



**Industrial Automation Technology**  
**Innovator and Enhancer.**

# How to connect iSN-81x module through Modbus





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01

iSN-81x-MRTU ModbusRTU\_Csharp

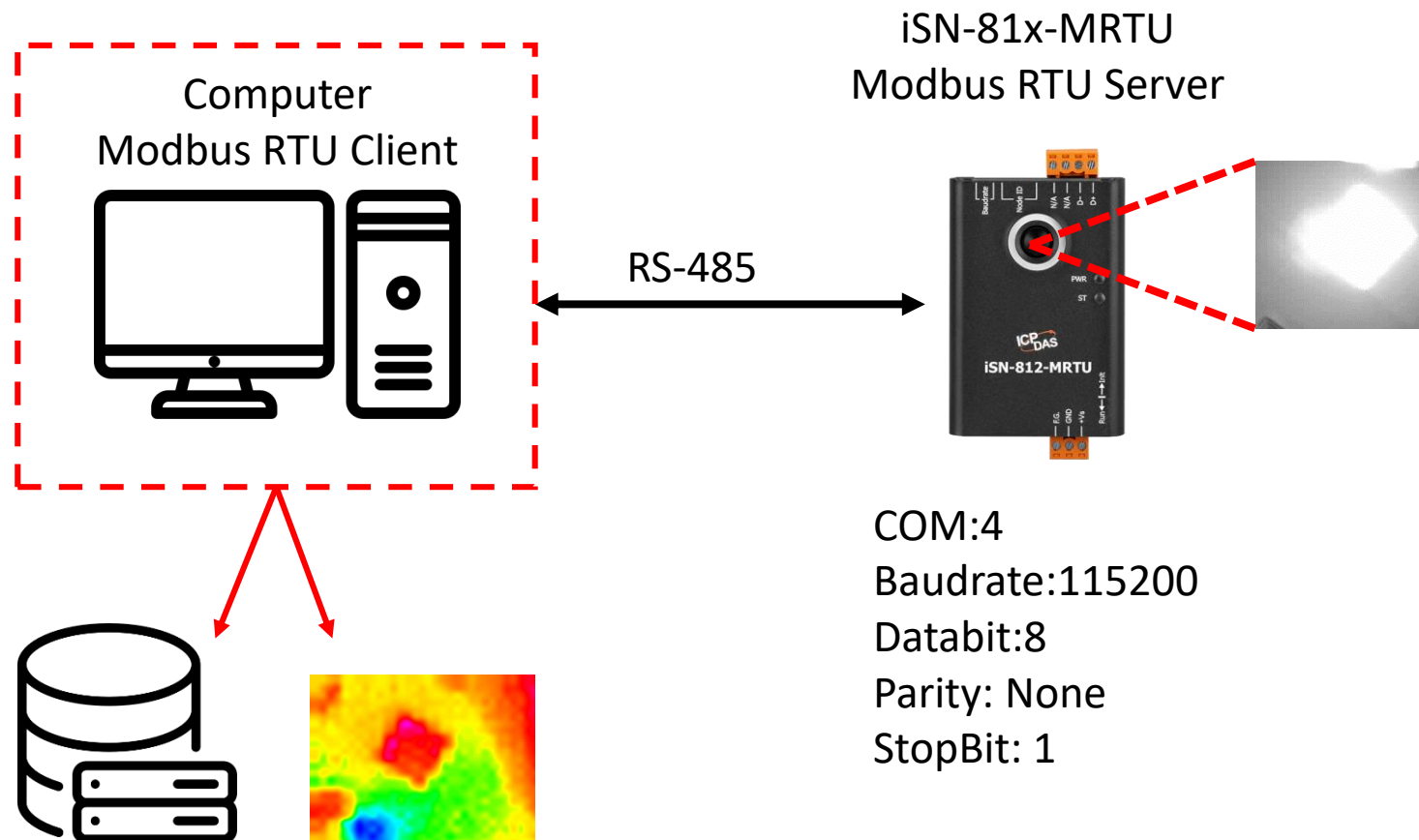
- Sample programs provide different programming languages for your reference, and you can obtain the following data through the demo programs :
  - Thermal image
  - Data measurement time
  - MAC Address of iSN-81x-MRTU
  - Model
  - IR data
  - Thermal image storage path
- The sample program uses SQLite to store measurement data, and you can change the database by yourself, such as MySQL, SQL Server, etc.

- Pre-install

- Install-Package System.Data.SQLite

- Install-Package Newtonsoft.Json -Version 13.0.1

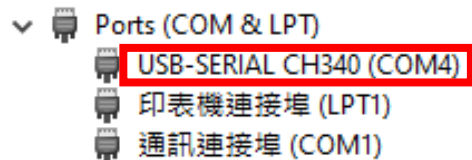
## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server



## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server

- To connect the demo program to iSN-81x-MRTU, you need to change the value “cmbPort” to the comport of iSN-81x-MRTU in “Program.cs”
- Open “Modbus client.exe”

```
static string cmbPort = "COM4";  
static string cmbBaud = "115200";  
static string cmbParity = "None(0)";  
static string cmbDataBit = "8";  
static string cmbStopBit = "1";
```



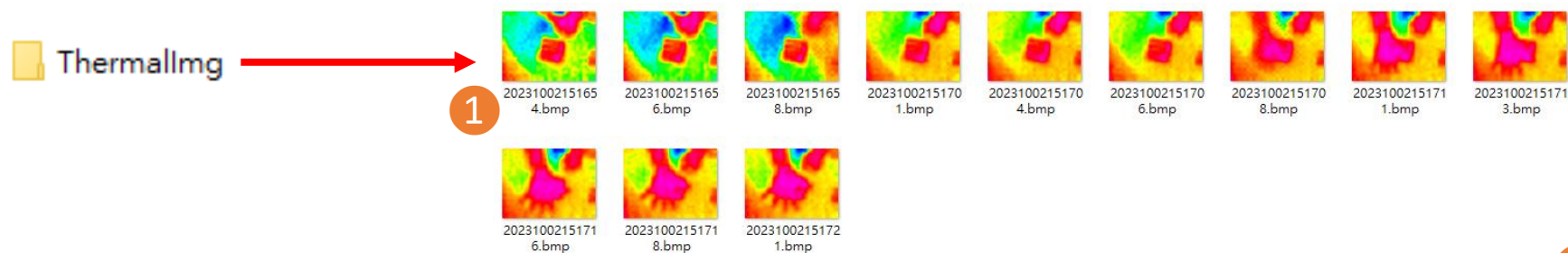
Name	Date modified
Thermallmg	04/10/2023 09:40
x64	11/09/2023 16:57
x86	11/09/2023 16:57
EntityFramework.dll	17/04/2020 04:38
EntityFramework.SqlServer.dll	17/04/2020 04:38
EntityFramework.SqlServer.xml	17/04/2020 04:38
EntityFramework.xml	17/04/2020 04:38
irdata_icpdas.db	04/10/2023 09:55
log4net.dll	12/05/2020 11:55
Modbus Client.exe	04/10/2023 09:40
Modbus Client.exe.config	10/08/2023 10:19
Modbus Client.pdb	04/10/2023 09:40
Newtonsoft.Json.dll	17/03/2021 20:03





## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server

- After receiving the data, two files will be generated, one is the DB file and the other is the thermal image.



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

- 1 → The time when the data was obtained
- 2 → MAC Address of iSN-81x-MRTU
- 3 → Model
- 4 → IR data measured by iSN-81x-MRTU
- 5 → Thermal image storage path

- Change the name of the data table
- If you want to change the file name of DB file, open “Program.cs” find the function “func\_irdata”, and then edit the value “dbname”.

```
public static void func_irdata(string jsondata)
{
    JsonTempData jsonObj = JsonConvert.DeserializeObject<JsonTempData>(jsondata);

    string dbname = "irdata_icpdas.db";
    string _connectionString = $"Data Source={dbname}";
```

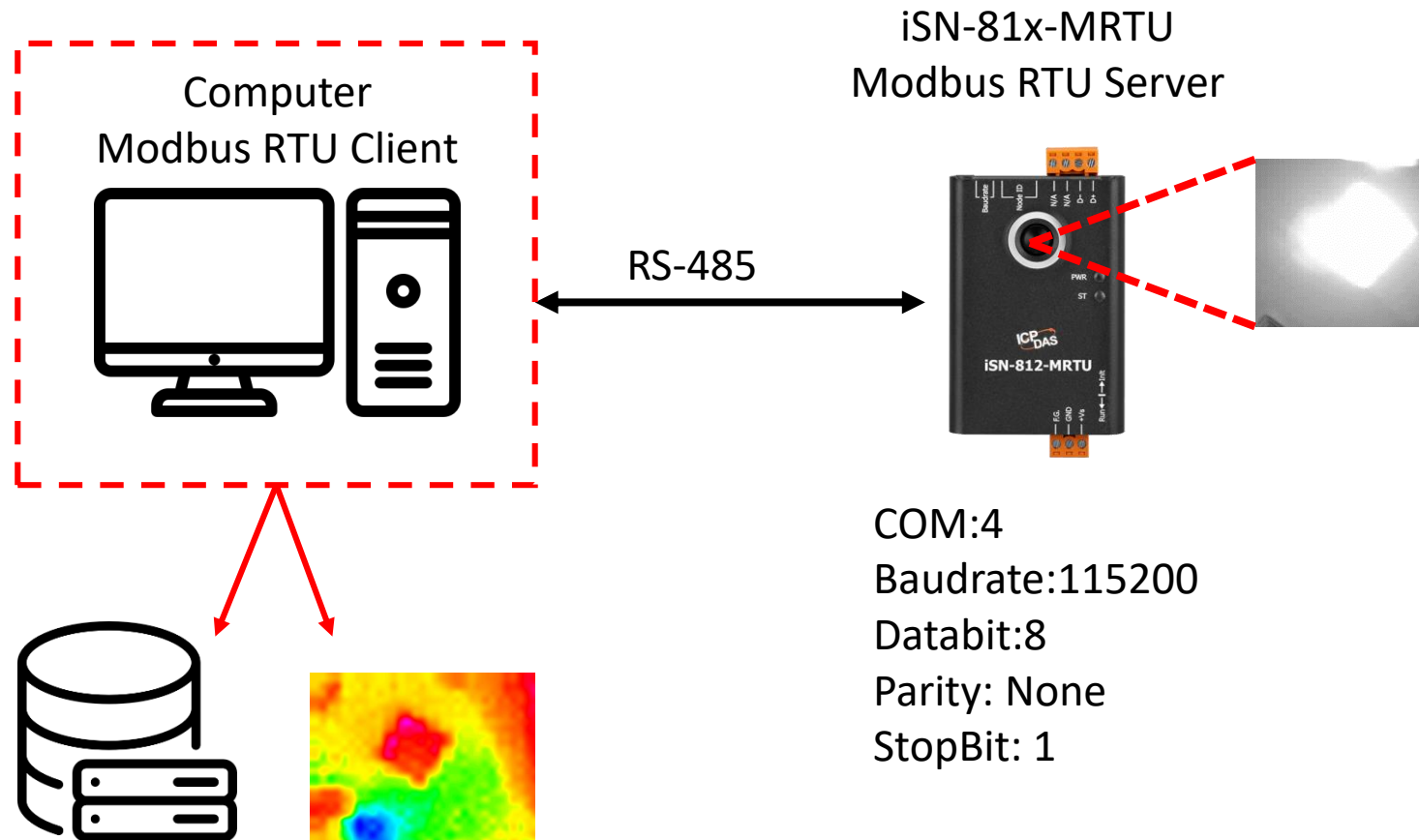
02

iSN-81x-MRTU ModbusRTU\_Node.js

- Sample programs provide different programming languages for your reference, and you can obtain the following data through the demo programs :
  - Thermal image
  - Data measurement time
  - MAC Address of iSN-81x-MRTU
  - Model
  - IR data
  - Thermal image storage path
- The sample program uses SQLite to store measurement data, and you can change the database by yourself, such as MySQL, SQL Server, etc.

- Pre-install
  - `npm install Sqlite3`

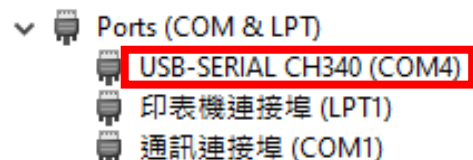
# ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server



## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server

- To connect the demo program to iSN-81x-MRTU, you need to change the value “comport” to the comport of iSN-81x-MRTU in “modbus\_client.js”
- Open “start.bat”

```
const comport = "COM4";
```



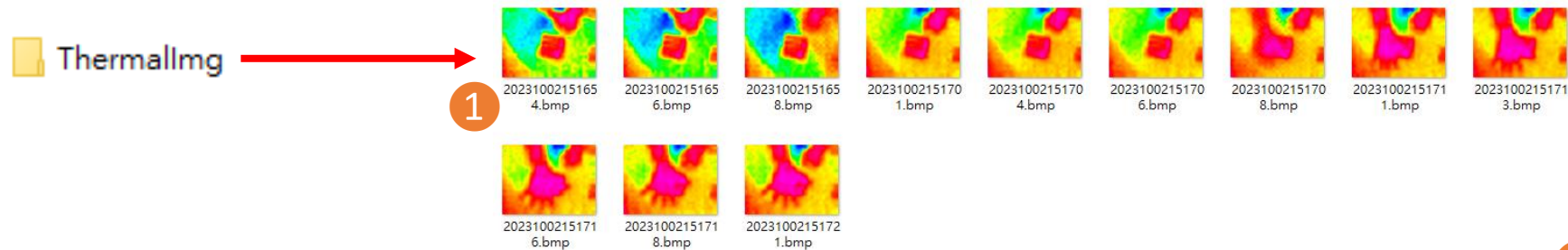
Name	Date modified
lib	11/09/2023 16:57
node_modules	11/09/2023 16:58
Demo_Modbus_NodeJs.pptx	06/10/2023 10:33
irdata_handler.js	14/08/2023 13:20
modbus_client.js	04/10/2023 10:21
package.json	09/08/2023 10:06
package-lock.json	09/08/2023 10:06
start.bat	08/08/2023 14:37





## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server

- After receiving the data, two files will be generated, one is the DB file and the other is the thermal image.



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

- 1 → The time when the data was obtained
- 2 → MAC Address of iSN-81x-MRTU
- 3 → Model
- 4 → IR data measured by iSN-81x-MRTU
- 5 → Thermal image storage path

➤ Change the name of the data table

- If you want to change the file name of DB file, open “irdata\_handler.js” find the value “dbPath” and edit.

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

03

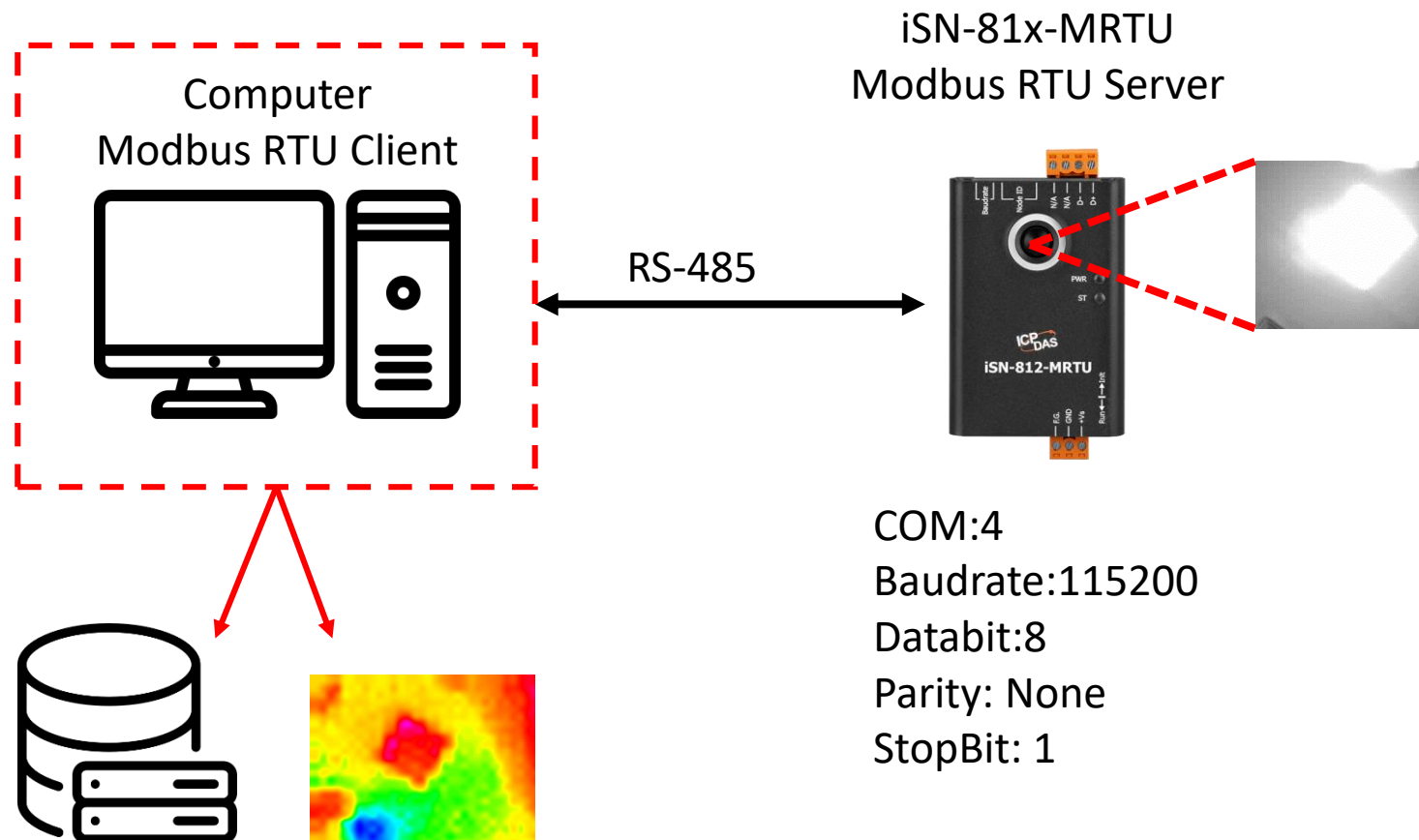
iSN-81x-MRTU ModbusRTU\_Python

- Sample programs provide different programming languages for your reference, and you can obtain the following data through the demo programs :
  - Thermal image
  - Data measurement time
  - MAC Address of iSN-81x-MRTU
  - Model
  - IR data
  - Thermal image storage path
- The sample program uses SQLite to store measurement data, and you can change the database by yourself, such as MySQL, SQL Server, etc.

- Pre-install

- pip install pymodbus
- pip install numpy
- pip install opencv-python

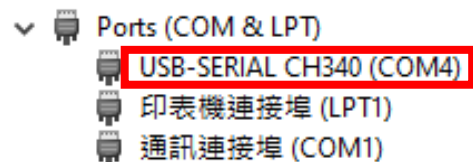
## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server



## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server

- To connect the demo program to iSN-81x-MRTU, you need to change the value “port” to the comport of iSN-81x-MRTU in “modbus\_client.py”
- Open “start.bat”

```
client = ModbusClient(  
    method='rtu',  
    port='COM4',  
    baudrate=115200,  
    stopbits=1,  
    bytesize=8,  
    parity='N'  
)
```



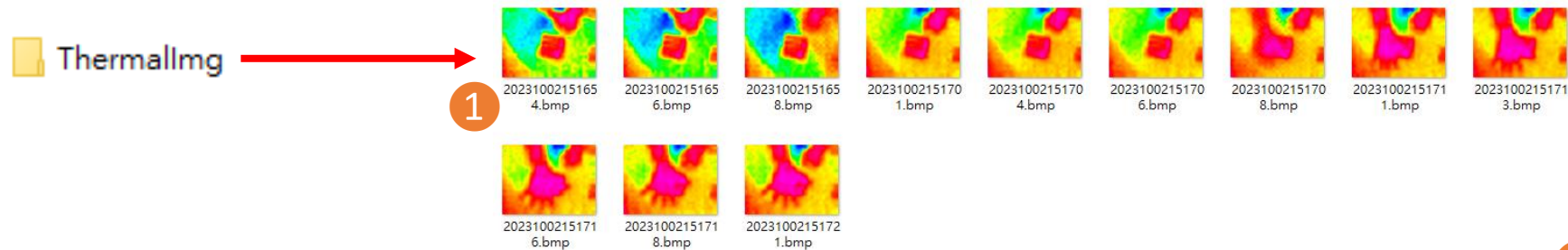
Name	Date modified
.vs	23/09/2023 16:16
__pycache__	04/10/2023 10:26
lib	11/09/2023 16:58
Demo_Modbus_Python.pptx	04/10/2023 10:42
irdata_handler.py	14/08/2023 13:21
modbus_client.py	04/10/2023 10:34
Pre-Install.txt	09/08/2023 12:06
start.bat	09/08/2023 10:12





## ➤ Configuring iSN-81x-MRTU as a Modbus RTU Server

- After receiving the data, two files will be generated, one is the DB file and the other is the thermal image.



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

- 1 → The time when the data was obtained
- 2 → MAC Address of iSN-81x-MRTU
- 3 → Model
- 4 → IR data measured by iSN-81x-MRTU
- 5 → Thermal image storage path

- Change the name of the data table
- If you want to change the file name of DB file, open “irdata\_handler.py” find the value “conn” and edit.

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

04

iSN-81x-MTCP ModbusTCP\_Csharp

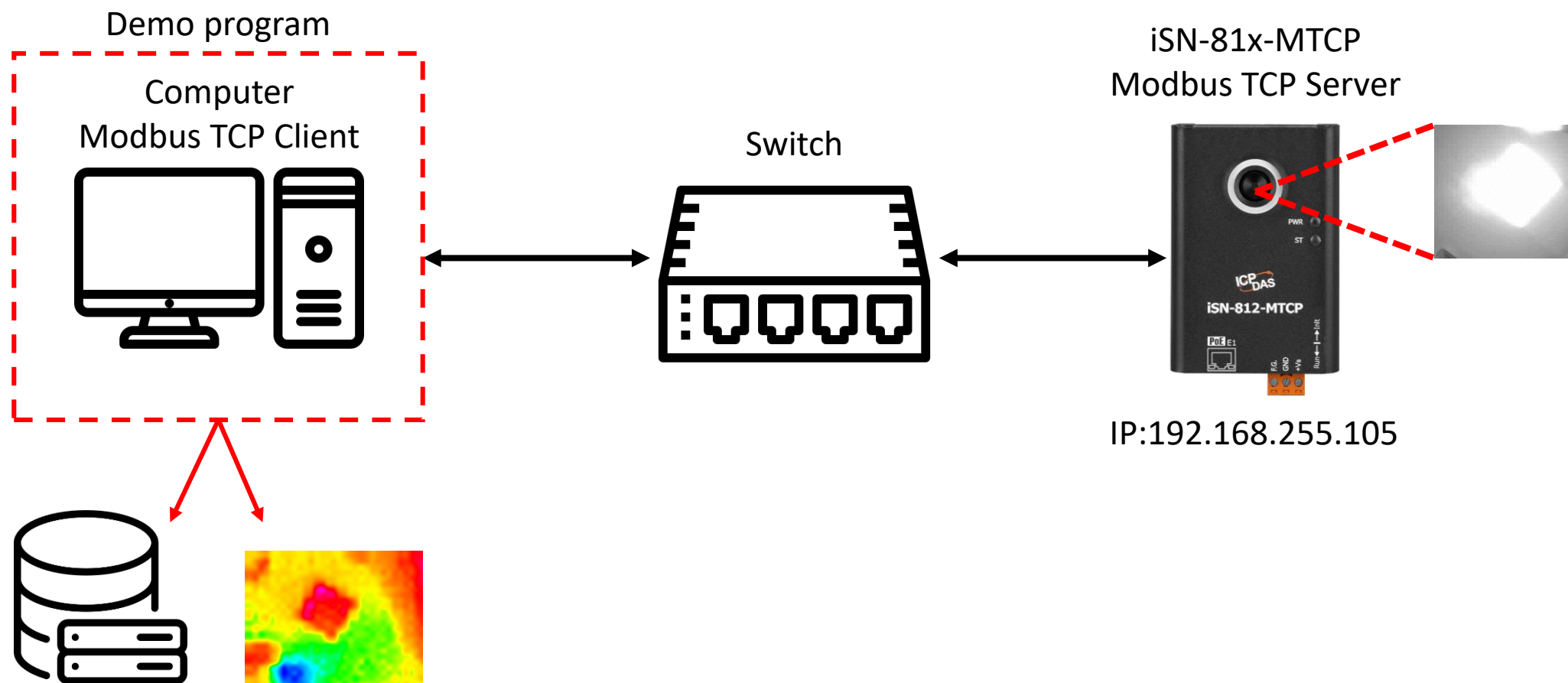
- Sample programs provide different programming languages for your reference, and you can obtain the following data through the demo programs :
  - Thermal image
  - Data measurement time
  - MAC Address of iSN-81x-MTCP
  - Model
  - IR data
  - Thermal image storage path
- The sample program uses SQLite to store measurement data, and you can change the database by yourself, such as MySQL, SQL Server, etc.

- Pre-install

- Install-Package System.Data.SQLite

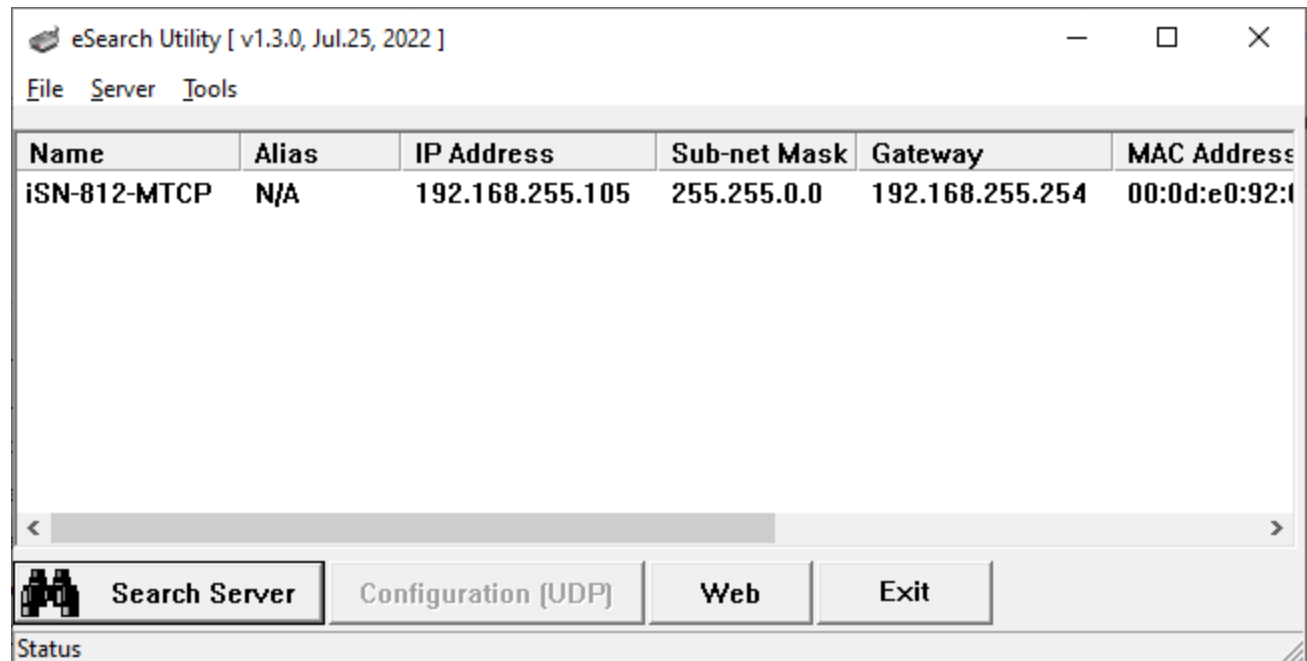
- Install-Package Newtonsoft.Json -Version 13.0.1

## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server



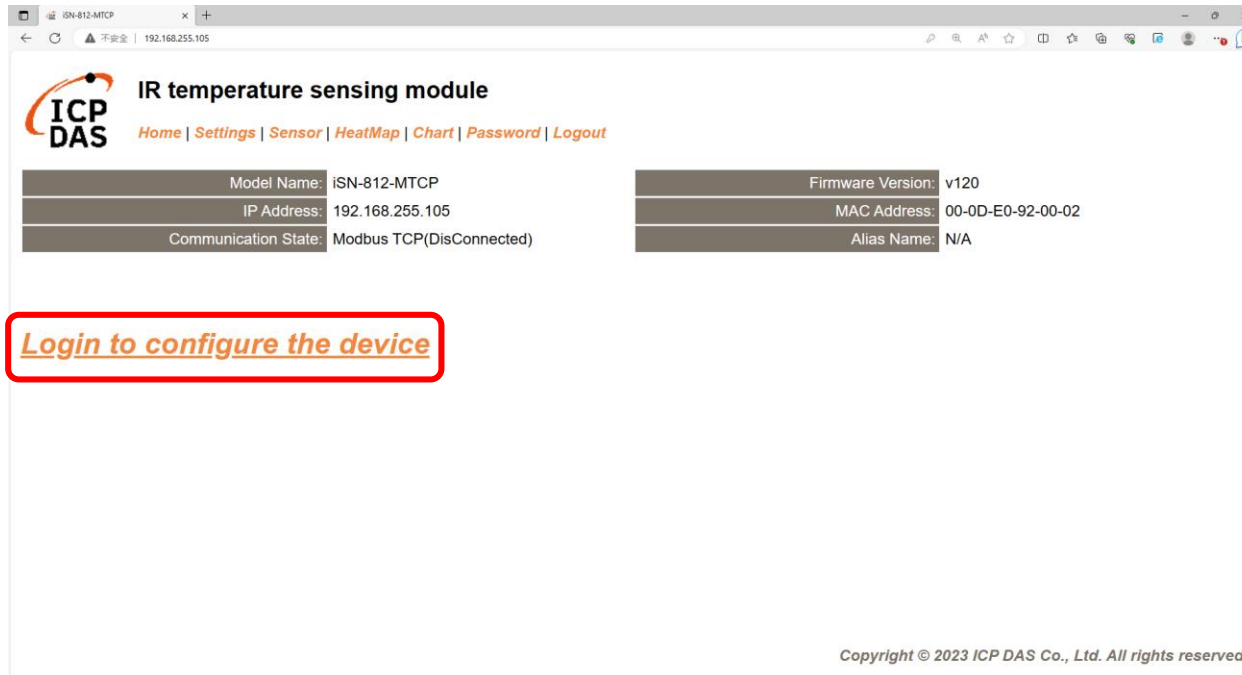
## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Use eSearch to find iSN-81x-MTCP
- Open the web of iSN-81x-MTCP



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Click "Login to configure the device" to login



The screenshot displays the web interface for an ICP DAS IR temperature sensing module. The page title is "IR temperature sensing module" and the ICP DAS logo is visible. A navigation menu includes links for Home, Settings, Sensor, HeatMap, Chart, Password, and Logout. The device information is presented in two columns:

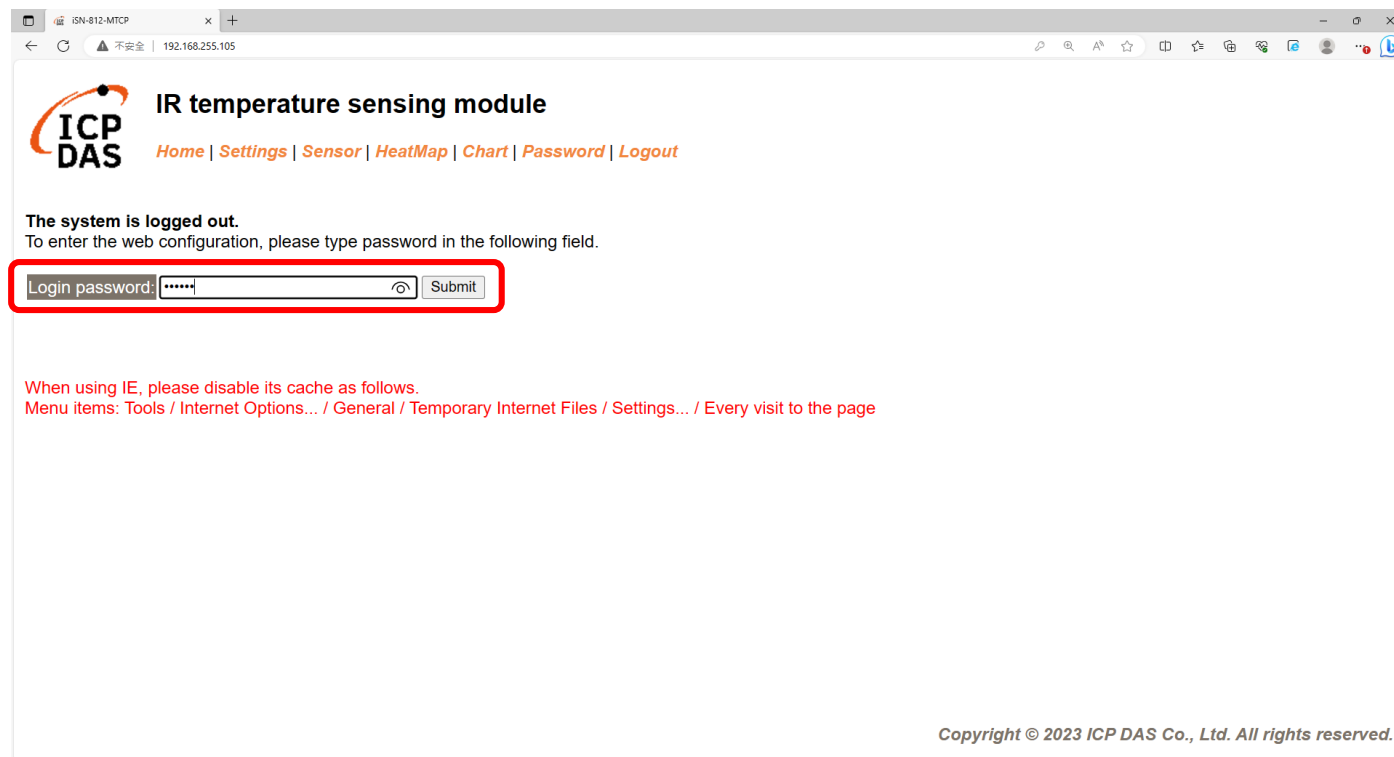
Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

Below the device information, a button labeled "Login to configure the device" is highlighted with a red rectangular border. At the bottom of the page, the copyright notice reads: "Copyright © 2023 ICP DAS Co., Ltd. All rights reserved."



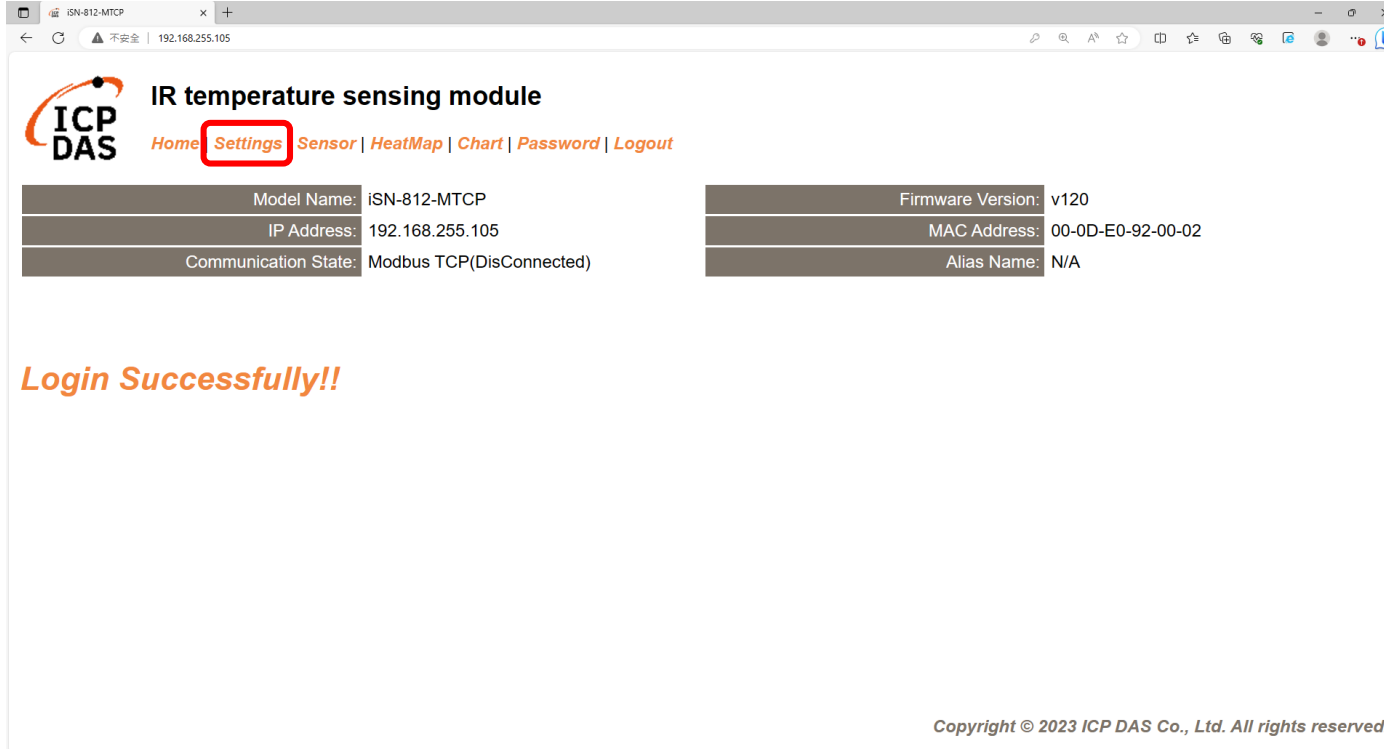
## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Login(default password: admin)



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Click "Settings" to set communication mode



ICP DAS IR temperature sensing module

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

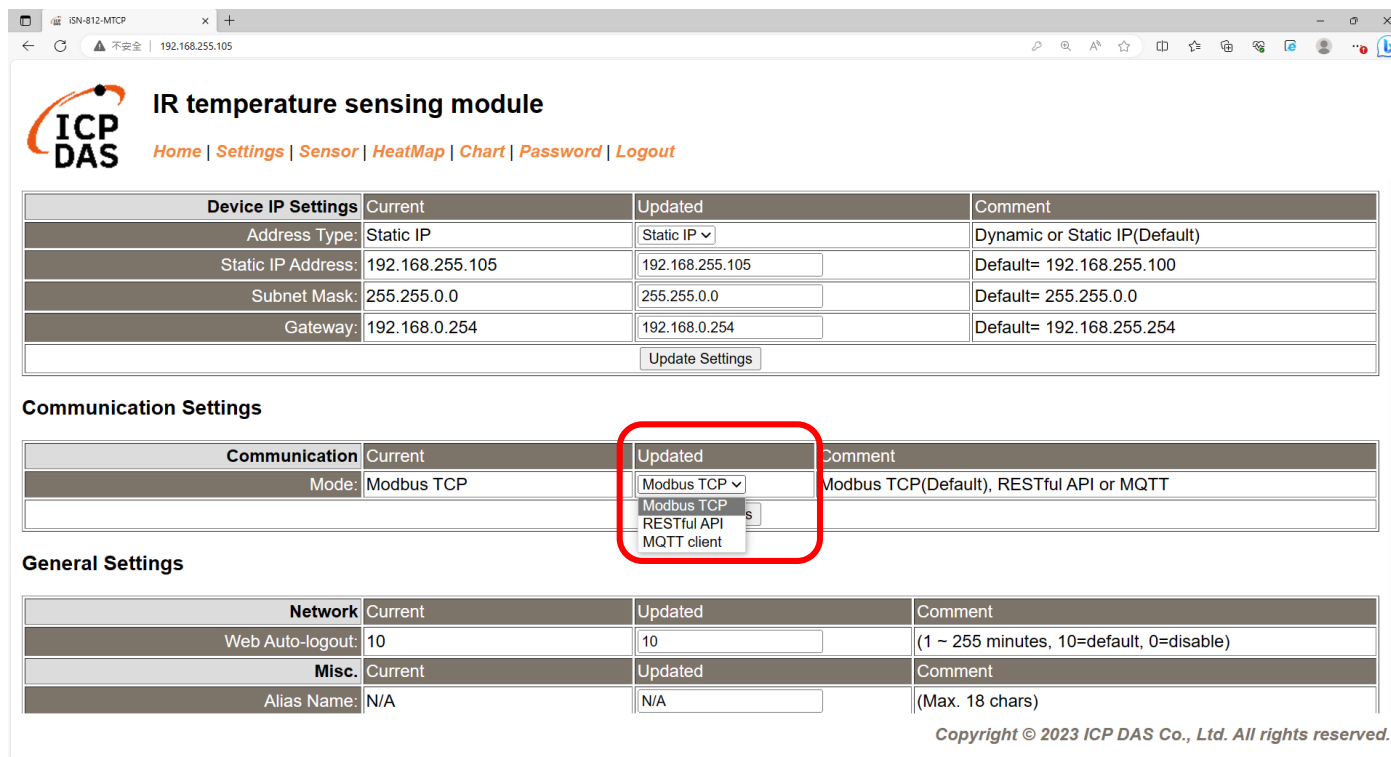
Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

**Login Successfully!!**

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# ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Set communication mode to “Modbus TCP”



The screenshot displays the web interface for the iSN-81x-MTCP device. 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

**General Settings**

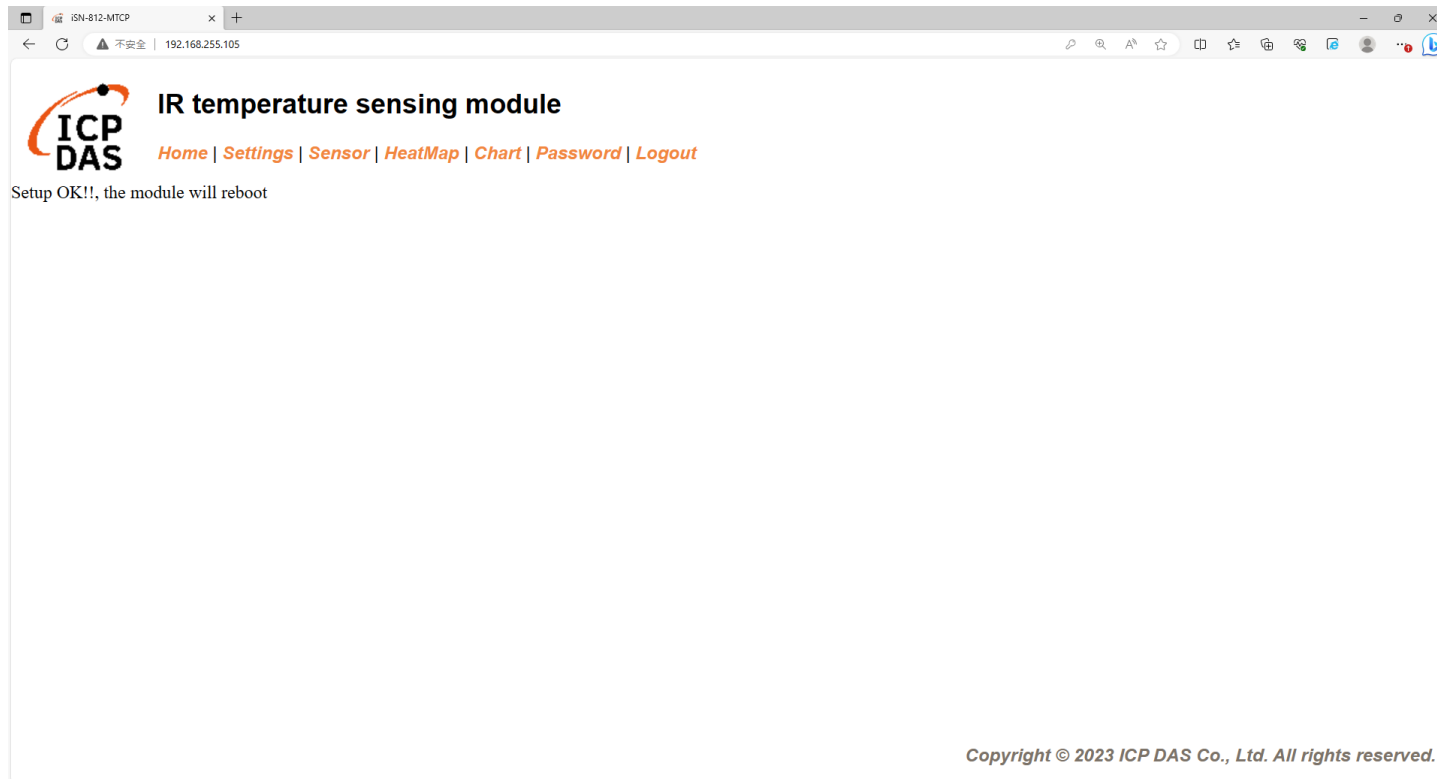
Network	Current	Updated	Comment
Web Auto-logout:	10	10	(1 ~ 255 minutes, 10=default, 0=disable)

Misc.	Current	Updated	Comment
Alias Name:	N/A	N/A	(Max. 18 chars)

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## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Wait for reboot



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- To connect the demo program to iSN-81x-MTCP, you need to change the value “serverIP” to the IP of iSN-81x-MTCP in “Program.cs”
- IP of iSN-81x-MTCP=192.168.255.109
- Open “Modbus client.exe”

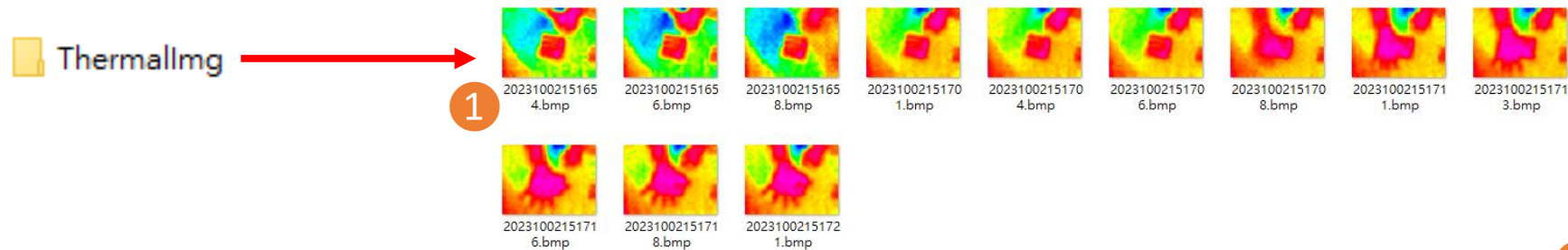
```
static string serverIP = "192.168.255.109";
```

Name	Date modified
Thermallmg	04/10/2023 09:40
x64	11/09/2023 16:57
x86	11/09/2023 16:57
EntityFramework.dll	17/04/2020 04:38
EntityFramework.SqlServer.dll	17/04/2020 04:38
EntityFramework.SqlServer.xml	17/04/2020 04:38
EntityFramework.xml	17/04/2020 04:38
irdata_icpdas.db	04/10/2023 09:55
log4net.dll	12/05/2020 11:55
<b>Modbus Client.exe</b>	04/10/2023 09:40
Modbus Client.exe.config	10/08/2023 10:19
Modbus Client.pdb	04/10/2023 09:40
Newtonsoft.Json.dll	17/03/2021 20:03



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- After receiving the data, two files will be generated, one is the DB file and the other is the thermal image.



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

- 1 → The time when the data was obtained
- 2 → MAC Address of iSN-81x-MTCP
- 3 → Model
- 4 → IR data measured by iSN-81x-MTCP
- 5 → Thermal image storage path

- Change the name of the data table
- If you want to change the file name of DB file, open “Program.cs” find the function “func\_irdata”, and then edit the value “dbname”.

```
public static void func_irdata(string jsondata)
{
    JsonTempData jsonObj = JsonConvert.DeserializeObject<JsonTempData>(jsondata);

    string dbname = "irdata_icpdas.db";
    string _connectionString = $"Data Source={dbname}";
```



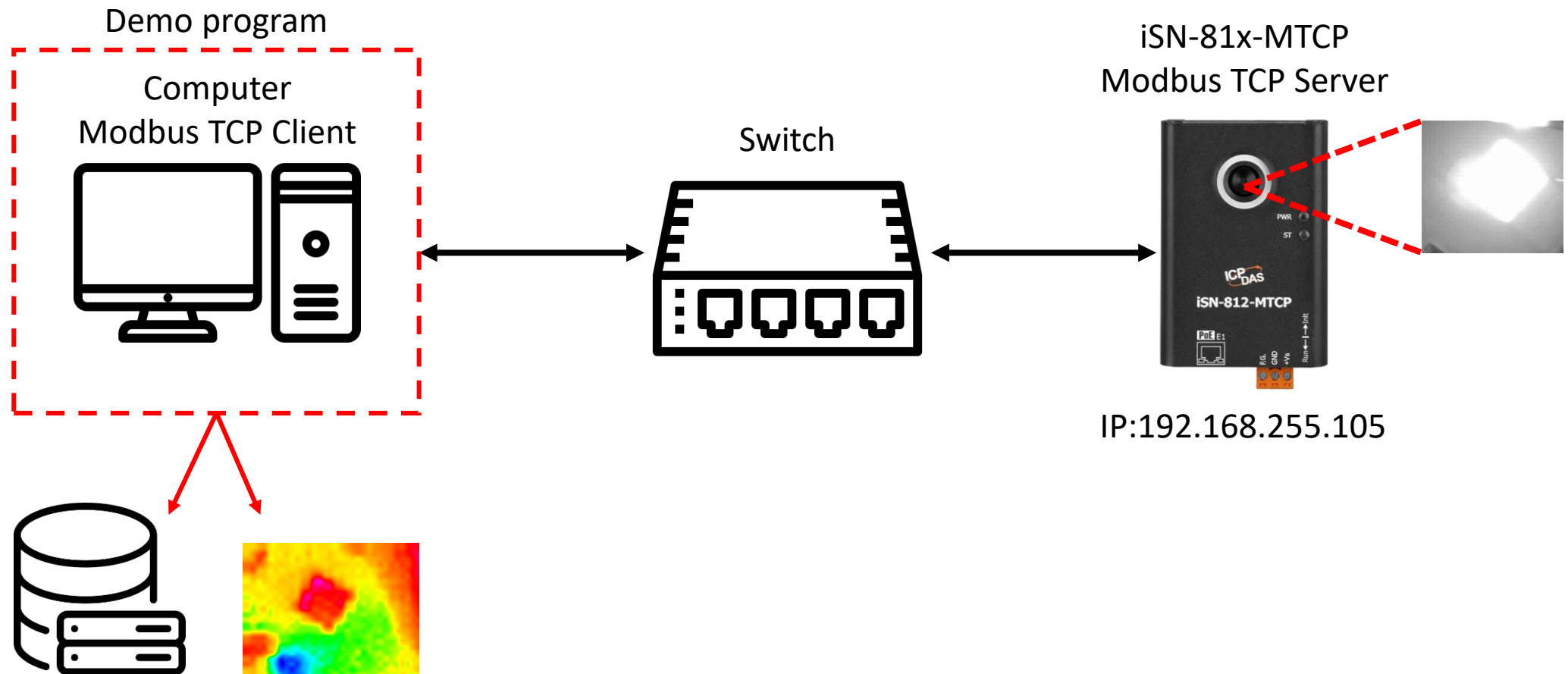
05

iSN-81x-MTCP ModbusTCP\_Node.js

- Sample programs provide different programming languages for your reference, and you can obtain the following data through the demo programs :
  - Thermal image
  - Data measurement time
  - MAC Address of iSN-81x-MTCP
  - Model
  - IR data
  - Thermal image storage path
- The sample program uses SQLite to store measurement data, and you can change the database by yourself, such as MySQL, SQL Server, etc.

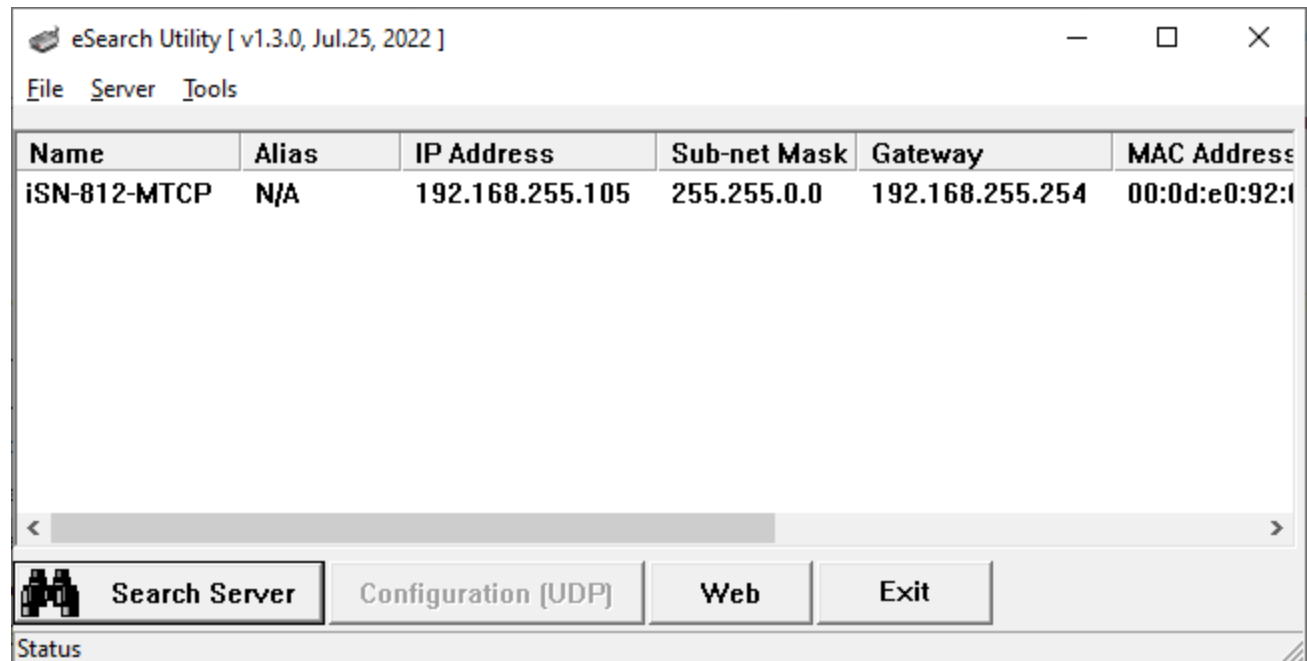
- Pre-install
  - `npm install Sqlite3`

# ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server



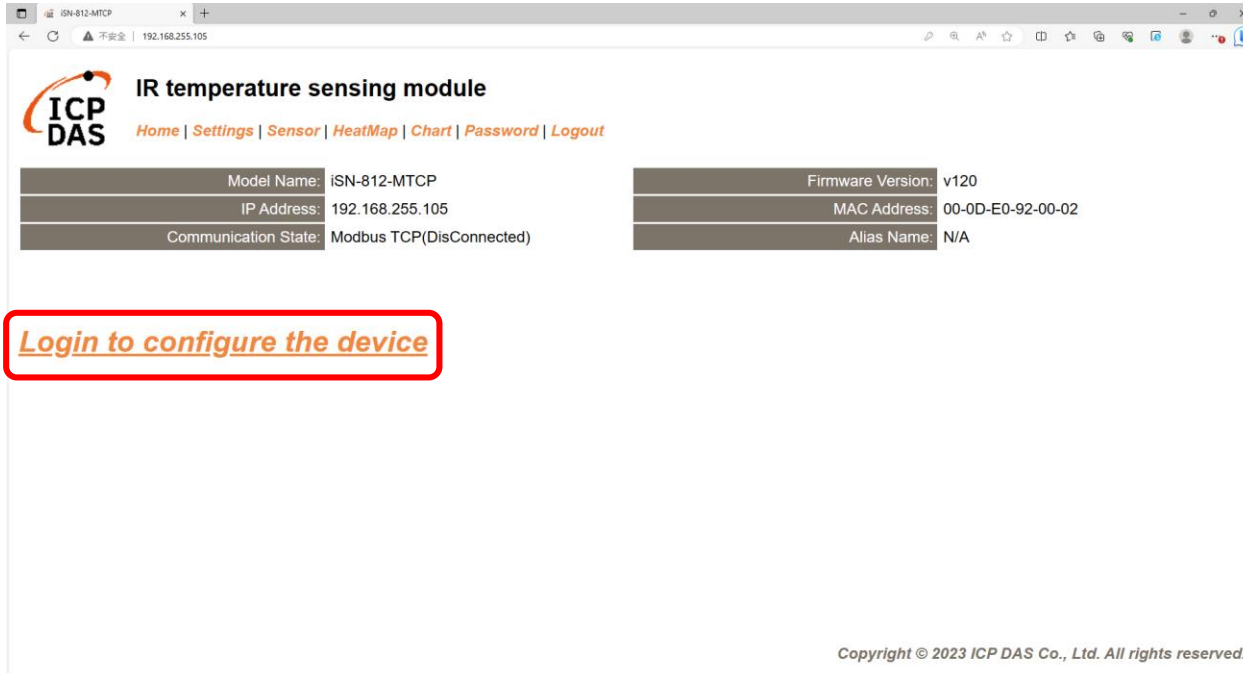
## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Use eSearch to find iSN-81x-MTCP
- Open the web of iSN-81x-MTCP



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Click "Login to configure the device" to login



The screenshot shows a web browser window with the URL 192.168.255.105. The page title is "IR temperature sensing module" and the ICP DAS logo is visible. The navigation menu includes Home, Settings, Sensor, HeatMap, Chart, Password, and Logout. The device information is displayed in two columns:

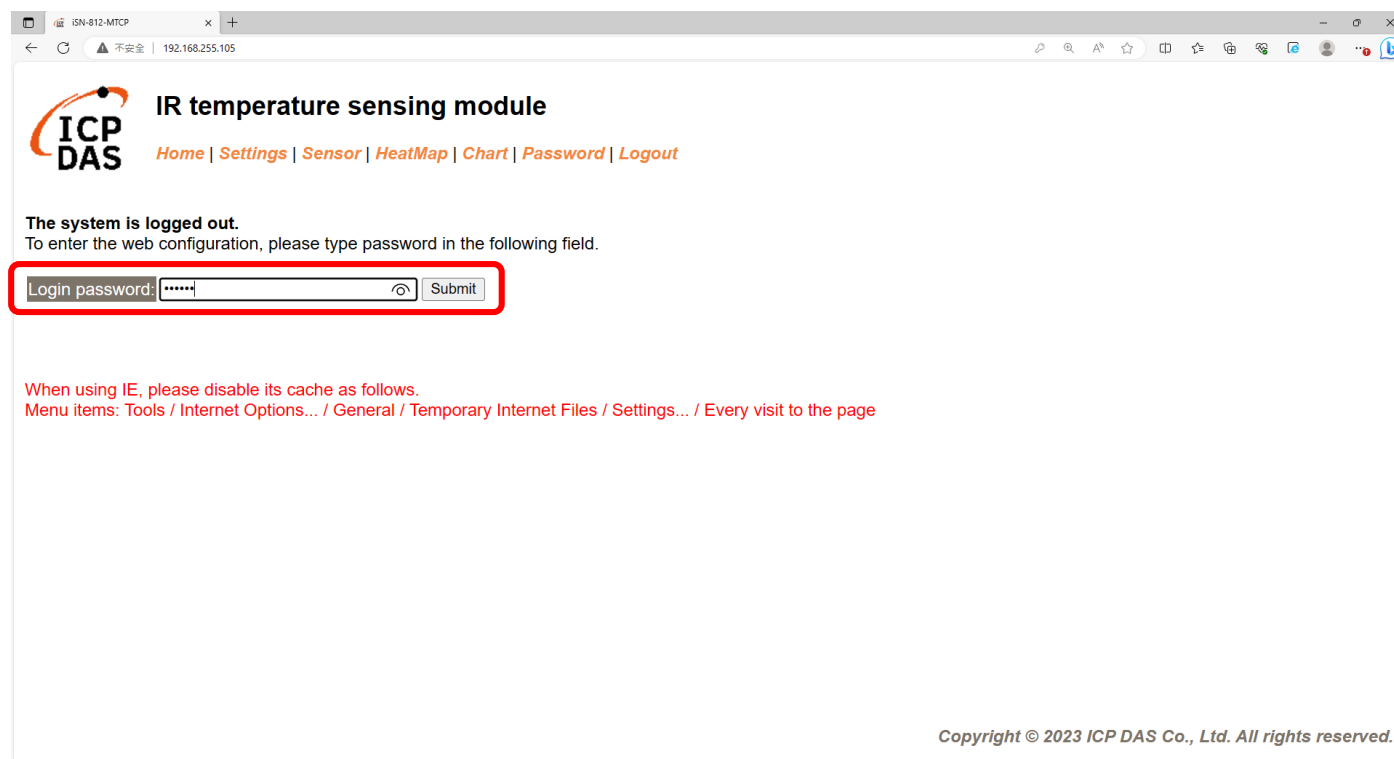
Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

Below the device information, there is a button labeled "Login to configure the device" which is highlighted with a red rectangular border.

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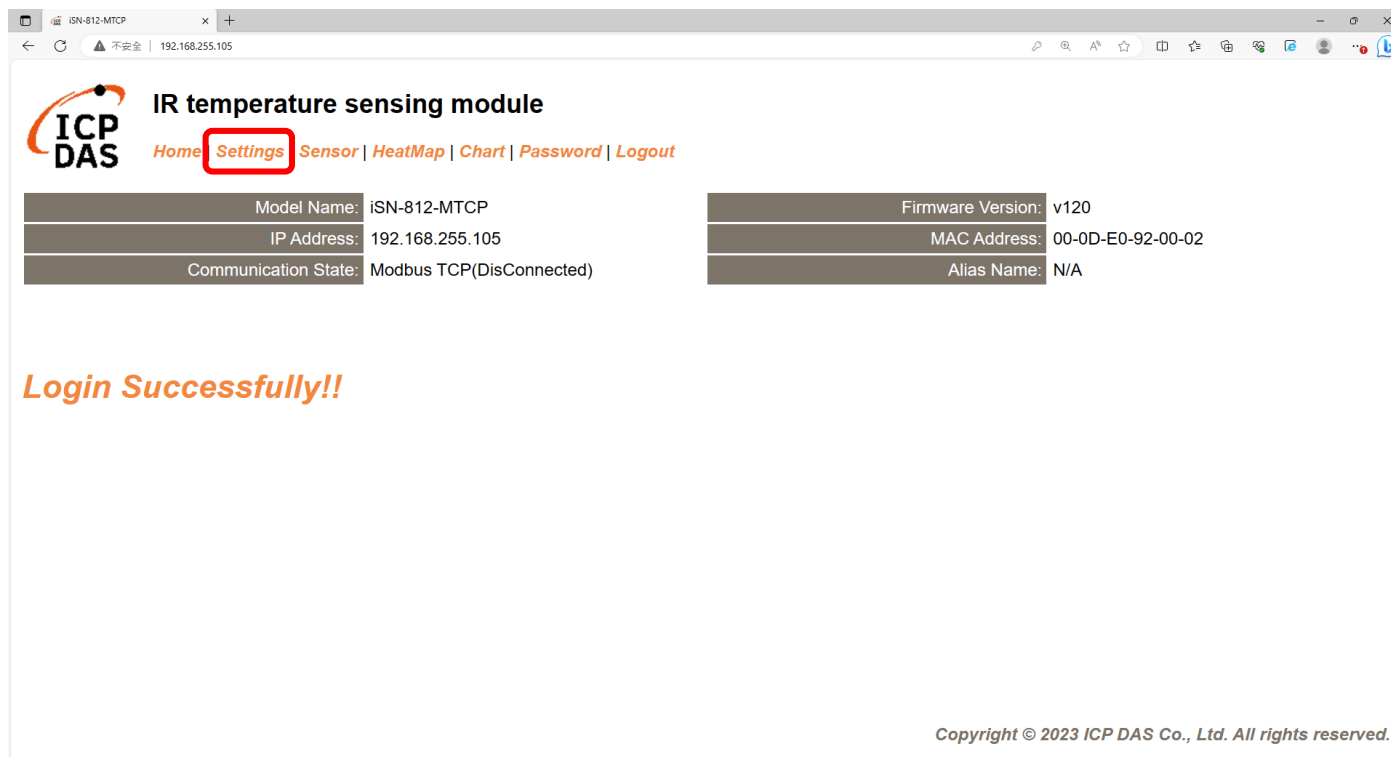
## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Login(default password:admin)



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Click "Settings" to set communication mode



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

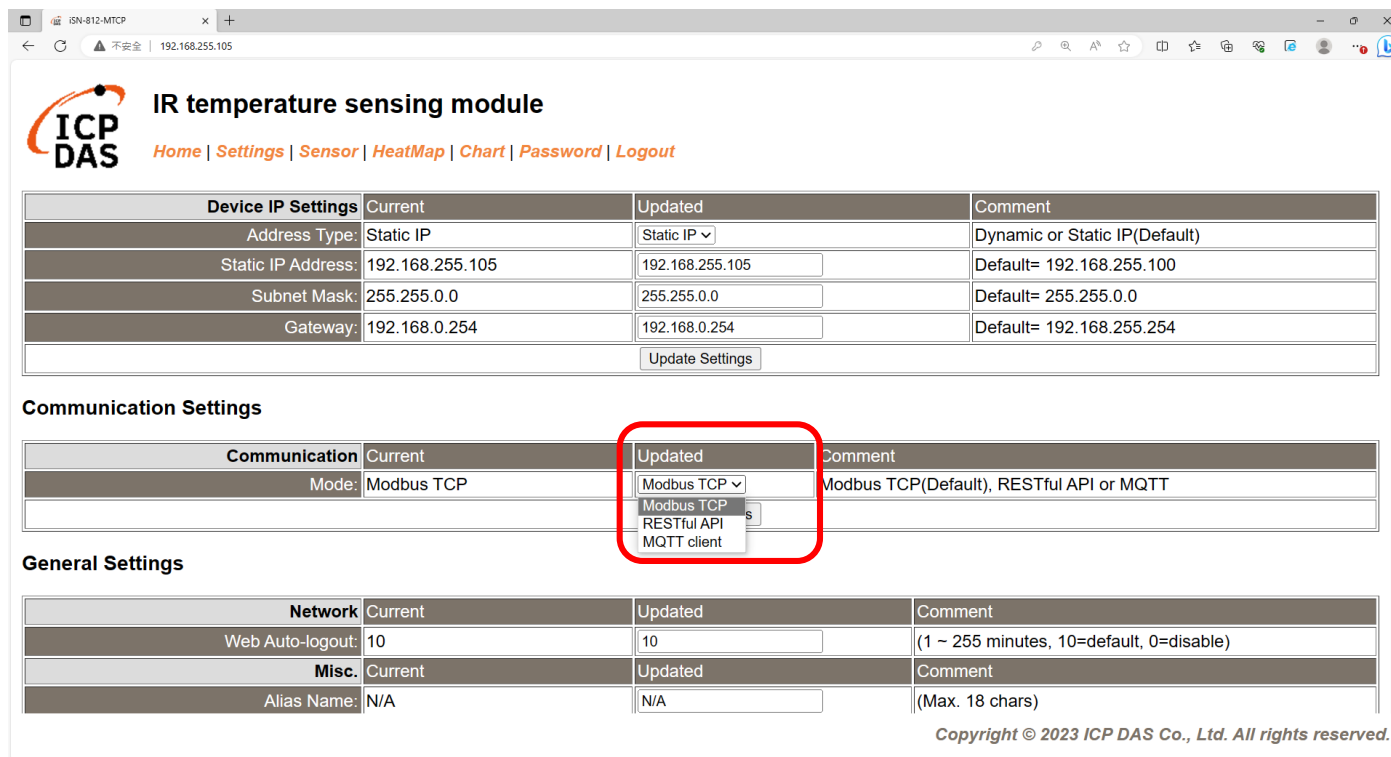
**Login Successfully!!**

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# ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Set communication mode to “Modbus TCP”



The screenshot displays the web interface for an iSN-81x-MTCP device. The page title is "IR temperature sensing module" and the ICP DAS logo is visible. 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

**General Settings**

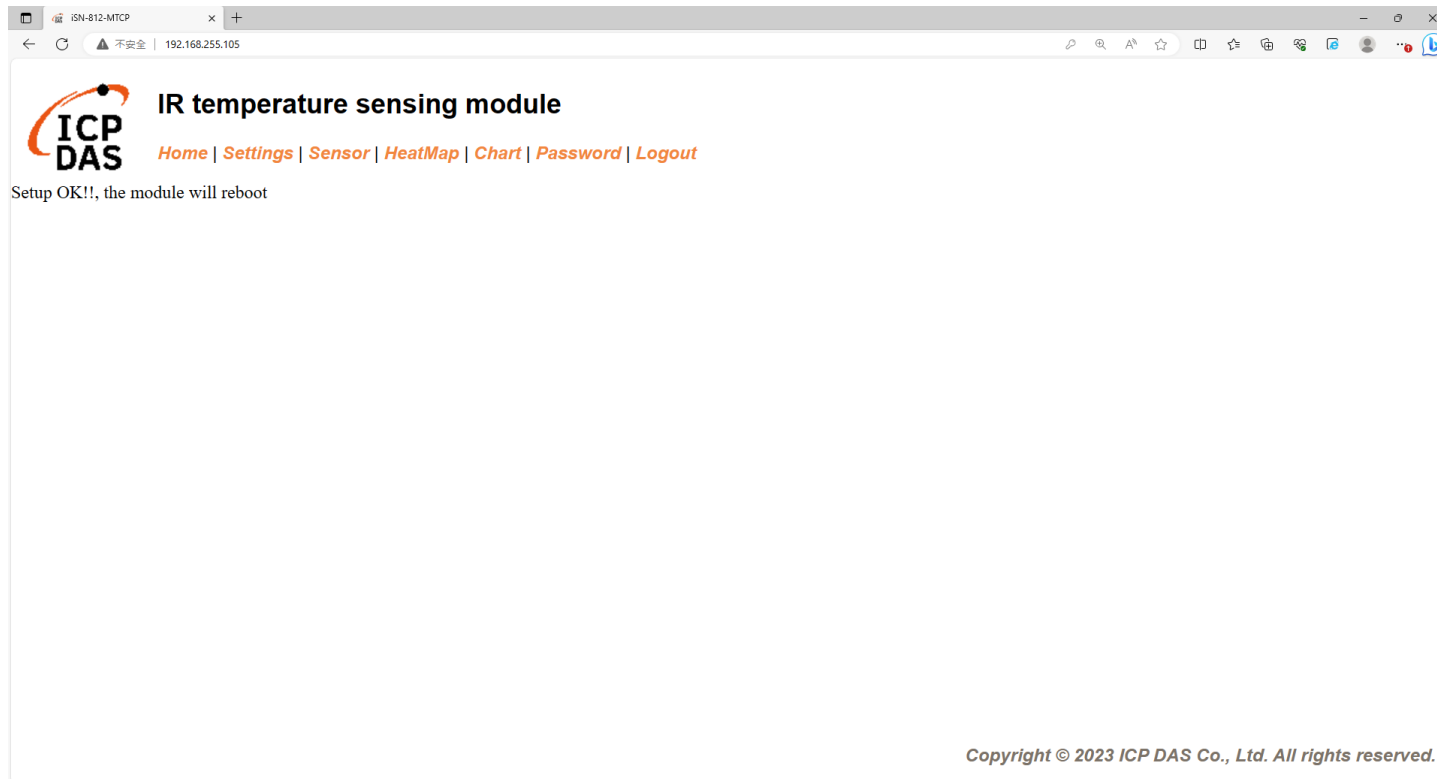
Network	Current	Updated	Comment
Web Auto-logout:	10	10	(1 ~ 255 minutes, 10=default, 0=disable)

Misc.	Current	Updated	Comment
Alias Name:	N/A	N/A	(Max. 18 chars)

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## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Wait for reboot



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- To connect the demo program to iSN-81x-MTCP, you need to change the value “serverIP” to the IP of iSN-81x-MTCP in “ modbus\_client.js”
- IP of iSN-81x-MTCP=192.168.255.109
- Open “start.bat”

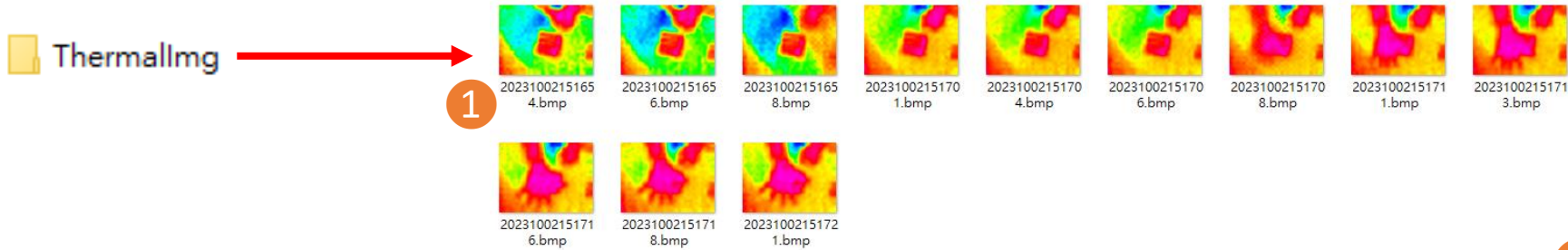
```
const serverIP = "192.168.255.109";
```

Name	Date modified
lib	11/09/2023 16:57
node_modules	11/09/2023 16:58
Demo_Modbus_NodeJs.pptx	06/10/2023 10:33
irdata_handler.js	14/08/2023 13:20
modbus_client.js	04/10/2023 10:21
package.json	09/08/2023 10:06
package-lock.json	09/08/2023 10:06
start.bat	08/08/2023 14:37



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- After receiving the data, two files will be generated, one is the DB file and the other is the thermal image.



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

- 1 → The time when the data was obtained
- 2 → MAC Address of iSN-81x-MTCP
- 3 → Model
- 4 → IR data measured by iSN-81x-MTCP
- 5 → Thermal image storage path

➤ Change the name of the data table

- If you want to change the file name of DB file, open “irdata\_handler.js” find the value “dbPath” and edit.

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

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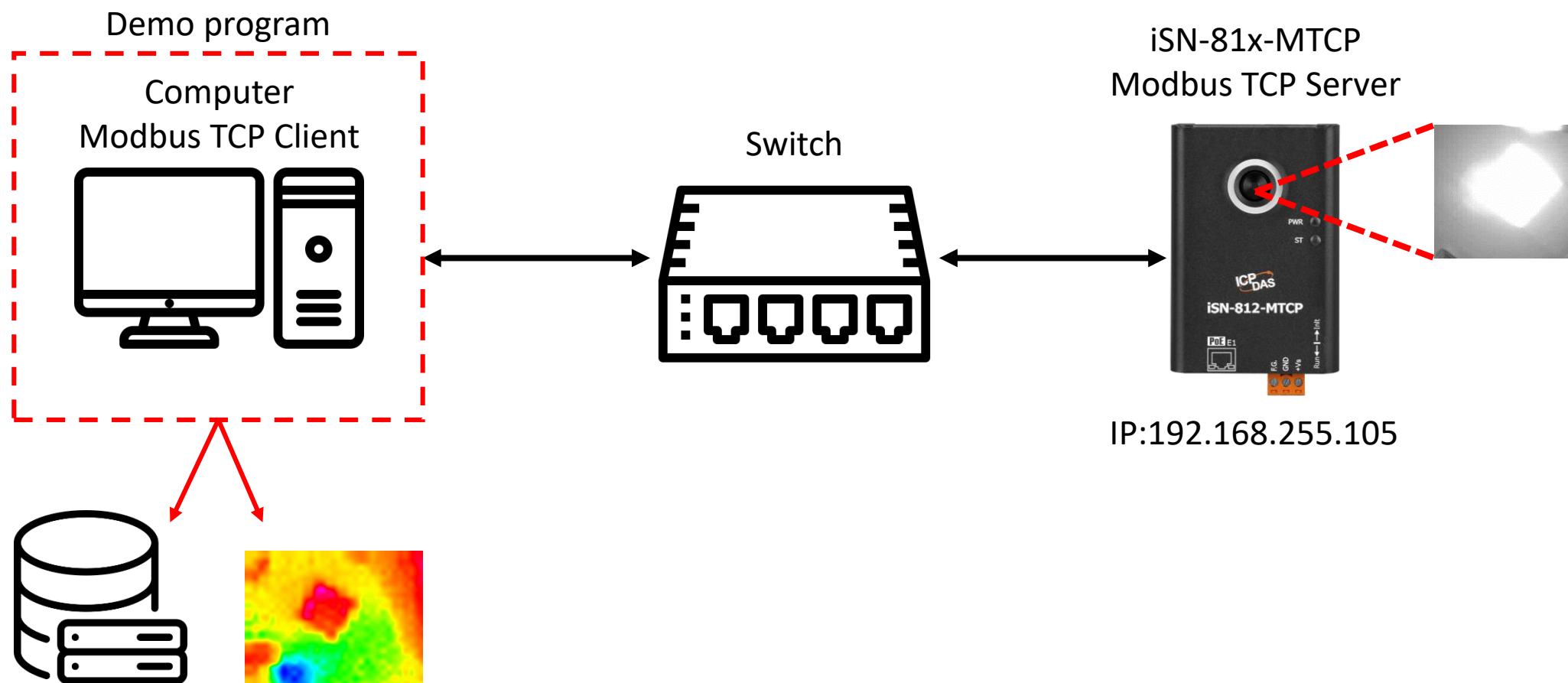
iSN-81x-MTCP ModbusTCP\_Python

- Sample programs provide different programming languages for your reference, and you can obtain the following data through the demo programs :
  - Thermal image
  - Data measurement time
  - MAC Address of iSN-81x-MTCP
  - Model
  - IR data
  - Thermal image storage path
- The sample program uses SQLite to store measurement data, and you can change the database by yourself, such as MySQL, SQL Server, etc.



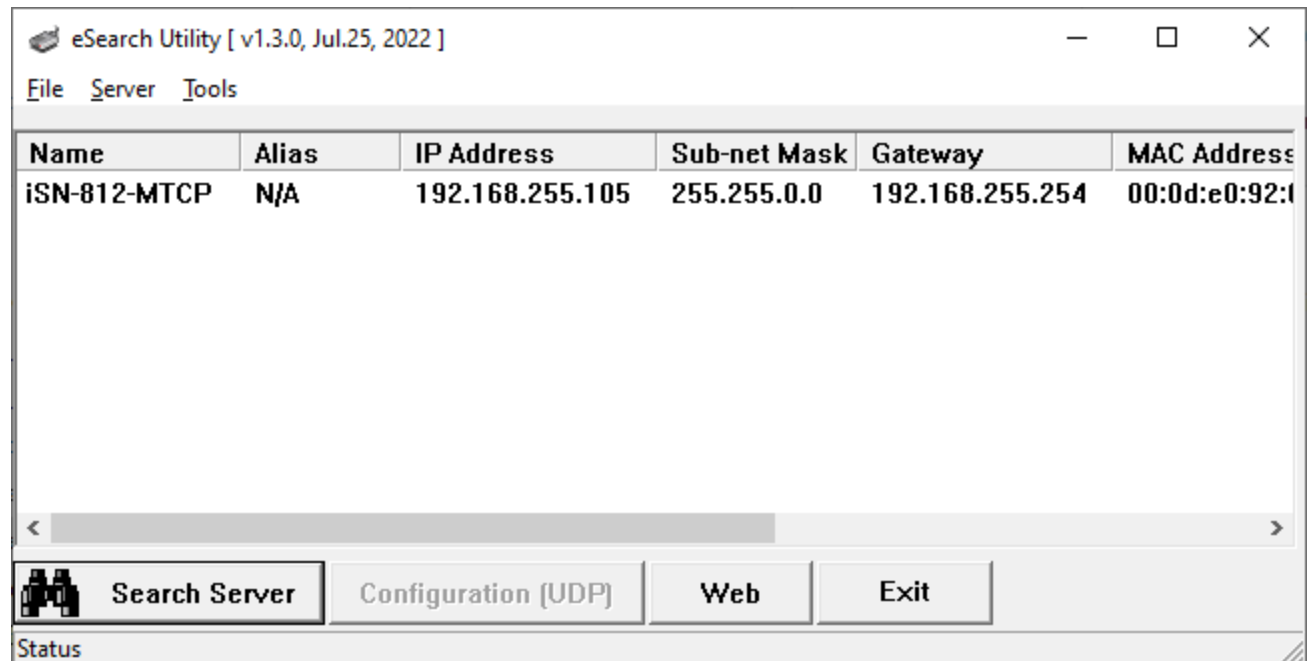
- Pre-install
  - pip install pymodbus
  - pip install opencv-python
  - pip install numpy

## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server



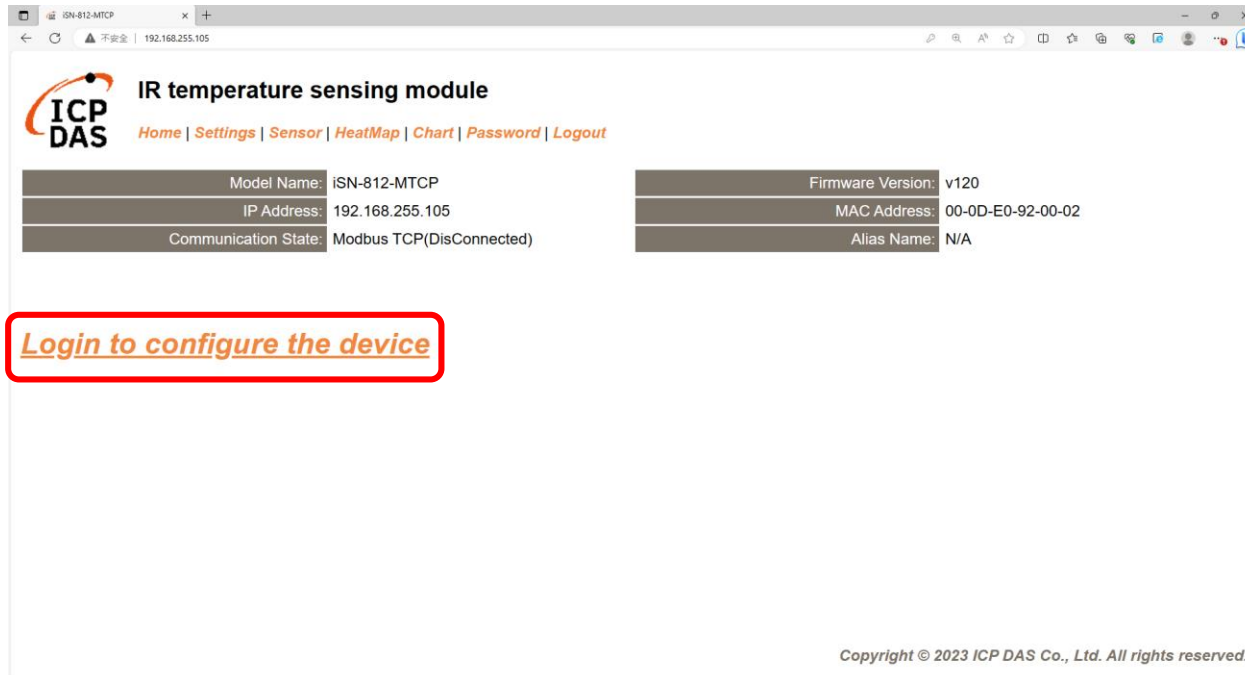
## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Use eSearch to find iSN-81x-MTCP
- Open the web of iSN-81x-MTCP



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Click "Login to configure the device" to login



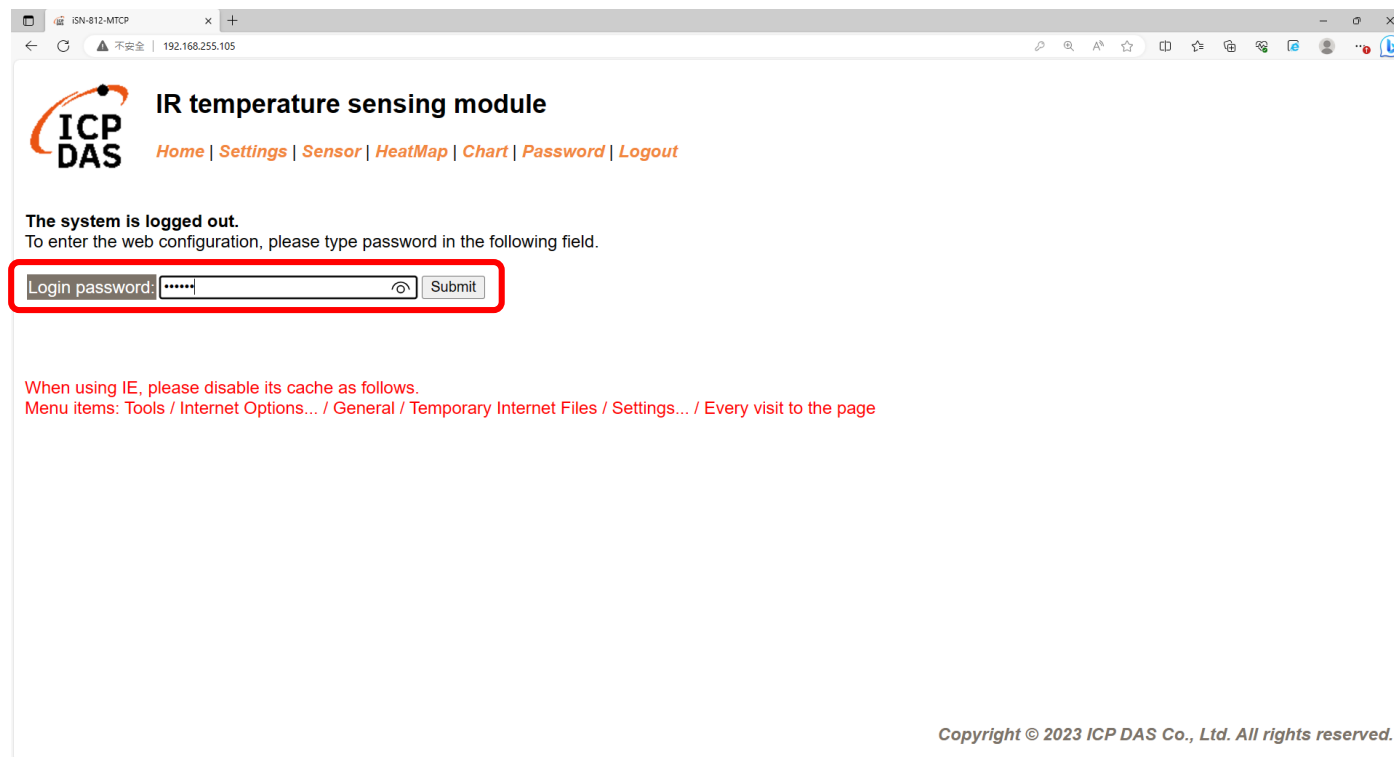
The screenshot shows a web browser window with the URL 192.168.255.105. The page title is "IR temperature sensing module" and the ICP DAS logo is visible. The navigation menu includes Home, Settings, Sensor, HeatMap, Chart, Password, and Logout. The device information is displayed in a table:

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

Below the table, the text "Login to configure the device" is highlighted with a red rectangular border. At the bottom of the page, the copyright notice reads: "Copyright © 2023 ICP DAS Co., Ltd. All rights reserved."

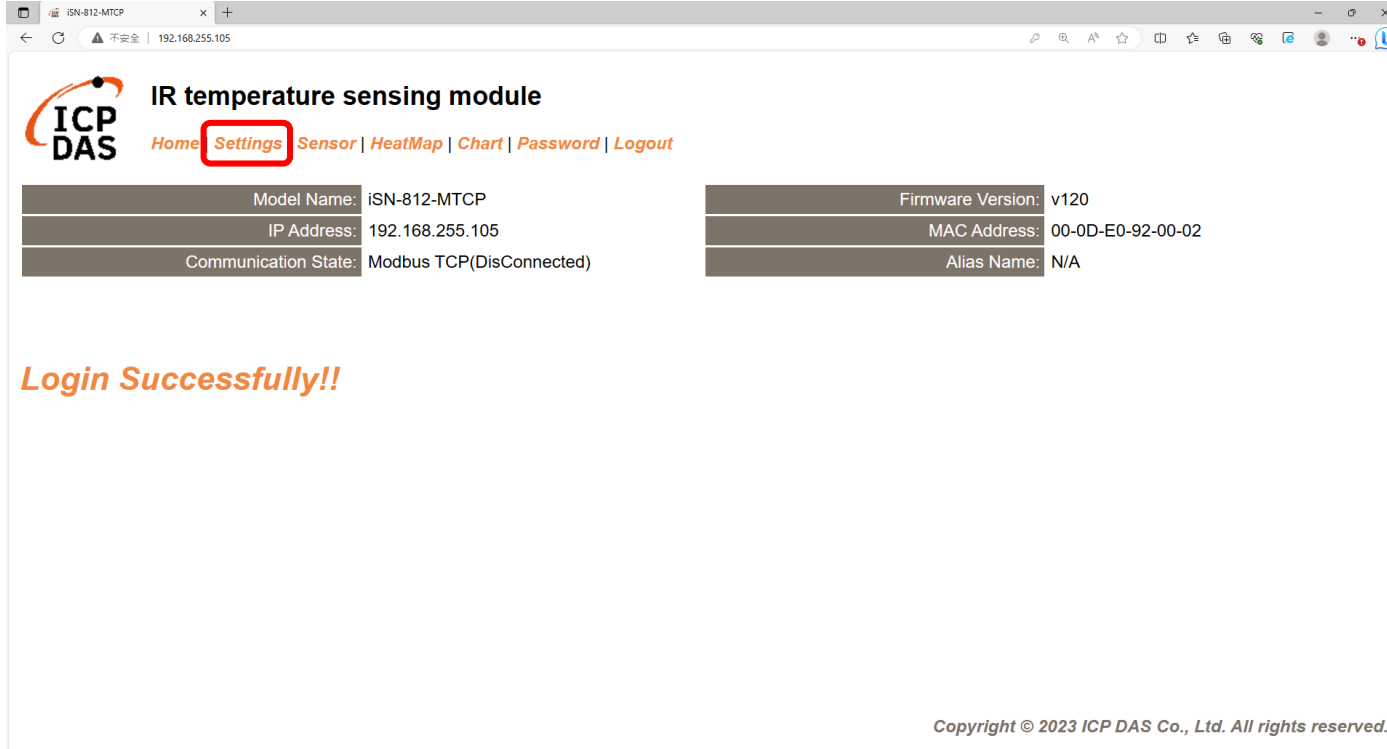
## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Login(default password:admin)



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Click "Settings" to set communication mode



ICP DAS IR temperature sensing module

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

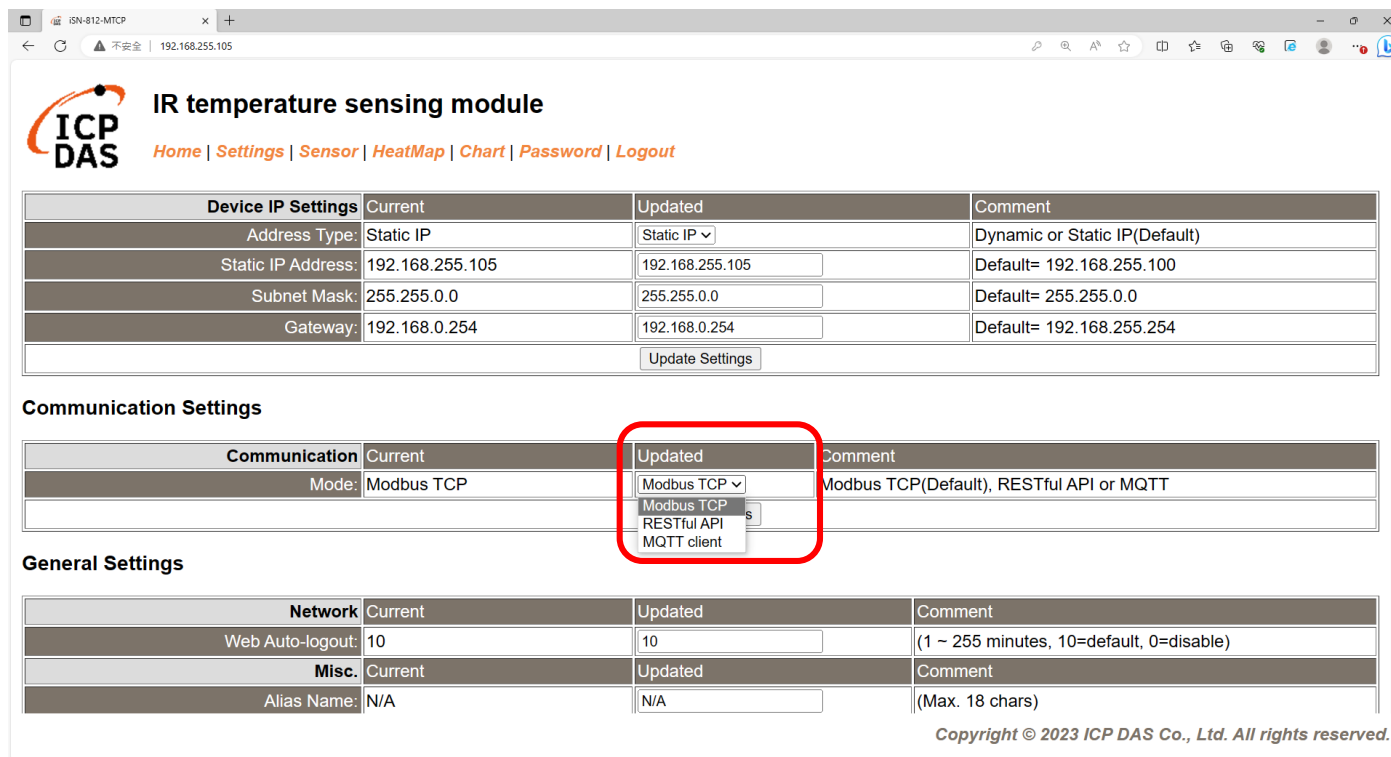
Model Name:	iSN-812-MTCP	Firmware Version:	v120
IP Address:	192.168.255.105	MAC Address:	00-0D-E0-92-00-02
Communication State:	Modbus TCP(DisConnected)	Alias Name:	N/A

**Login Successfully!!**

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# ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Set communication mode to “Modbus TCP”



The screenshot displays the web interface for an IR temperature sensing module. The page title is "IR temperature sensing module" and the logo is "ICP DAS". The navigation menu includes "Home", "Settings", "Sensor", "HeatMap", "Chart", "Password", and "Logout".

The "Device IP Settings" section contains the following table:

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

The "Communication Settings" section contains the following table:

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

The "General Settings" section contains the following table:

Network	Current	Updated	Comment
Web Auto-logout:	10	10	(1 ~ 255 minutes, 10=default, 0=disable)

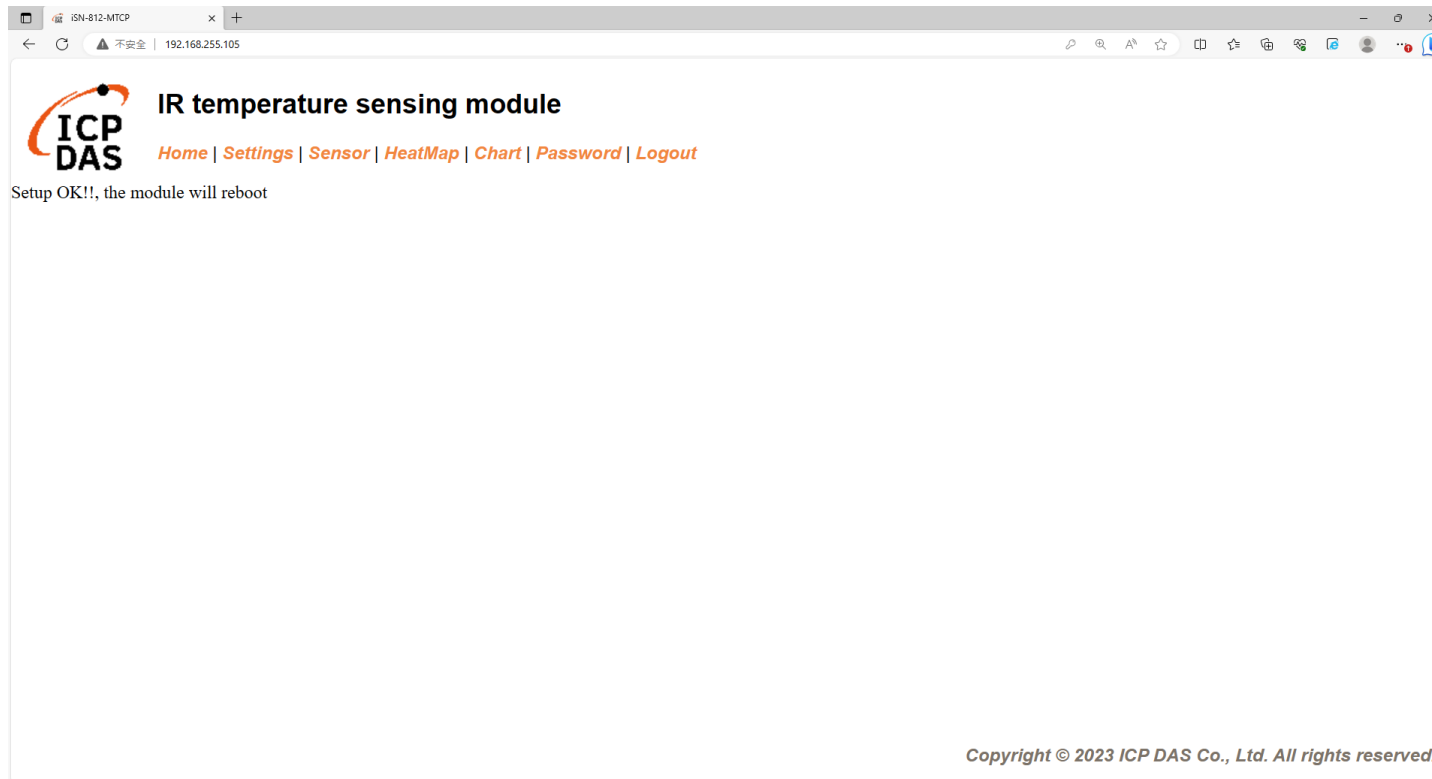
The "Misc." section contains the following table:

Misc.	Current	Updated	Comment
Alias Name:	N/A	N/A	(Max. 18 chars)

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## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- Wait for reboot





## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- To connect the demo program to iSN-81x-MTCP, you need to change the value “serverIP” to the IP of iSN-81x-MTCP in “modbus\_client.py”
- IP of iSN-81x-MTCP=192.168.255.109
- Open “start.bat”

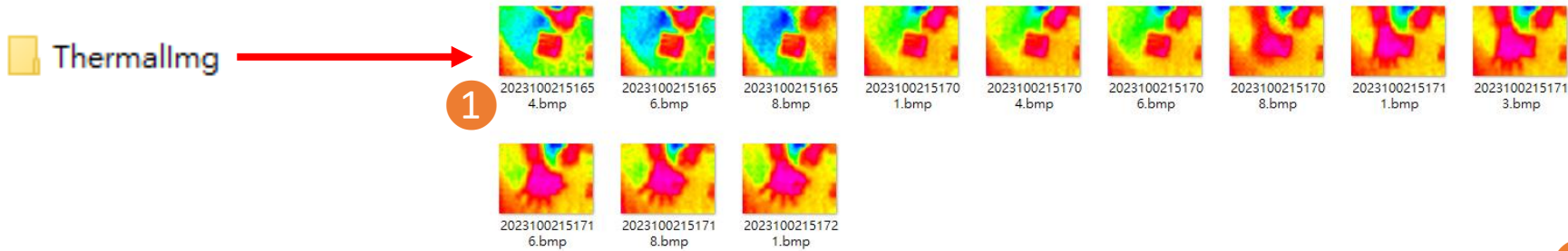
```
serverIP = "192.168.255.109";
```

Name	Date modified
.vs	23/09/2023 16:16
__pycache__	04/10/2023 10:26
lib	11/09/2023 16:58
Demo_Modbus_Python.pptx	04/10/2023 10:42
irdata_handler.py	14/08/2023 13:21
modbus_client.py	04/10/2023 10:34
Pre-Install.txt	09/08/2023 12:06
start.bat	09/08/2023 10:12



## ➤ Configuring iSN-81x-MTCP as a Modbus TCP Server

- After receiving the data, two files will be generated, one is the DB file and the other is the thermal image.



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 → The time when the data was obtained
- 2 → MAC Address of iSN-81x-MTCP
- 3 → Model
- 4 → IR data measured by iSN-81x-MTCP
- 5 → Thermal image storage path

- Change the name of the data table
- If you want to change the file name of DB file, open “irdata\_handler.py” find the value “conn” and edit.

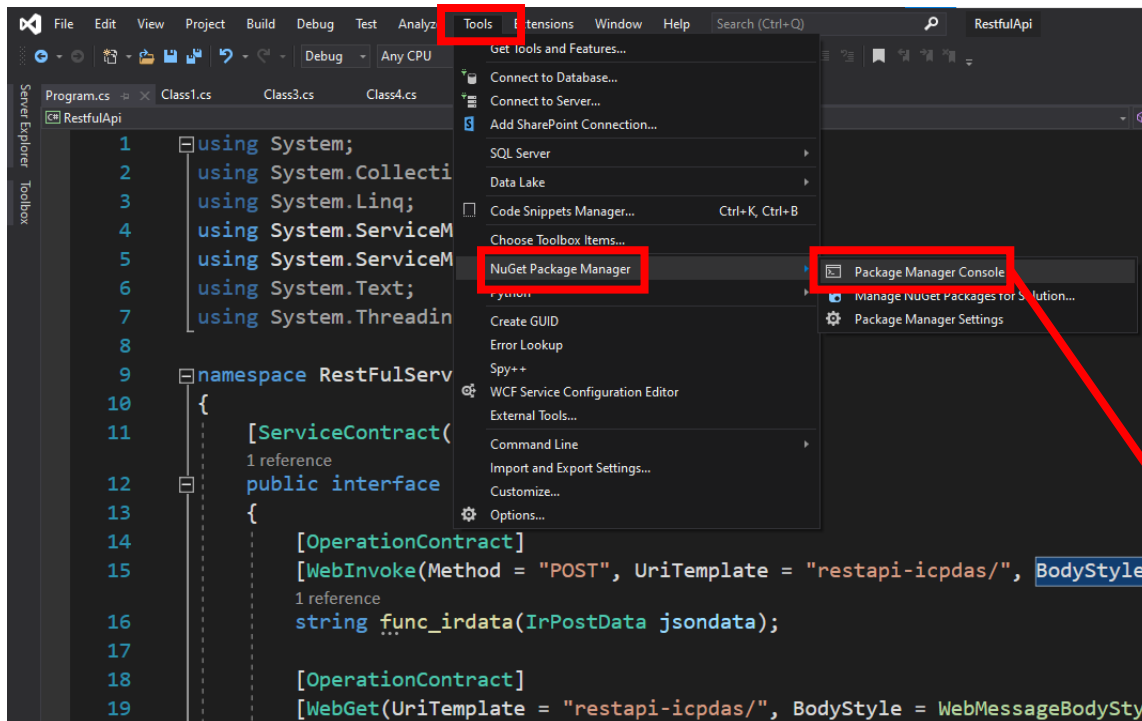
```
conn = sqlite3.connect('irdata_icpdas.db')
```

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How to install Lib

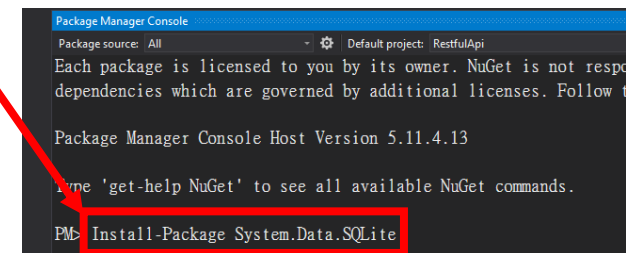
## ➤ How to install Lib in CSharp

- NuGet
- Install Command → Install-Package System.Data.SQLite (libraries's name)



```
File Edit View Project Build Debug Test Analyze Tools Extensions Window Help Search (Ctrl+Q) RestfulApi
Get tools and Features...
Connect to Database...
Connect to Server...
Add SharePoint Connection...
SQL Server
Data Lake
Code Snippets Manager... Ctrl+K, Ctrl+B
Choose Toolbox Items...
NuGet Package Manager
Package Manager Console
Manage NuGet Packages for Solution...
Package Manager Settings
Create GUID
Error Lookup
Spy++
WCF Service Configuration Editor
External Tools...
Command Line
Import and Export Settings...
Customize...
Options...

1 using System;
2 using System.Collecti
3 using System.Linq;
4 using System.ServiceM
5 using System.ServiceM
6 using System.Text;
7 using System.Threadin
8
9 namespace RestFulServ
10 {
11     [ServiceContract(
12         1 reference
13         public interface
14         {
15             [OperationContract]
16             [WebInvoke(Method = "POST", UriTemplate = "restapi-icpdas/", BodyStyle
17             1 reference
18             string func_irdata(IrPostData jsondata);
19
20             [OperationContract]
21             [WebGet(UriTemplate = "restapi-icpdas/", BodyStyle = WebMessageBodyStyI
```



```
Package Manager Console
Package source: All Default project: RestfulApi
Each package is licensed to you by its owner. NuGet is not resp
dependencies which are governed by additional licenses. Follow t
Package Manager Console Host Version 5.11.4.13
Type 'get-help NuGet' to see all available NuGet commands.
PM> Install-Package System.Data.SQLite
```

## ➤ How to install Lib in Node.js

- When you install the node.js environment, npm is also installed. npm is used to install various libraries in the node.js environment.
- Use the command to check whether npm is installed → `npm --version`
- Install Command → `npm install modbus-serial`(libraries's name)

```
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>
```

## ➤ How to install Lib in Python

- Python uses pip to manage function libraries. When installing python, pip will also be installed.
- Use the command to check whether pip is installed → `pip --version`
- Install Command → `pip install pymodbus`(libraries's name)

```
cmd 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>
```