

Using Virtual Serial Port Service (vSP) with *smartBASIC*

BL654 Development Kit – Part # 455-00001 and 455-00002

BL654 USB Dongle – Part # 451-00003

Application Note

v1.0

1 INTRODUCTION

This application note demonstrates how to load and run a *smartBASIC* Virtual Serial Port service sample application onto the BL654 development kit and BL654 USB dongle to create a vSP link between the two devices.

For this guide, we used a sample *smartBASIC* application (*VSP.UART.bridge.incoming.sb*) on one device for an incoming connection and a separate *smartBASIC* application (*VSP.UART.bridge.outgoing.sb*) on another device for an outgoing connection.

2 REQUIREMENTS

The following equipment and utilities are required:

- Laird BL654 USB BLE USB adapter, Part# 451-00003
- Laird DVK-BL654, Part # 455-00001 or 455-00002 (or equivalent UART-to-serial connection to the BL654 modules Part # 451-00001 and 451-00002)
- FTDI USB-to-Serial drivers for BL654 USB dongle (found at <http://www.ftdichip.com/FTDrivers.htm>)
- UwTerminalX, provided by Laird at <https://github.com/LairdCP/UwTerminalX>
- `$autorun$.VSP.UART.bridge.incoming.sb` and `$autorun$.VSP.UART.bridge.outgoing.sb` *smartBASIC* applications found in <https://github.com/LairdCP/BL654-Applications/tree/master/Applications>

Note: If you are working with the BL654 development board or BL654 USB dongle for the first time, please refer to the quick start guide for these products. The quick start guides are available on [the BL654 product page](#) and guide you through the initial installation process.

3 CREATING A VSP LINK

To create a vSP link, follow these steps:

1. Connect the BL654 USB dongle and the BL654 development kit to spare USB ports on your computer or to a USB hub that can provide at least 100 milliamps of power.
2. Follow the on-screen prompts. Depending on your version of Windows, you may need to install the FTDI drivers.

When complete, the BL654 USB dongle and BL654 development kit appear in the Windows device manager as USB Serial Ports. Make a note of the COM port numbers to use in step 6.

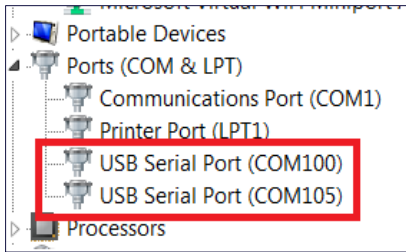


Figure 1: Virtual comports as shown in the device manager

3. Launch UwTerminalX (available at <https://github.com/LairdCP/UwTerminalX>).
4. From the Update tab in UwTerminalX, click **Check for Updates** to ensure you're using the latest version of UwTerminalX with support for the BL654.
5. From the Config tab in the Device drop-down menu, select **BL65x** to populate the baud, parity, stop bits, data bits, and handshaking settings. If BL65x is not a selectable device, set the following:
 - Baudrate: 115200
 - Parity: None
 - Stop Bits: 1
 - Data Bits: 8
 - Handshaking: CTS/RTS
6. In the Port dropdown, select the COM port associated with your development kit.
7. At the top of the screen, click **OK**.
8. Repeat steps 6 and 7 by selecting the comport for each device.

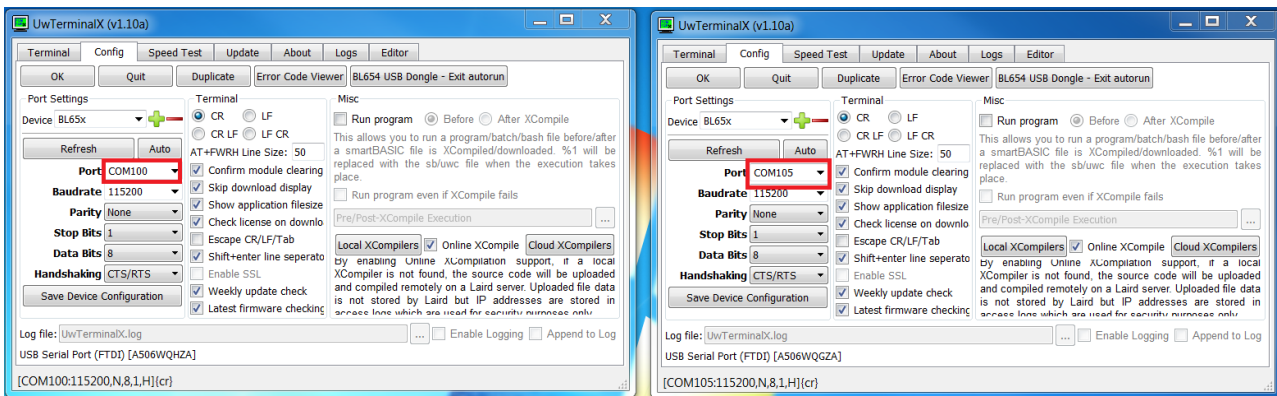


Figure 2: Open UwTerminalX by specifying the comport numbers for each device

9. Download and save on to your local drive the *smartBASIC* applications found in <https://github.com/LairdCP/BL654-Applications/tree/master/Applications>.
10. On the development board side, type **AT I 4** to obtain its Bluetooth address.
11. Open the `$autorun$.VSP.UART.bridge.outgoing.sb` with a text editor.
10. Find the line `#define BTAddr "000016A4093D8A"` and replace the 14-digit Bluetooth address with the **AT I 4** response from the development board (in step 10).

For example:

```
at i 4
10          4      01 D39609CE7352
00
```

The Bluetooth address should be entered as 01D39609CE7352 without the white space.

12. Find the line `#define CONNECT_ON_STARTUP` and set it to 1.
13. Save and close the application.
14. Ensure that DTR is checked in both instances of UwTerminalX.
15. On the development board side, right-click and select **XCompile + Load**.
16. Navigate to the *smartBASIC* applications folder and select `$autorun$.VSP.UART.bridge.incoming.sb`.
17. Do the same on the USB dongle side, but this time select `$autorun$.VSP.UART.bridge.outgoing.sb`.
18. Check and uncheck **BREAK** to auto-run the application on both devices.

This create a vSP link between the two devices. Any message typed in one window also appears in the other.

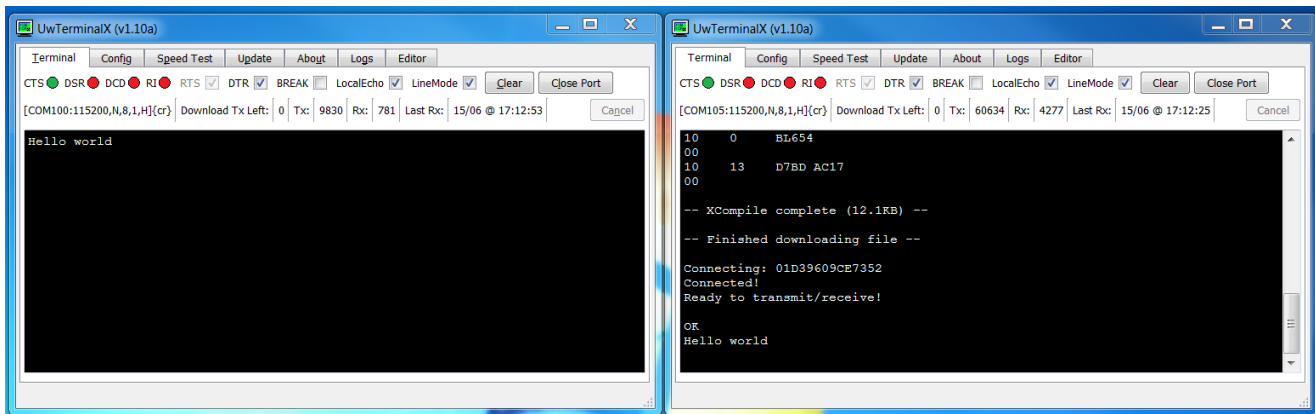


Figure 3: vSP connection between the BL654 development board and BL654 USB dongle

4 FURTHER INFORMATION

Further information relating to the BL654 USB dongle is available from the Laird BL654 product page:
<https://www.lairdtech.com/products/bl654-ble-thread-nfc-modules>

5 REVISION HISTORY

Version	Date	Notes	Contributor(s)	Approver
1.0	13 June 2018	Initial Release	Shewan Yitayew	Jonathan Kaye