Using the *smart*BASIC Proximity Profile

BL600

Quick Start Guide *v1.1*

INTRODUCTION

This guide demonstrates how to load a *smart* BASIC Proximity Profile application (prx.proximity.SB) onto the BL600 development board and view the data on a BT4.0 iPad/iPhone.

REQUIREMENTS

- PC running Windows XP or later
- UWTerminalX found at https://github.com/LairdCP/UwTerminalX/releases
- BL600-Applications-master file found at https://github.com/LairdCP/BL600-Applications
- USB A to mini B cable
- iPad 3/ iPhone 4S or newer with BT4.0 support
- Internet connection on iOS device (to download the BL600 app)
- DVK_BL600 User Manual
- FTDI Drivers http://www.ftdichip.com/Drivers/VCP.htm (for some versions of Windows)

DEVELOPMENT KIT SETUP

To setup the BL600 development kit (DVK), follow these steps:

1. Configure the BL600 development kit to the following settings:
   - DC/USB power source switch (SW4) set to USB
   - VCC_1V8/VCC_3V3 switch (SW5) set to VCC_3V3
   - CR2033/VCC_3V3/1V8 switch (SW6) set to VCC_3V3/1V8
2. Connect one end of the mini USB cable to CON4 on the DVK board and the other end to your PC.
3. Follow the on screen prompts. Windows may prompt you to install FTDI drivers.
   When complete, the DVK board appears in the Windows device manager as a *USB Serial Port*.
4. Note the port number shown in the device manager.
5. Extract UWTerminalX and run the program.
6. In the Config tab, select BL600/BL620 which should populate the following settings (Figure 1):
   - Baudrate – 9600
   - Stop Bits – 1
   - Data Bits – 8
   - Handshaking – None

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

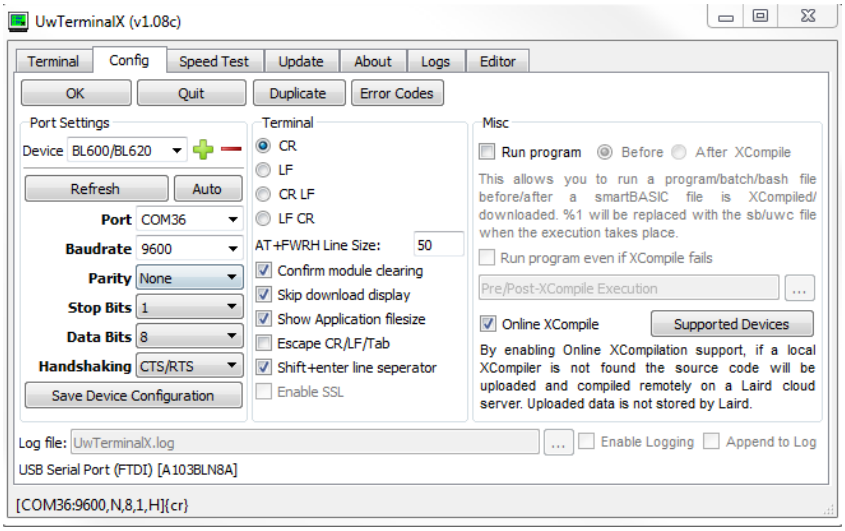

Figure 1: Comm Settings

7. Verify that you can communicate with the board by typing ***at*** followed by a return. The module responds with *00*.

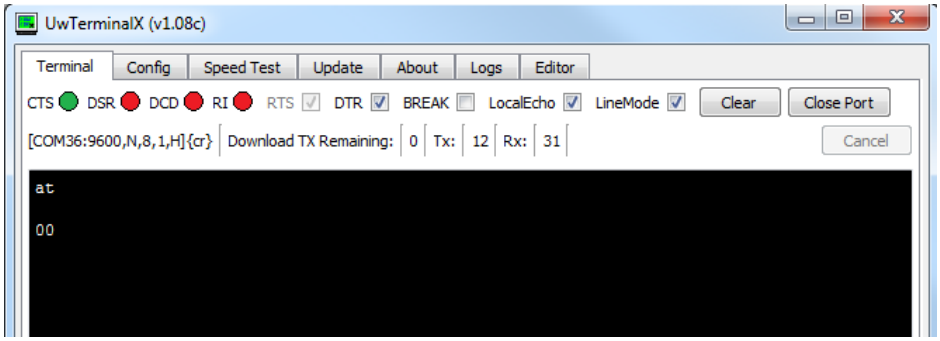

Figure 2: Comms OK

LOADING A *SMART* BASIC APPLICATION

Note: When swapping between profiles on the same device, it may be necessary to clear any existing pairings on the module and iOS device. On the module, this can be done with the command at+btd*; and on the iOS device this can be done in Bluetooth settings.
The BL600 app also allows you to manage devices through its connection manager available via the gears icon, swipe left any existing devices to delete them.

To load a *smart*BASIC application, follow these steps:

1. To compile and load a *smart* BASIC application, right-click in the UWterminalX main window and select **XCompile + Load**.

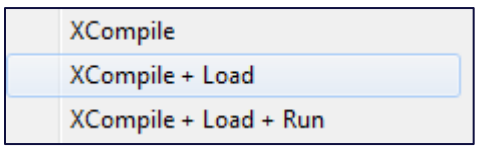

Figure 3: Right-click menu

2. Locate and open the *prx.proximity.custom.SB* application in the supplied *BL600-Applications-master* folder. When the application successfully compiles and loads, the console reads **--Finished Downloading File --** (Figure 4)**.**

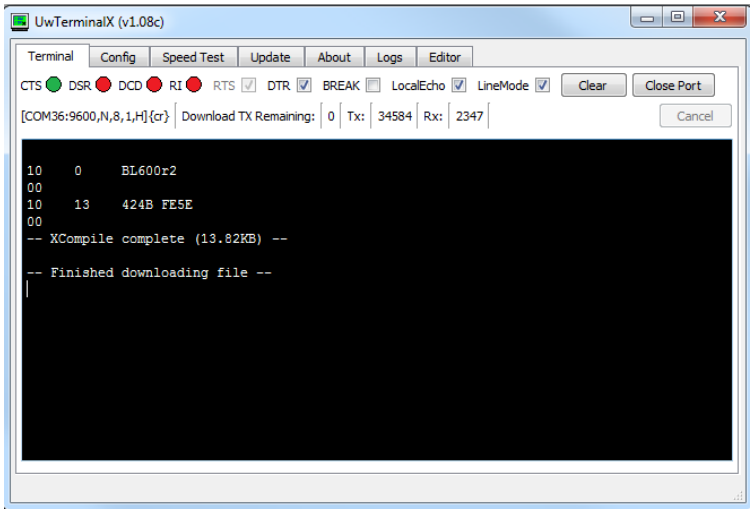

Figure 4: Compiled and Loaded

3. Confirm that the *prx* application is loaded by using the command **at+dir**.

Note: The file extension is truncated from files copied onto the BL600 module. Therefore, when prx.proximity.custom.sb is copied to the device, its name becomes *prx.*

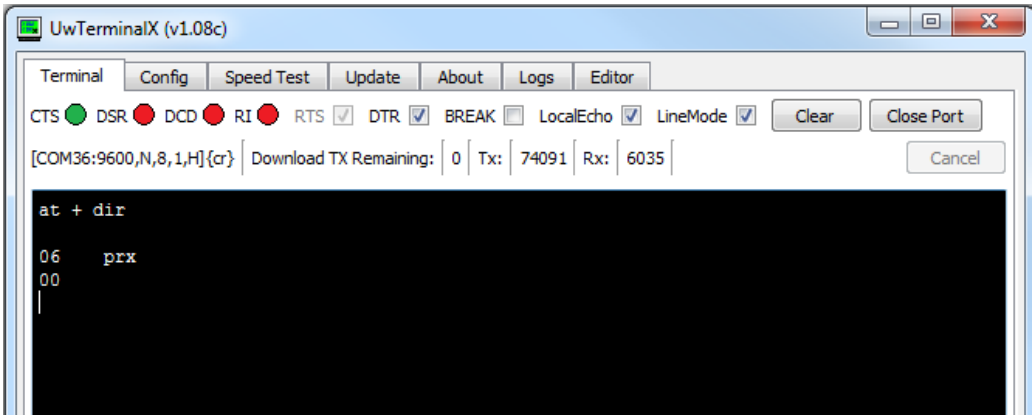

Figure 5: Directory showing "prx" app loaded

iPad/iPhone Setup

For iPad/iPhone setup, follow these steps:

1. Install the Laird Toolkit app from the Apple App Store and ensure Bluetooth is enabled in the device settings. If using an iPad and after searching the Laird Toolkit app doesn't appear in the results, select **iPhone Only** from the dropdown menu.

Americas: +1-800-492-2320
Europe: +44-1628-858-940
Hong Kong: +852 2923 0600

Figure 6: Laird Toolkit app installed

2. Once installed, select the Proximity option found in the Laird Toolkit application on your iOS device.

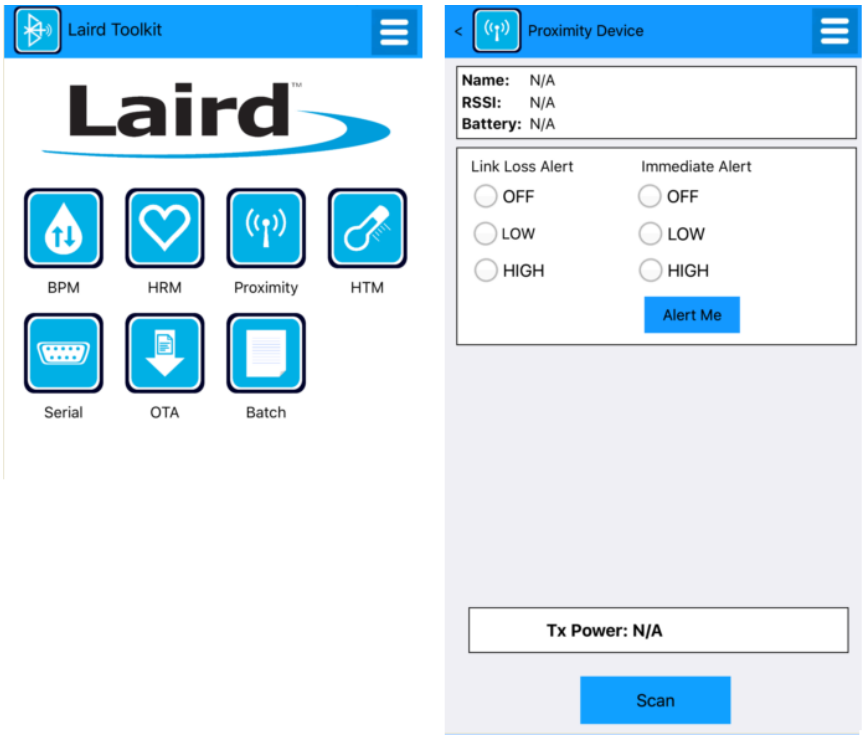

Figure 7: Laird Toolkit app – Home screen, Prx

Americas: +1-800-492-2320
Europe: +44-1628-858-940
Hong Kong: +852 2923 0600

RUNNING PRX.SB AND CONNECTING WITH THE IPHONE/IPAD

To run prx.SB and connect with the iPhone/iPad, follow these steps:

1. Return to UWterminalX and type **prx** followed by return in the main window to run the application. The module initialises and advertisements begin.

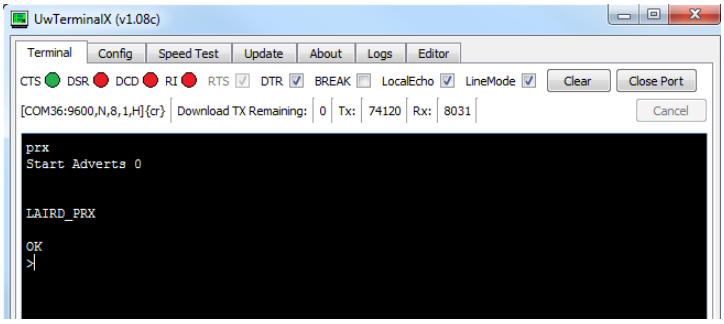

Figure 8: prx.sb running

2. Press **Scan** on the iPhone/iPad app.

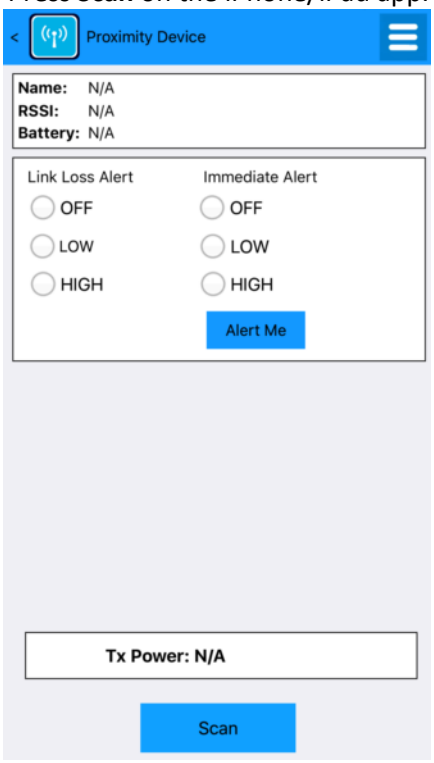

Figure 9: "Scan" button on Proximity window

Note: If the module times out before you press Connect, press the reset button on the development board, allow the module to reset, and run the application again.

Americas: +1-800-492-2320
Europe: +44-1628-858-940
Hong Kong: +852 2923 0600

3. Select the **LAIRD_PRX** device to connect to the BL600.

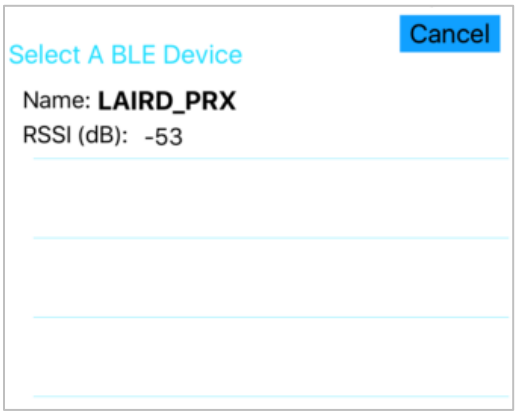

Figure 10: BL600 Advert running PRX smartBASIC code

USING PROXIMITY PROFILE

TX Power Service

This service allows the iOS device to read the current transmit power of the BL600. This value is fixed and does not change. It is used by the iOS device to estimate its distance from the BL600.

Immediate Alert Service

This service allows an Immediate Alert Service Alert to be sent to the iOS device when one of the following occurs:

- The Alert Me button is pressed
- The range between the two devices exceeds the alert threshold value.

Example:	The Immediate Alert button can be used to sound a buzzer in the key fob of a set of lost house keys to help you locate them. Refer to Figure 11 to see the Alerts shown in UWTerminalX.

Link Loss Service

This service will send a Link Loss Service Alert when the connection between the devices is about to be lost. UWTerminalX will display a “Link Loss Service Alert” message. For this message to appear you must select either the LOW(1) or HIGH(2) option in the Proximity app. When an option is selected an alert will appear in UWTerminal X as shown in Figure 11.

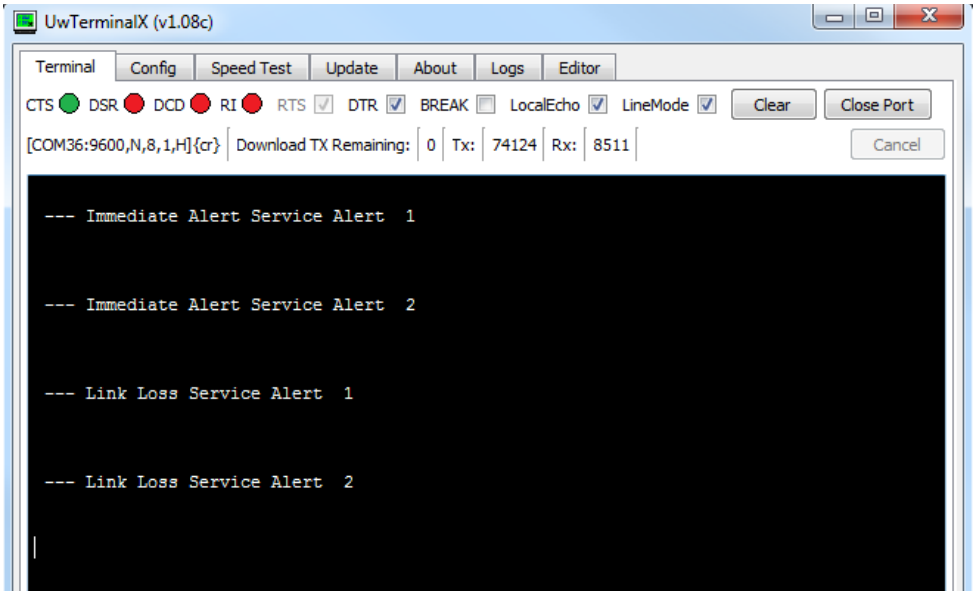

Figure 11: Alerts seen in UWTerminalX

REFERENCES

For more information on Proximity Profile please refer to the following documents:

- **prx.proximity.custom.sb** – Sample application contains further information in the form of comments on the use of the Proximity Profile smartBASIC program and can be opened in a text editor.
- **Proximity Profile –** https://www.bluetooth.org/Technical/Specifications/adopted.htm

REVISION HISTORY

Version	Date	Notes	Approver
1.0	23 Sept. 2013	Initial Release	Jonathan Kaye
1.1	19 Dec 2016	Updated for Laird Toolkit and new template	Jonathan Kaye

Americas: +1-800-492-2320
Europe: +44-1628-858-940
Hong Kong: +852 2923 0600