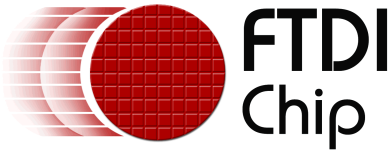

Future Technology Devices International Ltd.

VPROG VNC1L Reflasher Application Manual

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1 VPROG VNC1L Reflasher

The FTDI Vinculum VNC1L-1A device is an embedded USB host controller with a Flash based microcontroller. It is possible to reprogram the Flash memory with new firmware via the UART interface using the VNC1L-1A's internal bootloader.

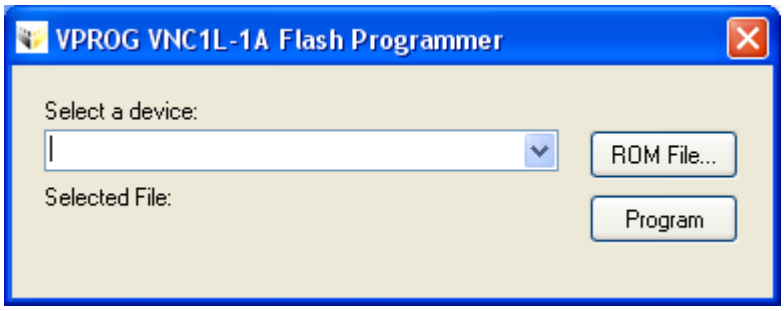
The VPROG application provided on the Vinculum web site can be used to reprogram the VNC1L-1A with new firmware in this way.

1.1 VPROG VNC1L Reflasher Application

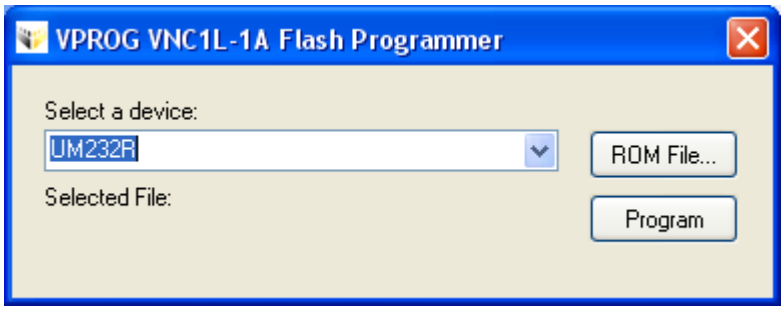
The VPROG application can be used to reprogram the Flash memory of the VNC1L-1A and is available as a free download from the Vinculum web site. VPROG requires an FTDI 232 (USB-UART) device using the Windows CDM (D2XX) drivers. It is possible to use other devices with a UART, but these will require a different application which must be written by the developer.

To reprogram the VNC1L Flash memory, perform the following steps:

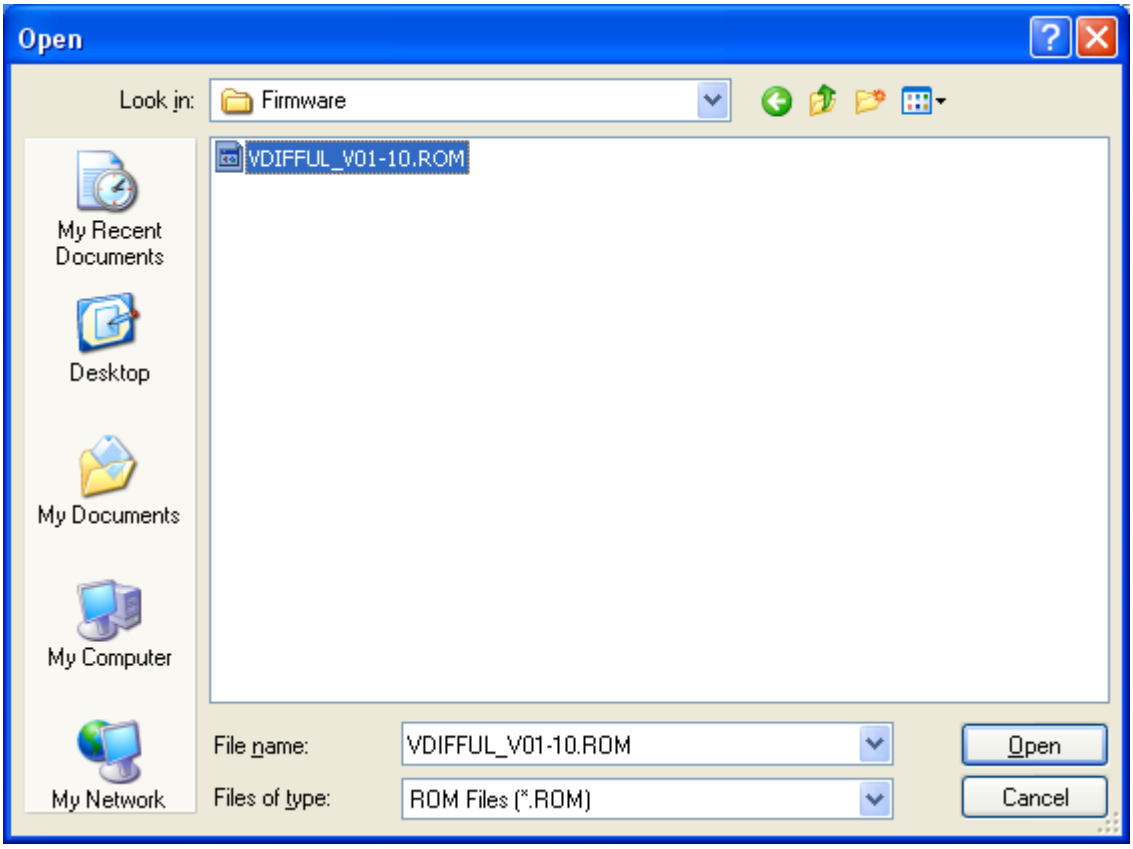
- If required, use jumpers to enable the bootloader in the VNC1L device. See the hardware considerations 6 section for more information on this.
- Connect the FTDI 232-based reprogramming interface to the PC and install the CDM (D2XX) drivers.
- Download VPROG from the Vinculum web site downloads page.
- Download the required firmware from the Vinculum web site downloads page.
- Run VPROG.exe.



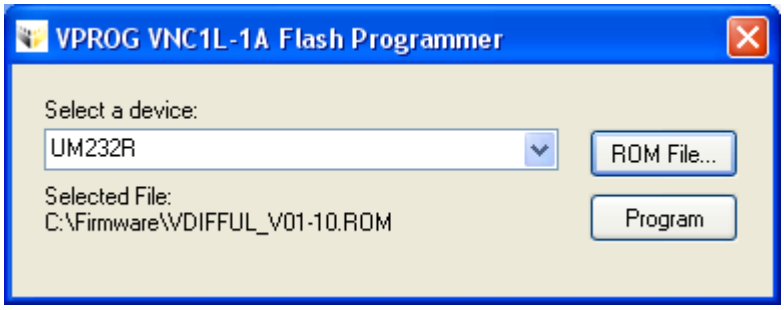
- Click on the drop down box and select the description of the FTDI 232 device being used to reprogram the Vinculum device.



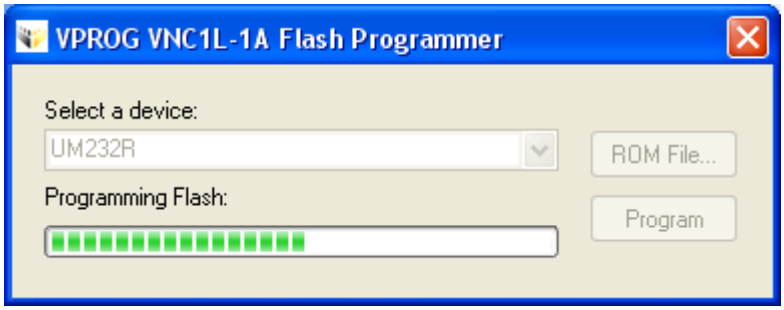
- Click the "ROM File..." button and browse to the ROM file to be programmed into the VNC1L.



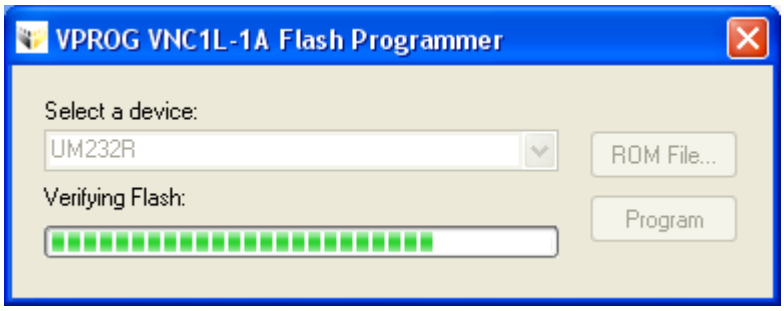
- Once a file is selected, the file path is displayed on the form. If a valid ROM file has been chosen and an FT232 has been selected, the device may be reprogrammed. Click "Program" to reprogram the VNC1L.



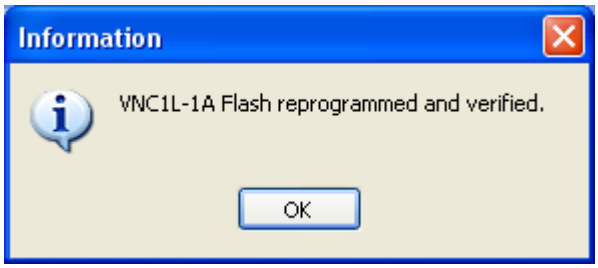
- A progress bar indicates how much of the reprogramming process is complete.



- A second progress bar is displayed while verifying the Flash memory.



- A message box is displayed at the end indicating that the reprogramming has completed and was successful.



1.2 VPROG VNC1L Reflasher Hardware Considerations

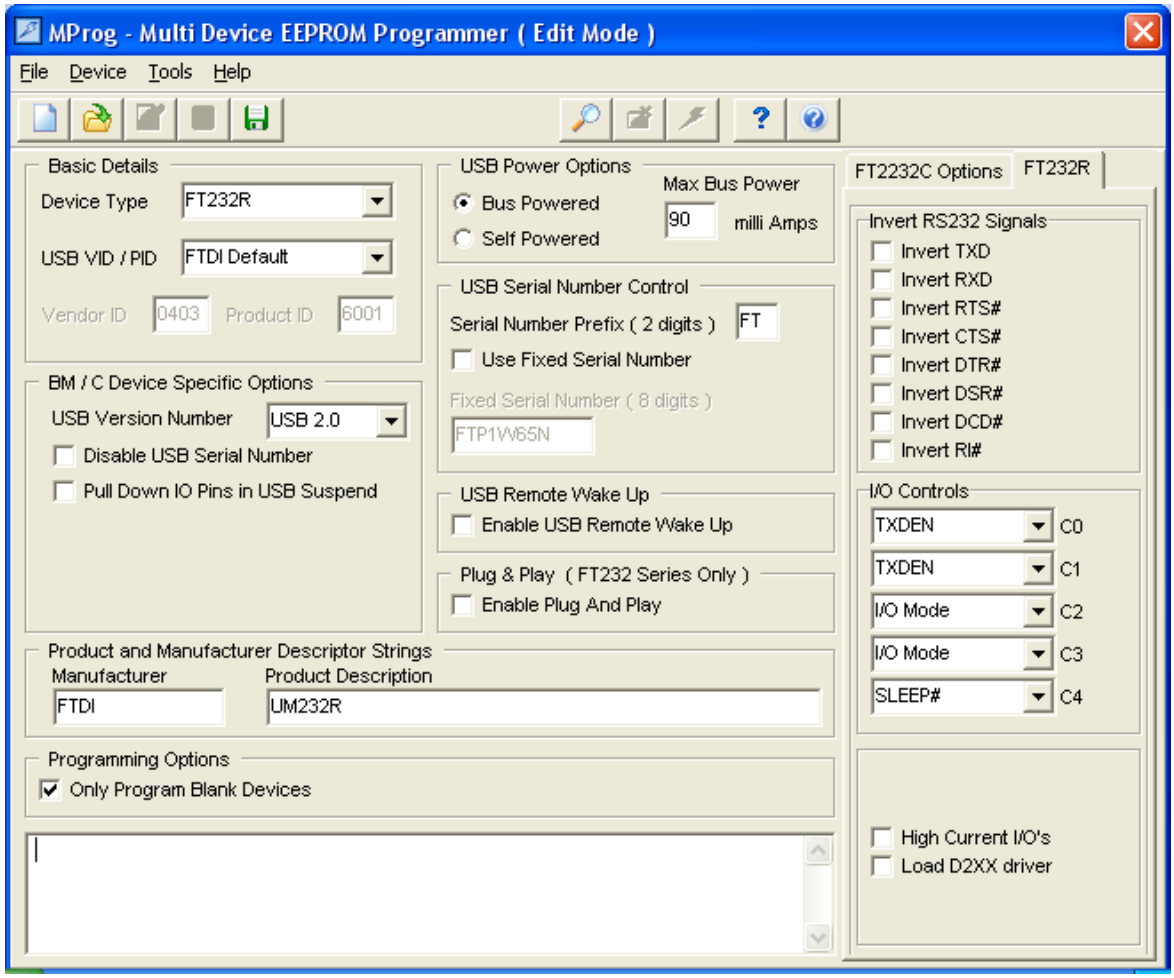
In order for the VNC1L to be reprogrammed, the device must be powered up with its bootloader active. This is done by powering the chip up with the PROG# pin tied low. The PROG# pin may be controlled in two ways:

- Manually by a jumper
- FT232R CBUS pins can be used to programatically set the VNC1L chip into program mode

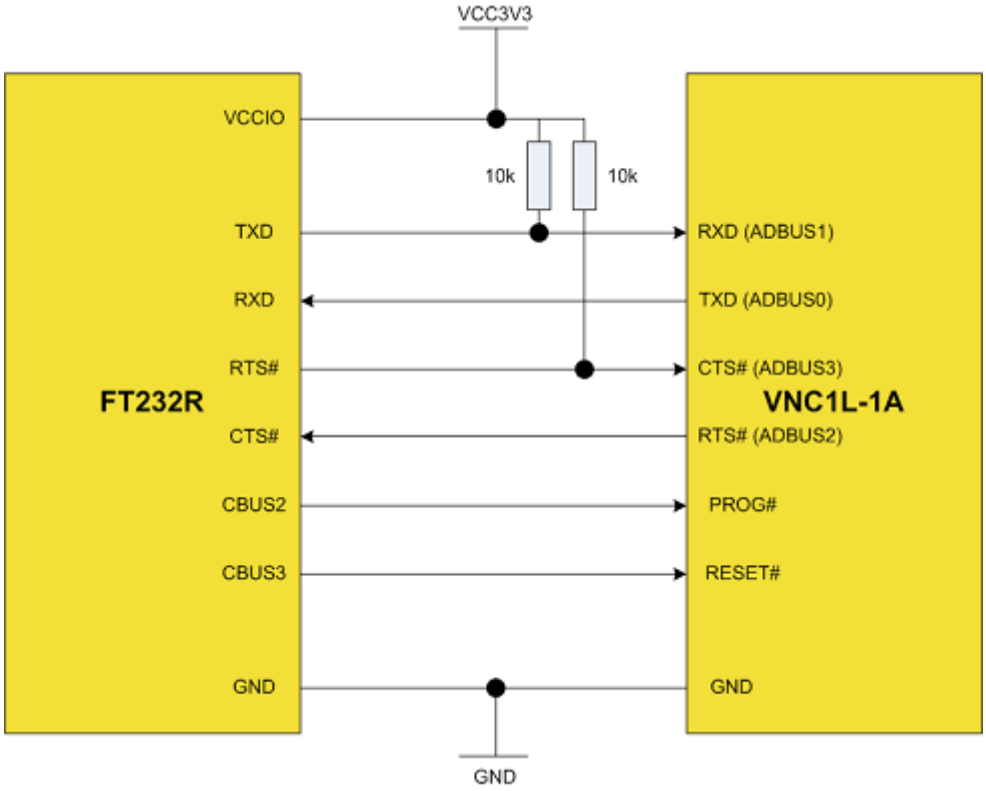
NOTE: If the firmware in the VNC1L should become corrupted, the device is only recoverable via the UART and bootloader. All VNC1L designs should provide access to the UART, PROG# and RESET# pins to allow for device recovery.

The VPROG application attempts to set program mode using CBUS2 of an FT232R device (connected to PROG# on the VNC1L) and then reset the VNC1L to run mode using CBUS3 (connected to RESET# on the VNC1L). For the PROG# pin to be controlled programatically, the FT232R device is required because it uses the CBUS bit bang mode which is only available on the FT232R. Other FTDI USB-serial devices may be used to reprogram the VNC1L using the VNC1L Reflasher application, but program mode must be set using a jumper.

To use CBUS bit bang mode on the FT232R it must be enabled in the EEPROM (see AN232R-01 Bit Bang Modes for the FT232R and FT245R). An example suitable MProg configuration for an FT232R device to be used in this way is shown below. MProg is available as a free download from the FTDI web site.



An example block diagram of how to connect an FT232R device to the VNC1L is shown below.



2 Revision History

Version	Release Date	Comments
1.0	September 2006	Initial release

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This document provides preliminary information that may be subject to change without notice.

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