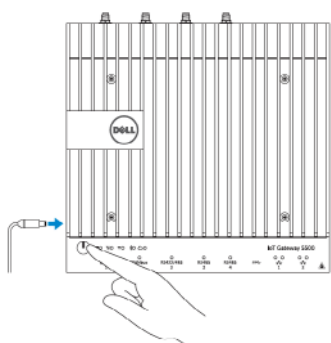


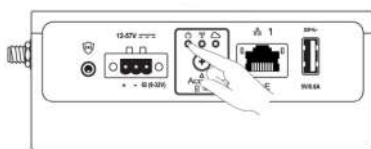
Getting Online Via LAN/WAN

The following is a brief overview of the steps required to start up the Turntide Hub and get it connected to the customer's local area/ wide area network.

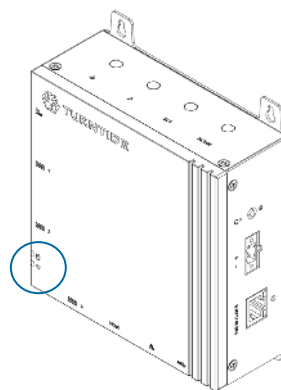
1. Mount and power the panel
2. Verify LED power lights are illuminated on the Turntide Hub



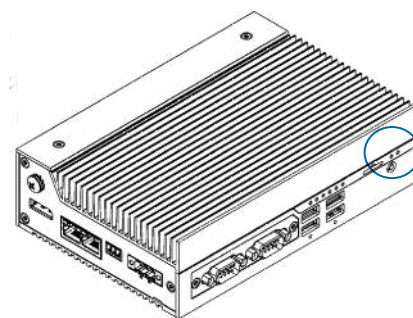
Turntide Hub 5000



Turntide Hub 3000

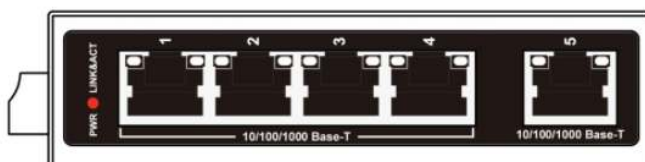


Turntide Hub 6



Turntide Hub 7

3. Connect an ethernet cable from a PC to a free port on the ethernet switch

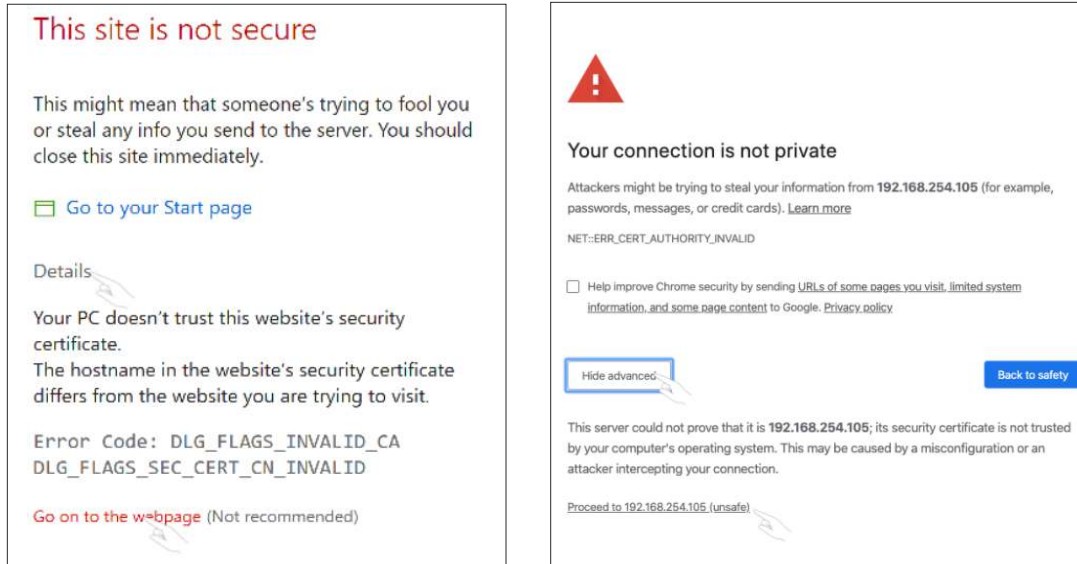


4. Configure the computer's IP address as follows:

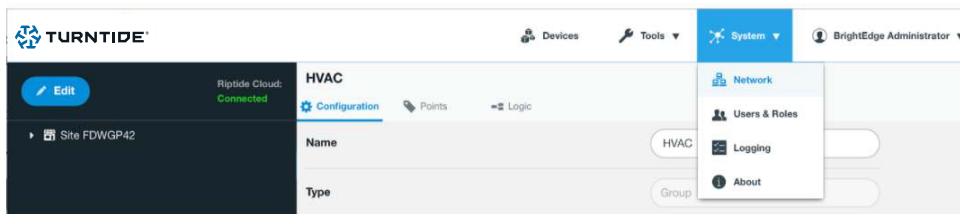
- + IP address: 192.168.1.101
- + Subnet Mask: 255.255.255.0
- + Router/Default Gateway: 192.168.1.1

5. Using a browser on the computer, log into the Turntide Hub (<https://192.168.1.100:5000>) and enter username and password. Please contact Turntide support if default username & password is not known.

If prompted to accept the security certificate select **Advanced > Go to Website**

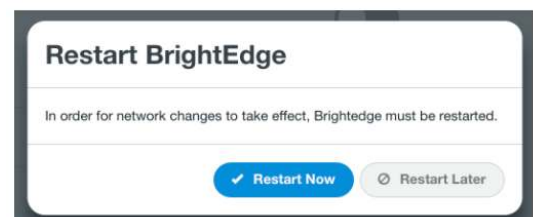
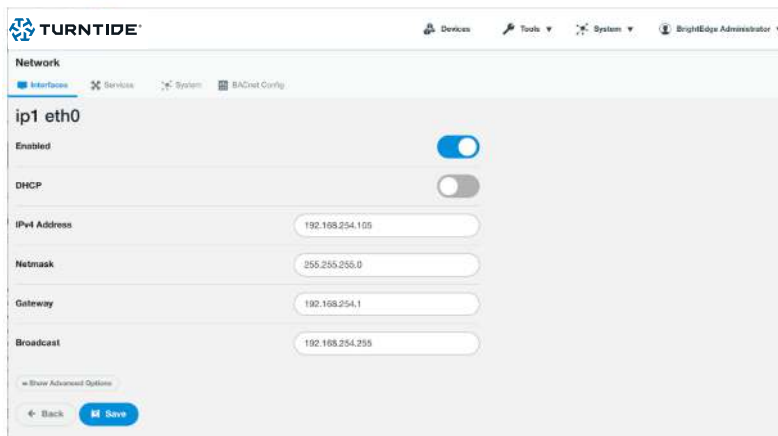


6. Select **System > Network** from the navigation bar



7. Select IP interface (IP1 primary interface)

8. Disable DHCP and configure the fields with the assigned IP address*

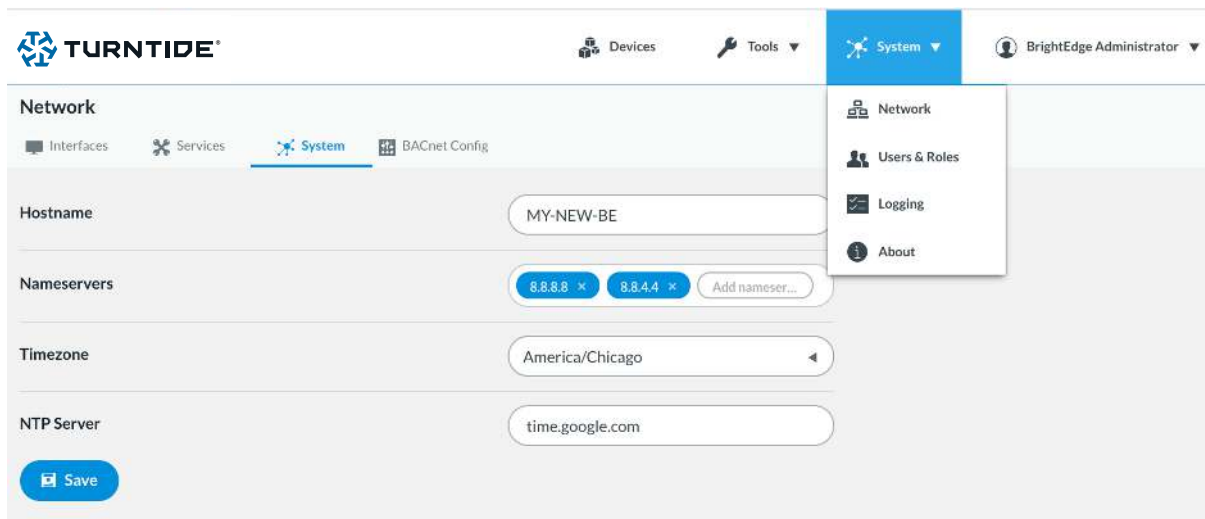


9. Select **Save** and **Restart Now** to exit the setup.

*If DHCP is required, enable DHCP and proceed to Step 9

Configure DNS, NTP Server and System Time

1. Select > System > Network > System from the navigation bar



2. Enter one or more DNS/Nameservers or leave the default 8.8.8.8. and 8.8.4.4*
3. Select the appropriate time zone
4. Enter the assigned NTP/ time server address or leave default of time.google.com*
5. Select Save to apply settings *If DHCP is used, Steps 2 and 4 can be skipped

Troubleshooting

The following is a brief troubleshooting guide if the Riptide Hub is not connecting to the cloud.

You will need a laptop to perform these steps.

| Display | Elements | Color | Status | Meaning |
|----------|--------------|----------------|-----------|--|
| PWR | Device State | Green | Lights up | Supply voltage is on, Device is ready for operation |
| | | | None | Supply voltage is too low, Device is not ready for operation |
| LINK&ACT | Ports State | Green & Yellow | Lights up | Device detects a valid link |
| | | | Flashing | Device is transmitting and/or receiving data |
| | | | None | Device detects an invalid or missing link |

1. Verify that the Power and Link/ACT lights are illuminated
If link light is not illuminated check ethernet cable connect to WAN switch
If ethernet is connected on both ends replace the cable
2. Set laptop IP address to an address on the same subnet as the Turntide Hub
3. Connect cable from laptop directly to Turntide Hub
4. Open a terminal/command prompt and ping the Turntide Hub at the previously configured IP address **If this fails, go back to step 4 and set up the Turntide Hub IP address**

5. Set laptop IP address to the address assigned to the Turntide Hub
6. Disconnect the Turntide Hub from the switch and connect laptop to the same port the Turntide Hub was connected to.
7. Open a terminal/command prompt and ping the assigned default gateway
 - + If this fails contact IT and verify the assigned network settings
8. Open a terminal/command prompt and ping app.turntide.com
 - + If this fails contact IT and verify the assigned DNS settings
9. If you are able to ping the default gateway and app.turntide.com contact IT and verify the following ports are opened outbound/egress:

| Source | Destination | Protocol | Port | Purpose |
|--------------|----------------|----------|----------|--------------------------------|
| Turntide Hub | Turntide Cloud | MQTT | TCP/8883 | Edge to Cloud Communication |
| Turntide Hub | Turntide Cloud | SST | TCP/3199 | Edge to Cloud Maintenance |
| Turntide Hub | Turntide Cloud | HTTPS | TCP/443 | Edge to Cloud Software Updates |
| Turntide Hub | Turntide Cloud | DNS | UDP/53 | Name Resolution |
| Turntide Hub | Turntide Cloud | NTP | UDP/123 | Time Synchronization |

10. If above steps have been completed and the Turntide Hub still does not connect to the Turntide Cloud, please e-mail us at support@turntide.com, or call us at 877-776-8470 (M-F between 7am - 9pm EST).

Our full installation guide is available on Turntide Academy.

For additional help, email support@turntide.com or call us at 877-776-8470 (available Monday through Friday between 7am - 9pm EST).

Turntide Startup Troubleshooting Guide

This guide contains first steps to check to help you through issues starting up and connecting devices to the Turntide Hub. If after checking this guide your issue persists please contact support@turntide.com.

IP Network Issues

+ Can't Direct Connect to the Hub

Incorrect Username & Password

If you are able to access the Hub UI login page but unable to login, you may be using the wrong username & password. The Hub UI does not use the same user login as issues for the Turntide web and mobile application. If you do not know the Hub UI login, talk to your Turntide account manager.

Incorrect IP Address

To directly connect to the hub, the IP address on your computer must be on the same IP subnet as the Turntide Hub. At default this is 192.168.1.xxx. Check to make sure that you have set a static IP address of 192.168.1.xxx (suggested: 192.168.1.105). These guides will show you how:

- + Windows: <https://www.hellotech.com/guide/for/how-to-set-static-ip-windows-10>
- + MAC: <https://www.macinstruct.com/node/550>

Wrong Web URL

When first shipped Turntide Hub is accessed at its default address from any major web browser by entering the url <https://192.168.1.100:5000>. You must be directly connected to the hub and have https at the beginning and :5000 at the end. (Note: If there are two hubs in the Turntide panel the second hub can be reached at <https://192.168.1.101:5000>)

If the Hub's IP address has been configured already for the site, the hub can be reached at https://<Hub_IP_Address>:5000 where <Hub_IP_Address> is the IP address configured.

Faulty Physical Connection

To access the Turntide Hub directly the computer you are using must be connected to the Turntide Hub with an ethernet cable. One end must be plugged into your computer and the other end either directly into the IP 1 ethernet port on the Turntide Hub or into a network switch that is also connected to IP1 on the Turntide Hub. Check that all ethernet cables are properly plugged in and the cables are not faulty.

Testing the Connection

If you can still not reach the Turntide Hub UI, test the connection with a ping. In windows, open the Command Prompt program or on Mac open Terminal. Enter the line:

```
ping 192.168.1.100
```

Note: if the IP address of the hub has been changed enter the Hub's IP as opposed to 192.168.1.100.

If the response line reads host unreachable or Request timeout the connection is not active. If it says 64 bytes from 192.168.1.100 and lists a time=xx.xxx ms then the connection is active. Reopen your web browser, double check the web address and try again

+ Turntide Hub is Not Connecting to the Turntide Cloud

Internet via Building LAN

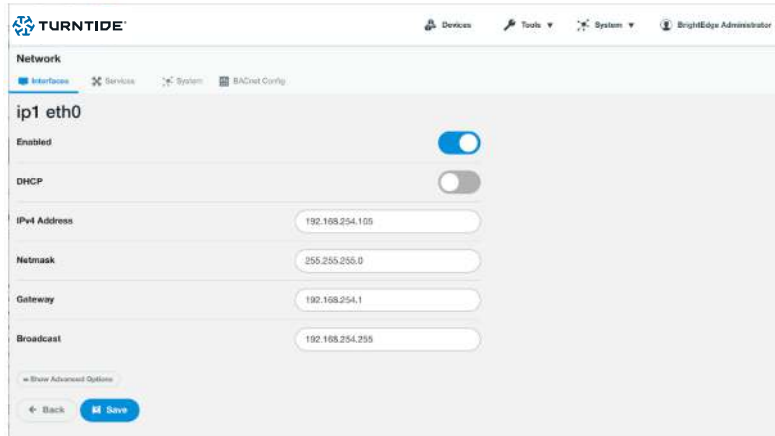
IT Firewall

The Turntide Hub requires an outbound connection on several ports to communicate with the Turntide Cloud. If there is no active connection with the Turntide Cloud, confirm with the IT administrator that the below port settings have been configured.

| Item | Description | Protocol | Port |
|------------------|-------------------|----------|----------|
| Required Egress | Turntide Cloud | MQTT | TCP/8883 |
| Required Egress | Turntide Cloud | SST | TCP/3199 |
| Required Egress | Turntide Cloud | HTTPS | TCP/443 |
| Required Egress | Configurable | DNS | UDP/53 |
| Required Egress | Configurable | NTP | UDP/123 |
| Important Egress | Protocol Specific | HTTP | TCP/80 |

Incorrect Network Configuration

To communicate on the local LAN network the Turntide Hub must be configured with a correct IP address. This address must be supplied by the IT administrator. Directly connect to the Hub UI and confirm the IP address entered matches what has been specified by the IT administrator. If it does not, update the IP address, Gateway and Subnet information, set DHCP to disabled. Save and restart the hub.



Faulty Physical Connection





Check to make sure all physical connections are secure and correct

- + Ethernet cable connected to IP1 on the Turntide hub or to a switch that is also connected to IP1 on the Hub
- + Ethernet is connected to the correct building network switch and port. This can be confirmed with the IT administrator
- + All cables are connected and undamaged

Cell Modem

Modem Not Operating

Check the indicator lights on the front of the modem to insure it is powered on and connected. If it is not connected, power the modem on and off.

| INDICATOR | BEHAVIOR |
|---|---|
|  | POWER: The IBR200 must be powered by a 4-pin AC adapter. <ul style="list-style-type: none"> No Light = Not receiving power. Check the power switch and the power source connection. Blue = Powered on. |
|  | WIFI BROADCAST: Indicates WiFi activity. <ul style="list-style-type: none"> Green = WiFi is on and operating normally. Amber = Attention. Log into NCM and check the router status. |
|  | EMBEDDED MODEM: Indicates information about the embedded modem <ul style="list-style-type: none"> Green = Modem has established an active connection. Blinking Green = Modem is connecting. Amber = Modem is not active. Blinking Amber = Data connection error. No modem connection possible. Blinking Red = Modem is in the process of resetting. |
|  | SIGNAL STRENGTH: Blue LED bars indicate the active modem's signal strength. <ul style="list-style-type: none"> 4 Solid Bars = Strongest Signal. 1 Blinking Bar = Weakest Signal. |

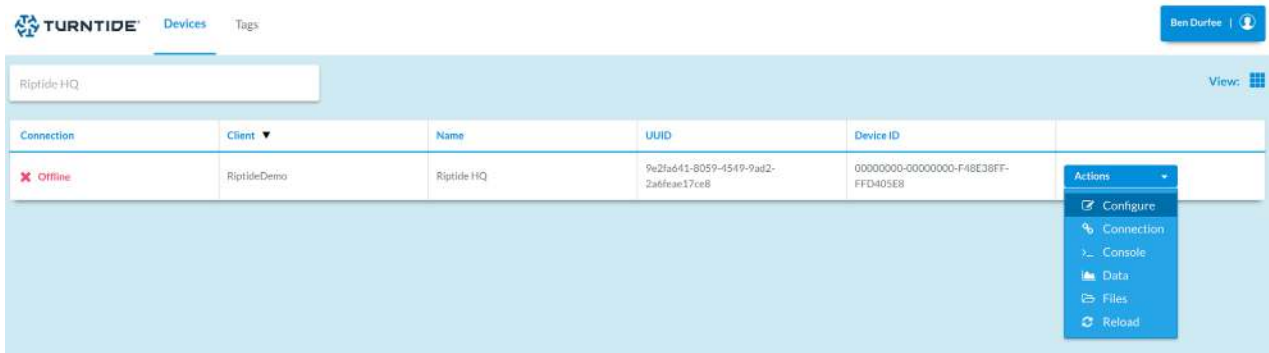
Poor Cell Service

The cell modem must be mounted in a location with good cellular service. If the cell modem displays a weak single strength (1 or 2 bars), try relocating the modem to an area with better cell service. Try using your phone to identify an area with better service.

Changes in the Hub UI not reflected in the Application

Sync the Hub to the Cloud

For changes in the Hub to reflect in the Application the hub must be synced to the Cloud. From the Ops page <app.turntide.com/ops> selected Action → Reload. Wait a few minutes and then refresh the browser you are viewing the web Application from.



VRV Discovery Issues

+ No VRV Devices Discovered

VRV Addressing

Every VRV indoor unit must be assigned a group address and an airnet address at the local controller. Every outdoor unit must be given an airnet address at the unit. Make sure that all devices have been addressed correctly.

VRF Adapter Issue

Check the LED lights on the front of the VRF Adapter.

Power: No light = No power to the adapter. Check power source to USB expander

Green = Powered on

RxTx: No light = No data on DIII-Net bus. Check units are on and active

Blinking Blue = Data present on DIII-Net bus

ERR: No light = Normal

Solid Amber = Power issue or data inconsistency. Check power supply at USB expander

Blinking Amber = Data collision. Check VRV system wiring

Correct and Active Port

Make sure the port you are using for DNET discovery is active. In the Hub UI check in Network → Interface. Active ports are denoted with a green circle. Turntide VRF Adapters will be connected to USB ports, generally usb1.1 – usb1.7, corresponding to ports 1-7 on the USB expander. If the port is not green and the VRF Adapter is powered, make sure the USB connection between the Hub, USB Expander and VRF Adapter are secure.

| | |
|---------------|---|
| usb1 | <input type="radio"/> /dev/riptide/serial/usb1 |
| usb1.1 | <input checked="" type="radio"/> /dev/riptide/serial/usb1.1 |
| usb1.2 | <input type="radio"/> /dev/riptide/serial/usb1.2 |

+ Only Some VRV Devices Discovered

Discovery Timeout Too Short

If not all the VRV devices on a network are found while running discovery. The Timeout in Second may have been too low, especially on larger VRV networks. Adjust the timeout length up and rerun discovery.

Discovery Options

Protocol

DNET

Timeout In Seconds

300

Interface

usb1.1

Discover

VRV Device not Connected

If the same devices are not appearing on repeated attempts to discover them, check the physical VRV unit. Ensure the VRV device is powered and the F1F2 network cables are well terminated.

BACnet Discovery Issues

+ BACnet MSTP Devices Discovered

Inconsistent Baud Rate Settings

Every BACnet device on the same MSTP network must be communicating at the same baud rate (speed). A common default baud is 38.4k but this is usually configurable at the device. The Baud rate for the Turntide Hub can be configured individually for each serial bus port under its configurations in Network → Interfaces (com1 - com4).

Check all devices and make sure they have the same configured baud rate.

| | |
|-----------|------------------------------------|
| Baud Rate | <input type="text" value="38400"/> |
|-----------|------------------------------------|

Duplicate MAC Addresses

Each BACnet MSTP device must be configured with a unique MAC address at the device. If several devices are missing from discovery, it's possible multiple devices have been programmed with the same MAC address. Check the user guide for the BACnet device and assign it a unique MAC between 1 and 126.

The Turntide Hub is generally configured with a MAC of 0 or 127.

Max Master Setting

The Max Master setting can be found in the Hub UI under Network → BACnet Config. The Turntide Hub will not communicate with any BACnet MSTP device whose MAC address is greater than the Max Master value. This is set to 127 by default to allow communication to all devices. Check to make sure this value is greater than all field device assigned MAC addresses.

| | |
|------------|----------------------------------|
| Max Master | |
| Com 1 | <input type="text" value="127"/> |
| Com 2 | <input type="text" value="127"/> |

TURNTIDE TECHNOLOGIES

Our breakthrough technologies accelerate electrification and sustainable operations for energy-intensive industries.