ThingsPro® Software Suite Version 2 User's Manual

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www.moxa.com/product



ThingsPro® Software Suite Version 2 User's Manual

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The ThingsPro® Suite is a set of software packages built on the Debian Linux platform, an open platform that enables the integration of Fieldbus communications, computing, data acquisition, and wireless networking in a few simple steps. Featuring the Data Logger and Wireless Manager tools, ThingsPro empowers you to focus primarily on application development instead of the complex integration between things in the field and services in a centralized computing facility. ThingsPro Suite consists of the following three components:

Component	Description
ThingsPro Server (Server)	Software package for managing ThingsPro Gateways
ThingsPro Gateway (Gateway)	Software package to acquire data from Modbus devices connected
	to the gateway and to manage the devices.
ThingsPro Device Enablement utility	Utility for registering ThingsPro devices with the ThingsPro Server,
	running firmware upgrades, importing and exporting device
	configuration files, and for configuring basic device settings.

The following topics are covered in this chapter:

Introduction

Installing ThingsPro Gateway on Eligible Devices

- > Installing ThingsPro Gateway V2.5.0 on an Eligible Device
- > Installing ThingsPro Gateway V2.3 on an Eligible Device

Introduction

The ThingsPro Suite offers easy-to-use remote configuration for systems, peripherals, and wireless functions. With ThingsPro, you do not need comprehensive Modbus knowledge. You can easily configure and manage all your remote Modbus RTU and Modbus/TCP devices and acquire data from these devices in just a few steps. In addition, ThingsPro lets you schedule configuration and upgrade tasks on remote devices, essentially reducing human effort and maintenance cost. ThingsPro is a cellular-ready platform that provides the capability to keep the 4G-communication link always active, facilitating network troubleshooting and reducing system downtime.

Installing ThingsPro Gateway on Eligible Devices

NOTE Refer to the ThingsPro datasheet or product page on the Moxa website for a list of eligible devices.

Use the ThingsPro Gateway Installation SD Card to carry out the following instructions.

Installing ThingsPro Gateway V2.5.0 on an Eligible Device

Ensure that your device is a ThingsPro eligible device. A list of all eligible devices is available in the ThingsPro datasheet and product page. Download the ThingsPro Gateway V2.5.0 software package on to your computer from Moxa's website:

https://www.moxa.com/support/download.aspx?type=support&id=19092

To install the software on an eligible device, do the following:

1. Log in to your device using a valid username and password.



- 2. Upload the installation file directly to the device or copy it to an SD card.
- 3. If the installation file is stored in an SD card, insert the card into the SD card slot of the device.
 - For instruction on installing the SD card in the SD-card slot of your device, refer to the quick installation guide or the hardware user's manual for the device.

4. Switch the working directory to the directory in which the installation file is stored and extract the contents of the installation file to the same directory.

```
moxa@Moxa:~$ ls
thingspro_release-thingspro_v2.5_armhf_20181129-015144.frm thingspro.sh
```

You should see the following two files.

- thingspro.sh: The installation script
- thingspro_release-thingspro_v2.5_armhf_20181129-015144.frm: The ThingsPro Gateway V2.5.0 installation package
- 5. Run the following command on the device to install ThingsPro Gateway V2.5.0.

```
moxa@Moxa:~$ sudo bash thingspro.sh install
```

You can check the installation log by typing the following command.

moxa@Moxa:~\$ sudo nano /var/log/thingspro_install_20181129-030138.log

6. You can upgrade your existing ThingsPro 2 version using the Firmware Upgrade function on the ThingsPro Gateway or Server.

Maintenance	
Upgrade Gateway software	P
Export Gateway configuration	٥
Import Gateway configuration	\odot
Reboot Gateway	Ϋ́
Export Syslog	٥

You can use the following command to check the upgrade log.

moxa@Moxa:~\$ sudo tail -f /var/log/upgrade.log

7. ThingsPro V2.5.0 includes a start/stop function.

Use the following command to start/stop the ThingsPro Gateway services.

moxa@Moxa:~\$ sudo mx-tp-ctl -e <n>

- <n> = 0: Stop the ThingsPro Gateway
- <n> = 1: Start the ThingsPro Gateway

If the ThingsPro Gateway services are no longer required, use the following command to remove them from the system.

moxa@Moxa:~\$ sudo thingspro.sh uninstall

This command removes all ThingsPro Gateway configuration files from the system; reconfirm that you want to remove all configuration files before you run this command and only use it if you intend to completely remove ThingsPro from your device.

Installing ThingsPro Gateway V2.3 on an Eligible Device

Ensure that your device is an eligible ThingsPro device. A list of all eligible devices is available in the ThingsPro datasheet and on the product page. Use the ThingsPro Gateway Installation SD Card to carry out the following instructions.

1. Log in to your device.



- Insert the ThingsPro Gateway Installation SD Card in the SD card slot of the device.
 For instructions on installing the SD Card in the SD-card slot of your device, refer to the quick installation guide or the hardware user's manual for the device.
- 3. Switch the working directory to the SD Card where the installation files are located.

moxa@Moxa:~\$	ls -al						
total 165236							
drwxr-xr-x 2	moxa m	юха	4096	Jan	29	16:31	
drwxr-xr-x 4	root r	root	4096	Jan	29	16:31	
-rwxr-xr-x 1	root r	root	522	Jan	26	00:54	install.sh
-rwxr-xr-x 1	root r	root 1	69185130	Jan	26	00:54	thingspro amd64 20180125-173533.frm

4. Install ThingsPro Gateway on your device.

Run a command below that matches the model name of your device.

moxa@Moxa:~\$ sudo bash install.sh uc8100-mxcloud-cg

moxa@Moxa:~\$ sudo bash install.sh uc8100me-mxcloud-cg

moxa@Moxa:~\$ sudo bash install.sh mc1121-mxcloud-cg

Use the following command to check the installation log.

moxa@Moxa:~\$ sudo tail -f /var/log/thingspro-install.log

5. To upgrade ThingsPro from v2.1 to v2.3, use the Firmware Upgrade function on the ThingsPro Gateway or Server or type the following command in the console.

moxa@Moxa:~\$ sudo sys-upgrade thingspro_amd64_20180125-1735<u>3</u>3.frm

Use the following command to check the upgrade log.

moxa@Moxa:~\$ sudo tail -f /var/log/upgrade.log



DO NOT power off the computer during the installation process because doing so may lead to firmware corruption.

6. The device will restart twice during the installation procedure.

To confirm that your device is ThingsPro-ready, connect a PC/laptop computer to LAN port 2 of the device and use the PC/laptop computer to access the address, http://192.168.4.127. If the following ThingsPro home page is displayed, the installation is successful.



Your device computer is now ThingsPro-enabled!

ThingsPro Gateway

This chapter describes how to configure the ThingsPro gateway.

The following topics are covered in this chapter:

Basic Configuration

- Editing User Profiles
- > Choosing a Language for the User Interface

Using the Control Panel

- > Device Information
- > Editing the Hostname
- Editing the Device Name
- > Checking the Software Version
- > Checking the System Uptime
- > Checking the System Memory Size

Maintenance

- Upgrading the Firmware
- > Exporting the System Configuration File
- > Importing a System Configuration File
- Rebooting the System
- > Exporting the System Log Files

Configuration Menu

- Configuring ThingsPro Gateways
- Configuring Gateways
- Managing User Accounts
- Managing User Programs
- > Configuring Modbus Settings for Data Logging
- Modbus Management
- Managing Log Profiles
- Managing Modbus Slave Devices
- Managing IoT Applications

Basic Configuration

Accessing Your ThingsPro Gateway

1. Open a browser and connect to https://192.168.4.127.

ΜΟΧΛ	
Things Prot	
Your Industrial IoT, Simplified	
GET STARTED EXPLORE	
· · · · · · · · · · · · · · · · · · ·	

 Click Get Started to continue and type the default username and password: Username: admin@moxa.com Password: admin1234

For the root account, use the following information:

Username: root@moxa.com Password: root1234

3. Click **Sign In** to continue. The ThingsPro dashboard and configuration page is displayed.

Memory

Viewing the Dashboard Status

The dashboard shows the real-time (update interval could be 15 to 30 seconds) status of your device. The information shown includes CPU, Memory, and Storage usage.

	мс	DXV.						
		System Brouge 45 S		29 CPU (%)	- Memory 49			
De	vice In	formation	G	Maintenance				
	♠	Hostname	Moxa 🧨	Upgrade system				
		Device name	UC-8112-LX-CG 🧨	Export system config	0			
	H	Software version	2.1 Build 17071004	Import system config	\odot			
	0	Uptime	an hour	Reboot system	Ϋ́			
	٥	Memory size	245 MB	Export syslog	٥			
		0t	Description					
		Component	Description	a system or ovtornal stors				
Storage				e system or external stora	ige capacity is used			
CPU			Indicates the current CPU usage					

If an external storage device, such as an SD card or USB disk, has been inserted, the external storage icon will appear. All values are shown as percentages.

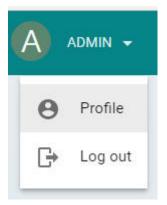
Indicates the current system memory usage

		🔥 admin 🗸 🖨 🌣
System Storage (20) %	40 CPU (%)	Memory 23 *
Device Information C	Maintenance	
 Hostname Moxa Device name UC-5112-LX-CG Software version 2.5.0 Build 18103023 Uptime 3 hours Memory size 500 MB 	Upgrade Gateway software Import Gateway configuration Import Gateway configuration Import Gateway Reboot Gateway Import Gateway Export Syslog Import Gateway	
Online		

You may change the "Hostname" or "Device name" here. Also, you may proceed Maintenance tasks such as Upgrade system, export or import system configuration the quick maintenance panel.

Editing User Profiles

After you have successfully connected to the gateway, you can start configuring the ThingsPro Gateway functions. You might want to update your user profile first. Click on the **ADMIN** box on the upper-right corner of the main page and select **Profile.**



Click on **EDIT** to edit the profile.

	Account List								G	=+
	Name 🔨	Company	Email		R	ble				
A	user		user@moxa.com		u	ser			/	p ²
admin				Page:	1 💌	1 - 1 of 1	К	<	>	Ж
admin@moxa.com										
EDIT										

Type the account profile and information in the fields. When finished, click **SAVE** to complete.

Account Profile)	×
Name *		^
admin		
Company		l
Role *		
Administrator	*	
New Password		I
Confirm Password		l
SAVE		•

To add new users, click the add icon on the top right corner of the screen.



Checking System Notifications (only available in V2.5.0 or

above)

You can view the system notifications by clicking on the bell icon on the top-right corner of the main configuration page. The bell icon turns yellow and take the "ringing" position when there are unread notifications.



The system notifications consist of important system information that users are required to pay attention to or take actions. For example, users should change the default password to make the system more secure. When the system detects default passwords, it will send a notification to remind users to change their default passwords.

	A ADMIN -
Import	ant Info.
í	Please change your default password

Usually, the system offers a quick and easy way to proceed with corrective actions. Take the example of the default password change; Users can click on the notification "Please change your default password" to open a dialog to change the password.

• NOTIFICATIONS_CHANGE_PASSWORD	
To protect your accounts, please change the default password immediately.	
Change Your Password	
Old Password *	
New Password *	
Confirm Password *	
CHANGE IT LATER SUBMIT	

Choosing a Language for the User Interface

ThingsPro Gateway currently offers English and Traditional Chinese interfaces. Select from the language icon in the main configuration page.

ADMIN -	¢	⊕	٠
	Engli	sh	
	繁體	中文	

Using the Control Panel

ThingsPro Gateway provides a control panel that you can use to view, enable, or disable the some specific system settings. Click the Control Panel icon from the main page to access the panel.



View the current status of the settings from the page below. You can enable or disable the settings directly from the Control Panel page.

Cont	rol Panel	×
NETW	ORK	^
	SSH	•
Ê	Syslog	•
Q	SSDP	•
\bigcirc	Web Access from WAN	•
•	Fixed DNS	•
X	DHCP (eth0)	•
X	DHCP (eth1)	
SYSTE	M	
Ģ	Reboot	- 1
${\mathbb P}^{n}$	Upgrade	
Ð	Restore Configuration	
6	Backup Configuration	
6	Backup Syslog	

WARNING

Turning off the **Web Access from WAN** setting will disconnect the ThingsPro Gateway from the Server.

Device Information

This section allows users to update system hostname and device name, and view the system status, such as software version, system uptime, and system memory size.

Device I	nformation		G
ŧ	Hostname	Moxa	/
p.	Device name	ThingsPro	1
!	Software version	2.0 Build 1	7030204
\bigcirc	Uptime		in 5 days
٥	Memory size		246 MB

Editing the Hostname

In **Device Information**, click the edit icon, and edit the hostname.

Moxa



2.0
1.0
1.7

Provide the hostname in the field. When finished, click **SAVE**.

Editing the Device Name

In Device Information, click the edit icon, and edit the device name

Pu	Device name	ThingsPro	ï	
Provide	the device name in	the field. Wh	nen finished, o	click SAVE .
Edit	Device Name	×		
Name Things	sPro			

Checking the Software Version

Software version

You can check the software version from the control panel.



2.0 Build 17030204

Checking the System Uptime

You can check the system uptime from the control panel.



in 4 hours

Checking the System Memory Size

You can check the system memory size from the control panel.



Memory size

246 MB

Maintenance

This section allows users to update various system settings.

Maintenance	
Upgrade Gateway software	
Export Gateway configuration	0
Import Gateway configuration	Ð
Reboot Gateway	Ģ
Export Syslog	0

Upgrading the ThingsPro Gateway

To upgrade the ThingsPro Gateway with the software packages provided by Moxa, click on the **Upgrade Gateway Software** icon in the **Maintenance** section.

p.

```
Upgrade Gateway software
```

Select the software package file in .frm format on your	r computer, or drop the file into the upgrade page. W	∕ait
for a few minutes for the system to upgrade.		

Upgrade Sy	stem	×
1		-
1	Click to select a file or drop a file here!	1
i 1		1



ATTENTION

A system upgrade with incorrect firmware can cause system damage or failure. Contact Moxa technical support before upgrading your system.

Exporting the Gateway Configuration File

In the **Maintenance** section, click on the icon to export the gateway configuration file.

Export Gateway configuration

0

A gateway configuration file in the **tar.gz** format will be downloaded on to your computer.

Importing a Gateway Configuration File

In **Maintenance** section, click the icon to import the gateway configuration file. This function can help restore your system to the previous status, or save you time when configuring multiple gateways with similar configuration.

Import Gateway configuration	
------------------------------	--



You can select the specific items you want to recover, or select **All** to recover the whole system.

Import System Config			×
All			
System	Ethernet	Cellular	
DHCP Server	DNS	Serial	
Time	Port Forwarding	OpenVPN Client	
Data Logger (Overwrite Only)	Applications	User Programs	
CS Remote Control			
1			1
1			1
1			T
1	NUMPERATION VIEW IN ADDRESS ADDR		ΞĨ.
1	Click to select a file or drop a file here!		1
1			1
1			T
I			I.
			-

Rebooting the Gateway

In Maintenance, click on the Reboot Gateway icon to reboot the gateway.

Reboot Gateway	С. С	
Click Yes to reboot the gateway.		
Would you like to reboot the sys		
CANCEL	YES	
The following screen will appear; wait for t	he gateway to reboot.	
Connection is down because syst	em is rebooting.	
Wait for the system to reboot before reconnecting, a	id please note that the IP address may cha	inge.

Exporting the System Log Files

In **Maintenance**, click the icon to export the system.

Export	sys	log
--------	-----	-----

٥

A system log file in **tar.gz** format will be downloaded to your system.

Configuration Menu

You can use the configuration menu for various ThingsPro Gateway settings.

Click the menu bar icon to access the configuration menu.

≡	M			
		System		
D	evice l	nformation		G
	ŧ	Hostname	Моха	1
	pa -	Device name	ThingsPro	-
	!	Software version	2.0 Build	17030204
	0	Uptime		in 5 hours
	٥	Memory size		246 MB
	Inline			

Configuring the Gateway

Click on the Gateway link to configure gateway settings, such as Network, Firewall, and System.

\$ Gateway	*
Network	
Firewall	
System	

Configuring Network Settings

This section includes various network settings such as Ethernet, cellular, routing (only available in v2.3 and above), DCHP Server, DNS, Open VPN Client, and SSH.

Click **Network Overview** (only available in ThingsPro V2.3 and above) to check the current network status.

Netwo	ork Settings	Network Overview	C
0	Network Overview	WAN LAN	
<···>	Ethernet	ETHO WWANO	
Ŧ	WIFI	Ethernet	
	Cellular	Cable Status	0
¢	Routing	Network Status	0
X	DHCP Server	Connection Type	Static IP
•	DNS	P	192.168.3.127
¢	OpenVPN Client	Netmask	255.255.255.0
	SSH	Gateway	192.168.3.254
		MAC Address	00:90:e8:69:1e:5b

Configuring Ethernet Settings

Click **Ethernet** to view the current Ethernet settings.

Vetwo	rk Settings	Ethernet	C 🏭
0	Network Overview	ETH0 ETH1	
<···>	Ethernet	Туре	LAN
•	WIFI	IP	192.168.4.127
4	Cellular	Netmask	255.255.255.0

To configure the Ethernet settings:

- 1. Click on the tab for the Ethernet interface.
- 2. Click on the edit icon.

Ethernet		C III
ETH0	ETH1	
Туре		WAN
IP		192.168.31.89
Netmask		255.255.255.0
DNS 1		10.128.8.8
DNS 2		10.128.8.5

3. Select Settings.

Information	0
Settings	\$

4. Configure the Ethernet interface settings.

 NOTE
 The ETH0 Ethernet interface is used for the WAN and the ETH1 interface is used for the LAN. The default IP addresses are:

 eth0=192.168.3.127

eth1=192.168.4.127

thernet	C	
ETHO ETH1		
O DHCP		
Static IP		
IP *		
192.168.31.89		
Netmask *		
255.255.255.0		
Gateway		
192.168.31.254		
DNS 1		
10.128.8.1		
DNS 2		
10.128.8.2		

	SAVE
hernet	C III
ETHO ETH1	
O DHCP	
Static IP	
IP* 192.168.4.127	
Netmask *	
255.255.255.0	

5. Click **SAVE**.

Configuring Wi-Fi Settings

Click **WiFi** to check the current Wi-Fi status. Check **Enable Wireless Client** if you want this function to be activated.

Netwo	rk Settings	WIFI	G
0	Network Overview	WLANO	
<···>	Ethernet	Enable Wireless Client	≡+
Ŧ	WIFI		015
	Cellular		SAVE

To add a Wi-Fi network, click the add icon.

WIFI	C
WLAN0	
Enable Wireless Client	=+
	SAVE

Click the **CLIENT** tab and enter the SSID, security mode, and the password for the wireless network you want to connect to. When finished, click **SAVE**.

CLIENT IP SETTING	
	SCAN
SSID *	
Security Mode *	Ŧ
Password *	

SAVE

You may also click **SCAN** to scan for all of the available access points that your computer can connect to. Select an access point to automatically fill in its SSID and security mode, then enter its password. You can also click the refresh icon to refresh the list.

AP List	c ×
AAEONWireless-EC-G	
Black howler	ê 🔻
Guest-13B0	
MHQ-NB	ê 🔻
MHQ-Mobile	ê 🔻
MHQ-Visitor	ê 🔻

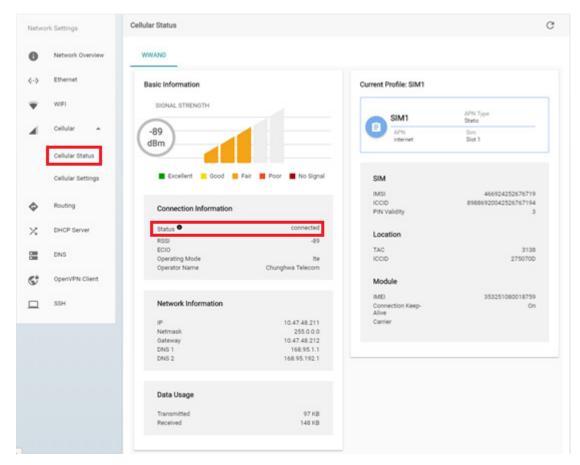
Click the **IP SETTINGS** tab to configure the IP settings. You may choose to set your IP using DHCP or static IP. If you select Static IP, enter all the necessary information in the text fields. When finished, click **SAVE**.

I			
CLIENT	IP SETTINGS		
O DHCP			
Static IP			
IP.*			
127.0.0.1			
Netmask *			
255.255.255.0			
Gateway			
127.0.0.1			
DNS 1			
127.0.0.1			
DNS 2			
127.0.0.1			

Configuring Cellular Settings

Viewing the Cellular Status

Click on the **Cellular Status** link to view the current settings. The **Basic Information** section shows a clear picture of the status of your cellular network including Signal Strength, Connection Information, Network Information, and Data Usage.



The table below lists the different statuses of a cellular connection and what they indicate.

Status	Description
initializing	Retrieving cellular module and SIM card information and unlocking the SIM card (if
	the SIM card is locked)
nosim	No SIM card detected or SIM card error
pin	SIM card is locked with a PIN code
ready	SIM card is ready for a connection
connecting	Establishing a connection
connect_failure	Connection failure or keep-alive function failure (if keep-alive is enabled)
connected	Connection succeeded with keep-alive enabled or disabled
powr_cycle	Power-cycling the cellular module
service_searching	Roaming*
service_attached	Connected to a base station
pin_error	PIN code error
switching_carrier	Switching between telecom carriers.
switching_sim	Switching between SIM card slots (only available in dual-SIM models).
initialize_failed	Initialization error

NOTE (*) If your device is stuck in the "service_searching" status for more than 5 minutes even though your SIM card works fine and the signal strength is good enough for a successful cellular connection, this might be due to the accidental activation of the flight mode. However, such cases are rare. When this happens, log in to your device's console and type the following command:

moxa@Moxa:/home/moxa\$ sudo cell_mgmt set_flight_mode 0

For additional details on the cell_mgmt utility, refer to the Arm-based Linux User's Manual.

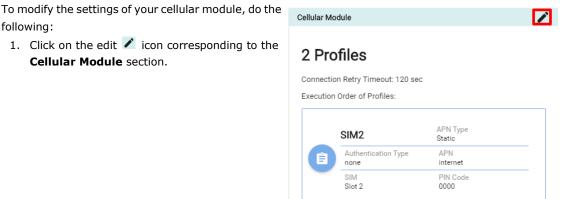
The **Current Profile** of your cellular connection (only available in V2.5.0 or above) along with the **SIM**, **Location**, and **Module** information is also displayed on the **Cellular Status** page.

Configuring the Cellular Settings

To modify the cellular network settings for your device, click on the **Cellular Settings** link (**Gateway** > **Network** > **Cellular** > **Cellular Settings**).

Netwo	rk Settings	Cellular Sett	tings			C
0	Network Overview	WWAND				
<i>(</i>)	Ethernet	Cellular M	lodule		/ Keep-alive	1
Ŧ	WIFI Cellular 🔺		ofiles		Target Host Ping Interval Reboot Setting	8.8.8.8 60 Off
	Cellular Status	Executio	n Order of Profiles:			
	Cellular Settings	0	SIM2 Authentication Type none	APN Type Static APN Internet		
Þ	Routing		SIM Slot 2	PIN Code 0000		
ς	DHCP Server					
=	DNS		SIM1	APN Type Static		
2	OpenVPN Client		Authentication Type none SIM Slot 1	APN Internet PIN Code 0000		
	SSH		2101.1	2000		

You can check the status of the **Cellular Module** and **Keep-alive** function and modify the settings of your device's cellular network here.



SIM1	APN Type Static
Authentication Type none	APN internet
SIM Slot 1	PIN Code 0000

2. Configure the cellular module settings.

•	Enable/disable the cellular module
+	Add a new connection profile
Ê	Modify an existing connection profile
Î	Remove an existing profile from the device

You can rearrange the profile boxes to change the priority in which the profiles are to be used, and specify the **Connection Retry Timeout value**.

3. If you are operating in the North American region, you will be able to switch between

service providers.

Cellular Module	×
Enable Cellular Module	
2 Profiles	+
Execution Order of Profiles:	
#1 SIM2 Static APN	
# 2 SIM1 Static APN	Î
Connection Retry Timeout 120	
	SAVE
Profile Settings	×
Profile Name * SIM2	
Static APN	
O Dynamic APN	
Authentication Type none	*
APN	
internet	
PDP CID	
SIM 2	
2 Pin Code	
0000	
Carrier	
VZW	*
	SAVE

4. Click **SAVE** to apply the changes.

To delete an existing profile, click on the delete icon for the profile. Click **SAVE** to confirm the deletion or **CANCEL** to retain the profile.

(i) Profile 1 v	vill be dele	ted !
Would you like to del	ete the profile ?	
ATTENTION New set cellular module.	ting will take effe	ect after saving in
	CANCEL	SAVE

To create a new connection profile, do the following:

- 1. Click on the add 🛨 icon.
- 2. Specify a unique name to the profile.
- Refer to your carrier instruction to use Static or Dynamic APN and configure the corresponding settings.
- If your carrier offers private network services, you may choose chap, pap, or both in the Authentication Type.
- 5. Enter your Username and Password to log in to the service network.
- Enter the **PIN Code**, if your SIM card requests it (three wrong attempts will lock the SIM card).

In ThingsPro V2.5.0 or above, ThingsPro supports Dual-SIM feature for eligible devices that have two SIM slots. You can assign a SIM card slot for each profile.

- 7. Click the SAVE SAVE button to save the Profile Settings.
- 8. Save the module settings by clicking on the **SAVE** button in the **Cellular Module** section.

NOTE: You can discard the changes at any time by clicking on the Cancel \times icon on the upper right corner.

Profile Settings	×
Profile Name * SIM2	
Static APN Dynamic APN	
Authentication Type	
none	*
APN internet	
PDP CID	
1	
SIM	
2	•
Pin Code 0000	
SAV	/E

When you click on the SAVE button on the **Cellular Module** section the module is restarted to apply the changes. The settings will take effect after the cellular module is successfully initialized.

Keep-alive

Cellular carriers may disconnect user equipment (UE) when they are idle or do not transmit data via their cellular network for a certain period of time, depending on their policy. Once disconnected, your device will have to redial to connect back to the cellular network. The **Keep-alive** function will help you maintain the connection between your device and the carrier service by pinging a specific host on the Internet at periodic intervals.

To manage the **Keep-alive** settings for your cellular network, do the following.

1. Click the edit 🖍 icon on keep-alive section.



2. Enable the Keep-alive function

Keep-alive	>
Enable Keep-alive	-
Tarpet Host	
8.8.8.8	
Ping Interval	
60	

- 3. Specify the Target Host and the Ping Interval in seconds.
- 4. In some circumstances, a system reboot might bring an unstable or malfunctioning device back to normal state. You can select the **Reboot system after disconnected from Internet for 20 mins** to enable the system reboot function.
- 5. Click the SAVE **SAVE** button to apply the changes

Configuring Routing Settings (only available in v2.3 and above)

Click **Routing** to view the current default route settings.

Netwo	ork Settings	Routing		G
0	Network Overview	Default Route		
<···>	Ethernet	Priority	Default gateway	Interface
Ŧ	WIFI	0		tun0
	Cellular	1		wlan0
\$	Routing	2		wwan0
X	DHCP Server	3	0	eth0
-	DNS	$\uparrow \downarrow$		
G	OpenVPN Client			SAVE
	SSH			

The routing sequence depends on the priority settings, with higher priorities (0 is the highest) given precedence. ThingsPro Gateway will use the interface associated with highest priority interface that is available.

Interfaces of your eligible device could include:

- tun0: VPN Tunnel
- wlan0: Wi-Fi
- wwan0: Cellular
- eth0: Ethernet (usually LAN1 when the default setting is WAN).

To change the priority of a certain interface, select the checkbox in front of the interface, and then click the arrow button to move the priority higher (move up) or lower (move down). Click the "SAVE" button to confirm the change. For example, the following steps apply to the Wi-Fi interface (wlan0):

1. Select the "wlan0" (Wi-Fi) interface checkbox.

Routing			G
Set r	outing priority		
	Priority	Default gateway	Interface
	0		tun0
	1		wlan0
	2		wwan0
	3	•	eth0
\uparrow	\checkmark		
			SAVE

2. Click the "Up" arrow to set a higher priority.

Routing		C
Set routing priority		
Priority	Default gateway	Interface
0		wlan0
□ 1		tun0
2		wwan0
3	 Image: A start of the start of	eth0
$\uparrow \downarrow$		
		SAVE

3. Click the "SAVE" button to confirm the changes to the routing settings.

Routing		C
Set routing priority		
Priority	Default gateway	Interface
0		wlan0
1		tun0
2		wwan0
3	•	eth0
$\land \downarrow$		
		SAVE

Configuring DHCP Settings

Click $\ensuremath{\textbf{DHCP}}$ Server to view the current DHCP server settings on the main page.

Netwo	ork Settings	DHCP Server	C III
0	Network Overview	ETHO ETH1	
<i>«</i> ··»	Ethernet	Status	\oslash
Ŧ	WIFI	Start IP	192.168.3.200
	Cellular	End IP	192.168.3.250
X	DHCP Server	Netmask	255.255.255.0
	DNS	Lease time	3600 sec
¢	OpenVPN Client	Primary DNS	8.8.8.8
	SSH	Secondary DNS 1	8.8.4.4
		Secondary DNS 2	
		Domain name	

To configure the DHCP server settings, click the edit icon.

DHCP Server	C III
ETH0 ETH1	
Status	0
Start IP	192.168.3.200
End IP	192.168.3.250
Netmask	255.255.255.0
Lease time	3600 sec
Primary DNS	8.8.8.8
Secondary DNS 1	8.8.4.4
Secondary DNS 2	
Domain name	

Select Settings.

Information	0
Settings	\$

Configure the DHCP server for ETH1. Provide the necessary information, such as Start IP, End IP, Netmask, Least time, Primary DNS, Secondary DNS, and Domain name. When finished, click SAVE.

HCP Server	C	
ETHO ETH1		
Enable		
Start IP 192.168.4.200		
End IP		
192.168.4.250		
Netmask		
255.255.255.0		
Lease time		
3600		\$
Primary DNS		
8.8.8		
Secondary DNS		
8.8.4.4		
Secondary DNS		
127.0.0.1		

Configuring DNS Settings

Click **DNS** to view the current DNS settings.

Netwo	rk Settings	DNS	C	
0	Network Overview	Active network interface		eth0
<··>	Ethernet	Primary DNS		
Ŧ	WIFI	Secondary DNS		
	Cellular			
X	DHCP Server			
	DNS			
¢	OpenVPN Client			
	SSH			

To configure the DNS settings, click the edit icon.

DNS	G 🏢
Active network interface	eth0
Primary DNS	10.128.8.8
Secondary DNS	10.128.8.5

Select **Settings** to continue.

Status	0
Settings	\$

Select Enable static DNS, and provide Primary DNS and Secondary DNS. When finished, click SAVE.

NS	C 🏢
Enable static DNS	
Primary DNS	
127.0.0.1	
Secondary DNS	

Configuring Open VPN Client Settings

Click **OpenVPN Client** to view the current OpenVPN settings.

Netwo	rk Settings	OpenVPN	C	
0	Network Overview	Connection status		G
<···>	Ethernet	Local IP		n/a
Ŧ	WIFI	Remote IP		n/a
	Cellular			
X	DHCP Server			
	DNS			
¢	OpenVPN Client			
	SSH			

To configure the settings, click the edit icon.

OpenVPN	C III
Connection Status	¢
Local IP	n/a
Remote IP	n/a

Select Settings.

Information	0
Settings	\$

You can download an OpenVPN setting sample file by clicking on the download icon.

DpenVPN	
Upload your certificate and key as per this sample file	<u>*</u>
Enable	
Configuration File	SELECT
	SAVE

Select **Enable**, and then select the file from your computer, and then upload to the ThingsPro Gateway. When finished, click **SAVE**.

Check the **Connection status** icon. If the icon is green, the OpenVPN client is connected. If the icon remains gray, the client is not connected.

OpenVPN	C III
Connection status	¢
Local IP	10.128.1.1
Remote IP	10.128.1.2

Configuring SSH Settings

Click **SSH** to view the current SSH settings.

Netwo	rk Settings	SSH	G	8 8 8 8 8 8 8 8 8
0	Network Overview	Status		0
<··>	Ethernet			
Ŧ	WIFI			
	Cellular			
\times	DHCP Server			
	DNS			
C	OpenVPN Client			
	SSH			

To configure the settings, click the edit icon.

SSH	C	
Status		0

Select **Settings** to continue.

Status	0
Settings	\$

Select **Enable** and provide password. When finished, click **SAVE**.

SSH	C	
Enable		
Password		
	SAVE	

Configuring Firewall Settings

To configure firewall settings, select **Firewall** from the Gateway main menu.

۵	Gateway	-
	Network	
	Firewall	
	System	

Select **Port Forward** to view the current firewall settings.

Firewall Settings	Port For	warding										C
< Port Forward	Por	t Forw	ard R	ules Li	st							≡+
		Status	Name	\uparrow	Protocol	Internal IP	Intern	al Port	Ex	ternal P	ort	
	4											
						Page:	1 •	0 - of	$\left \right<$	<	>	

To add a new rule for port forward, click the icon.

ort Forwarding								C
Port-Forwarding Rules							1	=+
Status Name 个	Protocol	Inter	nal IP	Internal p	ort	Ex	ternal p	Add a
								÷
		Page:	1 💌	0-0 of 0	К	<	>	×

Select **Enable**, and then provide the necessary information such as **Name**, **Internal IP**, **Protocol**, **Internal Port**, and **External Port** in the specific fields. When finished, click **SAVE**.

Edit rule	×
Enable	
Name *	
Internal IP *	
127.0.0.1	
Protocol *	•
Internal Port *	
External Port *	
	SAVE

Configuring System Settings

Select **System** from the Gateway menu.

۵	Gateway	
	Network	
	Firewall	9
	System	

System settings include various options, such as Serial, Time, Admin (only available in v2.3 and above), GPS, CS Remote Control and Maintenance.

System	n Settings	Serial Ports				C	
÷÷÷	Serial	PORT 1	PORT 2				
Ô	Time	Interface				/dev/	'ttyM0
[00	Admin	Mode				î	RS232
9	GPS			 	 		
(CS Remote Control						
4	Maintenance						

Configuring Serial Settings

Select **Serial** to view the current serial settings.

Systen	n Settings	Serial Ports	C 🏭
ţţţ	Serial	PORT 1 PORT 2	
Ċ	Time	Interface	/dev/ttyM0
0	GPS	Mode	RS232
(CS Remote Control		
٩	Maintenance		

To configure the serial settings, click the edit icon.

Serial Ports		C
PORT 1	PORT 2	
Interface		/dev/ttyM0
Mode		RS232

Select Settings.

Status	0
Settings	\$

Configure the serial port interface by selecting from the drop-down list. When finished, click **SAVE**.

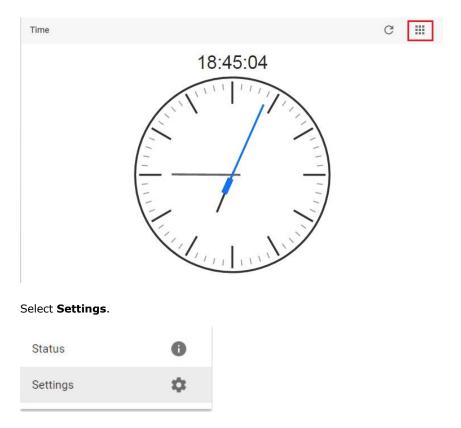
Serial Ports	C	
PORTO PORT1		
RS-232		
RS-485-2W		
RS-422/RS-485-4W		

Configuring the System Time

Select Time to view the current system time.

System Settings	Time	C III
Serial	18:43:25	
🔊 Time	The state of the s	
Q GPS		
CS Remote Control		
A Maintenance		
		1
	Date	2017-03-07
	Time Zone	Asia/Taipei
	Synchronization Mode	Auto
	Time Server	pool.ntp.org

To configure the system time, click the edit icon.



Time Zone *

Asia/Taipei

Synchronization Mode

Time Server *

pool.ntp.org

Time Interval *
3600

Select if you want to use **Synchronization Mode**, and offer the **Time Server** name and **Time Interval** value. When finished, click **SAVE**.

Configuring Admin Settings (only available with v2.3 and above)

Click **Admin** to view the current HTTP/HTTPS services settings and corresponding port number.

System	n Settings	Admin	G	
÷÷÷	Serial	HTTP Server		
Ċ	Time	Enabled		0
60	Admin	Port		80
0	GPS	HTTPS Server		
(CS Remote Control	Enabled		Ø
4	Maintenance	Port		443

Click the edit icon to configure the Admin settings.

Syster	n Settings	Admin	G	
÷÷÷	Serial	HTTP Server		
\odot	Time	Enabled		\oslash
[00]	Admin	Port		80
0	GPS	HTTPS Server		
(•	CS Remote Control	Enabled		0
4	Maintenance	Port		443

Select Settings.

Status	0
Settings	\$

Use the Toggle bars to enable/disable HTTPS and HTTP services for the current ThingsPro Gateway. You can assign a port to each of these two services. When finished, click **SAVE**.

Serial Ime Ime Admin GPS GPS CS Remote Control Maintenance	Systen	n Settings	Admin
Nime HTTPS server port * 443 Coll Admin O GPS Enable HTTP HTTP server port * 80	ţţţ	Serial	•
Admin SPS Image: CS Remote Control 80	O	Time	HTTPS server port *
GPS HTTP server port*	[0]	Admin	443
CS Remote Control	•	GPS	
Maintenance	(:	CS Remote Control	
	٩	Maintenance	

Configuring GPS Settings

Select GPS to view the current GPS settings.

System	n Settings	GPS	G	
ŧŧŧ	Serial	Latitude		11
\odot	Time	Longitude		22
0	GPS			
Î	CS Remote Control			
٩	Maintenance			

To configure the GPS settings, click the edit icon.

GPS	C III
Latitude	11
Longitude	22

دما	lact	Settings.
Jei	iect	Settings.

Status	0
Settings	\$

Provide the Latitude and Longitude values in the appropriate fields. Starting with ThingsPro v2.3, you may get the location information from the GPS data retrieved by your eligible device if you have purchased and installed the cellular module w/ GPS feature. You can enable this function to get GPS data automatically. When finished, click **SAVE**.

GPS	G	
i Find out your location : <u>http://www.latlong.net/</u>		
Enable (only available in v2.3 or above) Latitude * 0		
Longitude * O		
	SAVE	

Configuring Remote Control Settings

Select **CS Remote Control** to view the current settings. This allows you to remotely connect to ThingsPro Server. You can get this information during the Enablement Utility registration process.

Systen	n Settings	Connect to ThingsPro Server	C 🏭
÷÷	Serial	Enable	٢
0	Time	UUID	4264e559-096f-478a-932c-15df5345108
9	GPS	Host	52.52.197.22
Î	CS Remote Control	Port	808
٩	Maintenance		

To configure, click the edit icon.

Connect to ThingsPro Server	C 📰
Enable	•
UUID	4264e559-096f-478a-932c-15df5345108c
Host	52.52.197.226
Port	8080

Select Settings.

Status	0
Settings	\$

Select **Enable**, and provide the values for **Host**, **Port**, and **PSK**. You can click **TEST CONNECTION**, or **SAVE** to finish.

onnect to ThingsPro Server	G	
Enable		
UUD		
4264e559-096f-478a-932c-15df5345108c		
Host *		
52.52.197.226		
Port*		
8080		
PSK		
11676888a2a67545e9b50f1191b9c063b15ea2a8b88e289196a6e83cd252e29d		
TEST CONNECTION	SAVE	

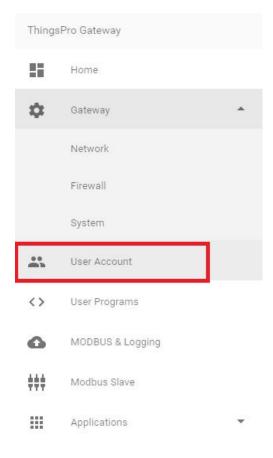
System Maintenance

This section is the same as the procedure in Maintenance in the main menu section. Refer to **Maintenance** section.

Systen	n Settings	Maintenance	
‡‡‡	Serial	Upgrade system	P
Ô	Time	Export system config	0
0	GPS	Import system config	\odot
(CS Remote Control	Reboot system	ů
٩	Maintenance	Export syslog	G

Managing User Accounts

This section describes how to add new account, and manage the existing account. Select **User Account** from the menu.



Creating a New Account

To create a new account, select the icon.

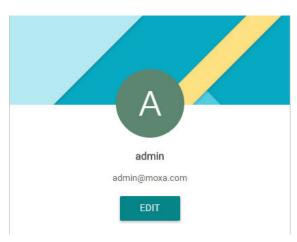
Account List								C	≡+
🗌 Name 个	Company	Email		Role				Cre	ate Accoun
user		user@moxa.com		user				-	^p
			Page:	1 💌	1 - 1 of 1	<	<	>	×

Provide the necessary information for the new account. When finished, click **SAVE**.

Account Profile	×
Email •	
Name *	
Company	
Role *	*
New Password	
Confirm Password	
SAVE	

Editing the Administrator Information

To edit the administrator information, click **Edit**.



Edit the information in the specific fields. When finished, click **SAVE**.

Name * admin	
Company	
company	
Role *	
Administrator	٣
New Password	
Confirm Password	
Confirm Password	

Updating User Account Information

To update an existing user, check the user, and then select the edit icon.

1 is selected									Î
Name 🔨	Company	Email		Role					
user		user@moxa.com		user					P.
			Page:	1 💌	1 - 1 of 1	<	<	>	×

For access rights of the root, admin, and user, refer to the following table.

	Configuration	API Token
root	read/write	write
admin	read/write	N/A
user	read	N/A

Edit the information in the specific fields. When finished, click **SAVE**.

Name *	
Name	
user	
Company	
Role *	
User •	
New Password	
Confirm Password	

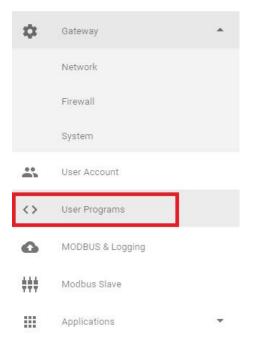
Deleting a User Account

To delete an account, select the account, and then click the delete icon.

1 is selected							Î
Name 🛧	Company	Email	Role			Remo	ove Account
user		user@moxa.com	user			/	P.
			Page: 1 ▼ 1-	-1 of 1 🛛 🔀	<	>	Я

Managing User Programs

ThingsPro Gateway allows developers to develop their own programs or applications and upload them to ThingsPro Gateway. Select the **User Programs** tab from the main menu.



To add a program, click the add icon.

Custom Programs						G
Program List						=+
Status	Program name	Arguments	Log File	Program File	Last Run	Add a program
				Page: 1 🔻	0-of K <	× ×

Select **Enable**, provide the name of the program, and select the file from a specific location (refer to the following example to create the file you want to upload). You can also specify when the program should run. For example, whenever the system starts up or at a periodic interval. When finished, click **SAVE**.

Example

Scenario: Synchronize system time with network time server every minute.

Follow the steps below to create the script file and upload it to ThingsPro gateway:

- 1. Connect to the UC-8112-LX computer through the console port or via an Ethernet cable. Log in to the computer.
- Create a working directory on the ThingsPro Gateway. moxa@Moxa:~\$ mkdir myproject
- 3. Enter this working directory and create a shell script file in this folder. The name of this file must be "exec". The content of this example shell script is:

#! /bin/sh ntpdate \$1

Note: The UC-8112-LX computer generally supports C, C++, Python, shell script, and JavaScript. You may use these programming languages to develop your program.

- 4. When you finish developing the program, set the "exec" file to have execution permissions. moxa@Moxa:~/myproject\$ chmod +x exec
- Use the tar command to compress all files created in this folder. moxa@Moxa:~/myproject\$ tar cvzf myproject.tar.gz .
- 6. Enter a name for the program, then click **Select** to upload the compressed file. The shell script needs an argument to specify the network time server. ThingsPro Gateway will terminate the user program after the "timeout" value expires. If the timeout value is set to 0, then ThingsPro Gateway will leave the user program running permanently.

Edit a Program		×
Enable		•
Program Name * sync-time		1
Carlot Fla		
Script file myproject.tar.gz	SELECT	
Arguments		
time.google.com		- 1
Timeout * O		
Run automatically at star Run periodically At intervals of *	tup	
1		
	SAVE	

7. After clicking the **SAVE** button, the program will be available under the **User Programs** section of the main menu.

For more details on creating user programs, download the ThingsPro Programmer's Guide.

Configuring Modbus Settings for Data Acquisition

This section describes how to configure Modbus settings and logging. Select **Modbus Data Acquisition** on the main menu.

A adm admin(in @moxa.com	
Menu		
55	Home	
۵	Gateway	•
*	User Account	
<>	User Programs	
6	Modbus Data Acquisition	
‡ ‡‡	Modbus Slave	
	Applications	*

Equipment Template and Data Tag Management

You can use Modbus compatible templates to configure field devices in ThingsPro, and connect the devices to the gateway. By default, ThingsPro software includes preconfigured templates for Moxa ioLogik Series. You can modify the ioLogik templates to set up connections to Modbus /RTU or Modbus /TCP devices.

You can add, remove, or update equipment templates in the Equipment Template List section on the Settings page.

To configure a Modbus device in ThingsPro and connect it to the gateway, do the following:

1. Select a template from the Equipment Template List

or

Create a new template in the Equipment Template List.

- 2. Define a tag for the device in the template, and specify the device details.
- 3. Add the device to the ThingsPro system.

EQUIPMENT TEMPLATE		MODBUS DEVICE		LOG UPLOAD	
Template Management					G
Template List					<u>↑</u> =+
Name 🔨	Tag Count	Template Action		B	Tag Action
ioLogik-E1210	16		/	=+ □	•
ioLogik-E1211	31	Ē	/	=+ □	•
ioLogik-E1212	32		1	=+ □	•
ioLogik-E1213	28		/	=+ □	•
ioLogik-E1214	18		/	=+ □	•

Downloading a Template

To download an equipment template, do the following:

In the Equipment Template List, select the device and click download icon to download the current template to your local computer.

Template Management			C
1 template(s) selected			<u>*</u>
Name 🔨	Tag Count	Template Action	Tag Action
ioLogik-E1210	16	ū	=+

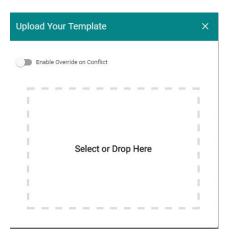
You can also select more devices and download all templates at one time.

Uploading a Template

To upload a template, click upload icon.

Template Management			C
Template List			<u>∎</u> = ₊
Name 🔨	Tag Count	Template Action	Tag Action
ioLogik-E1210	16	6	1 =+ 🗇 🗣

Select the template file from the local folder, and wait for a few second to complete the upload process.



Adding a Template

To add a template, click the add icon.

Template Management			C
Template List			\$ ■+
Name 🔨	Tag Count	Template Action	Add a template Tag Action
ioLogik-E1210	16	Ē	A = 1 A

Add the template name. When finished, click **SAVE**.

Edit Templa	te Name	×
Name		
	SAVE	

Copying a Template

Select the device, and then click the copy icon.

Template Management						C
1 template(s) selected						± ii
Name 🔨	Tag Count	Template Action			2	Tag Action
ioLogik-E1210	16		1	≡+		•
ioLogik-E1211	31	Copy template		≡+		•

You can edit the new template name. When finished, click **SAVE**.

Edit Template	Name ×
Name	
ioLogik-E1210	
	SAVE
	Stel Addition

Removing a Template

Select the device, and then click the remove icon. The template will be removed.

Template Management						G
1 template(s) selected						± Î
Name 🔨	Tag Count	Template Action			1	Remove templates
ioLogik-E1210	16		1	≡+		•
ioLogik-E1211	31			≡+	ē	•

Note that if a Modbus template is being used, you cannot remove the template, and a device tag cannot be updated. Remove the device in Modbus Management page first.

Updating a Device Tag

Select the device, and then click the update tag icon.

Template Management					C
1 template(s) selected				<u>+</u>	Î
Name 🔨	Tag Count	Template Action		Tag A	Action
ioLogik-E1210	16		1		•
ioLogik-E1211	31	ē	Update tag		•

Update the tag in the following page. When finished, click **SAVE**.

Edit Tag	×
Template: ioLogik-E1210	
Tag List	
di0	
Tag Name * di0	
Function * read-discrete-inputs Address * 0	
Deta Type boolean	
Quantity *	_
1 Enable Invalid Value	-
Unit	

Adding a Device Tag

Select the device, and click the add tag icon to add a device tag.

Template Management			C
1 template(s) selected			± î
Name 🔨	Tag Count	Template Action	Tag Action
ioLogik-E1210	16		1
ioLogik-E1211	31		Add tag

Edit the tag information in the related fields. When finished, click $\ensuremath{\textbf{SAVE}}.$

Ψ.

Edit Tag	×	Edit Tag	>
Template: ioLogik-E1210	4	Unit	
Template. Iocogik 21210		Description	
Tag Name *		0,0,1,10,	
		Enable Byte Order	
Function *	-		
Address *		Enable Auto Scaling	g
		Slope-intercept	
Data Type		O Point-slope	
Quantity *		Slope *	
1			
		Offset *	
Enable Invalid Value			
Invalid Value *		SAVE	E
Unit			
	-		

Refer to the following table for the description of the Modbus device details.

Field	Description
Tag Name	Assigns a tag name for the device
Function	Selects the Modbus read function for the device. The read functions supported
	include read-coils, read-input-registers, read-discrete-inputs,
	read-holding-registers, write-single-coil, write-single-register,
	write-multiple-coils, and write-multiple-registers.
Address	Specifies the read/write address of the device
Data Type	Specifies the data type for this tag/register for the device read operation
	(e.g.: uint16, uint8, uint32, float32, and float64). This field is mandatory.
Quantity	Specifies the amount of data read/write per read operation. For coil and input
	register, 1 means 1 bit; for input register and holding register, 1 means 1 word
	(16-bit).
Enable Invalid Value	Sets the specified number as an invalid value.
	First select the Enable Invalid Value option and then specify the value that you
	want to set as invalid in the field.
	When an invalid value is specified, ThingsPro will ignore the value and will retain
	only the valid value. This option will essentially reduce system loading and
	improve system efficiency. For example, if you do not want to receive 1, then 1 is
	set as an invalid value. When ThingsPro receives the value 1, it will ignore this
	value.
Unit	Specifies the unit that should be written into the logs for all the valid values
	received. For example, you can set the unit as MB, in which case, all values
	received will be logged with the unit "MB" next to the values. This option provides
	a way to make the logs more readable, which in turn makes it convenient for
	system administrators to analyze the data they receive.
Description	Provides additional description for the tag.
Enable Byte Order	Enables byte ordering of the composite data frame.
Enable Auto Scaling	Enables auto scaling of the value read from the device.
	The auto scaling is calculated based on the following formulas:
	Slope-intercept: OUTPUT = Slope * INPUT + Offset
	Point-slope: OUTPUT =
	((INPUT-sourceMin) * (targetMax-targetMin) / (sourceMax-sourceMin))
	+ targetMin

Copying a Device Tag

Select the tag you want to copy, and click the copy tag icon to copy a device tag.

emplate Management					G
1 template(s) selected					± î
Name 🔨	Tag Count	Template Action			Tag Action
ioLogik-E1210	16	Ū	1	≡+	
ioLogik-E1211	31		1	≡+	Copy tag

Select the tag from the list, and then click **SAVE**.

Template: ioLog	jik-E1210
Tag List	
di0	•

Showing a Tag List

Select the device, and click the show tag list icon to show a tag list.

Template Management					G
1 template(s) selected					± 1
🗌 Name 🛧	Tag Count	Template Action			Tag Action
ioLogik-E1210	16	Ē	/	≡+	۲
ioLogik-E1211	31	Ē	1	≡+	Show tag list

The tag list will be shown.

Tag	List									
	Name 个	Function	Address	Unit	Туре	Quantity	Byte Order	Invalid Value	Scaling	Description
	di0	read-discrete-inputs	0		boolean	1				
	di1	read-discrete-inputs	1		boolean	1				
	di10	read-discrete-inputs	10		boolean	1				
	di11	read-discrete-inputs	11		boolean	1				
	di12	read-discrete-inputs	12		boolean	1				
	di13	read-discrete-inputs	13		boolean	1				
	di14	read-discrete-inputs	14		boolean	1				
	di15	read-discrete-inputs	15		boolean	1				
	di2	read-discrete-inputs	2		boolean	1				
	di3	read-discrete-inputs	3		boolean	1				

Page: 1 ▼ 1-10 of 16 K K > >

Custom Equipment Management

ThingsPro Gateway offers custom equipment list. To add an equipment, click the add equipment icon.

Custom Equipment Management							C
Custom Equipment List						Add	=+ d equipment
Name	Page:	1 🕶	0 • 0 of 0	<	<	>	>

Provide the necessary information in the Edit Custom Equipment page. Click **Add** to add new equipment.

✓ Access Type *	10 13 %	Size *		Description	- 		ADI	D
✓ Access Type *		Size *		Description			AD	D
Access Ty	pe		Size	Desc	ription			
		Page:	1 •	0-0 of 0	K	<	>	×
	Access Ty	Access Type						

When finished, click **SAVE**.

Modbus Management

This section helps users manage the Modbus/RTU, and Modbus/TCP devices.

Add a Modbus/RTU Device

To add a Modbus/RTU device, do the following:

1. Click **MODBUS DEVICE** tab.

EQUIPMENT TEMPI	LATE	MODBUS DEVICE			LOG UPLOAD			
Modbus Management								C
MODBUS / RTU MODBU	JS / TCP							
RTU List								
Name 🔨	Interval	Port	Baud Rate	Parity	Stopbits			
Modbus_Gateway_1	5 sec	PORT 1	115200	none	1	1	0	≡+
Modbus_Gateway_2	5 sec	PORT 2	115200	none	1	1	0	≡+

2. Select **MODBUS/RTU** tab, select under what port that you want to add a new device, and then click the add icon.

odbus Management								C
MODBUS / RTU MODBU	JS / TCP							
RTU List								
Name 🛧	Interval	Port	Baud Rate	Parity	Stopbits			
Modbus_Gateway_1	5 sec	PORT 1	115200	none	1	1	0	=+
Modbus_Gateway_2	5 sec	PORT 2	115200	none	1	/	0	=+
					Page: 1 💌	1-2 of 2 K	<	> >

3. Edit the information for the new device. You can click **Test** for a testing connection, or **SAVE** to complete.



Edit Modbus/RTU Interface Settings

Click the edit icon.

odbus Management							C
MODBUS / RTU MODB	US / TCP						
1 modbus selected							
🗌 Name 个	Interval	Port	Baud Rate	Parity	Stopbits		
Modbus_Gateway_1	5 sec	PORT 1	115200	none	1	1 0	≡+
Modbus_Gateway_2	5 sec	PORT 2	115200	none	1	/ 0	≡+
					Page: 1 ▼ 1-	2 of 2 < <	> >

Edit the RTU interface settings in the following page. When finished, click **SAVE**.

Interface Name *	
Modbus_Gateway_1	
Port PORT 1	
Baud Rate *	
115200	*
Parity *	
none	*
Stopbits *	
1	*
Response Timeout *	
500	
Interval Period *	
5000	
Inter-char Timeout *	
100	

Add a Modbus/TCP Device

To add a Modbus/TCP device, do the following:

1. Select MODBUS/TCP tab, and click the add icon.

Modbus Management									G
MODBUS / RTU MODBUS	S / TCP								
TCP List								[≡+
Name 🔨	Interval	Port		Host IP					
			Page:	1 •	0 - 0 of 0	<	<	>	>

2. Edit the TCP interface settings.

Edit TCP Interfac	e Settings	×
Interface Name *		
Host (P*		
127.0.0.1		
Port *		
Interval *		
Response Timeout *		
	SAVE	

- 3. When finished, click **SAVE**.
- 4. When a new TCP device is added, click Add a connected device to check the connection status.

lodbus Management									G	
MODBUS / RTU	MODBUS / TCP									
TCP List									≡+	
🗌 Name 🛧	Interval	Port	Host IP							
uc-8100	0.1 sec	20	192.168.4.20				/	0	≡+	
				Page:	1 👻	1 - 1 of 1	1<	<	> Add a conn	ected dev

5. Edit device in the fields, and click **SAVE** to complete.

Edit Device	×
Device Name *	
Template *	*
Unit ID *	
TEST	SAVE

Managing Modbus Slave Devices

This section helps users manage Modbus Slave devices. The Modbus slave function helps users easily poll data from the connected end devices via ThingsPro Gateway to their system using Modbus protocol. This is a convenient design for users to acquire end-device data via ThingsPro Gateway without applying MQTT, which is useful for existing systems such as local SCADA.

Adding a New Modbus Slave Device

To add a Modbus Slave device, select **Modbus Slave** on the menu.

Things	Pro Gateway	
	Home	
\$	Gateway	•
 M)	User Account	
$\langle \rangle$	User Programs	
0	MODBUS & Logging	
†††	Modbus Slave	
	Applications	•

Click the add icon.

Modbus Slave				G
Modbus Address List			Disabled 😨 🗏	=+
Tag Name 🔨	Modbus Address	Тад Туре	Equipment	
		Page: 1 🕶 0	-of K < >	>

Provide the necessary information. When finished, click $\ensuremath{\textbf{SAVE}}.$

Select a function *	*
Select an equipment type *	*
Select a tag *	Ŧ
Modbus Address *	

A new Modbus Slave device will be added.

odbus Slave						C
Modbus Address List				Disabled		=+
Tag Name 🔨	Modbus Address	Тад Туре	Equipment			
di0	0x10000	modbus	afdff			
		Page	1 🔻 0-of	I< <	>	>

Enabling a Modbus Slave Device

To enable a Modbus Slave device, click Basic Settings icon.

Modbus Slave					C
Modbus Address List				Disabled	€ =+
Tag Name 🔨	Modbus Address	Тад Туре	Equipment		
di0	0x10000	modbus	afdff	1	
		Page:	1 ▼ 0-of	< <	> >

Check **Enable**, and configure the basic settings. When finished, click **SAVE**. If **ignore unit ID** is not checked, the Modbus master needs to set the same unit ID for Modbus access.

Basic Settings	×
Enable	
Ignore unit ID	
Unit ID * 255	
Any address	
Host *	
Any address	

Editing a Modbus Slave Device

To edit a Modbus Slave device, select the device, and click the edit icon.

Modbus Slave				G
1 rules are selected				ī
🗾 Tag Name 🔨	Modbus Address	Тад Туре	Equipment	
di0	0x10000	modbus	afdff	1
		Page:	1 ▼ 0-of 🔀	< > >

Edit the device, and click **SAVE** to finish.

Edit Modbus slave address	×
Select a function *	
Discrete Inputs	*
Select an equipment type *	
afdff	*
Select a tag *	
di0	*
Modbus Address *	
0x10000	

Deleting a Modbus Slave Device

To delete a Modbus Slave device, select the device, and then click the delete icon.

Modbus Slave					C
1 rules are selected					Î
🔽 Tag Name 🔨	Modbus Address	Тад Туре	Equipment		
di0	0x10000	modbus	afdff	/	
		Page	1 🔻 0-of	K <	> >

Managing Log Profiles

Log profiles are used to configure storage instructions for data files generated by ThingsPro. Once you have created a log profile, you can use it to automatically send data log files to a specified remote server. For example, you can connect a Modbus I/O module to a gateway, pull in data from the field devices and sensors connected to the I/O module, and store the data in the gateway. You can configure a log profile in ThingsPro to specify the remote server to which the data log files should be sent and the interval at which to send them. ThingsPro will send the log files to the remote server at the intervals that you have specified in the log profile.

To configure a log profile, update an existing one, or delete a log profile, click on the **Tag Uploader** link on the main menu.

A adm	in @moxa.com		
Menu			
55	Home		
\$	Gateway	*	
	User Account		
<>	User Programs		
0	Modbus Data Acquisition		
ŧŧŧ	Modbus Slave		
	Applications	•	
	Aliyun		
	AWS IOT		
	Azure		
	Generic MQTT client		
	Sparkplug		
	Tag Uploader		
	Wonderware		

Adding a Data Log Profile

To add a new data log profile, click the add icon.

Profile Management									G
Profile List								C	≡+
Name 🔨	Target URL	File Format				Storage	Size		
			Page:	1 ¥	0 - 0 of 0	K	<	>	×

Edit the profile interface in the following page.

Edit Profile	×
Enable	
Enable	
Name *	
Target URL *	
HTTP Authentication	
No Check Certificate	
Enable Compression	
File Rotate Count *	
File Format *	
json	•
File destination * Internal (/var/mxc)	•
Schedule	
Hour Minute	· ·

Refer to the following table for the detailed description.

Field	Description
Profile Name	Specify a name for the new log profile.
	Length: 3-255 characters
	Format: a-z, A-Z, 0-9, '_', '-'
Target URL	Specify the complete URL of the remote server to which the data log files
	associated with this profile should be uploaded.
Enable HTTP Basic	Select this option to enable HTTP basic authentication
Authentication	
No Check Certificate	Select this option to skip the certificate check on the HTTPS connection.
Enable Compression	Enable file compression of the data files.
File Rotate Count	Select file rotation unit. 1 unit is 1 MB. A file with capacity more than 1 MB will be
	generated as a new file.
File Format	Select a file format: XML, JSON, or CSV
	NOTE: These formats are not that of the device log file, but are the file formats
	that you can use to download/upload data from the data logger.
File Destination	Specifies the temporary storage destination when the log profile capacity is
	exceeded. ThingsPro will detect if there's an external storage device, such as an
	SD card, inserted. If an external storage is detected then you can specify the log
	files to be stored in this storage. If not, the log profile files can be saved only in
	the internal storage, "internal (var/mxc)".
Schedule	Sets an upload schedule for the data log files. For example, daily at a specified
	time, hourly, or even every minute.
	A data log file is uploaded only when the data size exceeds 1 MB as described
	below:
	1. When a data log entry is generated, it will be saved in the RAM.
	2. When this log increases and exceeds 1 MB, the data is saved as a file to the
	File Destination that you specify.
	2. The log files can be retrieved by the minute, hour, or day, based on your
	configuration settings.
Options: create headers	Provide optional name and value for new headers.

When finished, click **SAVE**.

Updating a Log Profile

To update a log profile, select the device and click edit icon.

rofile Manage	ment						G
1 profile se	elected						Ĩ
	Name 个	Target URL	File Format	Storage Size			
	fdsfsf	http://localhost	json	100 MB	±	> 🖍 @	
				Pi	age: 1 💌	1-1of1 K <	> >>

Update the information in the following page. When finished, click **SAVE**.

Edit Profile		×
		*
Enable		
Name *		
fdsfsf		
Target URL *		
http://localhost		
HTTP Authentication		
No Check Certificate		
No check del lincate		
Enable Compression		
File Rotate Count *		
10		
File Format *		
json		*
File destination *		
Internal (/var/mxc)		
Schedule		
Hour	 Minute 	· ·

Uploading a Log Profile

To upload a log profile, select the log, and click the upload icon.

Profile Manag	ement									C
1 profile s	elected									Î
	Name 个	Target URL	File Format	Storage Size						
	fdsfsf	http://localhost	json	100 MB		±	>	/	0	1
					Page:	1 •	1 - 1 of 1	<	<	> >

Deleting a Log Profile

To delete a log profile, select the log, and click the delete icon.

ofile Manage	ment								C
1 profile se	elected								Î
	Name 个	Target URL	File Format	Storage Size					
	fdsfsf	http://localhost	json	100 MB	±	>	1	0	1
				Pa	ge: 1 💌	1 - 1 of 1	K	<	> >

Testing Target Connection

Click Test target connect icon to test if the connection to target URL is successful.

EQUIPMENT TEMPLATE		MODBUS DEVICE		LOG UPLOAD	
Profile Management					C
Profile List					≡+
	Name 🛧	Target URL	File Format	Storage Size	
	upload-1	http://localhost	json	100 MB	<u>*</u> > / • /
					Page: 1 → 1-1 of 1 < < > >

Managing IoT Applications

This section describes how to manage the three IoT applications integrated with the ThingsPro Gateway.

Managing AWS IoT Service for IoT Applications

To manage the AWS IoT Service for your IoT application, select **AWS IoT** from the main menu. Select **Enable** and fill in the AWS IoT service parameters. For details on obtaining the parameters of the AWS IoT service, refer to the *How to get the AWS IoT parameters for ThingsPro* section in the tech note, <u>How to Build an IoT</u> <u>Application with Moxa's ThingsPro and AWS IoT Service</u>.

NOTE You will need to register an AWS account on the <u>Amazon Web Services website</u> to be able to managing the AWS IoT service for your IoT application.

\$	Gateway	AWS IoT	G
	Network	Enable	
	Firewall	Connection Status	8
	System	Target Host *	
**	User Account	Port * 8883	
<>	User Programs	Topic *	
0	MODBUS & Logging	Client ID *	
‡ ‡‡	Modbus Slave	My Thing Name *	
	Applications	Root CA File E.g.: ****-G5.pem	SELECT
	AWS IOT		
	Generic MQTT client	Certificate File E.g.: ****-certificate.pem.crt	SELECT
	Snarkplug	Private Key File E.g.: ****-private.pem.key	SELECT
		SELECT TAGS	
		Logging data when network is disconnected	

Click on the **SELECT TAGS** button (only available in v2.3 and above) to select the tags you want to upload to the AWS IoT service. If you want to enable data caching in the Gateway when the network connection is down, check the **Logging data when network is disconnected** (only available in v2.3 and above) option and specify the **File destination** and the **Max. Storage for Log**.

lelect e d 1242					
2 items are	selected				
🗌 Name 个	Log On Change	Description	Unit	Data Type	
AI_0				int16	
AI_1				int16	
AI_2				int16	
				boolean	
DI_1				boolean	
DI_2				boolean	
AVE.	Page:	1 ▼ 1-6 o	f6 K	< > > SAVE	
Logging da	ta when network is	s disconnected			
File destination Internal(/var/ma	xc)				
Max. Storage for Log 2000	(MB) *				
	og				3

The built-in AWS IoT client will use the information provided here to establish a connection with the AWS IoT service. Data collected from your AWS IoT application is then uploaded to the AWS IoT service in real time.

The **Connection Status** (only available in v2.3 and above) icon turns green once the AWS Client App successfully connects to the AWS service.

Enable	
Connection Status	C.

If you have selected the **Logging data when network is disconnected** option, the data collected from your IoT application will be cached locally in the gateway when the network connection is down. The cached data will be transmitted to the AWS IoT service once the network connection is restored.

NOTE The **SELECT TAGS, Logging data when the network is disconnected,** and **connection status** functions are only available with ThingsPro version v2.3 and above and also apply to other IoT applications such as Generic MQTT Client, Aliyun, Microsoft Azure, and Wonderware Online.

Managing a Generic MQTT Client

The ThingsPro Gateway offers generic MQTT protocol support for your IIoT applications. To manage the MQTT Client, select the **Generic MQTT Client** item on the main menu. Select **Enable**. Check **Update on change** if you want to save data transmission workload as data will be updated only when the data tag has been changed from your Modbus devices. Provide all necessary information on the configuration page. Click **SAVE** to finish.

ф	Gateway	Generic MQTT Client
	Network	D Enable
	Firewall	Vpdate on change
	System	Target Host *
	User Account	Port * 1883
$\langle \rangle$	User Programs	Keepalive (sec.) 60
6	MODBUS & Logging	User Name
++ + +++++++++++++	Modbus Slave	Password (include no., alphabet and >5 characters)
	Applications	Topic * 00:90:e8:4b:03:01
	AWS IOT	QoS O
	Generic MQTT client	Client ID 00:90:e8:4b:03:01
-	Snarkplug	Retain
		Clean Session
		More Options
		Enable TLS

Managing SparkPlug Connections

Sparkplug is a specification for MQTT-enabled devices and applications to send and receive messages in a stateful way. Sparkplug also provides a mechanism for ensuring that the messages from remote device or application are current and valid. ThingsPro provides an interface to enable sparkplug-based communication between the Server, Gateway, and edge devices.

To enable the sparkplug interface on ThingsPro, do the following:

- 1. Click on the **Sparkplug** link in the **Applications** section of the main menu.
- 2. Click on the [⊡](Basic Settings) icon.

Applications	Sparkplug								C
AWS IOT	Broker List								≡+
-	Broker Name	Connection Status		IP			Port		
Generic MQTT Client			Page:	1 💌	0 - of	<	<	>	\geq
Sparkplug									

3. Click on **Enable Sparkplug** to activate the function.

The Edge Node ID will be automatically retrieved and displayed. You will also need to provide the group ID.

	Enable Sp	arkplug	
Edge No	de ID *		
00:90	:e8:45:96:9	d	
Group ID	*		
l			

4. Click SAVE.

Adding a Message Broker

You must create a message broker in the Sparkplug interface. To create a message broker, do the following:

1. Click on the =+ (Add Broker) icon.

Sparkplug								G
Broker List							Ø	≡+
Broker Name	Connection Status		IP			Port		Add Broker
		Page:	1 💌	0 - of	<	<	>	×

2. Specify the Broker Name.

Add Broker	×
Broker Name	
14 <u></u>	
	_
	SAVE

3. Click **SAVE**.

Configuring Broker Settings

To configure/modify Broker settings, do the following:

1. Click on the 🗸 (Edit Broker) icon on the Sparkplug configuration page.

Sparkplug									C
Broker List								•	≡+
Broker Name	Connection Status	IP			Port				
test_broker	•	10.144.4.249			1883		1]	
			Page:	1 🕶	0 - of	K	<	>	\geq

2. Enter the broker configuration details.

If necessary, enable TLS and fill in the certificate information for the TLS connection.

Edit Broker	×	Edit Broker		×
Broker Name *	^	Enable TLS		•
test		Private Key Password *		
IP* 127.0.0.1	*			
127.0.0.1	- 1	Trusted CA Certificate	SELECT	
Port *				
	- 1	Client Certificate	SELECT	
Username *	- 1			
Password *	- 1	Client Private Key	SELECT	
				.
Send by Interval	•		SAVE	
Interval *	•	L		

3. Click SAVE.

ThingsPro Server

ThingsPro Server is a software platform for remote management of IIoT Gateways. This platform provides ThingsPro Gateway customers with remote monitoring and controlling services to build their IIoT applications, which they can use to remotely access and manage large-scale deployments of their IIoT Gateways at their sites.

The following topics are covered in this chapter:

Overview

Basic Configuration

- > Signing Into the ThingsPro Server
- > ThingsPro Server Dashboard
- > Editing a User Profile
- > Choosing a Language for the Web UI
- Viewing the Location of Devices (Map View)
- > Remote Management of ThingsPro Gateways (List View)
- Managing User Accounts
- Managing Tokens

Overview

ThingsPro Server enables you to configure, monitor, and control your ThingsPro Gateways from anywhere and at all times using a web browser. You can use the intuitive configuration and monitoring functions provided by the web UI, or use the RESTful APIs provided by the ThingsPro Software Suite to integrate the ThingsPro Gateway functions into your software applications.

Key Benefits

- Greater visibility into the performance of your IIoT Gateways
- Remote configuration, monitoring, and control of your IIoT Gateways from anywhere and at any time.
- Faster and easier development of IIoT applications for remote tasks on the IIoT Gateway via RESTful APIs

Key Capabilities

- Visualized device management console: Map view, List view
- Role-based user-account management for access control
- Task queue for batch task assignment and scheduling for groups of IIoT Gateways
- VPN tunneling for secure remote access of IIoT Gateways
- RESTful APIs for IIoT Gateway management and remote task execution through ThingsPro Server
- Client interface to leverage the global scalability of Amazon Web Services (AWS)

Basic Configuration

Signing Into the ThingsPro Server

You will need a user account to sign in to ThingsPro Server. We assume that you have already got your account information from the administrator for your organization.

- 1. Type the URL of the ThingsPro Server in the address field of Google's Chrome web browser.
- **NOTE** The URL of a ThingsPro Server depends on the IP address associated with the Server instance of your organization. Currently, Google Chrome is the only web browser supported.
 - 2. Click GET STARTED



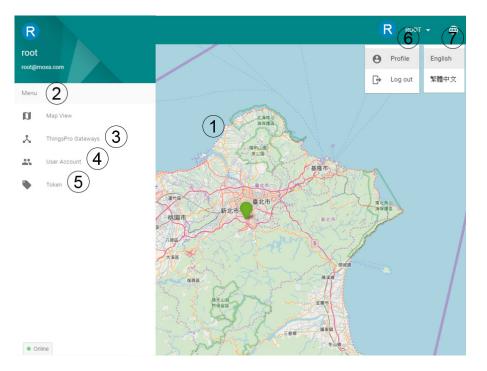
3. Enter the **Email** and **Password** for the server.

XV.
SIGN IN

4. Click SIGN IN.

ThingsPro Server Dashboard

Once you log in to ThingsPro Server, you will see the dashboard where you may access different functions offered by the device management service.



- ① Map view of ThingsPro Gateways—A visual device management console
- ② Main menu—Access to various functions of the device-management service
- ③ List view of ThingsPro Gateways—Listing of all ThingsPro Gateways registered to this Server and the ability to access and manage the gateways either individually or in groups
- ④ User Account—Managing the user accounts for this Server.
- ⑤ API Token management—Viewing and controlling the access to API tokens
- ⑥ User Profile—Viewing and editing your account information and log out
- ⑦ Language menu—Changing the language setting for the web UI. Currently, only English and Traditional Chinese are supported.

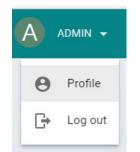
To get started, click on the main menu icon on the upper-left corner.

A admin(in omoxa.com				
Menu					
D	Map View				
*	ThingsPro Gateways				
	User Account				

Editing a User Profile

Once you log in into the ThingsPro Server, you might want to check and edit your user profile. To edit your profile:

1. Click on the arrow next to the username (ADMIN in this case) at the upper-right corner of the main page and select the **Profile** option.



2. Click EDIT.

	Account List				C =+
	Name 🛧	Company	Email	Role	
A	user		user@moxa.com	user	1
admin				Page: 1 ▼ 1-1 of 1 K	< > >
admin@moxa.com EDIT					

3. Edit the profile information and click **SAVE.**

Account Profile	×
Name *	
admin	_
Company	_
_{Role "} Administrator	
New Password	
Confirm Password	
SAVE	

To add a new user, click on the =ticon at the upper-right corner of the **Account List** page.

NOTE Only the **root** user and users with administrator role can create new users. For the **root** account login details, refer to the "Basic Configuration" section in *Chapter 3 ThingsPro Gateway*.

Choosing a Language for the Web UI

ThingsPro Server currently provides English and Traditional Chinese user interfaces. Click on the 🕮 icon at the upper-right corner of the main page to select a language for the user interface.



Viewing the Location of Devices (Map View)

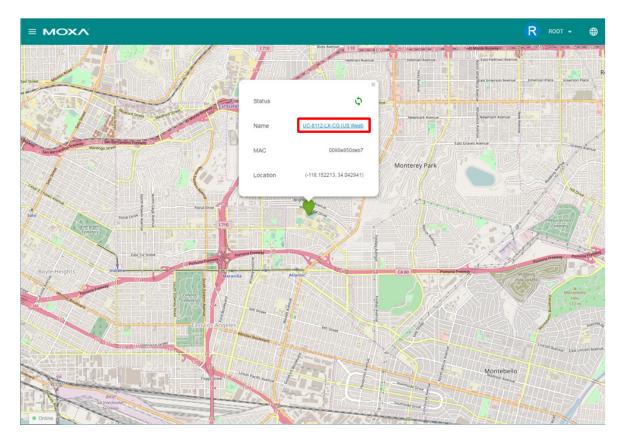
When you log in to ThingsPro Server, you will see the map view, a visualization of the geographic location of your ThingsPro Gateways that are registered with the Server. You can also click on the **Map View** link in the main menu to access it.

Things	Pro Gateway
a	Map View
*	ThingsPro Gateway
 	User Account
	Token

On the map, you may see locations pins that indicate where your devices are located. Use the mouse-wheel to zoom-in/out, and hold and drag the map to change the location shown on the map.

- Green location pin: The device is online.
- Red location pin: The device is offline.

To view the basic information of a device, click on the location pin corresponding to the device to view basic information, including (connection) Status, (device) Name, MAC (Address), and (geographic) Location.



Click on the URL for the device provided in the basic information box to view additional details regarding the device.

Remote Management of ThingsPro Gateways (List View)

ThingsPro Server offers the following capabilities for you to manage ThingsPro Gateway (devices) remotely:

- Viewing the basic information of registered ThingsPro Gateways
- Creating and maintaining device groups for batch tasks

	<u>د ۸</u>	R	ROOT 🗕 🌐
	Device Management	G	·
	Device List	Ŧ	
	Name 🔨 Status MAC	Location	
	UC-8112-ME-T-LX-CG (PM) 🖍 🗘 0090e857c0fd	(0, 0)	
	UC-8162-LX-CG 🖍 🗘 112233445566	(0, 0)	
	Page: 1 💌 1 - 2 of	52 < < >>	
	Device Group Management	G	
	Group List		
	Name 🛧 Devices Online Devices Offline Active Tasks	Tasks Completed Desci	
	Moxa1 1 0 0	1	
Online	▼ Page: 1 ▼ 1-1 of		

Device List

The Device List shows basic information for devices (ThingsPro Gateways) registered with the ThingsPro Server. The information includes (*device*) **Name**, (*connection*) **Status**, **MAC** (Address), and (*geographic*) **Location**.

Device Management				G
Device List				<u>-</u> 3
Name 🔨	Status	MAC	Location	
UC-8112-ME-T-LX-CG (PM) 2	Φ	0090e857c0fd	(0, 0)	
UC-8162-LX-CG	φ	112233445566	(0, 0)	
	Page:	1 🔻 1 - 2 of 2	K < >	>

You may also perform the following tasks from the Device Management page:

• ① Configure a Device—Clicking a device in the list allows you to configure the device. For more details, refer to the *Configuring ThingsPro Gateways* section in *Chapter 3: ThingsPro Gateway*.

	SETTINGS	MODBUS & LOGGING	MODBUS SLAVE	USER PROGRAMS	APPLICATIONS
Systen	n	Serial Ports		G	
***	Serial	PORT 1	PORT 2		
\odot	Time	Interface		/de	//ttyM0
[00	Admin	Mode			RS232
9	GPS				
(Remote Control				
4	Maintenance				
Netwo	rk				
0	Network Overview				
<···>	Ethernet				
Ŧ	WIFI				
	Cellular				
Φ	Routing				

• ② Renaming a Device—Click the rename icon next to the device name to rename the device. This function is only available for devices that are online.

Device Management				G
Device List				Ŧ
Name 🛧	Status	MAC	Location	
UC-8112-ME-T-LX-CG (PM)	Φ	0090e857c0fd	(0, 0)	
UC-8162-LX-CG	φ	112233445566	(0, 0)	
	Page:	1 ▼ 1-2 of 2	< < >	>

• ③ Searching for a Device (only available in v2.3 and above)—Click on the search icon in the upper left corner of Device List to show the input field for the serial number.

Device Management				G
Device List				<u>-</u>
Name 🔨	Status	MAC	Location	search serial numbe
UC-8112-ME-T-LX-CG (PM)	\$	0090e857c0fd	(0, 0)	
UC-8162-LX-CG	\$	112233445566	(0, 0)	
	Page:	1 ▼ 1-2 of 2	K < >	×

Input the serial number of the ThingsPro Gateway you want to search in the input field and press Enter to start the search. To exit the search function, click X.

Device Management				G
Q Input serial number				\times
Name 🛧	Status	MAC	Location	
UC-8112-ME-T-LX-CG (PM)	\$	0090e857c0fd	(0, 0)	
UC-8162-LX-CG	\$	112233445566	(0, 0)	
	Page:	1 ▼ 1 • 2 of 2	Κ <	> >

Unregistering Devices

Select the devices you want to remove, and then click the remove icon.

Device Management				G
1 items selected				⊗ ≣
🗌 Name 🛧	Status	MAC	Location	Remove Devices
MRU_UC-8112-LX-CG	65	0090e845969d	(37.625772, 55.704075)	
UC-8112-LX-CG 🧪	NEW	0090e850deb7	N/A	
UC-8112-ME-T-LX-CG	65	0090e857c119	N/A	

Click **OK** to remove the selected devices.

Would you like to delete your device?

CANCEL	ОК
--------	----

Grouping Devices

NOTE A device can only be part of one group. If the device is already in an existing group, the grouping request will fail.

To create a group of devices:

- 1. Select the devices from the device list
- 2. Click on the group icon.

vice Management			
3 items selected			0
Name 🔨	Status	MAC	Group Device
ThingsPro	53	223344FF8F12	(0, 0)
ThingsPro 🖍	¢	223344FF8F11	(0, 0)
ThingsPro	NEW	223344FF8F10	N/A

Page: 1 ▼ 1-3 of 3 |< < > >|

Provide the name and description for the group, and click **SAVE** to finish.

Create a Group	×
Name	
Group One	
Bescription Group One	
SAV	/E

The group will be shown in the Group List.

Device Group Managem	nent									G
Group List										
Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description					
Group One	0	1	0	0	Group One	/ `	ŝ	[1]	Ð	
					Page:	1 🕶 0	• of	< <	>	×

Deleting a Group

Select the groups you want to delete, and then click the delete icon.

vice Group Manage	ment										G
1 rules selected										[Î
🗌 Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description						
group1	1	1	0	0			/	â	[]	Ð	Ċ
test	0	0	0	0	test		/	â	Ţ.	Ð	C
					Page:	1 -	1 - 2 of 2	K	<	>	×

Click OK to confirm.

Would you like to delete your group?

CANCEL	OK

Editing the Settings of a Device Group

To edit a group, select the group and the click on the edit icon.

ΓE	Curre	ntly use	ers cannot	modify, add	d, or remo	ve a single d	evice in t	he grou	р.			
	Device (Group Manag	lement									C
	1 ru	les selected										Î
	×	Name 🛧	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description					
		Group One	0	1	0	0	Group One	 (1) 	ů Í	IJ	Ð	
							Page:	1 🔻 0.0	of	< <	>	×

Edit Group	×
Name	
Group One	
Description	
Group One	

Edit the name and description. Click **SAVE** to finish.

Viewing the Devices in a Group

Select the group and the icon.

evice Group Manage	ement								G
1 rules selected									Î
Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description				
Group One	0	1	0	0	Group One	/ ()		Ð	
					Page:	1 ▼ 0-o	i k k	>	×

The device will be shown in the device list page.

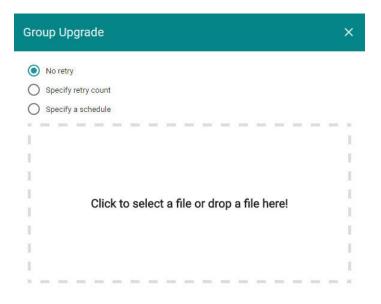
Devic	e List	×
1 devic	es	
	ThingsPro 223344FF8F12 (0, 0)	

Upgrading the Devices in a Group

To upgrade the group, select the upgrade icon.

ice Group Manager	nent									C
1 rules selected										Î
🗸 Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description					
Group One	0	1	0	0	Group One	/ ()	â	(†	Ð	

Select the file you want to upgrade, and select the settings, such as No Retry, Retry Count, or Schedule for the upgrade.





ATTENTION

Group task function can only handle one action, including reboot, restore, configure, at one time. You need to wait until the current task is complete or cancel the task before performing another task.

Restoring the Configuration Setting for a Device Group

This function allows you to restore the configurations for your device simultaneously. Select the group, and the restore icon.

1 rules selected							
🗸 Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description		
Group One	0	1	0	0	Group One	/ E	

Select the configuration file, and select the items that you want to restore to the previous status.

Restore Group Configuration			×
No retry Specify retry count Specify a schedule			Î
All System	Ethernet	Cellular	
DHCP Server	DNS Port Forwarding	Serial OpenVPN Client	
Data Logger (Overwrite Only)	Applications	User Programs	
	Click to select a file or drop a file here!		

Rebooting the Devices in a Group

This function allows you to reboot all the devices in a group. Select the group and click on the reboot icon.

evice Group Manag	ement									C
1 rules selected										Î
Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description					
Group One	0	1	0	0	Group One	(1)	ő	Ţ	Ð	
					Page:	1 🕶 0	- of	< <	>	>

Select the reboot settings, and click **REBOOT**.

Gro	up Reboot $ imes$	
\odot	No Retry	
0	Retry Count	
0	Schedule	
	REBOOT	

Viewing Group Tasks

Select the group and click on the group task icon.

Device Group Manag	ement							С	;
1 rules selected								Î	
Name 个	Devices Online	Devices Offline	Active Tasks	Tasks Completed	Description				
Group One	0	1	0	0	Group One	/ i	(J)	Ð	
					Page:	1 ▼ 0-of	K <	> >	

All the group tasks will be shown here.

Task List	ĪF	G	×
0 task			

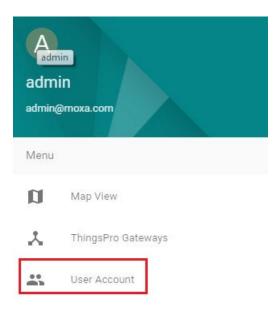
Deleting a Group Task

If you want to delete a group task, select the task in the Task List page and click on the delete icon.



Managing User Accounts

This section describes how to add new account, and manage the existing account. Select **User Account** from the menu.



Creating a New Account

To create a new account, select the icon.

NOTE Only the Root user and users with Administrator privileges can create a new user account.

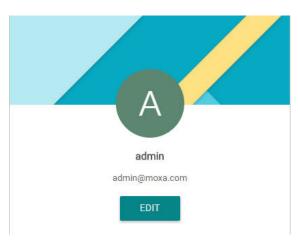
Account List								C	=+	
Name 🛧	Company	Email		Role				Cre	ate Account	
user		user@moxa.com	user					1		
			Page:	1 🕶	1 - 1 of 1	<	<	>	н	

Provide the necessary information for the new account. When finished, click **SAVE**.

Account Profile	×
Email *	
Name *	
Company	
Role *	*
New Password	
Confirm Password	
SAVI	E

Editing the Administrator Information

To edit the administrator information, click **Edit**.



Edit the information in the specific fields and click **SAVE**.

Name *	
admin	
Company	
Role *	
Administrator	*
New Password	
New Password	
Confirm Password	
	SAVE

Update the Existing Account Information

To update the existing user, check the user, and then select the edit icon.

1 is selected				Î
Name 个	Company	Email	Role	
user 🛛		user@moxa.com	user	1
			Page: 1 ▼ 1-1 of 1 4	< < > >

Edit the information in the specific fields. When finished, click **SAVE**.

Account Profile	×
Name *	
user	
Company	
Role *	
User	*
New Password	
Confirm Password	
SAV	/E

Deleting a User Account

user

 NOTE
 Only the Root user and users with Administrator privileges can create a new user account.

 To delete an account, select the account, and then click the delete icon.

 1 is selected

 Image: Name ↑ Company

 Email

 Role

user

1 - 1 of 1

< <

1 *

Page

í

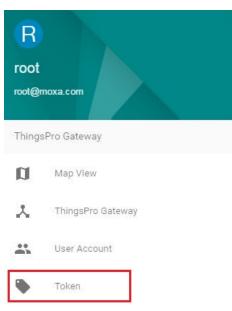
> >

user@moxa.com

Managing Tokens

NOTE Only the **root** account has access to the Token function.

This section describes how to manage the token function for the ThingsPro Server. Select **Token** on the menu.



Adding a Token

To add a token, click on the add icon.

Token List	C ≡+
Description	Scopes
internal internal	1
Create Create	1
D postman	/
	Page: 1 ▼ 1-3 of 3 < < > >

Provide a name for the token, and select the scope. Click **SAVE** to continue.

Add a token	×
Description	
Token 1	
	7 / 150
Scope Read	
Read/Write	
	SAVE

A series of specific keys will be generated, and can be used for the communication between ThingsPro Server and the RESTful API. For details, refer to ThingsPro RESTful API Reference available in the <u>ThingsPro</u><u>Programmer's Guide</u>.



IMPORTANT!

Use the copy icon to copy the key and store it in a file for future use. ThingsPro will discard the key once you leave the page. You must therefore copy the key and store it in a separate file so that you can retrieve it when you require the key. If you forget the key, you might want to delete the token from the token list and generate a new one.

	URR1E6S
Token List	C =
Description	Scope
Token 1	0
	Page: 1 ▾ 1-1 of 1 K < > >

Deleting a Token

To delete a token, select the token, and the delete icon.

1 item selected	Î
Description	Scopes
internal	1
Create create	1
postman	1
	Page: 1 ▾ 1-3 of 3 < < > >

For more ThingsPro Gateway settings, please refer to Chapter 3. ThingsPro Gateway.

ThingsPro Device Enablement Utility

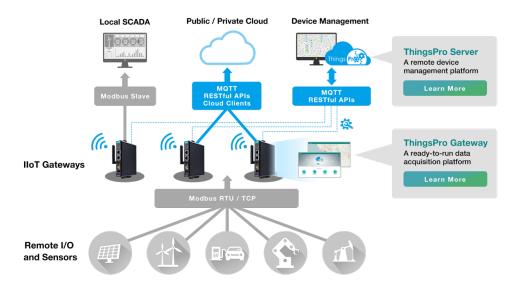
ThingsPro Suite includes a ThingsPro Device Enablement utility, which you can use to register ThingsPro gateways to the ThingsPro Server, run firmware upgrades on the gateways, and change the gateway configuration. This section describes how to use the ThingsPro Device Enablement utility.

The following topics are covered in this chapter:

- □ Introduction
- Installing the ThingsPro Device Enablement Utility
- Scanning for ThingsPro Gateways
- Configuring Basic Network Settings
- Registering ThingsPro Gateways
 - > Registering ThingsPro Gateways with the ThingsPro Server
 - > Registering ThingsPro Gateways with the AWS IoT Service
- Exporting the Device Configuration
- Importing a Configuration File
- Upgrading the Firmware on the ThingsPro Gateway
- Preparing a ThingsPro Gateway Sample

Introduction

Any new device needs to be configured to enable it to connect to a cloud server. ThingsPro Suite provides a ThingsPro Device Enablement utility that makes it easy to set up the ThingsPro gateway and connect it to a cloud server. The process involves setting up the cloud interface on the gateway and using the ThingsPro Device Enablement utility to register the gateway with the ThingsPro Server. A connection between ThingsPro Server and the gateway device is then established after the server authenticates the gateway device. This process is illustrated in the diagram below:



Installing the ThingsPro Device Enablement Utility

Prerequisites:

- 1. Laptop computer/PC
- 2. Enable the IPv6 function in the laptop/PC
- 3. Connect the laptop/PC to the Internet.
- 4. Configure ThingsPro Gateway tool on the laptop/PC (see Chapter 4 ThingsPro Gateway).
- In the Control Panel, check if the SSDP service in ThingsPro Gateway is enabled. The default setting is "enabled".
- 6. Connect the LAN 2 port of the laptop/PC to the same network subnet as the gateway devices.
- 7. Procure the installation file for the ThingsPro Device Enablement utility, which is available in the ThingsPro Suite CD or can be downloaded from the Moxa website.

To install the ThingsPro Device Enablement utility, do the following:

1. Open the installer for the enablement utility.

ThingsProDeviceEnablement_setup.exe

2. Click Run.

ThingsProDeviceEnablement - InstallShield Wizard		
2	Preparing to Install	
	ThingsProDeviceEnablement Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.	
\triangleleft_{A}	Extracting: ThingsProDeviceEnablement.msi	
	Cancel	

3. In the Welcome screen, click **Next** to continue.

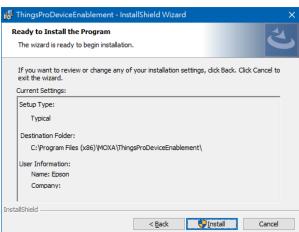
🙀 ThingsProDeviceEnablement - InstallShield Wizard		
2	Welcome to the InstallShield Wizard for ThingsProDeviceEnablement	
	The InstallShield(R) Wizard will install ThingsProDeviceEnablement on your computer. To continue, click Next.	
	WARNING: This program is protected by copyright law and international treaties.	
	< Back Next > Cancel	

4. (Optional) Click **Change** to change the destination folder.

🔀 ThingsP	ProDeviceEnablement - InstallShield Wizard X
	ion Folder xt to install to this folder, or click Change to install to a different folder.
	Install ThingsProDeviceEnablement to: C:\Program Files (x86)\MOXA\ThingsProDeviceEnablement\ Change
InstallShield -	< Back Next > Cancel

5. Click **Next** to continue with the installation process

6. Click Install.



7. Wait for the installation process to complete and click **Finish** to exit the installer.

🙀 ThingsProDeviceEnablement - InstallShield Wizard		\times
	InstallShield Wizard Completed The InstallShield Wizard has successfully installed ThingsProDeviceEnablement. Click Finish to exit the wizard.	
	< <u>B</u> ack Finish Cancel	

To run the enablement utility, select the **ThingsProEnablement** item under **Start > moxa > ThingsProEnablement** on your PC/laptop computer.

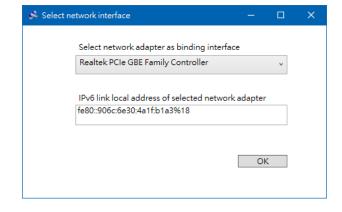


Scanning for ThingsPro Gateways

1. In the Manage tab of the ThingsPro Device Enablement utility, click Auto Scan.

🛸 Things Pro Device Enablement								
Manage	About							
	asic Registration	Export Import Config Config	Firmware Upgrade					

2. Select a network adapter from the drop-down list and click **OK** to continue.





IMPORTANT!

Ensure that the computer and the ThingsPro gateways are in the same network domain.

3. Enter the **Email** and **Password** and click **OK** to continue.

Email:	admin@moxa.com
Password:	****
Email and P for all scan OK	assword above will be applied ned devices

The default values are: **Email**: admin@moxa.com **Password**: admin1234

4. Wait for the scanning process to complete.

Sca	nning device		

When the scan is complete, a list of ThingsPro gateways is displayed in the main window.

🛸 Things Pro Device Enablem	ent					×
Manage About Auto Basic Registration Scan Setting	Export Import Config Config	Firmware Upgrade				
⊳ All	#	Model UC-8112-ME-T-LX-CG	IP Address(WAN) 192.168.4.128	MAC Address(WAN) 00:90:e8:57:c0:db	IPv6 Add	-

Configuring Basic Network Settings

The **Basic Setting** function in the ThingsPro Device Enablement utility is designed to easily configure network settings for multiple ThingsPro gateways.

1. Select one or more devices using the checkbox in front of the devices and click on the **Basic Setting** icon.

🐝 Things Pro Device Enablen	nent				– 🗆 🗙
Manage About					
Auto Basic Registration Scan Setting		mware pgrade			
⊳ All	#	Model	IP Address(WAN)	MAC Address(WAN)	IPv6 Address(LAN)
	🗹 💼 1 UC-	-8112-ME-T-LX-CG	192.168.4.128	00:90:e8:57:c0:db	[fe80::0290:e8ff:fe57:c0dc]

2. Edit the device settings displayed in the left pane of the utility window and click **Preview**.

🐝 Basic Setti	ng
Selected De	evice:1
✓ IP Addre	ss
Start from	192.168.3.127
Step	1
✓ Netmask	c
255.255.255	5.0
Gateway	,
192.168.3.2	54
✓ Subnet	
192.168.3.0	
DNS1	
8.8.8	
DNS2	
8.8.4.4	
GPS	
Latitude	
121.123	
Longitude	
22.456	
	Preview

3. Check the device settings displayed in the right pane.

4. Click Apply.

🐝 Basic Setting						—		×
Selected Device:1								
✓ IP Address	-							
Start from 192.168.3.127		#	IP Address	MAC Address	Netmask		ateway	S
Step 1	•	1	192.168.3.127	00:90:e8:57:c0:d	255.255.255.0	192.1	68.3.254	192
Step								
✓ Netmask 255.255.255.0								
Gateway								
192.168.3.254								
✓ Subnet								
192.168.3.0								
DNS1								
8.8.8.8								
DNS2								
8.8.4.4								
Latitude								
121.123								
Longitude 22.456	<							>
							0	
Preview					Ap	oly	Can	icel

5. Wait for the update process to complete.

🐝 Appying	Network Settings	-	×
	Updating DeviceDone		
	Overall Progress100%		

When the process is complete, the current device settings are displayed in the right pane.

					- 0	×
	#	IP Address	MAC Address	Netmask	Gateway	S
0	1	192.168.3.127	00:90:e8:57:c0:d	255.255.255.0	192.168.3.254	192

Registering ThingsPro Gateways

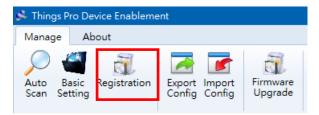
Registering ThingsPro Gateways with the ThingsPro Server

To register a ThingsPro gateway with the ThingsPro Server, do the following:

1. In the ThingsPro Device Enablement utility, select the device from the device list.

🗩 Things Pro Device Enablement	– 🗆 X
Manage About	
Auto Basic Registration Setting Registration	
All # Model IP Address(WAN) MAC Address(WA	N) IPv6 Address(LAN)
☑ 🙆 1 UC-8112-ME-T-LX-CG 192.168.4.128 00:90:e8:57:c0:db	[fe80::0290:e8ff:fe57:c0dc]
Model: UC-8112-ME-T-LX-CG	>
IP Address: 192.168.128 IP Address: 255.255.255.0 MAC Address: 00:90:e8:57:c0:db Serial Number: TAFEB1065810 Firmware Version: ThingsPro 2.0 Build 17031607	

2. Click on the **Registration** icon.



3. Select **Moxa CS** (Moxa Cloud Server) in the **Server Type** field, enter the cloud server details, and click **Apply**.

For details on generating an API token, refer to the "Adding a Token" topic under the *Managing Tokens* section in *Chapter 3 ThingsPro Server*.

	2			10.4.1.		
Server Type: Moxa CS 🔹		#	Model	IP Address	MAC Address	
	_	1	UC-8162-LX-CG	192.168.3.127	00:90:e8:4b:03:01	
CS Host						
http://server.thingspro.xyz						
Broker Port						
8883 Validate						
API Token						

4. Wait for the registration process to complete.

🥵 Registe	ring CG		×
	Updating Device		
	Overall Progress100%		

The completion of the registration process is indicated by a green check mark as shown below:

🛸 Selected Cloud Server: Moxa CS						×
Selected Device:1						
Server Type: Moxa CS v		#	Model	IP Address	MAC Address	
	0	1	UC-8112-ME-T-LX-CG	192.168.4.127	00:90:e8:57:c0:db	
CS Host						
http://server.thingspro.xyz						
Broker Port						
8883 Validate						
API Token						
					Apply	Close

 Open the ThingsPro Gateway web user interface (web UI) for the device and check the parameters at System > CS Remote Control to confirm that the device is registered with the server.

Systen	n Settings	Connect to ThingsPro Server	G III
ŧŧŧ	Serial	Enable	Ø
\odot	Time	UUD	
0	GPS	Host	thingspro.server
(CS Remote Control	Port	8883
٩	Maintenance	l	

Registering ThingsPro Gateways with the AWS IoT Service

Before using the AWS IoT Service, you need to install and configure the AWS CLI. Refer to *Appendix A Installing the AWS Command Line Interface* for details.

To register your ThingsPro gateway with the AWS IoT service, do the following:

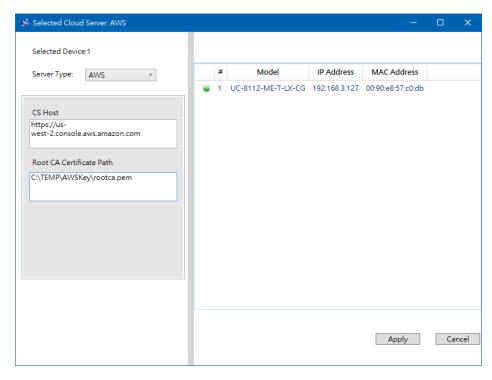
1. Select the device from the list.

🛸 Things Pro Device Enablem	ent	– 🗆 🗙
Manage About		
Auto Basic Registration Scan Setting	Export Import Config Config Upgrade	
⊳ All	# Model IP Address(WAN) MAC Address(WAN)	IPv6 Address(LAN)
	☑ 🗗 1 UC-8112-ME-T-LX-CG 192.168.4.128 00:90:e8:57:c0:db	[fe80::0290:e8ff:fe57:c0dc]
		>
	Model: UC-8112-ME-T-LX-CG IP Address: 192.168.4.128 Netmask: 255.255.255.0 MAC Address: 00:90:e8:57:c0:db Serial Number: TAFEB1065810 Firmware Version: ThingsPro 2.0 Build 17031607	

2. Click on the **Registration** icon.



3. Select AWS in the Server Type field, enter the CS Host and Root CA Certificate Path, and click Apply.



You can acquire both the **CS Host** and **ROOT CA Certificate Path** information when you register your device with the AWS IoT service.

1. Wait for the registration process to complete.

🛸 Regist	ering CG	—	×
	Updating Device		
	Overall Progress100%		

The completion of the registration process is indicated by a green check mark as shown below:

Selected Cloud Server: AWS				-		×
Selected Device:1						
Server Type: AWS V	#	Model	IP Address	MAC Address		
	1	UC-8112-ME-T-LX-CG	192.168.3.127	00:90:e8:57:c0:db		
CS Host https://us- west-2.console.aws.amazon.com Root CA Certificate Path C:\TEMP\AWSKey\rootca.pem						
				Apply	Cl	ose

- 2. Open the ThingsPro Gateway web user interface (web UI) for the device.
- 3. Select **Applications > AWS IoT** in the main menu to confirm that the device is registered with the AWS IoT service.

VS IoT	G
Enable	
Update on change	
Target host *	
https://us-west-2.console.aws.amazon.com	
Port	
8883	
Topio *	
\$aws/things/2471735f-d75f-4cc6-8b7b-fb30	00a78df3b/sha
Client ID *	
2471735f-d75f-4cc6-8b7b-fb300a78df3b	
My Thing Name *	
2471735f-d75f-4cc6-8b7b-fb300a78df3b	

Exporting the Device Configuration

To export the configuration file of a device, do the following:

1. In the ThingsPro Device Enablement utility, select the device and click on the **Export Config** icon.

🛸 Things Pro Device Enableme	ent			×
Manage About				
Auto Basic Registration Scan Setting	Export Import Config Config Upgrade			
⊳ All	# Model IP Address(WAN) MAC Address(WAN) IPv6 Ad	dress(L	AN)
	☑ 🗗 1 UC-8112-ME-T-LX-CG 192.168.4.128 00:90:e8:57:c0:db	[fe80::0290:	e8ff:fe5	7:c0dc]
	<			
	Model: UC-8112-ME-T-LX-CG IP Address: 192.168.4.128 Netmask: 255.255.05 MAC Address: 00:90:e8:57:c0:db Serial Number: TAFEB1065810 Firmware Version: ThingsPro 2.0 Build 17031607			

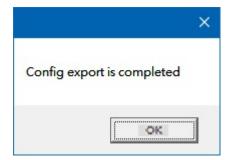
2. Select a folder to save the configuration file to.

Computer	Local Disk (C:) temp	• 4 9	Search temp		<u>م</u>
Organize 👻 Include in li					0
 ☆ Favorites ■ Desktop Downloads ※ Recent Places 	Name	Date modified This folder is empty.	Туре	Size	
 Libraries Documents Music Pictures Videos Computer 					
Local Disk (C;)					
0 items					

3. Click **OK** to continue.

Configuration Export Folder	×
The selected folder was: C:\TEMP	
ОК	

4. Click **OK** to save the file.



5. The configuration file will be named after the MAC address of the device and saved in the folder specified.

					l	- 0	×
Computer	 Local Disk (C:) temp 	▼ \$9	Search ten	np			Q
Organize 🔻 🛛 Include in lik		/ folder			• ==		0
🔆 Favorites	Name	Date modified	Туре	Size			
📃 Desktop	0090e857c0db_config.tar.gz	3/24/2017 2:05 PM	WinRAR		1 KB		
🗼 Downloads							
归 Recent Places							
🥽 Libraries							
Documents							
🁌 Music							
🚺 My Music							
Public Music							
Pictures Videos							
VIGEOS							
👰 Computer							
🚢 Local Disk (C:)							
👝 DATA (D:)							
A							
🗣 Network							
1 item							

Importing a Configuration File

Follow these steps to import a configuration file into the ThingsPro gateway:

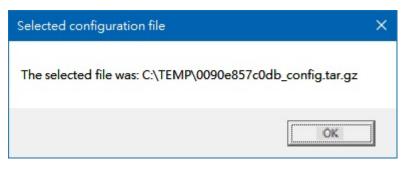
1. In the ThingsPro Device Enablement utility, select the device and click on the Import Config icon

🐝 Things Pro Device Enableme	nt					×
Manage About						
🔎 🍯 📆	Export Import Config Config					
⊳ All	# Model	IP Address(WAN)	MAC Address(WAN)	IPv6 Ad	dress(L/	AN)
	🔀 💣 1 UC-8112-ME-T-LX-C	6 192.168.4.128	00:90:e8:57:c0:db	[fe80::0290:	e8ff:fe5	7:c0dc]
	<					
						/
	Model: UC-8112-ME-T-LX-CG IP Address: 192.168.4.128 Netmask: 255.255.255.0 MAC Address: 00:90:e8:57:c0:db Serial Number: TAFEB1065810 Firmware Version: ThingsPro 2.0 Build	17031607				

2. Select the configuration file and then click **Open**.

Comp	uter 🕨 Loo	cal Disk (C:) 🕨 temp	✓ ⁴ y Sea	irch temp		۶
Organize 👻 New fo	older					0
a boundad	 Nam 	e	Date modified	Туре	Size	
🔄 Recent Places	0 🎒	090e857c0db_config.tar.gz	3/24/2017 2:05 PM	1 WinRAR		1 k
词 Libraries						
Documents						
👌 Music						
and the second se						
Pictures						
Pictures Videos						
Videos	E					
Videos	E					
Videos Videos Computer Local Disk (C:)	E					
Videos	E					
Videos Computer Col Disk (C:) DATA (D:)	E					
Videos Computer Computer Local Disk (C:) DATA (D:) Network	₹ (m			
Videos Computer Coal Disk (C:) DATA (D:) Network	• • [90e857c0db_config.tar.gz		iles (*.*)		-

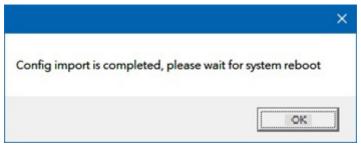
3. Click **OK** to continue.



4. Select the settings to import in the left-pane and click **Apply**.

🥵 Import Configuration							×
Selected Device:1							
Settings to import:		#	Model	IP Address	MAC Address		S
 Data Logger Cellular Serial OpenVPN Client Wireless Manager DHCP Server Time Ethernet DNS Port Forwarding Remote Control Applications User Program GPS 	•	1	UC-8112-ME-T-LX-CG	192.168.4.128	00:90:e8:57:c0:db	ОК	
	<						>
Check All Uncheck All					Apply	Canc	el

5. Click **OK**.



6. Wait until the system reboots.

🐝 Import Configuration							×
Selected Device:1							
Settings to import:			#	Model	IP Address	MAC Address	S
 ✓ Data Logger ✓ Cellular ✓ Serial 		\$	1	UC-8112-ME-T-LX-CG	192.168.4.128	00:90:e8:57:c0:db	Restarting devi
✓ OpenVPN Client	🐝 SystemReboot				- 0	×	
 Wireless Manager DHCP Server Time Ethernet DNS Port Forwarding Remote Control Applications User Program GPS 	Waitin	g for s	yste	m reboot			
		<					>
Check All Unchec	k All					Apply	Close

7. Check the imported configuration from the list. Click **Close** to complete.

🧩 Import Configuration							×
Selected Device:1							
Settings to import:		#	Model	IP Address	MAC Address		S
 Data Logger Cellular Serial OpenVPN Client Wireless Manager DHCP Server Time Ethernet DNS Port Forwarding Remote Control Applications User Program GPS 	0	1	UC-8112-ME-T-LX-CG	192.168.3.127	00:90:e8:57:c0:db	ОК	
	<						>
Check All Uncheck All					Apply	Clo	ose

Upgrading the Firmware on the ThingsPro Gateway

This section describes how to upgrade the firmware on your ThingsPro gateway. Contact Moxa technical support staff to get the latest version of the firmware.

To upgrade the firmware on your ThingsPro gateway, do the following:

- 1. Download the firmware file (*.frm) from the Moxa website or contact a Moxa support staff for assistance.
- 2. Run the ThingsProEnablement utility from All Programs > Moxa > ThingsProEnablement
- 3. Click **Auto Scan** to update the ThingsPro gateway list.



🐝 Things Pro Device Enablem	ent					—		×
Manage About								
Auto Basic Registration Scan Setting	Export Config	Import Config	Firmware Upgrade					
⊳ All		#	Model	IP Address(WAN)	MAC Address(WAN)	IPv6 Add	dress(LA	N)
		🦸 1	UC-8112-ME-T-LX-CG	192.168.3.127	00:90:e8:57:c0:db	[fe80::0290:	e8ff:fe57	:c0dc]

4. Select the ThingsPro gateway.

🐝 Things Pro Device Enableme	ent					—		×
Manage About								
Auto Basic Registration Scan Setting	Export Config	Import Config	Firmware Upgrade					
⊳ All		#	Model	ID Addross(M/AN)	MAC Address(MAN)	IDv6 Ad	dross(L	
	Z	1	UC-8112-ME-T-LX-CG	192.168.3.127	00:90:e8:57:c0:db	[fe80::0290:	e8ff:fe5	7:c0dc]

5. Click Firmware Upgrade.



6. Click **Browse** and then select the firmware path

es. F	irmw	are Upgrade				—		×
Firn	nwar	e Path ^{*.frm}					Bro	wse
	#	IP Address	MAC Address		Firmware Version			
۲	1	192.168.3.127	00:90:e8:57:c0:db	N/A				

7. Click Upgrade.



8. Wait for the upgrade progress to complete.

🧩 Firmware Upgrading	-	×
Updating Device		
Overall Progress		

9. Reboot the gateway.



ATTENTION

Improper firmware upgrade can lead to system failure due to corruption of the firmware on your system. Contact Moxa technical support before you upgrade the firmware on your ThingsPro gateway.

Preparing a ThingsPro Gateway Sample

This section describes how to prepare a sample ThingsPro gateway so that all configuration files can be easily imported to other ThingsPro gateways. The sample device is useful when there are multiple ThingsPro gateways that need to be configured.

To create a sample ThingsPro gateway in the ThingsPro Device Enablement utility, do the following:

1. Right-click on a device in the device list and select **Open Browser**.

Strings Pro Device Enablement	– 🗆 X
Manage About	
Auto Basic Registration Setting Registration	
All # Model IP Address(WAN) MAC Address	/AN) IPv6 Address(LAN)
I UC-8112-ME-T-LX-CG 192.168.3.127	[fe80:0290:e8ff:fe57:c0dc]
Open Bri	ser
Unlock E	ice
Add Dev	
Remove	vice

2. Click Get Started.

ΜΟΧΛ	۲
Things Prot	
Your Industrial IoT, Simplified	
GET STARTED EXPLORE	

3. Enter the **Email** and **Password** and click **SIGN IN**.

^{Email *} admin@ <u>moxa</u> .com	
Pasaword *	
Remember me	
SIGN IN	

4. In the main menu, select **ThingsPro Gateways** → **Device List** and edit the network settings as required.

Network	Settings	Ethernet		C	
<··>	Ethernet	ETHO	ETH1		
	Cellular	Туре			WAN
×	DHCP Server	IP		192.168.	.31.89
	DNS	Netmask		255.255.	.255.0
c	OpenVPN Client	DNS 1		10.1:	28.8.1
	SSH	DNS 2		10.12	28.8.2

5. Click SAVE.

hernet		G	
ETHO ETH1			
O DHCP			
Static IP			
ID *			
192.168.31.89			
Netmask * 255,255,255,0			
233.233.233.0			
Gateway			
192.168.31.254			
DNS 1			
10.128.8.1			
DNS 2			
10.128.8.2			
	1	SAVE	s

For instructions on exporting the configuration of the sample device, refer to the "*Exporting the Device Configuration*" section. To import the new configuration file into other devices, follow the instruction in the "*Importing a Configuration File*" section.



Installing the AWS Command Line Interface

Before you can use the AWS service, you need to install and configure the AWS Command Line Interface (CLI) on the ThingsPro Server.

The following topics are covered in this appendix:

- Installing the AWS CLI for Windows
- Configuring the AWS CLI Environment

Installing the AWS CLI for Windows

The AWS CLI function can be used on the ThingsPro Server to search for ThingsPro gateway devices on the same local network.

To install the AWS CLI function, do the following

1. Download the AWS CLI software from the following link:

http://docs.aws.amazon.com/cli/latest/userguide/awscli-install-windows.html

 Run either the AWSCLI32.exe or AWSCLI64.exe file depending on the Windows platform on your computer.

🛃 AWSCLI32.msi 🛃 AWSCLI64.msi

3. Click Next to continue.



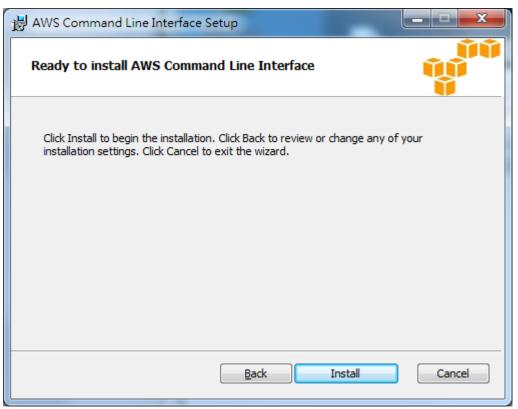
4. Confirm that you accept the license agreement and Click Next.

H AWS Command Line Interface Setup
End-User License Agreement Please read the following license agreement carefully
AWS Command Line Interface
Copyright 2012-2013 Amazon.com, Inc. or its affiliates. All Rights Reserved.
Licensed under the Apache License, Version 2.0 (the "License"). You may not use this file except in compliance with the License. A copy of the License is located at
http://awg.amezon.com/apache2.0/ I accept the terms in the License Agreement
Print Back Next Cancel

- 5. If required, click **Browse** to specify a new location.
- 6. Click Next.

B AWS Command Line Interface Setup	
Custom Setup Select the way you want features to be installed.	
Click the icons in the tree below to change the wa	ay features will be installed.
AWS Command Line Interface	The AWS Command Line Interface is a unified tool to manage your AWS services. This feature requires 40MB on your hard drive.
Location: C:\Program Files\Amazon\AWS	CLI\ <u>Browse</u>
Reset Disk Usage	Back Next Cancel

7. Click **Install** to start the installation.



8. Wait for the installation to complete and click **Finish** to close the installer.

H AWS Command Line Interface Setup				
web services	Completed the AWS Command Line Interface Setup Wizard			
	Click the Finish button to exit the Setup Wizard.			
	Back Finish Cancel			

Configuring the AWS CLI Environment

To configure the AWS CLI environment on your computer, do the following:

- 1. Register with the Amazon Web Services to get an access key ID and access secret key.
- 2. Look up the region code for your region. For example, us-west-2 for US West (Oregon)

Region Name	Region	Endpoint	Protocol
US East (N. Virginia)	us-east-1	autoscaling.us-east-1.amazonaws.com	HTTP and HTTPS
US West (N. California)	us-west-1	autoscaling.us-west-1.amazonaws.com	HTTP and HTTPS
US West (Oregon)	us-west-2	autoscaling.us-west-2.amazonaws.com	HTTP and HTTPS
Asia Pacific (Singapore)	ap-southeast-1	autoscaling.ap-southeast-1.amazonaws.com	HTTP and HTTPS
Asia Pacific (Sydney)	ap-southeast-2	autoscaling ap-southeast-2.amazonaws.com	HTTP and HTTPS
Asia Pacific (Tokyo)	ap-northeast-1	autoscaling.ap-northeast-1.amazonaws.com	HTTP and HTTPS
EU (Frankfurt)	eu-central-1	autoscaling.eu-central-1.amazonaws.com	HTTP and HTTPS
EU (Ireland)	eu-west-1	autoscaling.eu-west-1.amazonaws.com	HTTP and HTTPS
South America (São Paulo)	sa-east-1	autoscaling.sa-east-1.amazonaws.com	HTTP and HTTPS

Application Auto Scaling

3. Run the **aws configure** command in the command line interface on your computer and provide the AWS registration information as follows:

```
C:\Program Files\Amazon\AWSCLI>aws configure
AWS Access Key ID [************SGWA]:
AWS Secret Access Key [*************DLQR]:
Default region name [us-west-2]:
Default output format [json]:
C:\Program Files\Amazon\AWSCLI>
```