

How to Manage Multiple Devices Using ThingsPro Group Function and Task Queues

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About Moxa

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

How to Contact Moxa

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1 Introduction

Moxa's ThingsPro™ 2.0 Suite simplifies the development of IoT applications and facilitates data acquisition as well as remote device management. ThingsPro provides Modbus communications, data acquisition, wireless networking, and device management, in a few simple steps, allowing users to focus on developing applications instead of complex system integration.

2 Application Scenario

A field site has hundreds of cloud gateways deployed for data acquisition. To manage these gateways remotely, ThingsPro Server is deployed at the central site (control room) and its device management function is used to organize devices into groups. ThingsPro Server is then used to simultaneously upgrade firmware, reboot, and configure multiple remote ThingsPro gateways that are in the same group. In this article we describe how to add ThingsPro gateways to a group using the device grouping function on the ThingsPro server and simultaneously manage multiple gateways in a group.

3 Prerequisites

1. A couple of Moxa UC-8112 gateway computers with Internet access, and ThingsPro 2.0 Gateway and SD card installed.
For information about setting up a Moxa UC-8112, refer to the *UC-8112-ME-T Series Hardware User's Manual*.
2. PC/notebook with Chrome browser and Internet access.
3. ThingsPro Server hosted on a cloud service (e.g., AWS, Azure) or your own private server.

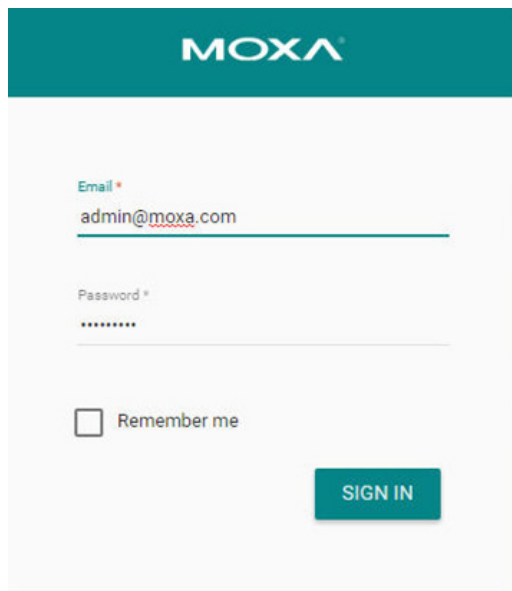
4 Solution

Complete the following steps to add the ThingsPro gateways to a server group and manage them using the group function:

1. **View the Device List.**
 - a. Open the ThingsPro Server on the central PC using the Chrome browser.
Type `https://< your ThingsPro Server host name or IP address >` into the browser.
 - b. Click **GET STARTED**

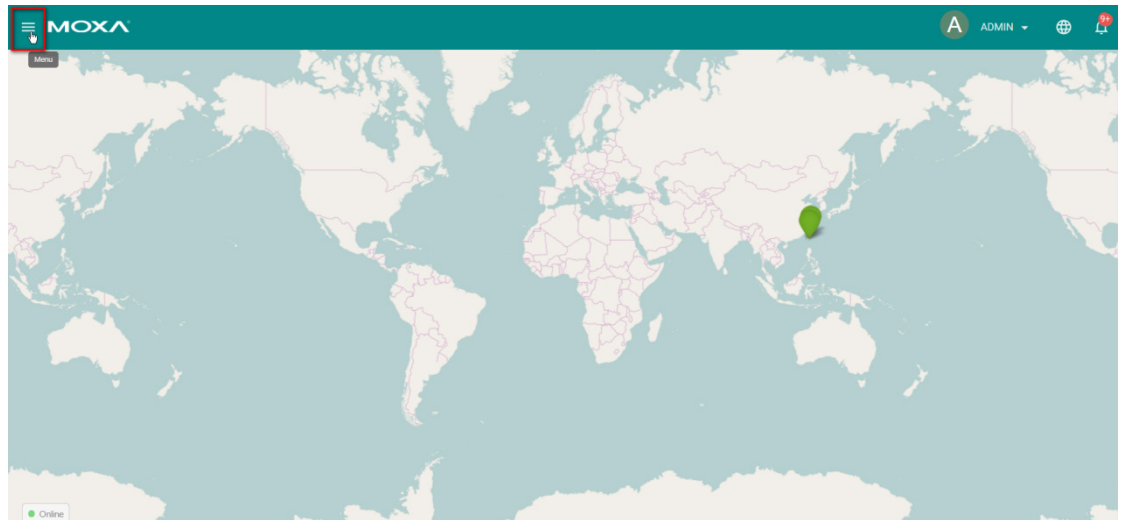


- c. In the login dialog, type your **Email** and **Password** (default: **admin@moxa.com/admin1234**) and click **SIGN IN**.

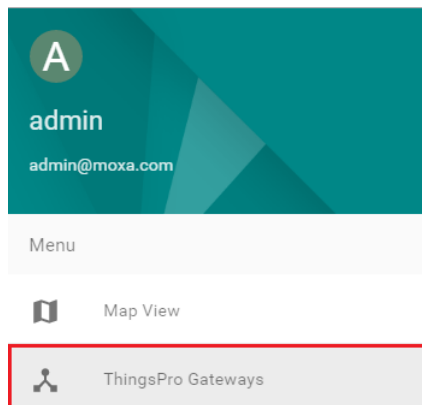


- d. In the main page, click  (Menu).

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- e. Click on the **ThingsPro Gateways** link to show all registered ThingsPro gateways.



The **Device List** shows all registered ThingsPro gateways with their Internet connection status and other information.

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Device Management

Device List

<input type="checkbox"/>	Name ↑	Status	MAC	Location
<input type="checkbox"/>	ThingsPro		0090e857c119	(121.552015, 24.984463)
<input type="checkbox"/>	ThingsPro		0090e8112233	(121, 23)
<input type="checkbox"/>	ThingsPro		0090e857c0d5	(0, 0)
<input type="checkbox"/>	ThingsPro		0090e857f960	(0, 0)
<input type="checkbox"/>	ThingsPro		0090e857c117	(0, 0)

For information on registering a ThingsPro gateway, refer to the *ThingsPro User's Manual*.

2. Organize the ThingsPro gateways into a group.

To add the ThingsPro gateways to a new group (**Group 1**), do the following:

- a. Select the ThingsPro gateways that you want to add to a group and click (Group Devices).

The screenshot shows the Moxa Device Management interface. At the top, there is a teal header with the Moxa logo and a user profile icon. Below the header, the 'Device Management' section is visible. A blue banner indicates '3 item selected'. The device list table is shown with three rows selected, each with a red checkmark in the checkbox column. The 'Group Devices' button, represented by a gear icon with a plus sign, is highlighted with a red box and labeled '2.'. The first row of the table is also labeled '1.'.

<input type="checkbox"/>	Name ↑	Status	MAC	Location
<input checked="" type="checkbox"/>	ThingsPro		0090e857c119	(121.552015, 24.984463)
<input checked="" type="checkbox"/>	ThingsPro		0090e8112233	(121, 23)
<input checked="" type="checkbox"/>	ThingsPro		0090e857c0d5	(0, 0)
<input type="checkbox"/>	ThingsPro		0090e857f960	(0, 0)
<input type="checkbox"/>	ThingsPro		0090e857c117	(0, 0)

- b. Type in **Group 1** in the **Name** field and click **SAVE**.

Create a Group ✕

Name

Group 1

Description

SAVE

The new group is listed in the **Group List**.

Device Management

Device List

<input type="checkbox"/>	Name ↑	Status	MAC	Location
<input type="checkbox"/>	ThingsPro		0090e857c119	(121.552015,24.984463)
<input type="checkbox"/>	ThingsPro		0090e8112233	(121, 23)
<input type="checkbox"/>	ThingsPro		0090e857c0d5	(0, 0)
<input type="checkbox"/>	ThingsPro		0090e857f960	(0, 0)
<input type="checkbox"/>	ThingsPro		0090e857c117	(0, 0)

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Group

Group List

<input type="checkbox"/>	Name ↑	Online Count	Offline Count	Task Activated Count	Task Complete Count	Description	
<input type="checkbox"/>	Group 1	2	1	0	0		

3. Manage the gateways in **Group 1**.

You can use the following operations on multiple remote ThingsPro gateways that are in the same group.

Group Operation	Icon/Link
Firmware upgrade	 
Reboot	 
Restore configuration	 


The following three settings are available for the group operations:

Group Reboot
✕

No Retry

Retry Times

Schedule



3/13/2017

Hour
 ▼ 18

Minute
 27


REBOOT

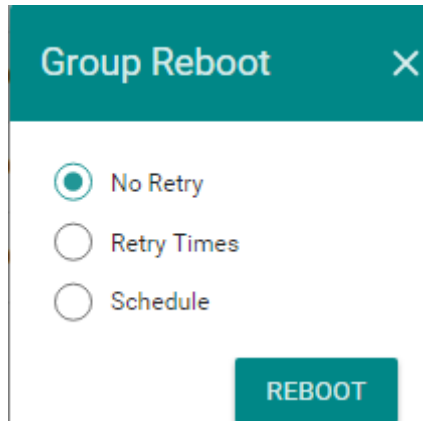
Settings	Description
No Retry	The operation is run immediately, just once. If the operation fails, it will not be run again.
Retry Times	The operation is run immediately. If the operation fails, it will be run the number of times specified here every 10 seconds.
Schedule	Run the operation, once, at the scheduled time.

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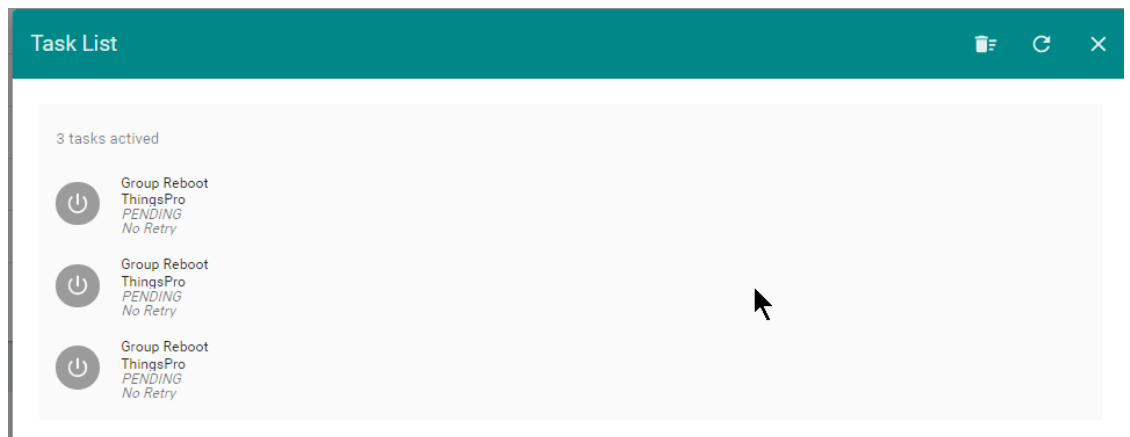
Example 1: You want to reboot all ThingsPro gateways in Group 1 immediately.

Do the following:

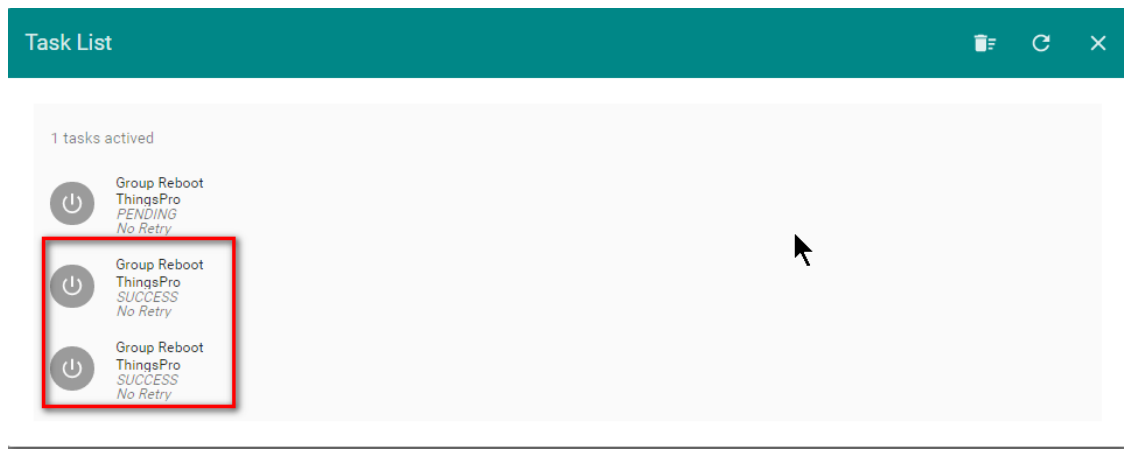
- A. In the **Group List**, click  (Group Reboot)
- B. In the **Group Reboot** dialog box, select **No Retry**, and Click **REBOOT**.



- C. Click  (Show Group Task) to see the task status.




The status will change to SUCCESS, once the reboot task runs successfully.

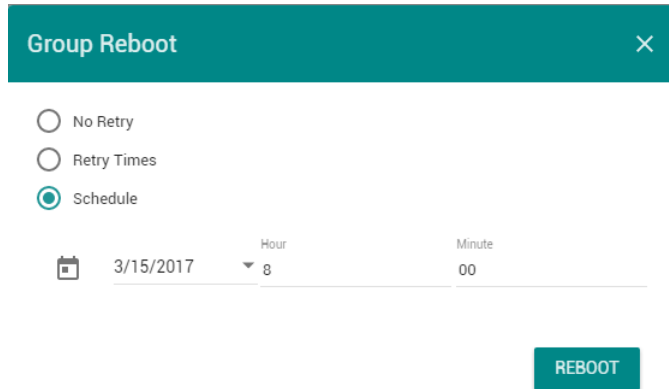


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Example 2: You want to reboot the ThingsPro gateways in Group 1 at a specific time.

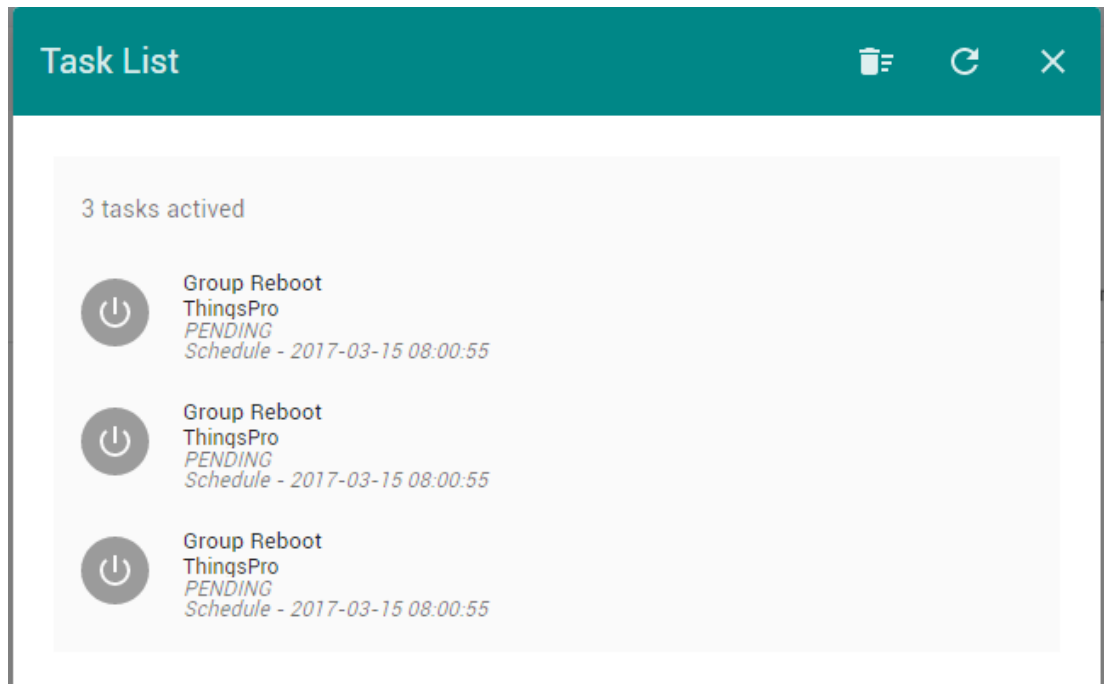
Do the following:

- A. In the **Group List**, click  (Group Reboot).
- B. In the **Group Reboot** dialog box, select **Schedule**, specify the date and time, and click **REBOOT**.



When the task is configured correctly a message to indicate that the task is successfully created is displayed.

- C. Click  (Show Group Task) to see if the reboot task is listed in the Task List.



Moxa Tech Note **Building an IoT Application with Moxa's ThingsPro and Azure IoT Hub Services**

Similar to the reboot task illustrated above, you can create and run firmware upgrade and restore configuration tasks for your device group.

Important: There is however a constraint on the device group function. Currently, you can assign only one task to a group. ThingsPro Server will display a message if you try to add a second task to a group
