

How to Manage Remote Field Devices Using VPN

Moxa Technical Support Team
support@moxa.com

Contents

1	Introduction.....	2
2	Application Scenario	2
3	Prerequisites.....	3
4	Solution	4

Copyright © 2017 Moxa Inc.

Released on March 31, 2017

About Moxa

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With over 30 years of industry experience, Moxa has connected more than 50 million devices worldwide and has a distribution and service network that reaches customers in more than 70 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures. Information about Moxa’s solutions is available at www.moxa.com.

How to Contact Moxa

Tel: 1-714-528-6777
Fax: 1-714-528-6778

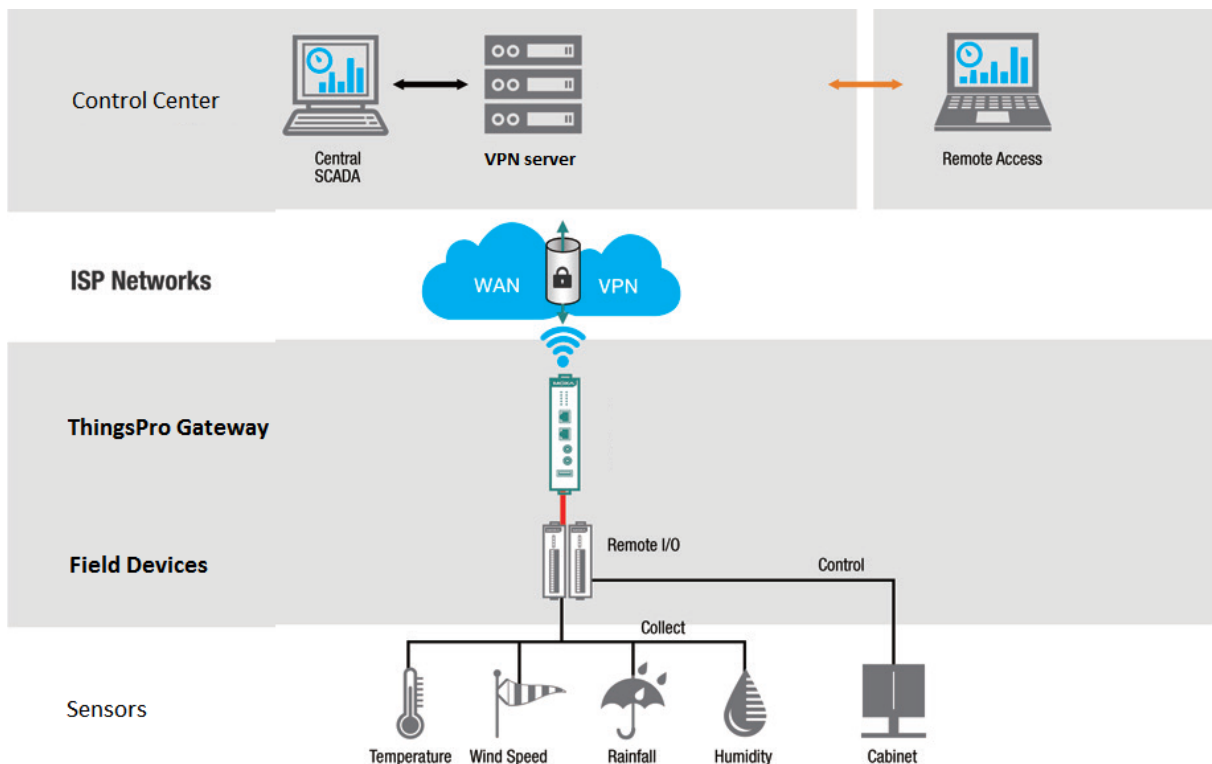


1 Introduction

As industry professionals keep up with the Industrial IoT trend and enjoy the benefits of valuable data transmission between devices, servers, and databases, they are aware that privacy is a serious concern and industrial systems must be secure to prevent unauthorized access. Moxa ThingsPro gateway enhances security with built-in VPN client and firewall functions, allowing users to set up a secure IoT network architecture for data transmission as well as device configuration and management.

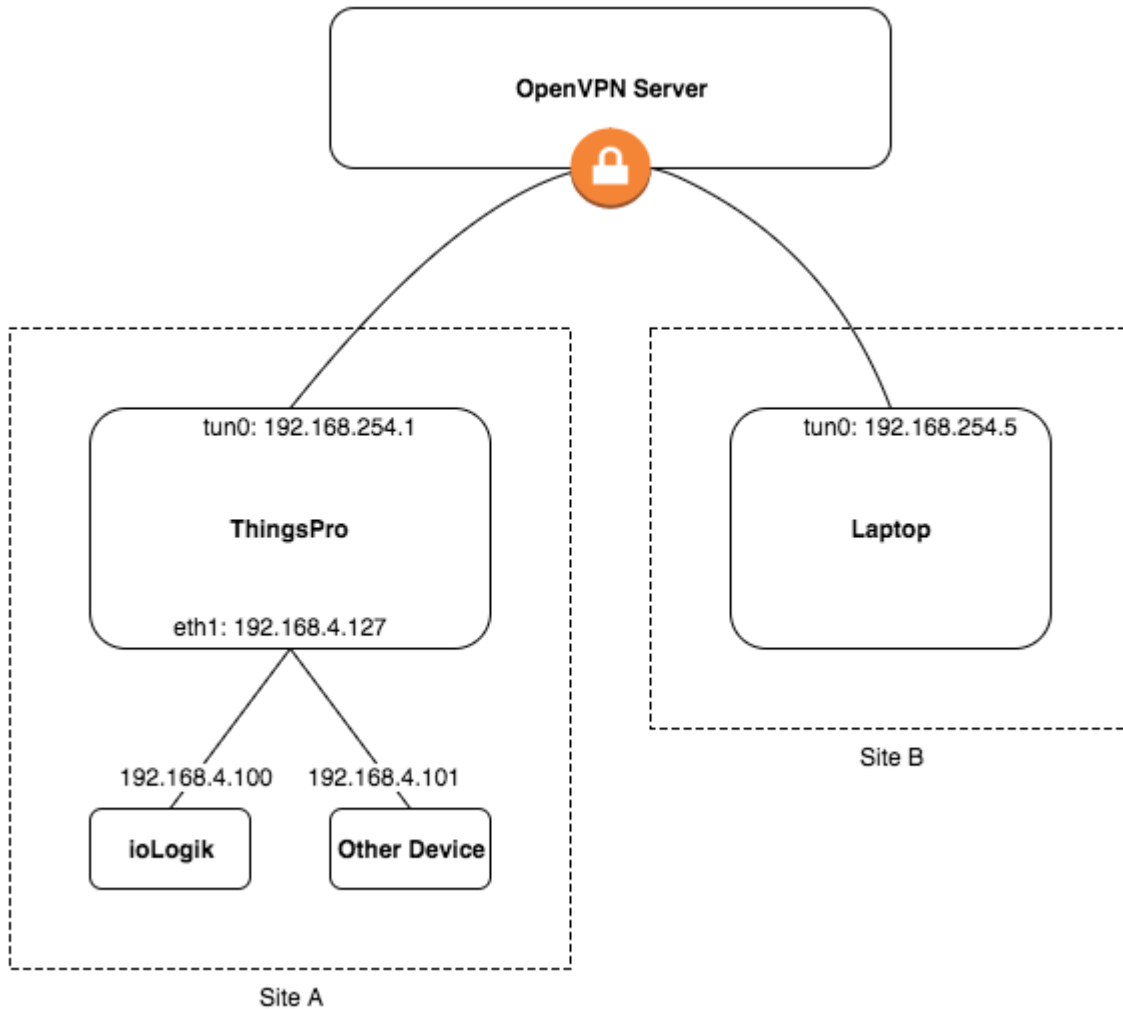
2 Application Scenario

Set up the ThingsPro Gateway as a VPN gateway to manage field devices connected to the gateway from a remote site. Configure a firewall between the control center and field devices to secure data transmission.



Moxa Tech Note Using the VPN Function in ThingsPro

For the purpose of this article, we assume that we have a network setup where a Moxa Iologik-E2242 device connected to a ThingsPro gateway needs to be accessed from a remote site through the VPN tunnel as illustrated in the following diagram:



3 Prerequisites

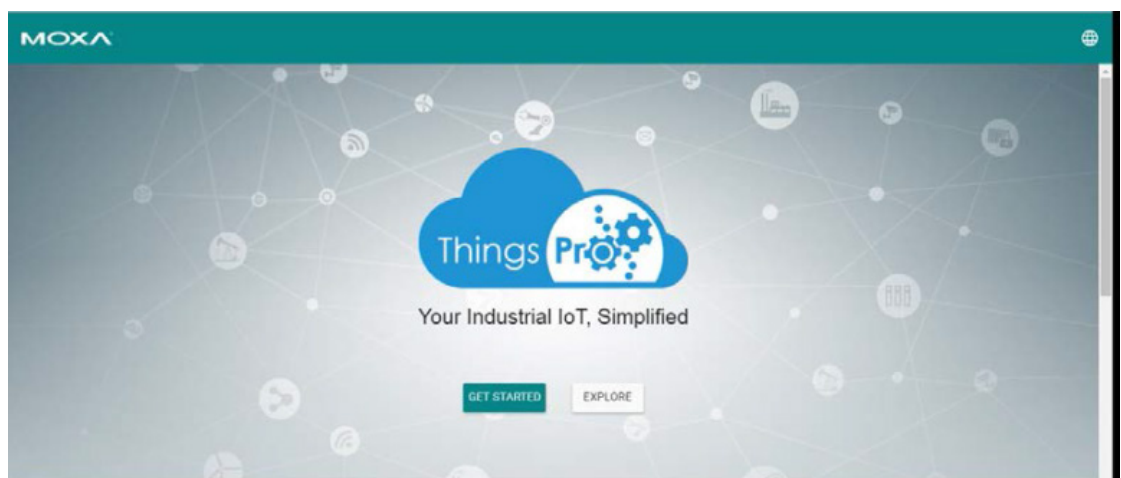
1. A couple of Moxa UC-8112 gateway computers with Internet access, and ThingsPro 2.0 Gateway and SD card installed.
For information about setting up a Moxa UC-8112, refer to the *ThingsPro User's Manual*.
2. PC/notebook with Chrome browser, VPN client, and Internet access.
3. Modbus device (e.g., Moxa ioLogik-E2242)
4. VPN server installed at the control center.

4 Solution

To use ThingsPro Gateway to access and configure a remote Modbus device using OpenVPN function, do the following:

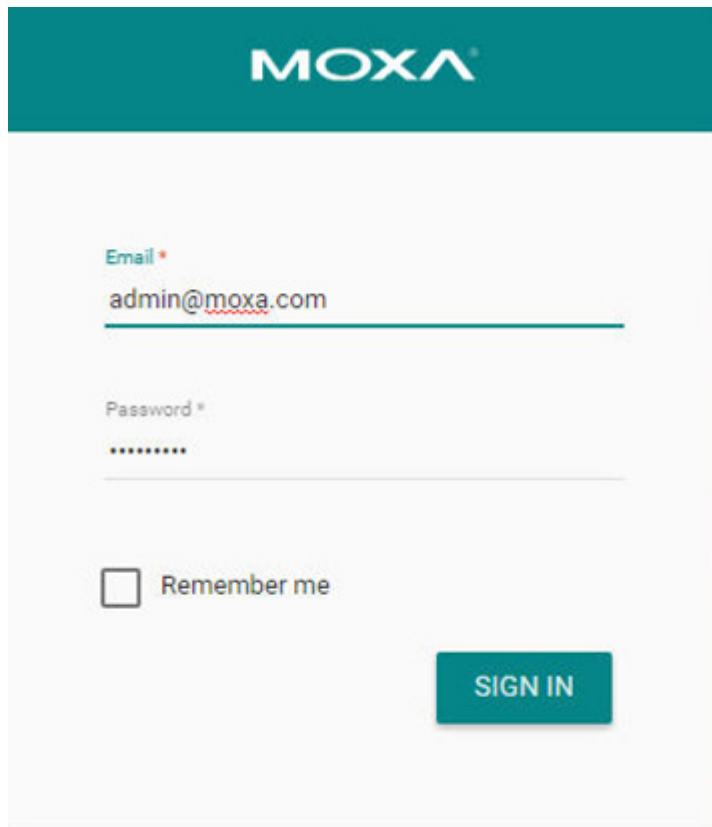
1. Configure the VPN Client on ThingsPro Gateway.

- a. Access the ThingsPro Gateway web interface by connecting to the following URL on eth1:
<https://192.168.4.127>
- b. Click **GET STARTED**.




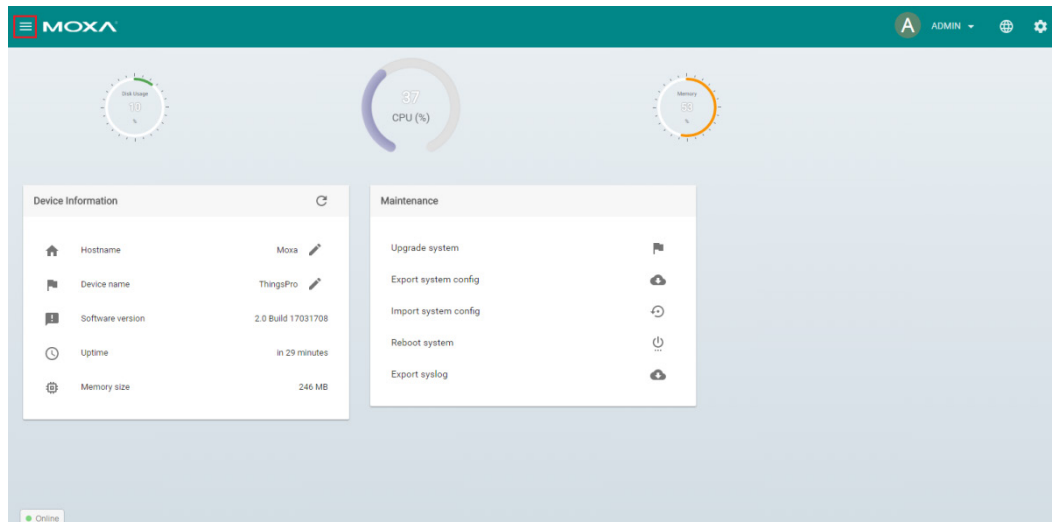
- c. Key in the **Email** and **Password** and Click **SIGN IN** to continue.

Moxa Tech Note Using the VPN Function in ThingsPro



The image shows the login page of the Moxa ThingsPro Gateway. At the top, there is a teal header with the "MOXA" logo. Below the header, the page has a white background. There are two input fields: "Email *" with the value "admin@moxa.com" and "Password *" with a masked password "*****". Below the password field is a checkbox labeled "Remember me". At the bottom right, there is a teal "SIGN IN" button.

- d. In the ThingsPro Gateway web page, click on the  (Menu) icon to open the main menu.



The image shows the main menu of the Moxa ThingsPro Gateway. At the top, there is a teal header with the "MOXA" logo and a user profile "ADMIN" with a dropdown arrow, a globe icon, and a settings gear icon. Below the header, there are three circular gauges: "Disk Usage" at 10%, "CPU (%)" at 37%, and "Memory" at 88%. Below the gauges, there are two panels: "Device Information" and "Maintenance".

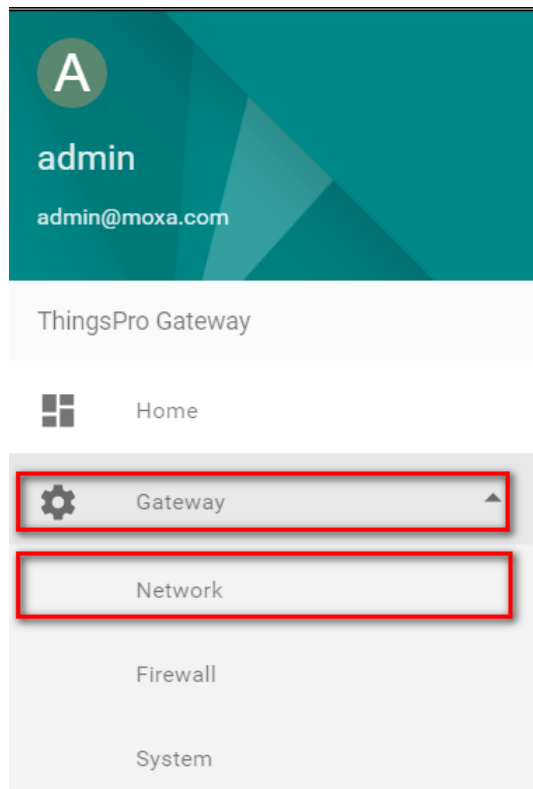
Device Information	
Hostname	Moxa
Device name	ThingsPro
Software version	2.0 Build 17031708
Uptime	in 29 minutes
Memory size	246 MB

Maintenance	
Upgrade system	
Export system config	
Import system config	
Reboot system	
Export syslog	

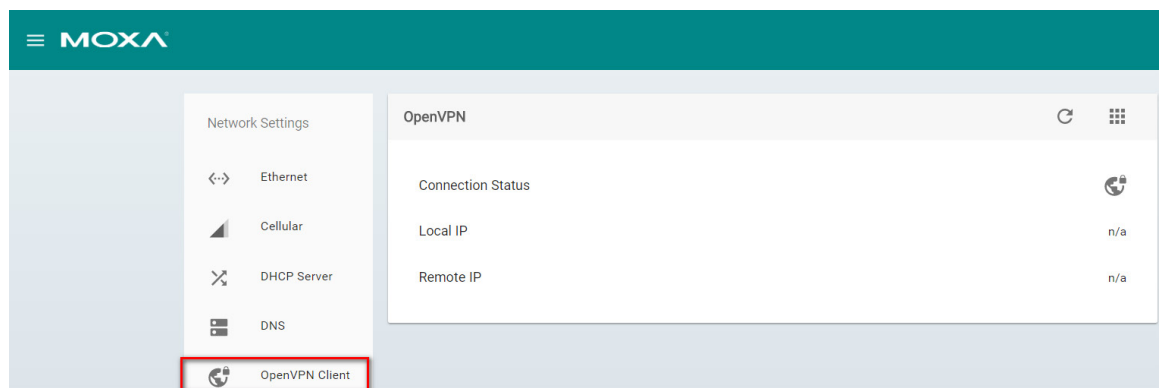
At the bottom left, there is a status indicator "Online".


- e. In the main menu, click on the **Gateway** link and select **Network**.

Moxa Tech Note Using the VPN Function in ThingsPro

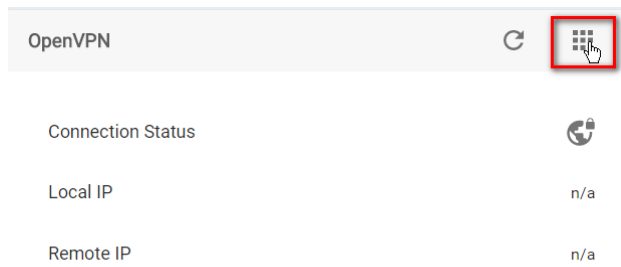


- f. Click on the **OPENVPN Client** link.



- g. In the OpenVPN page, click on the  button on the upper right corner of the page and select **Settings** to edit the OpenVPN client settings.

Moxa Tech Note Using the VPN Function in ThingsPro






- h. **Enable** the OpenVPN client by moving the slider all the way to the right.
- i. Click **SELECT** to browse to and upload an OpenVPN configuration file.
- j. Click **SAVE**.

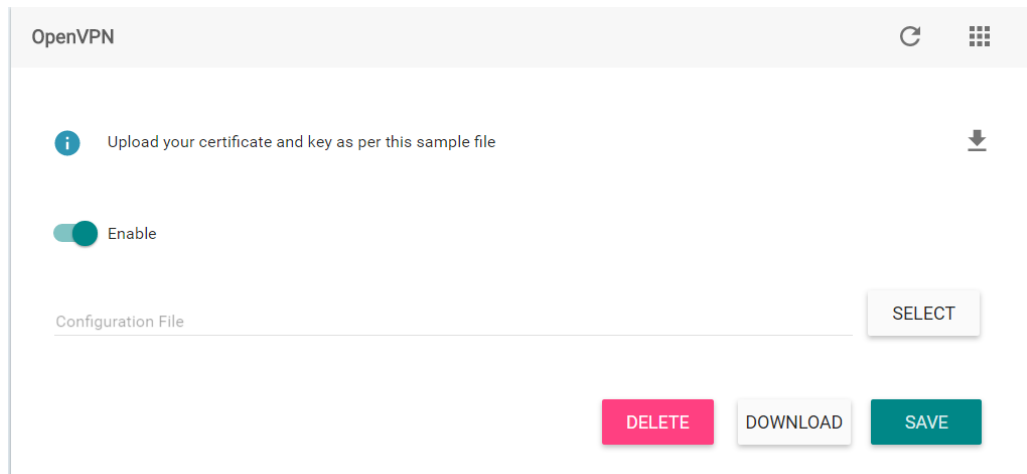
A message indicating that the OpenVPN client has been successfully updated is displayed.


The configuration file should contain the certificate and key information and saved in the *.ovpn format.

Note:

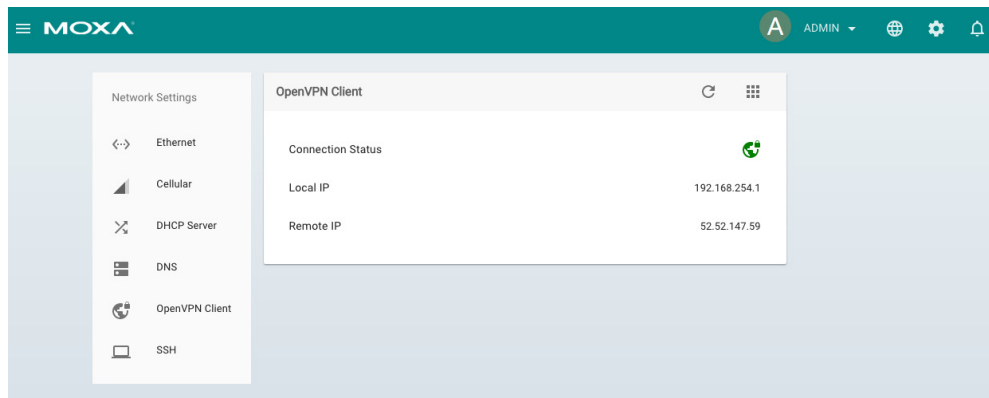
You can click on the  (Download) button to view a sample OpenVPN configuration file.

If you want to update the OpenVPN client settings, click on the  (Refresh) button. Click on the **DELETE** button to delete the configuration file. To replace the configuration file, click on the  (Download) button.



To view the status of the OpenVPN client, click on the  button and select **Status**. The status is displayed in the **Connection Status** field.

Moxa Tech Note Using the VPN Function in ThingsPro

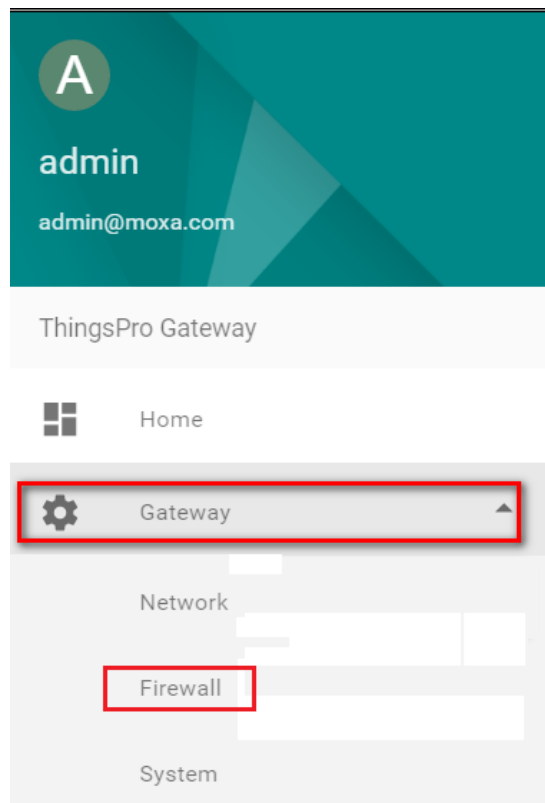


2. Configure the firewall settings on ThingsPro Gateway.


ThingsPro's Firewall function is a network address translation (NAT) technique, which is used to make services on a host residing within a protected or internal network available to hosts on the opposite side of the gateway (external network) by remapping the destination IP address and port number to the internal devices.

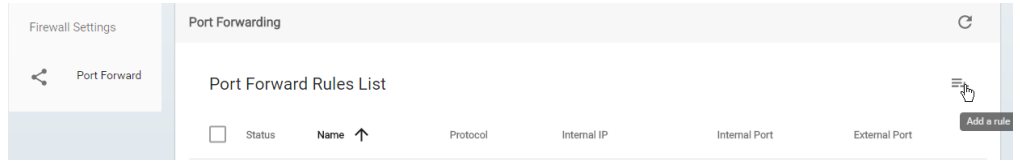
To configure the Firewall function in ThingsPro Gateway, do the following:

- a. In the ThingsPro Gateway menu, click on the **Firewall** link under the Gateway section.



Moxa Tech Note Using the VPN Function in ThingsPro

- b. Click  (Add a rule).



- c. Fill in the details.

In this article, we set up the following rule to match the network setup illustrated on *page 3* of this document

Edit rule ✕

Enable

Name *
Access_iologik_web

Internal IP *
192.168.4.100

Protocol *
BOTH

Internal Port *
80

External Port *
80

SAVE

Note **Internal IP** is the destination IP of a device that is connected to the gateway.
Internal Port is the destination port of a device that is connected to the gateway.
Internal and External Ports are used by the port forwarding function to forward traffic from a specific external port to an internal host on a specified port.

- d. Move the slider all the way to the right to **Enable** the rule.
e. Click **SAVE**.

Moxa Tech Note Using the VPN Function in ThingsPro

3. Access the ioLogik web interface from a remote PC/notebook.

Once you connect a PC/notebook to the VPN Server on the remote site, the PC/notebook will automatically be assigned an IP address on the same network subnet as the ThingsPro Gateway. The firewall is configured to forward network requests from port 80 to internal port 80 on the iologik device. You can use the IP 192.168.254.1 to access the iologik web configuration page to monitor and control the device.