

How to configure Yabe and test for EKI-1242BNMS

v1.0

2018/05/08

1 Induction

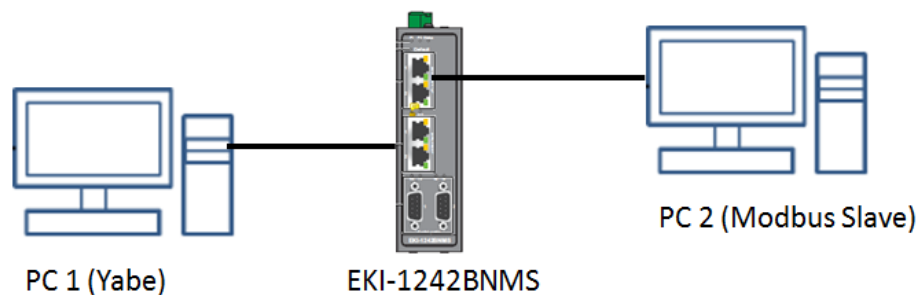
1.1 Overview

Advantech EKI-1242BNMS is a protocol gateway that provides users with the following software features:

- Gateway function to transfer data between Modbus TCP/RTU and BACnet
- I/O mapped command status
- WEB-based GUI for I/O data visualization
- Effortless configuration via WEB
- Dual image
- Easy backup & restore configuration via microSD card

Note. Device WEB page can be accessed only via Modbus TCP Ethernet port.

1.2 Environment



- PC 1: Installed Yabe
 - IP Address: 192.168.0.5
- PC 2: Installed modsim for MODBUS Slave
 - IP Address: 192.168.1.15

- EKI-1242BNMS:
 - BACnet Interface IP Address: 192.168.0.1
 - MODBUS TCP Interface IP Address: 192.168.1.1

2 Modbus TCP Setting

For the testing, add two transactions as below.

- Transaction 1:
 - Name: "Read 1"
 - Mode: TCP
 - Slave IP Address: 192.168.1.15
 - Port: 502
 - Slave ID: 1
 - Function Code: 04- Read input registers
 - Poll Interval: 1000
 - Data Swap: None
 - Read Starting Address: 100
 - Read Quantity: 2
 - Response Timeout: 1000
- Transaction 2:
 - Name: "Write 1"
 - Mode: TCP
 - Slave IP Address: 192.168.1.15
 - Port: 502
 - Slave ID: 1
 - Function Code: 16- Write multiple registers
 - Trigger: Cyclic
 - Poll Interval: 1000
 - Data Swap: None
 - Write Starting Address: 110
 - Write Quantity: 2
 - Response Timeout: 1000

To access this page, click Protocol Setting > Modbus Setting

Modbus Setting

Start-up Mode
Running

When Modbus error
Freeze Data

Submit

Modbus Commands

Allocated input size: 4 bytes output size: 4 bytes
AI objects:2 AO objects:2 BI objects:0 BO objects:0

Add Edit Delete Copy

Index	Name	Mode	Slave ID	FC	Address/Quantity	Trigger	Scan Interval	Data Swap	32-bit	Response Timeout
1	Read 1	TCP Slave IP Address: 192.168.1.15 Port: 502	1	4	Read Address 100, Quantity 2	Cyclic	1000	None	Disabled	1000
2	Write 1	TCP Slave IP Address: 192.168.1.15 Port: 502	1	16	Write Address 110, Quantity 2	Cyclic	1000	None	Disabled	1000

Note: The gateway needs to be restarted before any changes will take effect.

3 Setup MODBUS Slave

3.1ModSim32

ModSim32 is a very simple but powerful application for simulating data from MODBUS slave devices. We use the application to simulate a MODBUS Slave device for this testing.

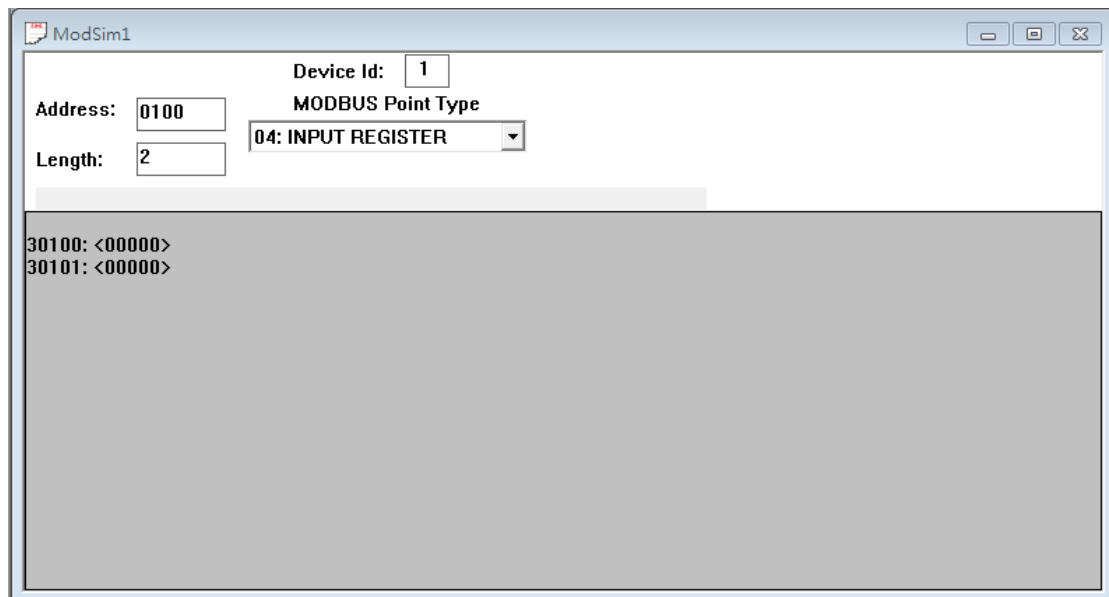
Step1: Execute ModSim32.exe

Step2: New a MODBUS slave device in File → New.

Step3: Configure setting as below

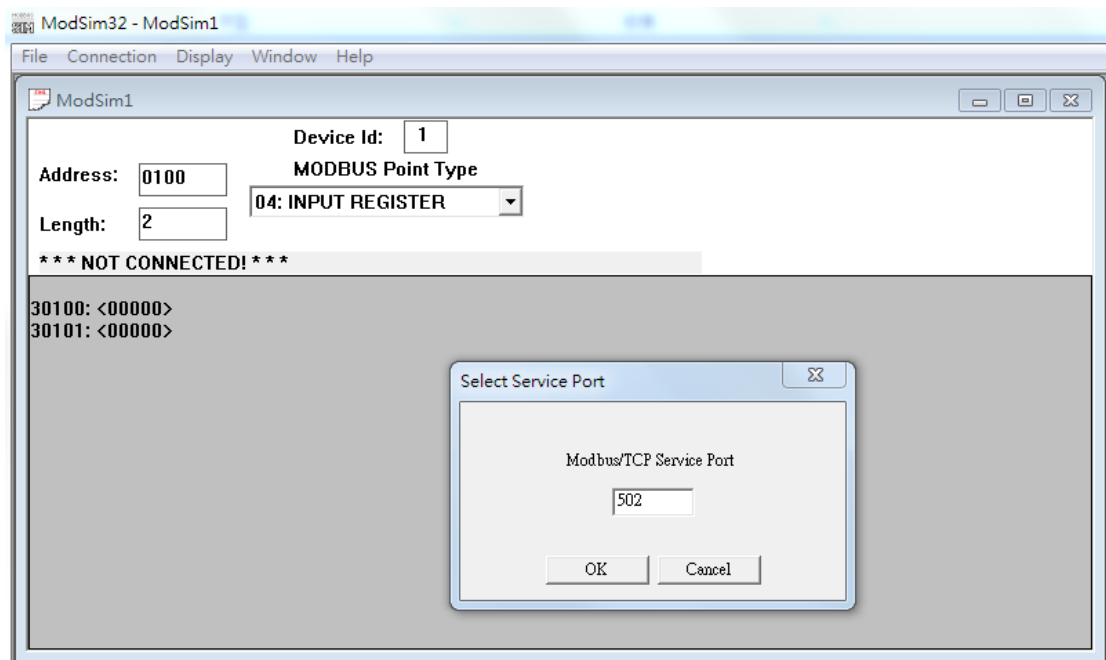
- Device Id: 1
- Address: 0100

- Length: 2
- Modbus Point Type: 04: INPUT REGISTER



Step4: Start MODBUS Slave in Connection→Connect→Modbus/TCP Svr. And

select Modbus/TCP Service Port to 502.



Step5: Configure EKI-1242BNMS Modbus settings, please reference to

EKI-1242BNMS Quick Guide. Here will be created 2 transactions for this testing.

Modbus Commands

Allocated input size: 4 bytes output size: 4 bytes
AI objects:2 AO objects:2 BI objects:0 BO objects:0

Add

Edit

Delete

Copy

Index	Name	Mode	Slave ID	FC	Address/Quantity	Trigger	Scan Interval	Data Swap	32-bit	Response Timeout
1	Read 1	TCP Slave IP Address: 192.168.1.15 Port: 502	1	4	Read Address 100, Quantity 2	Cyclic	1000	None	Disabled	1000
2	Write 1	TCP Slave IP Address: 192.168.1.15 Port: 502	1	16	Write Address 110, Quantity 2	Cyclic	1000	None	Disabled	1000

To access this page, click Protocol Setting > Mapping Overview

BACnet Object Mapping - AI

Object identifier	Device name	Address	Object name
AI1	Read 1	100	ANALOG INPUT 1
AI2	Read 1	100	ANALOG INPUT 2

BACnet Object Mapping - AO

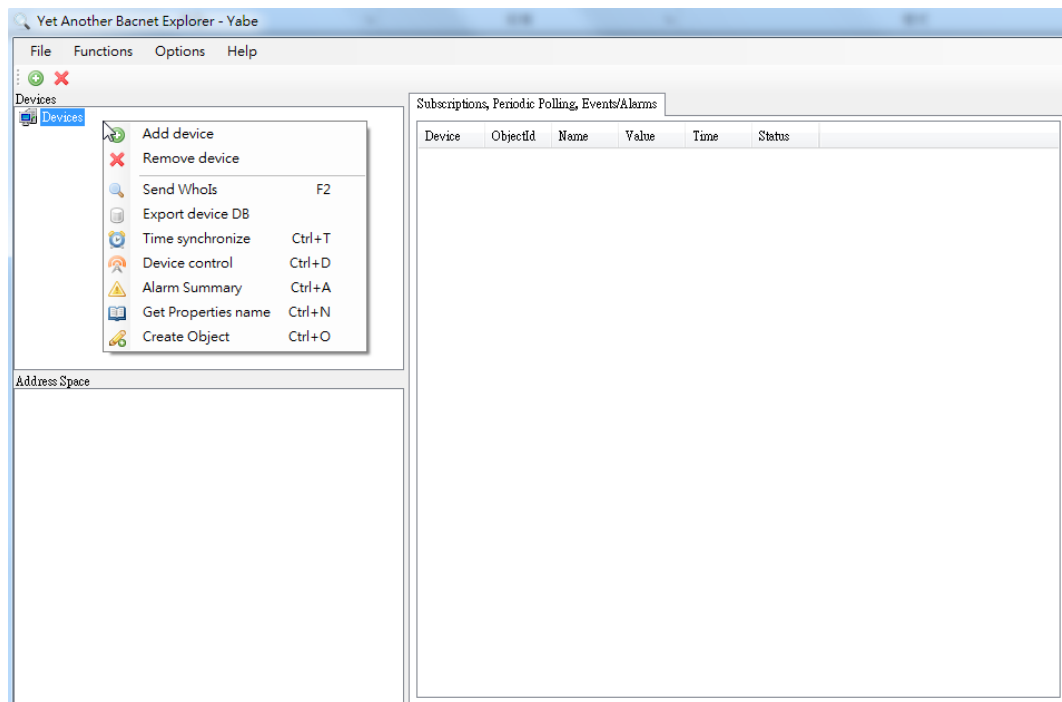
Object identifier	Device name	Address	Object name
AO1	Write 1	110	ANALOG OUTPUT 1
AO2	Write 1	110	ANALOG OUTPUT 2

4 Yet Another BACnet Explorer

(Yabe) Setting

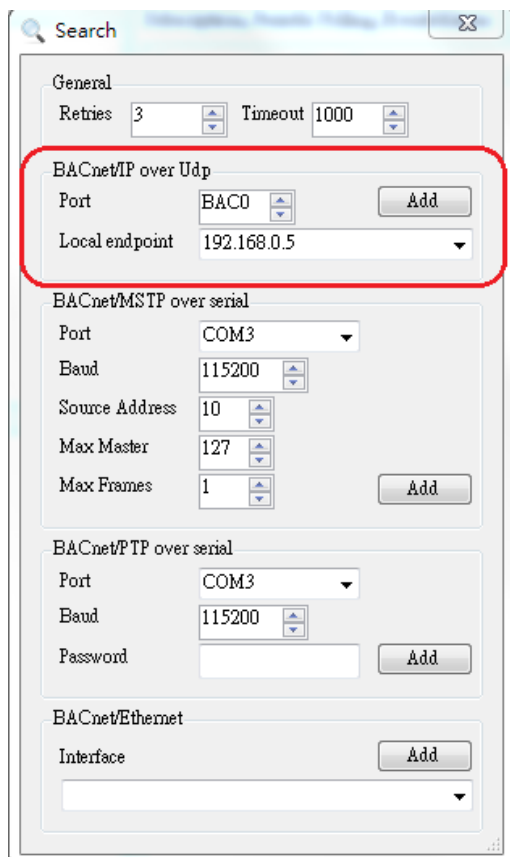
4.1 Add device

Click “Right button” on Devices icon to Add device

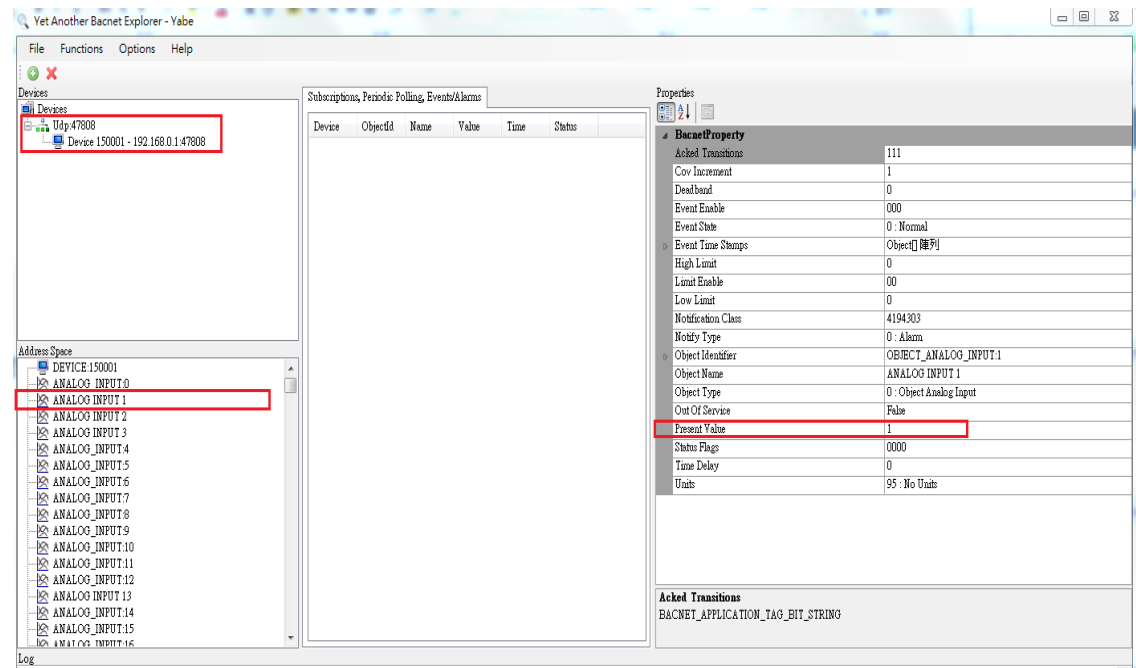


4.2 Add BACnet IP device

In the BACnet/IP over Udp options and click “Add” button



Find Device 150001 on 192.168.0.1:47808 and click ANALOG INPUT 1 to check Properties about Present Value



4.3 Add BACnet MSTP device

To access this page, click Protocol Setting > BACnet Setting
Change Mode to MSTP

The screenshot shows the 'BACnet Setting' configuration window. It has a title bar with a gear icon and the text 'BACnet Setting'. The main area contains the following settings:

- Device Status/Control Word in AI[0]/AO[0]**: Radio buttons for 'Enabled' and 'Disabled'. 'Disabled' is selected.
- BACnet Device Name**: Text input field containing 'ADV_bacserv'.
- Device Identifier**: Text input field containing '150001'. To the right, the range '(0 - 4194302)' is displayed.
- Mode**: Dropdown menu showing 'MSTP'.
- Max. Masters**: Text input field containing '127'. To the right, the range '(0 - 127)' is displayed.
- Max Info Frames**: Text input field containing '1'. To the right, the range '(1 - 65535)' is displayed.
- MAC. Address**: Text input field containing '1'. To the right, the range '(0 - 127)' is displayed.

At the bottom center, there is a blue 'Submit' button.

And then access this page, click Serial Setting > Port 1 (BACnet)

ADVANTECH EKI-1242BNMS Fieldbus Gateway

Home / Serial Settings / BACnet RS485 Port

BACnet RS485 Port

Baud Rate 115200

Submit

Yabe Setting in the BACnet/MSTP over serial options and click “Add” button
Please check Baud rate is same with device Port 1 (BACnet)

Search

General
Retries 3 Timeout 1000

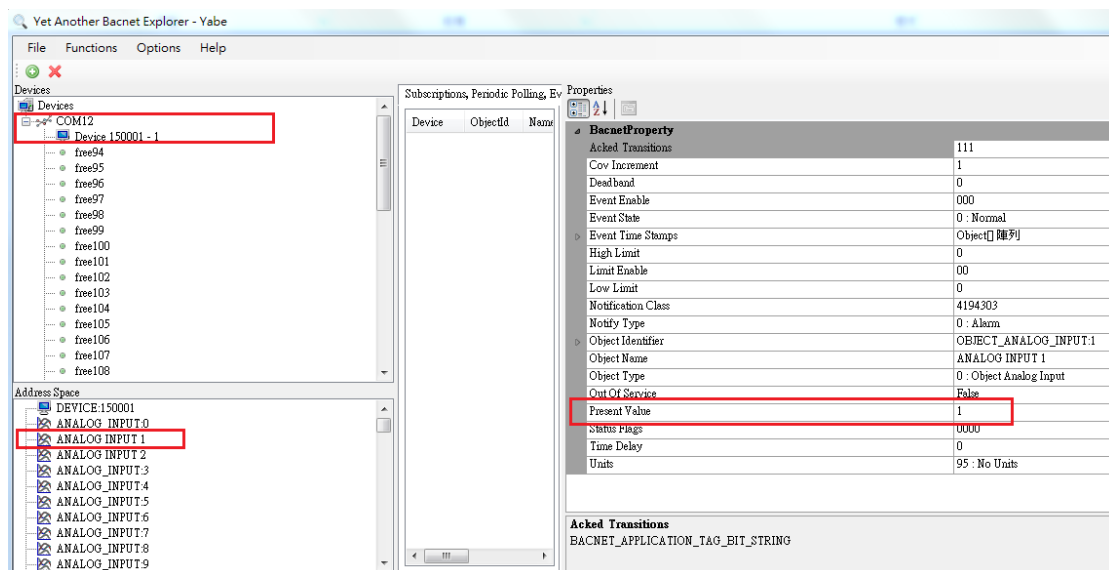
BACnet/IP over Udp
Port BAC0 Add
Local endpoint 192.168.0.5

BACnet/MSTP over serial
Port COM3
Baud 115200
Source Address 10
Max Master 127
Max Frames 1 Add

BACnet/PTP over serial
Port COM3
Baud 115200
Password Add

BACnet/Ethernet
Interface Add

Find Device 150001 on COM12 and click ANALOG INPUT 1
to check Properties about Present Value



NOTE: To access Protocol Setting > BACnet Setting and select Mode for
EKI-1242BNMS support BACnet IP or BACnet MSTP