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).
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.
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).

   b. Type in **Group 1** in the **Name** field and click **SAVE**.
The new group is listed in the **Group List**.
3. Manage the gateways in Group 1.

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

<table>
<thead>
<tr>
<th>Group Operation</th>
<th>Icon/Link</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Firmware upgrade</strong></td>
<td>![Group Upgrade]</td>
</tr>
<tr>
<td><strong>Reboot</strong></td>
<td>![Group Reboot]</td>
</tr>
<tr>
<td><strong>Restore configuration</strong></td>
<td>![Group Restore Config]</td>
</tr>
</tbody>
</table>

The following three settings are available for the group operations:

- **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.

<table>
<thead>
<tr>
<th>Settings</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Retry</td>
<td>The operation is run immediately, just once. If the operation fails, it will not be run again.</td>
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<tr>
<td>Schedule</td>
<td>Run the operation, once, at the scheduled time.</td>
</tr>
</tbody>
</table>
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.
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.
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.