

Upgrading BL652 Firmware via UART

BL652 Module

Application Note

v1.0

INTRODUCTION

The goals of this document include the following:

- To detail the setup procedure for interfacing with the DVK-BL652
- To explain the method of upgrading the firmware for the BL652 module

REQUIREMENTS

- Laird DVK-BL652 (or equivalent RS-232 to serial connection to the BL652 Module)
- FTDI USB to Serial drivers for DVK-BL652 (found at <http://www.ftdichip.com/FTDrivers.htm>)
- USB-A to USB-Micro cable
- UwTerminalX, provided by Laird at <https://github.com/LairdCP/UwTerminalX>
- Desired firmware package, found in the Software Downloads tab of the [BL652 Product Page](#)

OVERVIEW

To upgrade the module, you must use Laird's development board or your own equivalent implementation to provide an RS-232 connection to the module's serial port.

Initial Setup using BL652 Dev Kit DVK-BL652

To set up, complete the following steps.

1. Configure the BL652 development kit to the following settings:
 - DC/USB power source switch (SW4) – USB
 - VCC_1V8/VCC_3V3 switch (SW5) – VCC_3V3
 - CR2033/VCC_3V3/1V8 switch (SW6) – VCC_3V3
2. Connect the DVK-BL652 to your PC via the included USB-A to USB Micro cable.

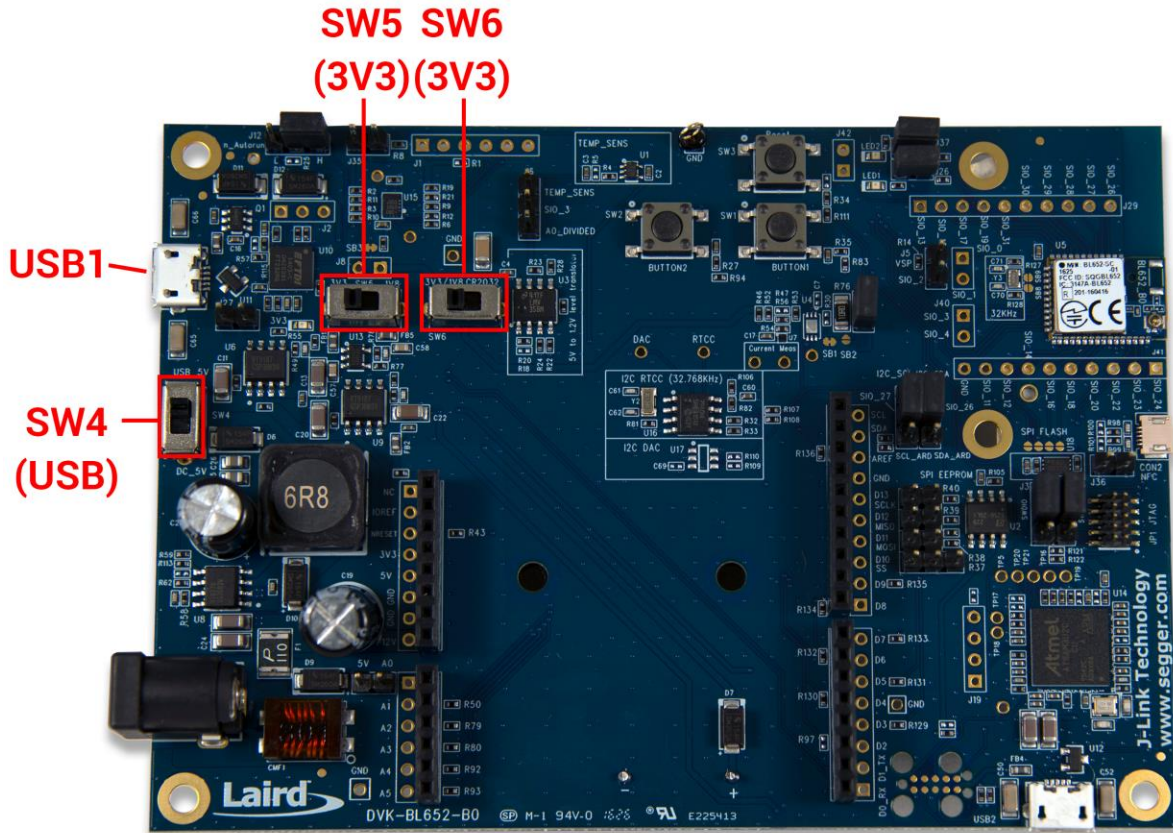


Figure 1: BL652 development board

3. Install the FTDI USB to Serial driver (found at <http://www.ftdichip.com/FTDrivers.htm>).
4. Ensure that the Windows Device Manager displays a new virtual COM port for the USB to Serial adapter.
5. Launch UwTerminalX (available at <https://github.com/LairdCP/UwTerminalX>)
6. From the Update tab in UwTerminalX, click **Check for Updates** to ensure you're using the latest version of UwTerminalX with support for the BL652.
7. From the Config tab in Device drop-down menu, select **BL652** to populate the baud, parity, stop bits, data bits, and handshaking settings. If "BL652" is not a selectable device, set the following:
 - Baudrate: 115200
 - Parity: None
 - Stop Bits: 1
 - Data Bits: 8
 - Handshaking: CTS/RTS
8. In the Port dropdown, select the COM port associated with your DVK-BL652.
9. At the top of the screen, click **OK**.

CHECKING FIRMWARE VERSION

Once the module has been connected, type **AT I 3** to display the firmware version (Figure 2).

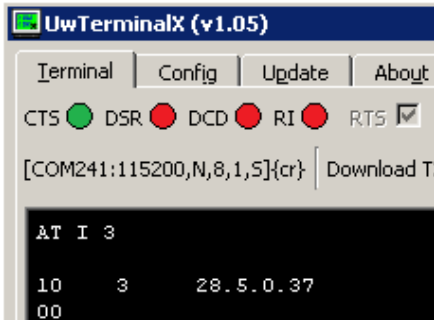


Figure 2: AT I 3 command returning the firmware version number

Warning: Upgrading the firmware clears any programs, configuration keys or data stored on the module.

Upgrading the Firmware

To upgrade the firmware, follow these steps:

1. Download your desired firmware from the software downloads tab of the [BL652 Product Page](#).
2. Extract the following files (located in the Firmware directory of the firmware upgrade .zip file) to a directory on your PC:
 - **BL65xUartFwUpgrade.exe** (The firmware upgrade utility)
 - **XXXX.uwf** (The firmware image)
3. Run the firmware upgrade process utility from that directory.
4. If not already connected, attach the module to your PC's serial port. If you are using the DVK-BL652, ensure that you are connected to the board's USB1 connection (see [Figure 1](#)).

Warning for customers using VSP

If you have enabled out-of-the-box Virtual Serial Port Service operation by pulling SIO2 to VCC or changing config register 100 (using AT+SET 100="0xhhhh"), then you must do one of the following before starting the upgrade:

- Ensure SIO2 is at 0v, OR
- Submit the command AT+CFG 100 0x0000 and ensure you get a successful 00 response

You may also submit the command **AT&F*** to put the module into factory default mode to ensure that the upgrade starts from a known state and ensure SIO2 is at 0v.

5. Start BL65xUartFwUpgrade.exe to display the launch window ([Figure 3](#)).

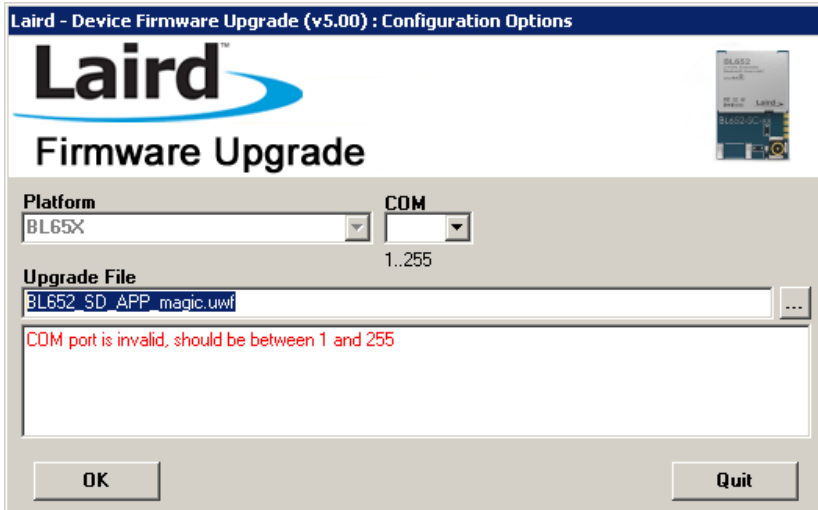


Figure 3: BL65xUartFwUpgrade launch screen

6. Ensure that the selected platform is **BL65x**.
7. Select the applicable COM port number from the drop-down menu.
8. If the upgrade field is empty, click ... to select the applicable **xxx.uwf** file. The .uwf file may already have been detected if it is the only file in that folder.
9. When the settings are correct, the large message field below *Upgrade File* clears.
10. Click **OK**.
11. The following screen confirms the firmware version (Figure 4).

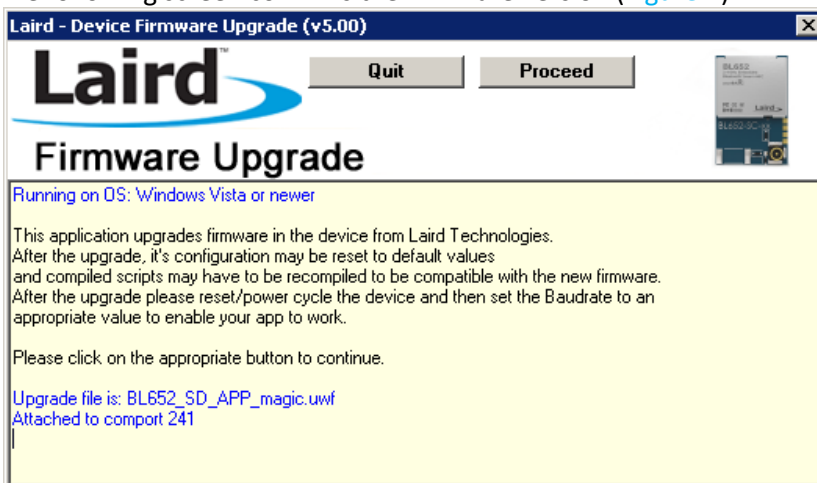


Figure 4: Screen confirming firmware version

12. If the firmware version is correct, click **Proceed**.

The download process starts, with the screen showing the progress and describing the status (Figure 5).

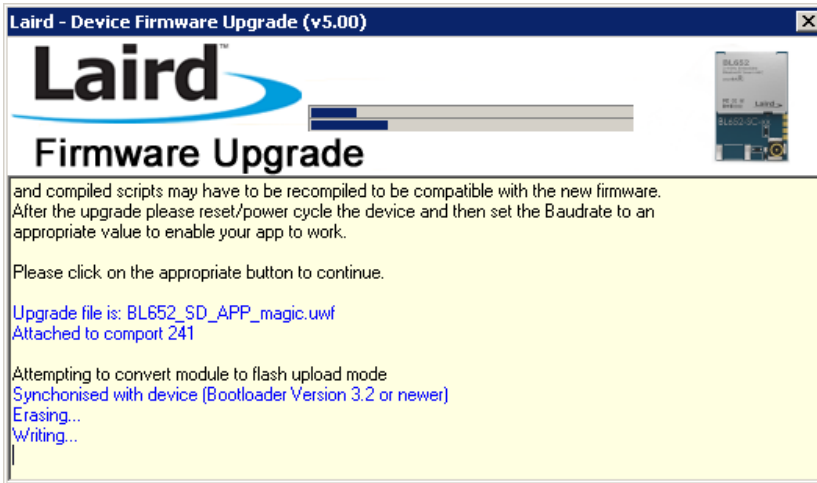


Figure 5: Firmware upgrade in progress

When the upgrade is complete, the screen indicates completion and requests that you power cycle the module (Figure 6).

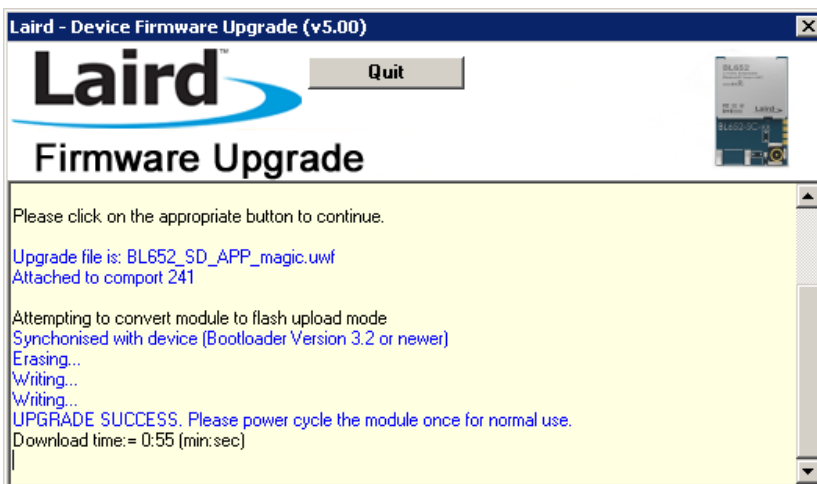


Figure 6: Upgrade complete, requesting power cycle

13. Cycle power to the module.

14. Click **Quit**.

The module is upgraded and ready for operation. Confirm the upgrade by running UwTerminalX and checking the version using AT I 3 (Figure 7).

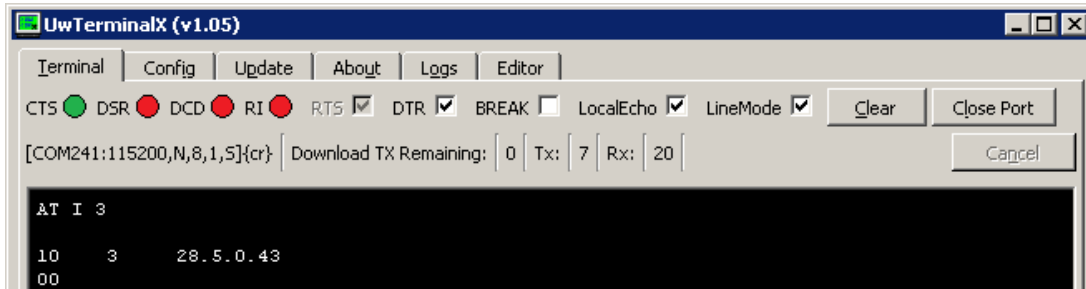


Figure 7: Confirming the new firmware with AT I 3 in UwTerminalX

FURTHER INFORMATION

Further information relating to the BL652 module is available from the Laird Embedded Wireless Solutions Support Center at https://laird-ews-support.desk.com/?b_id=14216, as well as the Laird website at <http://www.lairdtech.com/products/bl652-ble-module>.

REVISION HISTORY

Version	Date	Notes	Approver
1.0	19 Aug 2016	Initial Release	Jonathan Kaye