

# ZT-2570/ZT-2571

## Quick Start

### 1 What's in the shipping package?

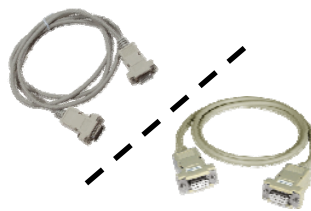
The package includes the following items:



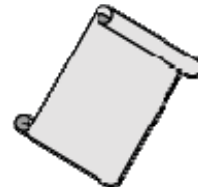
ZT-257x Device



ANT-124-05



CA-0915 (ZT-2570) /  
CA-0910N (ZT-2571)



Release Note



CD

If any of these items are missing or damaged, please contact the local distributor for more information. Save the shipping materials and cartons in case you want to ship the module in the future.

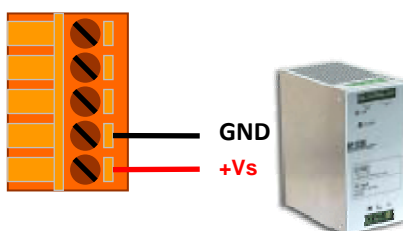
### 2 Preparations for devices

1. Install ZT Configuration Utility (v1.0.0 or later) :

CD: \Napdos\ZigBee\ZT\_Series\Utility

[http://ftp.icpdas.com/pub/cd/usbcd/napdos/zigbee/zt\\_series/utility](http://ftp.icpdas.com/pub/cd/usbcd/napdos/zigbee/zt_series/utility)

2. Power Supply : +10 ~ +30V<sub>DC</sub>



# 3 Introduction of configurations

## Overview of the ZT-257x Configurations Options/Parameters

1. **“Pan ID”** is the group identity of a ZigBee network, and must be the same if they are in the same ZigBee network.  
(Valid values range from 0x0000 to 0x3FFF)

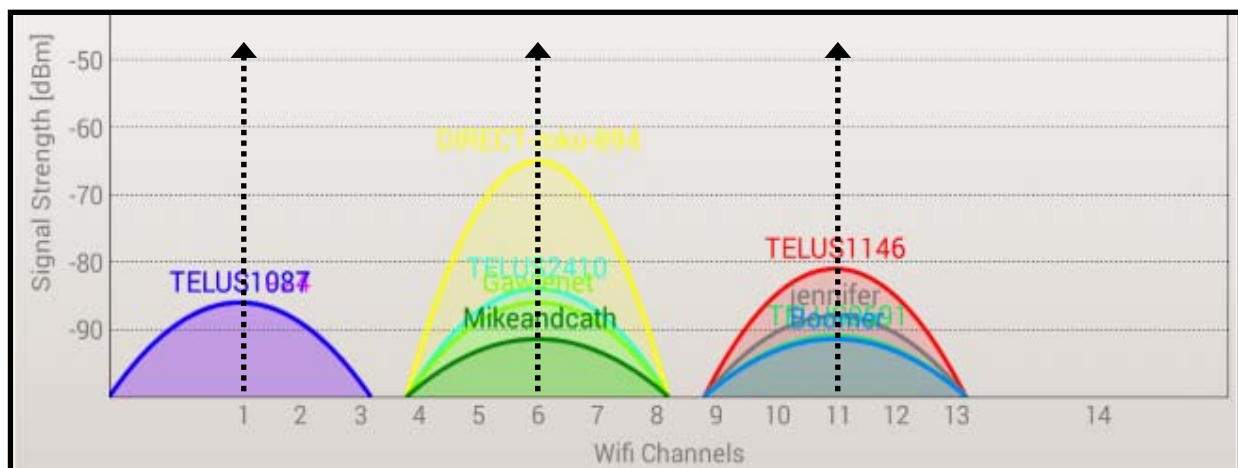
2. **“Node ID”** is the identity of the ZigBee module.  
The identity number must be unique if it is in the same ZigBee network as other ZigBee module. (Valid values range from 0x0001 to 0xFFF7 for a ZigBee Router, but is fixed to 0x0000 for a ZigBee Coordinator)

3. **“RF Channel”** indicates the radio frequency channel, and must be set to the same channel if the module is in the same ZigBee network as other ZigBee modules.

Channel	0x00	0x01	.....	0x0F
Frequency(MHz)	2405	2410	.....	2480

Use application tools or analyzers to detect the wireless signal, chose a RF Channel which has not been occupied. E.g. Wifi Analyzer

As below the screenshot shown, there were several WLANs over the channel 1, 6 and 11. Referring to the channel table of WiFi and ZigBee, the channels of ZigBee 4, 9, E and F are not overlap with WLAN. So, the RF Channel 4, 9, E and F of ZigBee are recommended in this case.

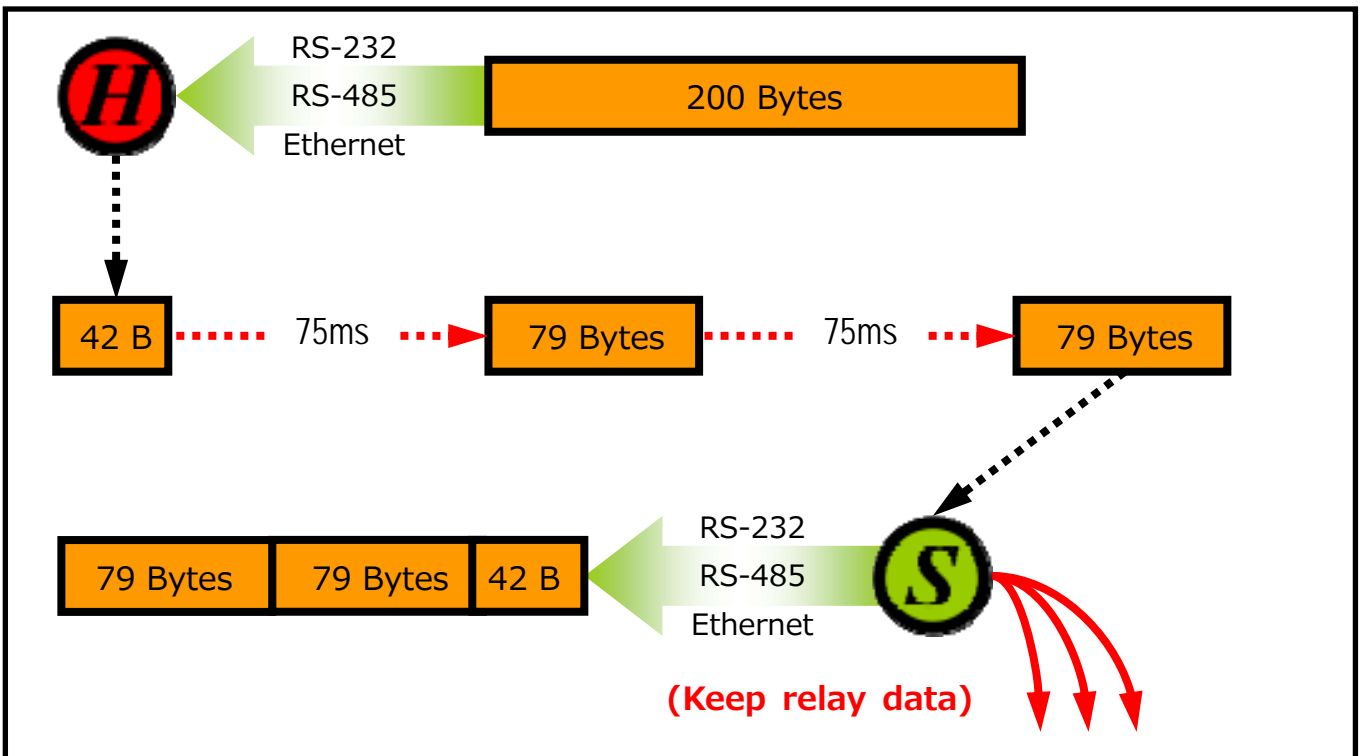
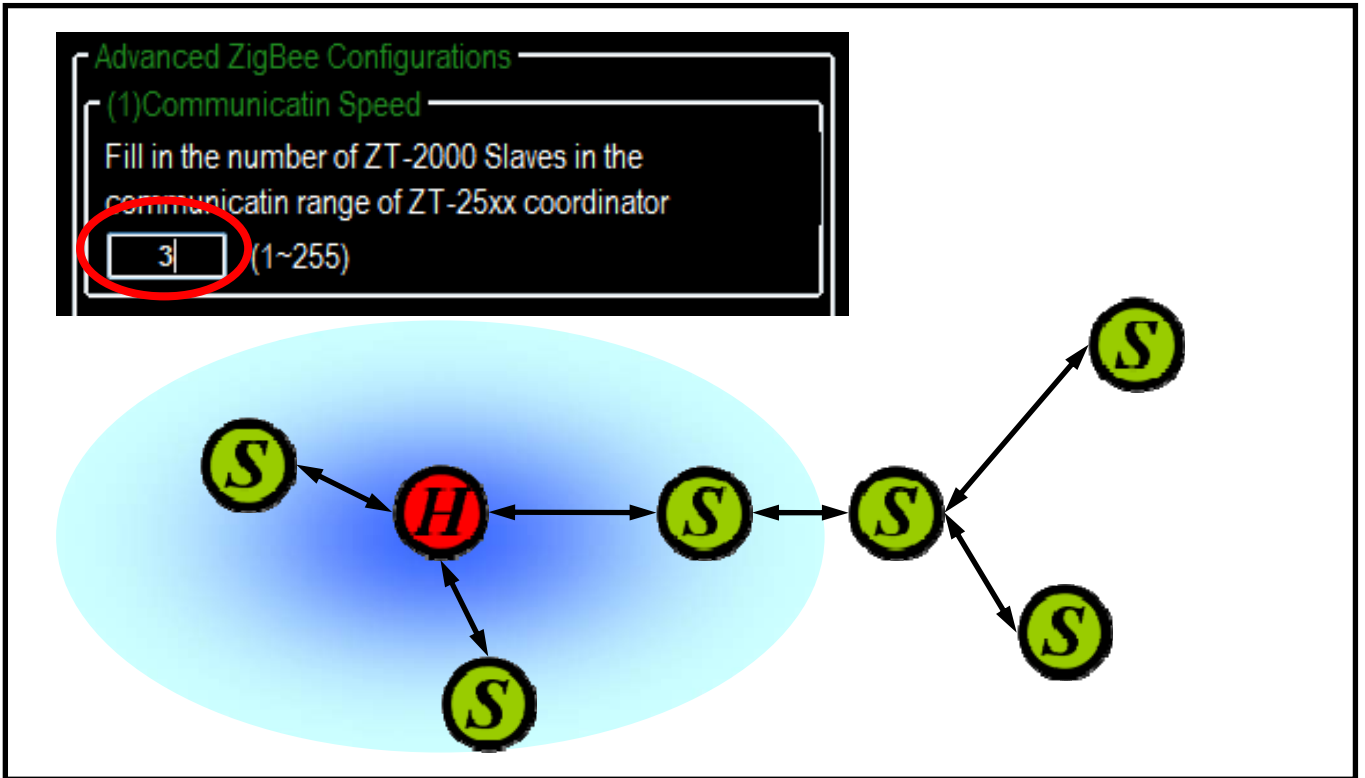




#### 4. Communication Speed (Broadcasting Frame Sending Interval):

The packet payload of ZT-2000 series devices is 79 bytes. Data above 79 bytes will be transmitted in several packets. This parameter decides the broadcasting frame sending interval time to avoid the network overloading. User only fills in the number of ZT-2000 slaves nearby the ZigBee Coordinator.

➤ Example:



5. **“RF Power”** denotes the wireless transmit power value.

Code	Note
0x0F	Typical Maximum
0x08	Fit the CE/FCC certification
0x00	Typical Minimum

※ The parameter adjustment purely personal behavior, ICP DAS can not guarantee to pass CE/FCC certification if adjusting this parameter, nor assume any liability because of the adjustment parameters derived from the RF Power.

6. **“Baud rate & Data Format”** values are based on the configuration of the serial port.

Item	Specification
Data Format	N81, N82, O71, O81, E71, E81, S81, M81
Baud rate	1200 ~ 115200 bps

7. **Communication Interface** is three types provided as below.

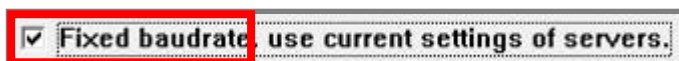
a. **Serial Port** : RS-232 and RS-485 are enabled and it allows working with Ethernet at the same time.

b. **Ethernet** : Either TCP Server or TCP Client is enabled and it allows working with RS-232 or RS-485 at the same time.

c. **Virtual COM** : Virtual COM driver needs to be installed in the desktop and the COM is working independently to the serial and Ethernet.

※ Download: <http://www.icpdas.com/products/Software/VxComm/vxcomm.htm>

※ Note: Please select “Fixed baud rate” if the virtual COM is not in the 115200 bps and N81 format.

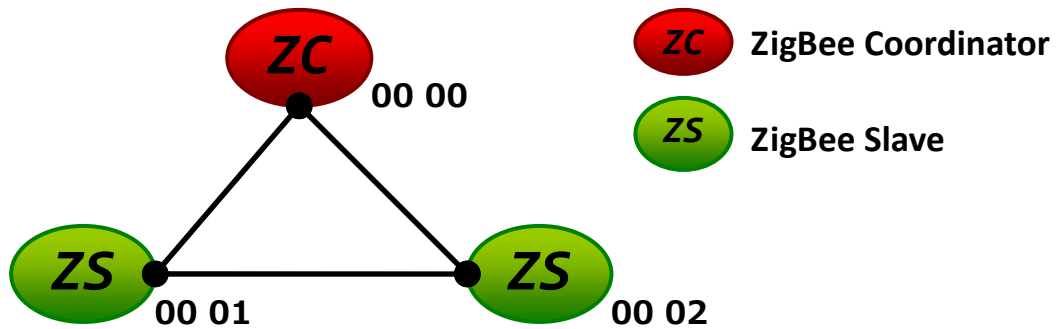


Port	Virtual COM	Baudrate
Port I/O	Reserved	N/A
Port 1	Reserved	Dynamic
Port 2	COM11	Fixed

8. **Configurations of TCP :**

ZT-257x device	
IP	IP must be the same segment with LAN segment of desktop
Mask	Mask must be the same with LAN of desktop
Gateway	Gateway must be the same with LAN of desktop
Port	User port will listen to connection request when it acts TCP Server
Connection Target (Need to set when it acts TCP Client)	
IP	The IP of connection target
Port	The port of connection target

9. "Application Mode" can be changed and used for certain specific purpose.



The above schematic diagram is showing what the difference of using different application modes.

**a. Transparent Mode** is the default application mode, and always transmits data to the remote device via broadcasting. Unless there are specific purposes, the application mode can be retained as default. The mode always bypasses data to remote side via broadcasting. If there is no particular purpose, user only keeps this application mode.

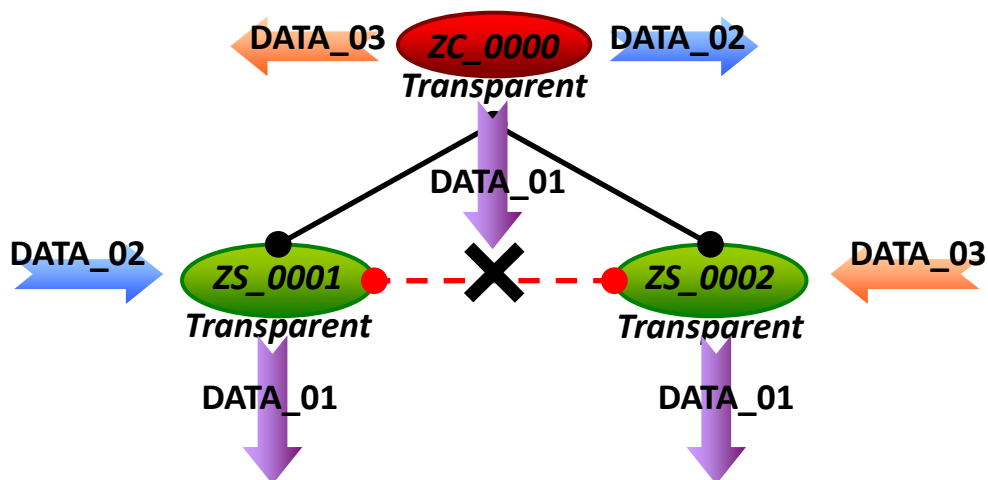
Module	Frame Type	Note
ZT-2570	Broadcast	Data will be sent to all ZigBee slaves
ZT-2571	Unicast	Data will only be sent to the coordinator

**[Eg1]** When ZT-2550 ZigBee Host sends "DATA\_01" via broadcasting frame, →Both of the ZigBee slave 0x0001 and 0x0002 will receive the DATA\_01.

※ *Broadcasting type frame, data will be sent to every ZigBee slaves in the same ZigBee network*

**[Eg2]** When the ZigBee slave 0x0001 sends "DATA\_02" via unicast frame, →Only ZT-2550 receives DATA\_02.

※ *Unicast type frame, data will only be sent to the ZigBee host*



※ There is an "Advanced Settings" for some specific user, please refer the user manual section 7.3 "Non-addressable Device Communication" for more information.

**b. Addressable Mode** is an advanced application mode and it is used to send data to specific ZigBee nodes. It is not only used to transmit data to specific ZigBee slaves from host but also transmit data between ZigBee slaves. A 5-byte ASCII code should be added as an index before the data.

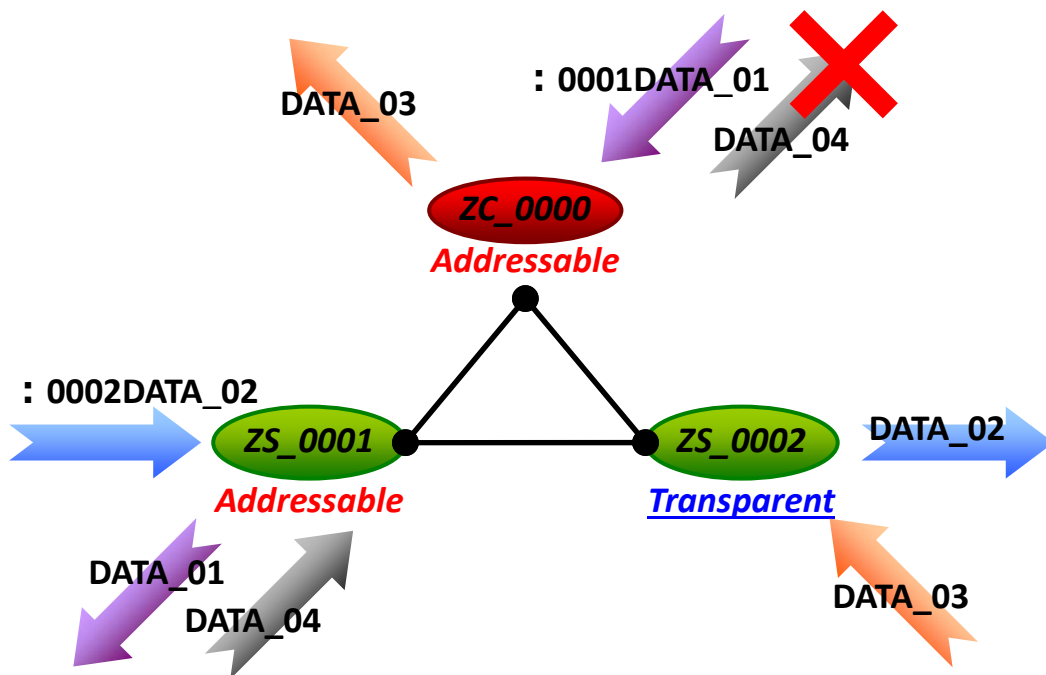
Module	Frame Type	Note
ZT-2570 ZT-2571	Unicast	Data will be sent to a specific ZigBee slave. Format: ":AAAA" + Data

**[Eg1]** When ZT-2550 ZigBee Host sends ":0001DATA\_01" via unicast frame,  
→Only the ZigBee Slave 0x0001 receives DATA\_01.

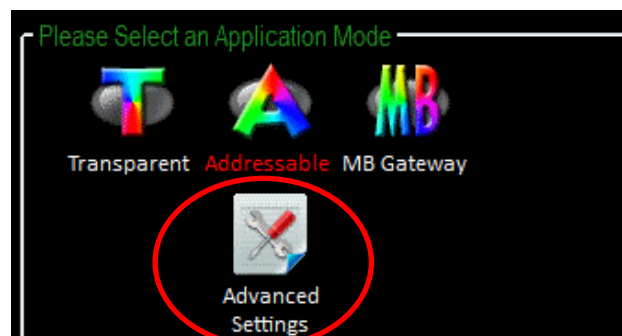
※ *Unicast type frame, data will be only sent to the specific ZigBee node*

**[Eg2]** When ZigBee slave 0x0001 sends ":0002DATA\_02" via unicast frame,  
→Only the ZigBee Slave 0x0002 receives DATA\_02.

※ *Unicast type frame, data will be only sent to the specific ZigBee node*



※ There is an "Advanced Settings" for some specific user, please refer the user manual section 7.3 "Non-addressable Device Communication" for more information.



**c. Gateway Mode** is an advanced application mode and it is used to convert the Modbus protocol. Data is regarded as Modbus RTU if communicates through via RS-232 or RS-485, else data is regarded as Modbus TCP if it communicates via the Ethernet.

Module	Frame Type	Note
ZT-2570	Broadcast	Data will be sent to all ZigBee slaves
ZT-2571	Unicast	Data will only be sent to the coordinator

**[Eg1]** When ZT-2570 receives data "MRTU\_CMD\_01" from serial port,  
 →ZT-2571 will output the data "MRTU\_CMD\_01" directly to serial port.  
 →ZT-2571 will convert protocol then output "MTCP\_CMD\_01" to Ethernet.

※ *Broadcasting type frame, data will be sent to every ZigBee slaves in the same ZigBee network*

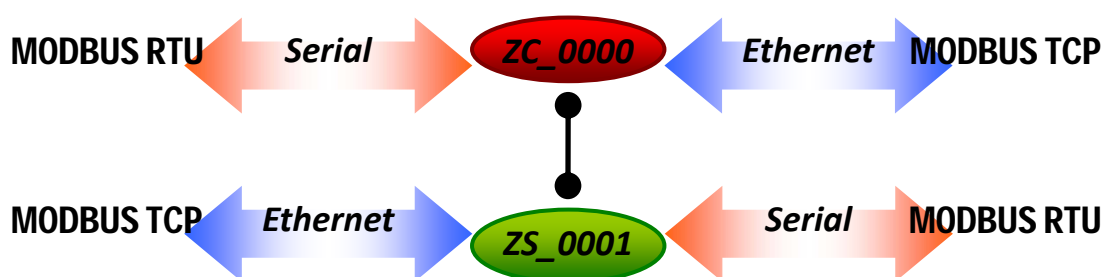
**[Eg2]** When ZT-2570 receives data "MTCP\_CMD\_02" from Ethernet,  
 →ZT-2571 will convert protocol then output "MRTU\_CMD\_01" to serial port.→  
 ZT-2571 will output the data "MTCP\_CMD\_01" directly to Ethernet.

※ *Broadcasting type frame, data will be sent to every ZigBee slaves in the same ZigBee network*

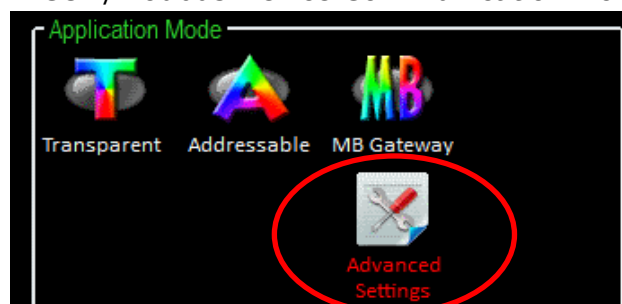
**[Eg3]** When ZT-2571 transmits the acknowledgement "MRTU\_ACK\_03",  
 →ZT-2570 will response the acknowledgement "MRTU\_ACK\_03" directly to serial port.

→ZT-2570 will convert protocol then output "MTCP\_CMD\_01" to Ethernet.

※ *Unicast type frame, data will only be sent to the ZigBee host*



※ There is an "Advanced Settings" to the for some specific user, please refer the user manual section 7.2 "DCON/Modbus Device Communication" for more information.

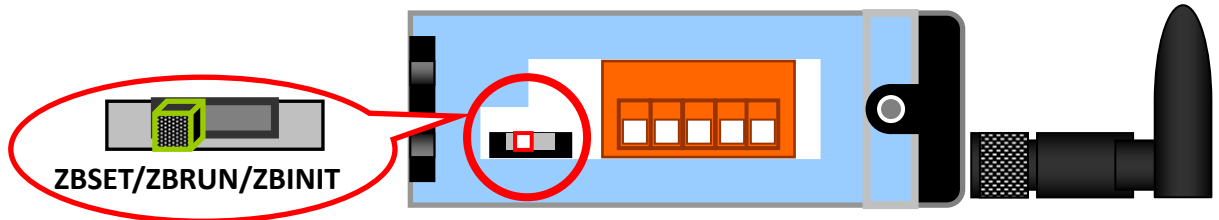


※



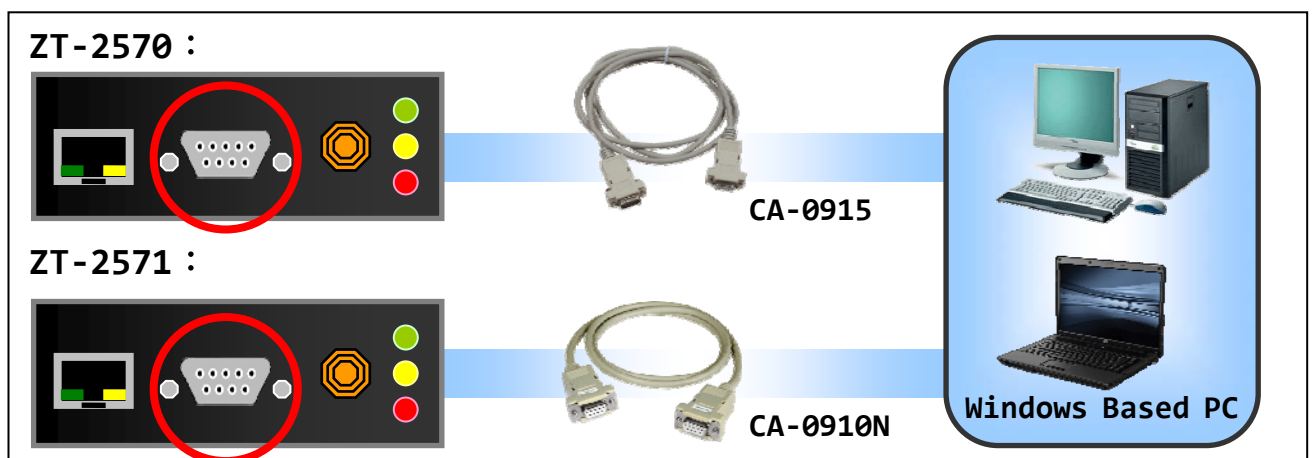
# 4 Connecting the Power and Host PC

1. Confirm that the DIP switch is set to the "ZBSET" position.

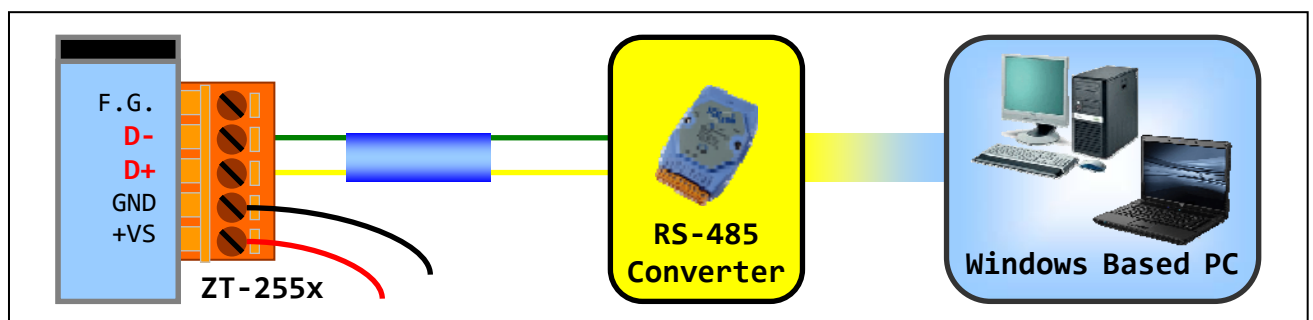


2. Connect RS-232, RS-485 or Ethernet interface to configure the ZT-257x.

➤ RS-232 :



➤ RS-485 :



➤ Ethernet :

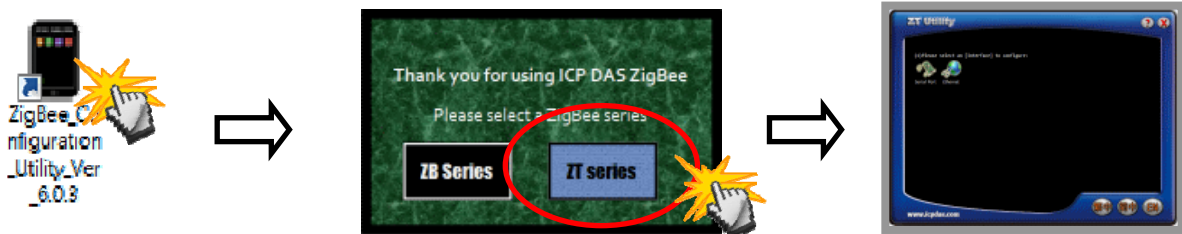


3. Enable the power. It means that the ZT-257x start-up procedure has been completed. If the red LED has changed from blinking to a steady light.

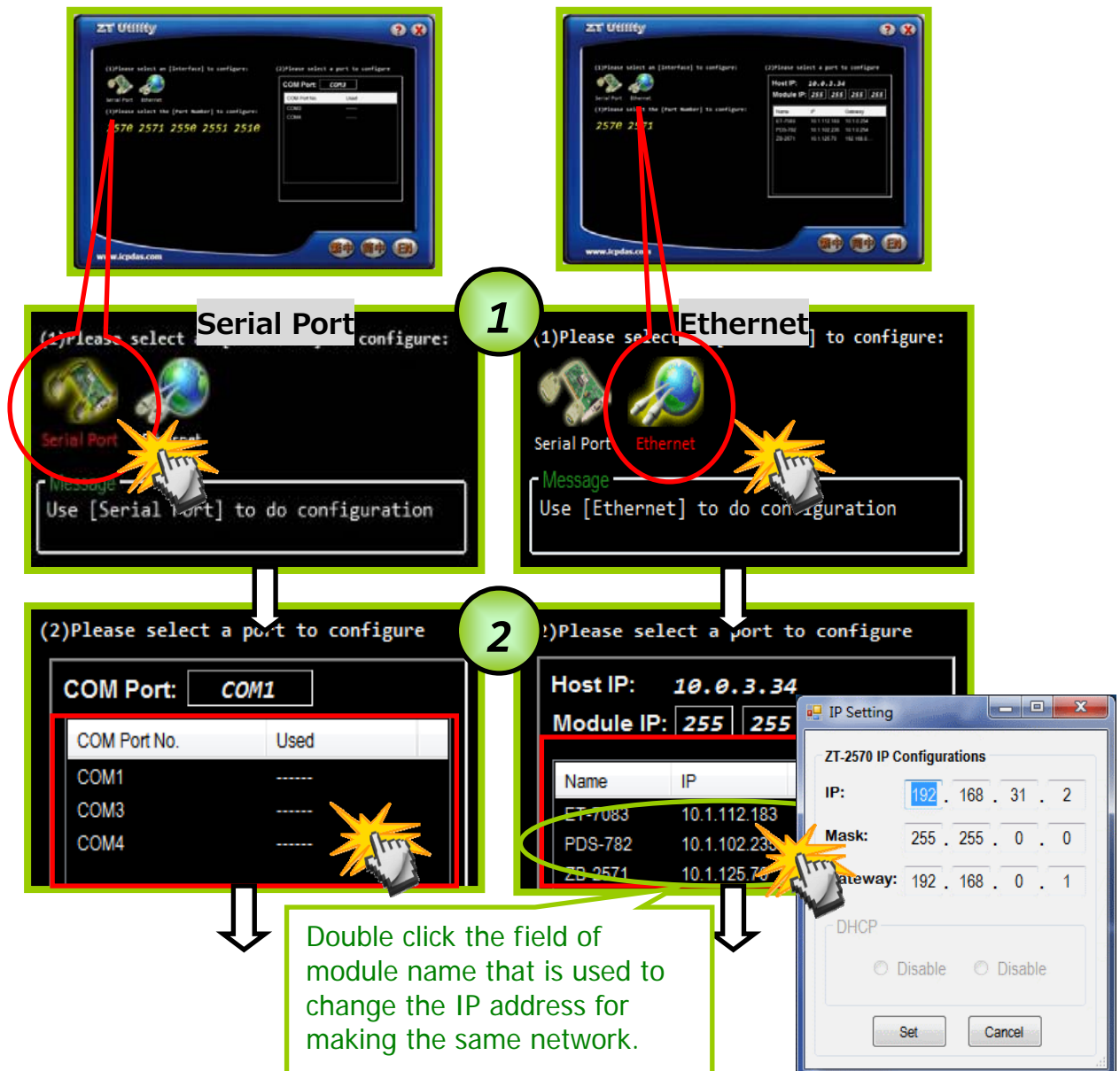
# 5 Configure the ZigBee Settings

## 5.1 Configure ZigBee via Utility (Serial/Ethernet)

1. Launch the software "ZT Configuration Utility" and select the [ZT Series]



2. Single click either the "Serial Port or Ethernet" icon with the correct number of "COM Port or IP Address" that is used to select the communication interface.



- After selecting the COM Port number, a list of model numbers will be displayed. Select the name of the module that you want to configure. After clicking the button, the utility will begin checking the connection.



- Once a connection is established, select either the [Default] or the [Wizard] function from the settings mode page.



- Whether you select either the [Default] or the [Wizard] option for performing configuration, both are used to configure the Pan ID, Node ID, RF Channel, RF Power, Baud rate, Data Format, Application Mode and so the relevant parameters.





6. Once the module configuration has been completed, the message “The Configuration was successful” will be displayed. Return the DIP switch to the “ZBRUN” position and reboot the ZT-255x device.



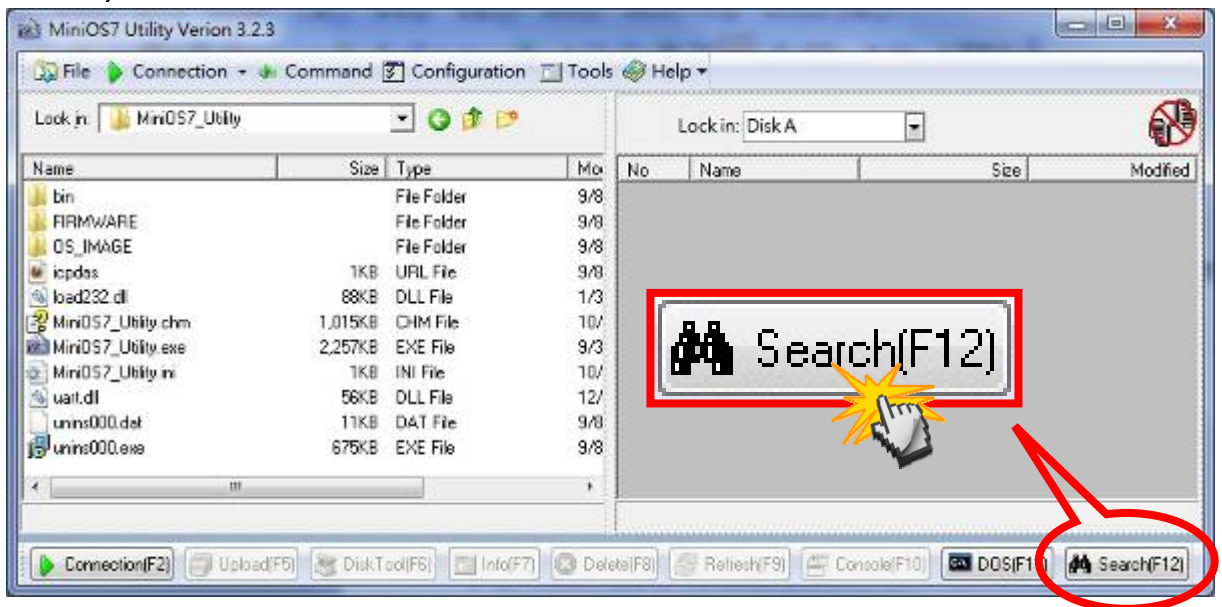
## 5.2 Configure ZigBee via Browser (Ethernet)

Web Server technology enables configuration of the ZT-257x via a standard web browser interface, e.g. Internet Explorer, FireFox or Mozilla, etc. This means that it is easy to check the configuration of the ZT-257x via an Ethernet network without needing to install any other software tools, thereby reducing the user's learning curve.

1. First, please confirm the desktop and ZT-257x is installed in the same network environment. The default network setting of ZT-257x as below.

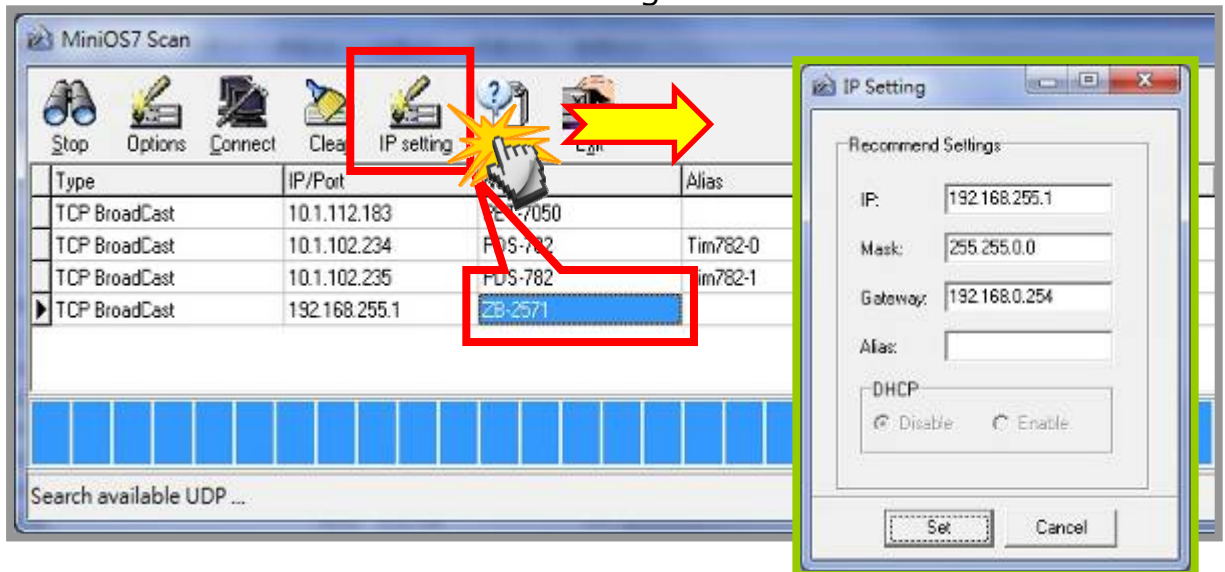
ZT-257x device	
IP	192.168.255.1
Mask	255.255.0.0
Gateway	192.168.0.1

2. User is able to query and modify the IP setting through via MiniOS utility and user may download the tool from the link:  
[http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/minios7\\_utility/](http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/minios7_utility/)
  - a. After launching the MiniOS utility, please press the "F12" on the keyboard to search the ZT-257x device.

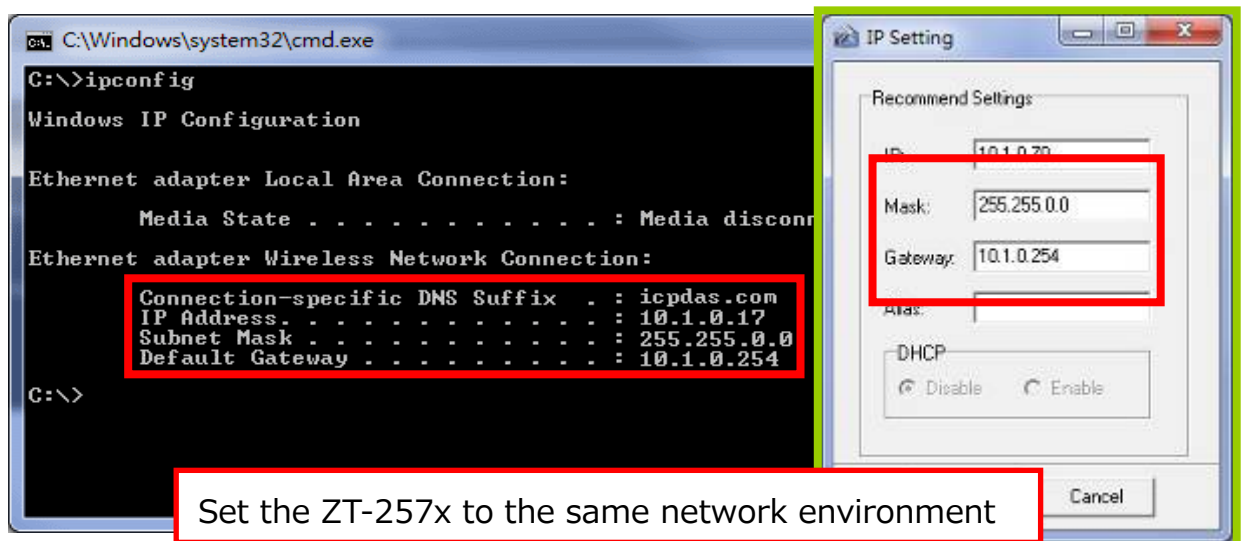




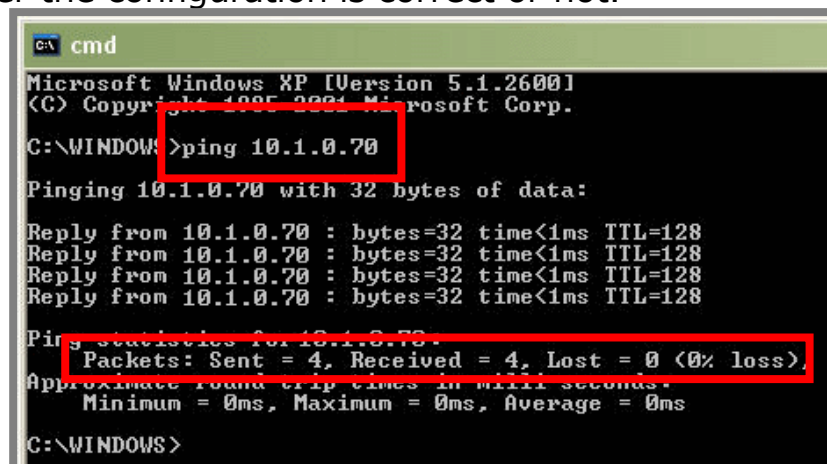
- b. After selecting the ZT-257x device, please click "IP setting" then it will show a windows form to do configuration.



- c. Please configure the new IP setting which is the same segment to the LAN of desktop. Please also click the "Set" button to complete the configurations.

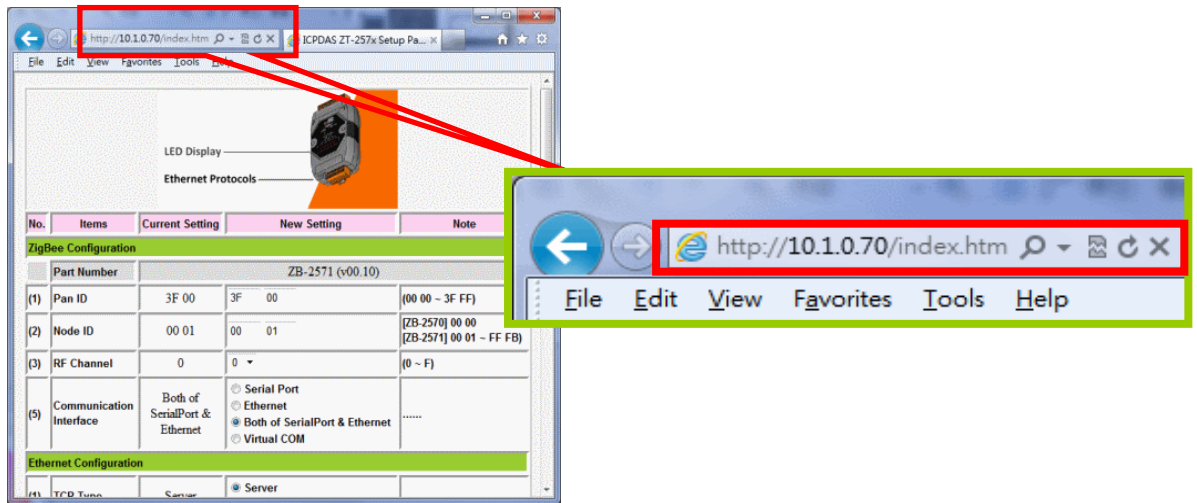


- d. After configuring the IP setting, you may try to ping the device to see whether the configuration is correct or not.



3. If they are in the same network environment, user can use a browser to set the configurations of ZT-257x. The site of ZT-257x device :

http://○○○.○○○.○○○.○○○/index.htm



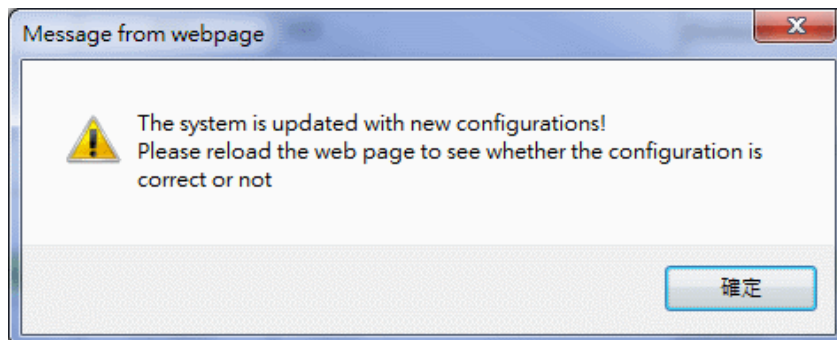
4. When the browser access correctly, the web page will show all the configuration settings as below. User may enter the new setting value to the correct filed if there are any requirements.

No.	Items	Current Setting	New Setting	Note
<b>ZigBee Configuration</b>				
	Part Number	ZB-2571 (v00.10)		
(1)	Pan ID	3F 00	3F 00	(00 00 ~ 3F FF)
(2)	Node ID	00 01	00 01	[ZB-2570] 00 00 [ZB-2571] 00 01 ~ FF FB)
(3)	RF Channel	0	0 ▾	(0 ~ F)
(5)	Communication Interface	Both of SerialPort & Ethernet	<input type="radio"/> Serial Port <input type="radio"/> Ethernet <input checked="" type="radio"/> Both of SerialPort & Ethernet <input type="radio"/> Virtual COM	.....

5. If the new configuration is completed, please click “Update New Config” button to start the ZT-257x configuration.

Serial Port Configuration				
(1)	Baud Rate	115200	115200 ▾	Default:115200 bps
(2)	Data Bit	8	8 ▾	Default:N,8,1 bps
(3)	Parity	None	None ▾	
(4)	Stop Bit	1	1 ▾	
Application Mode				
(1)	Mode	Transparent	<input checked="" type="radio"/> Transparent <input type="radio"/> Addressable <input type="radio"/> Modbus	.....
Default Config		Update New Config		

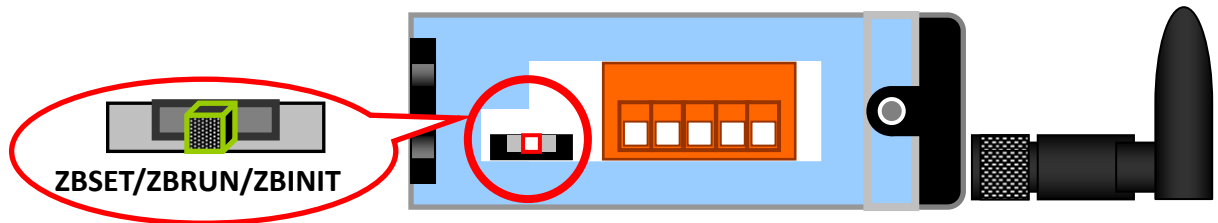
6. When the configuration completed and successful, it will show ...  
“The system is updated with new configurations!”  
“Please reload the web page to see whether the configuration is correct or not”  
then user may follow this instructions.



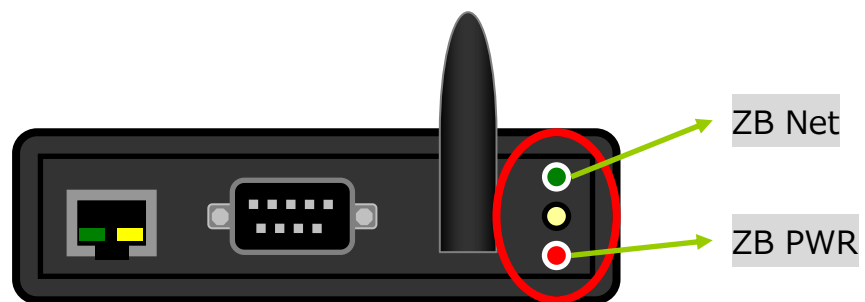


# 6 *Test Communications*

When all the configuration set-up completed, please turn the DIP switch to “ZBRUN” position and reboot module.



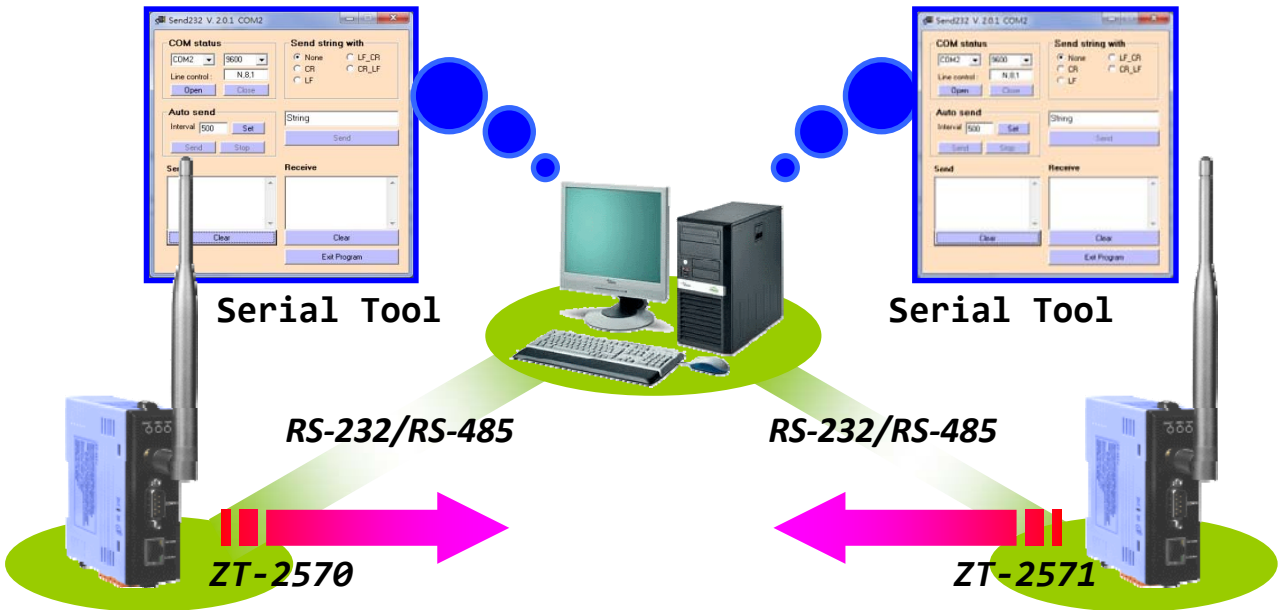
Next, please confirm the “ZB Net” LED indicator of ZigBee salves whether is steady lighted or not. If the status of green LED indicator is steady lighted, it means the connection has established and user can start using Ethernet or serial port to do communication.



# 6.1 Serial Port Test

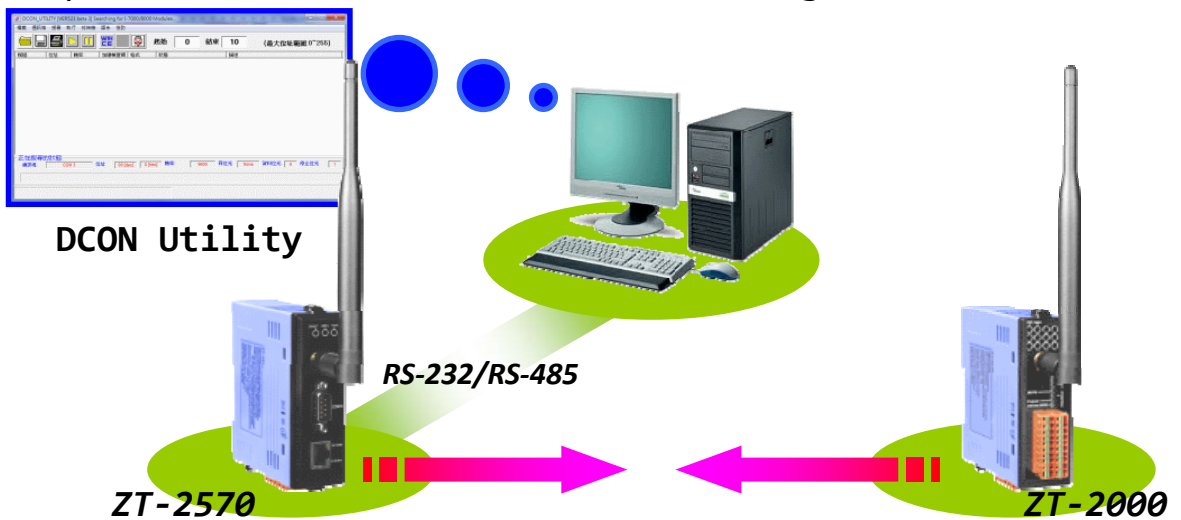
## Method (1)

Connect both the ZT-2570 and ZT-2571 to the Host PC via the RS-232 port. You may need to use two serial port tools to simulate the data transmission.



## Method (2) :

Use the DCON Utility on the Host PC to search for ZT-2000 series I/O modules. If there any devices are found, it means that the configuration is correct.



- ❖ Download MiniOS Utility : [http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/minios7\\_utility/](http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/minios7_utility/)
- ❖ If there is not any serial tool can be used, please use "Send232.exe" which is a serial tool at the directory : \ICPDAS\MiniOS7\_UTILITY\bin\Send232.exe

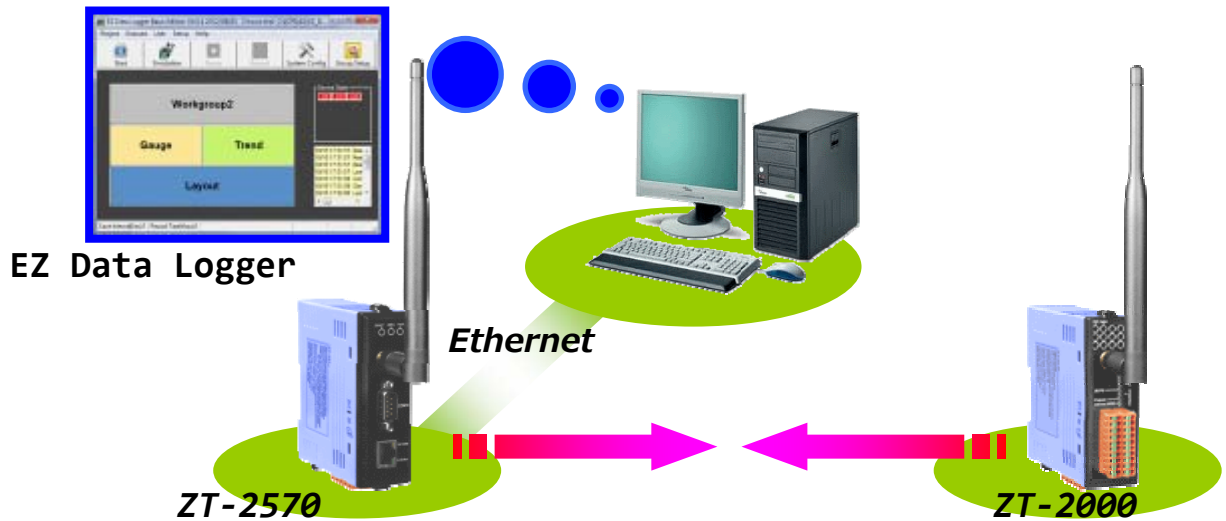
## 6.2 Ethernet Test

### Method(1) :

Connect both the ZT-2570 and ZT-2571 to the Host PC via the Ethernet port. You may need to use two TCP Server/Client tools to simulate the data transmission.

### Method(2) :

Use the EZ-Data Logger as a TCP Client which is connected to the ZT-2570 on the Host PC to search for ZT-2000 series I/O modules. If there any devices are found, it means that the configuration is correct.

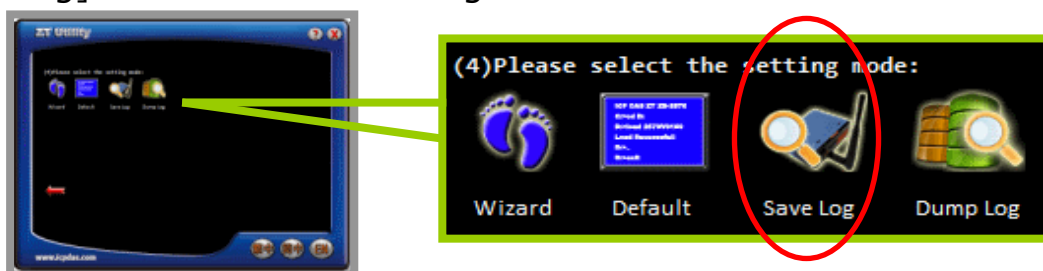


# 6 *Trouble shooting*

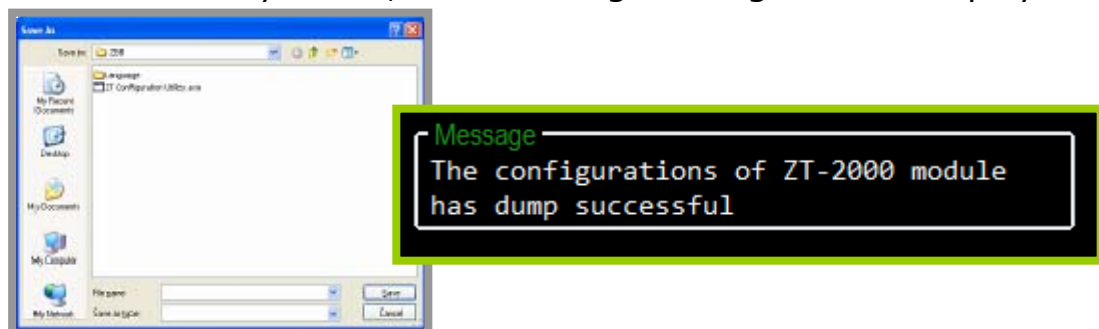
If you have any difficulties using your ZT-257x series module, please send a description of the problem to [service@icpdas.com](mailto:service@icpdas.com)

Include the following items in your email:

- *A description to the communication protocol for more information.*
  - *A copy of the configuration file for the ZT-257x module. This file can be obtained using the procedure outlined below and should be attached to your email.*
- a. Set the DIP switch of the ZT-257x device to the [ZBSET] position then reboot the device. Launch the ZT Configuration Utility and select [Save Log] icon to save the configuration of the ZT-257x as a file.



- b. After clicking the [Save Log] icon, enter the "File Name" and the "File Path" in the Windows "Save" dialog box. Once the configuration has been successfully saved, the following message will be displayed.



(1) LED Indicator Status :

<b>LED Indicator</b>	<b>Status</b>	<b>Introduction</b>
ZigBee Net (Green LED)	The status of ZigBee network [ZigBee Coordinator (Host)]	
	Steady Lit	ZigBee network is establish
	Blink to Steady Lit	Rejoin ZigBee network or it has occupied
	The status of ZigBee network [ZigBee Router (Slave)]	
	Steady Lit	Signal Strength
	Blinking (500 ms)	Signal Available
	Blinking (1s)	Signal Weak
	Blinking (2s)	Signal Terrible or No ZigBee Network
ZigBee RxD (Yellow LED)	The status of ZigBee communication	
	Blinking	Receiving ZigBee data
	Steady Unlit	No ZigBee data received
ZigBee PWR (Red LED)	The status of module board	
	Steady Lit	Power on
	Blinking (200ms)	Module Initialization failure
	Blinking (200ms)	Configuration Mode
	Blinking (1s)	Watchdog enabled
	Steady Unlit	Power off