



Industrial Automation Technology
Innovator and Enhancer.

如何透過MQTT與 iSN-81x 模組連線



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- [iSN-81x-MTCP MQTT_Csharp](#)
- [iSN-81x-MTCP MQTT_Node.Js](#)
- [iSN-81x-MTCP MQTT_Python](#)
- [如何設定MQTT伺服器](#)
- [如何安裝函式庫](#)

01

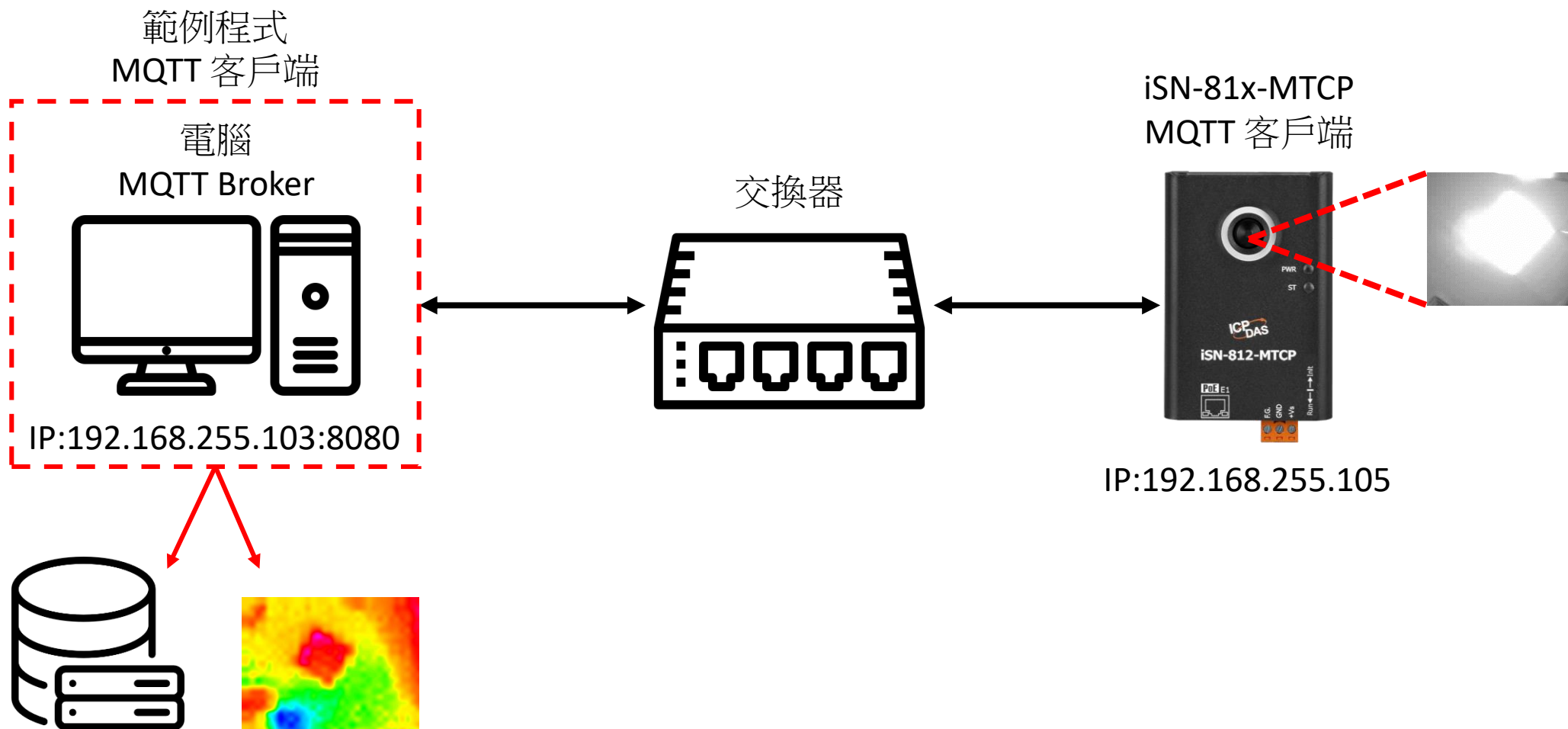
iSN-81x-MTCP MQTT_Csharp

- 範例程式提供不同的程式語言給您參考，您可以透過範例程式取得以下數據：
 - 熱影像
 - 數據讀取時間
 - iSN-81x-MTCP的MAC地址
 - 型號
 - 紅外線數據
 - 熱影像的儲存路徑
- 範例程式使用SQLite儲存量測數據，您可以自行更改使用的資料庫，如MySQL、SQL Server等。

- 預先安裝

- Install-Package System.Data.SQLite
- Install-Package MQTTnet.Extensions.ManagedClient -Version 3.0.16
- Install-Package Serilog -Version 2.10.0
- Install-Package Serilog.Sinks.Console -Version 3.1.1
- Install-Package Newtonsoft.Json -Version 13.0.1

➤ 將iSN-81x-MTCP配置為MQTT客戶端

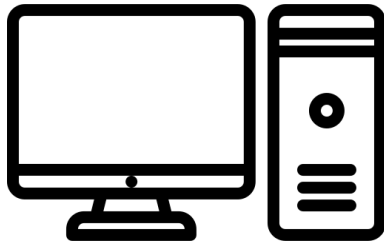


➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 範例程式需要連接到Broker，Broker的IP為192.168.255.103，開啟“Program.cs”後找到函式“Main”編輯變數“BrokerURI”。

電腦

MQTT Broker



IP:192.168.255.103



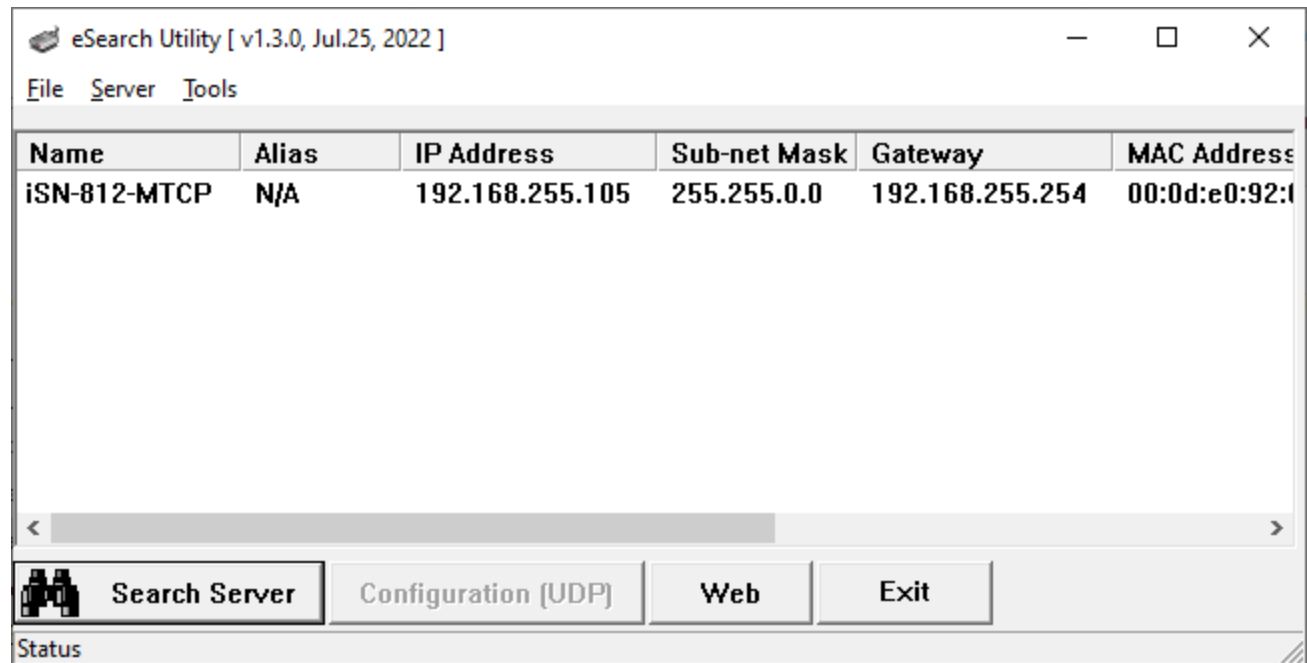
```
string BrokerURI = "192.168.255.103";
```

```
[14:54:29 INF] Successfully connected.
```



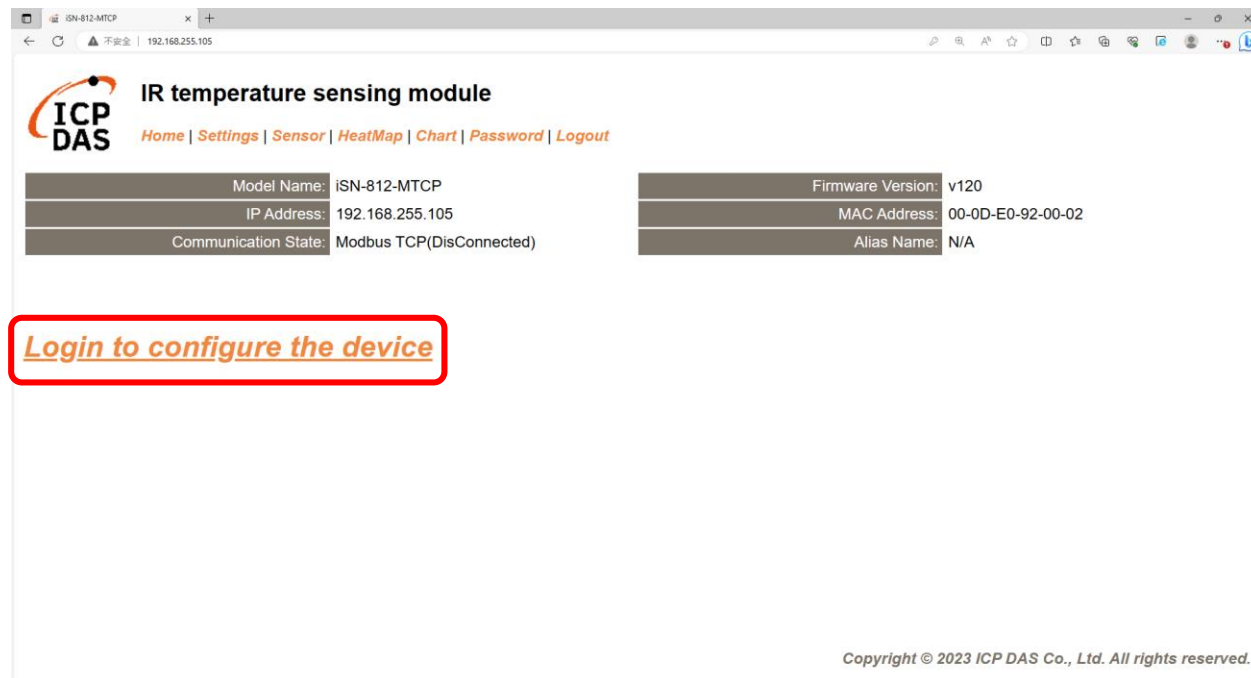
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 使用eSearch來搜尋iSN-81x-MTCP
- 開啟iSN-81x-MTCP的網站



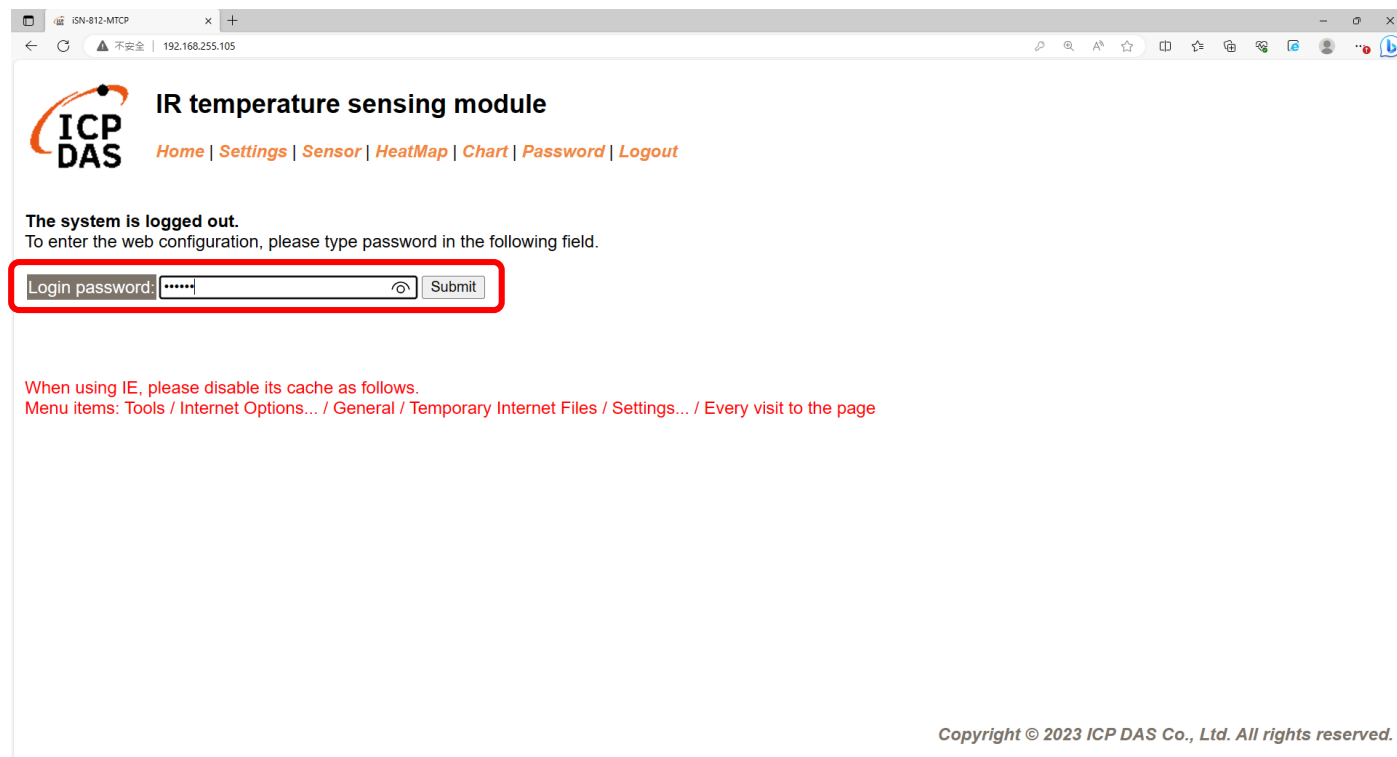
➤ 將iSN-81x-MTCP配置為MQTT客戶端

• 點擊”Login to configure the device”來登入



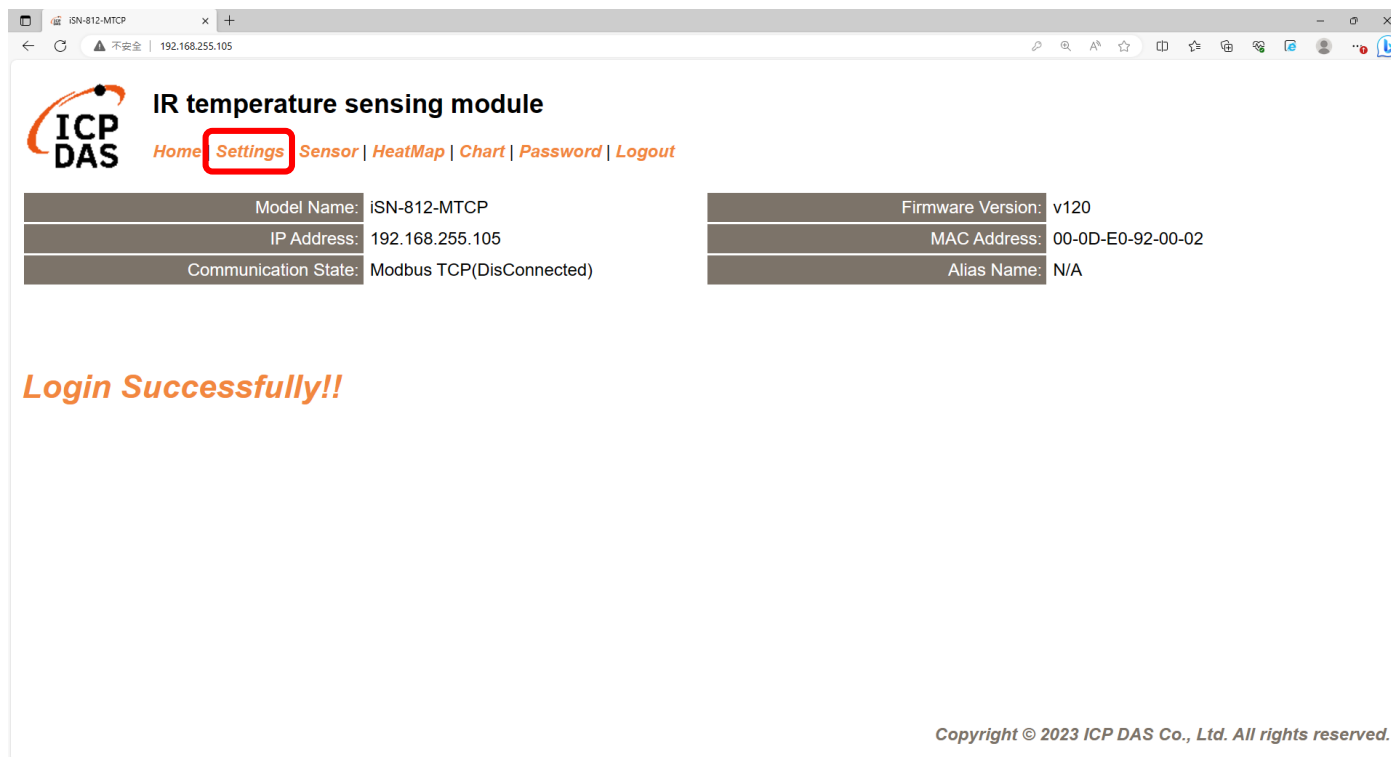
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 登入(預設密碼: admin)



➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 點擊“Settings”來設定通訊模式



ICP DAS IR temperature sensing module

Home **Settings** Sensor | HeatMap | Chart | Password | Logout

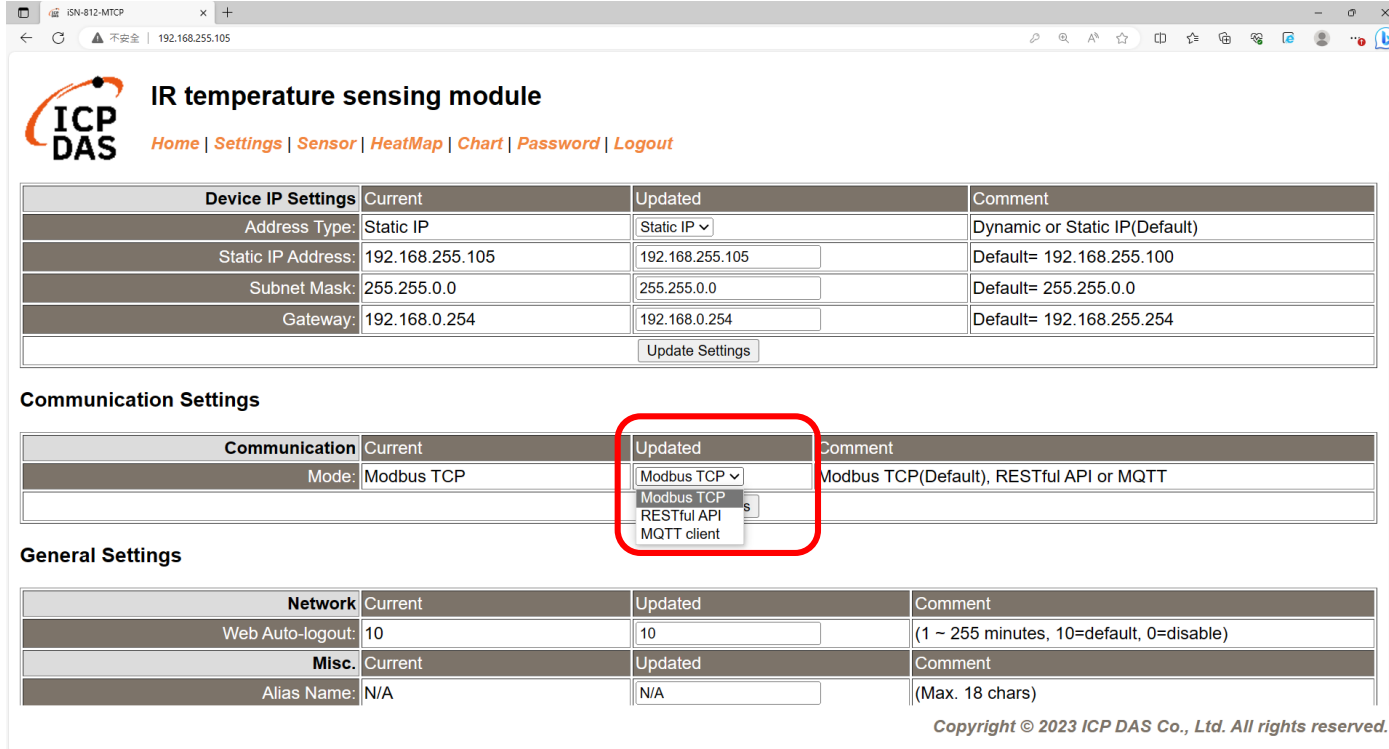
Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

Login Successfully!!

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 將通訊模式設定為”MQTT client”



The screenshot displays the web interface for the ICP DAS IR temperature sensing module. The page title is "IR temperature sensing module" and the navigation menu includes Home, Settings, Sensor, HeatMap, Chart, Password, and Logout. The interface is divided into three main sections: Device IP Settings, Communication Settings, and General Settings.

Device IP Settings

Device IP Settings	Current	Updated	Comment
Address Type:	Static IP	Static IP ▾	Dynamic or Static IP(Default)
Static IP Address:	192.168.255.105	192.168.255.105	Default= 192.168.255.100
Subnet Mask:	255.255.0.0	255.255.0.0	Default= 255.255.0.0
Gateway:	192.168.0.254	192.168.0.254	Default= 192.168.255.254

Communication Settings

Communication	Current	Updated	Comment
Mode:	Modbus TCP	Modbus TCP ▾	Modbus TCP(Default), RESTful API or MQTT

The dropdown menu for the "Updated" field in the Communication Settings is open, showing the following options: Modbus TCP, Modbus TCP, RESTful API, and MQTT client. The "MQTT client" option is highlighted with a red box.

General Settings

Network	Current	Updated	Comment
Web Auto-logout:	10	10	(1 ~ 255 minutes, 10=default, 0=disable)
Misc.	Current	Updated	Comment
Alias Name:	N/A	N/A	(Max. 18 chars)

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 根據Broker的IP設定參數並更新設定

The screenshot displays the ICP DAS web interface for an IR temperature sensing module. The main page shows device information and various settings. A red box highlights the 'Communication Settings' section, which is expanded to show a detailed configuration table. A red arrow points from the 'Communication Settings' table in the main view to the expanded view.

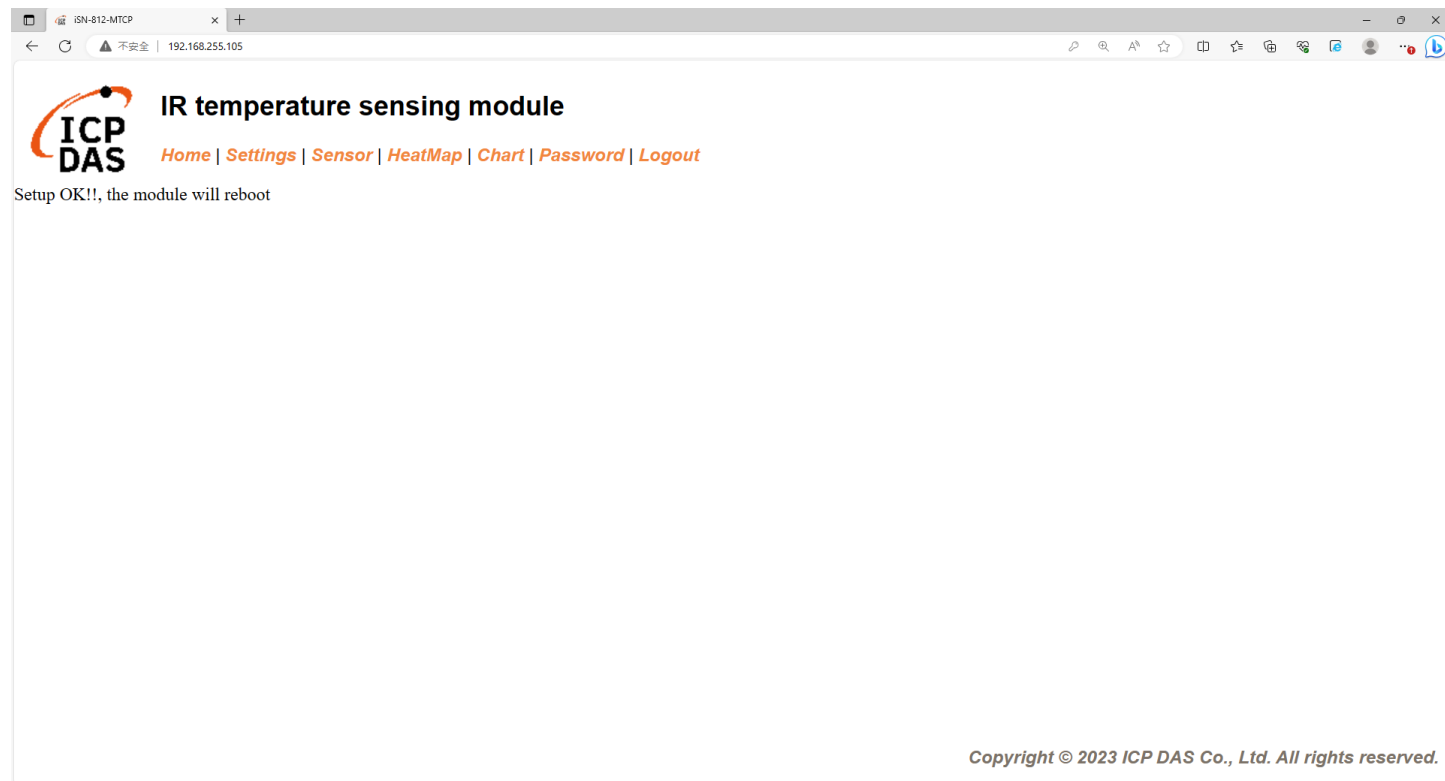
Communication Settings

Communication	Current	Updated
Mode	MQTT client	MQTT client
Broker URI	172.16.123.124	192.168.255.103
Broker port	1883	1883
Reconnection interval	10	10
Keep alive interval	30	30
[Publish] interval	10	10
QoS	0	0
Last Will	Disable	Disable
Authentication	Disable	Disable

Client ID: ISN812_920002
Publish Topic: IR/Temp/ISN812_920002
JSON Format: {"macno": MAC number, "model": model name}

➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 等待重啟



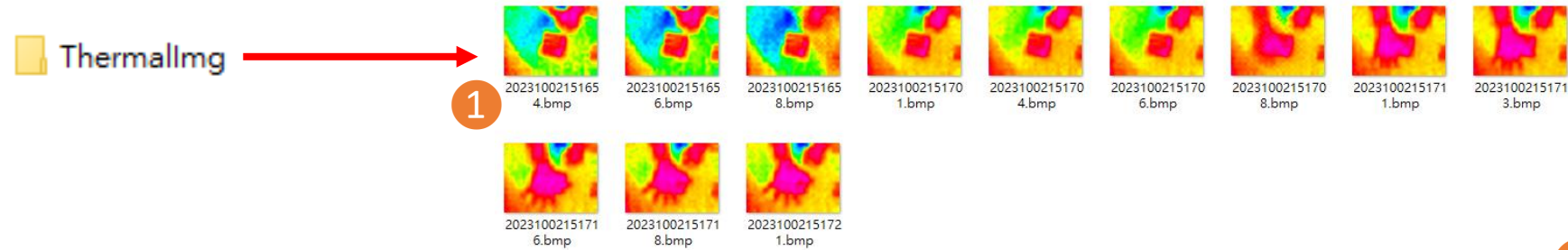
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 如果連線成功，iSN-81x-MTCP會發布數據至Broker
- 主題:IR/Temp/(型號)_(mac). Ex:IR/Temp/ISN812_920002.

```
[14:59:51 INF] Successfully connected.  
macno: 00-0D-E0-92-00-02  
model: iSN-812-MTCP  
macno: 00-0D-E0-92-00-02  
model: iSN-812-MTCP  
macno: 00-0D-E0-92-00-02  
model: iSN-812-MTCP  
macno: 00-0D-E0-92-00-02  
model: iSN-812-MTCP
```

➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 接收到數據後會產生兩個檔案，一個是儲存數據的DB檔，一個是熱影像檔。



irdata_icpdas.db

1	2	3	4	5
timestamp	macno	model	irdata	imgpath
2023-10-02 15:16:54	00-0D-E0-92-00-02	iSN-812-MTCP	30.0,30.2,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:16:56	00-0D-E0-92-00-02	iSN-812-MTCP	30.2,30.5,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:16:58	00-0D-E0-92-00-02	iSN-812-MTCP	31.1,31.9,32 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:01	00-0D-E0-92-00-02	iSN-812-MTCP	31.2,30.9,32 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:04	00-0D-E0-92-00-02	iSN-812-MTCP	30.1,31.2,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:06	00-0D-E0-92-00-02	iSN-812-MTCP	30.9,31.6,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:08	00-0D-E0-92-00-02	iSN-812-MTCP	30.8,30.7,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:11	00-0D-E0-92-00-02	iSN-812-MTCP	30.7,30.4,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:13	00-0D-E0-92-00-02	iSN-812-MTCP	30.6,32.0,32 D:\0_CODE\IR\Demo\RESTfu	

- 1 → 取得資料的時間
- 2 → iSN-81x-MTCP的MAC Address
- 3 → 型號
- 4 → iSN-81x-MTCP量測的IR數據
- 5 → 熱影像的儲存路徑

➤ 修改DB檔名稱

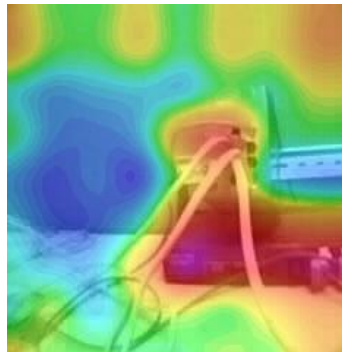
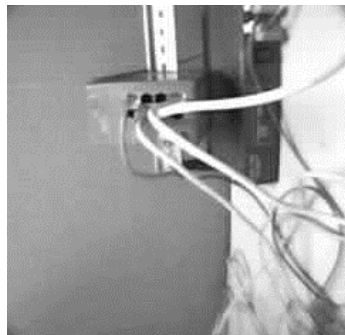
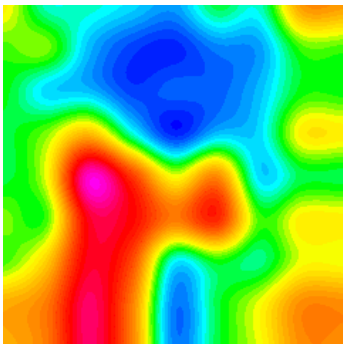
- 如果你想要修改DB檔的名稱，開啟“Program.cs”後找到函式“OnAppMessage”然後編輯變數“dbname”。

```
public static void OnAppMessage(MqttApplicationMessageReceivedEventArgs obj)
{
    //Log.Logger.Information("MSG:" + Encoding.UTF8.GetString(obj.ApplicationMessage.Payload));
    if (obj.ApplicationMessage.Payload != null && obj.ApplicationMessage.Payload.Length > 0)
    {
        string dbname = "irdata_icpdas.db";
        string _connectionString = $"Data Source={dbname}";
    }
}
```

➤ 更改合成圖的透明度(for iSN-811C-MTCP)

- 如果你想要調整合成圖的透明度，開啟“Program.cs”找到函式“MergeImg”後編輯變數“transparencyIR”及“transparencyCrop”。

```
public static void MergeImg(Bitmap irBmp, Bitmap cropBmp, string filename)
{
    float transparencyIR = 0.8f;
    float transparencyCrop = 0.4f;
}
```



02

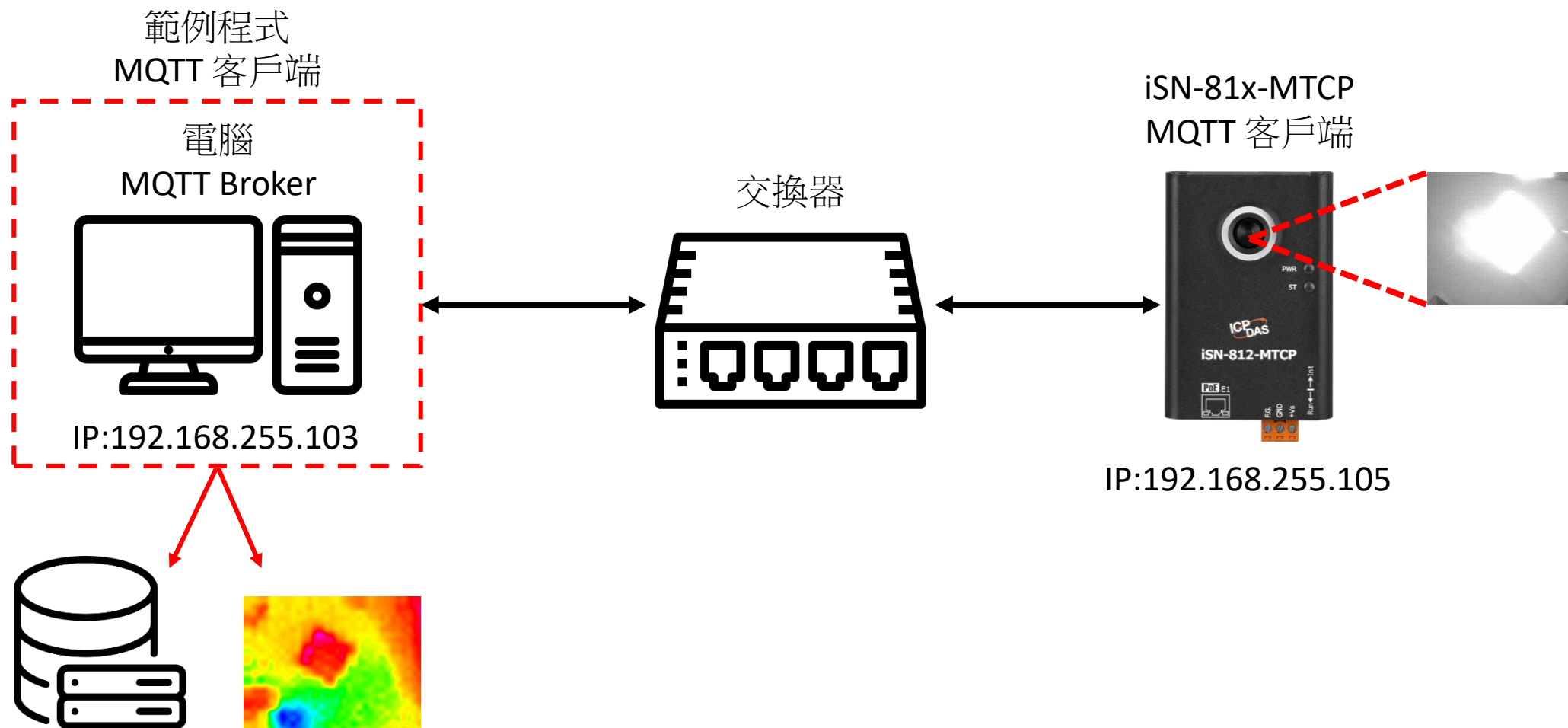
iSN-81x-MTCP MQTT_Node.js

- 範例程式提供不同的程式語言給您參考，您可以透過範例程式取得以下數據：
 - 熱影像
 - 數據讀取時間
 - iSN-81x-MTCP的MAC地址
 - 型號
 - 紅外線數據
 - 熱影像的儲存路徑
- 範例程式使用SQLite儲存量測數據，您可以自行更改使用的資料庫，如MySQL、SQL Server等。

- 預先安裝

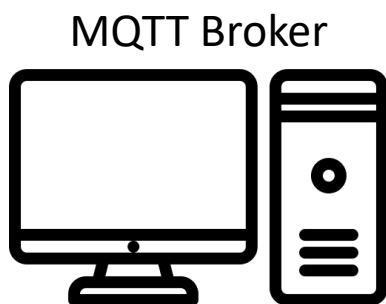
- `npm install sqlite3`
- `npm install mqtt`
- `npm install sharp`
- `npm install jimp`

➤ 將iSN-81x-MTCP配置為MQTT客戶端



➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 範例程式需要連接到Broker，Broker的IP為192.168.255.103，開啟“mqtt_client.js”後找到函式“Main”編輯變數“BrokerURI”。
- 開啟“start.bat”連接到Broker



IP:192.168.255.103



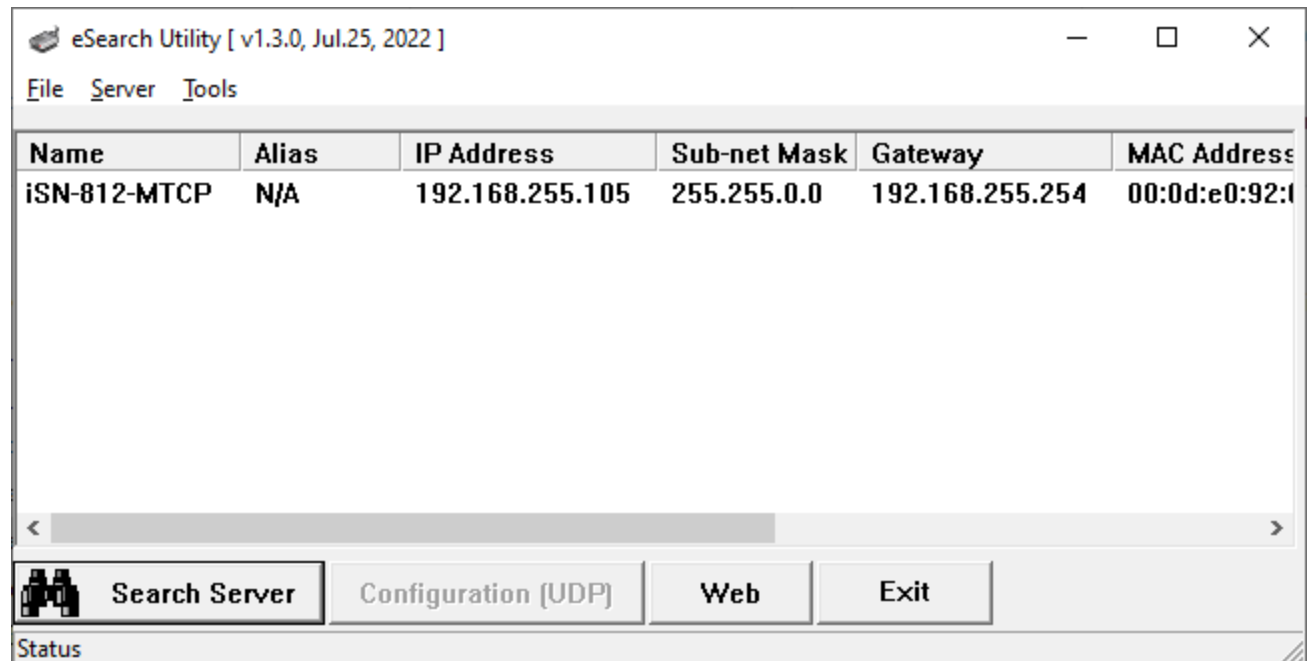
```
const BrokerURI = "192.168.255.103";
```

.vs	23/09/2023 14:36	File folder	
lib	23/09/2023 14:10	File folder	
node_modules	23/09/2023 14:26	File folder	
Demo_MQTT_NodeJs.pptx	03/10/2023 17:06	Microsoft PowerP...	1,249 KB
irdata_handler.js	03/10/2023 09:45	JS File	4 KB
mqtt_client.js	03/10/2023 17:04	JS File	2 KB
package.json	23/09/2023 14:26	JSON File	1 KB
package-lock.json	23/09/2023 14:26	JSON File	87 KB
start.bat	08/08/2023 13:52	Windows Batch File	1 KB

```
D:\_O_CODE\IR\Demo\MQTT\NodeJs>cd /d D:\_O_CODE\IR\Demo\MQTT\NodeJs\  
D:\_O_CODE\IR\Demo\MQTT\NodeJs>mqtt_client.js  
Connected to MQTT broker: 192.168.255.103  
Subscribed to topic: IR/Temp/#
```

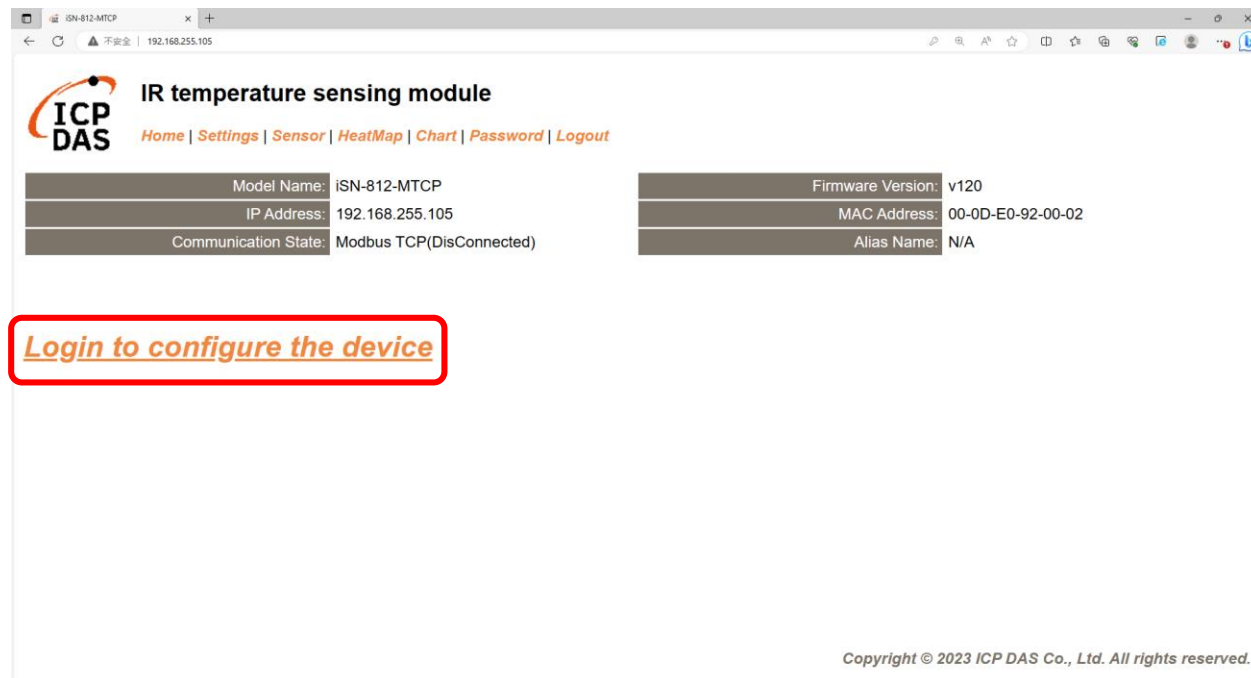
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 使用eSearch來搜尋iSN-81x-MTCP
- 開啟iSN-81x-MTCP的網站



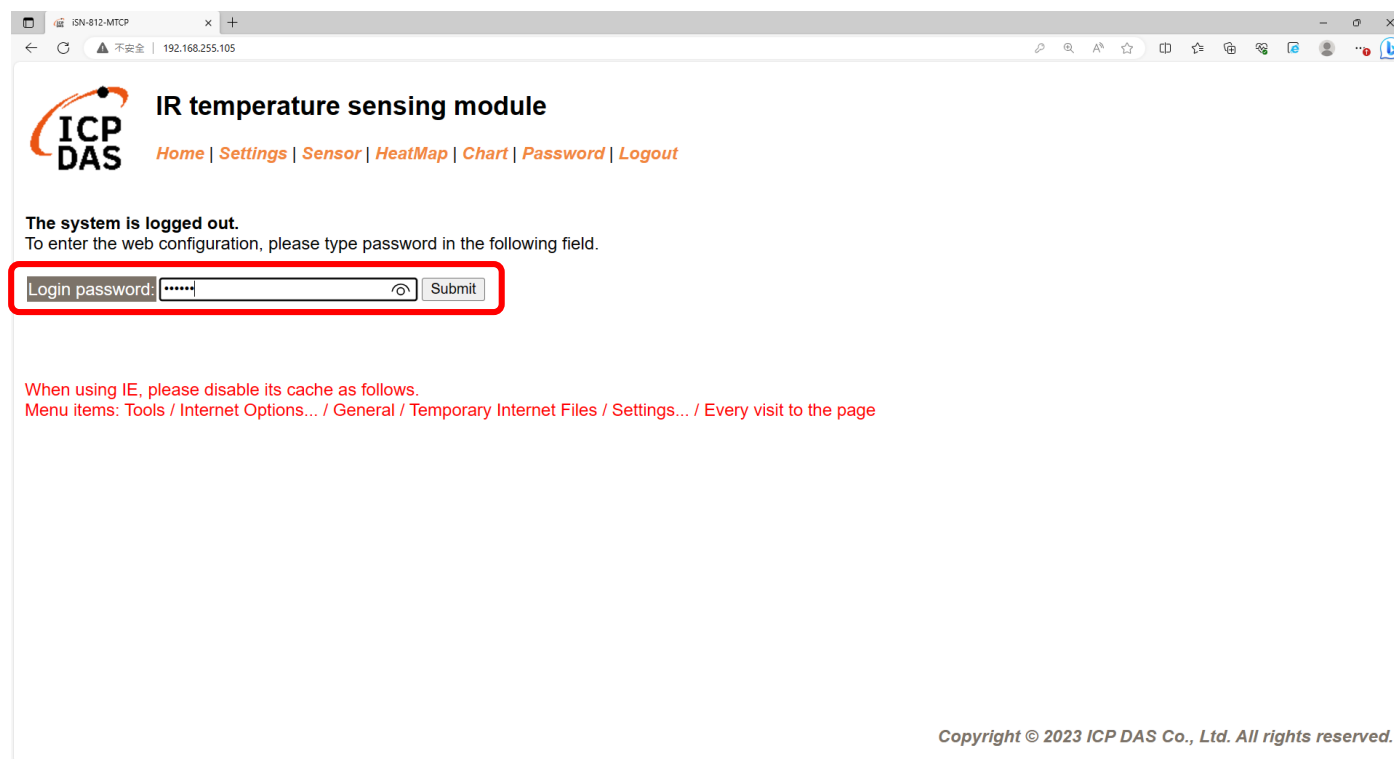
➤ 將iSN-81x-MTCP配置為MQTT客戶端

• 點擊“Login to configure the device”來登入



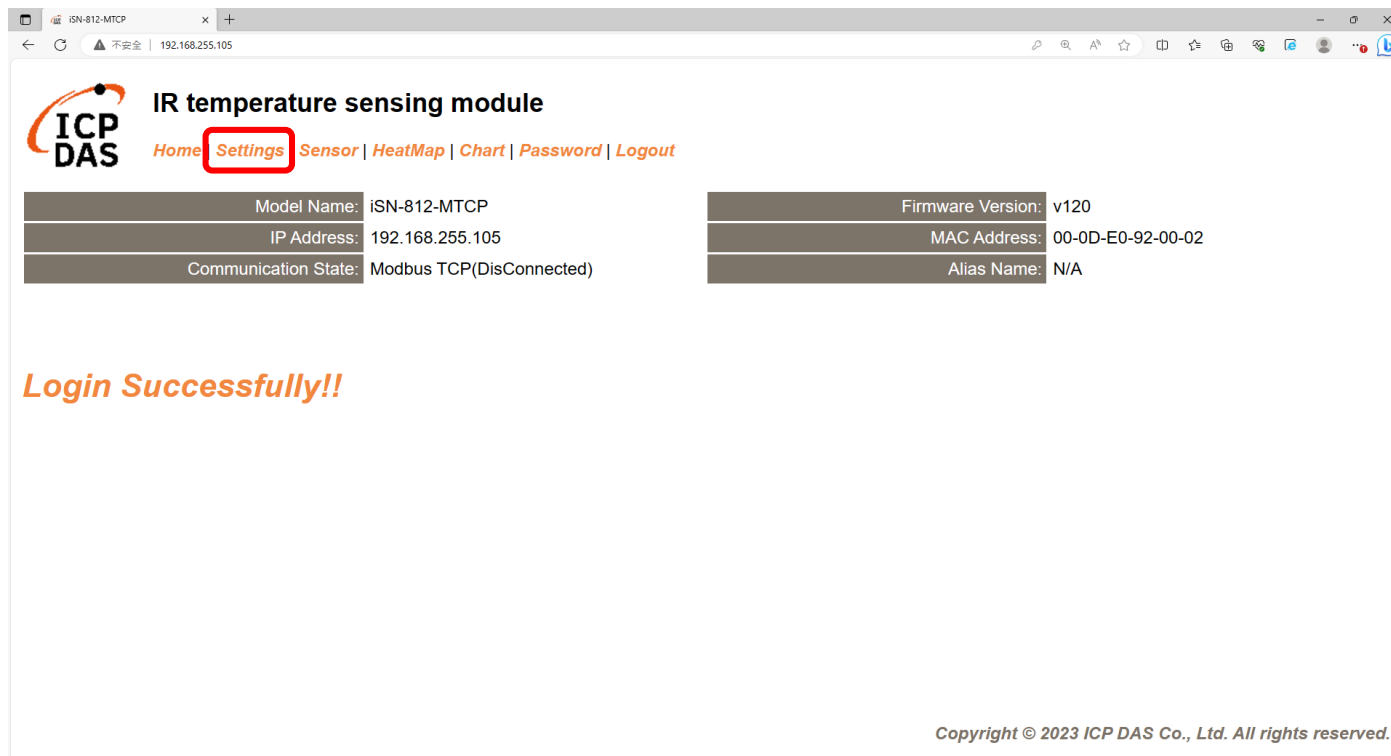
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 登入(預設密碼: admin)



➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 點擊“Settings”來設定通訊模式



ICP DAS IR temperature sensing module

[Home](#) [Settings](#) [Sensor](#) [HeatMap](#) [Chart](#) [Password](#) [Logout](#)

Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

Login Successfully!!

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 將通訊模式設定為”MQTT client”

The screenshot shows the web interface of an ICP DAS IR temperature sensing module. The page title is "IR temperature sensing module" and the navigation menu includes Home, Settings, Sensor, HeatMap, Chart, Password, and Logout. The interface is divided into three main sections: Device IP Settings, Communication Settings, and General Settings.

Device IP Settings

Device IP Settings	Current	Updated	Comment
Address Type:	Static IP	Static IP ▾	Dynamic or Static IP(Default)
Static IP Address:	192.168.255.105	192.168.255.105	Default= 192.168.255.100
Subnet Mask:	255.255.0.0	255.255.0.0	Default= 255.255.0.0
Gateway:	192.168.0.254	192.168.0.254	Default= 192.168.255.254

Communication Settings

Communication	Current	Updated	Comment
Mode:	Modbus TCP	Modbus TCP ▾	Modbus TCP(Default), RESTful API or MQTT

The dropdown menu for the "Updated" field in the Communication Settings section is open, showing the following options: Modbus TCP, RESTful API, and MQTT client. The "MQTT client" option is highlighted with a red box.

General Settings

Network	Current	Updated	Comment
Web Auto-logout:	10	10	(1 ~ 255 minutes, 10=default, 0=disable)
Misc.	Current	Updated	Comment
Alias Name:	N/A	N/A	(Max. 18 chars)

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 根據Broker的IP設定參數並更新設定

The screenshot displays the ICP DAS web interface for an IR temperature sensing module. The main page shows device information and various settings. A red box highlights the 'Communication Settings' section, which is expanded to show a detailed table of MQTT parameters. A red arrow points from the 'Communication Settings' table in the main view to the expanded view.

Communication Settings

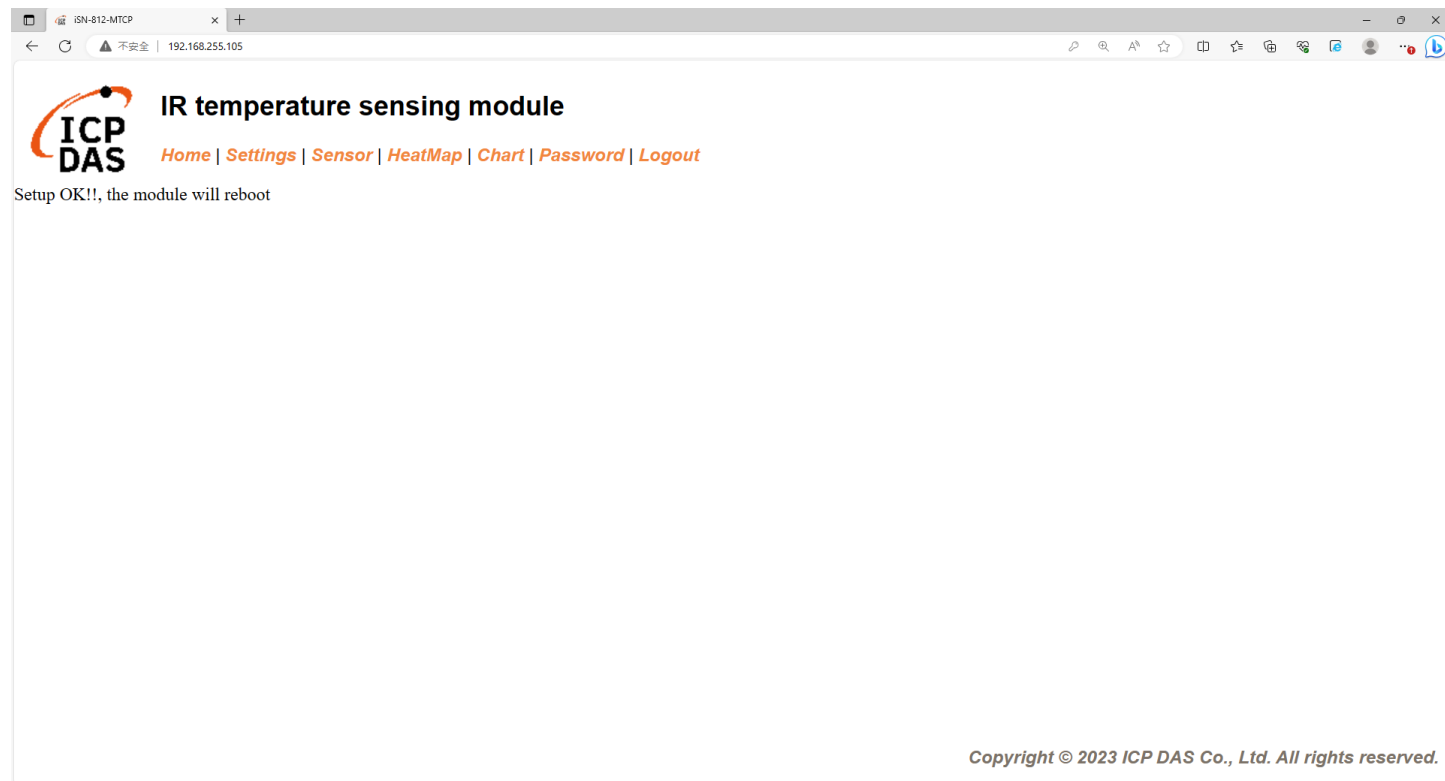
Communication	Current	Updated
Mode	MQTT client	MQTT client
Broker URI	172.16.123.124	192.168.255.103
Broker port	1883	1883
Reconnection interval	10	10
Keep alive interval	30	30
[Publish] interval	10	10
QoS	0	0
Last Will	Disable	Disable
Authentication	Disable	Disable

Client ID: ISN812_920002
Publish Topic: IR/Temp/ISN812_920002
JSON Format: {"macno": MAC number, "model": model name}

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 等待重啟



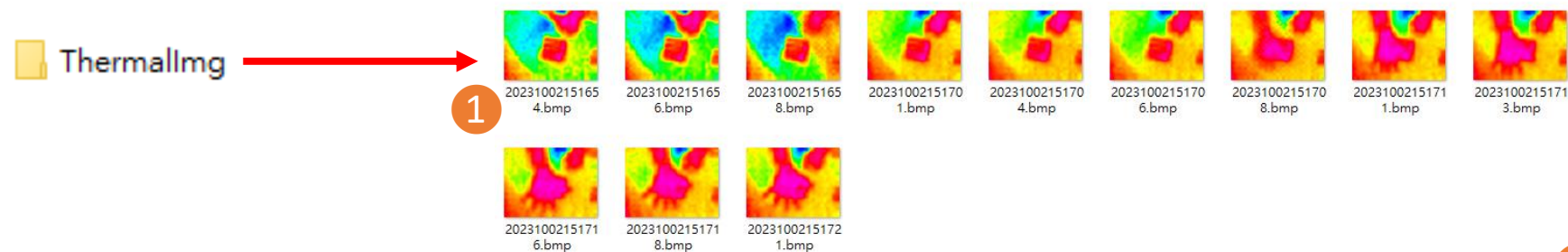
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 如果連線成功，iSN-81x-MTCP會發布數據至Broker
- Topic:IR/Temp/(型號)_(mac). Ex:IR/Temp/ISN812_920002.

```
D:\0_CODE\IR\Demo\MQTT\nodeJs>cd /d D:\0_CODE\IR\Demo\MQTT\nodeJs\  
D:\0_CODE\IR\Demo\MQTT\nodeJs>mqtt_client.js  
Connected to MQTT broker: 192.168.255.103  
Subscribed to topic: IR/Temp/#  
Data inserted OK  
Data inserted OK  
Data inserted OK
```

➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 接收到數據後會產生兩個檔案，一個是儲存數據的DB檔，一個是熱影像檔。



1	2	3	4	5
timestamp	macno	model	irdata	imgpath
2023-10-02 15:16:54	00-0D-E0-92-00-02	iSN-812-MTCP	30.0,30.2,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:16:56	00-0D-E0-92-00-02	iSN-812-MTCP	30.2,30.5,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:16:58	00-0D-E0-92-00-02	iSN-812-MTCP	31.1,31.9,32 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:01	00-0D-E0-92-00-02	iSN-812-MTCP	31.2,30.9,32 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:04	00-0D-E0-92-00-02	iSN-812-MTCP	30.1,31.2,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:06	00-0D-E0-92-00-02	iSN-812-MTCP	30.9,31.6,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:08	00-0D-E0-92-00-02	iSN-812-MTCP	30.8,30.7,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:11	00-0D-E0-92-00-02	iSN-812-MTCP	30.7,30.4,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:13	00-0D-E0-92-00-02	iSN-812-MTCP	30.6,32.0,32 D:\0_CODE\IR\Demo\RESTfu	

- 1 → 取得資料的時間
- 2 → iSN-81x-MTCP的MAC Address
- 3 → 型號
- 4 → iSN-81x-MTCP量測的IR數據
- 5 → 熱影像的儲存路徑

➤ 修改DB檔名稱

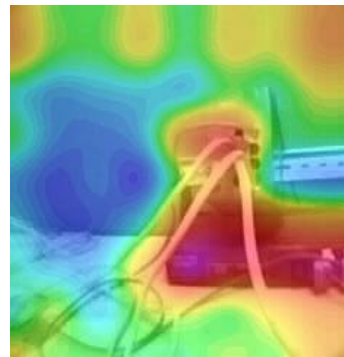
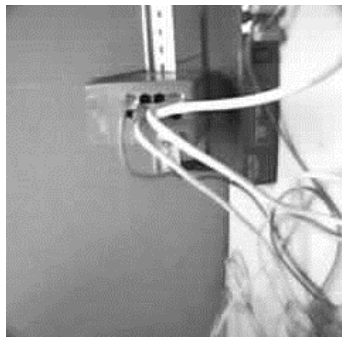
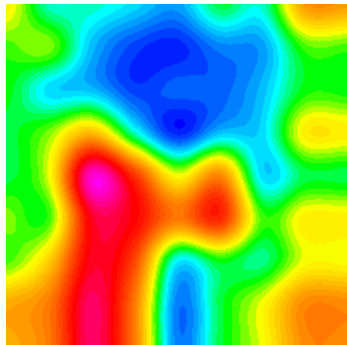
- 如果你想要修改DB檔的名稱，開啟“irdata_handler.js”後找到變數“dbPath”然後編輯它。

```
const dbPath = './irdata_icpdas.db';
```

➤ 更改合成圖的透明度(for iSN-811C-MTCP)

- 如果你想要調整合成圖的透明度，開啟“Reallmg.js”找到下圖的程式碼修改數值。

```
imageA.opacity(0.5);
```



03

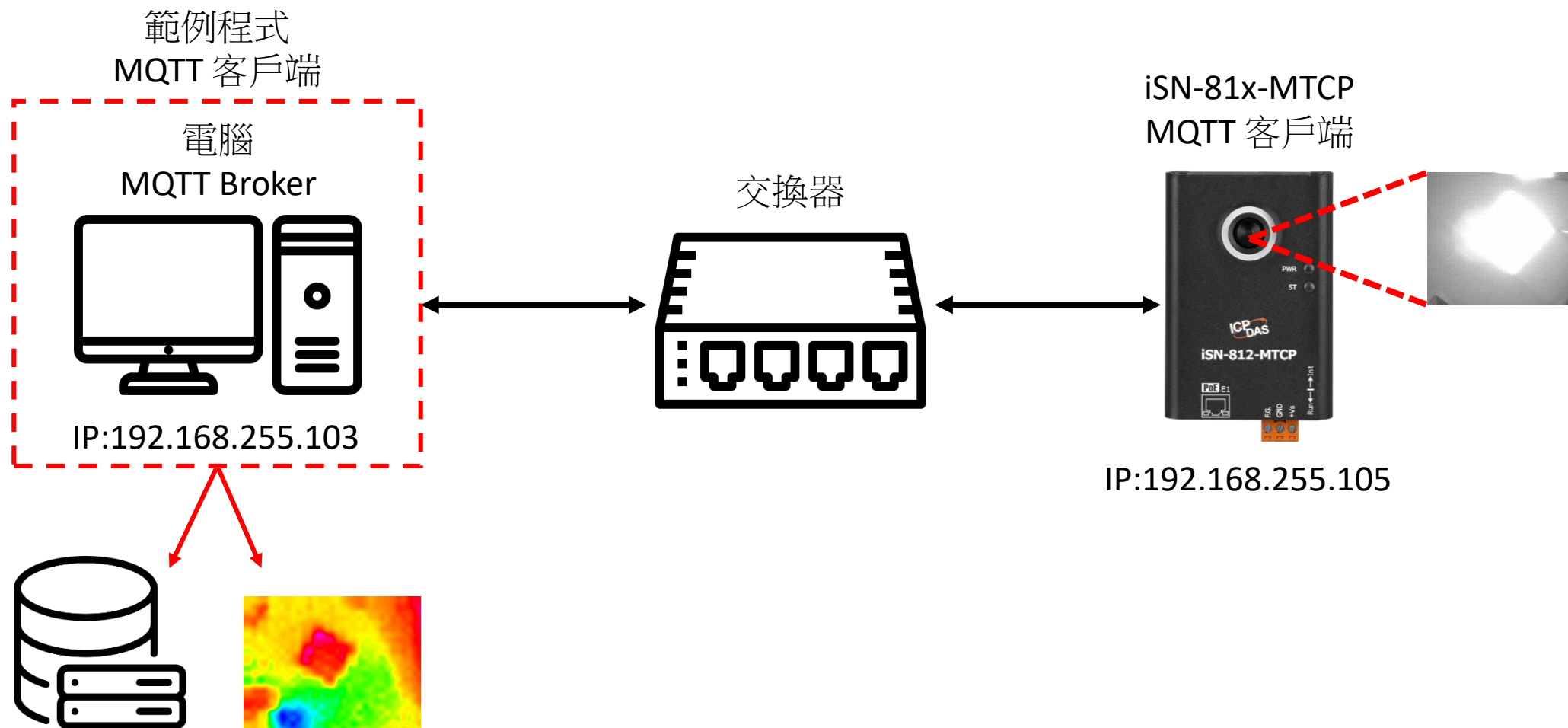
iSN-81x-MTCP MQTT_Python

- 範例程式提供不同的程式語言給您參考，您可以透過範例程式取得以下數據：
 - 熱影像
 - 數據讀取時間
 - iSN-81x-MTCP的MAC地址
 - 型號
 - 紅外線數據
 - 熱影像的儲存路徑
- 範例程式使用SQLite儲存量測數據，您可以自行更改使用的資料庫，如MySQL、SQL Server等。

- 預先安裝

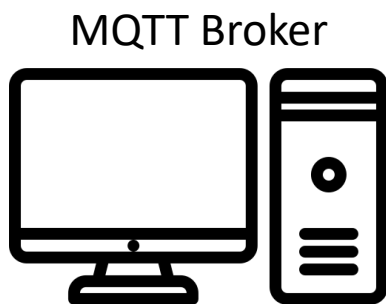
- pip install paho-mqtt
- pip install numpy
- pip install opencv-python

➤ 將iSN-81x-MTCP配置為MQTT客戶端



➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 範例程式需要連接到Broker，Broker的IP為192.168.255.103，開啟“Subscribe.py”後找到變數“BrokerURI”並修改。
- 開啟“start.bat”連接到Broker



IP:192.168.255.103



```
BrokerURI = "192.168.255.103"
```

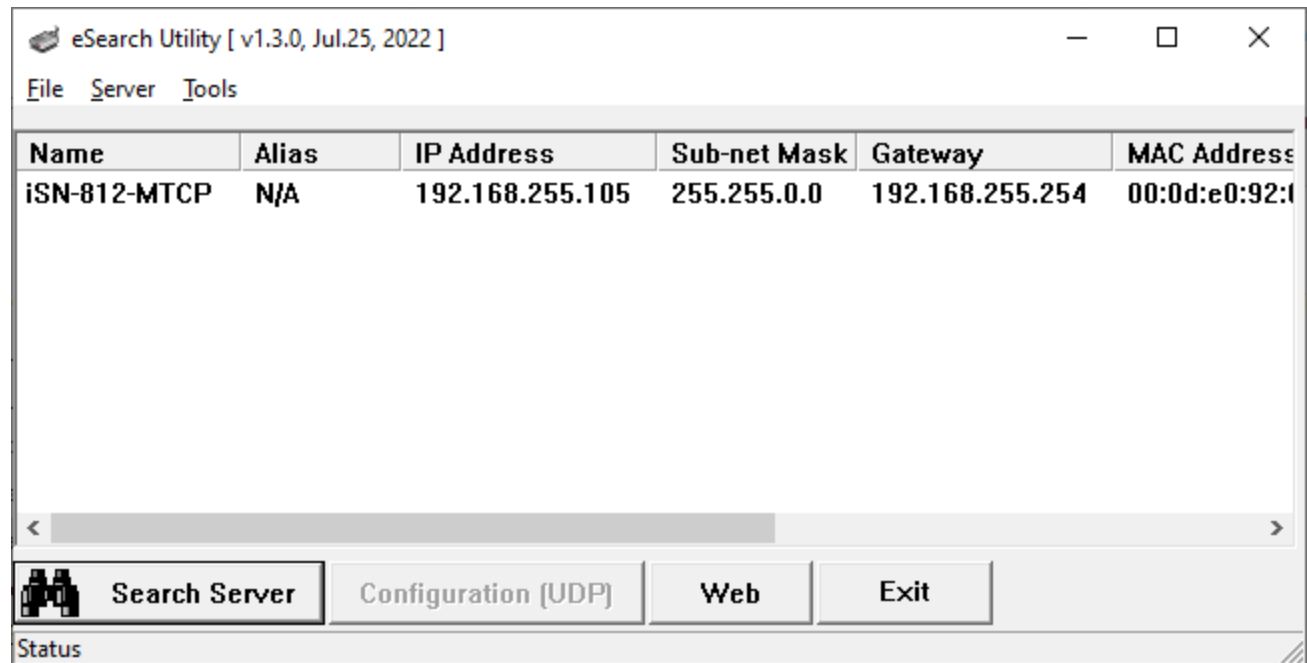
.vs	21/09/2023 11:54	File folder
__pycache__	03/10/2023 10:26	File folder
lib	21/09/2023 11:52	File folder
Demo_MQTT_Python.pptx	03/10/2023 17:25	Microsoft PowerP...
irdata_handler.py	03/10/2023 09:45	Python File
Pre-Install.txt	21/09/2023 11:56	Text Document
Publish.py	03/10/2023 17:26	Python File
start.bat	04/08/2023 15:05	Windows Batch File
Subscribe.py	03/10/2023 17:26	Python File



```
D:\0_CODE\IR\Demo\MQTT\Python>Subscribe.py  
Connected to 192.168.255.103 with result code 0  
Subscribe Topic: IR/Temp/#
```

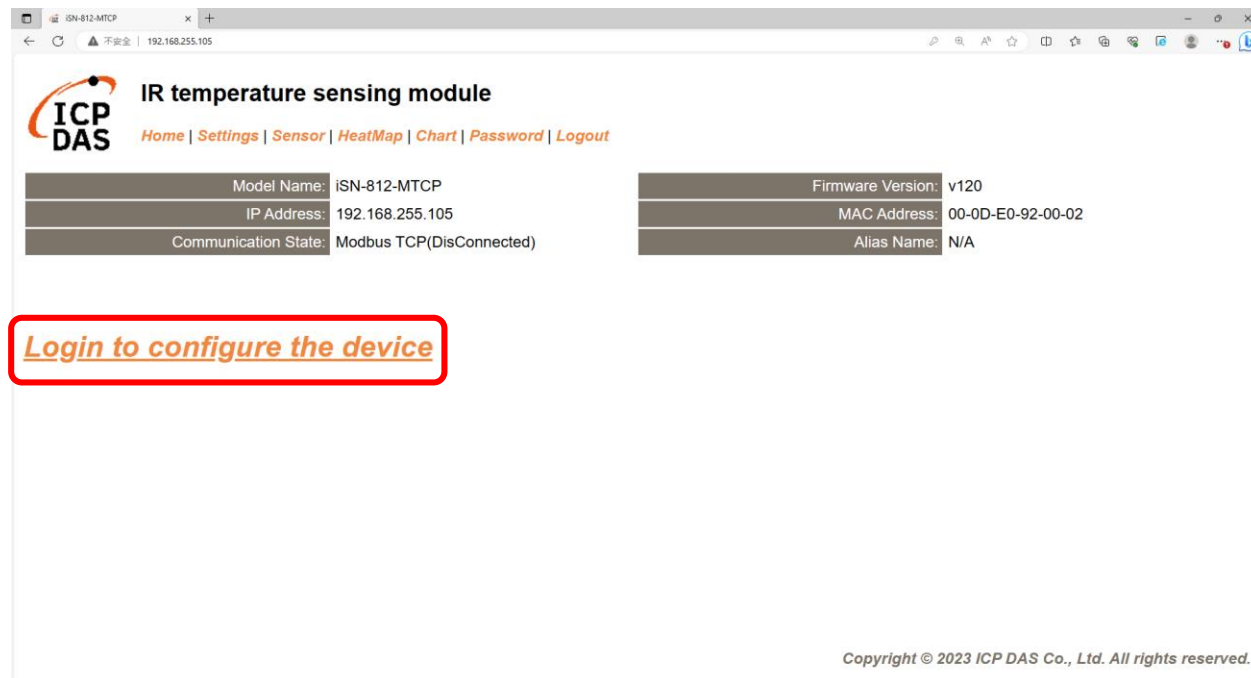
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 使用eSearch來搜尋iSN-81x-MTCP
- 開啟iSN-81x-MTCP的網站



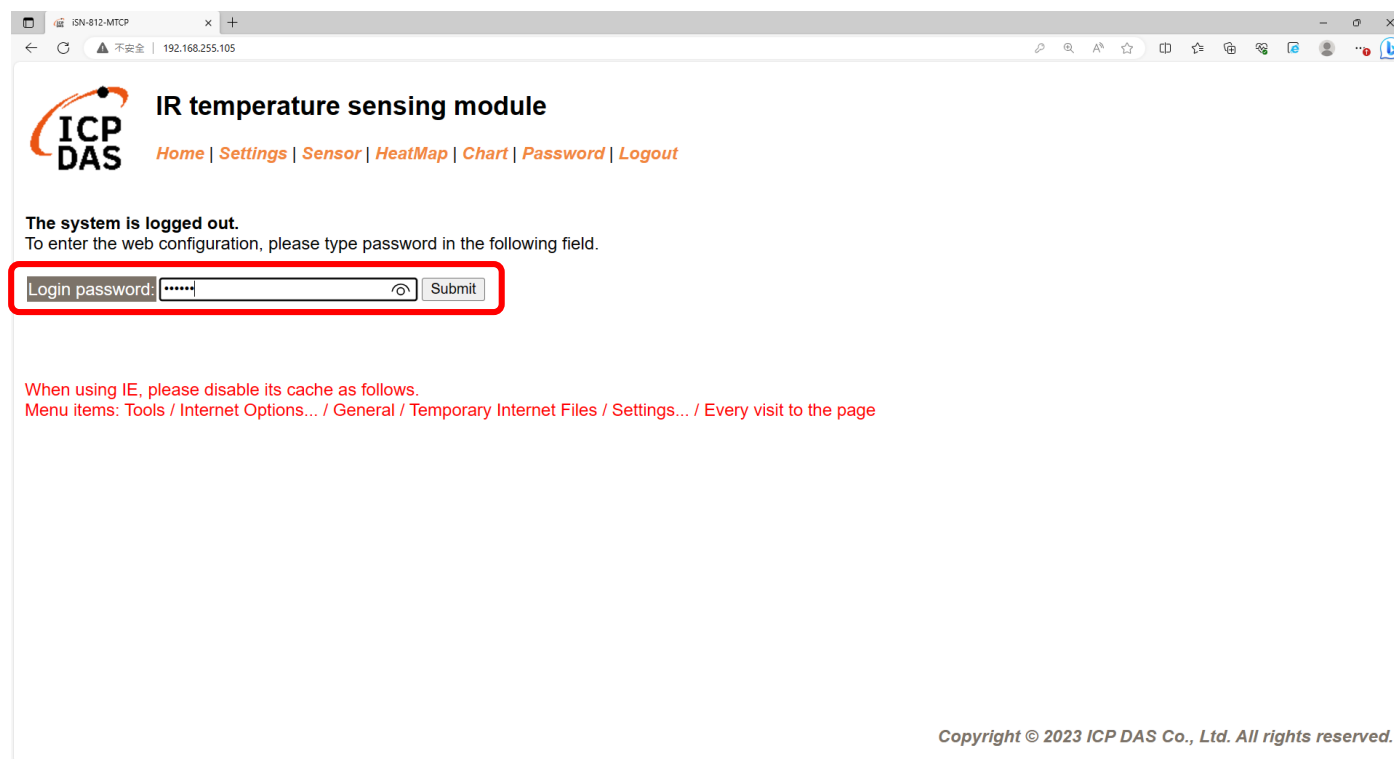
➤ 將iSN-81x-MTCP配置為MQTT客戶端

• 點擊”Login to configure the device”來登入



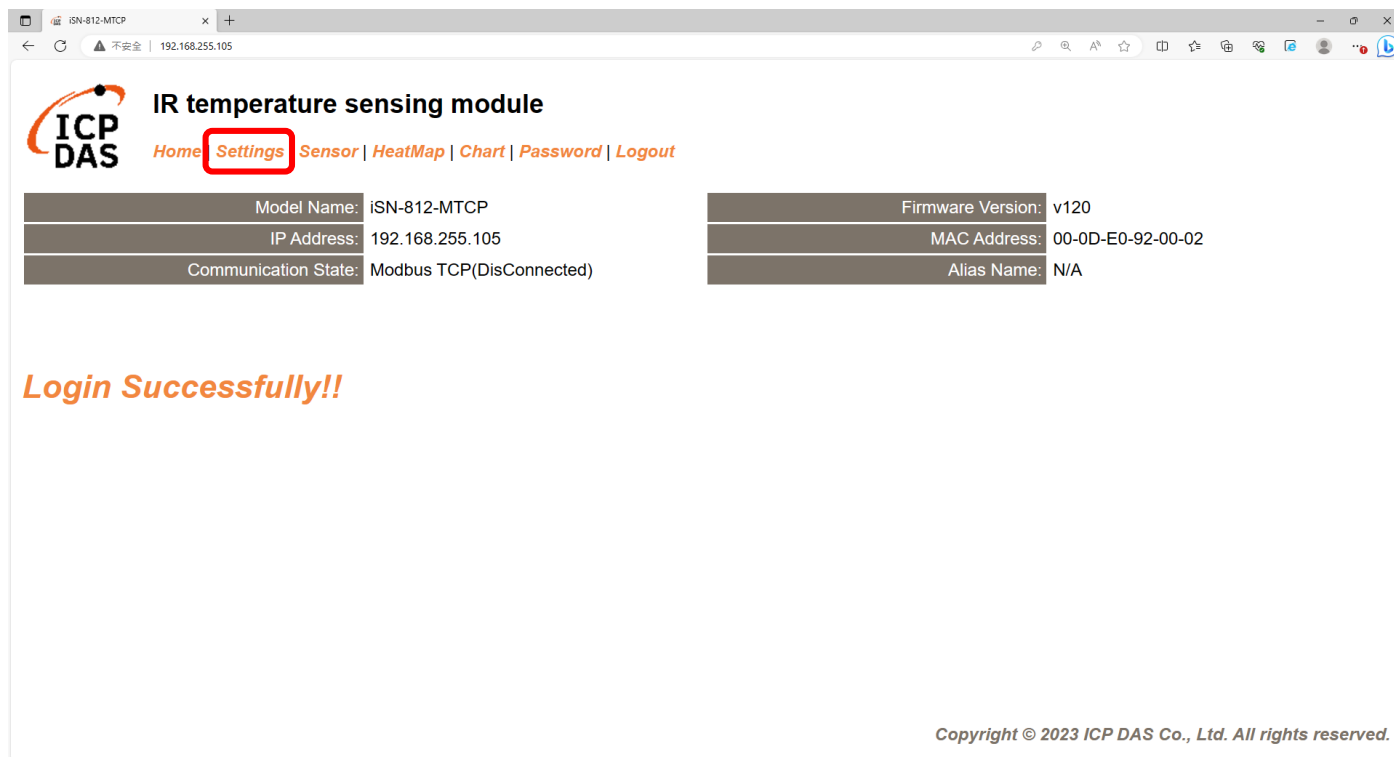
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 登入(預設密碼: admin)



➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 點擊“Settings”來設定通訊模式



ICP DAS IR temperature sensing module

[Home](#) [Settings](#) [Sensor](#) [HeatMap](#) [Chart](#) [Password](#) [Logout](#)

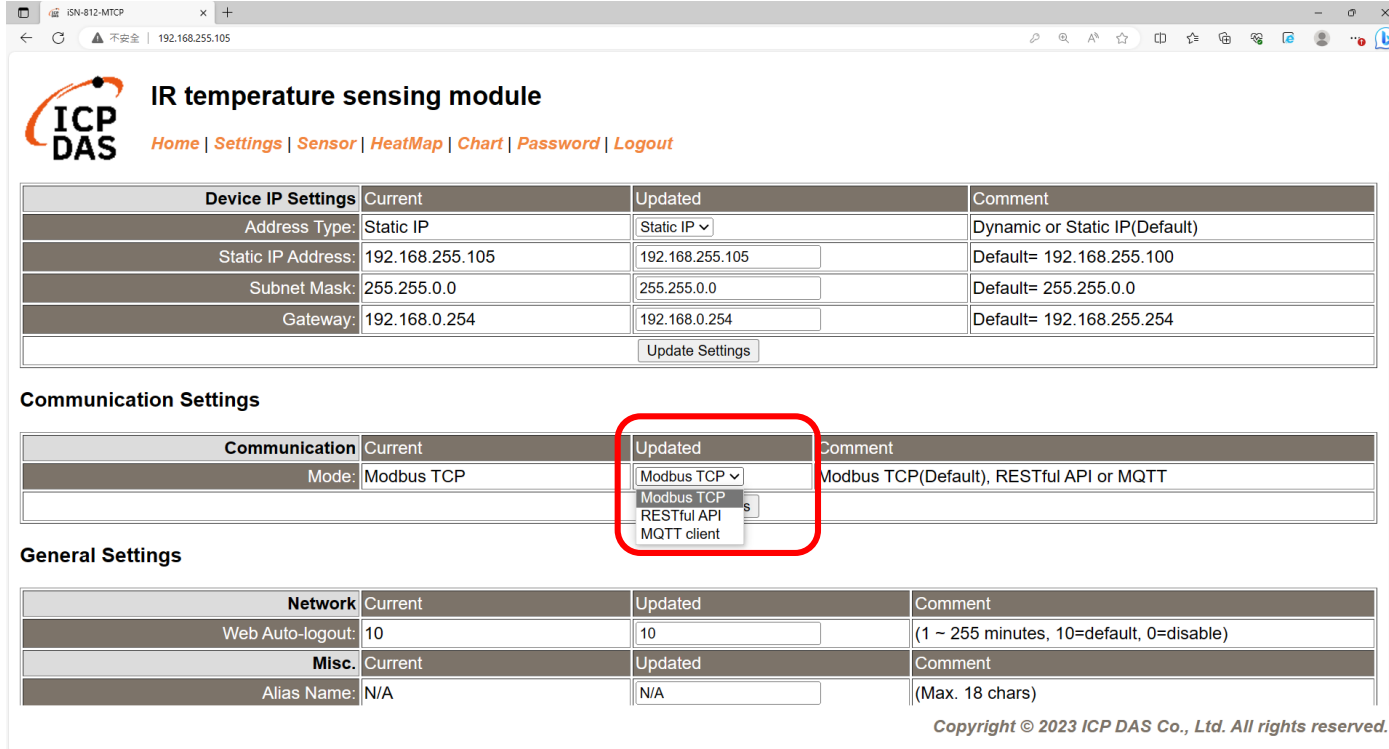
Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

Login Successfully!!

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 將通訊模式設定為”MQTT client”



The screenshot displays the web interface for an ICP DAS IR temperature sensing module. The page title is "IR temperature sensing module" and the navigation menu includes Home, Settings, Sensor, HeatMap, Chart, Password, and Logout. The interface is divided into three main sections: Device IP Settings, Communication Settings, and General Settings.

Device IP Settings: This section contains a table with columns for Current, Updated, and Comment. The rows include Address Type (Static IP), Static IP Address (192.168.255.105), Subnet Mask (255.255.0.0), and Gateway (192.168.0.254). A "Update Settings" button is located below the table.

Communication Settings: This section contains a table with columns for Communication, Current, Updated, and Comment. The Mode is set to Modbus TCP. The Updated column shows a dropdown menu with options: Modbus TCP, Modbus TCP, RESTful API, and MQTT client. The MQTT client option is highlighted with a red box.

General Settings: This section contains a table with columns for Network, Current, Updated, and Comment. The rows include Web Auto-logout (10) and Misc. Alias Name (N/A).

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 根據Broker的IP設定參數並更新設定

The screenshot displays the ICP DAS web interface for an IR temperature sensing module. The main page shows device information and configuration sections. A red box highlights the 'Communication Settings' section, which is expanded to show a detailed table of parameters. A red arrow points from the 'Broker URI' field in the main table to the expanded view.

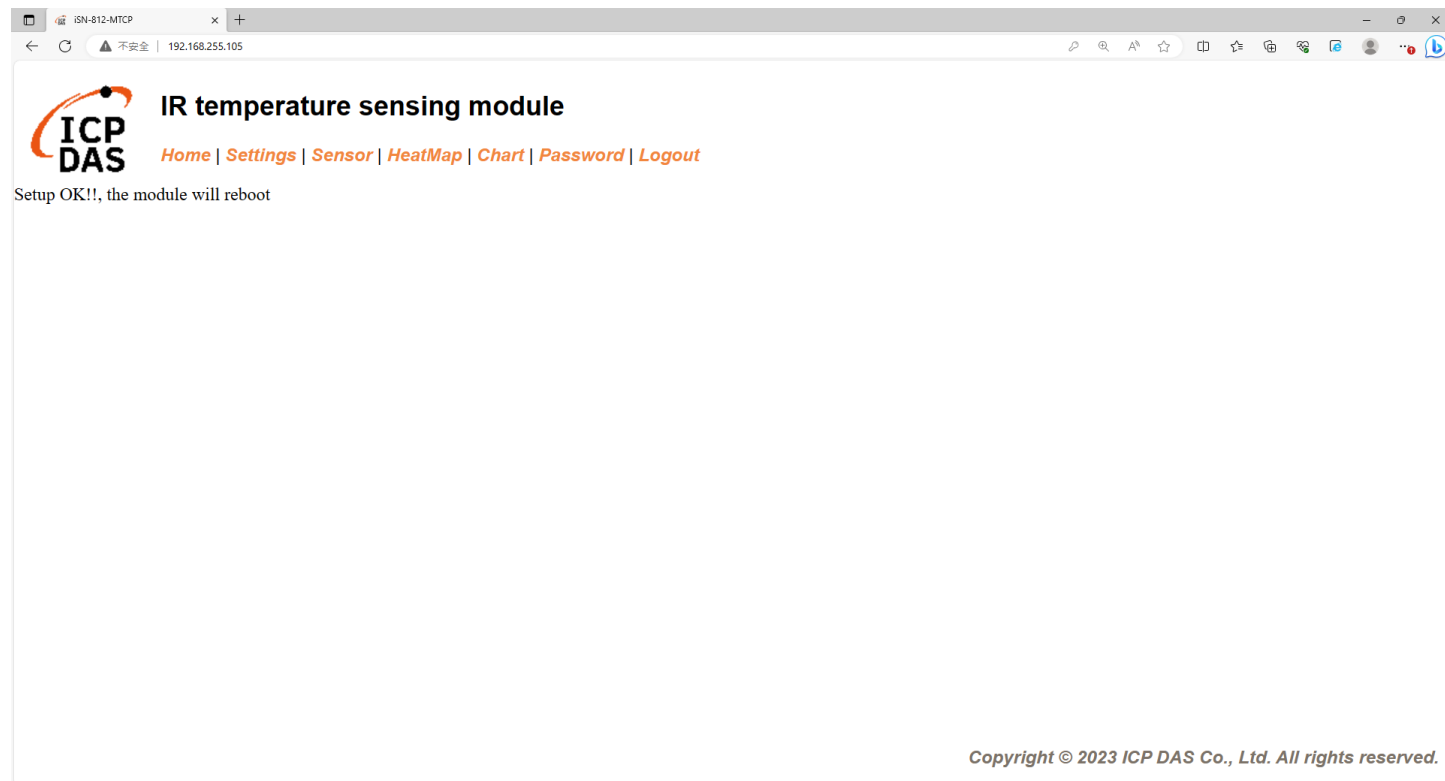
Communication	Current	Updated
Mode	MQTT client	MQTT client
Broker URI	172.16.123.124	192.168.255.103
Broker port	1883	1883
Reconnection interval	10	10
Keep alive interval	30	30
[Publish] interval	10	10
QoS	0	0
Last Will	Disable	Disable
Authentication	Disable	Disable

Client ID: ISN812_920002
Publish Topic: IR/Temp/ISN812_920002
JSON Format: {"macno": MAC number, "model": model name}

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➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 等待重啟



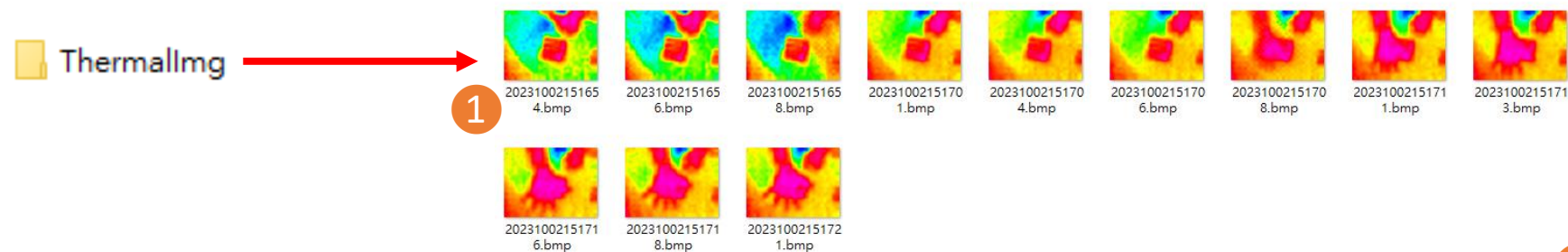
➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 如果連線成功，iSN-81x-MTCP會發布數據至Broker
- Topic:IR/Temp/(型號)_(mac). Ex:IR/Temp/ISN812_920002.

```
D:\0_CODE\IR\Demo\MQTT\Python>Subscribe.py
Connected to 192.168.255.103 with result code 0
Subscribe Topic: IR/Temp/#
IR/Temp/ISN812_920002
Data inserted OK
IR/Temp/ISN812_920002
Data inserted OK
IR/Temp/ISN812_920002
Data inserted OK
```

➤ 將iSN-81x-MTCP配置為MQTT客戶端

- 接收到數據後會產生兩個檔案，一個是儲存數據的DB檔，一個是熱影像檔。



irdata_icpdas.db

1 timestamp	2 macno	3 model	4 irdata	5 imgpath
2023-10-02 15:16:54	00-0D-E0-92-00-02	iSN-812-MTCP	30.0,30.2,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:16:56	00-0D-E0-92-00-02	iSN-812-MTCP	30.2,30.5,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:16:58	00-0D-E0-92-00-02	iSN-812-MTCP	31.1,31.9,32 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:01	00-0D-E0-92-00-02	iSN-812-MTCP	31.2,30.9,32 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:04	00-0D-E0-92-00-02	iSN-812-MTCP	30.1,31.2,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:06	00-0D-E0-92-00-02	iSN-812-MTCP	30.9,31.6,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:08	00-0D-E0-92-00-02	iSN-812-MTCP	30.8,30.7,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:11	00-0D-E0-92-00-02	iSN-812-MTCP	30.7,30.4,31 D:\0_CODE\IR\Demo\RESTfu	
2023-10-02 15:17:13	00-0D-E0-92-00-02	iSN-812-MTCP	30.6,32.0,32 D:\0_CODE\IR\Demo\RESTfu	

- 1 → 取得資料的時間
- 2 → iSN-81x-MTCP的MAC Address
- 3 → 型號
- 4 → iSN-81x-MTCP量測的IR數據
- 5 → 熱影像的儲存路徑

➤ 修改DB檔名稱

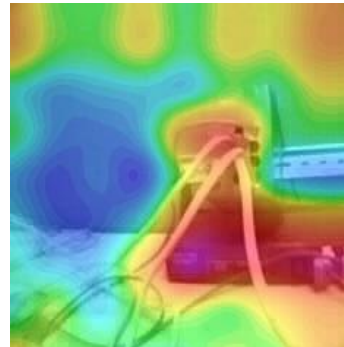
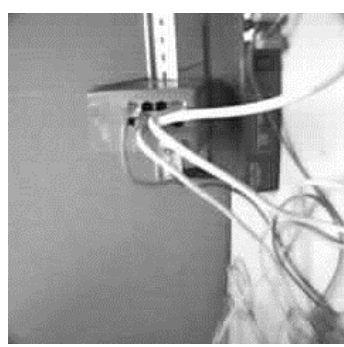
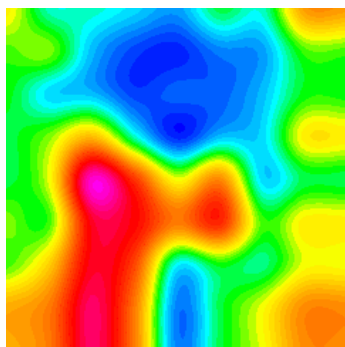
- 如果你想要修改DB檔的名稱，開啟“irdata_handler.py”後找到變數“conn”然後編輯它。

```
conn = sqlite3.connect('irdata_icpdas.db')
```

➤ 更改合成圖的透明度(for iSN-811C-MTCP)

- 如果你想要調整合成圖的透明度，開啟“Reallmg.py”找到下圖的程式碼修改數值。

```
mergeBmp = cv2.addWeighted(cropBmp, 0.5, irBmp_with_transparency, 0.5, 0, dtype=cv2.CV_8U)
```

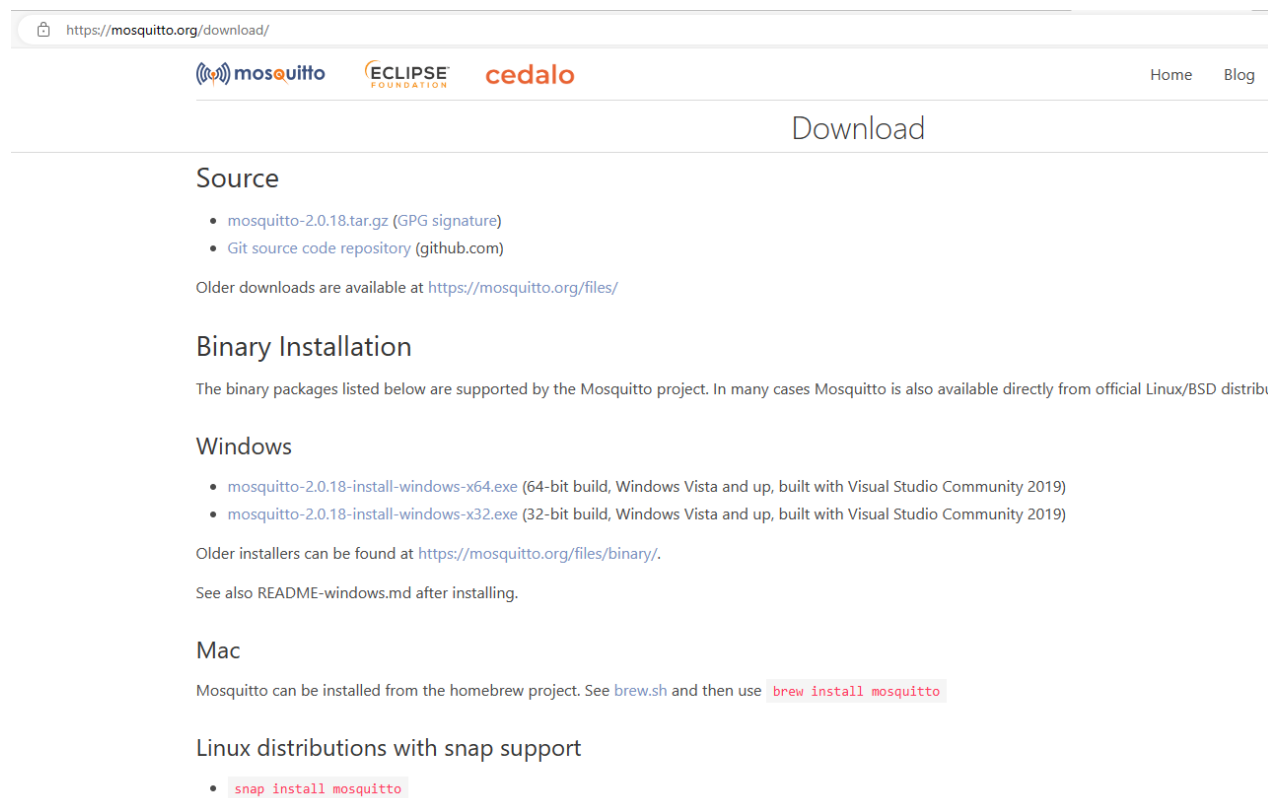


04

如何設定MQTT伺服器

➤ 如何設定MQTT伺服器

• 安裝 MQTT broker “mosquitto”



The screenshot shows the Mosquitto download page. At the top, there is a navigation bar with the Mosquitto logo, Eclipse Foundation logo, and Cedalo logo. The main heading is "Download". Below this, there are sections for "Source", "Binary Installation", "Windows", "Mac", and "Linux distributions with snap support".

Source

- [mosquitto-2.0.18.tar.gz \(GPG signature\)](#)
- [Git source code repository \(github.com\)](#)

Older downloads are available at <https://mosquitto.org/files/>

Binary Installation

The binary packages listed below are supported by the Mosquitto project. In many cases Mosquitto is also available directly from official Linux/BSD distribu

Windows

- [mosquitto-2.0.18-install-windows-x64.exe \(64-bit build, Windows Vista and up, built with Visual Studio Community 2019\)](#)
- [mosquitto-2.0.18-install-windows-x32.exe \(32-bit build, Windows Vista and up, built with Visual Studio Community 2019\)](#)

Older installers can be found at <https://mosquitto.org/files/binary/>.

See also README-windows.md after installing.

Mac

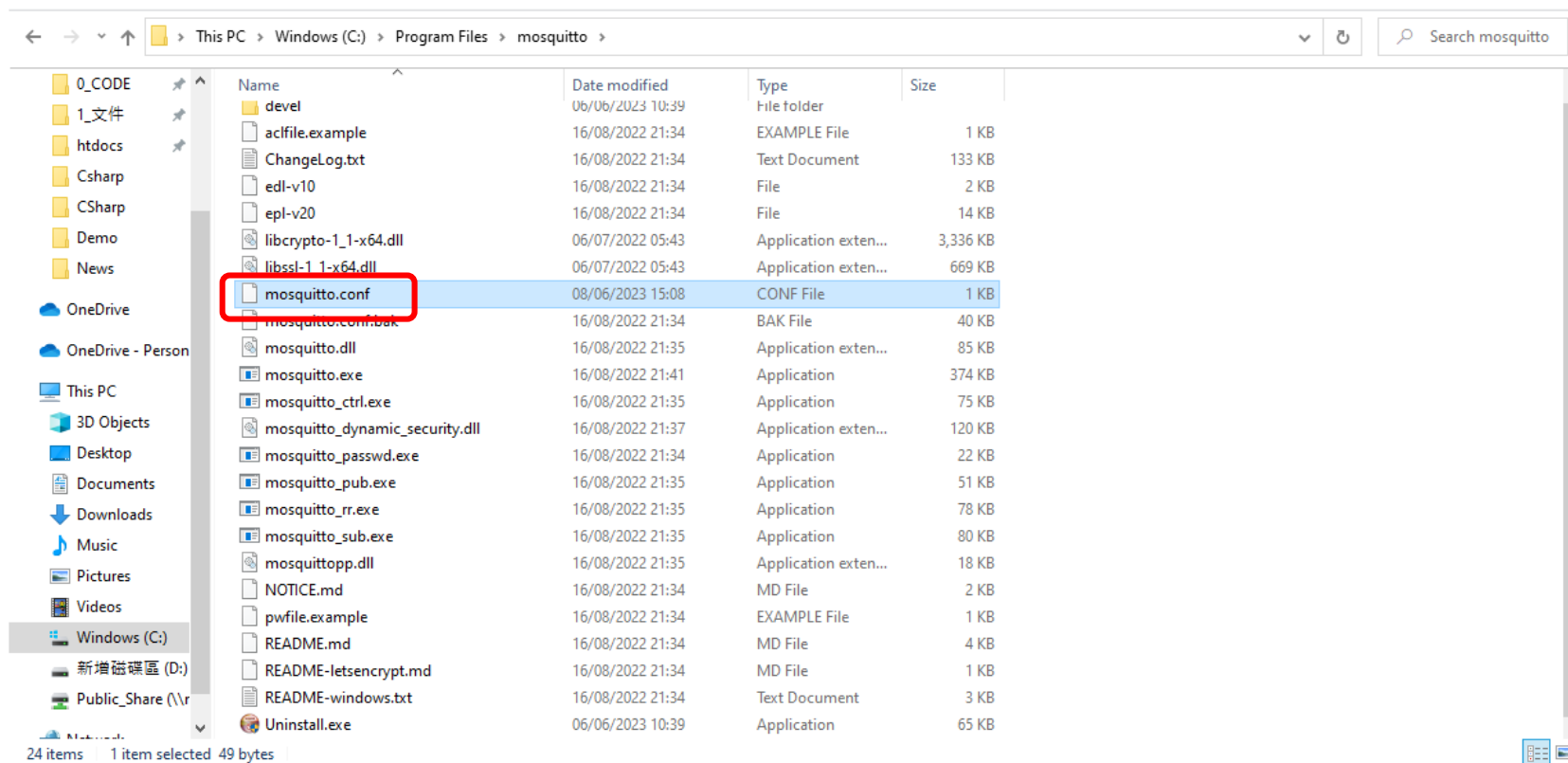
Mosquitto can be installed from the homebrew project. See [brew.sh](#) and then use `brew install mosquitto`

Linux distributions with snap support

- `snap install mosquitto`


➤ 如何設定MQTT伺服器

- 更改conf檔允許外部裝置連線到Broker。



➤ 如何設定MQTT伺服器

1. MQTT 預設 port
2. Broker的 IP
3. 允許外部裝置連線到Broker

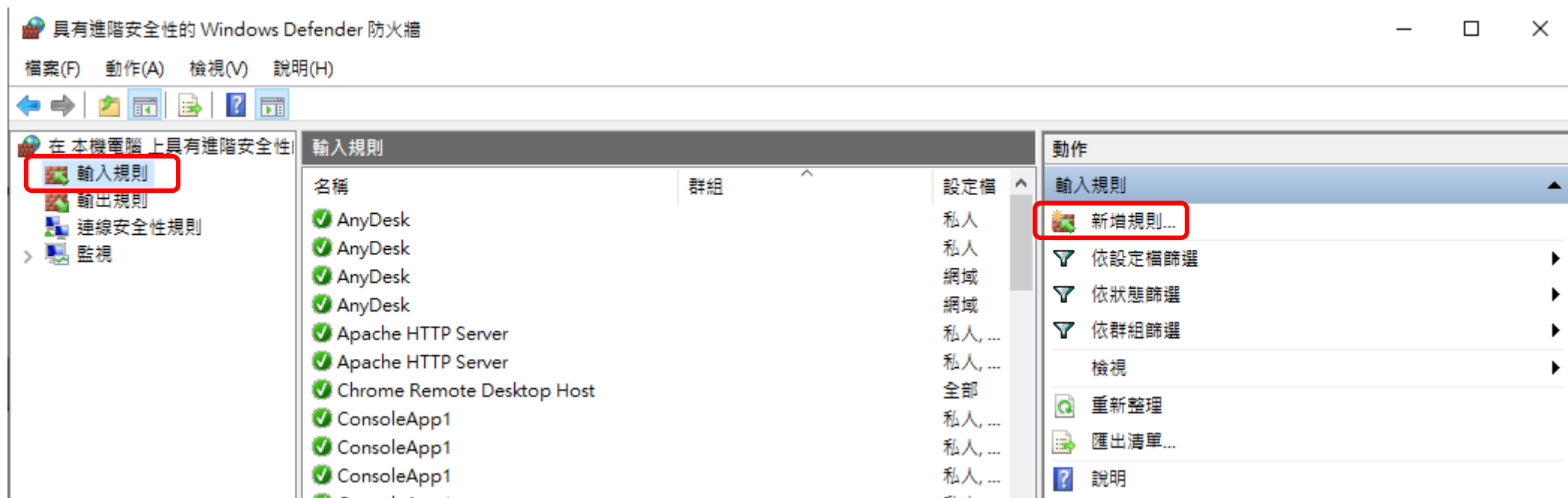
 *mosquitto.conf - Notepad

File Edit Format View Help

```
listener 1883 192.168.255.103  
allow_anonymous true
```

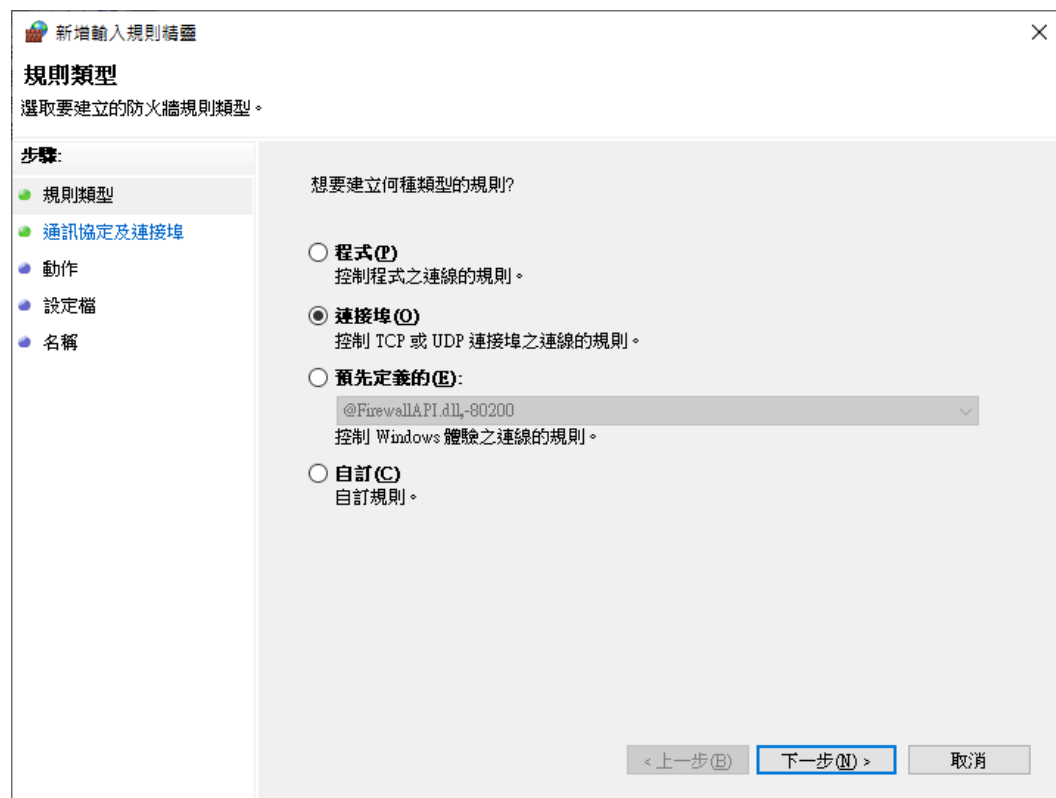
➤ 如何設定MQTT伺服器

- 點擊“輸入規則”後，點擊“新增規則”



➤ 如何設定MQTT伺服器

• 選擇“連接埠”



新增輸入規則精靈

規則類型
選取要建立的防火牆規則類型。

步驟:

- 規則類型
- 通訊協定及連接埠
- 動作
- 設定檔
- 名稱

想要建立何種類型的規則?

- 程式 (P)
控制程式之連線的規則。
- 連接埠 (O)
控制 TCP 或 UDP 連接埠之連線的規則。
- 預先定義的 (E):
@FirewallAPI.dll,-80200
控制 Windows 體驗之連線的規則。
- 自訂 (C)
自訂規則。

< 上一步 (B) 下一步 (N) > 取消

➤ 如何設定MQTT伺服器

- 選擇TCP及特定本機連接埠:1883

➤ 如何設定MQTT伺服器

• 選擇允許連線

新增輸入規則精靈

動作
指定要在連線符合規則中指定的條件時採取的動作。

步驟:

- 規則類型
- 通訊協定及連接埠
- 動作**
- 設定檔
- 名稱

當連線符合指定的條件時，應採取哪些動作？

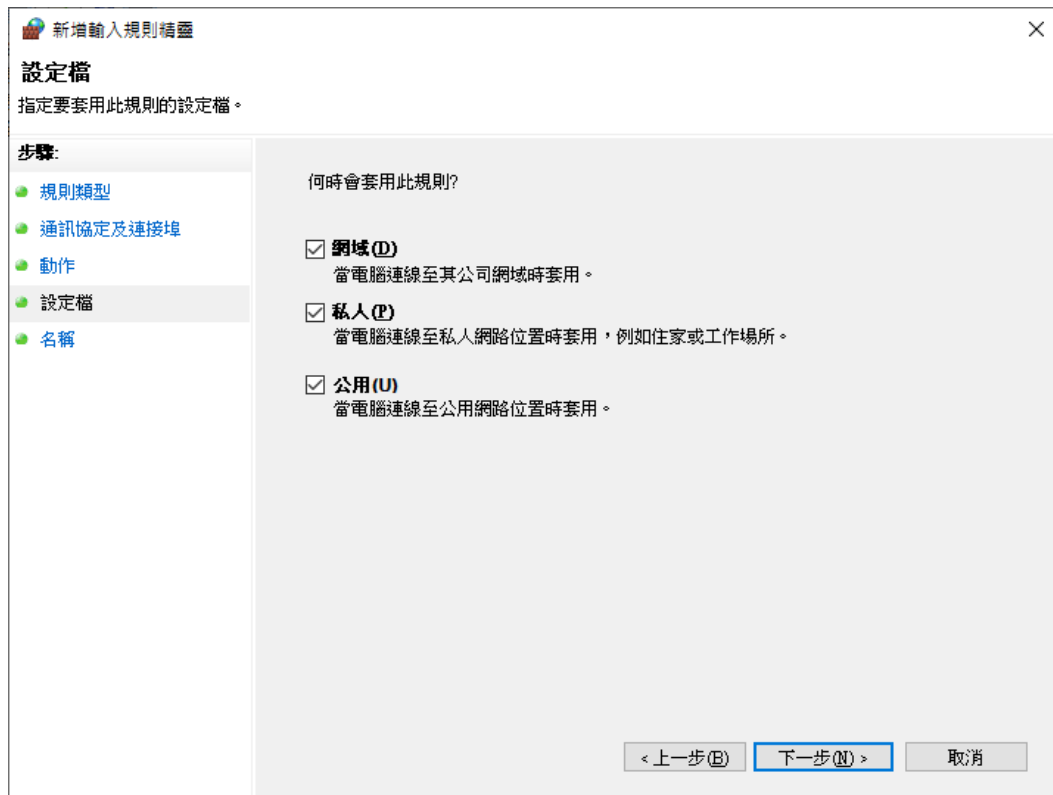
- 允許連線 (A)**
這包含使用 IPsec 保護的連線，以及未使用 IPsec 保護的連線。
- 僅允許安全連線 (C)**
這只包含已使用 IPsec 驗證的連線。會使用 [連線安全性規則] 節點中的 IPsec 內容和規則設定，來確保連線的安全。
- 封鎖連線 (K)**

自訂 (O)...

< 上一步 (P) 下一步 (N) > 取消

➤ 如何設定MQTT伺服器

- 勾選所有選項



新增輸入規則精靈

設定檔
指定要套用此規則的設定檔。

步驟:

- 規則類型
- 通訊協定及連接埠
- 動作
- 設定檔
- 名稱

何時會套用此規則?

- 網域 (N)
當電腦連線至其公司網域時套用。
- 私人 (P)
當電腦連線至私人網路位置時套用，例如住家或工作場所。
- 公用 (U)
當電腦連線至公用網路位置時套用。

< 上一步 (B) 下一步 (N) > 取消

➤ 如何設定MQTT伺服器

- 名稱:MQTT

新增輸入規則精靈

名稱

指定此規則的名稱與描述。

步驟:

- 規則類型
- 通訊協定及連接埠
- 動作
- 設定檔
- 名稱

名稱 (N):
MQTT

描述 (可省略) (D):

< 上一步 (B) 完成 (F) 取消

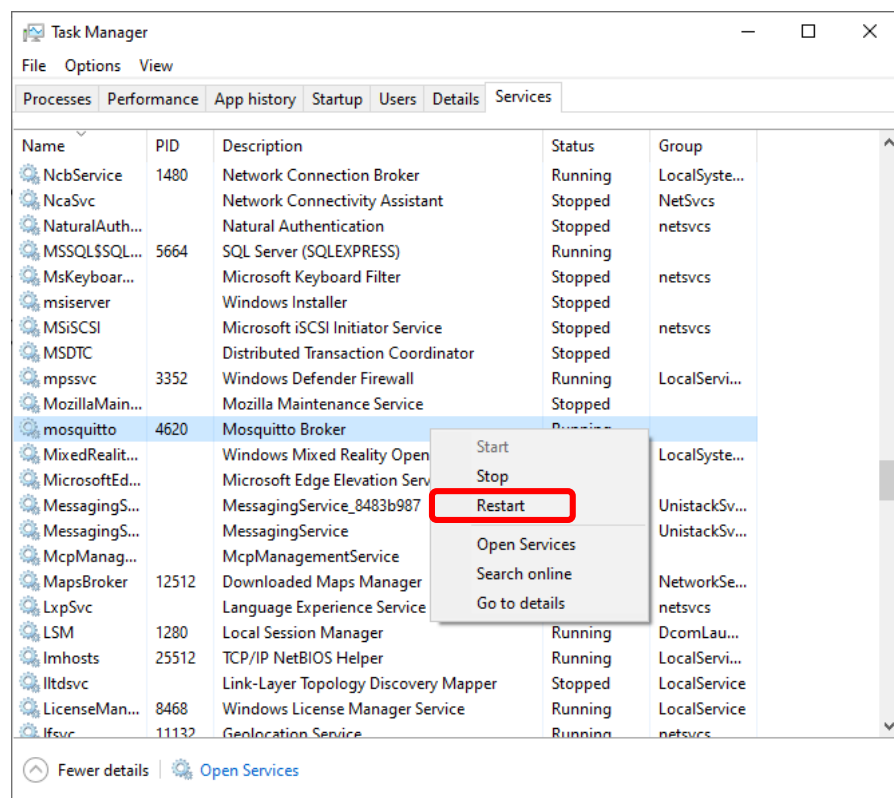
➤ 如何設定MQTT伺服器

- 完成



➤ 如何設定MQTT伺服器

- 重新啟動mosquitto broker

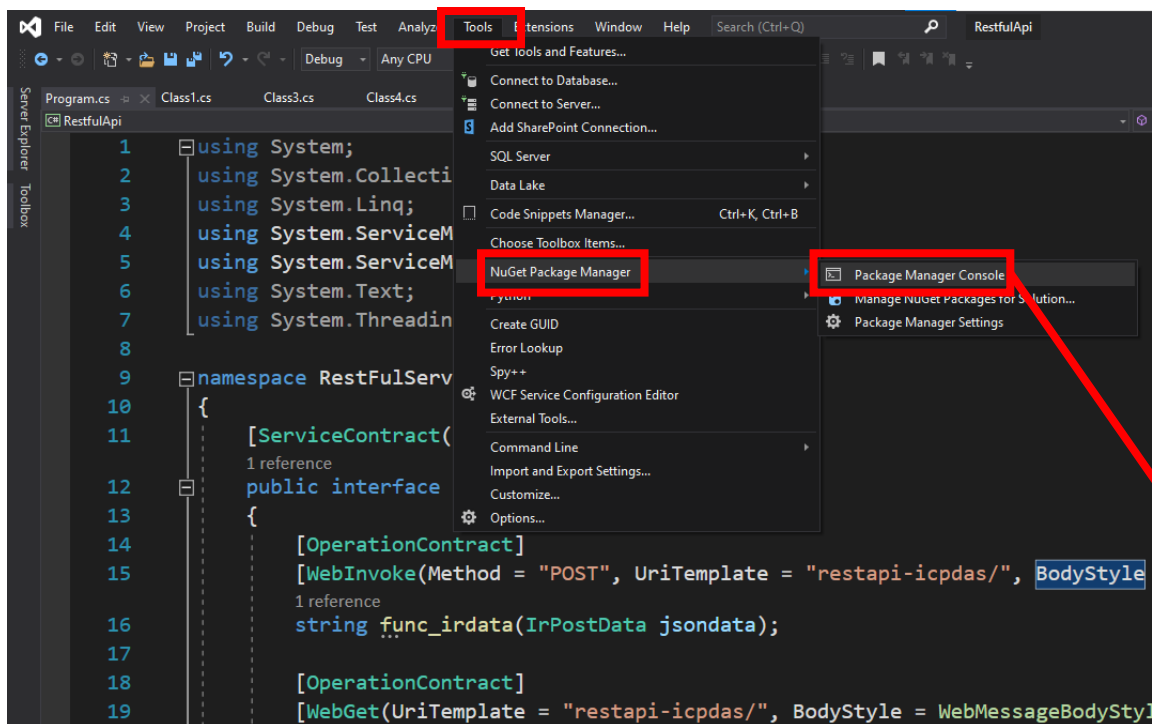


05

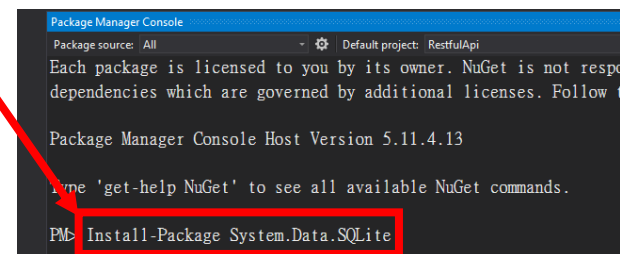
如何安裝函式庫

➤ CSharp如何安裝函式庫

- NuGet
- 安裝命令 → Install-Package System.Data.SQLite (函式庫名稱)



The screenshot shows the Visual Studio interface with the 'Tools' menu open. The 'NuGet Package Manager' option is highlighted with a red box. Below it, the 'Package Manager Console' option is also highlighted with a red box. A red arrow points from the 'Package Manager Console' option to the console window shown in the next image.



The screenshot shows the Package Manager Console window. The command 'Install-Package System.Data.SQLite' is entered in the console and highlighted with a red box. The console output shows the command being executed.

➤ Node.js如何安裝函式庫

- 當你安裝node.js環境時，也會安裝npm。npm用於在node.js環境中安裝各種函式庫。
- 使用命令檢查npm是否有安裝→`npm --version`
- 安裝命令→`npm install modbus-serial`(函式庫名稱)

```
Command Prompt
Microsoft Windows [Version 10.0.19045.3570]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Adam>npm --version
10.2.0

C:\Users\Adam>
```

➤ Python如何安裝函式庫

- Python使用pip來管理函式庫。安裝python時，也會安裝pip。
- 使用命令檢查pip是否有安裝→`pip --version`
- 安裝命令→ `pip install pymodbus`(函式庫名稱)

```
ca. Command Prompt
Microsoft Windows [Version 10.0.19045.3570]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Adam>pip --version
pip 23.2.1 from C:\Python312\Lib\site-packages\pip (python 3.12)

C:\Users\Adam>
```