TruVu Cell Modem Router

Setup Guide

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Verify that you have the most current version of this document from **www.hvacpartners.com**, the **Carrier Partner Community** website, or your local Carrier office.

Important changes are listed in **Document revision history** at the end of this document.

Contents

Introduction

The TruVu™ Cell Modem Router provides a cellular-based connection that allows you to support equipment remotely without having to install the i-Vu® server to the system. This document describes setup and configuration of the modem.

Requirements

- TruVu™ Cell Modem Router kit
- A computer with internet access (not already connected to a VPN)
- OpenVPN GUI Client v2.6.9 or newer
- One of the following TruVu™ controllers or routers with the latest FWEX firmware:
  - TV-MPCXP
  - TV-MPCXP1628
  - TV-MPCXP1628-NR
  - XT-LB (FWEX driver)
  - XT-RB (FWEX driver)
- Field Assistant v8.5 or later

NOTE The Cell Modem Router is currently only supported in North America and Mexico. Support for other parts of the world is expected to be a future feature.

Installation and setup

To establish a connection through the modem, you must:

- *Connect the modem to a local PC for initial setup* (page 2)
- *Create a modem interface password* (page 3)
- *Connect the modem to a TruVu™ controller or router* (page 4)
- *Install and set up the OpenVPN GUI* (page 5)
- *Establish and confirm a remote connection through OpenVPN* (page 6)
- (Optional but recommended) *Set up a system in Field Assistant* (page 7)
- (Optional) *Configure firewall settings in the modem interface* (page 8)

Once you have established a remote connection through OpenVPN, you can connect to the cell modem interface remotely by navigating to https://169.254.1.5 in a web browser. See *To configure settings in the cell modem interface* (page 3).

To connect the modem to a local PC for initial setup

1. Connect the power cable from the modem's power input to a 120v power outlet.
2. Connect both antennas on the modem's Main and Aux ports and place them in an open area with adequate cell service.

   TIP Use a mobile phone as an indicator of cell service strength.
3. Connect an Ethernet cable from the PC to any Ethernet port on the cell modem.
4. Configure the following settings on the PC:
   a) In the **Control Panel**, under **Network and Internet** > **Network and Sharing Center**, click **Change Adapter Settings**.
   b) Right-click the Ethernet connection used by the cell modem. Then, click **Properties**.
   c) Double-click **Internet Protocol Version 4 (TCP/IPv4)**.
   d) Select **Use the following IP address** and enter the following addresses:
      - IP address: 169.254.1.2
      - Subnet mask: 255.255.255.248
      - Default gateway: 169.254.1.5
   e) Click **Ok** on all windows to close.

To configure settings in the modem interface

Open a web browser and navigate to https://169.254.1.5 to access the cell modem interface. Upon your first login, sign in using the default user name "root" and default password "WTIH20".

Once you are logged in, create a new password for increased security and save the modem's IP address for later setup. See the sections below.

To create a password

1 On the **Dashboard**, click **System**. Then click **Administration**.

2 On the **Router Password** tab, enter your new password in the **Password** and **Confirmation** fields.

The password must meet the following requirements:

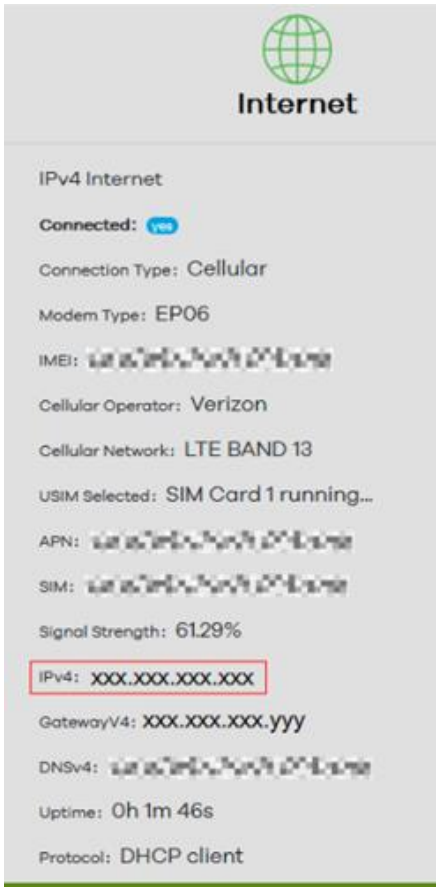
- Must contain at least 3 of the following:
  - Uppercase English letters (A to Z)
  - Lowercase English letters (a to z)
  - Numbers (0-9)
  - Non-alphanumeric characters (!,@,$,etc.)
- Should not contain your name

3 Click **Save**.

To locate the cell modem's IP address

Before closing the cell modem interface, locate and save the cell modem's IP address. You will use this address when setting up the OpenVPN connection. See *To set up the OpenVPN connection* (page 5).

Navigate to **Dashboard**. Then under **Internet**, locate the **IPv4** field.



To connect the modem to a TruVu™ controller or router

Once you have configured the modem through a local PC connection in the sections above, connect the modem to a TruVu™ controller or router.

NOTE You can only connect one TruVu controller to the cell modem.

1. Connect the power cable from the modem's power input to a 120v power outlet.
2. Connect both antennas on the modem's Main and Aux ports and place them in an open area with adequate cell service.

   TIP Use a mobile phone as an indicator of cell service strength.
3. Connect an Ethernet cable from the TruVu™ controller or router's Service Port to the port with a reference to WAN on the cell modem.

Once the cell modem is connected to a TruVu™ controller or router, you can also connect a TruVu™ Equipment Touch (part no. EQT3) touchscreen device. To do so, connect an Ethernet cable from any of the available cell modem's available Ethernet ports to the EQT3's Ethernet port.

To set up the OpenVPN connection

Use the OpenVPN GUI to assign the server, modem, and controller or router onto the same network. Follow the steps below to install the OpenVPN GUI and establish a connection.

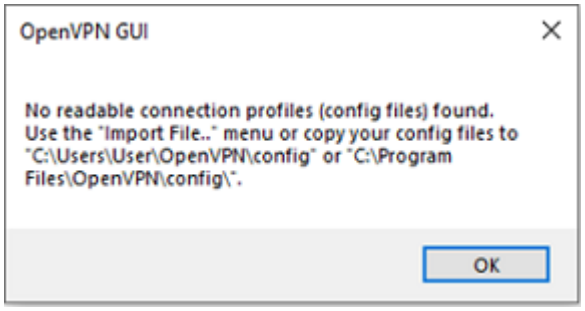
Download and install OpenVPN onto your computer

1 Download the latest OpenVPN GUI version from the **Community Downloads** page on the OpenVPN website: https://openvpn.net/community-downloads/

2 Select the appropriate installer for your computer's operating system.

3 In the installer window, click **Install Now**.

NOTE If the notice below appears during installation, disregard it and click **OK**. You will import a file in the following steps.



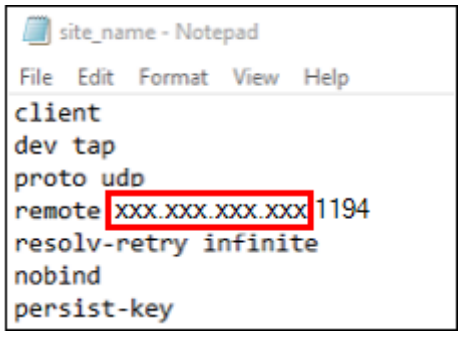
Import a modem configuration file

1 Obtain the configuration file either through the Carrier® Partner Community or your local account manager.

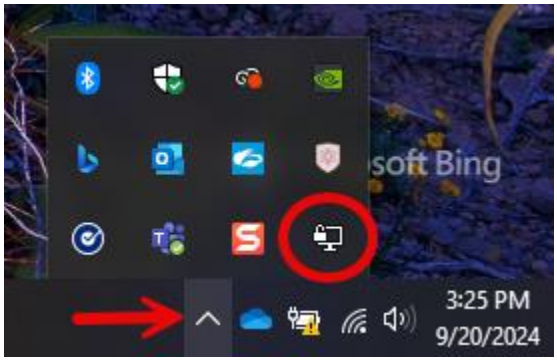
2 Open the configuration file and replace the IP address highlighted below with the cell modem's IP address that you saved earlier. See *To locate the cell modem's IP address* in *To configure settings in the cell modem interface* (page 3).

Save the file to your computer as a .ovpn file.

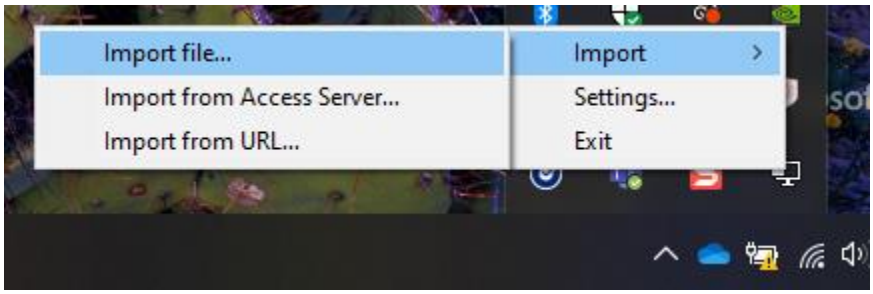
NOTE We recommend naming this file a site name.



3 Click the Windows taskbar arrow, then right-click the OpenVPN GUI icon as shown below.



4 Select **Import** > **Import file...** to browse to your saved .ovpn file and import it.



5 Right-click the OpenVPN GUI icon again and click **Connect**. If you have imported multiple files, select the desired connection to connect to.

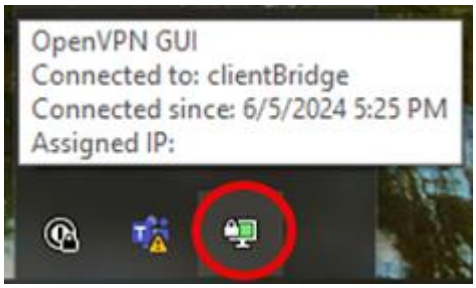
6 When the password dialog appears, enter "server" as the connection password.

To verify the connection

Verify that the controller or router is communicating successfully through both the modem and the TruVu™ controller or router using the following methods.

Modem connection

- Using Command Prompt, run the command `ping 169.254.1.5` and verify that there is a reply.
- Click the Windows taskbar arrow and hover over the OpenVPN GUI icon. A green icon indicates a successful connection.



TruVu™ controller or router connection

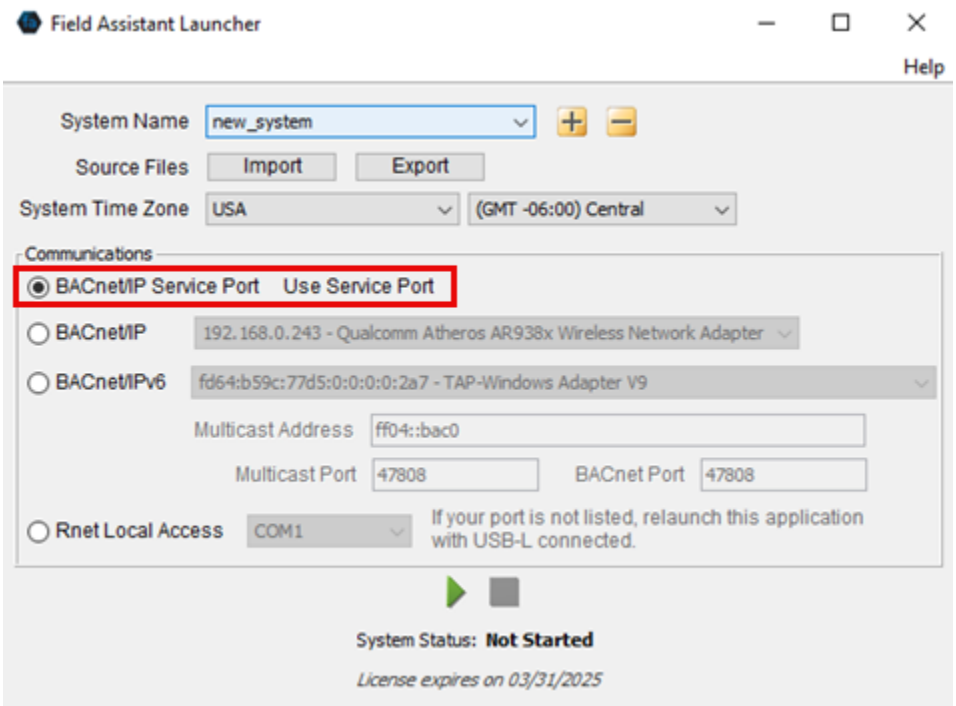
- Using Command Prompt, run the command `ping 169.254.1.1` and verify that there is a reply.
- Access the device's web interface through its Ethernet Service Port by launching a browser and navigating to http://169.254.1.1.

To set up a system in Field Assistant

1 Launch Field Assistant and create a new system.

NOTE We recommend naming your system the same name as the modem configuration file.

2 Under **Communications**, select **BACnet/IP Service Port**.



3 Click to start the system.

NOTE Historical trends and alarms are not available through the cell modem connection.

See the *Field Assistant User Guide* for more information on using Field Assistant.

To configure the modem firewall

As an optional step, you may choose to configure the modem's firewall rules for improved security. Navigate to https://169.254.1.5 to access the cell modem interface and follow the steps below.

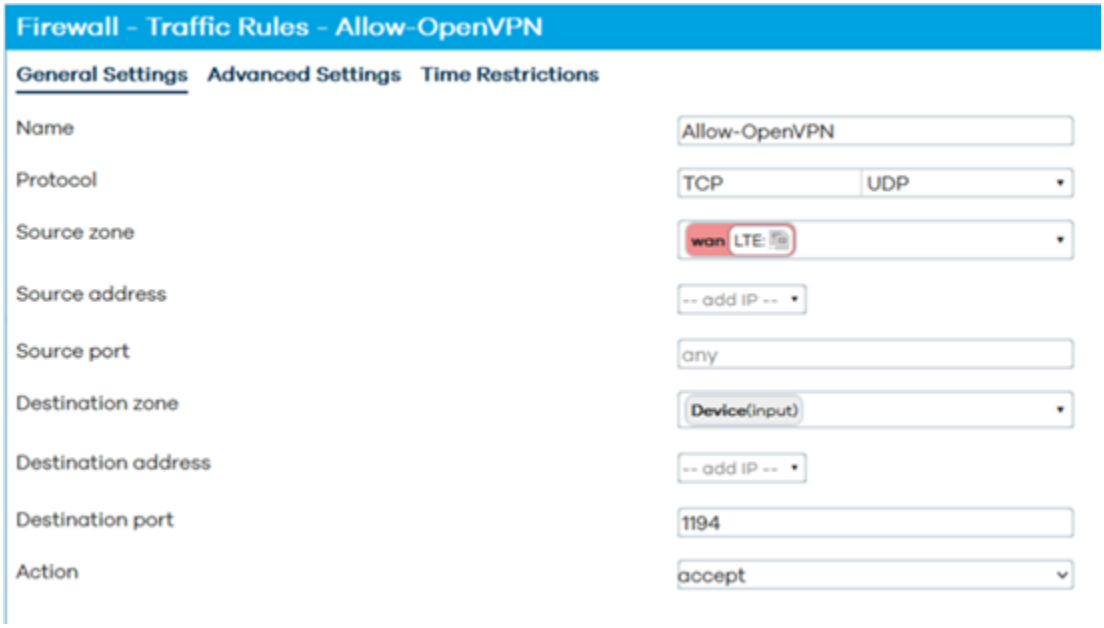
NOTE Ensure your public IP address will not change before configuring these settings.

To add a new firewall rule

1 Navigate to **Network** > **Firewall** > **Traffic Rules** and click **Add**.

2 Configure the **General Settings** page as shown in the image below.

NOTE You can enter any name in the **Name** field.



3 In the **Source address** drop-down menu, click **– add IP –** and enter the client's public IPv4 address in the **– custom –** field.

NOTE Use whatsmyip.org or search “What’s my IP address” in any search engine to obtain the client's public IP address.

4 Press **Enter**.

5 Click **Save**.

6 Click **Save & Apply**.

To edit an existing firewall rule

1 Navigate to **Network** > **Firewall** > **Traffic Rules** and click **Edit** on the rule you want to modify.

2 To add a new IP address, follow steps 3-6 in *To add a new firewall rule* above.

3 To remove an IP address, click the minus (-) button next to the IP address you want to remove.

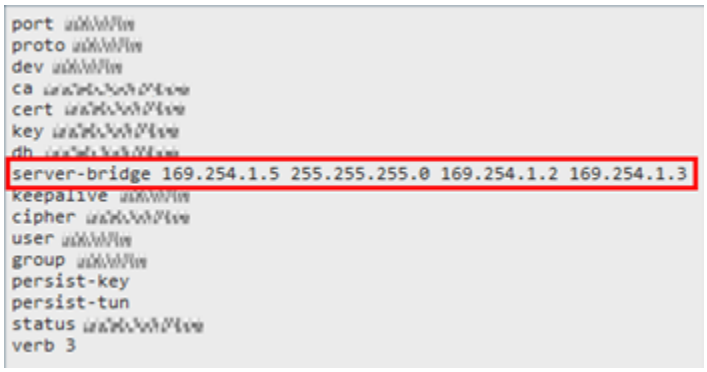
4 Click **Save**.

5 Click **Save & Apply**.

Troubleshooting

If the connection is not successful, see the table below.

Issue	Solution
The modem no longer establishes a connection.	Verify the following: • Your data plan is active. • Both antennas are securely plugged into the modem and placed in an area with adequate cell service. Use a mobile phone as an indicator of cell service strength. • Using Command Prompt, run the command `ipconfig` and verify that the OpenVPN adapter has an IPv4 address in the range of 169.254.1.2 through 169.254.1.4. If there is no IPv4 address in this range, see *DHCP doesn't provide client a valid IP address* below.
The connection to the modem drops frequently after approximately 2 minutes.	Verify that only one computer is connected to the modem at a time.
The connection to the modem is weak or inconsistent.	• Try switching the antennas into the opposite antenna ports. • Check the **Signal Strength** page in the cell modem interface: 1. Use an Ethernet cable to physically connect the modem to a local PC. 2. Navigate to https://169.254.1.5 and log in. 3. Go to **Dashboard**, then click **Signal Strength**.

Issue	Solution
DHCP doesn't provide client a valid IP address.	A controller's service port subnet is 255.255.255.248, so only IPs 169.254.1.1 through 169.254.1.6 are valid. 1.1 and 1.5 are reserved for the controller and modem respectively. **Solution 1:** Edit your client OpenVPN network adapter to a static IP address. See step 4 in *To set up the physical connection to the modem* (page 2). **Solution 2:** Edit the modem's configuration to restrict which IP addresses it leases. **1** In a web browser, navigate to https://169.254.1.5 and sign in. **2** On the **Dashboard**, click **VPN,** then click **OpenVPN**. **3** Click **Edit** on the listed OpenVPN instance. **4** Next to **server-bridge**, add the following IP addresses in a single line: 169.254.1.5 255.255.255.0 169.254.1.2 169.254.1.3  **5** Click **Save**. **6** On the left, click **VPN** > **OpenVPN**. Then click **Save & Apply**. **7** Power cycle the modem before reconnecting with OpenVPN.
A "Device Unknown" error is logged and a red banner appears on the driver page when trying to access the device from Field Assistant.	Determine if the device's **Device Instance** has been changed. If so, it must be changed in Field Assistant to match the device's actual *Device Instance*.
The controller/router's network settings are being overwritten with values from Field Assistant.	• Use the "instanceoverridesuppress enable" manual command to avoid overwriting the controller/router's settings during downloads. • Use the "instanceoverridesuppress disable" manual command to turn this feature off. • Use the "instanceoverridesuppress status" manual command to determine the current state of this feature.

Document revision history

Important changes to this document are listed below. Minor changes such as typographical or formatting errors are not listed.

Date	Topic	Change description	Code*
		No updates yet.	

* For internal use only