How to Configure Modbus Slave mode

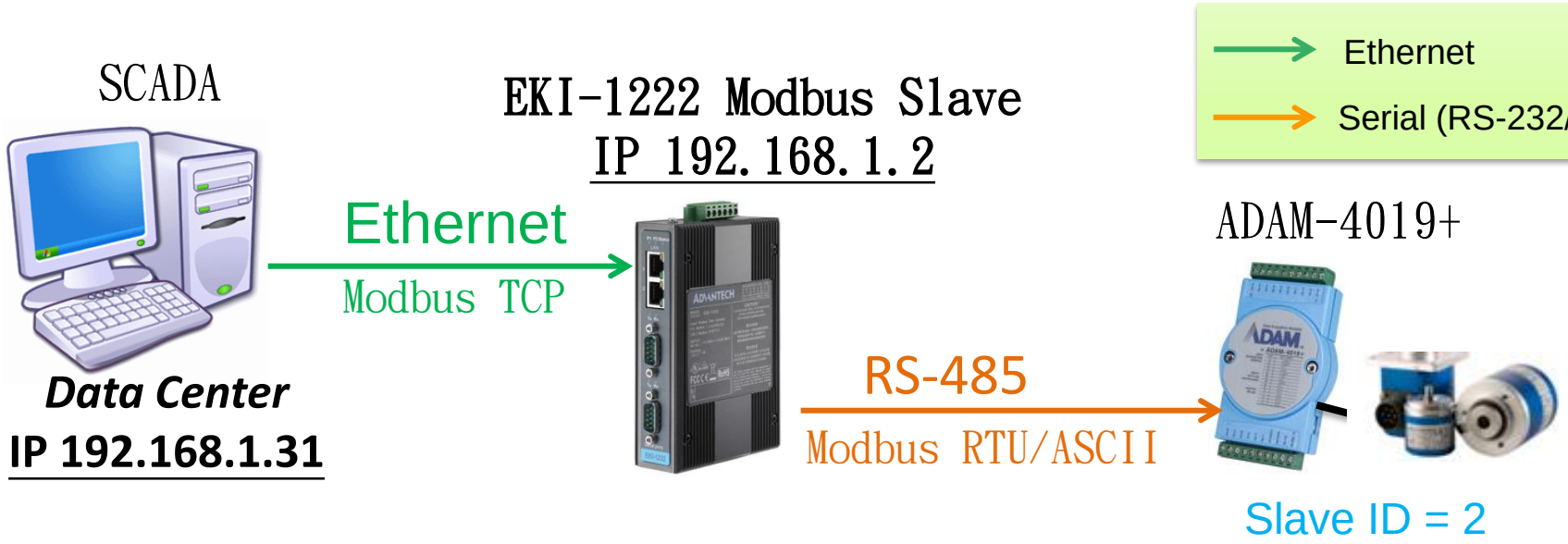
Overview

Modbus protocol is common industrial protocol. When we talk about how to communicate with Modbus serial data to Ethernet, the Modbus gateway is good solution to solve this problem.
In Modbus gateway, there are two operation mode.

First, we called Modbus Slave mode, is most popular way to use this gateway. SCADA send out Modbus TCP command via gateway to get end terminal Modbus serial device status/data.

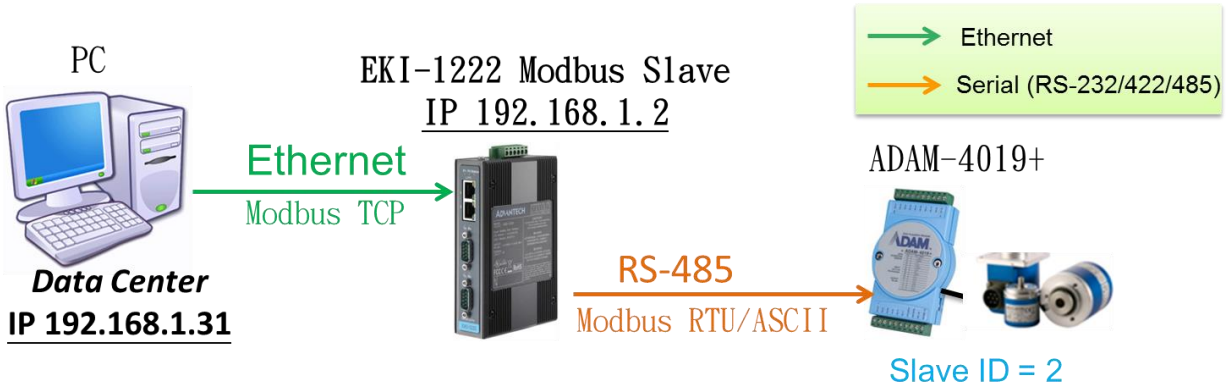
Another one we called Modbus Master mode. the polling way is opposite. SCADA send out Modbus RTU/ASCII command via gateway to get end terminal Modbus TCP device status/data.

Topology of Modbus Slave Mode



SCADA polls data through Modbus TCP. The EKI translates the data from TCP to RTU, and send to end device. Then end device responses data to *Data center*.

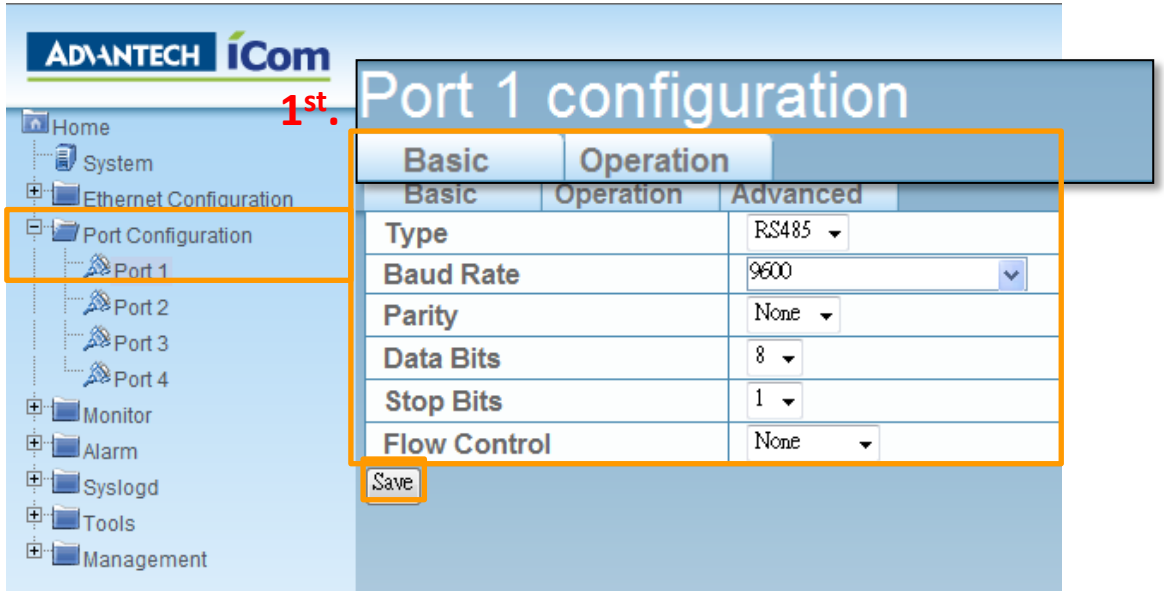
Configure Modbus Slave Mode(1/3)



Use "Launch Browser" in the Utility(Eth1/Eth2) or key in IP address in the browser 192.168.1.2 to connect to device server.

1st.

Choose the COM Port of "Port Configuration" to set up the Basic part first, then "Save" it.



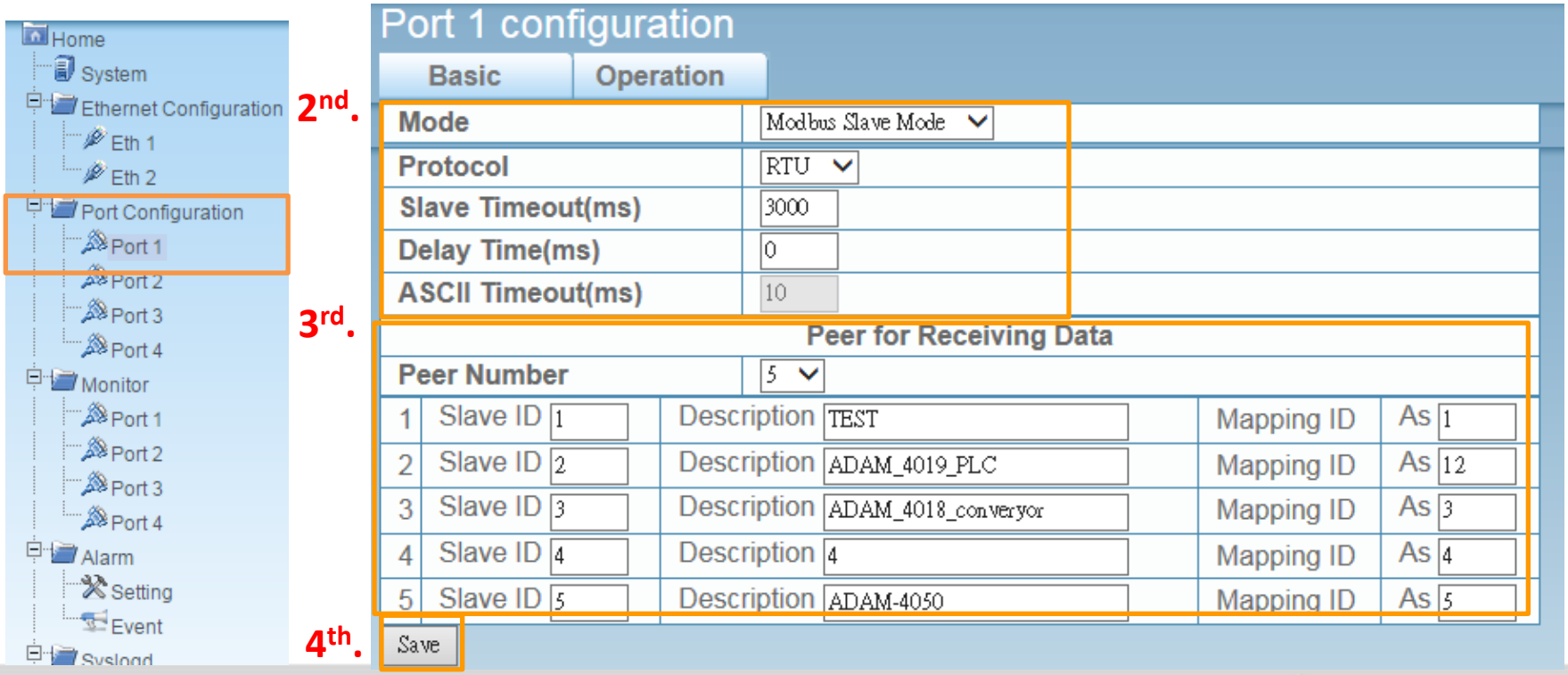
Configure Modbus Slave Mode(2/3)

2 : Operation Page Setting

2nd. **Mode:** Modbus Slave Mode; **Protocol:** select "**RTU/ASCII**" type;
Slave Timeout: Modbus GW wait for slave device time interval

3rd. **Peer for Receiving Data <we support up to 32 peers>**
Slave ID : End device ID & Mapping ID: Host remapping ID

4th. **Save**: Save to change



Configure Modbus Slave Mode(3/3)

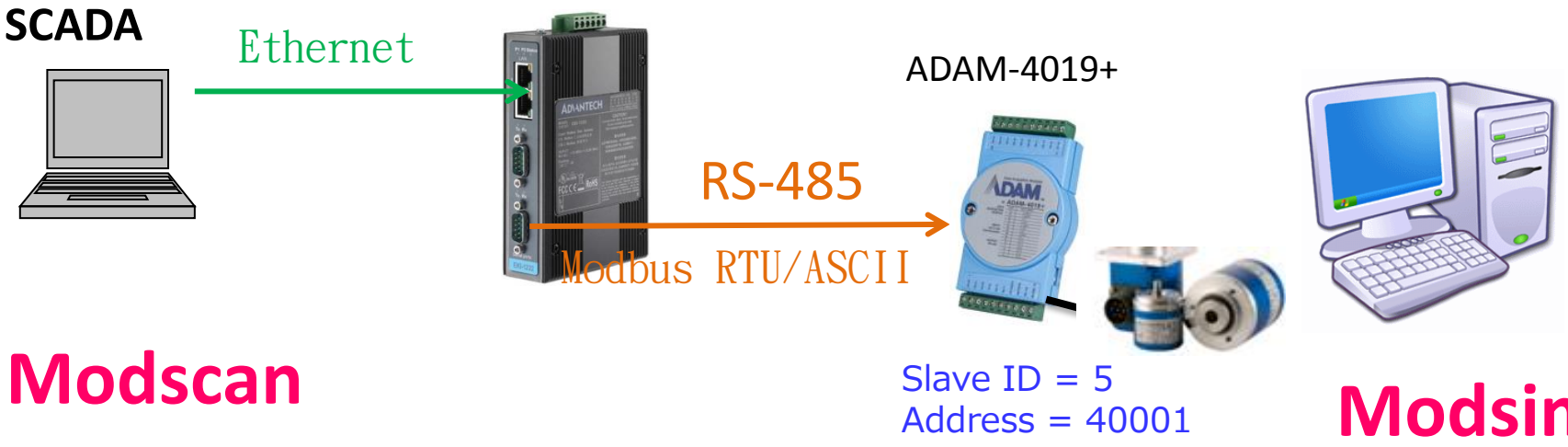
3. After modified the configuration, EKI need to reboot and run the new setting

Test Tool:

Modscan/ Modsim tool

Why use Modsim and Modscan ?

- Simulate both side works as Ethernet or COM port, and be able to send out the Modbus data which is Modbus TCP or Modbus RTU/ASCII
- It's compatible with Windows XP and 7 (Working as Administrator)



Weakness：Modsim only simulate the quantity of COM Ports up to 9

Set-up Modsim tool

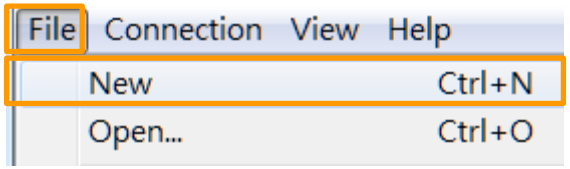
If you want to simulate the end device to send out the data with Modbus RTU/ASCII

1st. Click "File" and "New"

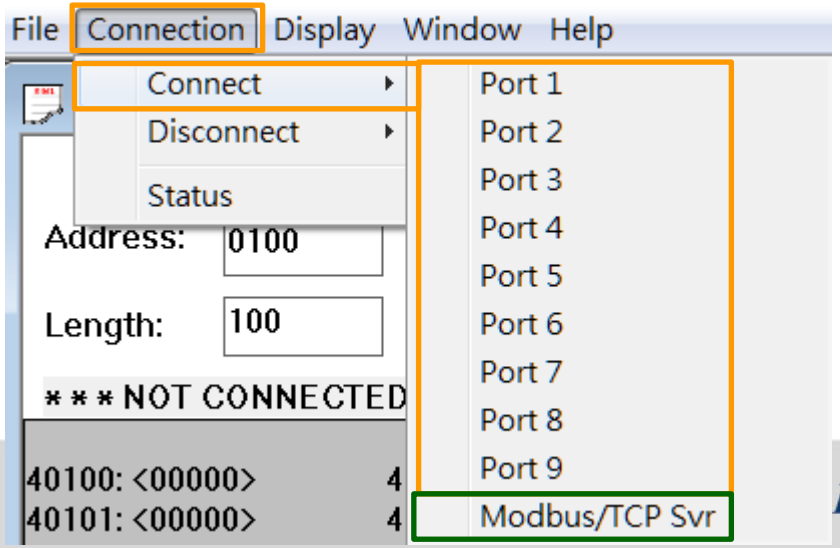
2nd. Click "Connection", and select the "COM Port" (Up to 9)

3rd. Select the protocol of Modbus "RTU" or "ASCII"

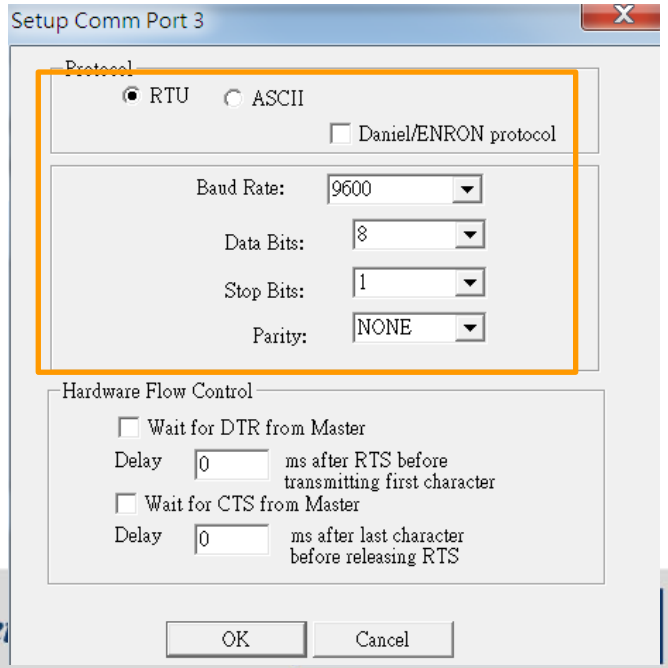
1st.



2nd.

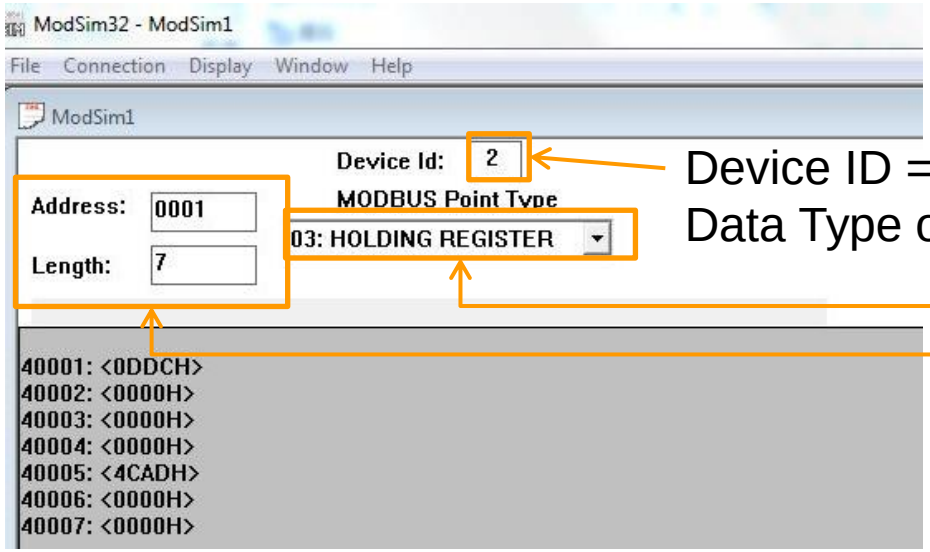


3rd.



Send out Modbus RTU/ASCII by Modsim

Slave ID, *Function Code*, *Address* and *Data Length* as below:



Device ID = Node of End device
Data Type of Modbus、 Address and Data Length

Set-up Modscan tool

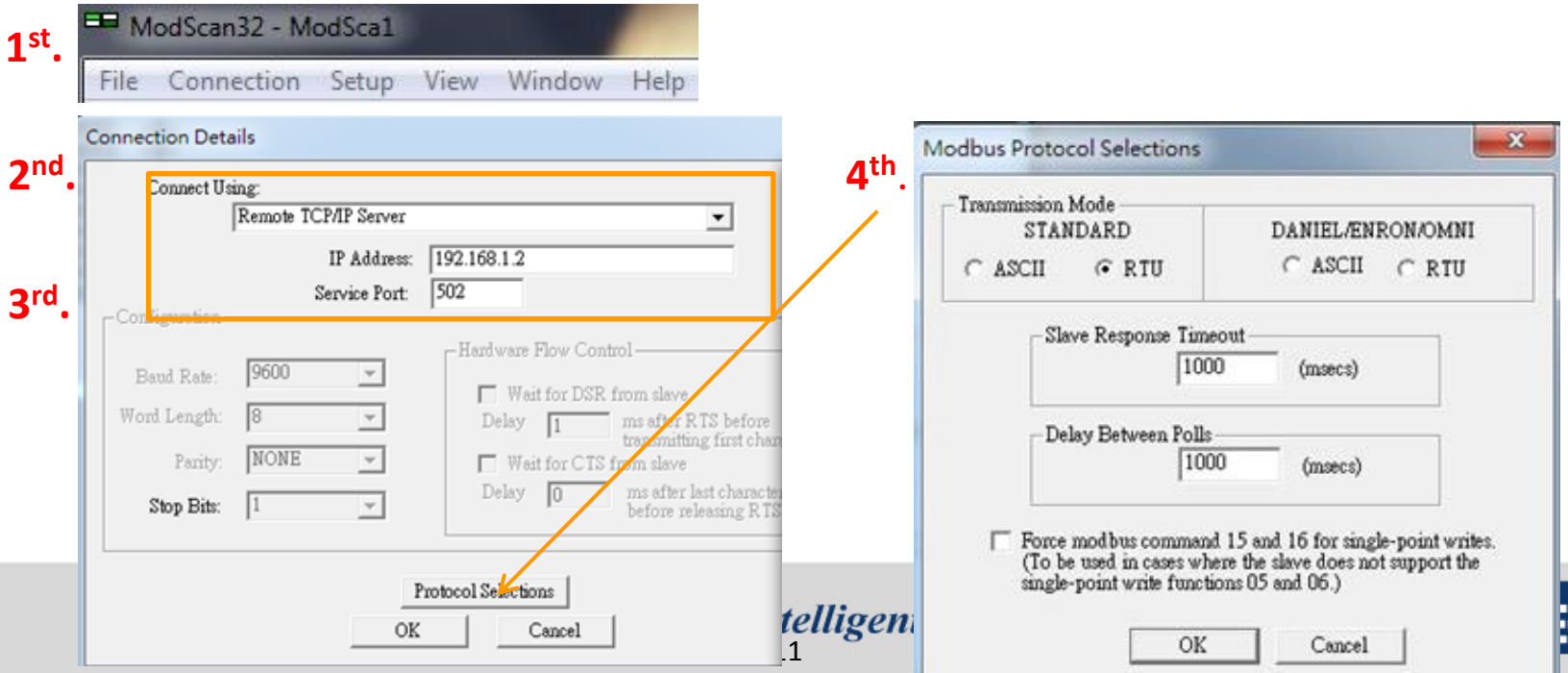
- If you want to simulate the data center to send out the polling with Modbus TCP

  1st. Click “Connection” and “Connect”

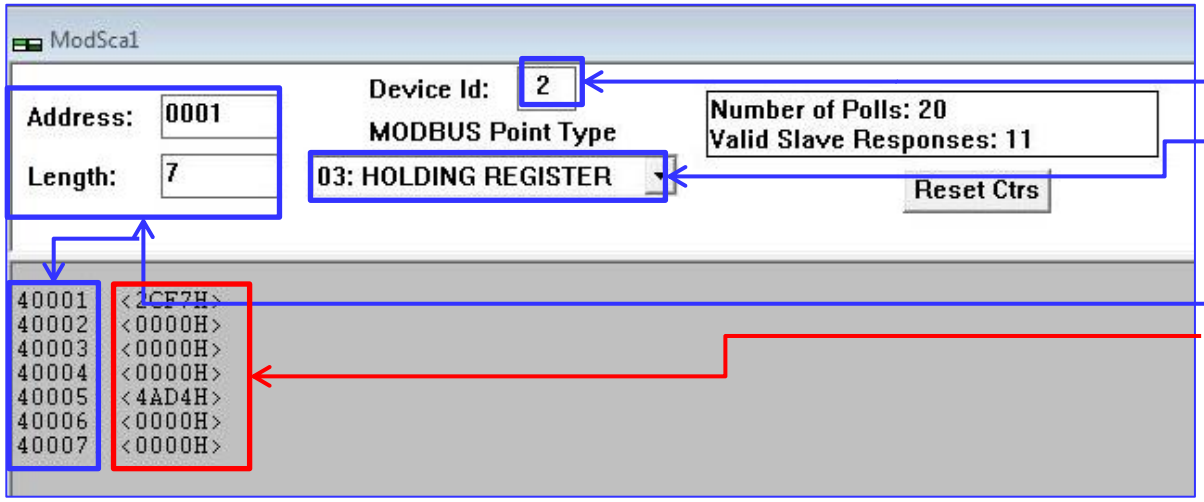
  2nd. To select “Remote TCP/IP Server” =>IP Address: Fill in the IP of Modbus gateway

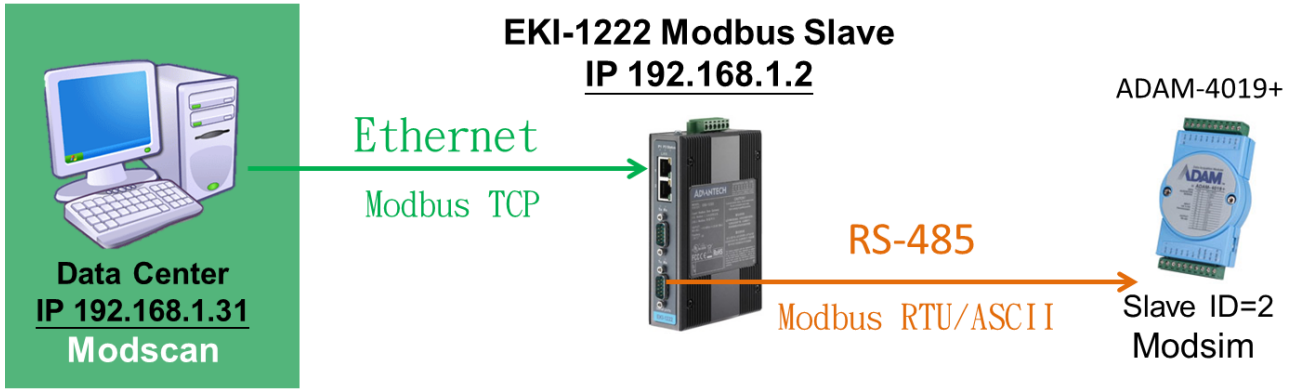
  3rd. Service Port: 502 (Default setting of Modbus)

  4th. Click “Protocol Selections” to select the protocol of Modbus



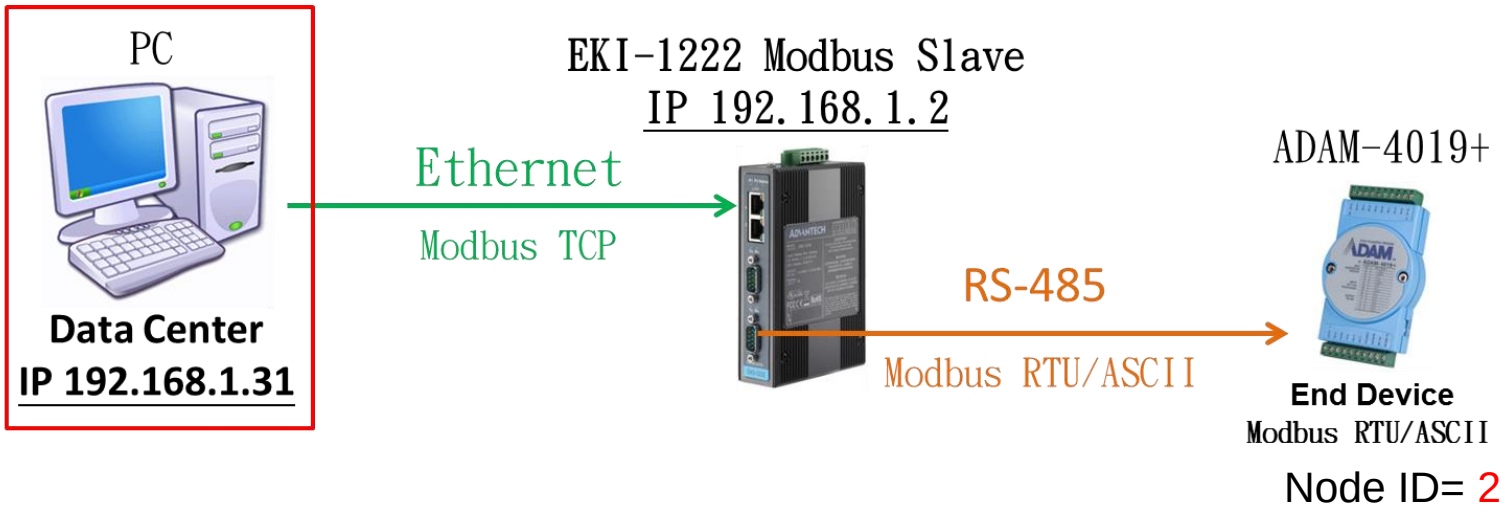
Polling Modbus TCP data by Modscan





How to Test
Modbus Slave Mode

How to Test the Modbus Slave Mode



2nd. Click "Connection" and "Connect"

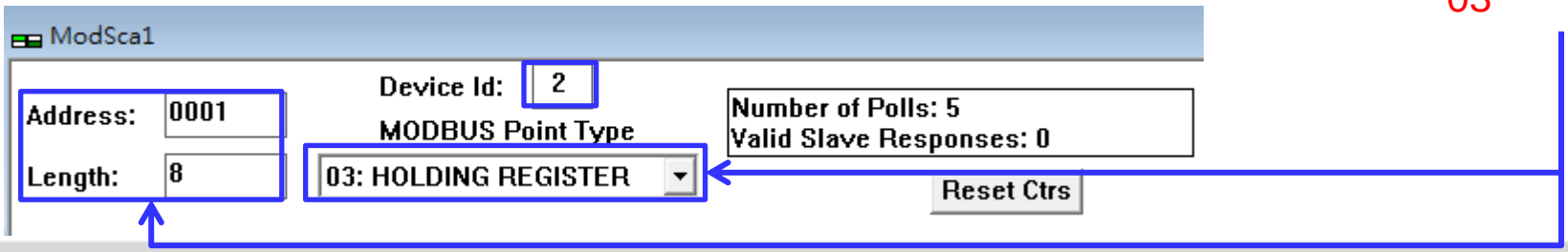
3rd. To select "Remote TCP/IP Server" =>IP Address: Fill in the IP of Modbus gateway

4th. Service Port: 502 (Default setting of Modbus)

5th. Click "Protocol Selections" to select the protocol of Modbus

Device ID = Node of end device
Function Code, Address and Data Length *The value must be same with end device
The counter for Polling data and valid data

Address length:
40001~40008
Function Code:
03



How to Test the Modbus Slave

PC

Data Center
IP 192.168.1.31

Ethernet

Modbus TCP

EKI-1222 Modbus Slave
IP 192.168.1.2

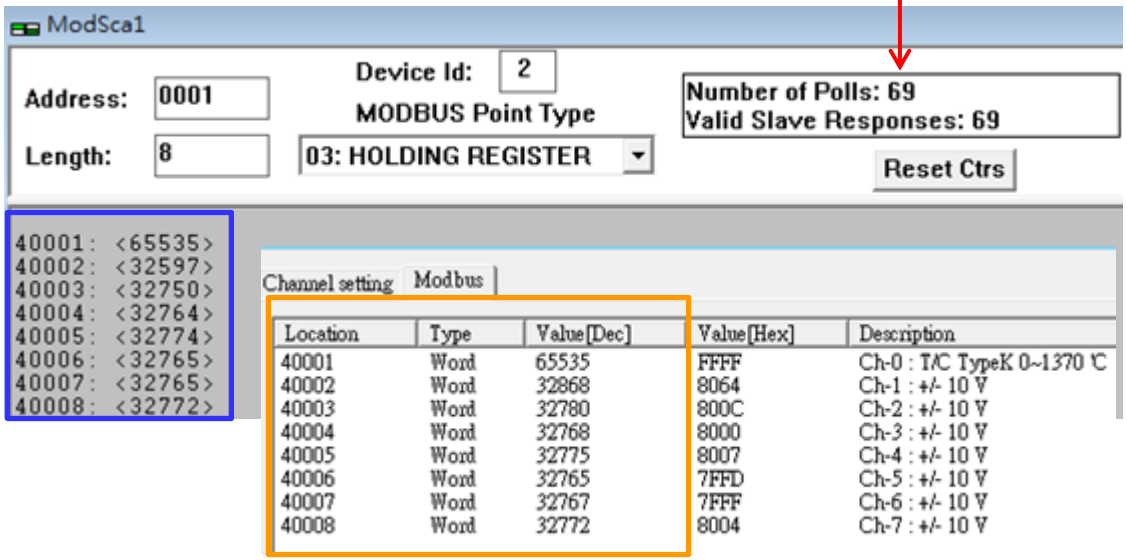
RS-485

Modbus RTU/ASCII

ADAM-4019+

End Device
Modbus RTU/ASCII

Polling the data from Modbus gateway Slave Mode success



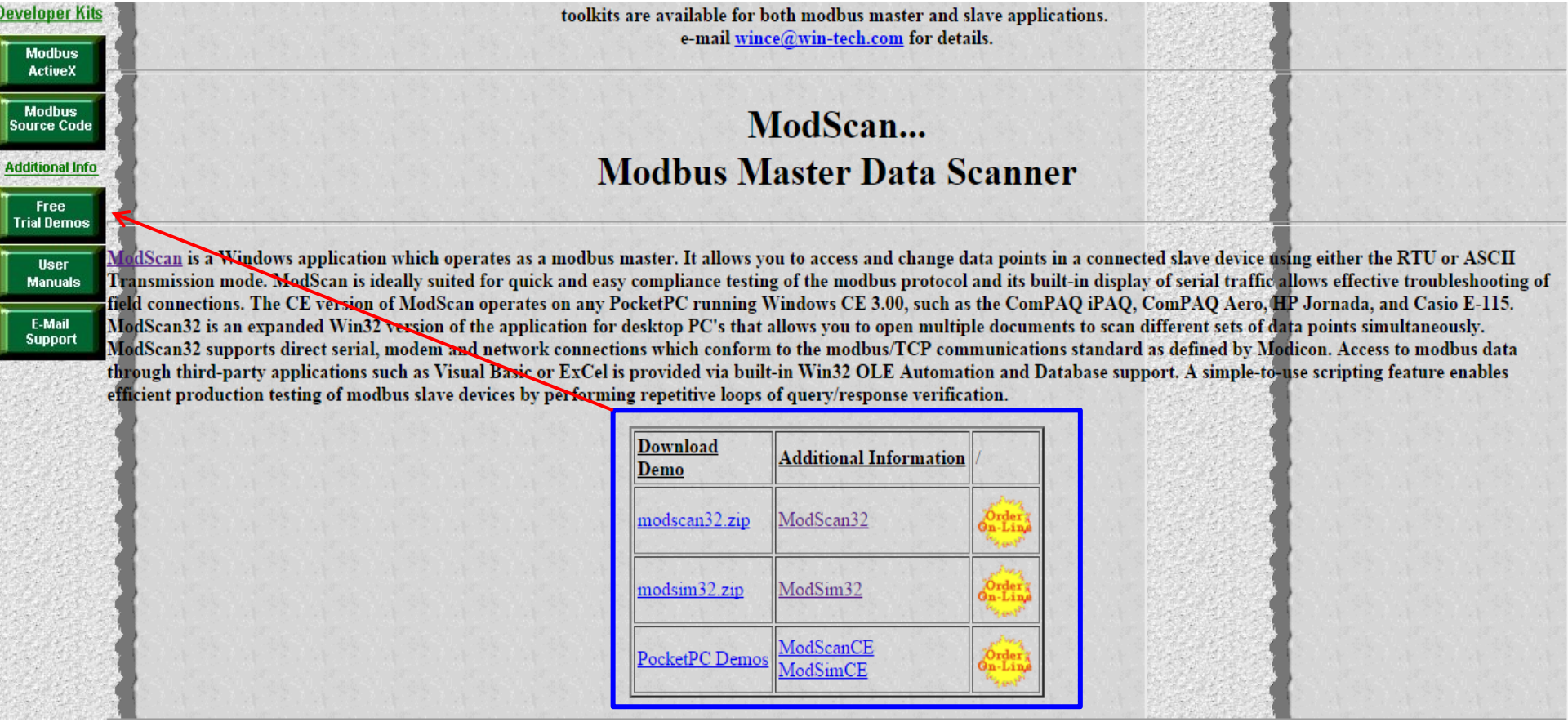
Location	Type	Value[Dec]	Value[Hex]	Description
40001	Word	65535	FFFF	Ch-0 : T/C TypeK 0~1370 ℃
40002	Word	32868	8064	Ch-1 : +/- 10 V
40003	Word	32780	800C	Ch-2 : +/- 10 V
40004	Word	32768	8000	Ch-3 : +/- 10 V
40005	Word	32775	8007	Ch-4 : +/- 10 V
40006	Word	32765	7FFD	Ch-5 : +/- 10 V
40007	Word	32767	7FFF	Ch-6 : +/- 10 V
40008	Word	32772	8004	Ch-7 : +/- 10 V

40001
Address

Modbus Point Type

01: Coil Status	=0
02: Input Status	=1
03: Holding Register	=4
04: Input Register	=3

Reference: Modscan/modsim tool



http://www.win-tech.com/html/modbus1.htm

Enabling an Intelligent Planet