TURNTIDE HUB QUICK START GUIDE

Getting Online Via a Cellular Router

Purpose of Cradlepoint Cellular Router

A cellular router is used to provide network access between the Turntide Hub and the Turntide Cloud. The device will give remote users and technicians secure access to the Turntide System independent of a building's internal IT (LAN/WAN) network.

What's Included

AC Power Adapter

Modem & WiFi Antennas

SIM Door Screw

Mounting and Powering

1. The device has been shipped pre-configured, with SIM already installed. Do not remove SIM. Reset SIM only if it is no longer in its slot.

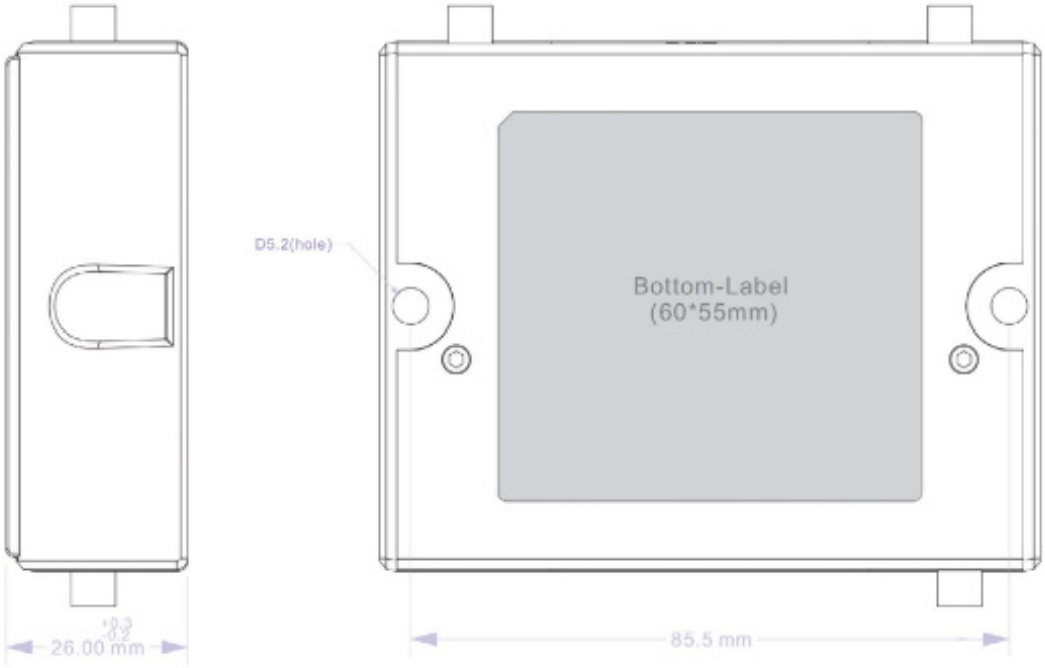
2. Connect modem antennas (finger tight only). Do not connect WiFi antennas as this device will be used for wired connection only (see device image below).

3. Plug the power supply into an electrical outlet (see device image below).

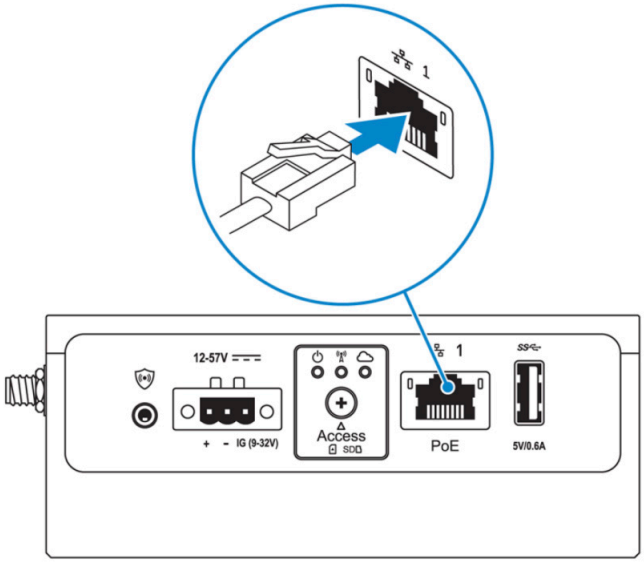
4. Using the signal strength indicator, find a location within cable reach of the network switch with a strong signal. Determine signal using the following guide:

	SIGNAL STRENGTH: Blue LED bars indicate the active modem's signal strength. • 4 Solid Bars = Strongest signal. • 1 Blinking Bar = Weakest signal. (A blinking bar indicates half of a bar.) • 4 Blinking Bars = SIM door is open and the modem is powered off

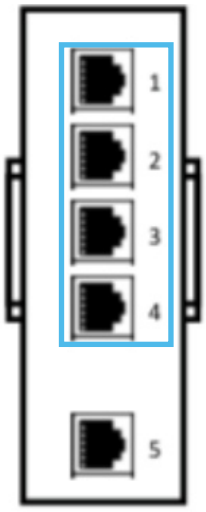
5. (Optional) Mount the device onto a wall or backing using the D5.2 holes shown below



6. Using an ethernet cable, plug the Cradlepoint IBR200 cellular router into an ethernet port on the Turntide Hub or a port on an ethernet switch connected to the Turntide Hub.



Turntide Hub



Ethernet Switch

Reference - LED Indicators

Use the chart below to verify that the device has an established cellular connection.

INDICATOR	BEHAVIOR
	**POWER:** The IBR200 must be powered by a 4-pin AC adapter. • No Light = Not receiving power. Check the power switch and the power source connection. • Blue = Powered on.
	**WiFi BROADCAST:** Indicates WiFi activity. • 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 • 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. • 4 Solid Bars = Strongest Signal. • 1 Blinking Bar = Weakest Signal.

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

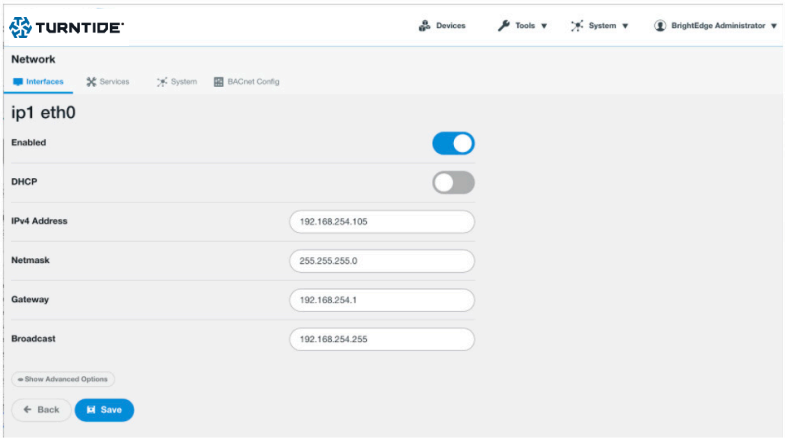
IT Firewall

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. • No Light = Not receiving power. Check the power switch and the power source connection. • Blue = Powered on.
	**WiFi BROADCAST:** Indicates WiFi activity. • 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 • 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. • 4 Solid Bars = Strongest Signal. • 1 Blinking Bar = Weakest Signal.

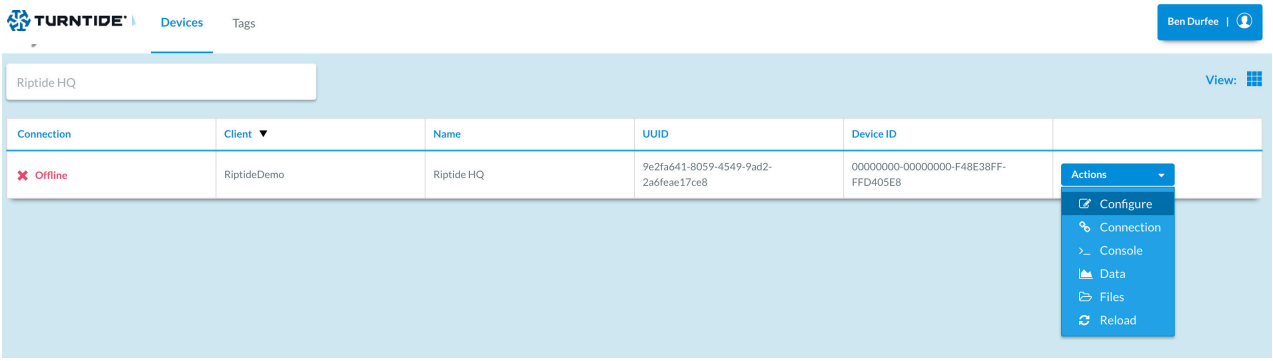
Poor Cell Service

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

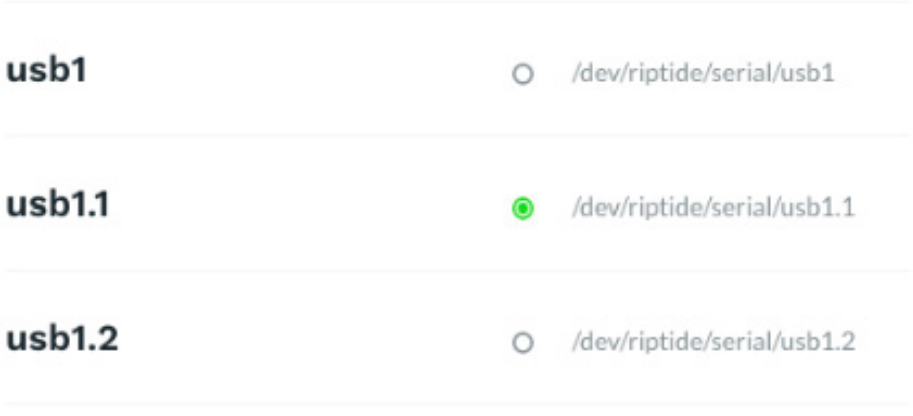
Green = Powered on

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

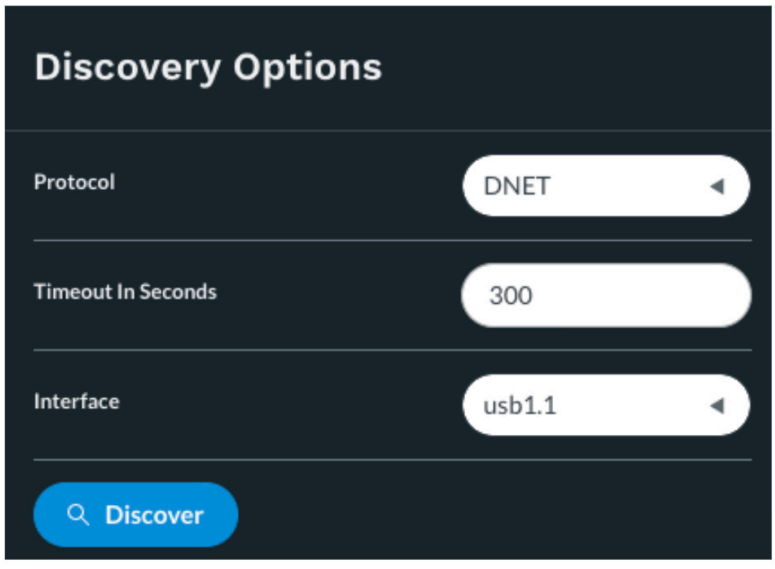
Correct and Active Port

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.

+ 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.



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.

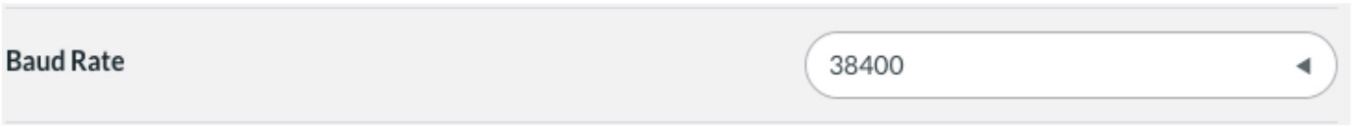
BACnet Discovery Issues

+ 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.



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.