
使用说明及测试指导

Modbus 应用

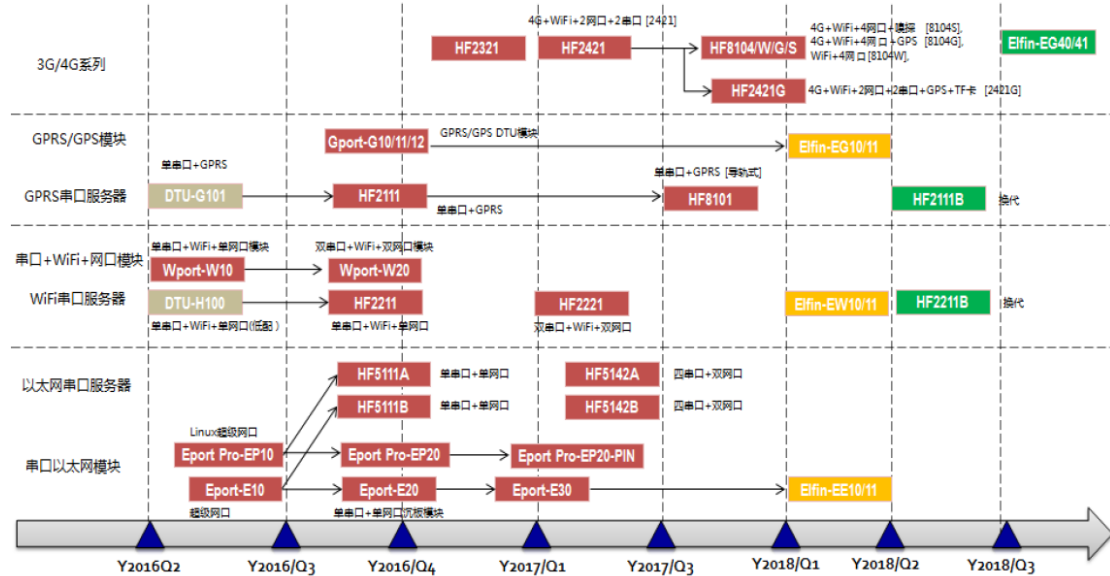
Rev: 1.0

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1. 产品

本文档适用于汉枫物联网设备类产品，具体支持的型号如下，本文档以 EE11（以太网、Wi-Fi 等产品配置方式雷同）和 EG10(蜂窝网的产品配置方式雷同)为例进行介绍。其他产品使用方式相同。



2. 硬件需求

- Elfin-EE11 1 PCS、Elfin-EG10 1PCS



- RS232 转 RS485 转换器

3. 软件需求

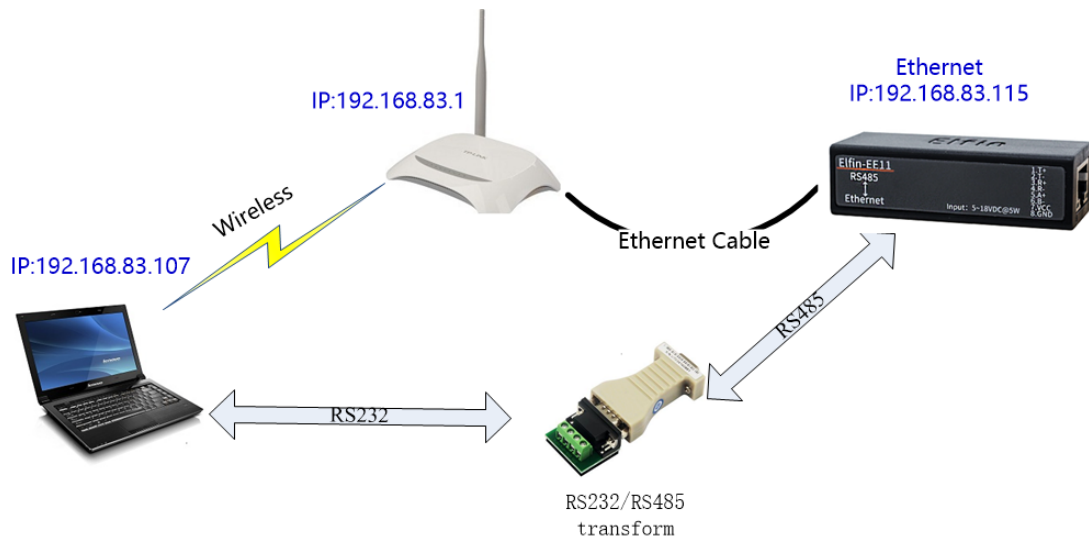
- Modbus Poll
- Modbus Slave

- 串口工具

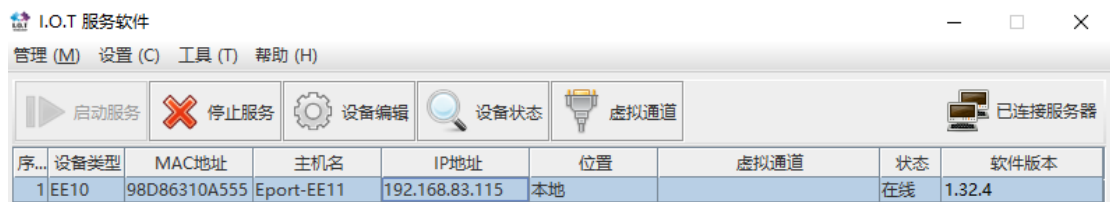
4. EE11 硬件连接

4.1. 局域网 PC 直连测试

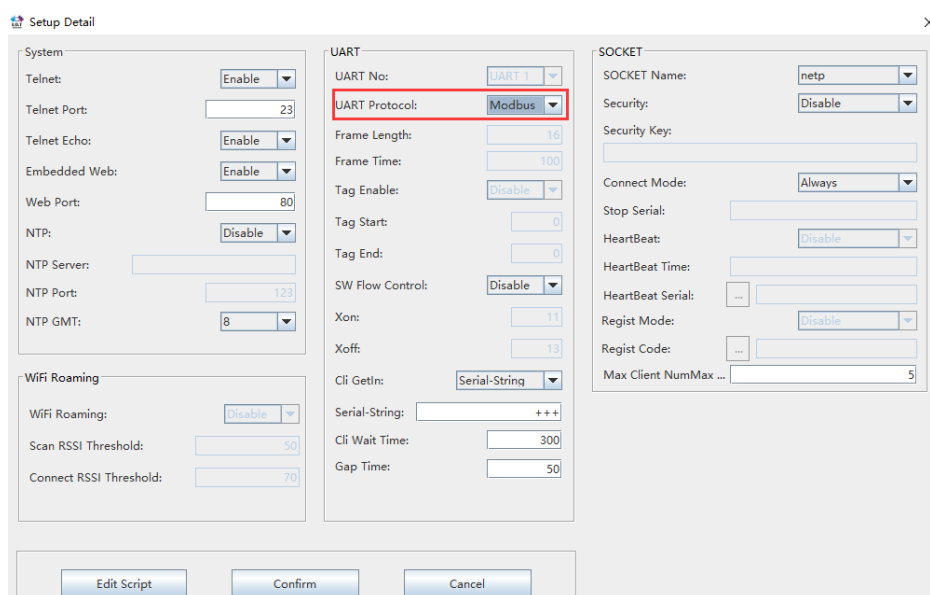
- 按下图方式连接硬件。



- 打开 IOTService 工具，可看到 EE11 设备。

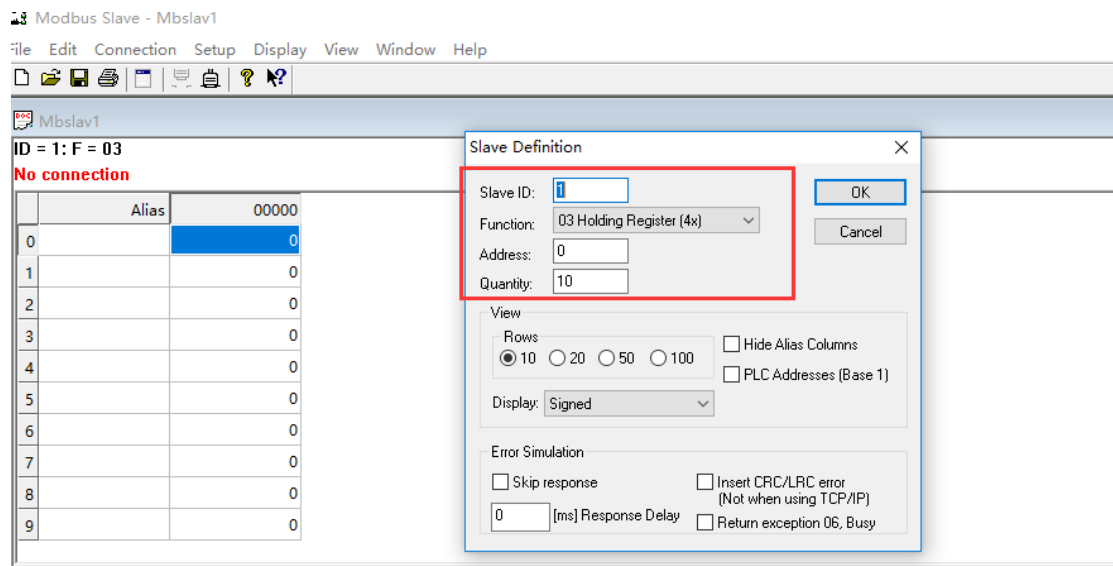
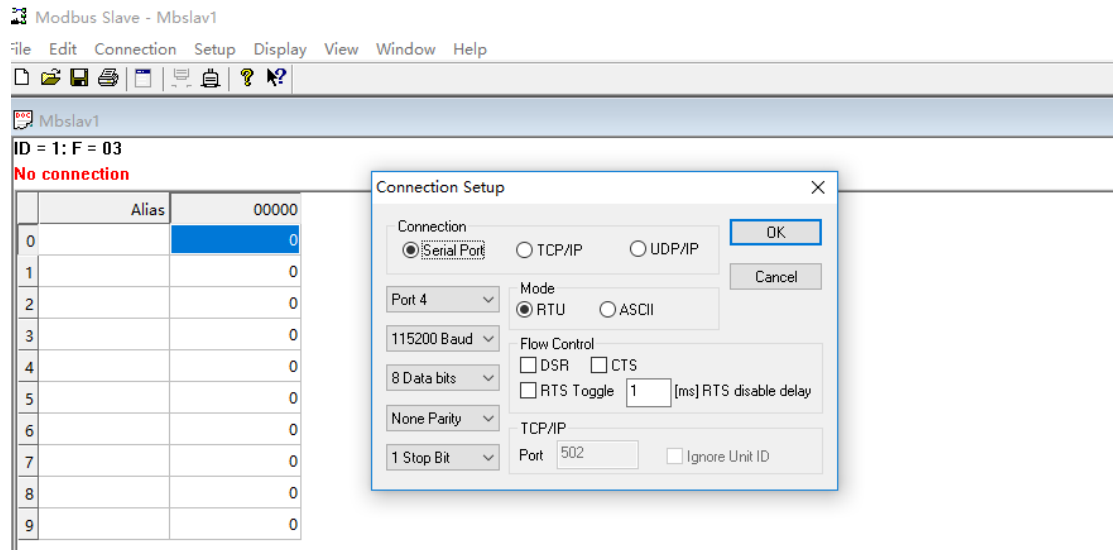


- 使能串口 modbus。

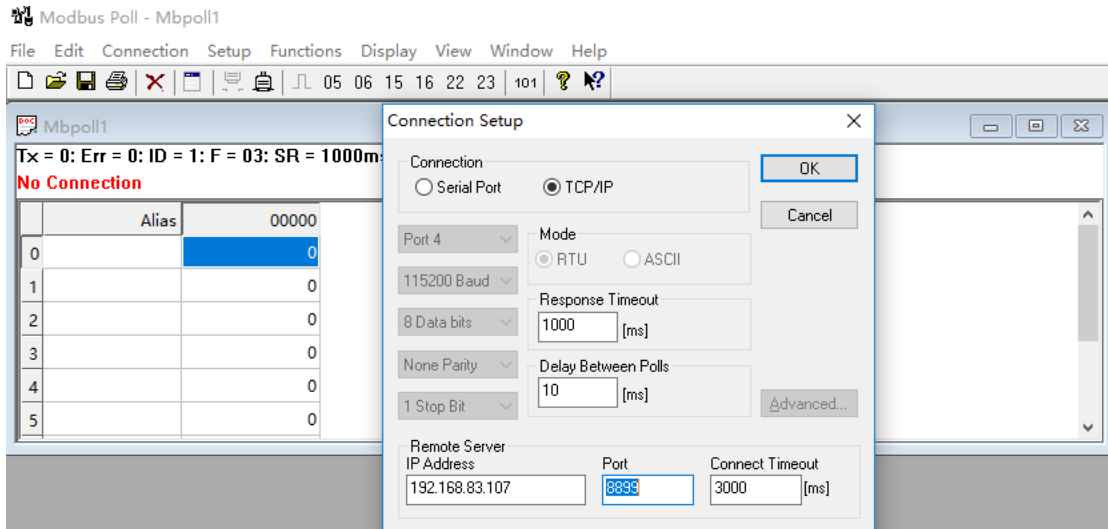


- 打开 modbus slave 软件（用于模拟 RS485 设备），串口参数按照 EE11 的来设置，并

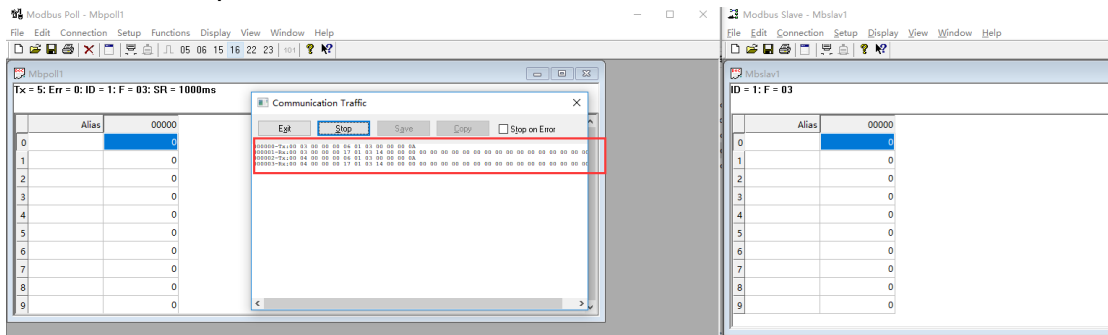
定义 Slave 设备寄存器信息。



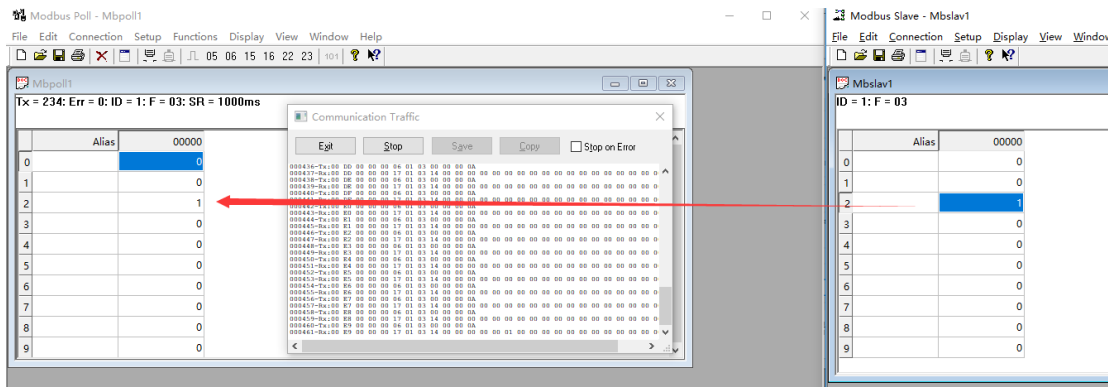
- 打开 modbus poll 软件（用于模拟服务器），通讯地址填写 EE11 的 IP，端口填 8899（根据 EE11 中创建的通讯通道修改，EE 默认是 TCP Server, 8899）



- 在 modbus poll 软件中可以看到通讯交互的数据报文

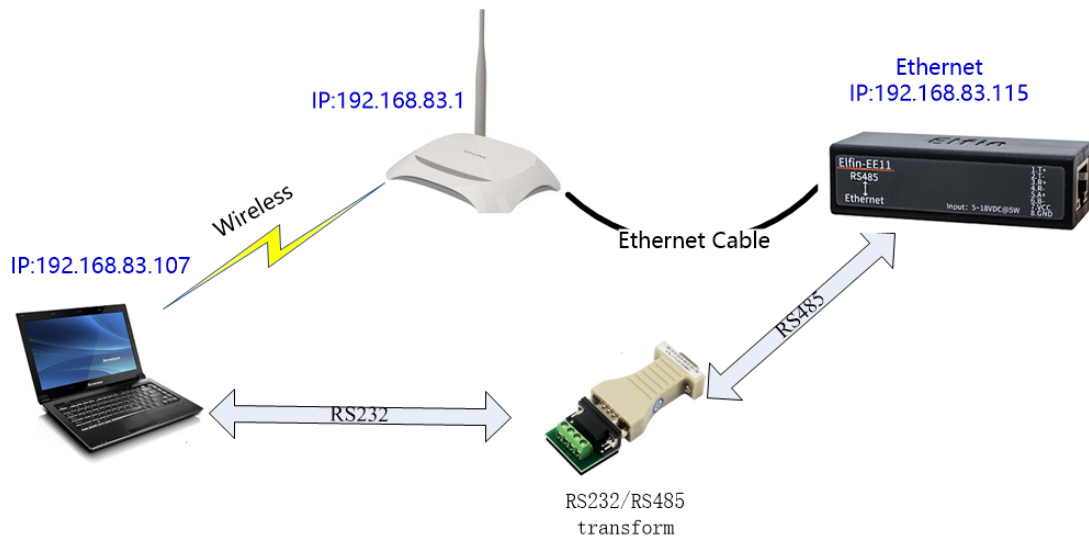


- 在 modbus slave 中修改对应寄存器值，可以看到 poll 软件马上就更新了此内容。



4.2. 局域网透传方式测试设备

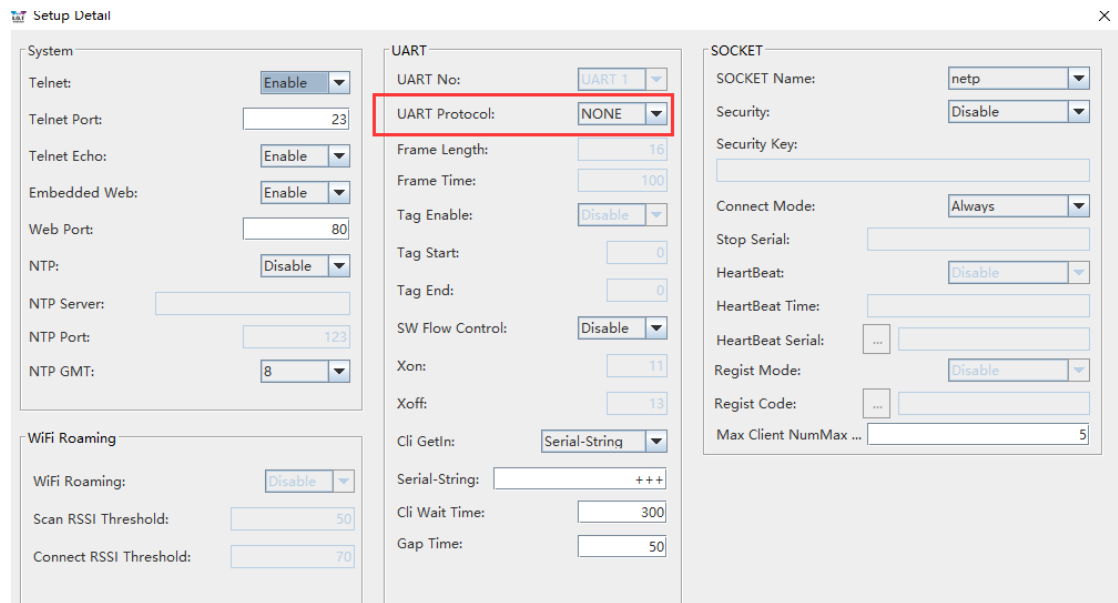
- 按下图方式接线



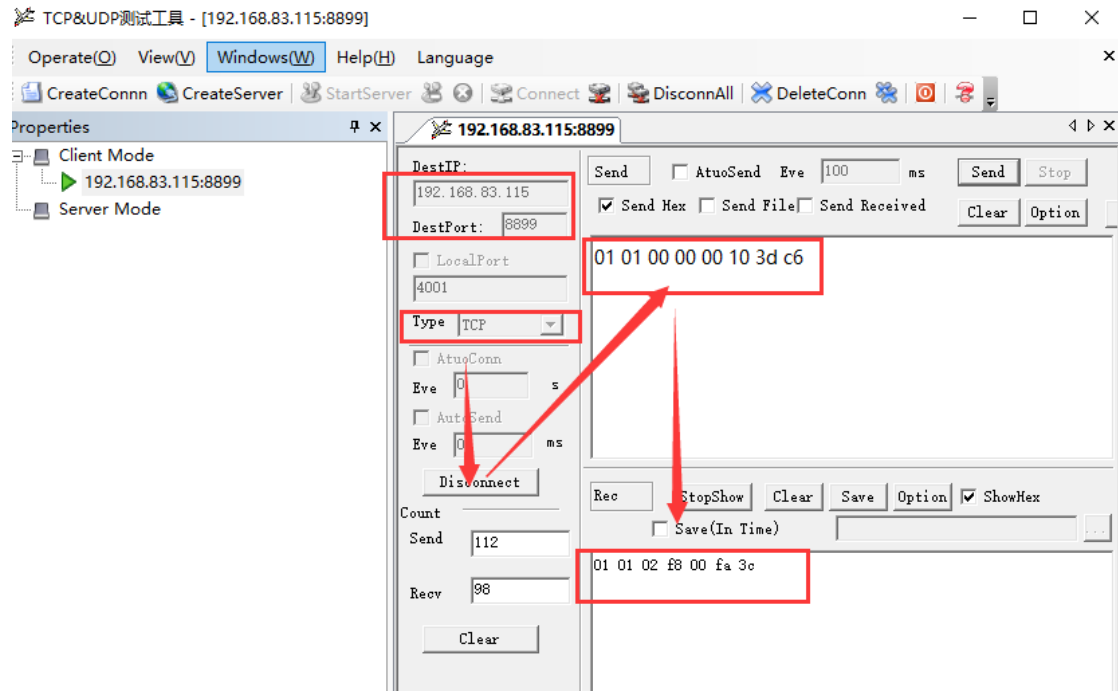
- 打开 IOTService, 修改波特率与设备一致, 并且关闭串口 modbus。

The screenshot shows the 'Device Setting' window with the following configuration:

Section	Parameter	Value
System	User:	admin
	Password:	admin
	HostName:	Eport-EE11
	DHCP:	Enable
	IP Address:	192.168.83.115
	Mask:	255.255.255.0
	Gate Way:	192.168.83.1
UART	UART No.:	UART 1
	Baudrate:	9600
	Data Bits:	8
	Stop Bits:	1
	Parity:	NONE
	Flow Control:	Half-Duplex
	Buffer Size:	512
SOCKET	SOCKET Name:	netp
	Protocol:	TCP-SERVER
	Server Addr:	0.0.0.0
	Server Port:	0
	Local Port:	8899
	Keep Alive:	60
	Time Out:	0
Rout:	uart	
Buffer Size:	512	

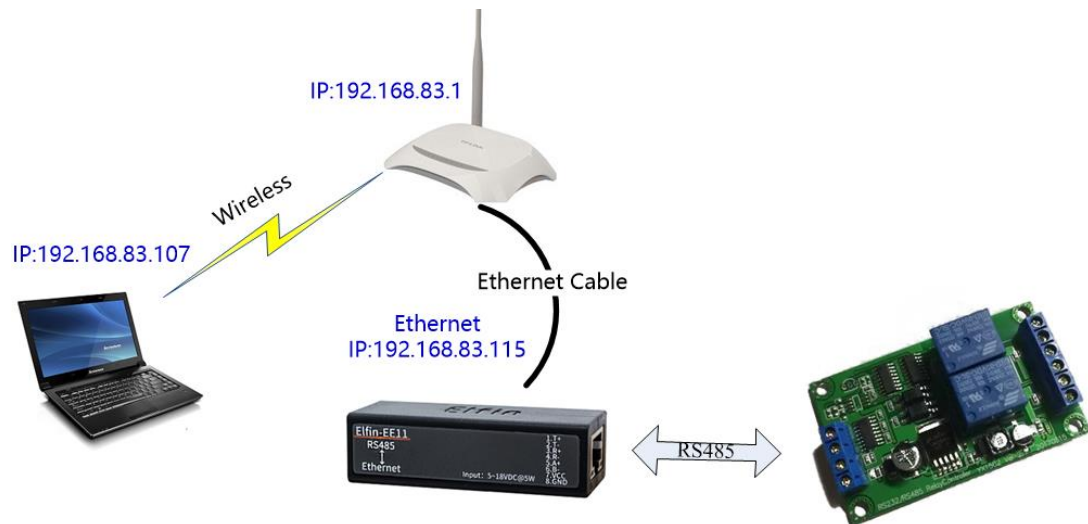


- 打开 TCP&UDP 测试软件，按设备端 modbus RTU 的数据格式发送数据，看到设备的回复数据。



4.3. 局域网 Modbus poll 测试设备

- 按下图方式接线



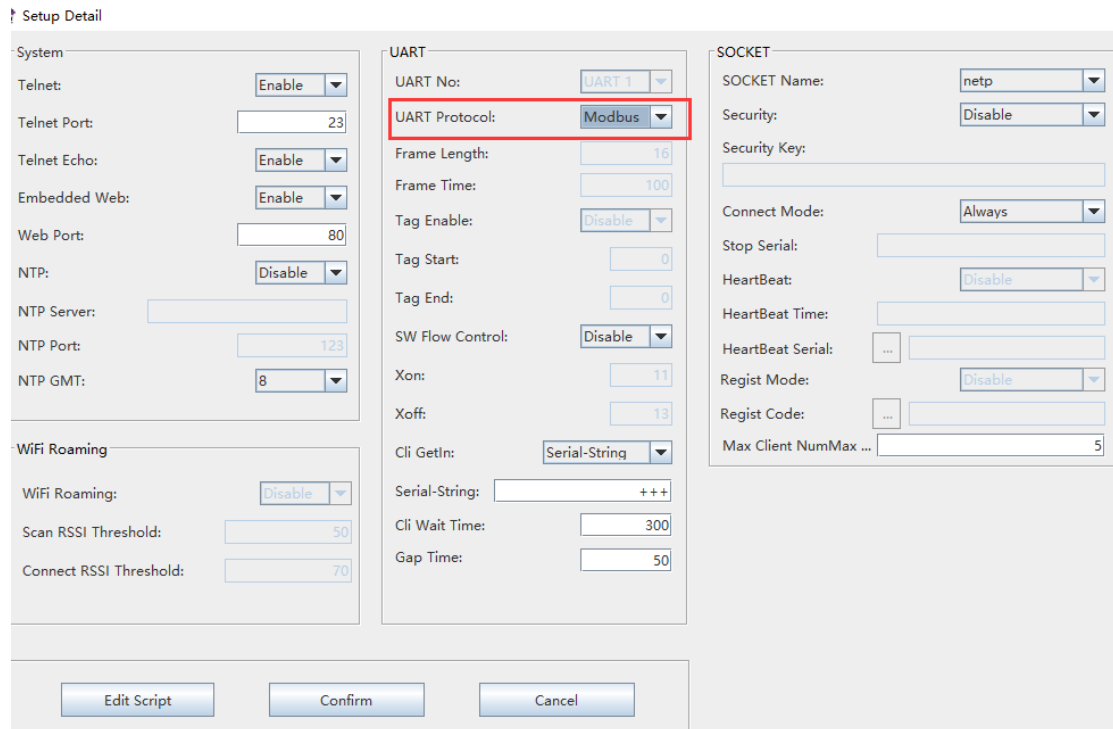
- 打开 IOTService, 修改波特率与设备一致, 并且打开串口 modbus.

The screenshot shows the 'Device Setting' window with the following configurations:

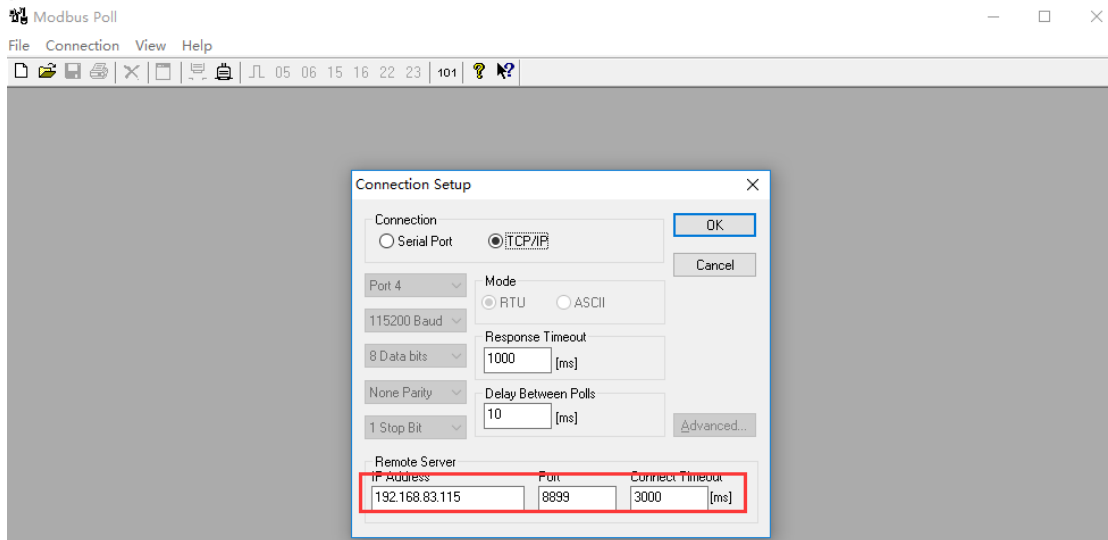
System	SOCKET
User: admin	SOCKET Name: netp
Password: admin	Protocol: TCP-SERVER
HostName: Eport-EE11	Server Addr: 0.0.0.0
DHCP: Enable	Server Port: 0
IP Address: 192.168.83.115	Local Port: 8899
Mask: 255.255.255.0	Keep Alive: 60
Gate Way: 192.168.83.1	Time Out: 0
DNS: 223.5.5.5	Rout: uart
	Buffer Size: 512
	New SOCKET
	SOCKET Del
	Confirm
	Cancel
	Export
	VirPath
	Import
	Detail
	F-Set Update
	F-Set Clear

UART Configuration:

- UART No: UART 1
- Baudrate: 9600
- Data Bits: 8
- Stop Bits: 1
- Parity: NONE
- Flow Control: Half-Duplex
- Buffer Size: 512



- 打开 modbus poll 和 modbus slave 测试软件，按设备参数改写读写数据点
poll 软件设置：



Tx = 73: Err = 21: ID = 1: F = 03: SR = 1

	Alias	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0
9		0

Read/Write Definition

Slave ID: OK

Function: 03 Read Holding Registers (4x) Cancel

Address: Protocol address. E.g. 40011 -> 10

Quantity:

Scan Rate: [ms] Apply

Disable

Read/Write Disabled

Disable on error Read/Write Once

View

Rows

10 20 50 100 Fit to Quantity

Hide Alias Columns PLC Addresses (Base 1)

Address in Cell Enron/Daniel Mode

slave 软件设置:

ID = 1: F = 03

	Alias	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0
9		0

Slave Definition

Slave ID: OK

Function: 03 Holding Register (4x) Cancel

Address: Protocol address. E.g. 40011 = 10

Quantity:

View

Rows

10 20 50 100 Fit to Quantity

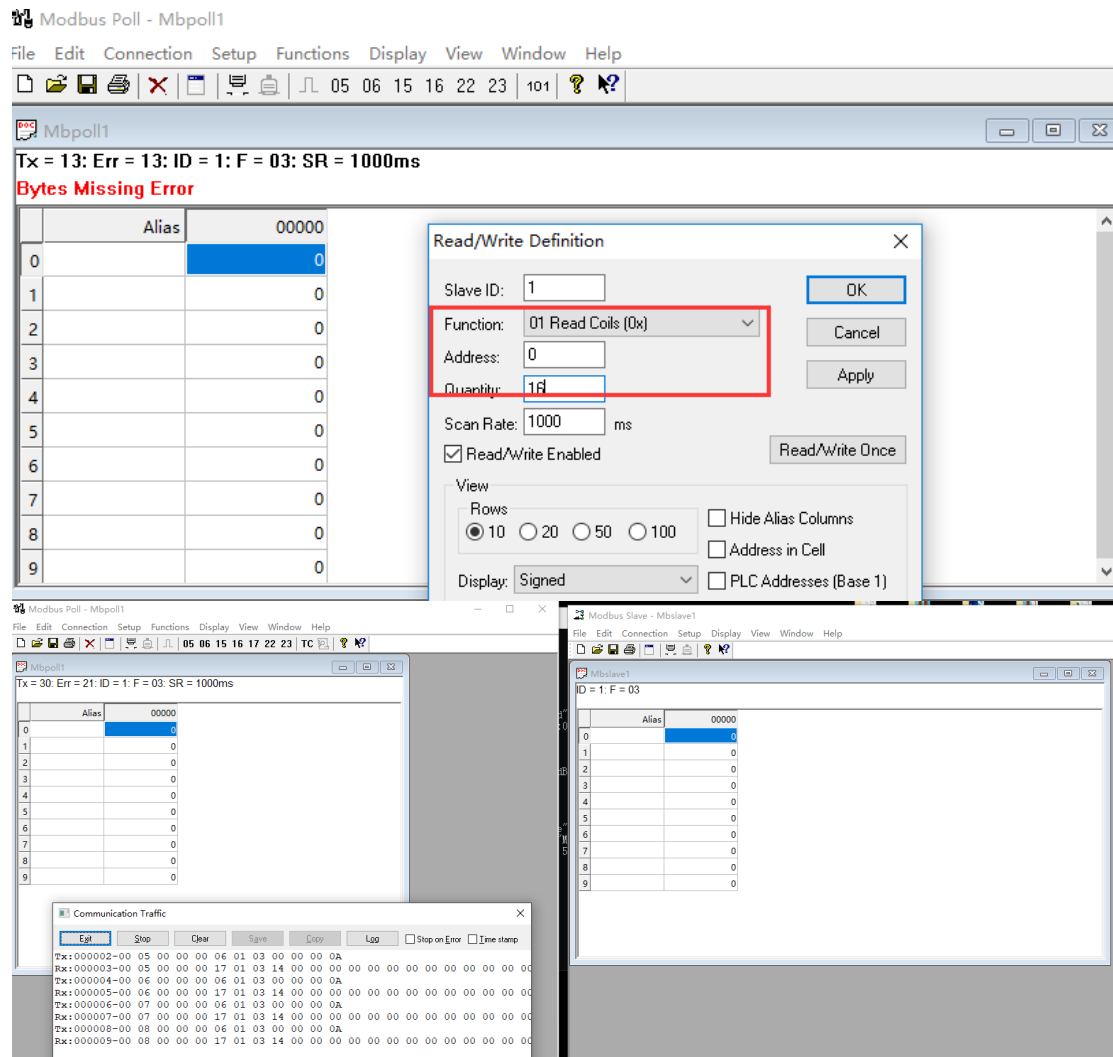
Hide Alias Columns PLC Addresses (Base 1)

Address in Cell

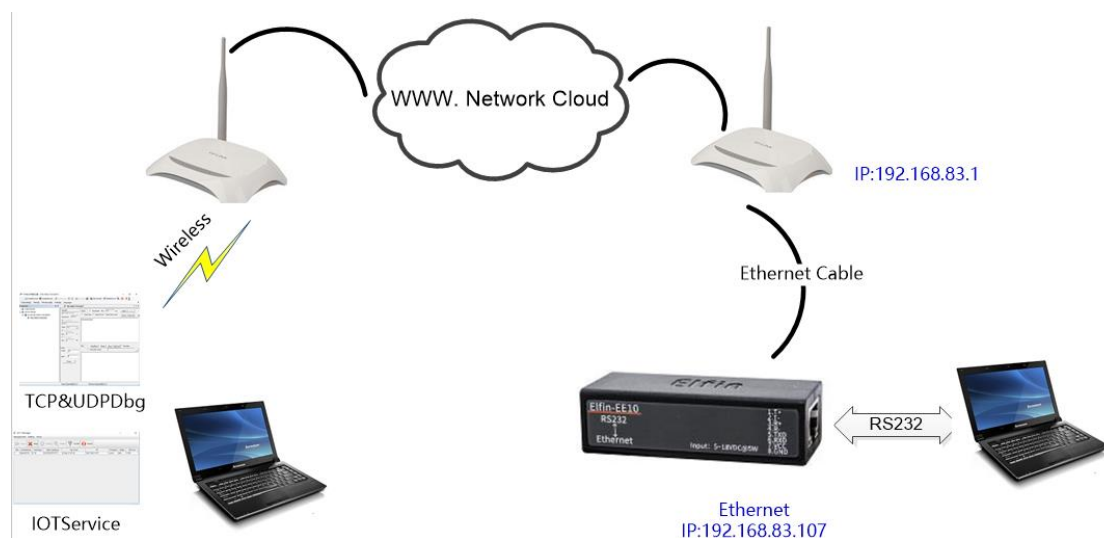
Error Simulation

Skip response Insert CRC/LRC error (Not when using TCP/IP)

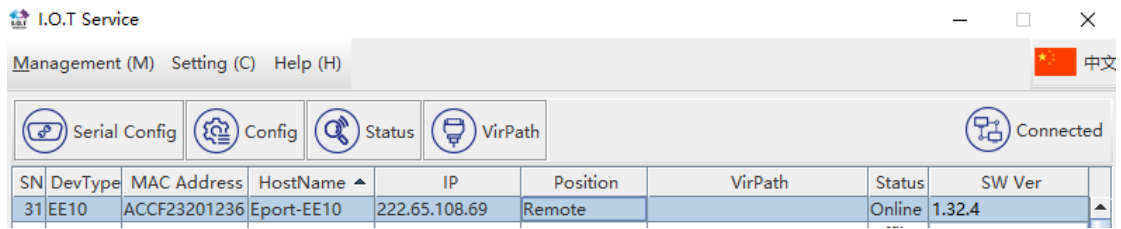
[ms] Response Delay Return exception 06, Busy



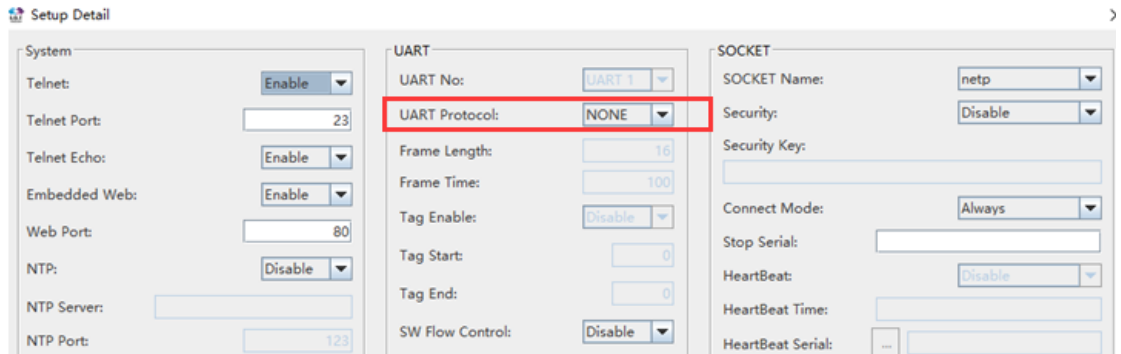
4.4. 远程方式虚拟串口测试设备



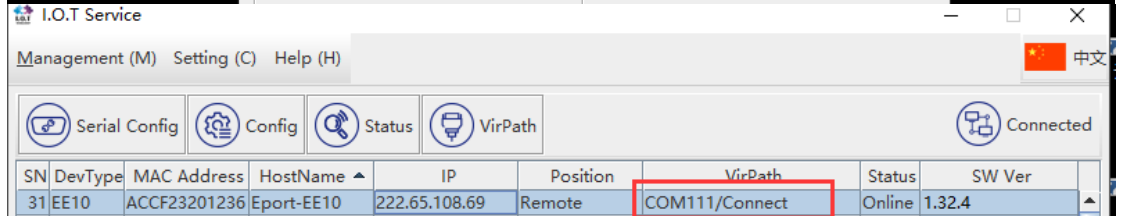
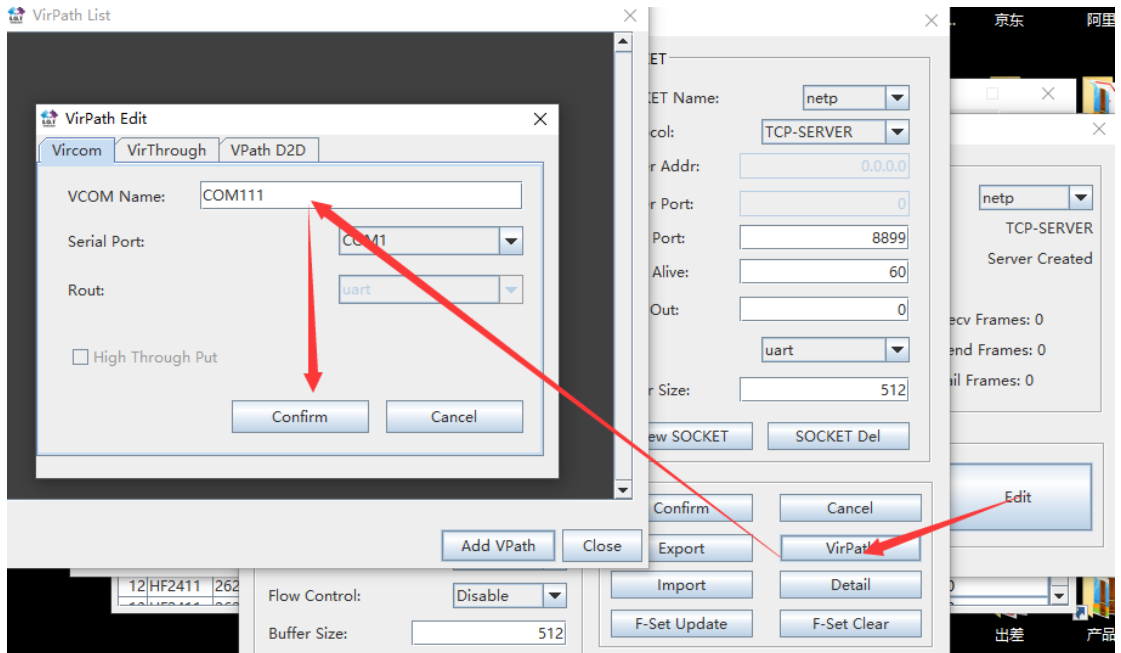
- 按照 IOTService 工具文档，添加汉枫产品到用户帐户（产品需联通外网）。如下图远程添加了此设备。



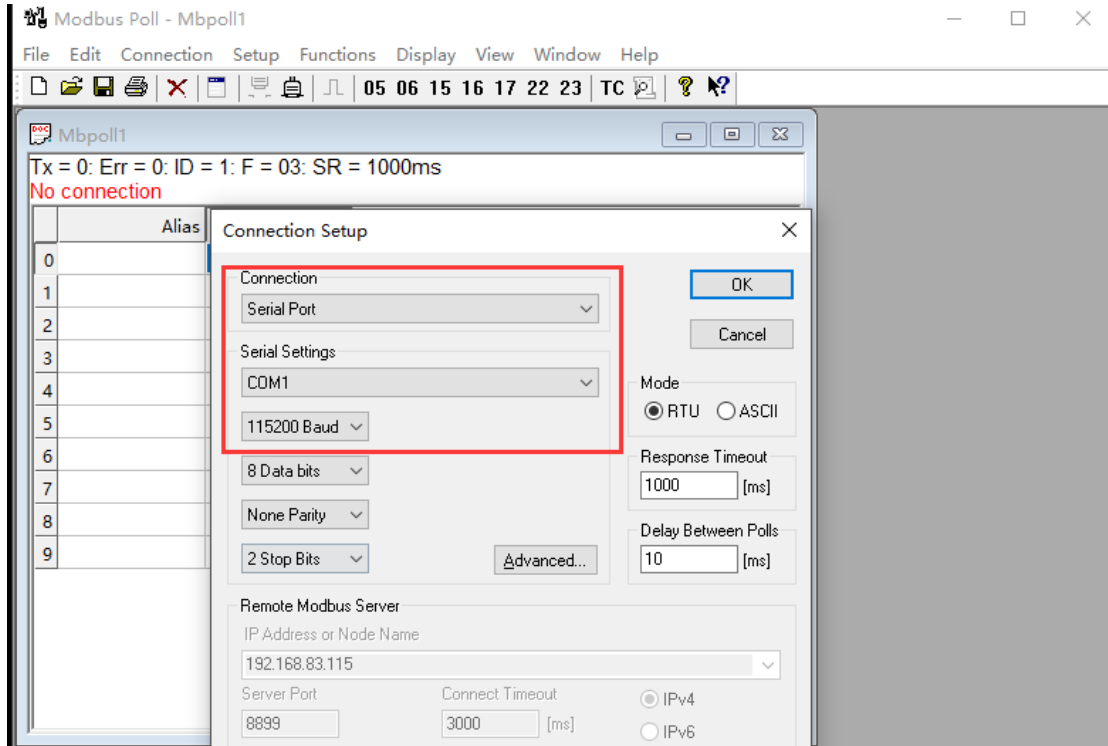
● 关闭串口 modbus 协议



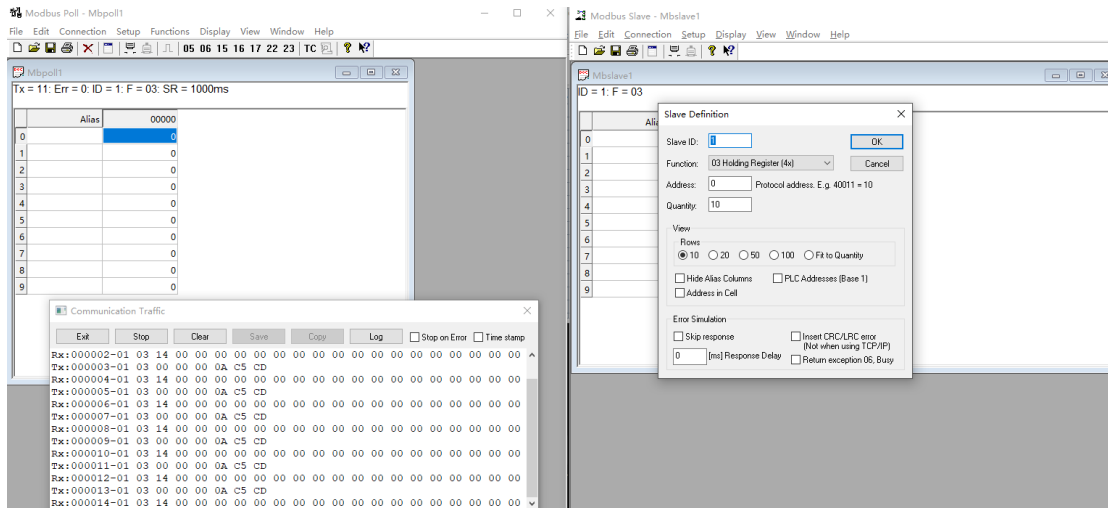
● 创建虚拟串口



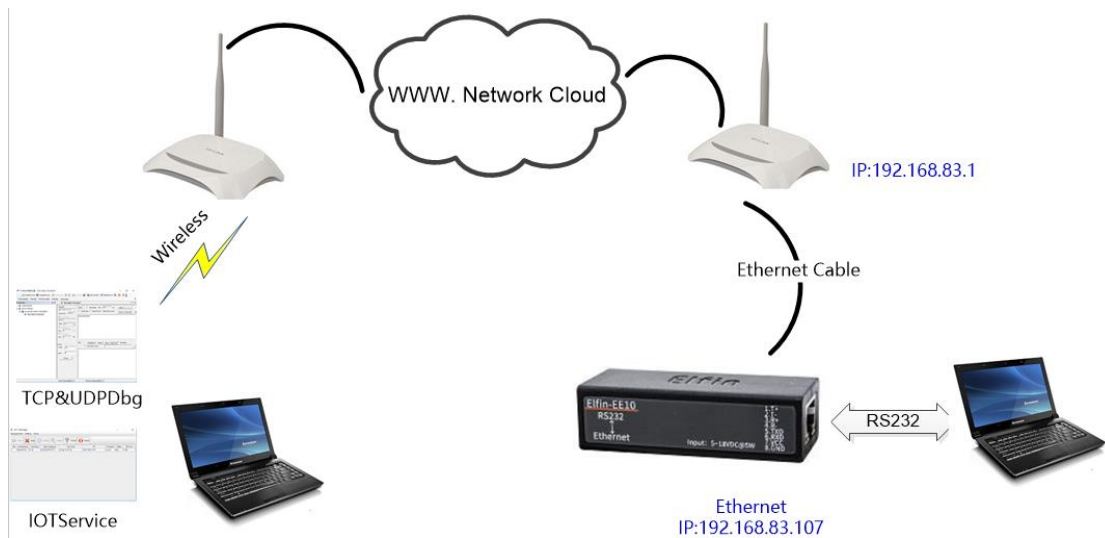
● 打开 modbus poll，使用刚才创建的虚拟串口，并打开 modbus slave 连接汉枫产品的物理串口。



● 如下即完成数据传输。



4.5. 远程方式虚拟通道测试设备



- 依旧添加绑定设备，这次创建虚拟通道，按 TCP Server 方式。

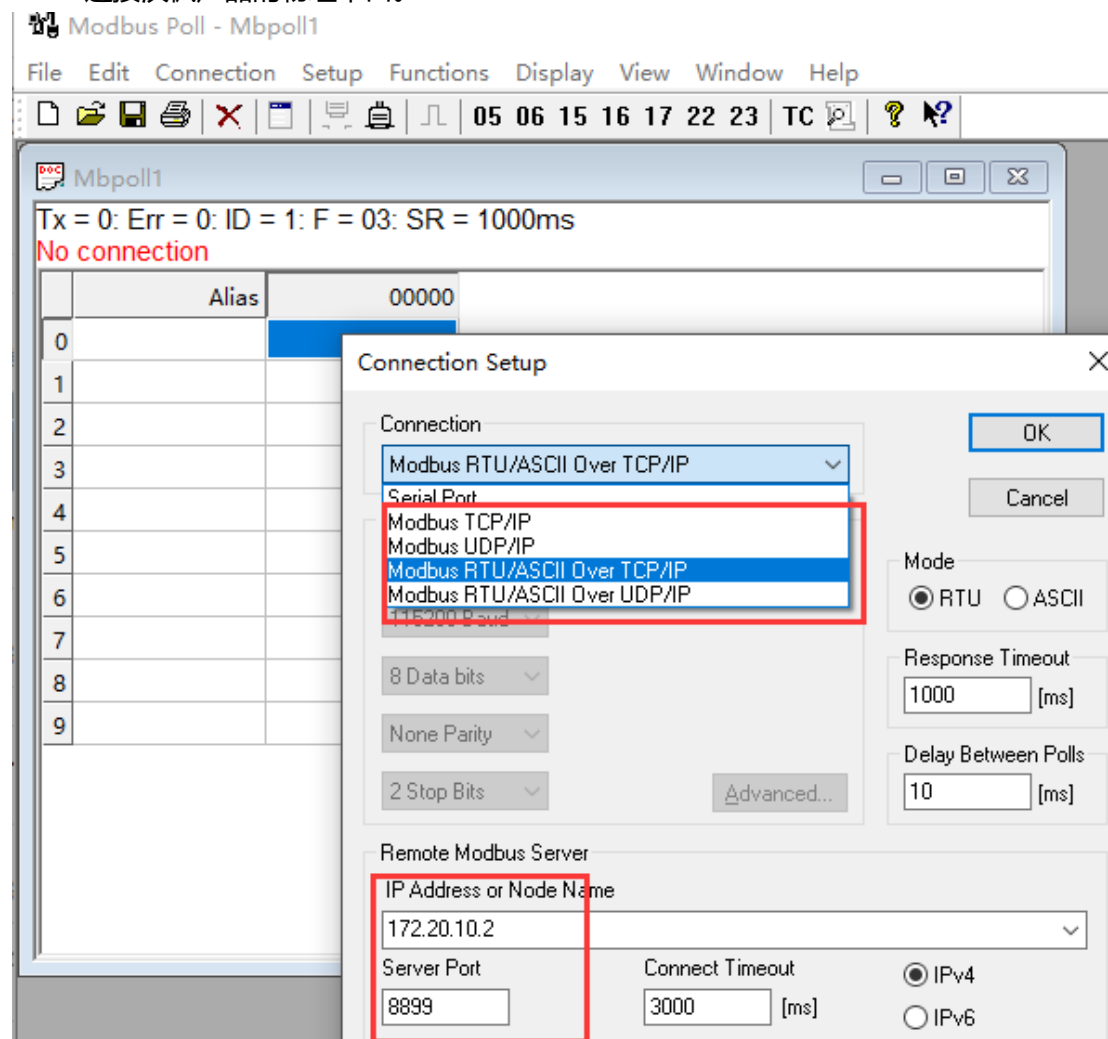
Management (M) Setting (C) Help (H) 中文

Serial Config Config Status VirPath Connected

SN	DevType	MAC Address	HostName	IP	Position	VirPath	Status	SW Ver
1	EE10	ACCF23201236	Eport-EE10	222.65.108.69	Remote	SERVER/Connect	Online	1.32.4

- 打开 modbus poll，使用刚才创建的虚拟通道，因设备端未使能串口 modbus 协议，故此处的 modbus Poll 软件设置为 Modbus RTU Over TCP/IP 的方式传输，**通讯的目标地址填写刚才创建的虚拟通道 (8899 端口，IP 地址需要填写 PC 的 IP)**，并打开 modbus

slave 连接汉枫产品的物理串口。



- 如下即完成数据传输。

Modbus Poll - Mbpoll1

File Edit Connection Setup Functions Display View Window Help

05 06 15 16 17 22 23 | TC

Mbpoll1

Tx = 8: Err = 0: ID = 1: F = 03: SR = 1000ms

	Alias	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0
9		0

Modbus Slave - Mbslave1

File Edit Connection Setup Display View Window Help

Mbslave1

ID = 1: F = 03

	Alias	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0
9		0

Communication Traffic

Exit Stop Clear Save Copy Log

```

Rx: 000000-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000001-01 03 00 00 00 0A C5 CD
Rx: 000002-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000003-01 03 00 00 00 0A C5 CD
Rx: 000004-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000005-01 03 00 00 00 0A C5 CD
Rx: 000006-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000007-01 03 00 00 00 0A C5 CD
Rx: 000008-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00

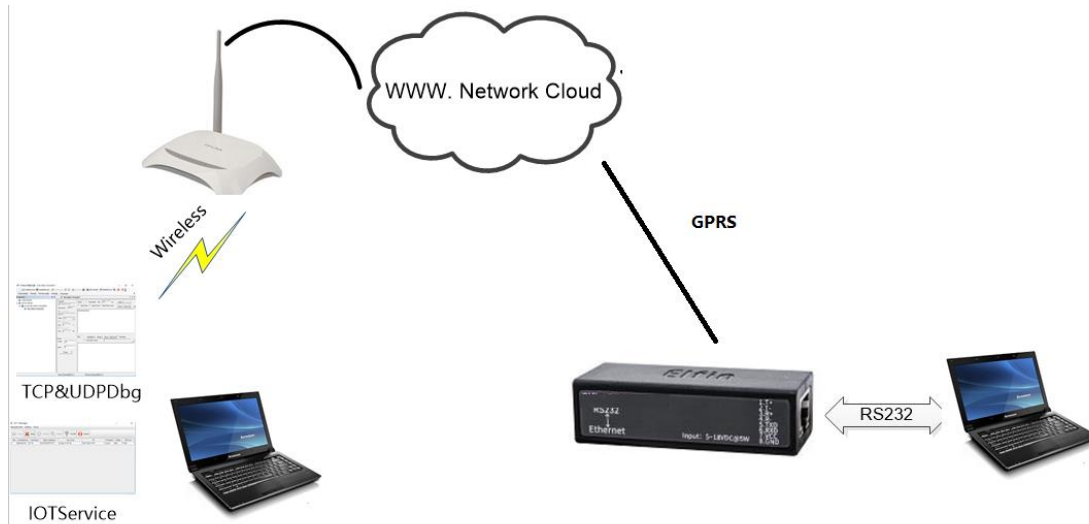
```

For Help, press F1. [172.20.10.2]: 8899 For Help, press F1.

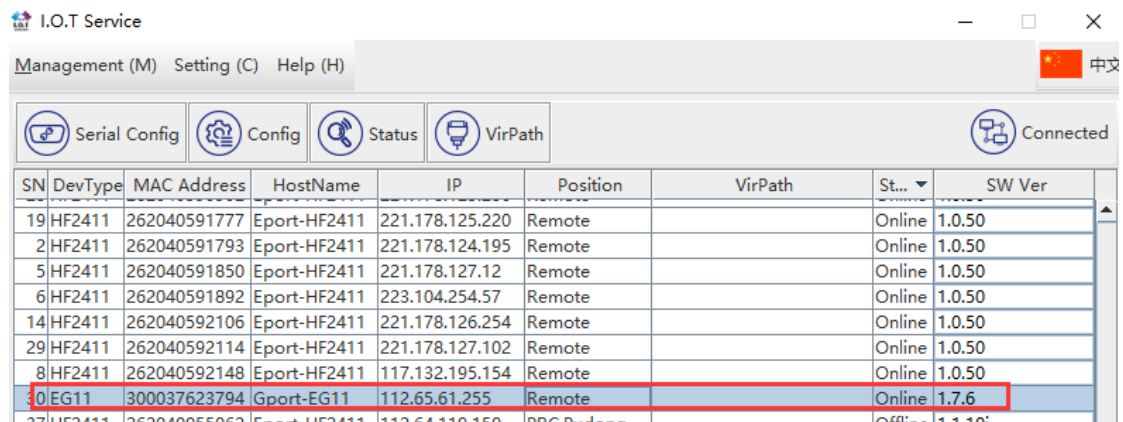
5. EG10 硬件连接

EG10 只可远程方式通讯，利用汉枫提供的远程虚拟串口、虚拟通道方式完成数据传输。

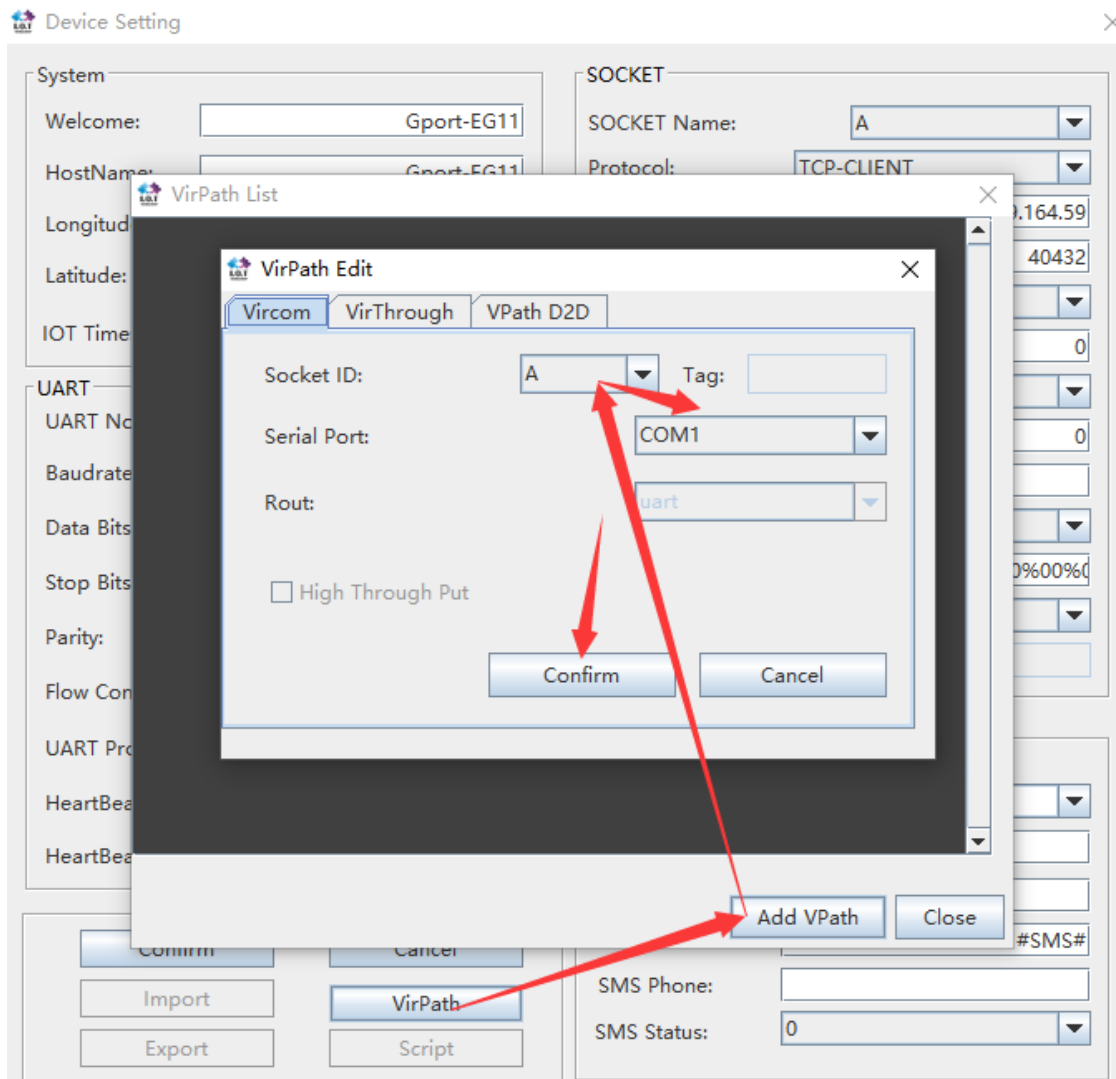
5.1. 远程方式虚拟串口测试设备



- 按照 IOTService 工具文档，添加汉枫产品到用户帐户（产品需插如 SIM 卡联接外网）。如下图远程添加了此设备。



- 创建虚拟串口



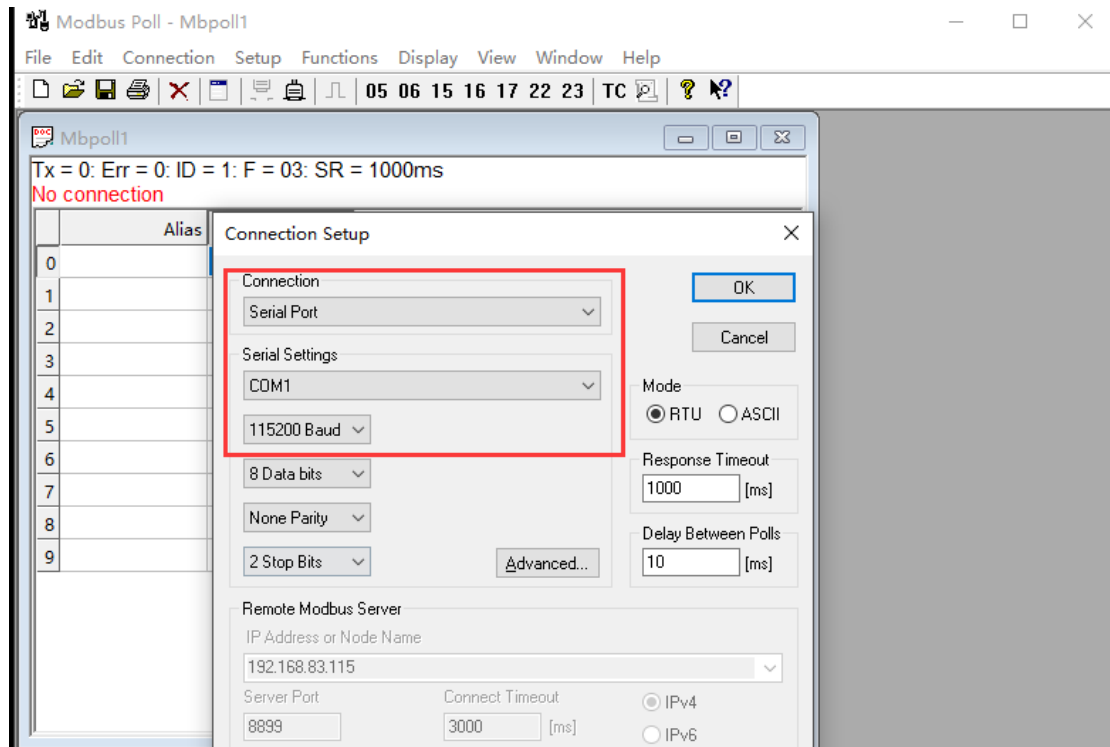
I.O.T Service

Management (M) Setting (C) Help (H)

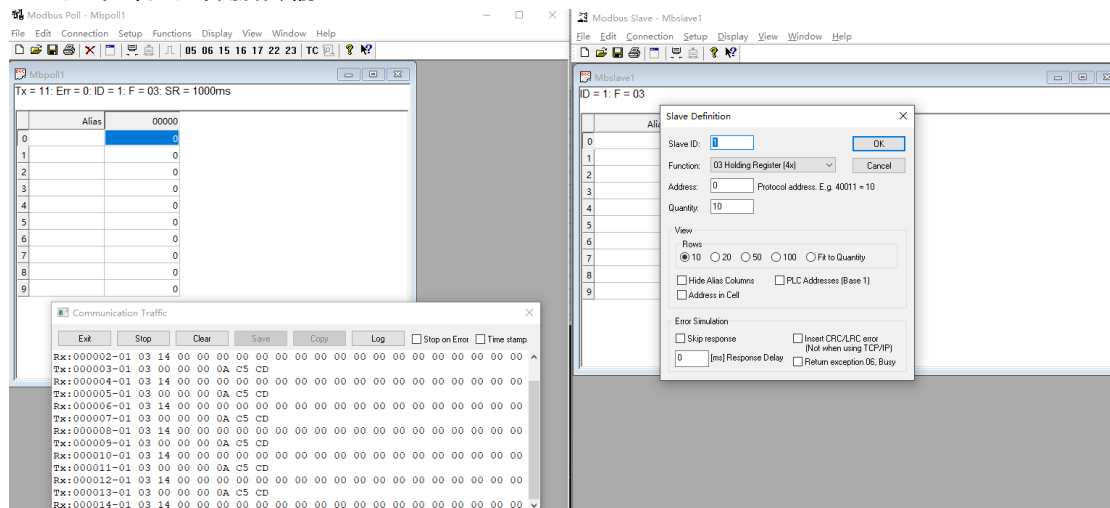
Serial Config Config Status VirPath Connected

SN	DevType	MAC Addr...	HostName	IP	Position	VirPath	Status	SW Ver
35	HF8104	F0FE6BE04D1C	Eport-HF8104	36.113.163.181	Remote		Offline	1.61.6
32	HF2221	F0FE6B536CF8	Eport-HF2211	222.65.108.69	Remote		Offline	1.35.1f
33	EP20	F0FE6B2148D6	Eport-EP20	101.93.66.44	Remote		Offline	1.34.8b New Ver
36	HF5111B	ACCF23202222	Eport-HF511...	222.65.108.69	Remote		Offline	1.34.7
34	EE10	ACCF23201236	Eport-EE10	222.65.108.69	Remote		Offline	1.32.4
30	EG11	300037623794	Gport-EG11	112.65.61.255	Remote	A/Connect	Online	1.7.6

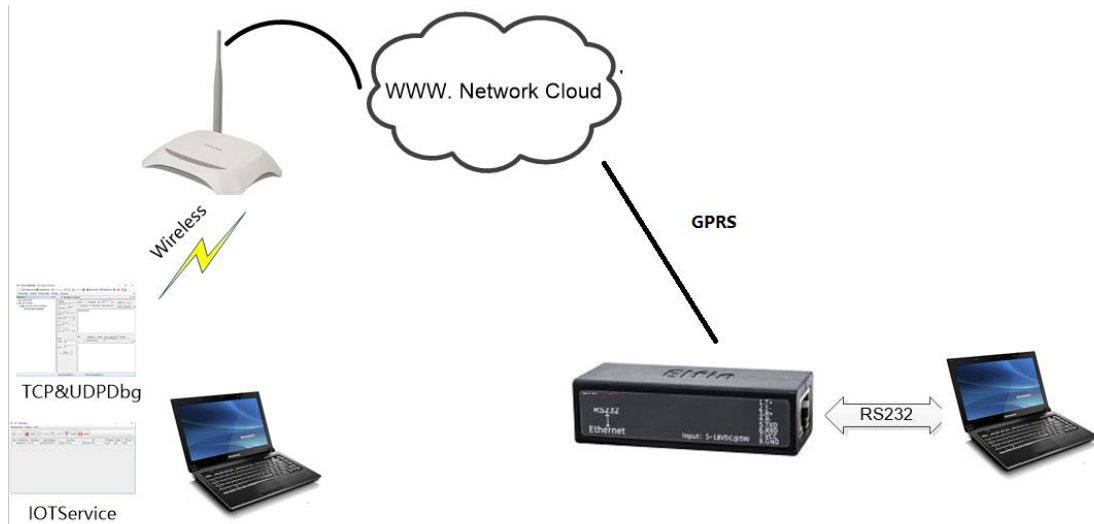
- 打开 modbus poll，使用刚才创建的虚拟串口，并打开 modbus slave 连接汉枫产品的物理串口。



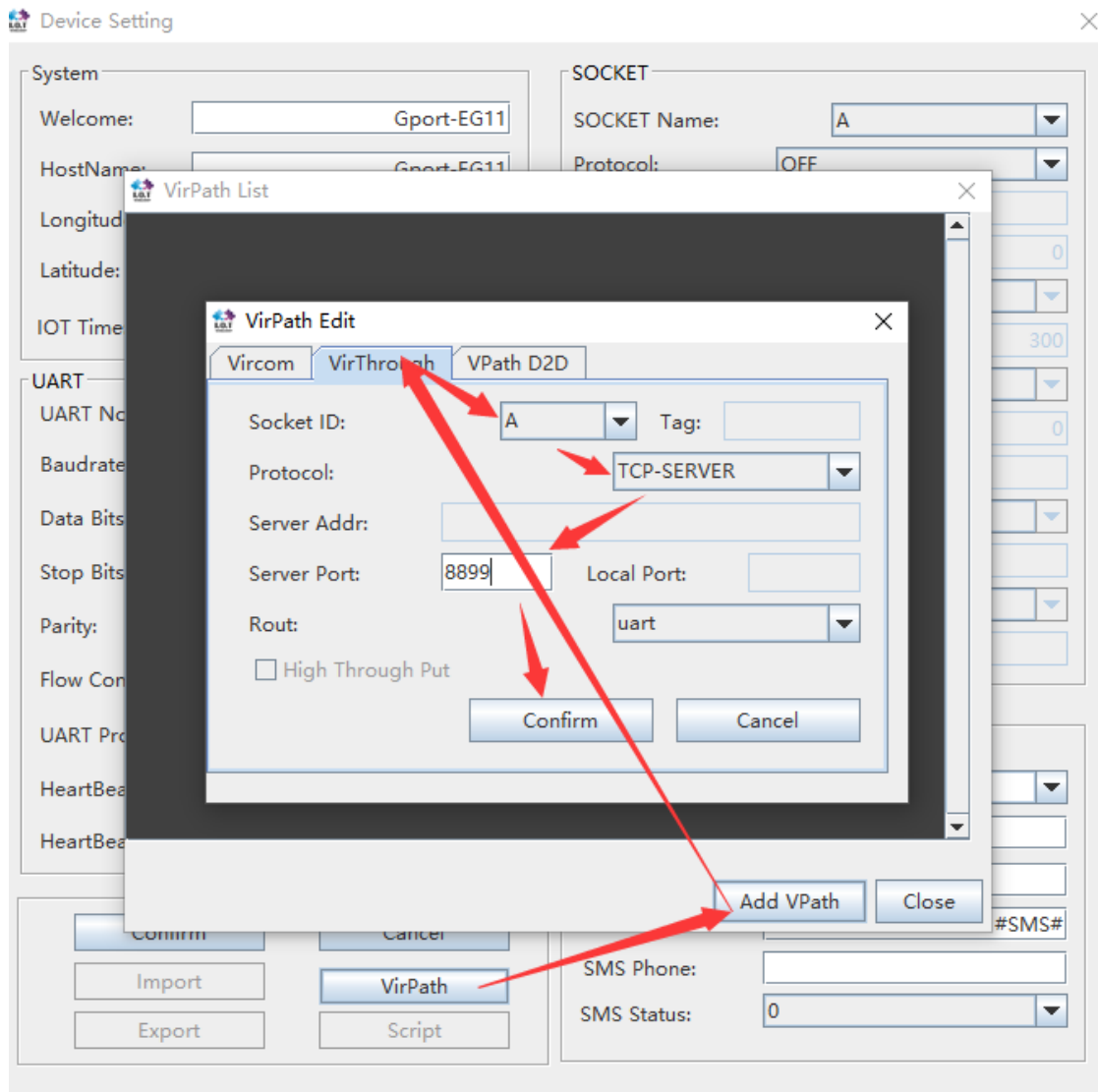
● 如下即完成数据传输。

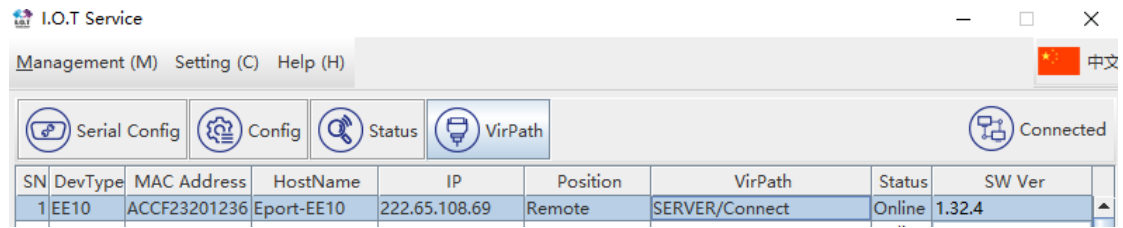


5.2. 远程方式虚拟通道测试设备

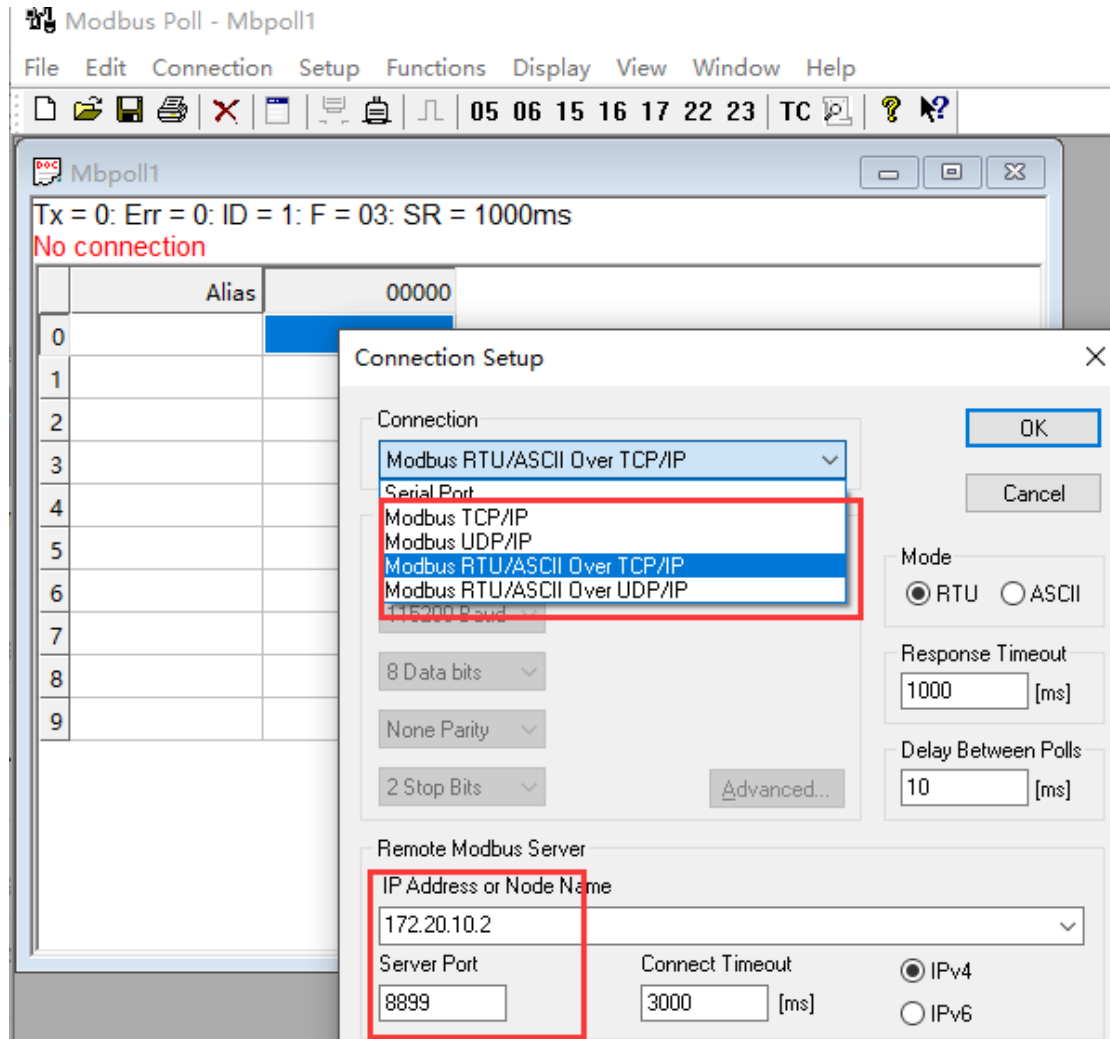


- 依旧添加绑定设备，这次创建虚拟通道，按 TCP Server 方式。





- 打开 modbus poll，使用刚才创建的虚拟通道，因设备端未使能串口 modbus 协议，故此处的 modbus Poll 软件设置为 Modbus RTU Over TCP/IP 的方式传输，**通讯的目标地址填写刚才创建的虚拟通道 (8899 端口，IP 地址需要填写 PC 的 IP)**，并打开 modbus slave 连接汉枫产品的物理串口。



- 如下即完成数据传输。

Modbus Poll - Mbpoll1

File Edit Connection Setup Functions Display View Window Help

05 06 15 16 17 22 23 TC

Mbpoll1

Tx = 8: Err = 0: ID = 1: F = 03: SR = 1000ms

	Alias	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0
9		0

Modbus Slave - Mbslave1

File Edit Connection Setup Display View Window Help

Mbslave1

ID = 1: F = 03

	Alias	00000
0		0
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0
9		0

Communication Traffic

Exit Stop Clear Save Copy Log

```

Rx: 000000-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000001-01 03 00 00 00 0A C5 CD
Rx: 000002-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000003-01 03 00 00 00 0A C5 CD
Rx: 000004-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000005-01 03 00 00 00 0A C5 CD
Rx: 000006-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00
Tx: 000007-01 03 00 00 00 0A C5 CD
Rx: 000008-01 03 14 00 00 00 00 00 00 00 00 00 00 00 00 00

```

For Help, press F1. [172.20.10.2]: 8899 For Help, press F1.