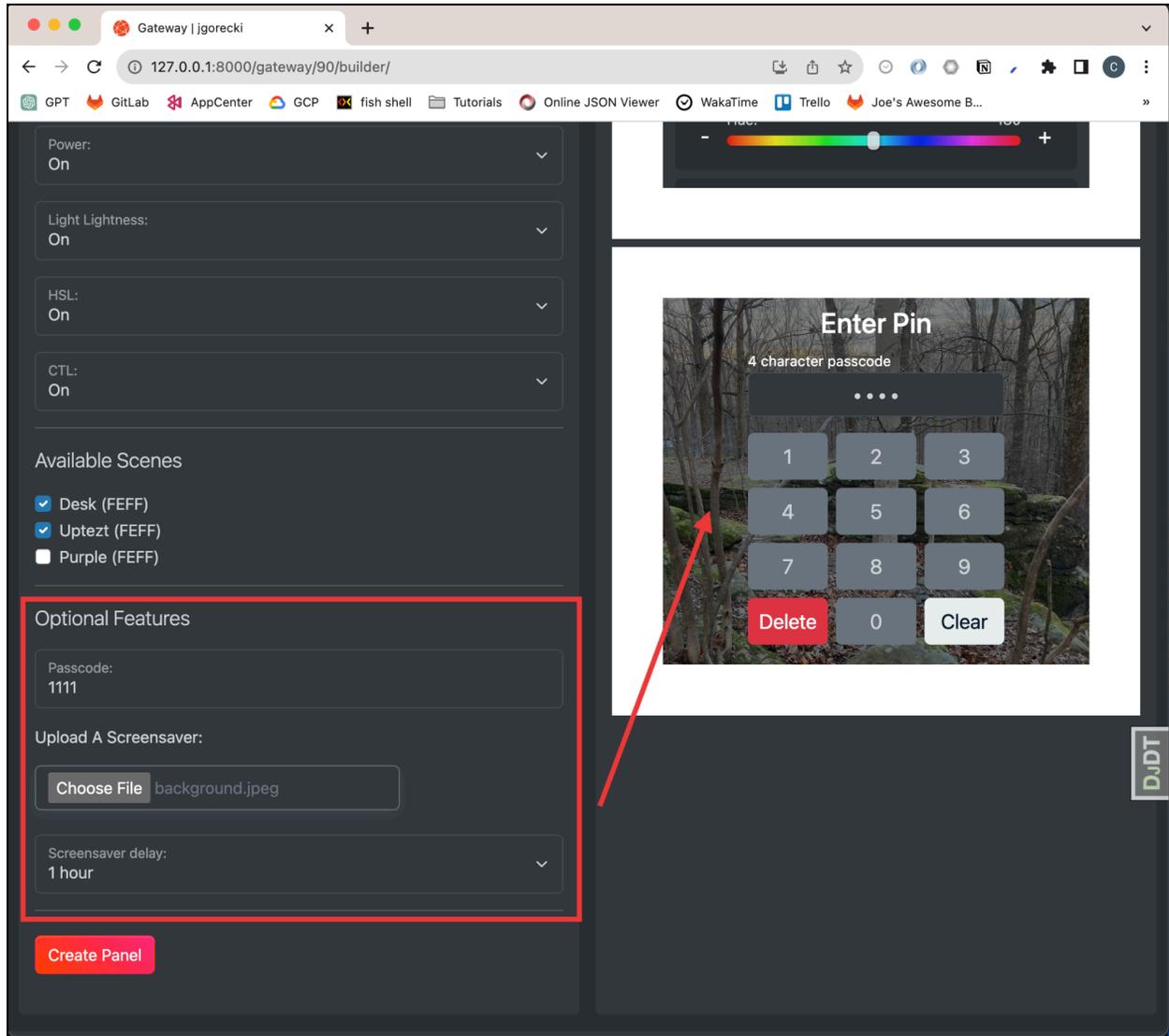


- Select the Control Panel Builder button to begin layout of the control panel.

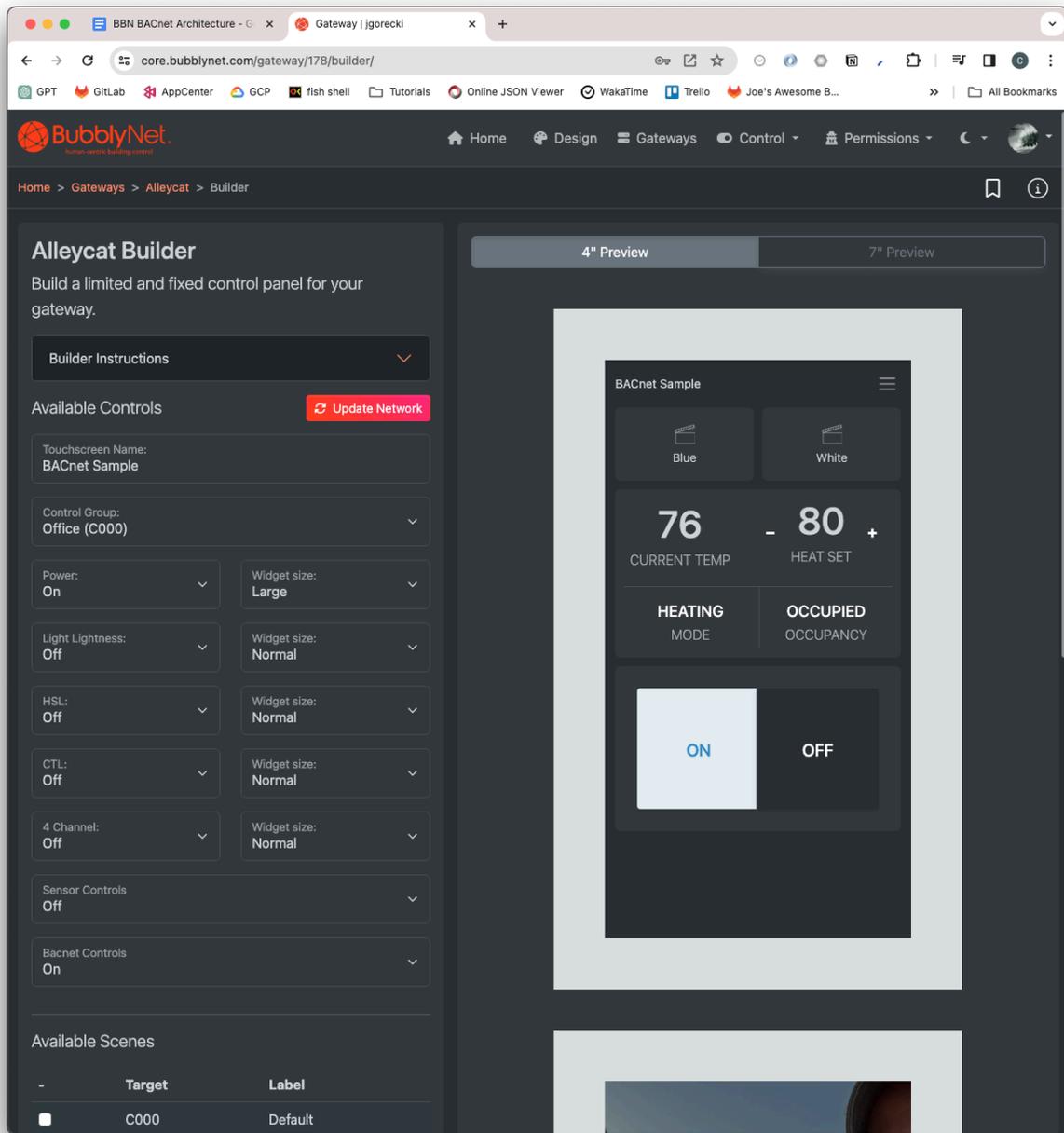


- Choose the correct device type 4" or 7"
- Each control panel is specific to a single group and all children groups.
 - For example: Using top group (generally FEFF) will send commands to the entire group.
- **Choose the HVAC to be used for the control panel to ON.**
- **Choose the Group the control panel will access.**
 - **This should match the BACnet control group.**

- Choose the Controls to be used for the control panel.
- Choose the Scenes to be used for the control panel.

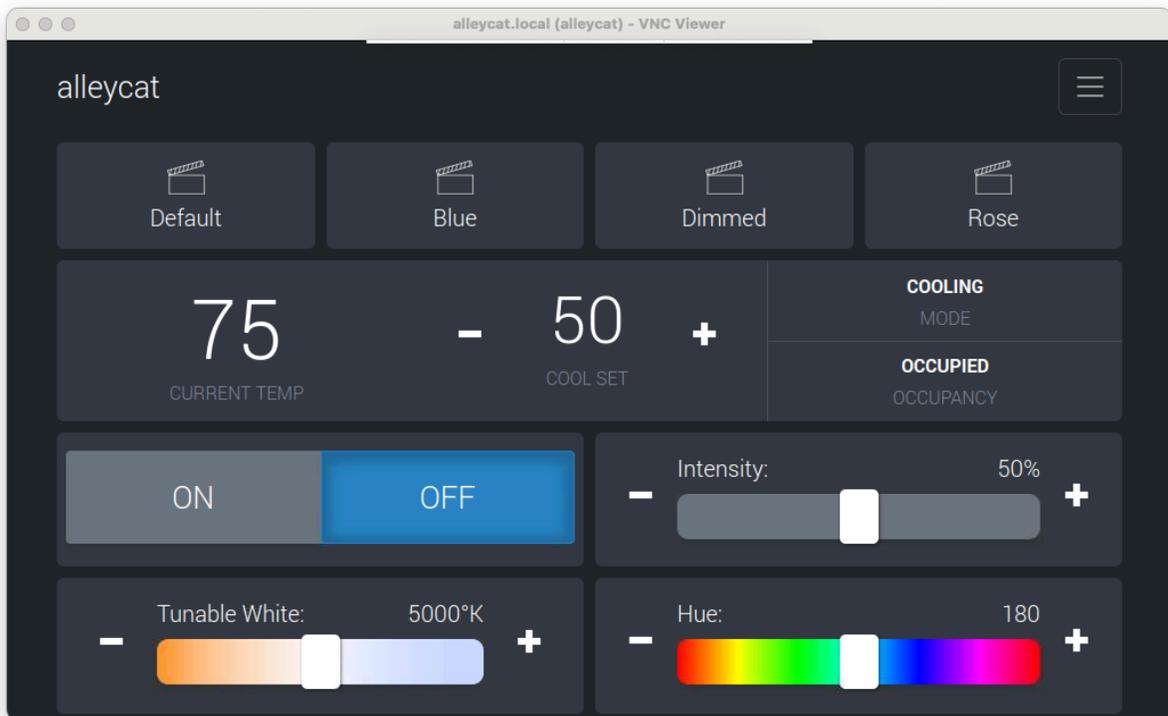


- Choose to add and enable a passcode with lockscreen. This will be a 4-digit minimum (exp: 1234)
- Choose to add a screensave image (with customizable time out)



- Pressing Create Panel will publish the selected choices to the Touchscreen.

The first step is now complete and once available Local Control Panel is built on the local touchscreen and served for touchscreen control.



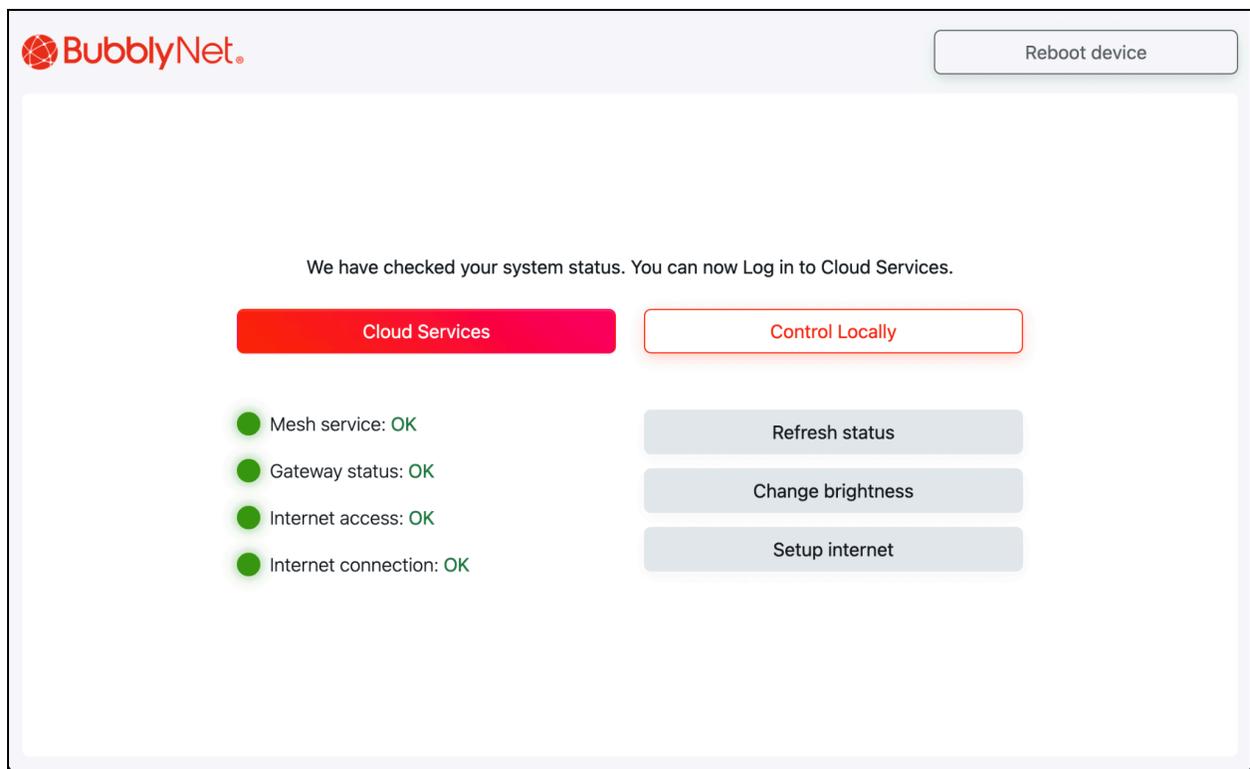
- *Example of a 7" Landscape with a local control panel after configuration.*

Step 3: Launch and Configure the Local System

Upon startup, the operating system will boot up and launch system services. Services will show the status as Green for passing and Red for not-ready. Press the refresh status button to re-run tests.

For local control click the "Control Locally" button to access the local control panel after configuration.

Warning! While both buttons are enabled and available, the Cloud Services requires internet access and open access to the web portal.



Note: This screen will return when the system:

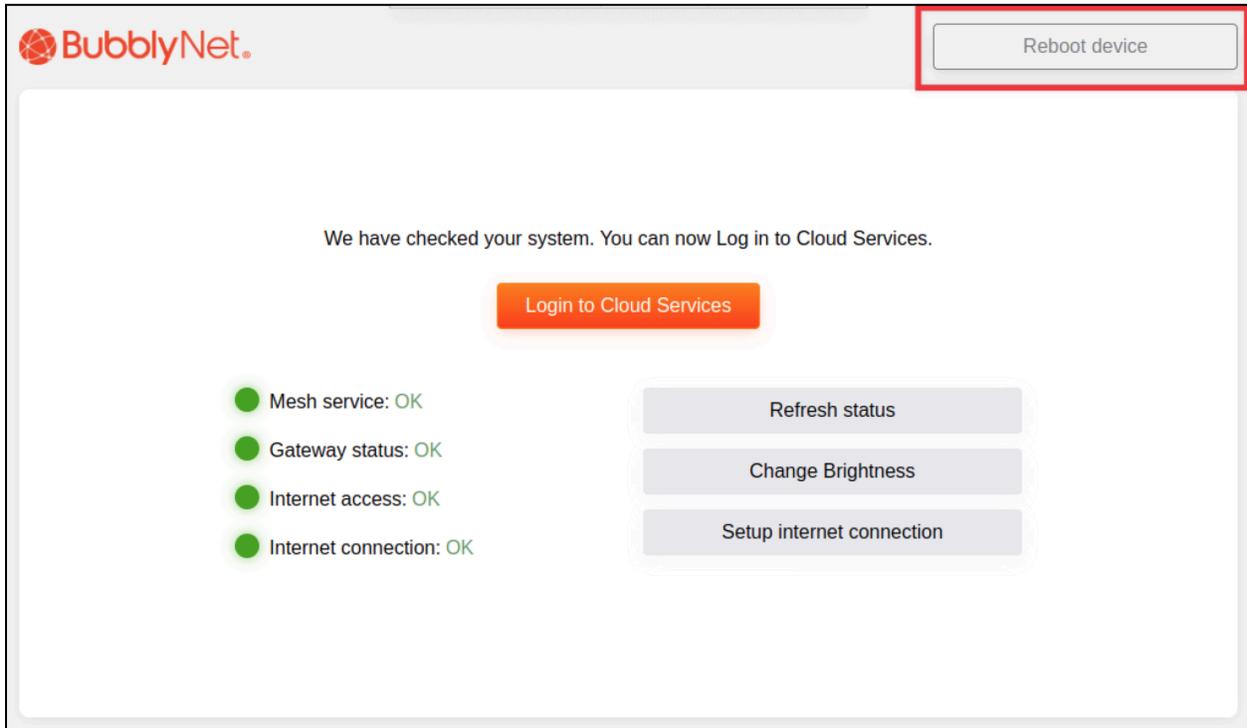
- Loses Power and the system reboots.
- Loses network connection for longer than 5 minutes.

When all services are green and passing, then the system will be ready for usage.

Warning! If the touchscreen page says 0.0.0.0:5000 can't be found after a reboot, press the refresh page button. If this issue continues, contact support@bubblynet.com.

System Setup

The default touchscreen contains the following setup controls:



- Reboot Device

- If the touchscreen is showing an error and not recovering, please reboot the device.
- If after rebooting the device, and the device is not recovering — access the troubleshooter on core.bubblynet.com for additional steps.



- Refresh Status
 - Systems may not come online in required order. Please press Refresh Status
- Change Brightness
 - Touchscreen screen brightness can be modified by changing the display brightness from 1-255.
- Setup internet connection
 - An ethernet connection is preferred where possible.
 - A Wifi connection can be added to the machine by adding your Network SSID and Network Password.
 - The Gateway supports 802.11ac - Wi-Fi 5.
 - The Gateway supports 2.4 GHz and 5 GHz frequency bands.

Warning! The touchscreen panel does not support Guest network with authentication screens.

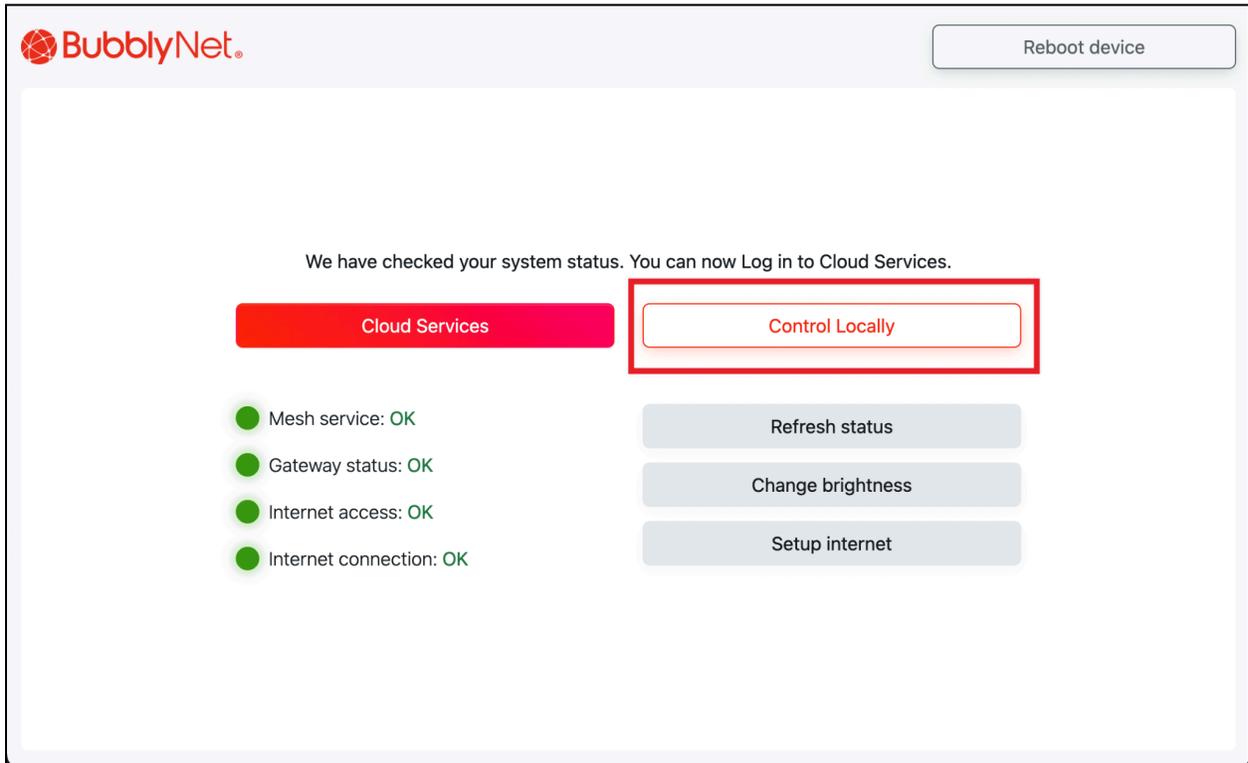
Gateway Network Requirements

Note: This is only required for the Control Panel setup. After setup, the touchscreen will no longer require a network connection unless support is requested.

- The following standard protocols are used for the remote control and will need ingress/egress permissions:
 - HTTPS/SSL: The Remote Control panel is available at core.bubblynet.com and requires external webpage access on port 443. No content is served on http.
 - MQTT: Messaging is sent to 127.0.0.1 on port 1883 and port 883. If an internet connection is available, messages will be sent to mqtt.bubblynet.com.
 - BubblyNet Remote Access: UDP ports 1194 and 51820

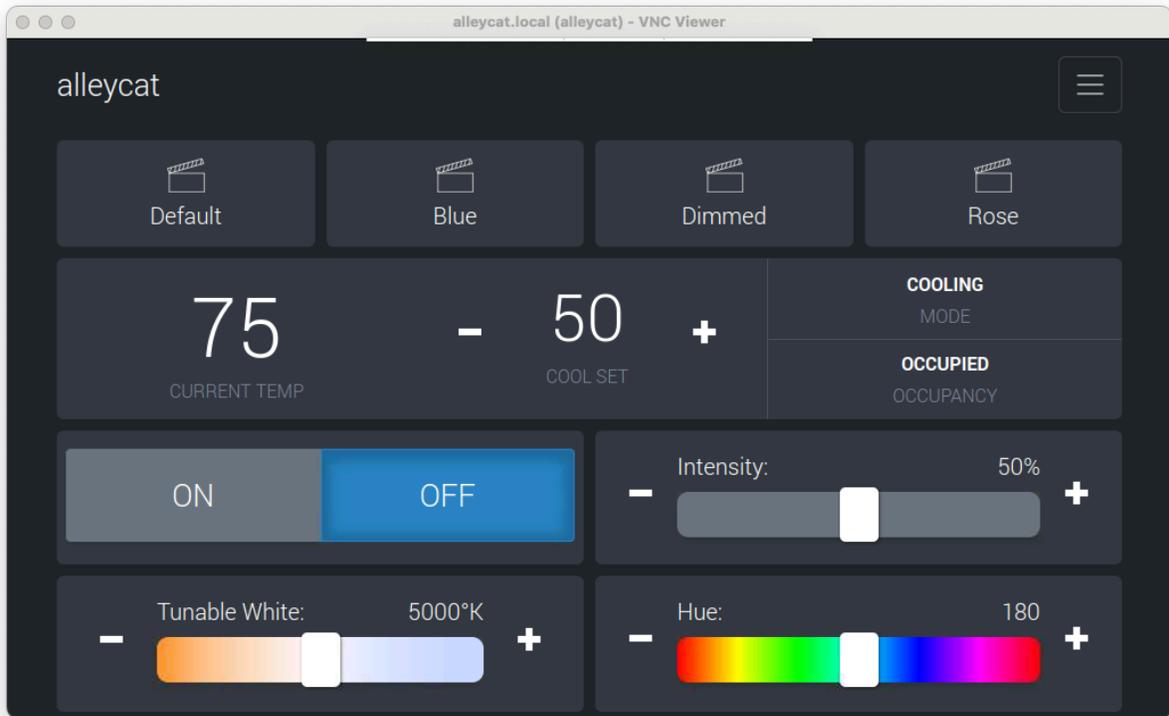
Step 4: Access Local Control Panel

The local control panel is loaded from the control panel that was selected on Cloud Services. These can be configured and reconfigured as needed.

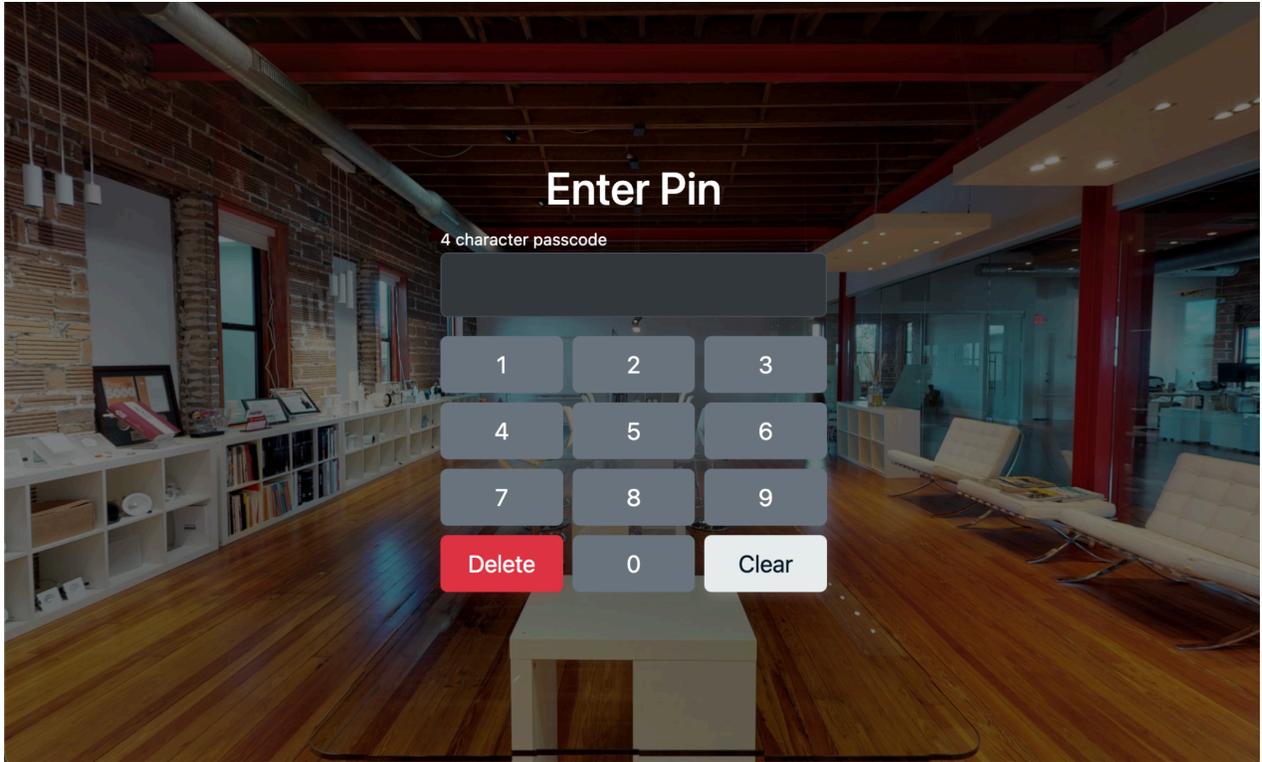


For local control, choose the “Control Locally” button to access the local control panel after configuration. This will be a fixed control panel for the selected group.

Sample control panel in dark mode with CTL, HSL, Scene support, and HVAC controls. Click the control panel menu screen to change from Light Mode to Dark Mode or return to the Touchscreen setup system for system maintenance.



The Sample control panel with 1 scene selected, and all available controls available.



Sample control panel with a screensaver splash image after a 5 minute delay and a passcode screen.

Common Questions & Answers:

Does the Gateway or BACnet Software require an internet connection?

This depends on the implementation requirements of the network. If the gateway is used to enable remote control of a network with our Cloud Services, then it will require an active internet connection for services, changes, and support.

If the gateway is a local-only model, then the internet is only required for creating the control panel or for remote support tasks.

BBN BACnet only requires local network access to read and write data for BACnet applications. It needs remote access to send messages to the Cloud services platform.

If the gateway is only used as a maintenance device, then it only needs internet access when a BubblyNet technician must access the system for support. The technician will use the Gateway to access the network remotely and run diagnostics.

The gateway does not need any enterprise access or system access. It can be isolated entirely in its own subnet.

What should I do if I find a vulnerability (issue or error)?

We accept vulnerability reports at or via support@bubblynet.com. Reports may be submitted anonymously. If you share contact information, we will acknowledge receipt of your report within 3 business days.

What we would like to see from you:

We recommend that your reports:

- 1) Describe the location the vulnerability was discovered and the potential impact of exploitation.
- 2) Offer a detailed description of the steps needed to reproduce the vulnerability (proof of concept scripts or screenshots are helpful).

What you can expect from us:

When you choose to share your contact information with us, we commit to coordinating with you as openly and as quickly as possible.

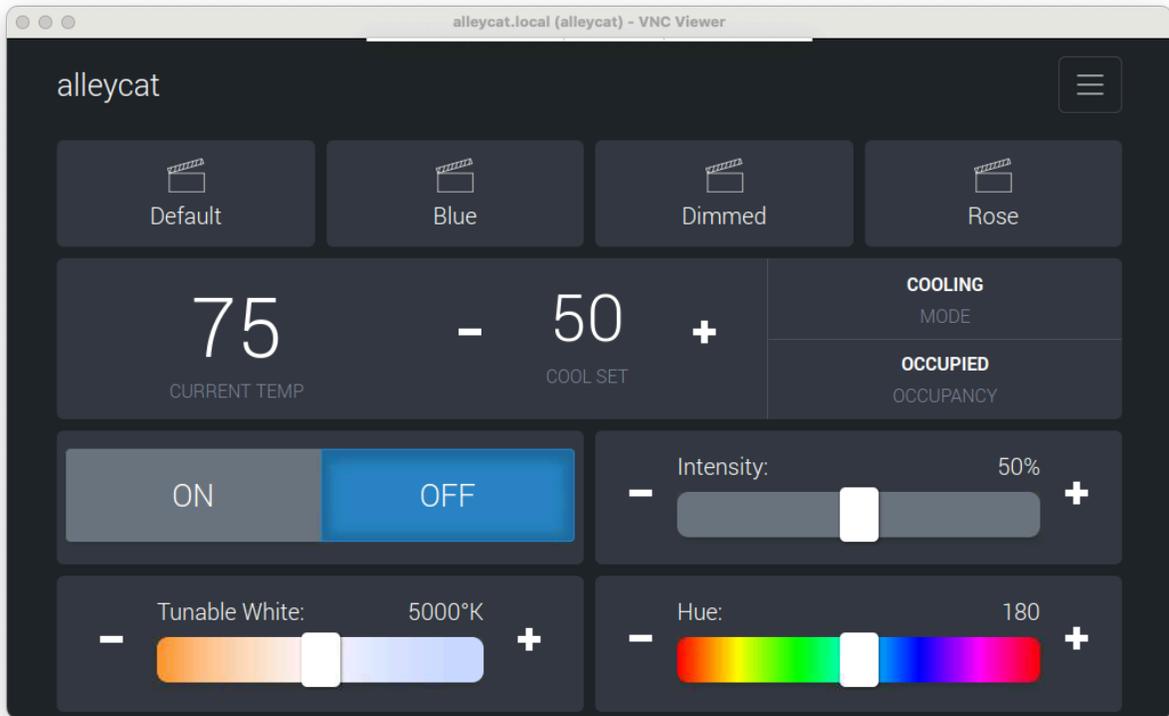
- 1) Within 3 business days, we will acknowledge that your report has been received.
- 2) To the best of our ability, we will confirm the existence of the vulnerability to you and be as transparent as possible about what steps we are taking during the remediation process, including on issues or challenges that may delay resolution.
- 3) We will maintain an open dialogue to discuss issues.

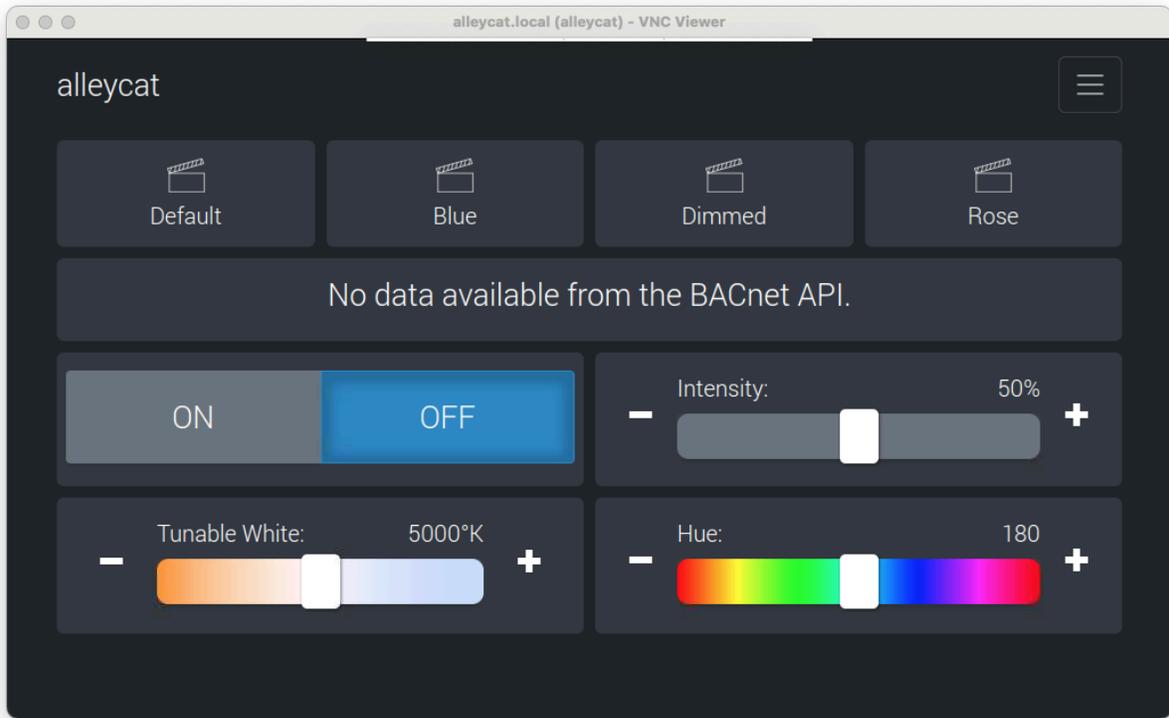
Questions regarding...

Questions regarding these policies may be sent to support@bubblynet.com. We also invite you to contact us with suggestions for improving these policies.

What is your End-of-Life Policy?

Please visit our website at <https://bubblynet.com/end-of-life-policy> for our EoL policy.





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