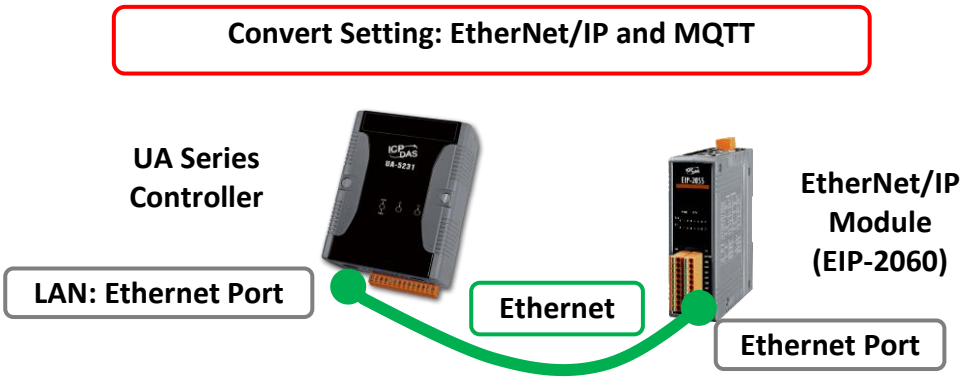
FAQ-CNV-05: UA Web UI Function Wizard – Module Communication Conversion - How to Convert (EtherNet/IP) EIP / MQTT ? (Use EIP-2060)

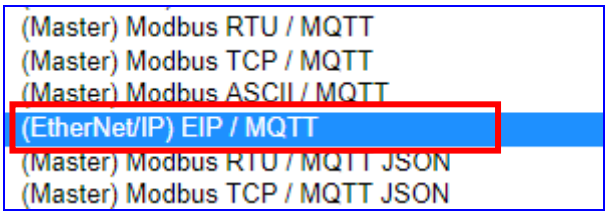
EIP / MQTT Conversion include the conversion of **MQTT** and **EtherNet/IP** protocol. With the MQTT Service function, users can set the MQTT client to publish the message to the specified broker or subscribe the topic, and so to read and write the single channel of the **EIP-2000** module that connected to the controller.

- **Convert Setting: (EtherNet/IP) EIP and MQTT**



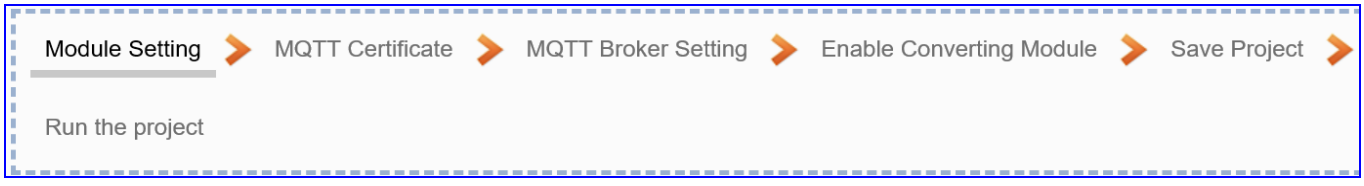
Note: The hardware/network connection methods please see the UA Manual Chapter 2 .

When UA series controller connects the EIP-2000 (via Ethernet, as the picture) and read/write the EIP-2000 I/O via MQTT Broker, user can choose the item [**(EtherNet/IP) EIP / MQTT**] of the "Module Communication Conversion" in the Function Wizard.



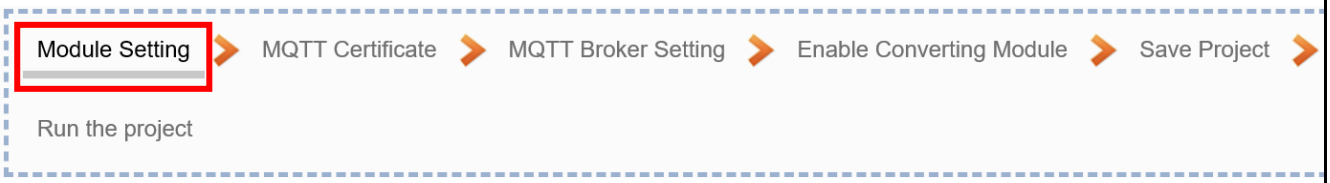
[Step Box]:

The Step Box of the [**(EtherNet/IP) EIP / MQTT**] has the steps as below. When enabling the Step Box, it auto enters the first step setting page (The step with a bold underline means it is the current step.). The user just needs to follow the "Step Box" step-by-step and then can complete the project quickly and rightly.



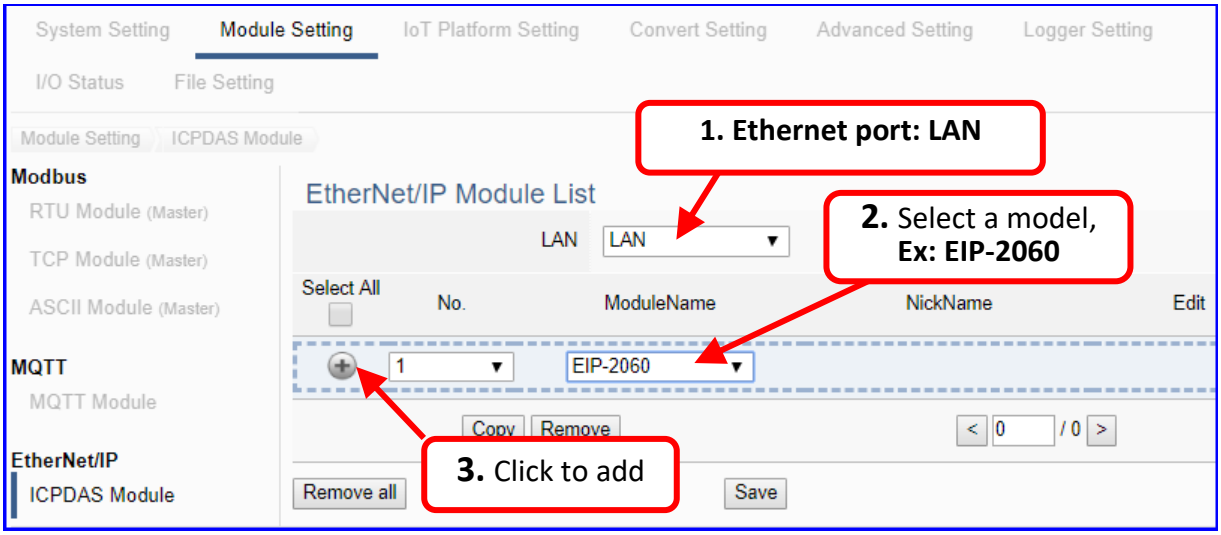
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Step 1. Module Setting

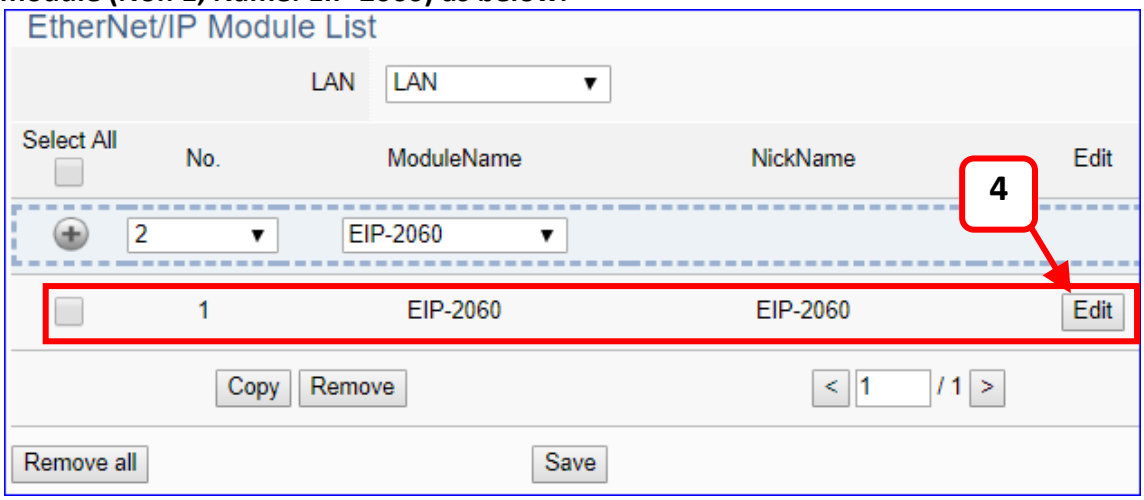


This page is for setting the communication values of the connected modules.

The Ethernet port is LAN for connecting with the EtherNet/IP module EIP-2000 Series by ICP DAS, and select the connected module (This example: EIP-2060). Click [ ] button could add a new module, and then click [Edit] button to configure the module content and I/O.



Add a module (No.: 1, Name: EIP-2060) as below.

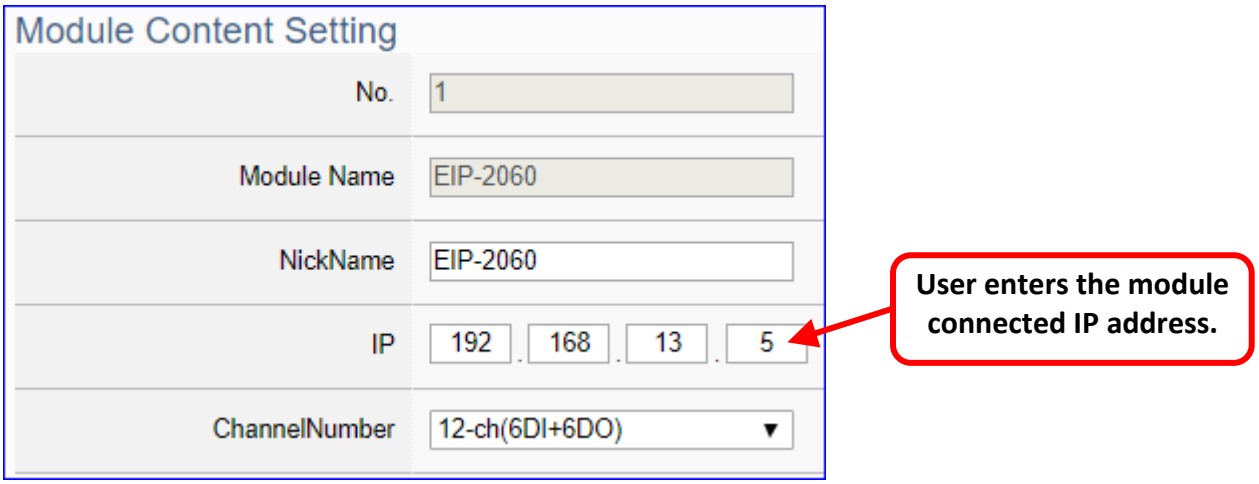


If set up a wrong module, user can click the box in the left side of the module number and click the [Remove] button to delete the module.

Click [**Edit**] button to enter the “Module Content Setting” page.

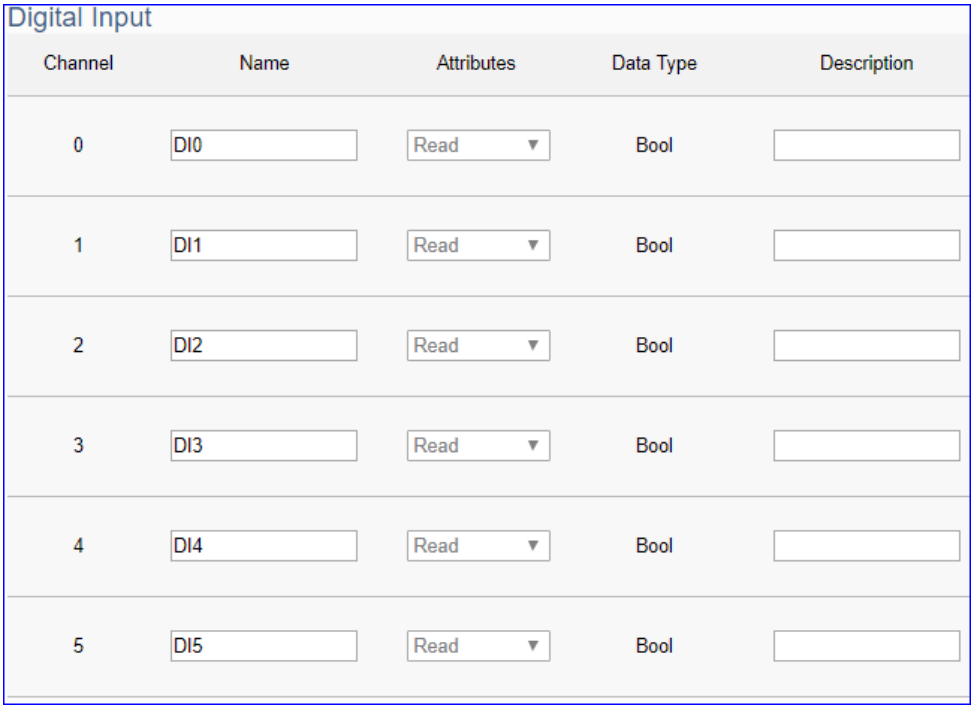
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[**Module Content Setting**] page:

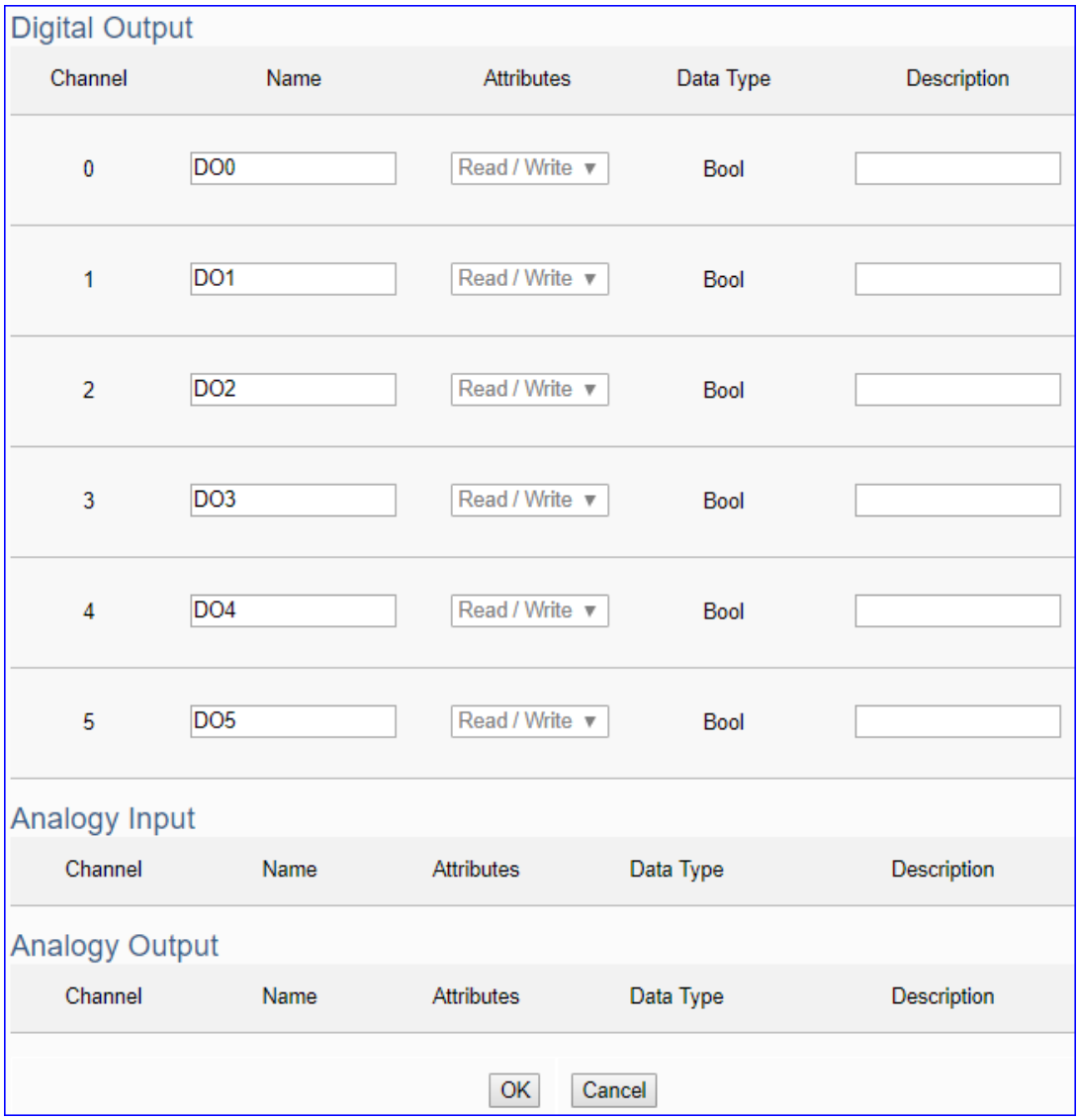


Module Content Setting	
No.	The module number in the module list (Not editable here)
Module Name	The selected model number. (Not editable here)
Nick Name	User can give a nick name, default: selected model number
IP	Enter the IP address of the connected EIP module. This example: IP address of the EIP-2060 is 192.168.13.5
Channel Number	Select the number of the I/O channels.

The system will auto-display the selected I/O table by the order of Digital Input / Digital Output / Analogy Input / Analogy Output. This example: EIP-2060 has 6 DI and 6 DO.



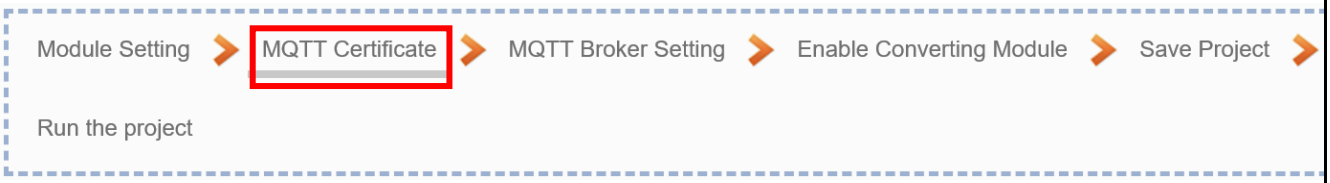
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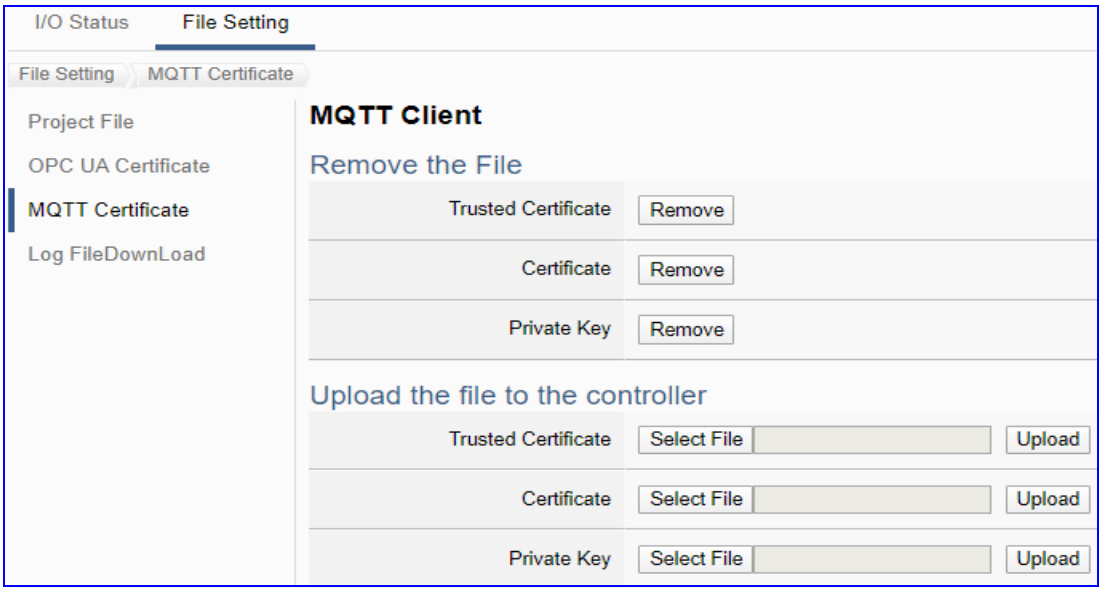
Digital Input / Digital Output / Analogy Input / Analogy Output	
Channel	Channel number will auto-display according to the model. (Not editable) Default: Number from 0.
Name	User can define the name. Default: DI#, DO#, AI#, AO# Available: number, English character, underline “_”, dash line "-", cannot be a space, slash "/", Chinese character, and other symbols.
Attributes	Display data attribute of the variable. (Not editable) Include Read, Read/Write…
Data Type	Display data type of the variable. Include: Bool, Short, Unsigned Short, Long, Unsigned Long, Float, Double, String
Description	For users set up the description for the channel.
OK / Cannel	Click [OK] to save and exit the page settings. Click [Cancer] to exit without saving.

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Step 2. MQTT Certificate



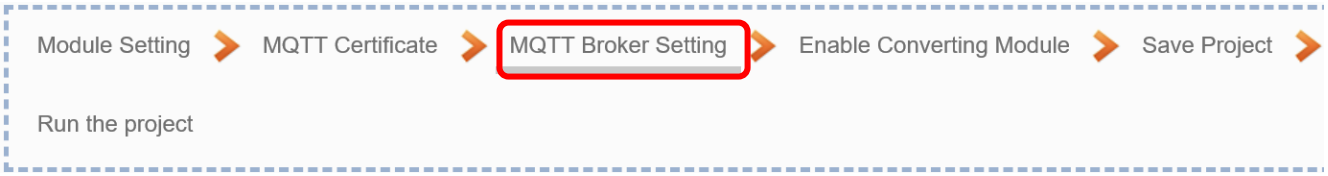
The **[MQTT Certificate]** is for setting up security communications to upload the **MQTT Trusted Certificate, Certificate and Private Key**. The users upload the file to the UA controller according to the type of obtained certificate. If you want to perform **Broker authentication**, you need to upload the **Trusted Certificate**. If you want to perform the **Broker/Client two-way authentication**, you need to upload the **Credential and Private Key additionally**. The user can skip this step if the user project does not use certificate transmission security.



File Setting > MQTT Certificate > Upload the file to the controller	
Trusted Certificate	**Select File**: select the MQTT Trusted Certificate file of the device. **Upload**: upload the MQTT Trusted Certificate file to the UA controller. • File format must be **PEM**. Extension name must be "**pem / cer / crt**". • If select a wrong file, the system will show an error message. 
Certificate	**Select File**: select the MQTT Certificate file of the device. **Upload**: upload the MQTT Certificate file to the UA controller. • File format must be **PEM**. Extension name must be "**pem / cer / crt**". • If select a wrong file, the system will show an error message.
Private Key	**Select File**: select the MQTT Private Key of the device. **Upload**: upload the MQTT Private Key file to the UA controller. • File format must be **PEM**. Extension name must be ".**key**". • If select a wrong file, the system will show an error message.

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Step 3. MQTT Broker Setting

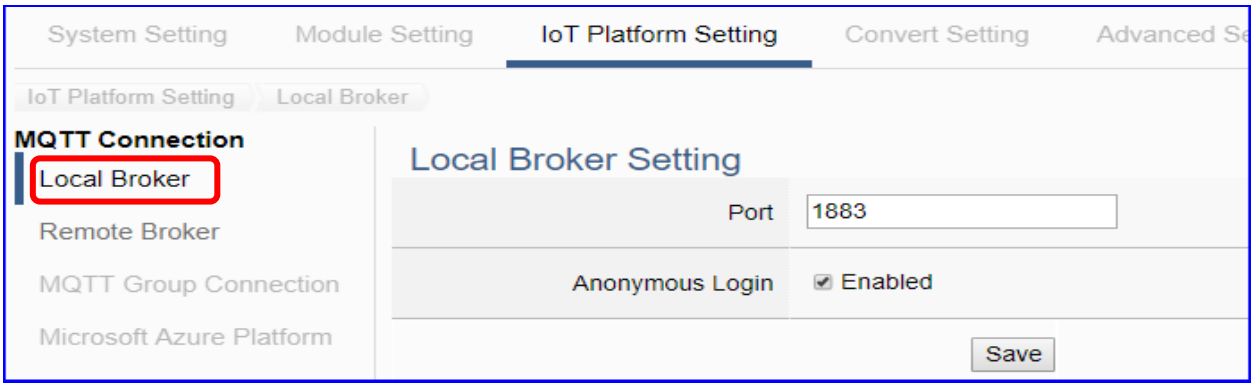


Click the next step, and enter the **Step 3 [MQTT Broker Setting]** of the UI setting.
This page is for setting the IoT platform and the MQTT Broker connection, e.g. the local or remote broker, port, login information, etc.

We select the "EIP / MQTT" conversion at the beginning, so this step will auto enter the [**MQTT Connection > Local Broker**] page of IoT Platform Setting. The "Step Box" will prevent the user from selecting the wrong platform. User can choose the local or remote broker for the MQTT connection.

The example uses local Broker.

Local Broker

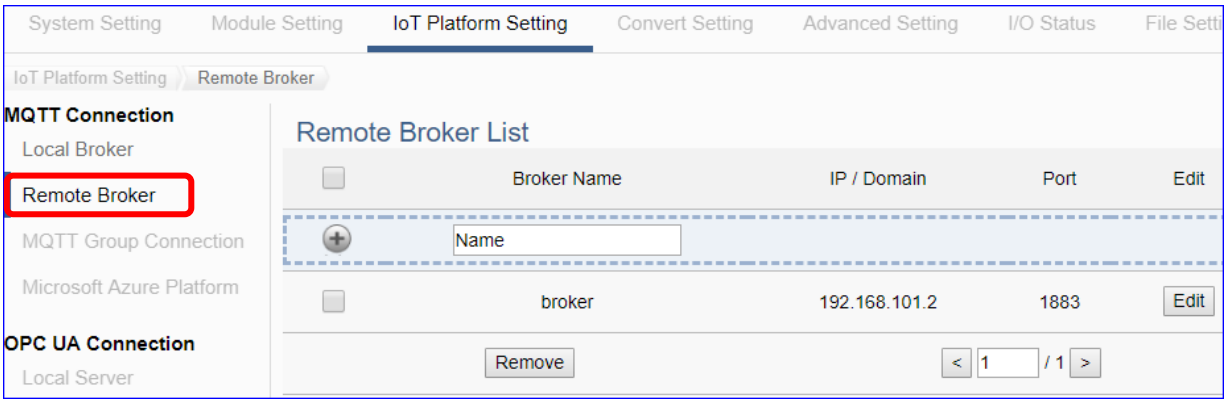


MQTT Connection > Local Broker Setting	
Port	The COM port of the Local MQTT Broker. System default: 1883
Anonymous Login	Check to allow anonymous login. Default: Check.
Save	Click to save the setting of this page.

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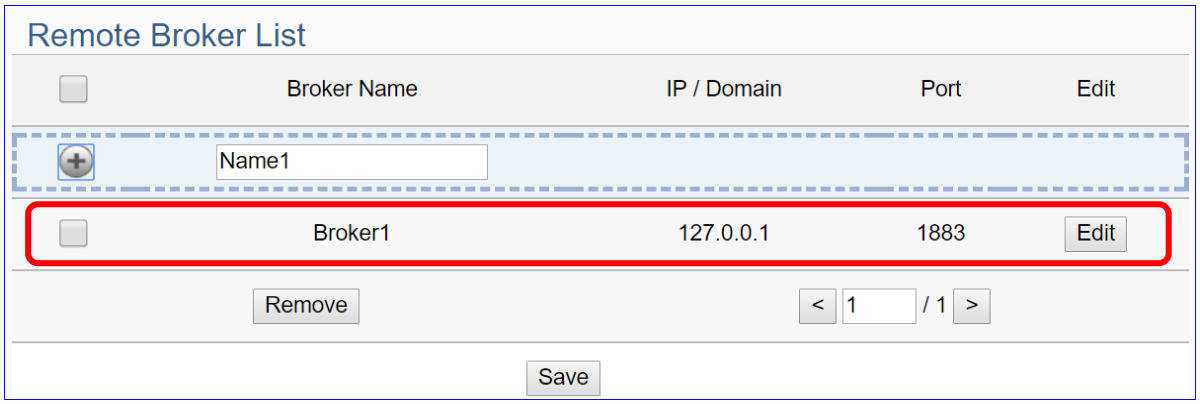
If user wants to use the remote Broker, please click the “Remote Broker” to set up.

Remote Broker:



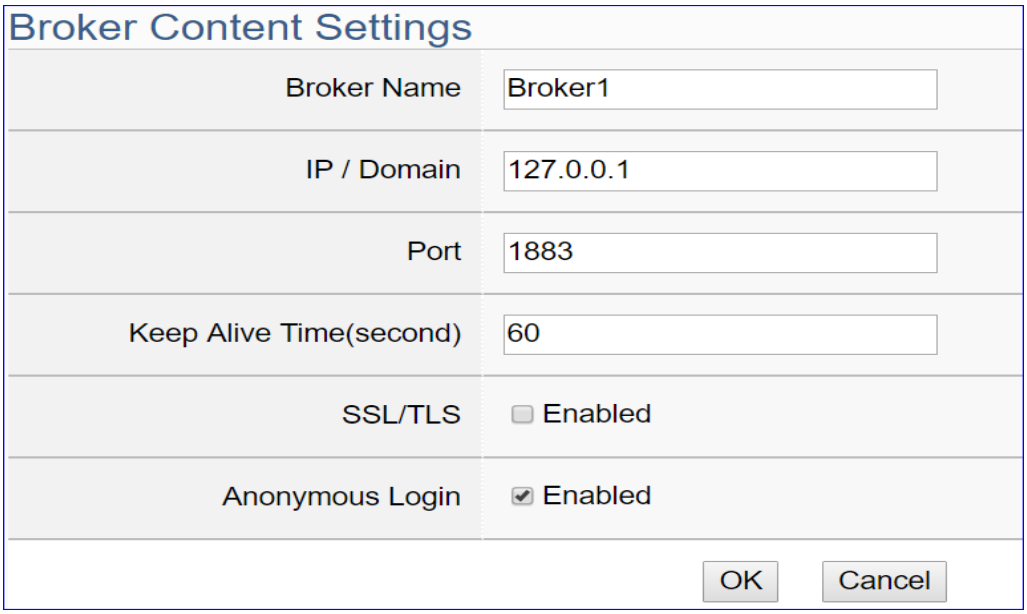
MQTT Connection > Remote Broker List	
Broker Name	The name of the remote MQTT Broker. User can define the name, e.g. Broker1. Default: Name.
	Click to add a new remote Broker.
Save	Click to save the settings of this page.

After creating a new Remote Broker (as below):



MQTT Connection > Remote Broker List	
Broker Name	The name of the remote MQTT Broker. User can define the name, e.g. Broker1. Default: Name.
IP / Domain	The IP address of the remote Broker. Default: 127.0.0.1
Port	The COM port of the remote Broker. Default: 1883
Edit / Remove	Click [Edit] can set the Broker. Click the left box and [remove] can delete the Broker.
Save	Click to save the settings of this item.

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MQTT Connection > Remote Broker > Broker Content Settings	
Broker Name	The name of the remote MQTT Broker. (Editable)
IP / Domain	The IP address of the remote Broker. Default: 127.0.0.1
Port	The COM port of the remote Broker. Default: 1883
Keep Alive Time	The keep alive time. Default: 60 (second)
SSL/TLS	Check to enable the supporting of SSL/TLS security communication. Default: uncheck.
Anonymous Login	Check to allow anonymous login. Default: Check.
OK	Click to save the settings and exit.

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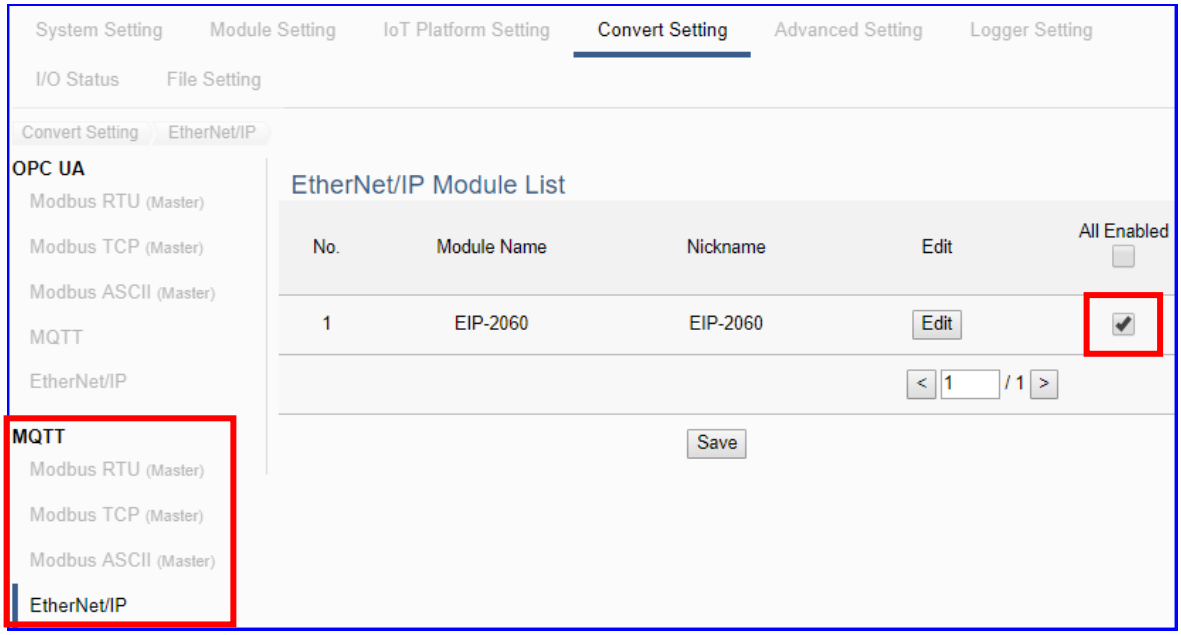
Step 4. Enable Converting Module



Click the next step, and enter the **Step 4 [Enable Converting Module]** UI setting
This step is for enabling the module for the EtherNet/IP / MQTT conversion.

We select the “EIP / MQTT” conversion at the beginning, so this step will auto enter the [**MQTT > EtherNet/IP**] page of Conversion setting. The “Step Box” will prevent the user from selecting the wrong platform.

Please check the Enabled box of the module.

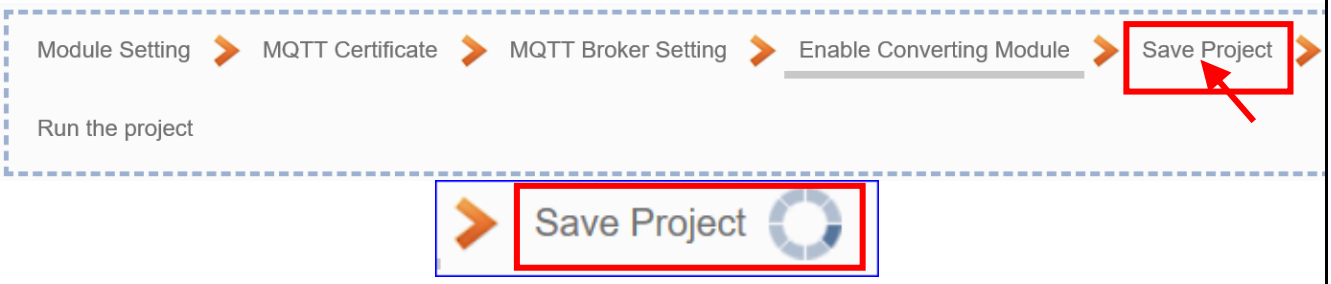


Convert Setting > MQTT > EtherNet/IP –EtherNet/IP Module List	
No.	The module number in the module list (Not editable here)
Module Name	The module user selected (Not editable here)
Nickname	The module name set in the module list (Not editable here)
All Enabled	Check [All Enabled] box to enable all modules in list for conversion. Default: Uncheck. Check the box of each module can enable just that module for conversion.
Edit	Click to enter the “MQTT Client Setting” page to set up the Topic, QoS, Publish, Subscribe …
< 1 / 1 >	The page number of the module list: Current page / Total pages. Click < or > to go to the previous or next page.
Save	Click to save the settings of this page.

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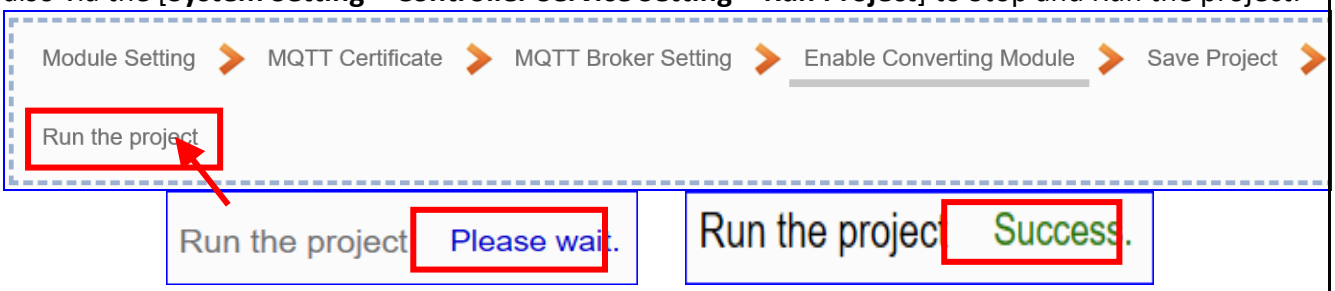
- **Step 5. Save Project**

The setting of this example is finished now. Click the next step **[Save Project],** the Step Box will show an animation as below picture, that means the project is saving. When the animation vanished, the project is saved completely.



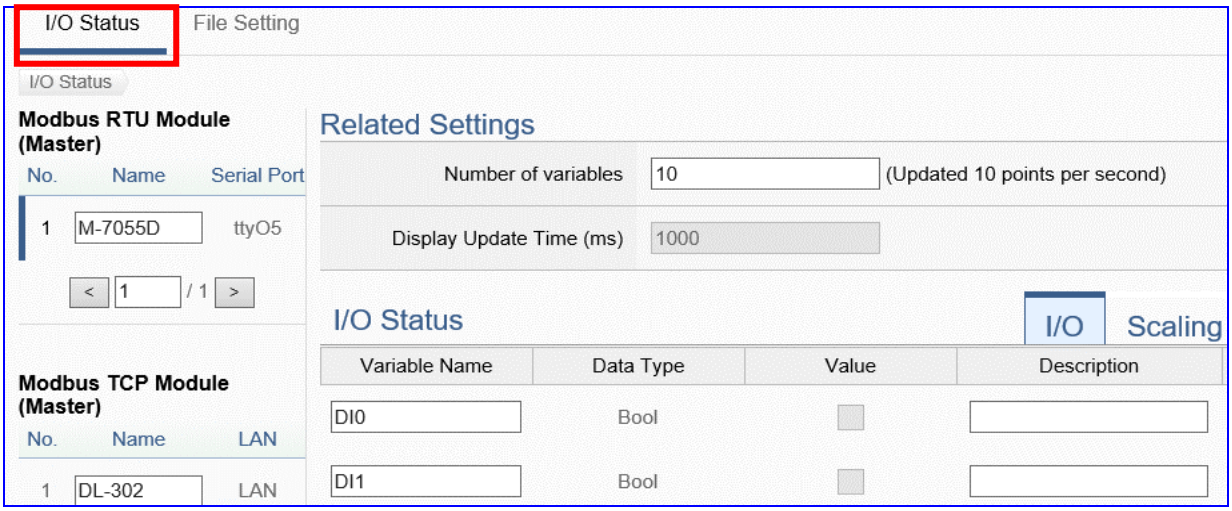
- **Step 6. Run the Project**

The project, after saving, needs to be executed. Click the next step **[Run the Project]**. This step can also via the [**System Setting** > **Controller Service Setting** > **Run Project**] to Stop and Run the project.



When the words "**Please wait**" disappears, the new words "**Success**" appears, that means the UA controller is running new project successfully. Then the Step Box will disappear automatically now, and back to the first screen view of the Web UI.

The new project now completes the setting, uploading and running in the UA controller and can process the conversion communication. Users can see the I/O status from the menu [**I/O Status**]. For more about the Web UI settings, please refer to UA Manual CH4 and CH5.



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