ThingsPro Proxy User's Manual

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www.moxa.com/product



ThingsPro Proxy User's Manual

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ThingsPro Proxy (TPP) is a Windows-based provisioning tool for batch configuring Moxa IIoT gateways according to specific provisioning plans (hereinafter referred to as "plans"). The provisioning plans include details such as device configuration, cloud-enrollment information, and security settings. The ThingsPro Proxy plans allow field operators to quickly configure/enroll Moxa devices without requiring domain knowledge and without having to go through complex steps, thereby reducing the cost of operation. The device provisioning tasks can be linked to a plan for quick and effortless provisioning.

ThingsPro Proxy can be download from the Moxa website and installed in a Windows 10 environment. Version 3.0 of this user's manual is based on **ThingsPro Proxy v1.2.0**.

ThingsPro Proxy leverages the ThingsPro Edge software installed on Moxa devices to provision the devices. ThingsPro Proxy and ThingsPro Edge together provide your devices with an IIoT gateway solution that includes streamlined data transportation from the endpoint to the cloud. Therefore, to provision Moxa devices via ThingsPro Proxy, you will need to install ThingsPro Edge (TPE) on the devices.

Installation Guide

In this chapter, we describe how to install the ThingsPro Proxy tool.

The following topics are covered in this chapter:

Installing ThingsPro Proxy

- > Prerequisites
- > Installation

Installing ThingsPro Proxy

Prerequisites

- 1. PC with Windows 10 OS and Google Chrome browser.
 - ✓ Windows 10 version 1809 or later
 - ✓ Google Chrome 86.0.4240.183 (64 bit) or later
- 2. Enable the Link-local IPv6 address on the PC.
 - To enable the Link-local IPv6 address, do the following:
 - i. In the Windows Search box, enter view network connections and click Open.

All Apps Documents Web	More 🔻	<i>₽</i> ···
Best match		
View network connections Control panel		
Settings		View network connections
O View your PC name	>	Control panel
① View RAM info	>	
\bigcirc View your Update history	>	□ □ Open
O View processor info	>	
View your product ID	>	
O View pen and touch info	>	
View your network properties	>	
Search the web		
✓ view - See web results	>	
Apps (2)		
,∽ view		o 🛱 🤮 🧮 📅 💼 🌍 🔄

ii. Select the network adapter that will be used to discover Moxa devices, right-click the network adapter, and select **Properties**.

rivetwork Connections	
← → 丶 ↑ 😰 > Contr	ol Panel > Network and Internet > Net
Organize 👻 Disable this r	network device Diagnose this connec
Ethernet	
Realtek RTL8139C+	😯 Disable
	Status
	Diagnose
	Bridge Connections
	Create Shortcut
	😍 Delete
	💔 Rename
	Properties

- Ethernet Properties × Networking Connect using: Realtek RTL8139C+ Fast Ethemet NIC Configure. This connection uses the following items: QoS Packet Scheduler ^ ✓ __ Internet Protocol Version 4 (TCP/IPv4) Microsoft Network Adapter Multiplexor Protocol ✓ Microsoft LLDP Protocol Driver ✓ Internet Protocol Version 6 (TCP/IPv6) Link-Layer Topology Discovery Responder Link-Layer Topology Discovery Mapper I/O Driver ✓ < > Uninstall Install.. Properties Description TCP/IP version 6. The latest version of the internet protocol that provides communication across diverse interconnected networks. OK Cancel
- iii. Select the Internet Protocol Version 6 (TCP/IPv6) option.

- **NOTE** Ensure that the service port 5001 (local host) is available for the ThingsPro Proxy web server.
 - 3. Click **OK** to apply the changes.

Installation

To install the ThingsPro Proxy App, do the following:

1. Download and run the ThingsPro Proxy installation file **ThingsProProxySetup**-*x.x.x-yyyymmdd*.



- 2. Click Next.
- 3. Select the I accept the agreement option and click Next.

🕲 Setup - ThingsPro Proxy —	×
License Agreement Please read the following important information before continuing.	
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.	
your acceptance of this Agreement. If you do not agree to this Agreement, you must immediately cease using any part of the Software along with all related documentation, if any, and return them with your receipt to the place you obtained them. Moxa reserves the right to change, modify, add or delete provisions in this Agreement.	^
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LIMITATIONS OF USE. You shall not use the Software in any manner or for any purpose other than a expressly permitted by this Agreement. You shall not (a) modify distribute alter tamper with repair	• •
I accept the agreement	
○ I do not accept the agreement	
< Back Next >	Cancel

4. Specify the folder to install ThingsPro Proxy in and click **Next**.

🛃 Setup - ThingsPro Proxy	-		×
Select Destination Location Where should ThingsPro Proxy be installed?		C	
Setup will install ThingsPro Proxy into the following folder.			
To continue, click Next. If you would like to select a different folder, click Browse.			
C: \Program Files \Moxa \ThingsPro Proxy		Browse	
At least 64.8 MB of free disk space is required.			
< Back Next	>	Car	ncel

5. Specify the folder to create the ThingsPro Proxy shortcut in and click **Next**.

暘 Setup - ThingsPro Proxy	-		Х
Select Start Menu Folder Where should Setup place the program's shortcuts?		0	
Setup will create the program's shortcuts in the following Start Menu folder.			
To continue, click Next. If you would like to select a different folder, click Browse.			
ThingsPro Proxy	В	rowse	
< Back Nex	t >	Can	cel

6. Click Install.

NOTE A command line console window (Windows cmd) will open during the installation process. DO NOT close the cmd window.

😰 Setup - ThingsPro Proxy	-	×
Ready to Install Setup is now ready to begin installing ThingsPro Proxy on your computer.		
Click Install to continue with the installation, or click Back if you want to review or change a	ny sett	tings.
Destination location: C:\Program Files\Moxa\ThingsPro Proxy		^
Start Menu folder: ThingsPro Proxy		~
< Back Instal		Cancel
		Concer

7. After the installation process is complete, click **Finish**.



8. Launch the ThingsPro Proxy App.

A webpage with privacy-related warnings will open.

9. Click Advanced.

Privacy error	× +	-		×
← → C ▲ N	lot secure localhost:5001	☆	Θ	÷
👖 Apps M Gmail	YouTube X Maps			
	A			
	Your connection is not private			
	Attackers might be trying to steal your information from localhost (for example,			
	passwords, messages, or credit cards). <u>Learn more</u>			
	NET:::EKK_CEKT_AUTHURITY_INVALID			
	Help improve security on the web for everyone by sending URLs of some pages you visit, limited			
	<u>system information, and some page content</u> to Google. <u>Privacy policy</u>			
	Hide advanced Back to safety			
	This server could not prove that it is localhost ; its security certificate is not trusted by your			
	computer's operating system. This may be caused by a misconfiguration or an attacker			
	intercepting your connection.			
	Proceed to localhost (unsafe)			

10. Click Proceed to localhost (unsafe).

	ThingsPro Proxy
Dashboard	Dashboard
🛱 Provisioning	Could not find any provisioning tasks
Create Provisioning Plan	This page shows the status of your current provisioning tasks Start with one of the options below to create a new provisioning task
① About	Targeted Provisioning with Plan Manually select multiple devices from the ThingsPio Pray scan list and provision their provisioning plans.
	GO TO PROVISION GO TO PROVISION
	Do not have a provisioning plan yet? Create a Provisioning Plan Now!

NOTE ThingsPro Proxy utilizes HTTPS to communicate with the web server. The Chrome browser will display a warning because the unsigned certificate used is flagged as a security issue.

Configuring ThingsPro Proxy

This chapter describes how to create a provisioning plan in ThingsPro Proxy and provision devices using the plan.

The following topics are covered in this chapter:

Configuring ThingsPro Proxy

- > Creating a Provisioning Plan
- Provisioning Devices

Configuring ThingsPro Proxy

You will require at least one provisioning plan in ThingsPro Proxy before you can provision devices.

Creating a Provisioning Plan

A wizard will guide you through the process of creating a provisioning plan, which includes software upgrade, configuration import, cloud enrollment, and security settings. You can also view the settings before finalizing the plan.

To create a provisioning plan, do the following:

1. Click on the **Create Provisioning Plan** link.



- 2. Select the target device model and click **START**.
- 3. Specify the ThingsPro Edge (TPE) Installation settings and click NEXT.

You can enable/disable the TPE installation settings using the **Add ThingsPro Edge installation settings to plan** slider. The system will install the latest version of ThingsPro Edge that is compatible with the firmware version on the device.

ThingsPro Proxy					
← Create Provisioning	Plan				
1 ThingsPro Edge Installation	ThingsPro Edge Installation				
2 Upgrade Software	Add ThingsPro Edge installation settings to plan				
3 Import Configuration	Provisioning devices Provisioning devices configuration and cloud enrolliment require TPE Installed on the devices				
Cloud Enrollment	 This process only takes effect on the devices in which TPE arent installed yet. For service packs and updates installation, please go to Software upgrade to set them up. 				
	Install version Latest version compatible with the device firmware				
5 Security Settings					
6 Linux Command					
3 Summary					
8 Finish					
	CANCEL	NEXT >			

- 4. Specify the software upgrade settings and click **NEXT**.
 - A. You can enable/disable software upgrade using the **Add software upgrade pack to plan** slider.
 - B. If you have enabled software upgrade, choose a method to upgrade the software pack-Auto or

ThingsPro Proxy	
← Create Provisioning	Plan
ThingsPro Edge Installation	Software Upgrade Add software upgrade pack to plan
2 Upgrade Software	Select upgrade pack source
3 Import Configuration	Auto -
4 Cloud Enrollment	 Check for update The targeted devices will be upgraded to the latest software packages.
5 Security Settings	
6 Linux Command	
Summary	
8 Finish	
< BACK	CANCEL NEXT >

5. To import a configuration file, enable the **Add configuration settings to plan** slider, browse to the file, and specify the associated **Password**. Click **NEXT**.

ThingsPro Proxy		
← Create Provisioning	Plan	
ThingsPro Edge Installation	Import Configuration Add configuration settings to plan	
Upgrade Software	Select configuration file to be uploaded	
3 Import Configuration	BROWSE	
4 Cloud Enrollment	Configuration Password	
5 Security Settings		
6 Linux Command		
3 Summary		
8 Finish		
< BACK		CANCEL NEXT >

 (optional) In the Cloud Enrollment page, click Manage and select Edit to change the settings. To add more cloud services, click + Add another.

ThingsPro Proxy		
← Create Provisioning	Plan	
ThingsPro Edge Installation	Cloud Enrollment Add cloud service settings to plan	
Upgrade Software	Enroll on to the cloud server	
Import Configuration	Not selected cloud server Ø not completed	MANAGE •
4 Cloud Enrollment	+ Add another	
5 Security Settings		
6 Linux Command		
3 Summary		
8 Finish		
< BACK		CANCEL NEXT >

A. Azure IoT Hub Service/Azure IoT Edge Enter the Connection String and click VERIFY & SAVE.

Add Connection		
Info: Add an IoT Hub connection a	nd verify it.	
Connection String ⊘		
		11

If you want to edit the Connection String, click **EDIT**.

The Device ID is auto generated by using the serial number of the device and authenticated via a symmetric key.

Enroll on to the cloud server		
Server Type		
Azure IoT Hub Device	•	
Configure an IoT Hub connection		
IoT Hub connection		EDIT
		EDIT
 Verified Connection String: HostName-thing 	enro.InThim.newTwin styre_devices netShared	EDIT
 Verified Connection String: HostName=thing 	spro-loTHub-newTwin.azure-devices.net;Shared	
 Verified Connection String: HostName=thing Enrollment settings 	spro-IoTHub-newTwin.azure-devices.net;Shared	
Verified Connection String: HostName=thing Enrollment settings Device Id	spro-IoTHub-newTwin.azure-devices.net;Shared	
 Verified Connection String: HostName=thing Enrollment settings Device Id ③ Auto-generated by serial number 	spro-IoTHub-newTwin.azure-devices.net,Shared	
 Verified Connection String: HostName=thing Enrollment settings Device Id ③ Auto-generated by serial number Authentication Type 	spro-IoTHub-newTwin.azure-devices.net,Shared	

B. Azure IoT DPS

i. Enter the **Connection String** and click **VERIFY & SAVE**.

Info: Add an IoT Hub cor	inection and verify it.	
onnection String 🕥		
		11

If you want to edit the Connection String, click **EDIT** and enter the **ID Scope**.

The Device ID is auto generated using the serial number of the device and authenticated via a symmetric key.



- ii. (optional) Select The provisioning device is an IoT Edge-capable device.
- iii. Select an Assign Policy.
- iv. Enter the name of the **IoT Hubs**.
- v. Select a Re-provisioning policy.
- vi. (optional) Customize the Initial Device Twin State.
- vii. Click **NEXT**.

C. Moxa DLM Service

- i. Select the service type **Moxa DLM Service**.
- ii. Enter an **Email** (account) and **Password**.

Info: Add a ThingsPro cloud connection and v	verify it.
Email	
aaa@moxa.com	
Password	
	Ø

iii. Select a project name to register devices.

hingsProProxy ← Edit cloud Enrol	ment Setting	
Select server type		
Server Type		
Moxa DLM Service	*	
Configure an Moxa DLM o	nnection	
Moxa DLM conne	ion	
Verified		EDIT
Email : alfredfh.li@mox	com	
Password: ••••••	0	
Enrollment settings		
Project Name		
ThingsPro Edge Project	*	
Authentication Tuno		
X.509	*	
Connection		
Enable auto-connect		
C BACK		
DACK		CANCEL

iv. Click **NEXT**.

7. (optional) You can disable a provisioning service to prevent devices from being discovered or modify the current password. Click **NEXT** to apply the changes.

These devices cannot be four	e nd after provision service gets dis
Change password	
Password	Ø
Confirm Password	ø

 (optional) You can upload Linux command scripts and deploy them to targeted devices. The supported file formats include tar.gz, bash, binary, executables, and Python3 package.

ThingsPro Proxy	
← Create Provisioning	Plan
ThingsPro Edge Installation	Linux Command Add linux command settings to plan
Upgrade Software	Select linux command file to be uploaded Linux Command File
Import Configuration	BROWSE
Cloud Enrollment	Execution Timeout (sec) 600
Security Settings	
6 Linux Command	
Summary	
8 Finish	
< BACK	CANCEL NEXT >

9. Specify a plan name, assign a password, and click **CREATE**.

The password is used to encrypt the plan and then decrypt it before importing the plan.

ThingsPro Proxy		
← Create Provisioning	Plan	
ThingsPro Edge Installation	Linux Command Add linux command settings to plan	
Upgrade Software	Select linux command file to be uploaded Linux Command File	
Import Configuration	BROWSE	
Cloud Enrollment	Execution Timeout (sec) 600	
Security Settings		
6 Linux Command		
Summary		
8 Finish		
< BACK	CA	NCEL NEXT >

 Click **DOWNLOAD & FINISH** to download the plan. The plan will be downloaded as a *.zip file.

NOTE ThingsPro Proxy uses plans to provision devices. Plans can be stored in a secure location and used in the different workplaces where ThingsPro Proxy is installed.

Provisioning Devices

There are two ways to provision devices: Targeted Provisioning and On-air Provisioning.

Targeted	You can specify a batch of devices for provisioning based on the device model,
Provisioning	firmware version, ThingsPro Edge version, and communication interfaces.
On-air	ThingsPro Proxy will automatically scan all compatible devices in LAN and batch
Provisioning	deploy the configuration based on the specified plan.

NOTE ThingsPro Proxy relies on the UDP port 40404 for scanning devices in the same network. Be sure to add UDP port 40404 to the firewall whitelist for proper device discovery.

To provision devices, do the following:

- 1. After you have created a provisioning plan, click on the **Provisioning** link.
- 2. Choose the type of provisioning: Targeted Provisioning or On-air Provisioning

=	ΜΟΧΛ	ThingsPro Proxy						
	Dashboard	Provisioning						
.	Provisioning	1 General settings	Settings for actions			Confirm		
6	Create Provisioning Plan About	Provisioning Mode Targeted Provisioning Or Device Access Access Information User: admin Password:	-air Provisioning					EDIT
		Target Devices 1 item(s) selected					🛋 SCAN	Q SEARCH
		Model Name	Permission	Serial No.	TPE Installed	TPE Version	Firmware Version	
		UC-8100A-ME-T-LX	⊘ Granted	TAICB1046775	\otimes	2.2.0-2895	1.5	0
		AIG-301-T-US-AZU-LX	Ø Granted	TRDSMP000009	\otimes	2.1.0-2412	1.0	1
		UC-8210-T-LX	Ø Granted	TBZKB1022297	\otimes	2.1.1-2821	1.2	(j)
							CANC	EL NEXT >

Devices will be accessed using their default credentials (Account: **admin**; Password: **admin@123**). You can click **EDIT** to change the default credentials so that the devices whose default credentials have been changed can be discovered.

- 3. (optional) Edit the default credential to discover your devices.
- 4. Select devices to discover or press **SCAN** to re-scan the LAN for devices.
- 5. Click NEXT.
- 6. Press **BROWSE...** to select a plan and enter the associated password.
- 7. Click UPLOAD.
- 8. Click NEXT.
- 9. Click APPLY.

NOTE For ThingsPro Proxy to be able to discover devices properly, the Ethernet interfaces should have a proper IP address, subnet mask, and default gateway configured. We suggest enabling a DHCP server to allocate IP addresses to devices instead of assigning them manually.

NOTE Before running the provisioning plan, ThingsPro Proxy will synchronize your server time on to the devices.

	ThingsPro Proxy	
Dashboard	Provisioning	
🚔 Provisioning	General settings 2 Settings for actions	Confirm
 Create Provisioning Plan About 	Select provisioning plan file to be uploaded Plan File DLMenroll_5518d337-a208-4071-8c14-4b36d9fa36ce.zip Plan Content ThingsPro Edge Installation Installation Version : - Upgrade software Upgrade software Configuration Configuration File : - Configuration Password : - Cloud Enrollment Server Type : Moxa DLM Service Email : alfredfh.ll@moxa.com Authentication Type : X.509 Project Name : Demo - TPE-Inside	L⊋
	< BACK	CANCEL NEXT >

	ThingsPro Proxy					
Dashboard	Provisioning					
📑 Provisioning	General settings		Settir	ngs for actions		3 Confirm
Create Provisioning Plan	Confirm plan and device list					
 About 	DLMenroll TPE Installation: - Software Upgrade: - Configuration Import: -					DETAIL
	Eligible Device (1) Ineligible D	evice (0)			\searrow	
	O Device list can be provisioned					Q SEARCH
	Model Name S	erial No.	TPE Installed	TPE Version	Firmware Version	Message
	AIG-301-T-US-AZU-LX	RDSMP000009	Installed	2.1.0-2412	1.0	-
				Items per page:	10 💌 1-1 of 1	I< < > >I
	< BACK					CANCEL APPLY

Known Issues and Limitations

- 1. ThingsPro Proxy v1.x.x does not support running multiple plans simultaneously.
- 2. A connection failed message is displayed if the Ethernet interfaces are not able to get an IP address assigned after ThingsPro Edge is installed. The LAN1 interface of ThingsPro Edge is DHCP enabled by default and this error results in the ThingsPro Proxy not being able to access ThingsPro Edge.

NOTE If devices are discovered via Wi-Fi (Client mode), they cannot be provisioned (grayed-out in the search results).

- 3. DO NOT insert SIM cards before the provisioning process is complete.
- ThingsPro Edge has about 15 minutes to provisioning a device after it is powered on.
 Before starting the provisioning process, ensure that the ThingsPro Proxy is ready and the devices are powered on.
- 5. The time taken to install ThingsPro Edge (TPE) is subject to the capacity of the devices. For example, it might take around 30 minutes to install TPE on a UC-8100A-ME-T Series device.
- 6. If the TPP web GUI is disconnected for an extended period and does not reconnect, you can stop and restart the service.

Click on the Windows Start button and select the ThingsPro Proxy folder. Click **Stop ThingsPro Proxy Service** and then **Start ThingsPro Proxy Service** to relaunch the TPP service.

7. Devices newly registered with AWS IoT Core sometimes require a reboot to be available.