BT RS-232 Dongle

User's Manual

BTS-100V1

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1. Introduction

This BT RS-232 dongle is an ideal solution for cable replacement. It connects serial printers, serial scanners, or other device to a computer by remote up to 100 meters (300ft) away. Free to place device any where one like without modifying the environment for wire layout. This BT RS-232 dongle can be operated with PDA, computers, laptops, and smart phones/tablets that support BT RFCOMM profile and BT generic access profile. As such, it is ideal for use in applications where a PDA or laptop could communicate with another device (SBC, RTU, sensor, robot, radio, PBX) wirelessly.

1.1 Features

- ➢ Extremely easy to install and use.
- ➢ No need of external host and software
- ➢ Supports up to 100 meters (300ft) distance (Open space, Line of site).
- ➢ Standard BT Specification Version 2.1
- ➢ Frequency 2402 ~ 2480MHz
- ➢ Baud Rate Supports 9.6/19.2/38.4/57.6/115.2/230.4 kbps
- ➢ Modulation GFSK-1 Mbps, DQPSK-2 Mbps, and 8-DPSK-3 Mbps
- ➢ DTE/DCE mode switching
- ➢ Supports no External power requirement on condition of connecting to a host that has assigned DC5V power on the pin 9 of its DB-9 end.

1.2 Specifications:

Model No.		BTS-100V1
Baud Rate		Supports 9.6 / 19.2 / 38.4 / 57.6 /115.2 / 230.4 kbps
Connector		DB-9 Male
Standard		BT specification version 2.1
Frequency		2402 to 2480MHz
Modulation		GFSK-1 Mbps, DQPSK-2 Mbps, and 8-DPSK-3 mBPS
LED	DTE/DCE	DTE: Blue/DCE: Green
	TX	Orange x 1
	RX	Green x 1
Tx Power		Max.13 dBm (Class 1)
Rx Sensitivity		-86 dBm typical
Power Supply		5V DC
Housing		Plastic
Dimension (L x W x H)		66 x 39 x 20mm

1.3 Package Contents

• BT RS-232 Dongle with antenna

• DC5V Power adaptor

• CD Utility

2. Physical Diagram

Front view

BT antenna

DB9 Male connector

RS-232 pin out
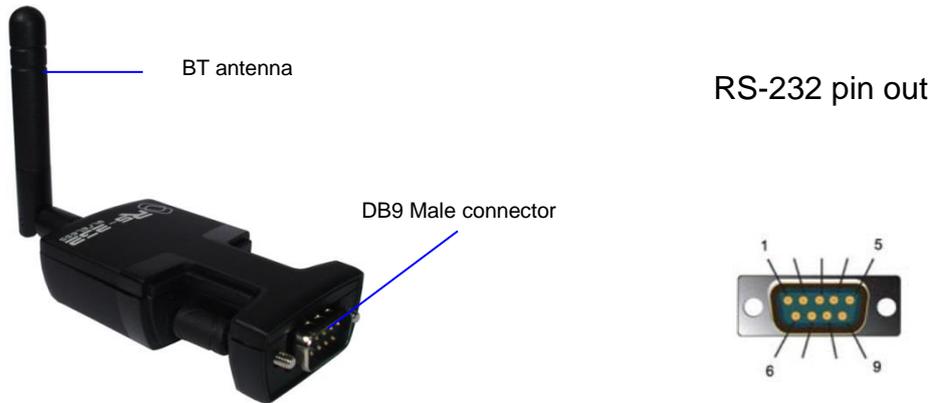
Pin Assignment				
Pin No.	DTE	Signal Name	DCE	Signal Name
1	x	x	x	x
2	RXD	Receive Data	TXD	Transmit Data
3	TXD	Transmit Data	RXD	Receive Data
4	x	x	x	x
5	GND	Ground	GND	Ground
6	x	x	x	x
7	RTS	Request to Send	CTS	Clear to Send
8	CTS	Clear to Send	RTS	Request to Send
9	VCC in	DC5V	VCC in	DC5V

Side view

LED Indicators

(1) DTE/DCE: Blue/Green

(2) TX: Orange

(3) RX: Green

Rear view

(1) CONFIG push button

(2) DC power jack

CONFIG push button

DC power jack

3. RS-232 Installation

Please follow below ways for serial (RS-232) installation.

3.1 Take one DB9 F/F cable and plug one end of DB9 female to the BT device, then put the other end of DB9 female on the host computer. Or use the USB to RS-232 cable and connect with the BT device.
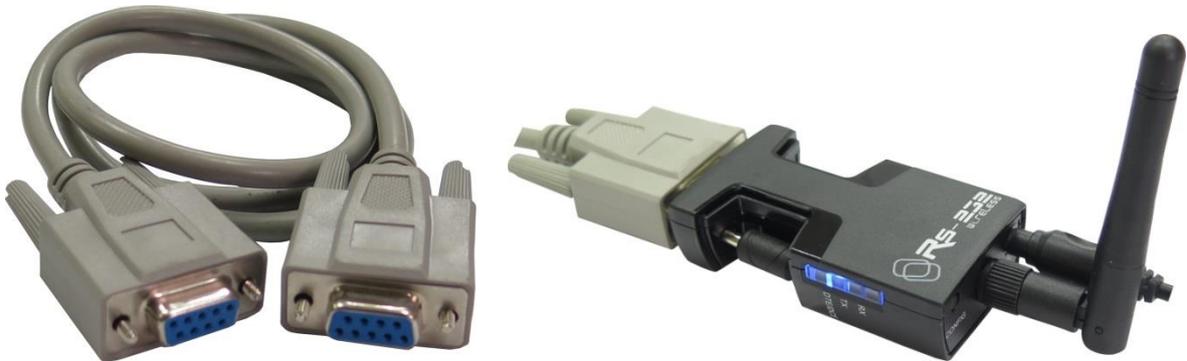
Note: Beware that the system requirement must have the Windows OS computer built on serial port.

3.2 To further check if the COM port of serial (RS-232) was successfully installed; go to Windows Device Manager where the COM port number should be listed under 'Ports (COM & LPT)'. (Ex. COM1 or COM14)

3.3 Install the utility 'AP_UartConfig.exe' and two appendix items of CD provided.
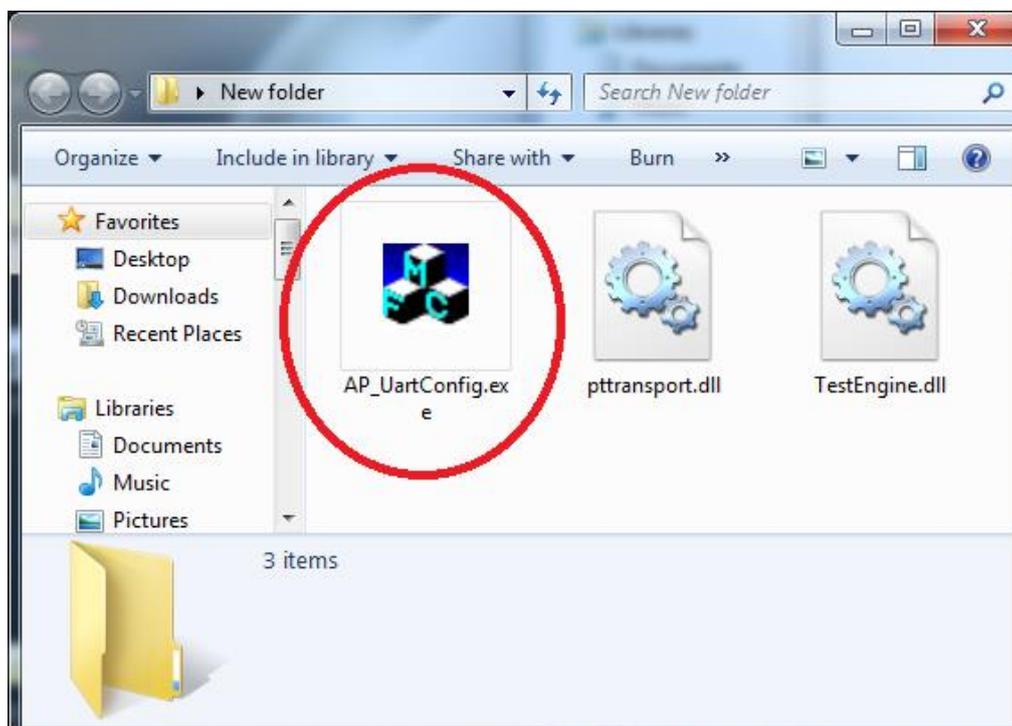
3.4 DTE/DCE mode switching

Plug the power adapter to the device's power jack. The DTE/DCE LED lights blue, and the BT dongle is set to DTE mode (default). Then push the CONFIG button once; the DTE/DCE LED lights green, and the BT dongle is set to DCE mode. Push the CONFIG button once again; the DTE/DCE LED backs to blue.

DTE mode: lights blue

DCE mode: lights green

Press the CONFIG button in 3~5 seconds, the TX LED indicator (Orange) starts blinking and go next step for configuration.

4. HyperTerminal setting & Configuration

The 'AP_UartConfig.exe' programmer only can be operated and compliant with Windows 2000 / XP / Vista / 7 / 8 / 8.1 / 10 / 11. It is not applicable to operate on iOS/Mac OS or Linux.

4.1 Double click 'AP_UartConfig.exe' → This will open the configuration wizard 'BTConfiguration Tool V2.10', and then enter the correct information. In this case we have created COM port 1 so we select COM1.
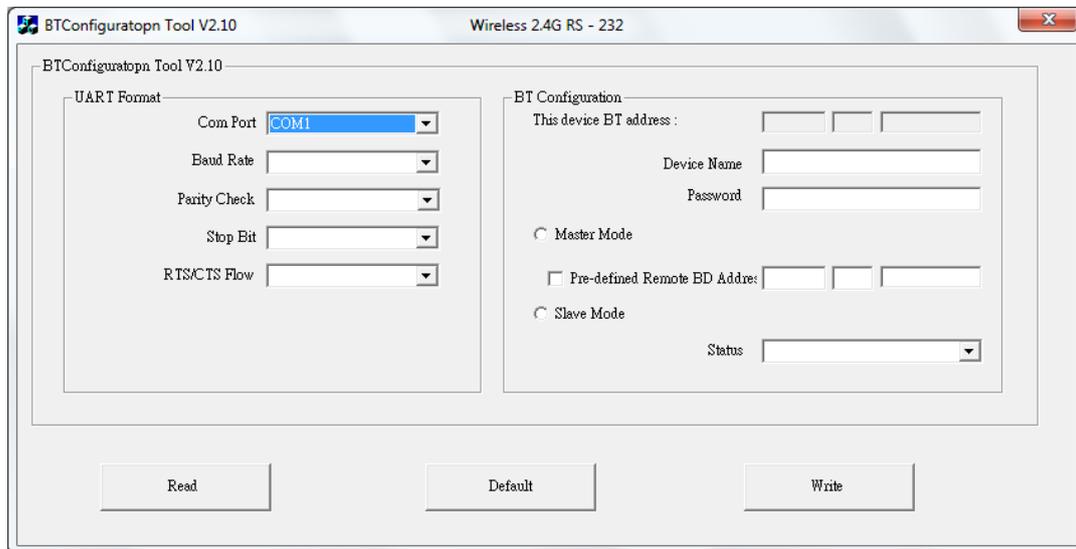
Caution: The COM port only can be selected up to COM9 due to configuration limit.
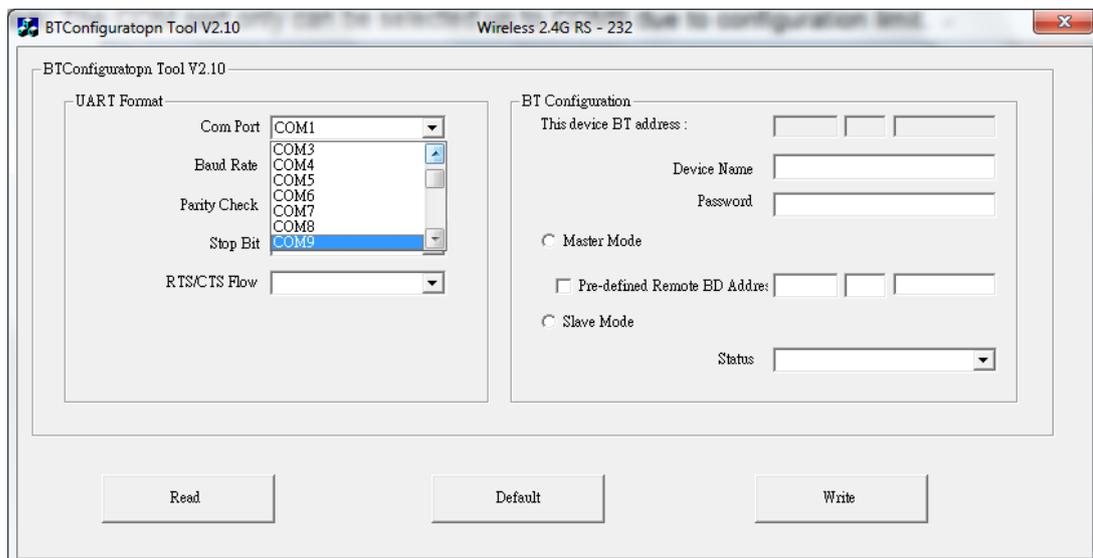
4.2 If the serial (RS-232) COM port does not list in COM1~COM9 from the Windows Device manager, you may click 'Advanced' of Port Settings to select applicable COM port.
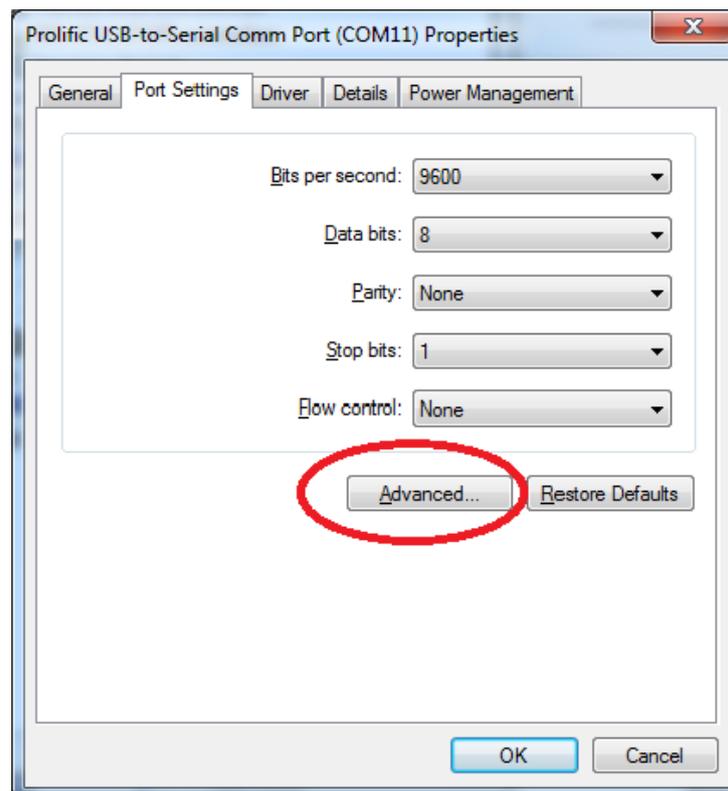
4.3 Confirm the COM Port Number is what you selected and click 'OK', then reboot the computer. In this case the serial COM port is detected as COM11; we change its COM port number to COM3 instead.

Now you may plug in the RS-232 port of the BT dongle.
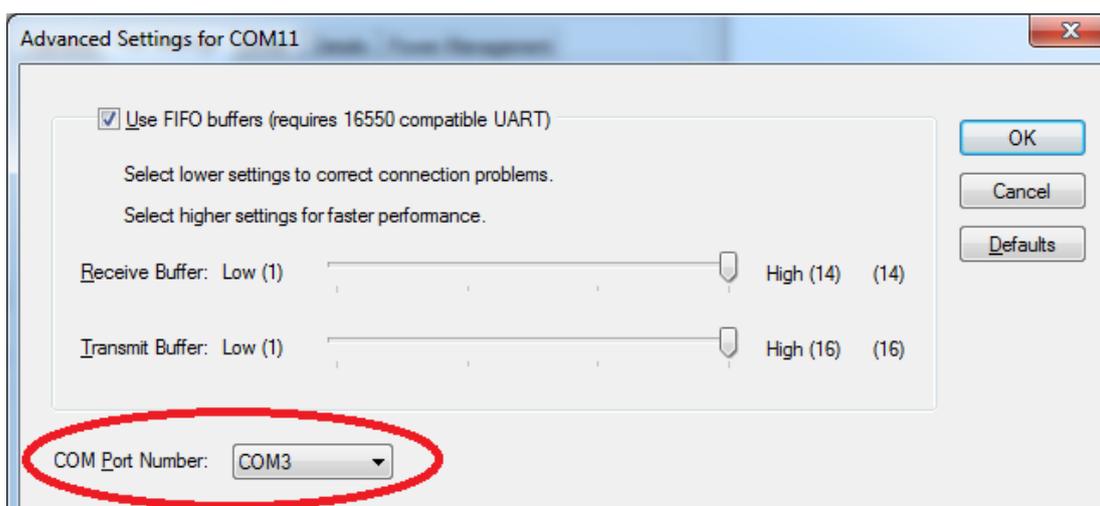
4.4 Back to the configuration wizard 'BTConfiguration Tool V2.10', and further check the default setting. You may click 'Read' and get the information of this device.
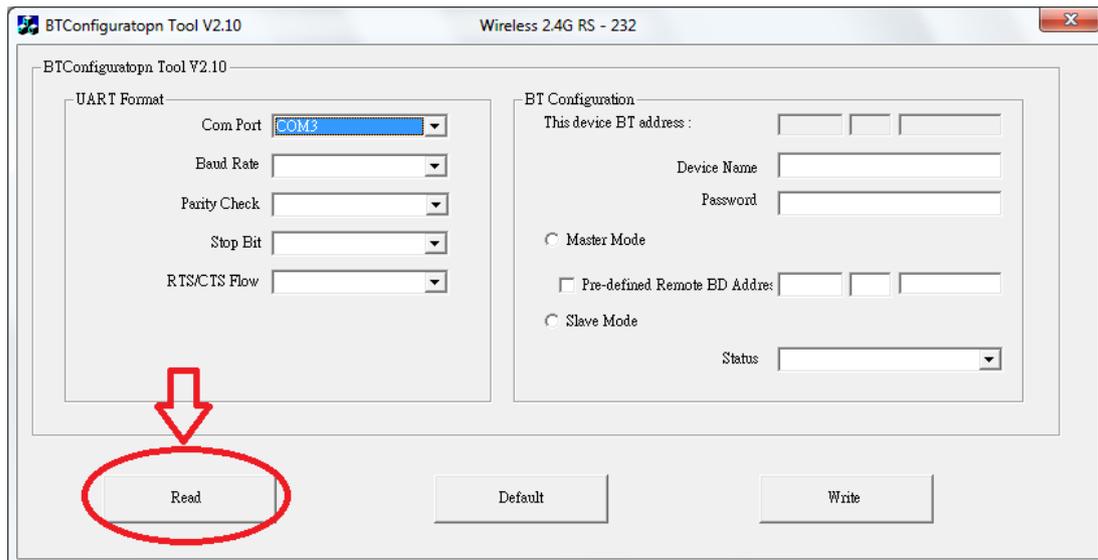
4.5 When the host computer is checking the default setting, the TX & RX LED indicators start blinking alternately in 10 seconds then light off.
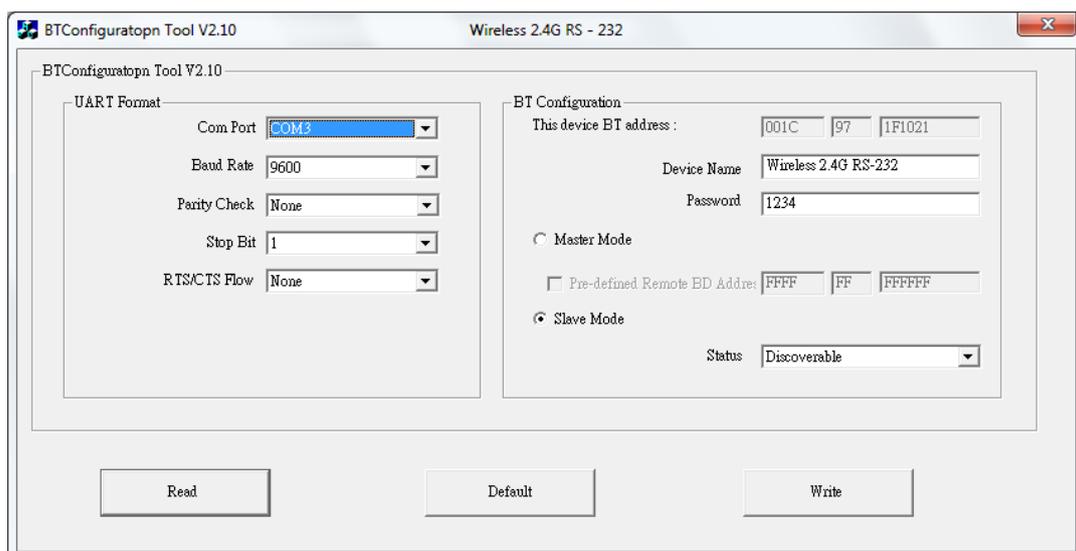
4.6 Complete your setting baud rate and BT Configuration as below. The default password is 1234. Or you may apply changes to any desired settings on the BT dongle.
   (1) UART Format
   (2) Device Name
   (3) Password
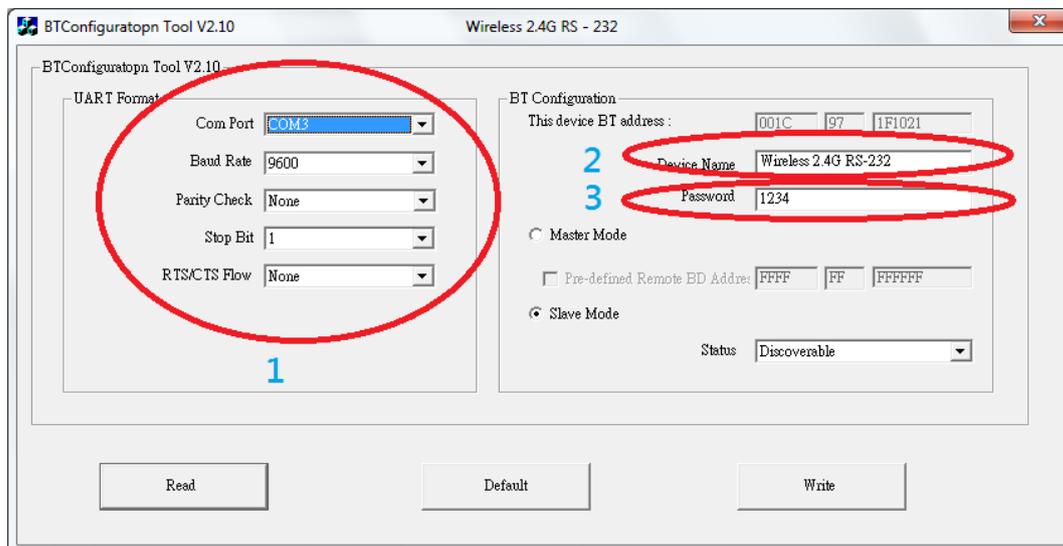
4.7 Confirm your configuration or accept the changes and click 'Write'. The TX & RX LED indicators start blinking alternately in 3~5 seconds and light off.
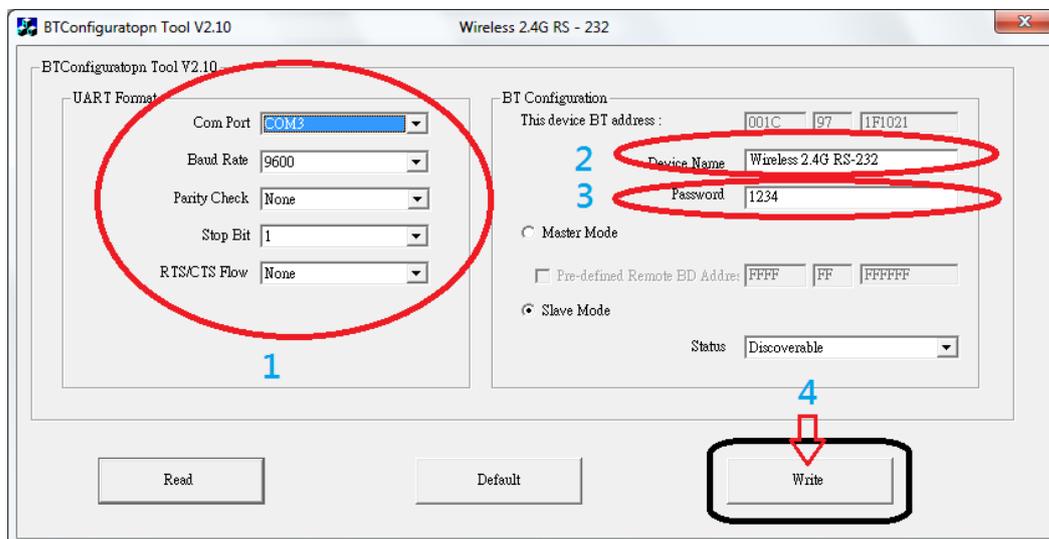
5. BT pairing and connecting

For the compatibility, the BT pairing is not applicable to operate on iOS devices such as iPhone, iPad etc.

5.1 Click the BT icon on the taskbar of computer OS and plug the power adapter to the dongle's power jack. The DTE/DCE
LED lights blue.
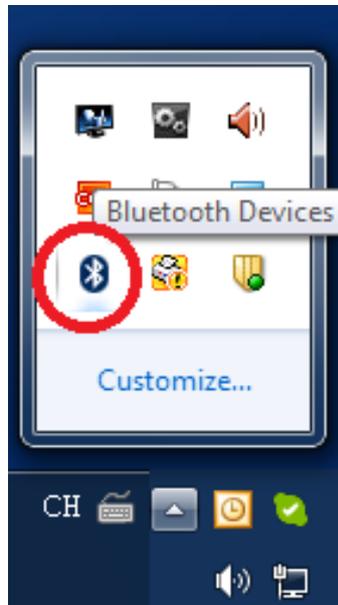
5.2 Use your BT software and click 'Add a device' to search for BT devices in range.
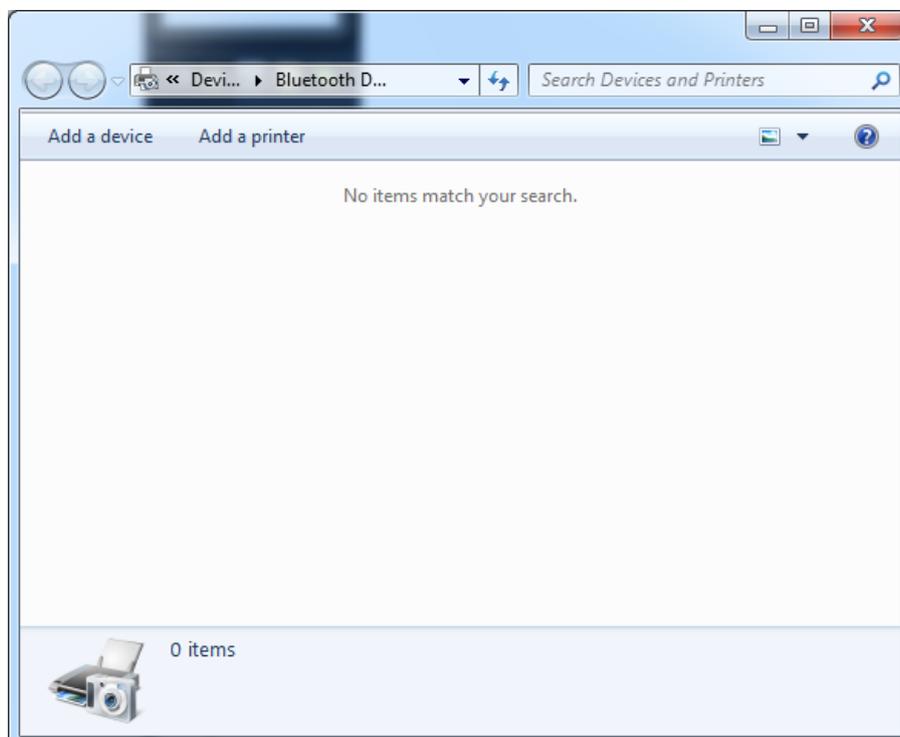
5.3 Once the device is detected, it will show the 'Wireless 2.4G RS232' on the screenshot of 'Add a device'.
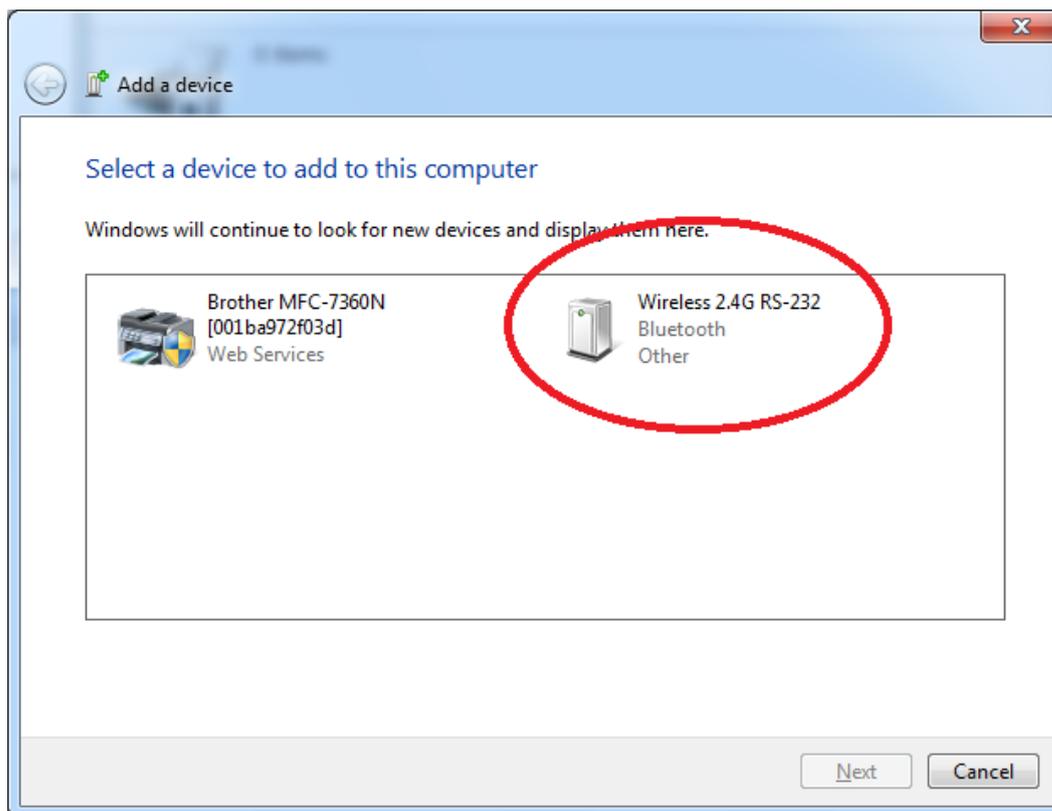
5.4 Click 'Wireless 2.4G RS232' and pair.
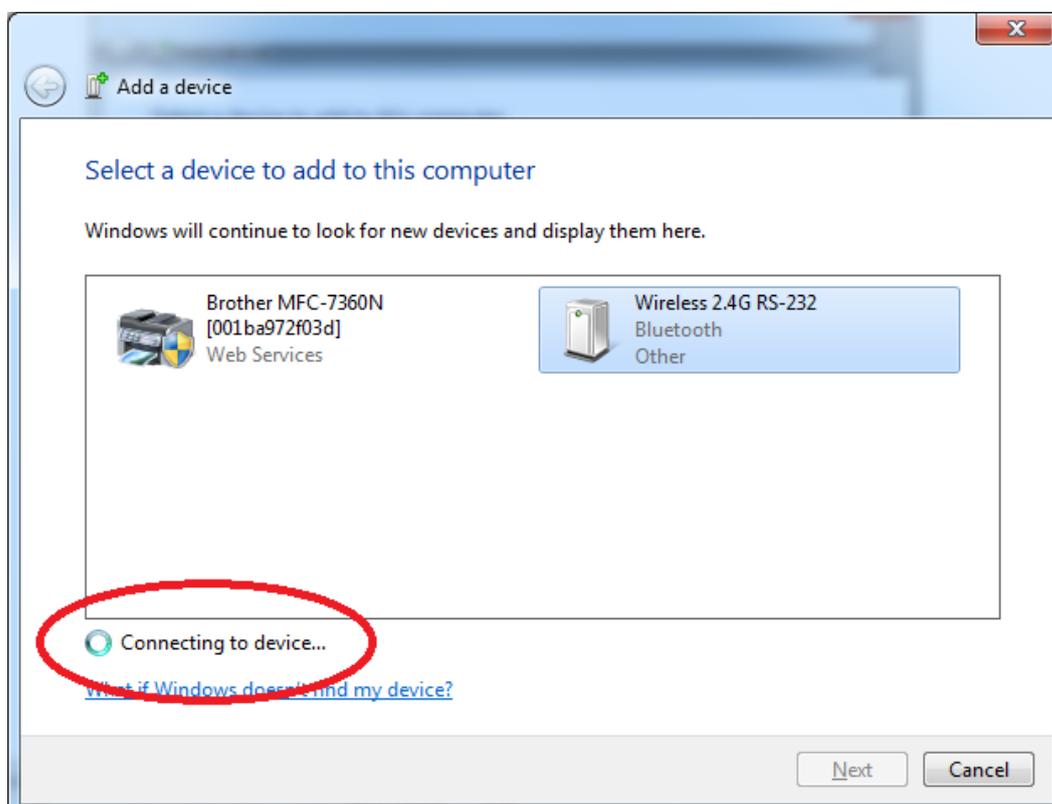
5.5   Click 'Enter the device's pairing code'.
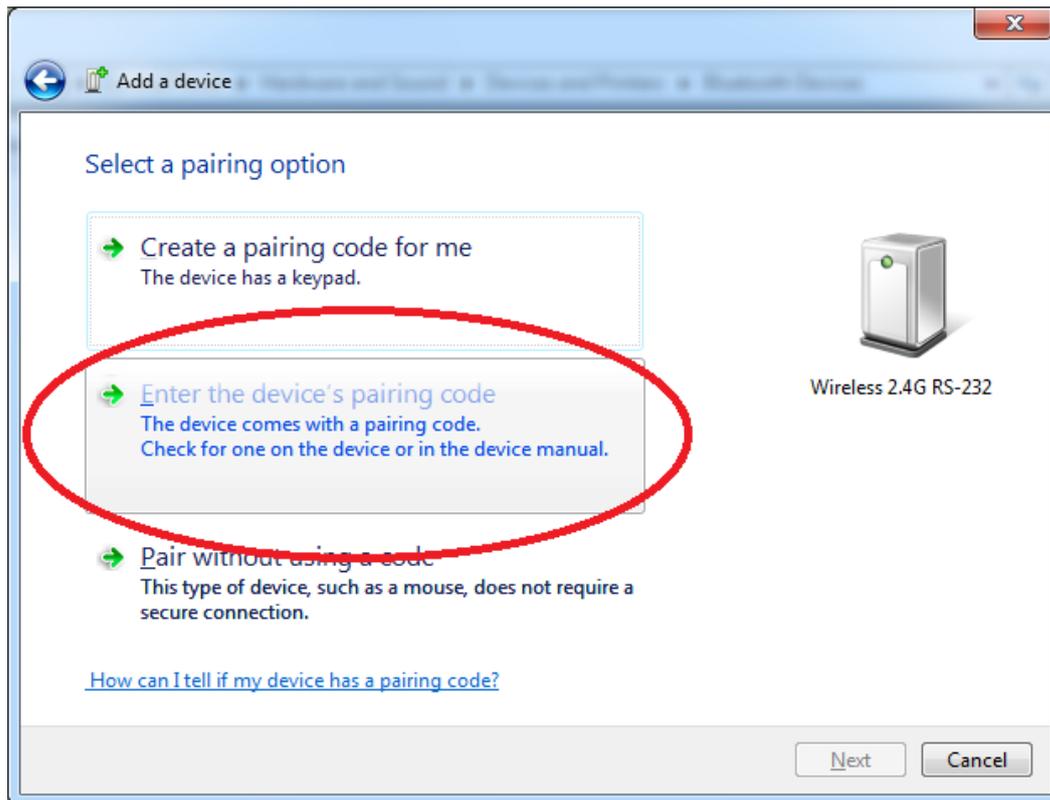
5.6   Enter the pairing code and click 'Next'. (Default is 1234)
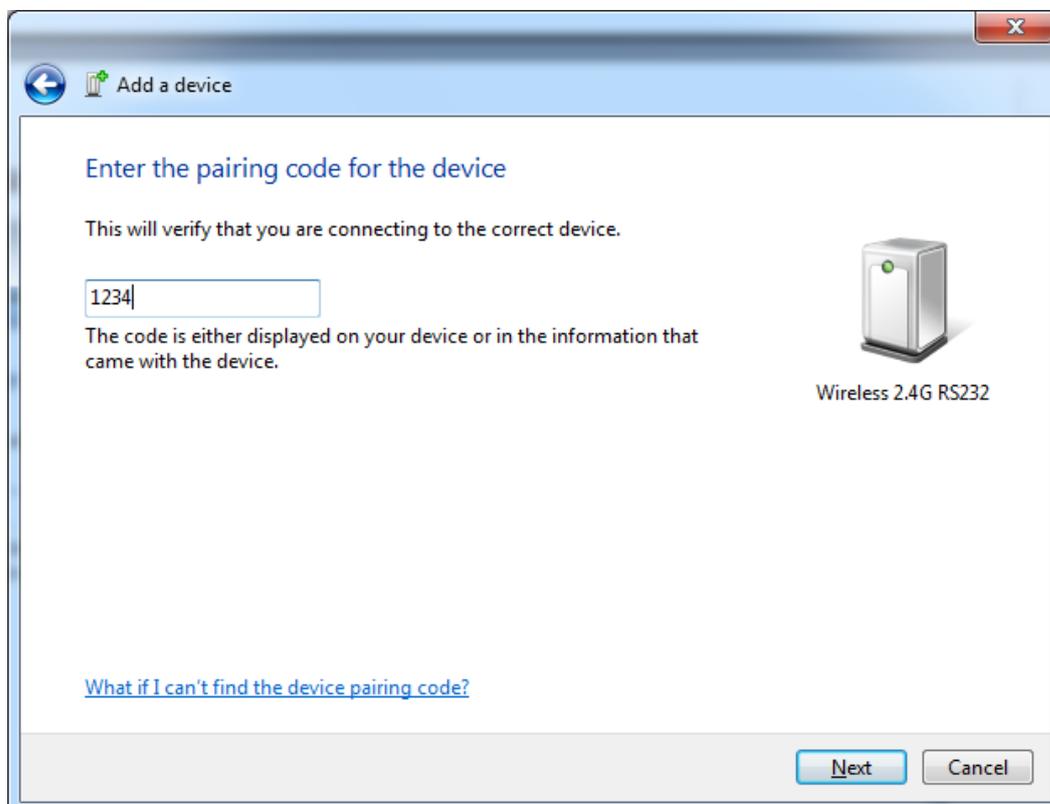
5.7 It may fail to pair and pop up error message if you can not enter pairing code in 60 seconds. Please check your BT device is working and pair again.
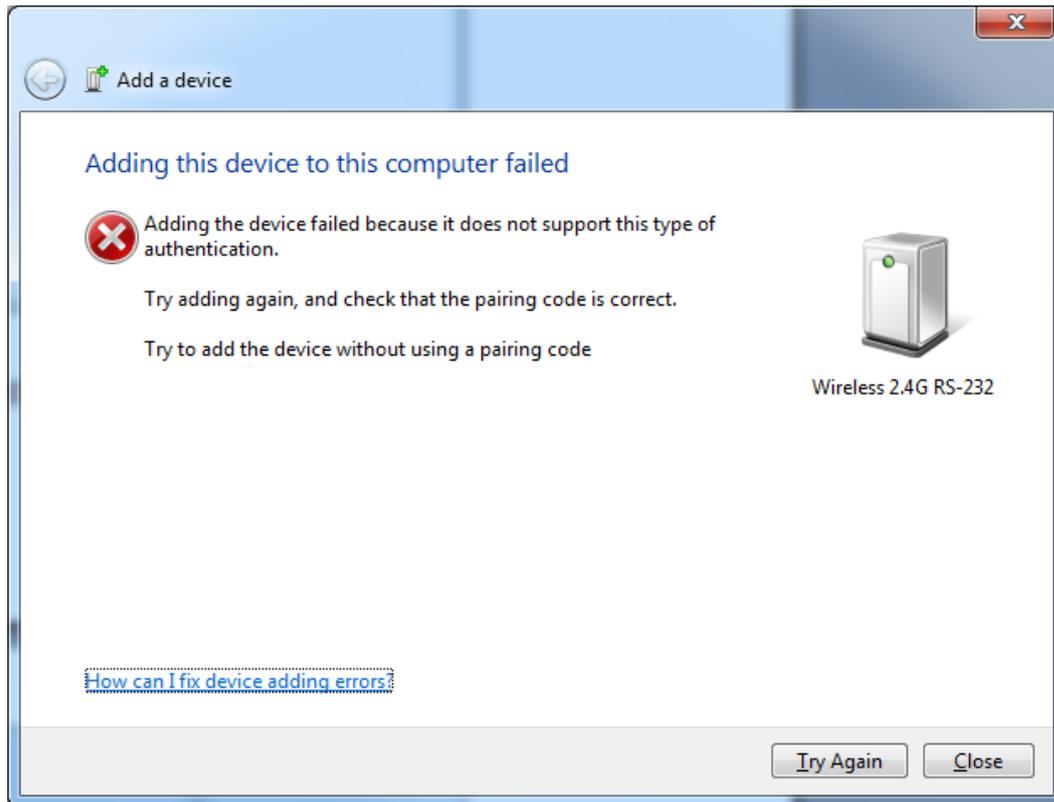
5.8 When the pairing is succeeded, the BT device will have its COM port number and ready to use. In this case, COM9 & COM10 are distributed to BT devices.
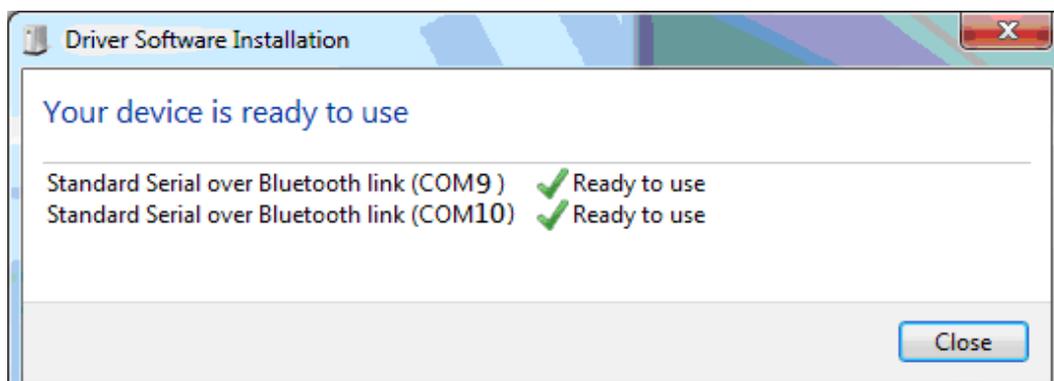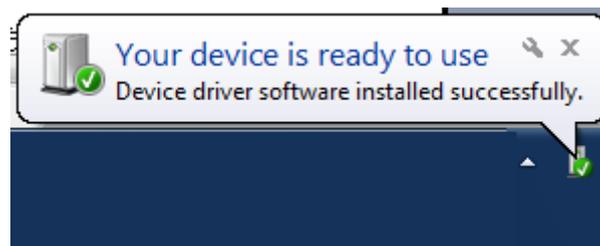
5.9   When the BT device is connected successfully, click 'Close'.
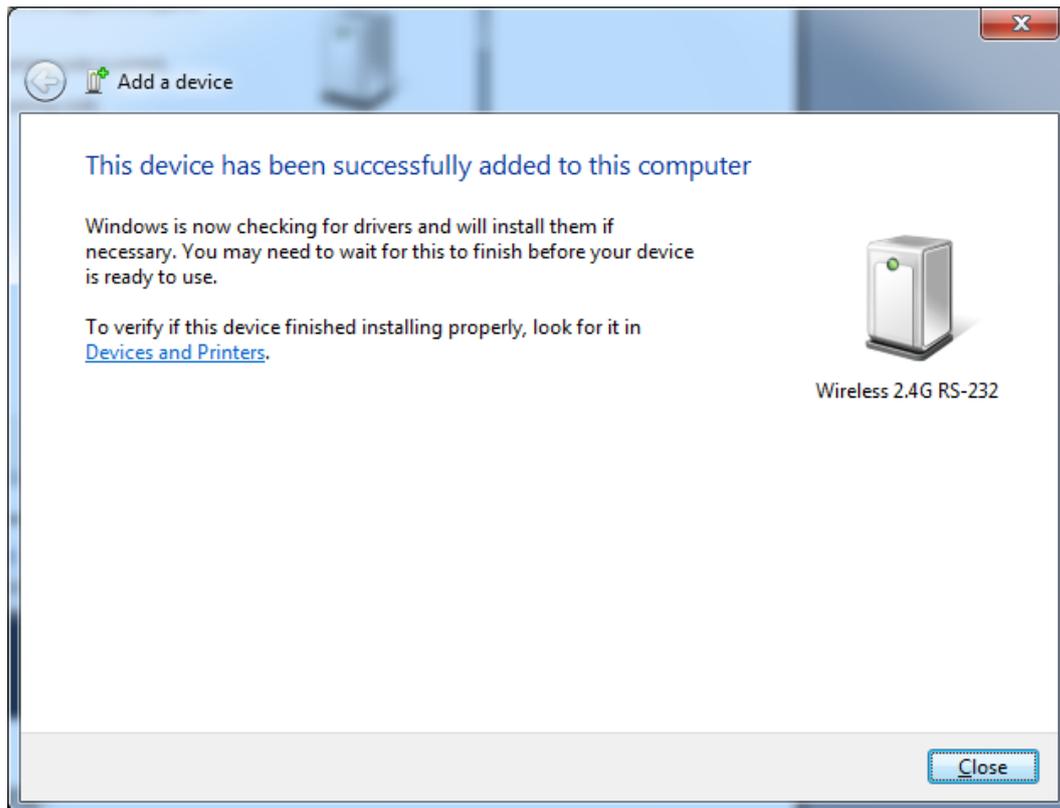
5.10 Click the device icon 'Wireless 2.4G RS232'
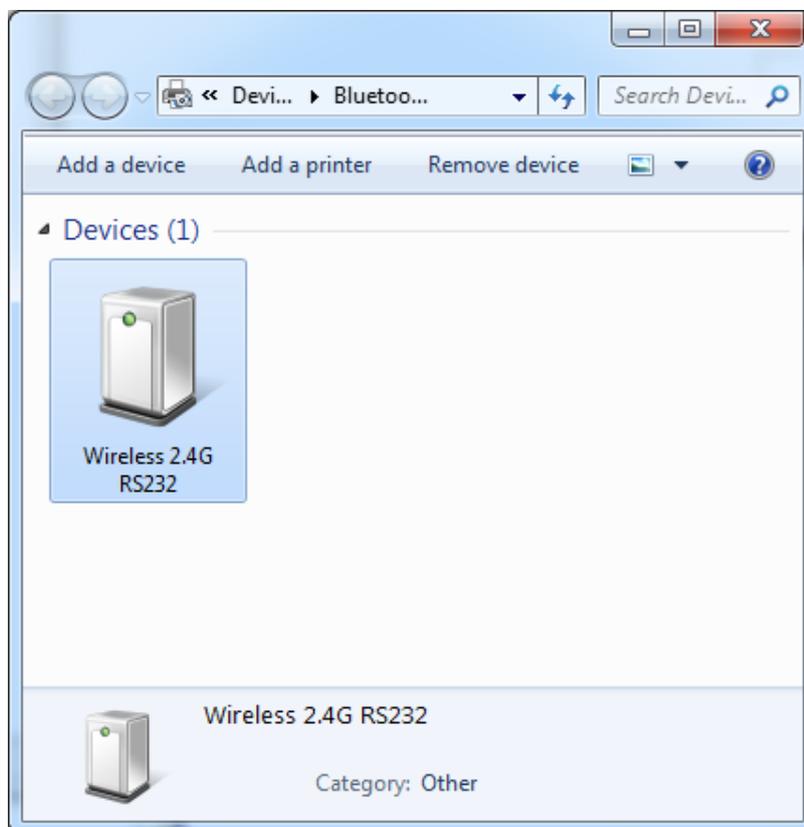
5.11 Select 'Hardware' and you will see 'Standard Serial over Bluetooth link (COM9)' in the screenshot that indicates the COM port number used for connection with the BT device. (Ex. COM9)
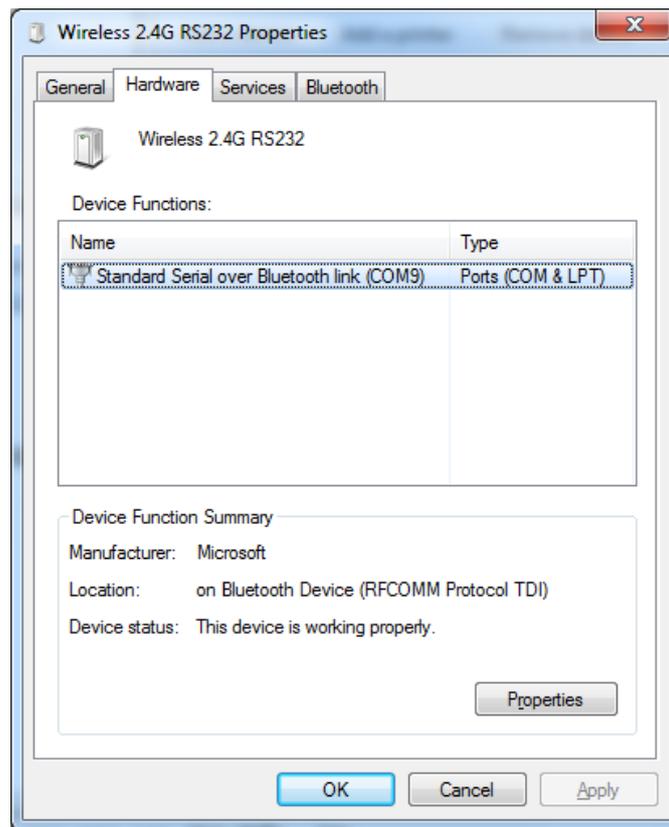
5.12 Open the Windows Device manager; it shows a new COM port has been established.
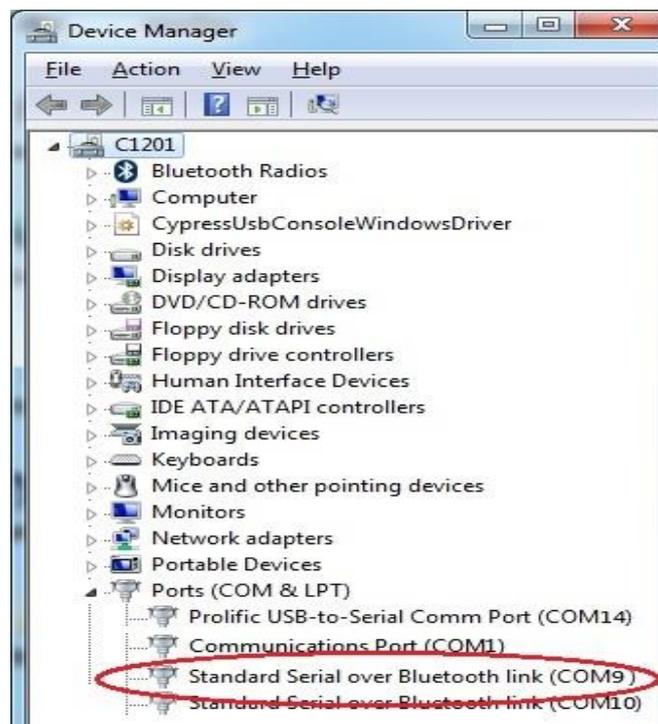
5.13 Congratulation! You have finished pairing the BT device successfully.

Typical application diagram (DTE Mode)

DTE mode

Serial (RS-232) devices thru DB-9 connection
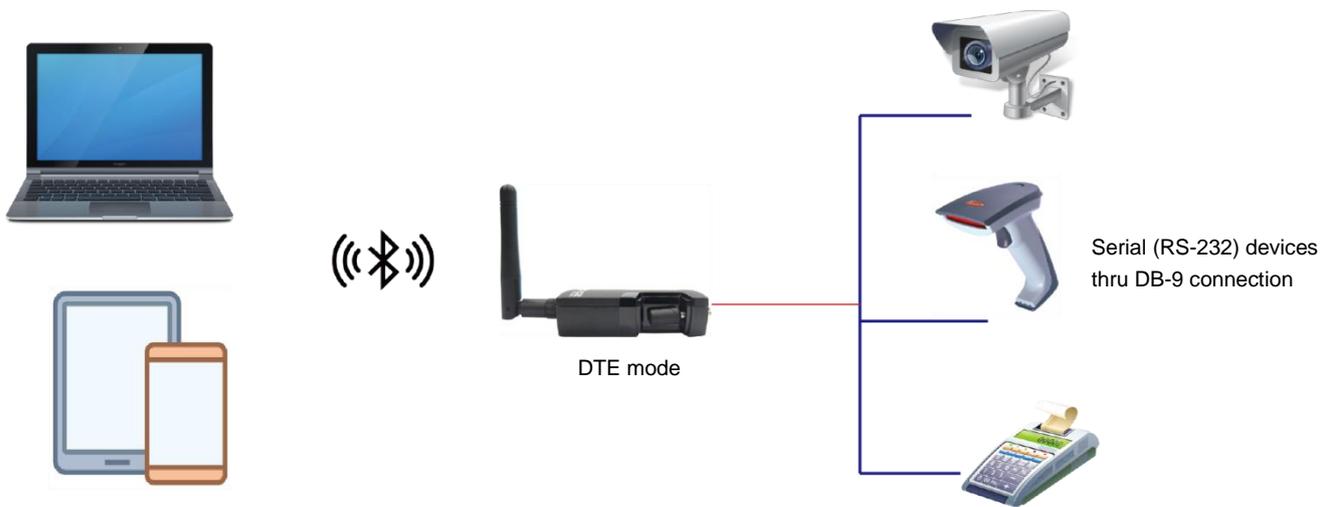
The BT RS-232 dongle set as DTE mode is installed between a PC or an Android tablet/phone and connected DB-9 serial (RS-232) devices.

Pairing with Android tablet or smartphone

Step 1
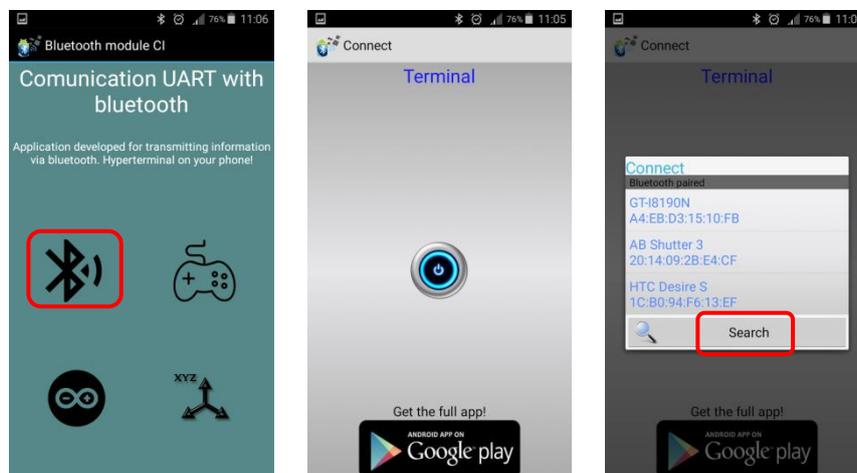
Step 2
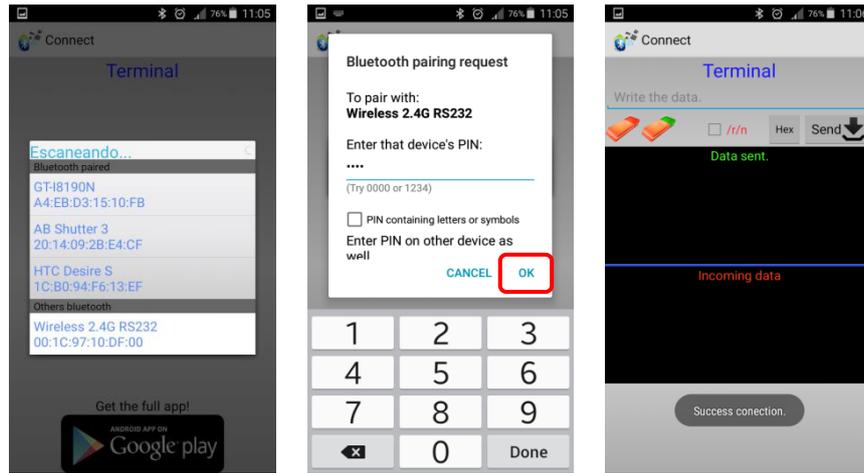
Step 3
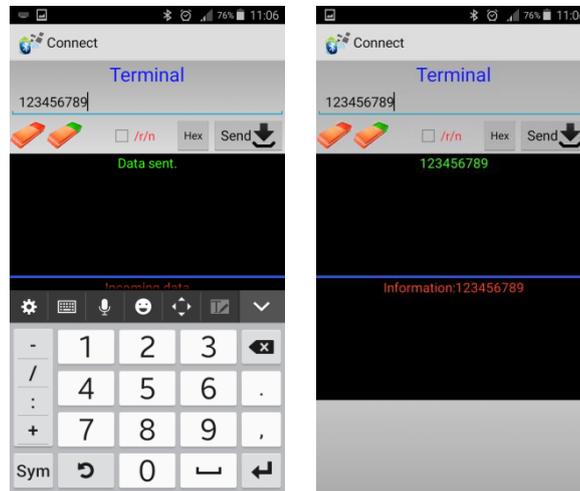
5.14 Pairing master & slave units
Typical application diagram (DCE mode)

PC thru DB-9 connection

Master

Slave

PC/PDA thru DB-9 connection
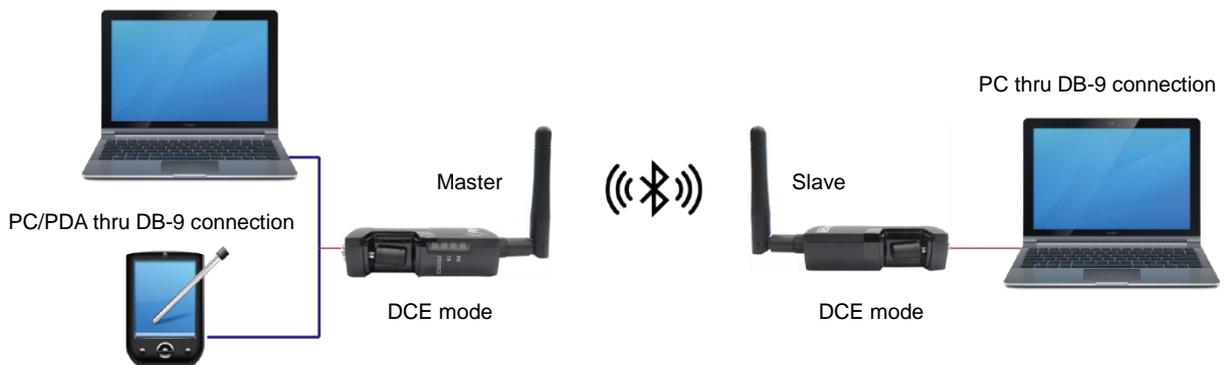
DCE mode

DCE mode

2 BT RS-232 dongles set as DCE mode are installed between a PC or PDA (Master) and the other PC (Slave) by DB-9 connections.

2 BT RS-232 dongles set as DCE/DTE mode are installed between a PC or PDA (Master) and serial (RS-232) devices by DB-9 connections.

Open the configuration wizard 'BTConfiguration Tool V2.10' and set the two BT dongles which can be paired by one is set as 'Master', another is set as 'Slave'. And then it can transfer data thru the two BT dongles successfully.
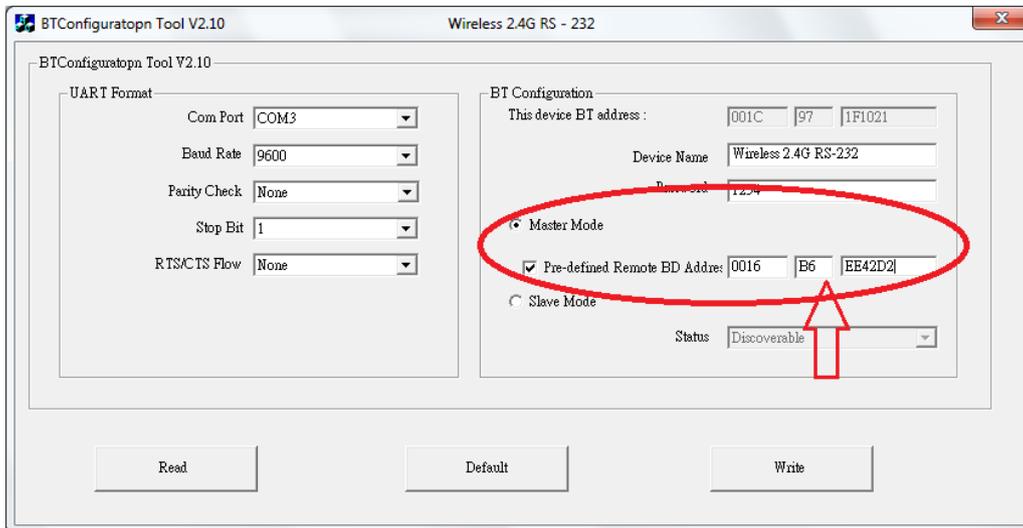
5.14.1 Check the Mac address of 'Slave' unit thru BT Configuration before setting the 'Master' unit. In this example, we get the Mac address of 'Slave' unit 001C.97.1F1021.
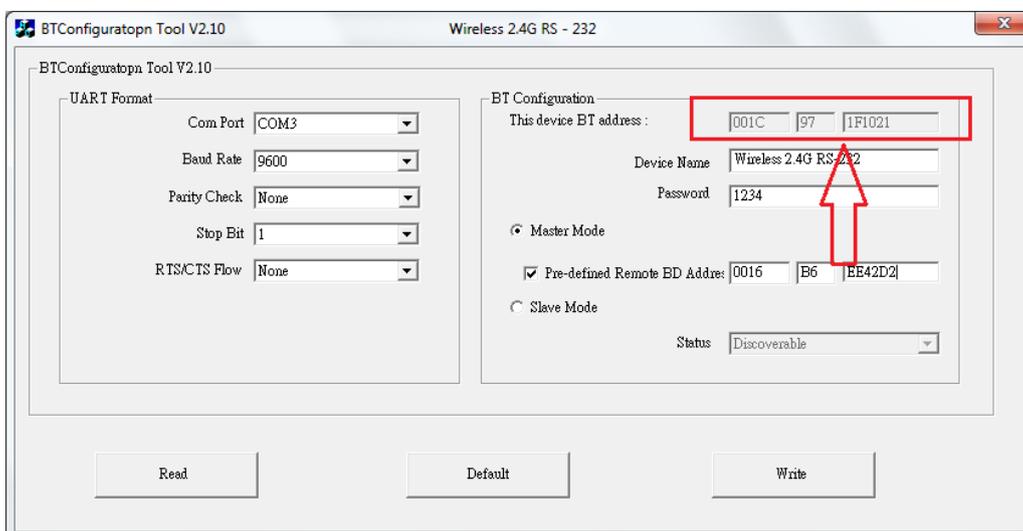
5.14.2 **Setting the 'Master' unit:** Overwrite the Mac address 001C.97.1F1021 on the 3 columns behind 'Pre-defined Remote BD Address'. And then select the 'Master Mode'; tick off 'Pre-defined Remote BD Address' and click 'Write'.
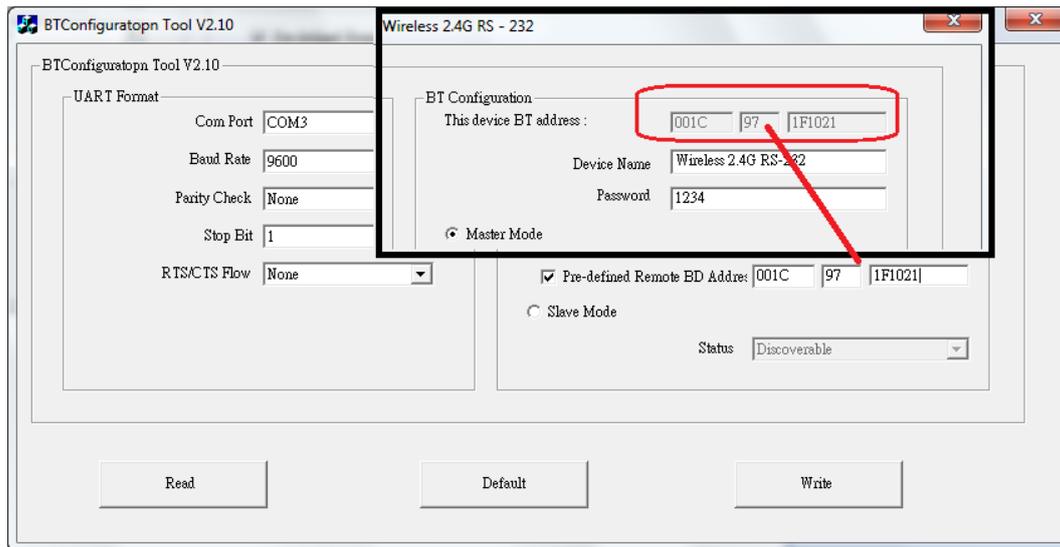
5.14.3 **Setting the 'Slave' unit:** Check the Mac address of 'Slave' unit thru BT Configuration and select the 'Slave Mode'; select Status 'Discoverable' then click 'Write'.
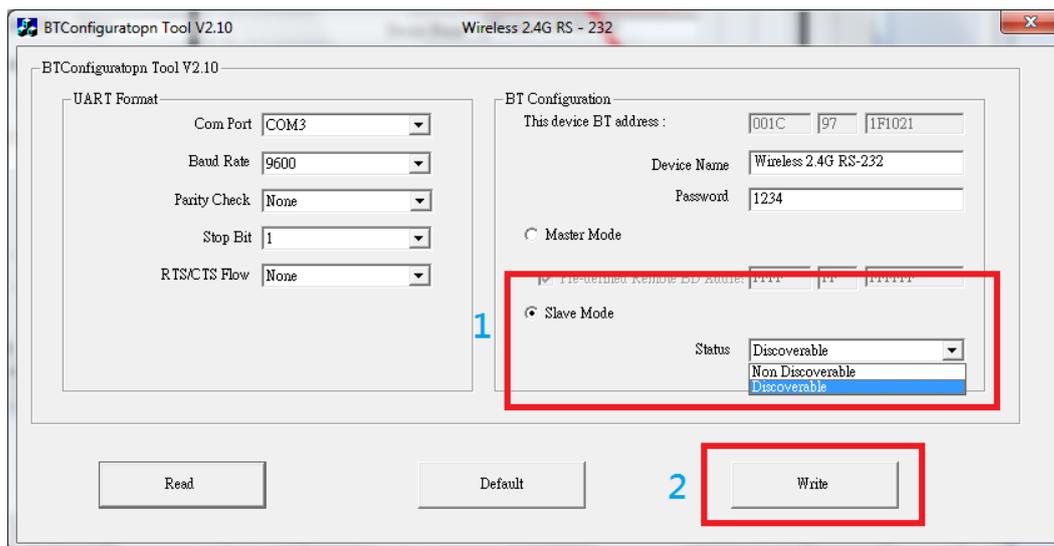
Note: When you finish above settings, the both power adapters of the two BT dongles must be removed, and then restart the two BT dongles.

6. Regulatory Compliance

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CE Certification

This equipment complies with the requirements relating to electromagnetic compatibility.
It has been manufactured under the scope of RoHS compliance.

FCC Compliance Statement

This equipment generates and uses radio frequency and may cause interference to radio and television reception if not installed and used properly. This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation

RF Exposure Statement

The equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

WEEE (Waste of Electrical and Electronic Equipment), Recycling of Electronic Products

In 2006 the European Union introduced regulations (WEEE) for the collection and recycling of all waste electrical and electronic equipment. It is no longer allowable to simply throw away electrical and electronic equipment. Instead, these products must enter the recycling process.

Each individual EU member state has implemented the WEEE regulations into national law in slightly different ways. Please follow your national law when you want to dispose or any electrical or electronic products. More details can be obtained from your national WEEE recycling agency.

FCC ID: 2AD2ABTS-100