BTM411 Development Kit

Quick Start Guide   *v1.2*

Introduction

This quick start guide will demonstrate using the BTM411 in Serial Port Profile role to exchange serial data with a Windows XP computer equipped with a BRBLU03 USB Dongle.

Figure 1: Serial Port Profile Communication

Requirements

- BTM411 Development Board
- BRBLU030-010A0 USB Bluetooth Dongle
- USB Cable (A-B)
- Windows XP SP3 Computer
- Terminal Software such as Ezurio terminal
- FTDI Driver

The development board USB socket provides both power and serial communications with the module. Laird provide a specialized terminal program called Ezurio terminal but you can use your preferred terminal program in its place. This example uses the Microsoft Bluetooth stack and software that comes with Windows XP SP and later. If your computer already has a different Bluetooth stack and software installed, such as Widcomm or Toshiba, you may need to disable or remove it before continuing. Alternative you can modify the computer aspect of the procedure below to match your existing stack and use the computers built in Bluetooth instead of the BRBLU0300-010A0.

Module Setup

- Install the FTDI VCP drivers if not already installed.
- Install your preferred terminal program if not already installed, we recommend using Ezurio terminal.
- Connect the USB cable to the computer and development board, ensuring the switch on the development board is set to USB. Windows should find and install the development board as new hardware.
- Identify the virtual COM port used by the development board using device manager on a Windows computer.
- Open your terminal program and select the virtual COM port (9600 8N1) identified in step 4.
- Check you can communicate by sending the command "AT", which returns "OK".
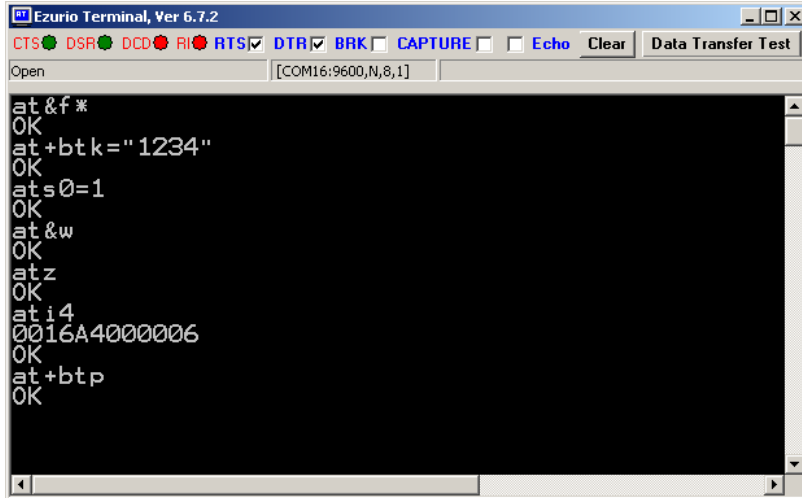- Send the commands as in the screenshot below to configure the BTM411.

Figure 2: Sending commands: at&f, at+btk="1234", ats0=1, at&w, atz, ati4, at+btp

Please refer to the user manual for detailed explanations of the commands listed below. Note that if you power cycle the BTM411 then the "at+btp" will need to be sent again. All other settings are stored in non-volatile memory. Commands are shown in lower case, responses from the BTM411 in upper case.

Computer Setup

Plug the BRBLU into your computer. Windows XP will automatically detect the device and install the required drivers. Make sure you have windows XP service pack 2 or later. Please refer to Microsoft knowledge base article 883259 for more information (http://support.microsoft.com/kb/883259).

No driver downloads are required.

Once installed check in Windows device manager which should look as follows, note the presence of the Microsoft Bluetooth Enumerator and TDK Bluetooth USB Adaptor indicating a successful installation.
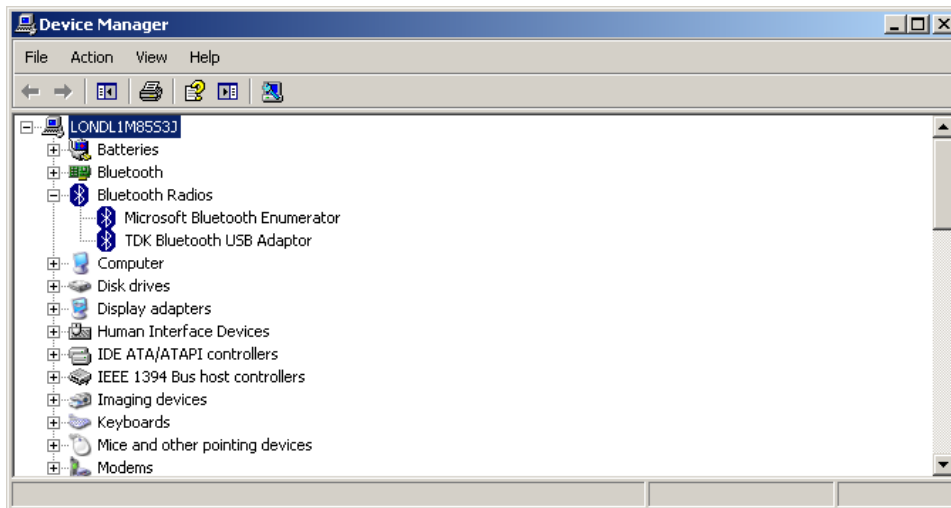

Figure 3: Bluetooth devices in Windows Device Manager

Discovery and Pairing

The BTM411 is now ready to be discovered by your computer. Right click on the Bluetooth icon in the tool tray in the bottom right of the screen and select add a Bluetooth Device.
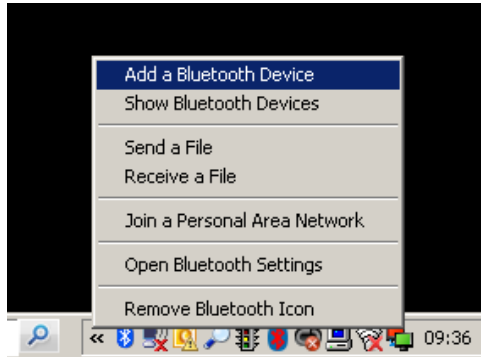
Embedded Wireless Solutions Support
Center: http://ews-support.lairdtech.com
www.lairdtech.com/bluetooth

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Americas: +1-800-492-2320
Europe: +44-1628-858-940
Hong Kong: +852 2923 0610

Figure 4: "Add a Bluetooth Device" in the Windows System Tray

The BTM411 should appear in the wizard. In this example it appears as Laird BTM 000006. Refer to the ati4 command from the module setup in case you cannot identify the correct device. Select the device and continue to the pairing screen and choose the "Let me choose my own passkey" option, refer to the at+btk="1234" command from the module setup.
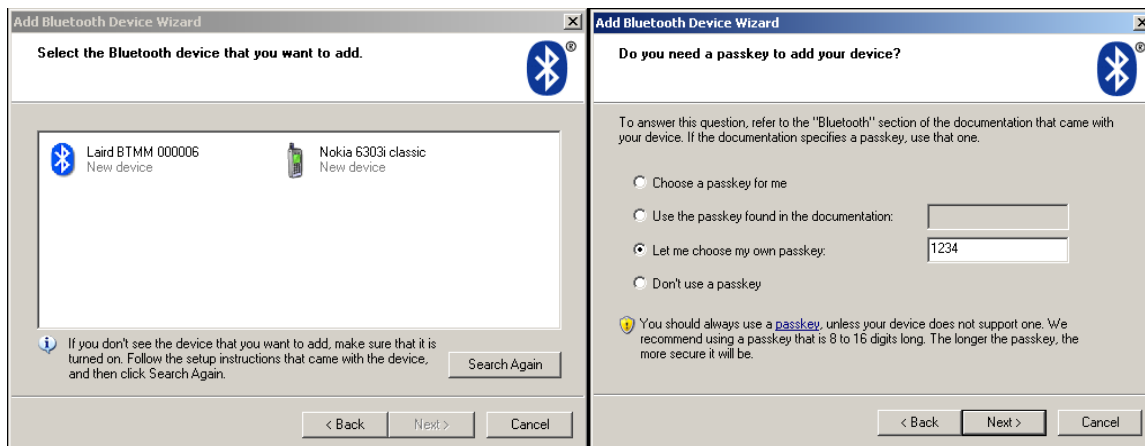

Figure 5: Pairing with a device

A successful pairing will be indicated by a "PAIR 0 <remote device address>" message in the terminal program connected to the module. Windows will now display the COM ports assigned for use with the BTM411.
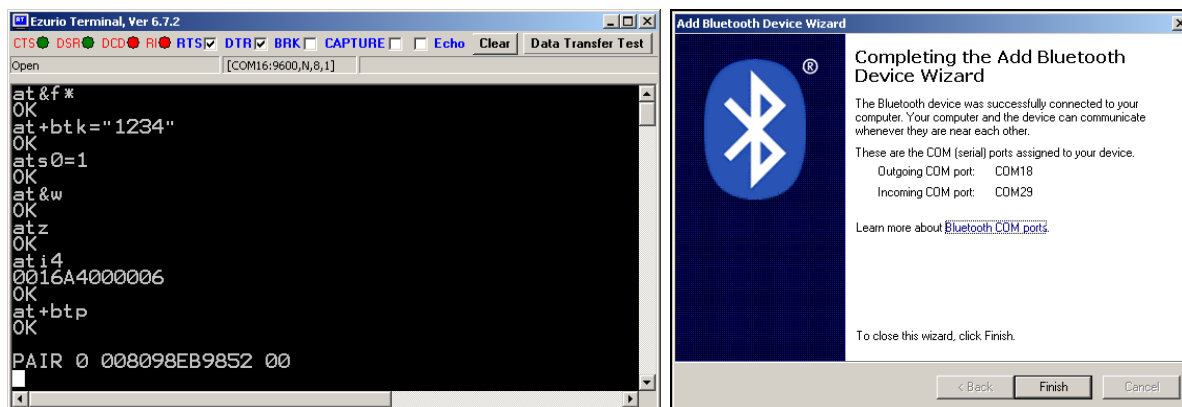

Figure 6: Successful pairing indicated in terminal; completing connection wizard

Connecting

To connect to the BTM411 from the PC open a second instance of Ezurio terminal using the outgoing computer com port noted in the previous step. In the example below the left hand Ezurio Terminal is connected to the module and the right hand Ezurio Terminal is connected to Com 18 on the PC. As soon as the second Ezurio terminal is opened the connection will be made and you should see a "RING" message followed by a "CONNECT" message from the module. The 12 characters following the "RING" and "CONNECT" messages is the Bluetooth address of the remote device. The 4 characters following that indicate the UUID, where "1101" is serial port profile. The "<" indicates an incoming connection.

A transparent data connection is now present, any text entered into one Ezurio Terminal will appear I the other having been transmitted over the Bluetooth link between the BTM411 modules. Note the status of the DCD during a connection.
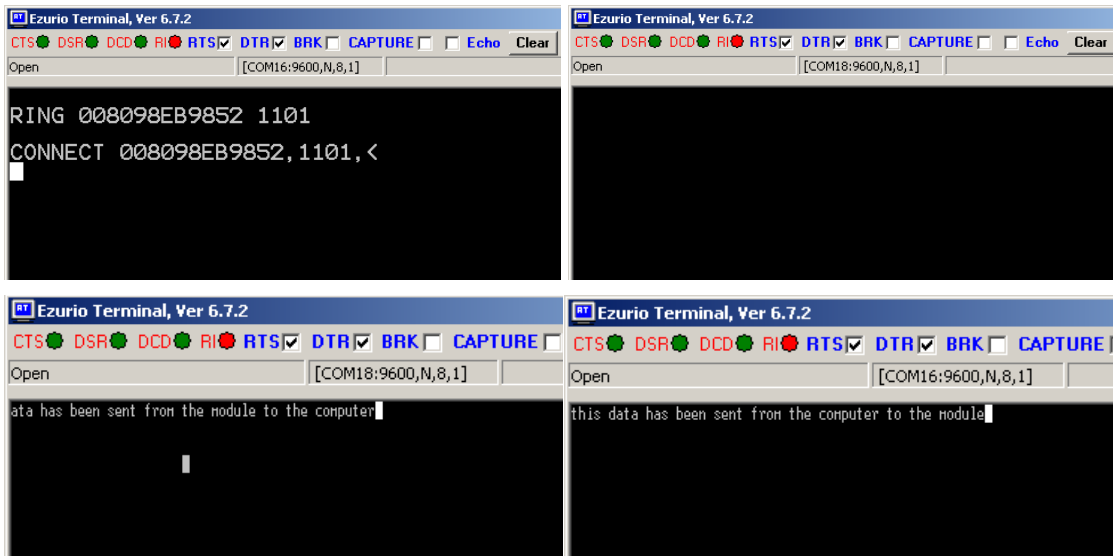

Figure 7: Clockwise from top-left: Device 1 ringing; device 2 connecting; device 2 receiving data; device 1 sending data

The connection can be dropped by typing "^^^" into the module terminal window (left), which appears in the computer terminal window but is interpreted as a command to enter local command mode. Once in local command mode "OK" is displayed and the command "ath" can be sent to drop the connection at which point a "NO CARRIER 1101" will be displayed.

Resources

- FTDI Driver - http://www.ftdichip.com/Drivers/VCP.htm
- Ezurio terminal – on the software downloads tab of the BTM41x product page
- Microsoft Windows XP Bluetooth - http://support.microsoft.com/kb/883259

Documents for the BTM41X series can be found on the documentation tab of the BTM41X product page.

Revision History

Revision	Date	Description	Approved By
1.0	10 July 2013	Initial Release	Jonathan Kaye
1.1	15 Aug 2014	Basic grammatical edits and reformatting	Sue White
1.2	03 Mar 2015	Added Revision History	Sue White

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