

How to Use RESTful API to Connect to the ioThinx 4510 Series

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Contents

- Prepare the Following Items 2**
- Using RESTful API via Postman 2**
 - Introduction to Postman 2
 - Install Postman 2
 - Enable the RESTful API service on the ioThinx 4510 2
 - Configuring Postman 4
- Send a GET request and a PUT request..... 5**
 - RESTful API List Rules 5
 - Send a GET request 7
 - Send a PUT request 8

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About Moxa

Moxa is a leading provider of edge connectivity, industrial networking, 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.

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In this tutorial you will learn how to use Restful API to send a GET request and a PUT request to the ioThinx 4510.

Prepare the Following Items

- ioThinx IIoT Starter Kit (ioThinx 4510, 45MR-1601, 45MR-2600, and 45MR-3800)
- Software: Postman, ioThinx 4510 (with firmware v1.1 installed)

Using RESTful API via Postman

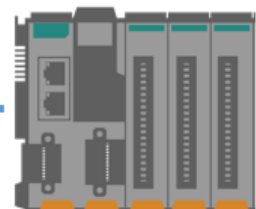
Introduction to Postman

For information about Postman, please refer to the following web page:

<https://www.getpostman.com/>. Step-by-step procedures on how to use Postman are described below.



RESTful API



Postman(RESTful API client)
IP address: 192.168.127.200

Moxa ioThinx 4510
IP address: 192.168.127.254

Install Postman

Download **Postman** from the following website and install it:

<https://www.getpostman.com/downloads/>.

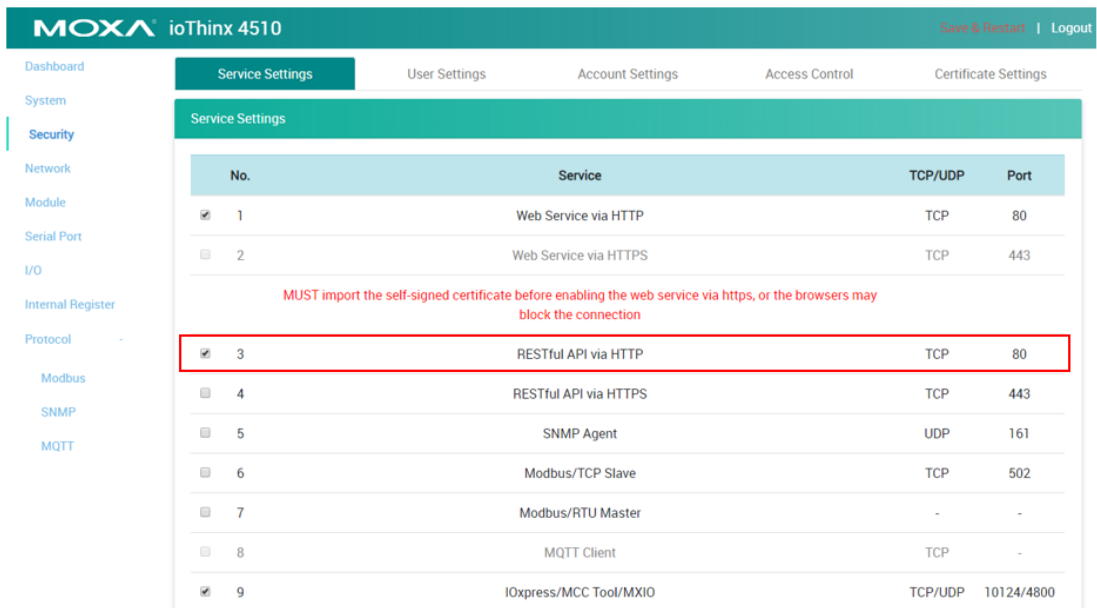
Enable the RESTful API service on the ioThinx 4510

1. Log in to the ioThinx 4510

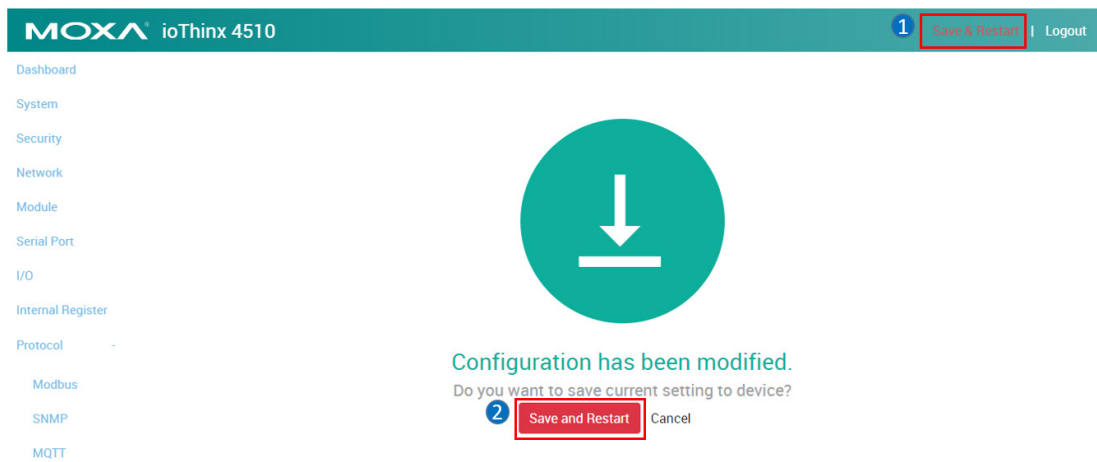
Step 1: Open your web browser and type the default IP address of the device:
192.168.127.254.

Step 2: On the login page, type the default username/password (admin/moxa) to log in to the Web Console.

2. Click **Security** in the left menu and then select **RESTful API via HTTP** Service Settings.

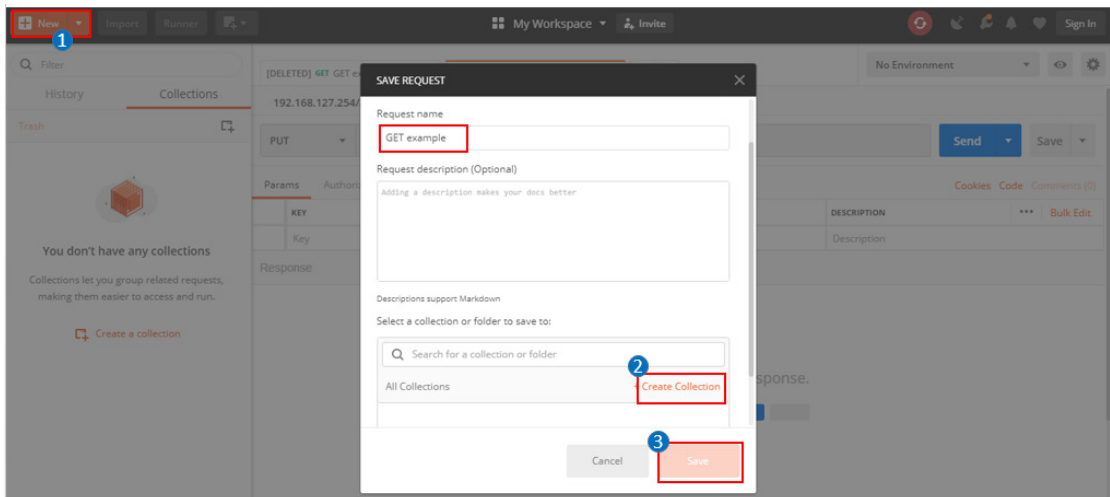


3. Click **Save & Restart** in the top right corner of the page and then click **Save and Restart** in the center of the page.

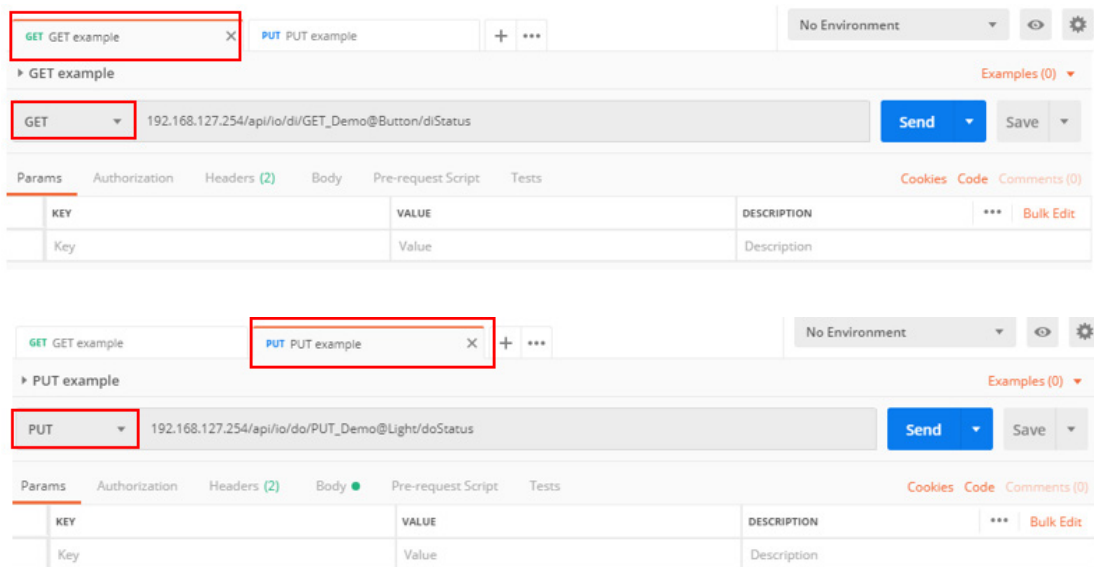


Configuring Postman

1. Open Postman and create a new **Request** (named **GET example**).
2. Create a **Collection**.
3. **Save** the new **Request** in the created **Collection**.
4. Create another new **Request** (named **PUT example**) and save it in the created **Collection**.



5. Select the **GET method** on the **GET example** tab, and select the **PUT method** on the **PUT example** tab.



6. Create the following content in the **Headers** of the **GET example** tab and **PUT example** tab.
 - Content-Type: application/json
 - Accept: vdn.dac.v2

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> Content-Type	application/json	
<input checked="" type="checkbox"/> Accept	vdn.dac.v2	

Send a GET request and a PUT request

RESTful API List Rules

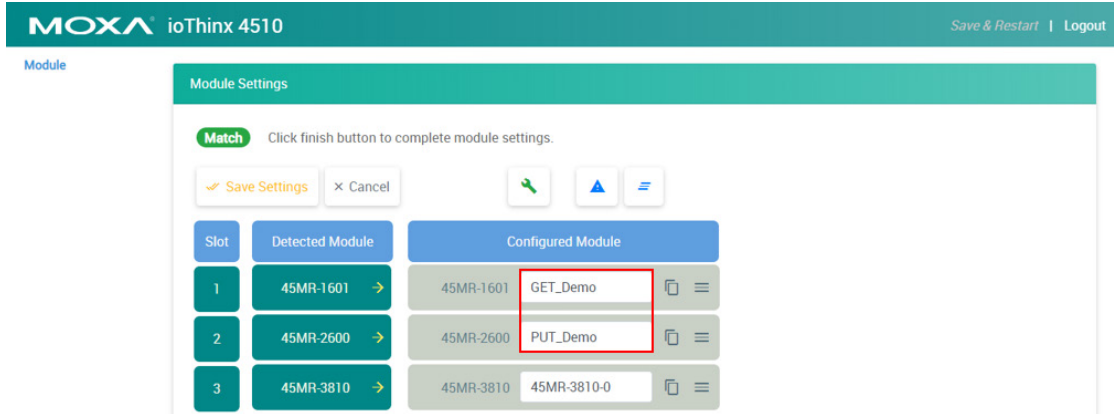
You can check the RESTful API list in the Appendix of the ioThinX 4510 User’s Manual: RESTful API Rules.

RESTful API	Description	Access	Format
/api/io/do/{ioName}/doStatus	DO - status (0: OFF, 1: ON)	R/W	0 or 1
/api/io/do/{ioName}/doPulseCount	DO - Pulse mode - count	R/W	0 to 65535
/api/io/do/{ioName}/doPulseOnWidth	DO - Pulse mode - ON width (unit: 500us)	R/W	1 to 65535
/api/io/do/{ioName}/doPulseOffWidth	DO - Pulse mode - OFF width (unit: 500us)	R/W	1 to 65535
/api/io/do/{ioName}/doPulseStatus	DO - Pulse mode - status (0: Stop 1: Start)	R/W	0 or 1

The {ioName} is composed of three elements: Module_Name, @, and I/O_Channel_Name. For example, the {ioName} associated with module name “45MR-2600-0” and DO channel name “DO-00” is 45MR-2600-0@DO-00.

Note: The module and I/O channel name can be changed in **Module Settings** and **I/O Settings**.

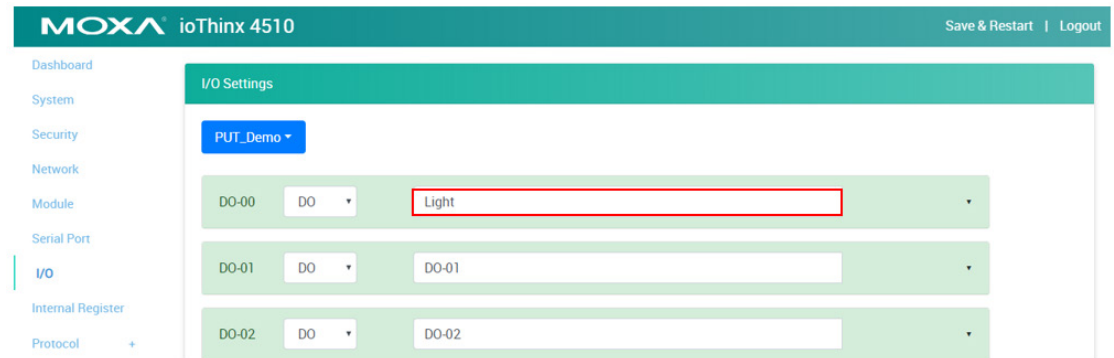
1. In this demonstration, we change the name of module **45MR-1601** to **GET_Demo** and the name of **45MR-2600** to **PUT_Demo**.



2. Change the **DI-00** channel name to **Button**.

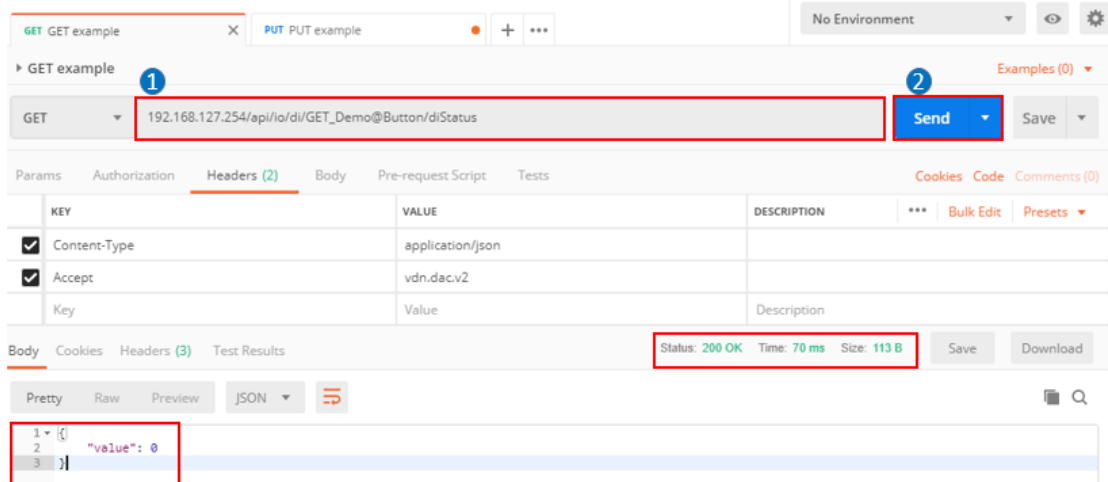


3. Change the **DO-00** channel name to **Light**.

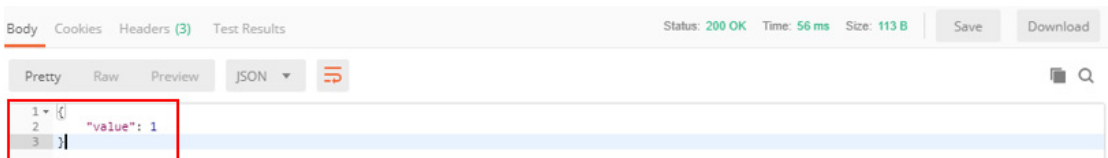


Send a GET request

1. Enter the request URL based on the IP address, file type, and API map. For this example, the request URL should be written as:
192.168.127.254/api/io/di/GET_Demo@Button/diStatus
2. Click the **Send** button. You should see the status code, response time, and results.



3. Press the DI0 button on the starter kit to trigger the DI-00 channel, and then click **Send** again. In response, the DI value will change.



Send a PUT request

1. Enter the following request URL:
192.168.127.254/api/io/do/PUT_Demo@Light/doStatus
2. Locate the **Body** tag, select raw, and choose the **JSON** format.
3. Enter the following message:

```
1 {  
2   "value": 1  
3 }
```

4. Click **Send**. The DO-00 channel should respond by turning the light on.

