



Application Note

AN_203

Loading VNC2 ROM files Using V2PROG Utility

Version 1.1

Issue Date: 2012-02-21

This application note explains how to program Vinculum-II (VNC2) using a free FTDI utility, V2PROG, to load precompiled ROM files into VNC2 devices over the VNC2 Debugger/Programmer interface

Use of FTDI devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold harmless FTDI from any and all damages, claims, suits or expense resulting from such use.

Future Technology Devices International Limited (FTDI)

Unit 1, 2 Seaward Place, Glasgow G41 1HH, United Kingdom

Tel.: +44 (0) 141 429 2777 Fax: + 44 (0) 141 429 2758

Web Site: <http://ftdichip.com>

Copyright © 2012 Future Technology Devices International Limited

Table of Contents

1	Introduction	2
1.1	Overview	2
2	Connecting the hardware	3
3	Installing the Debugger/Programmer Module driver	5
4	Installing V2PROG	6
5	Running V2PROG.....	9
6	Contact Information.....	10
	Appendix A – References	11
	Document References.....	11
	Acronyms and Abbreviations	11
	Appendix B – List of Tables & Figures	12
	List of Tables	12
	List of Figures	12
	Appendix C – Revision History	13

1 Introduction

FTDI have introduced a new suite of simplified “bridging” ROM files to allow for fast interconnect between differing interfaces. These ROM images (and sample code) are targeted at those users who would like to implement VNC2 into a design without creating their own firmware.

To further simplify the use of this precompiled code, FTDI have also provided a new programming utility called V2PROG which enables pre-compiled ROM files to be loaded into the VNC2 device over the debugger/programmer interface without needing to use the IDE or FT_PROG. This may also be of benefit in a mass production environment where the full IDE is not required.

1.1 Overview

VNC2 is the second of FTDI’s Vinculum family of embedded dual USB host controller devices. The VNC2 device provides USB Host interfacing capability for a variety of different USB device classes including support for BOMS (bulk only mass storage), Printer and HID (human interface devices). For mass storage devices such as USB Flash drives, VNC2 transparently handles the FAT file structure.

Communication with non USB devices, such as a low cost microcontroller, is accomplished via UART, SPI or parallel FIFO interfaces. VNC2 provides a new, cost effective solution for providing USB Host capability into products that previously did not have the hardware resources available.

VNC2 allows customers to develop their own firmware using the Vinculum-II software development tool suite. These development tools provide compiler, assembler, linker and debugger tools complete within an integrated development environment (IDE).

The Vinculum-II VNC2 family of devices are available in Pb-free (RoHS compliant) 32-lead LQFP, 32-lead QFN, 48-lead LQFP, 48-lead QFN, 64-Lead LQFP and 64-lead QFN packages For more information on the ICs refer to <http://www.ftdichip.com/Products/ICs/VNC2.htm>.

2 Connecting the hardware

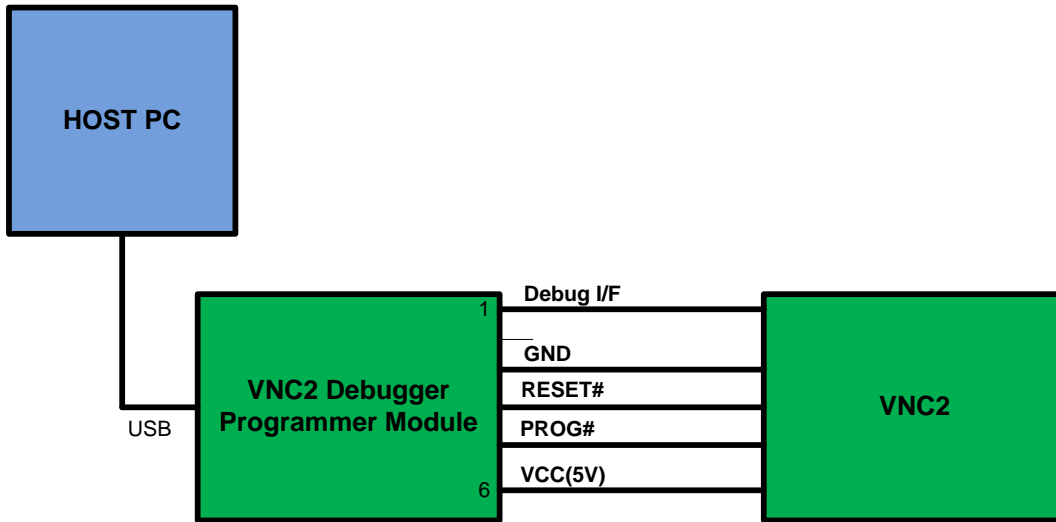


Figure 2.1 Connecting the Hardware

Using a separate [VNC2 Debugger/Programmer module](#) requires interconnect as per figure 2.1.



Figure 2.2 Debugger/Programmer module

To allow for the VNC2 chip to be programmed it must be powered, The 5V supply from the debugger module (if used) must be converted to 3V3/1V8 to supply the VNC2 chip via a regulator on the VNC2 PCB. Alternatively a user may provide their own power supply.

The VNC2 pinout is:

Signal	32-pin pkg	48-pin pkg	64-pin pkg	Description
GND	1, 16, 19, 27	1, 24, 27, 39	1, 30, 35, 53	Device ground supply pins
3V3 VREGIN	2	2	2	+3.3VDC supply to the regulator
1V8 VCC PLL IN	3	3	3	+1.8VDC supply to internal clock multiplier Requires 100nF decoupling capacitor close to pin
GND PLL	6	6	6	Device analog ground supply for internal clock multiplier
VREG OUT	7	7*	7	+1.8VDC output from regulator to device core

Signal	32-pin pkg	48-pin pkg	64-pin pkg	Description
				*Not used on 48-pin LQFP package
VCCIO	13, 22, 28	17, 30, 40	21, 38, 54	+3.3VDC supply to I/O interface pins (IOBUS) VCCIO must be connected for proper operation
RESET#	10	9	9	Can be used by an external device to reset VNC2
PROG#	9	10	10	Asserting PROG# enables program mode
DEBUGGER I/F	11	11	11	I/O for programming and in-circuit debugging

Table 2.1 VNC2 Pin-Out

3 Installing the Debugger/Programmer Module driver

To allow a PC to communicate with the debugger/programming module it is necessary to load a driver for this module.

Installation of the Debugger/Programmer driver is a simple case of plugging the device in and allowing the Windows Installation Wizard to go online, find and load the driver. For more details on driver loading for different versions of Windows OS please refer to the [Driver Installation Guides](#)

Note: these drivers are also required by the V2PROG utility.

4 Installing V2PROG

V2PROG is downloadable from the FTDI website at (http://www.ftdichip.com/Support/Utilities/V2PROG_Installer.zip)

The zip file should be downloaded and extracted onto the PC. This can be done with free utilities such as Winzip by right clicking on the zip file and selecting "Extract files..." from the pop-up menu.

The extracted file V2PROG Installer.exe will now be placed in the folder of your choosing. Double click on the file to run the exe and follow the on-screen prompts.



Figure 4.1 Welcome screen

Accept the licence to allow the installation to continue.

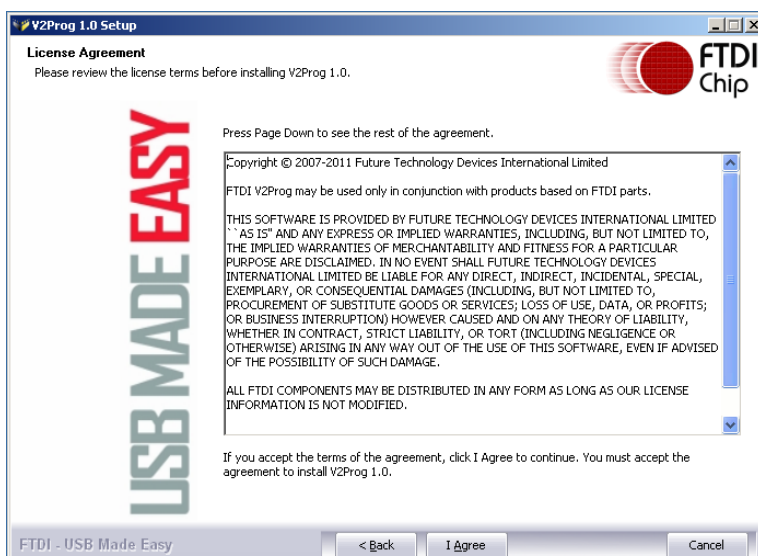


Figure 4.2 Licence screen

Select "Next" to install the executable and a desktop icon. (Untick the desktop icon option if you do not want a shortcut on your desktop).

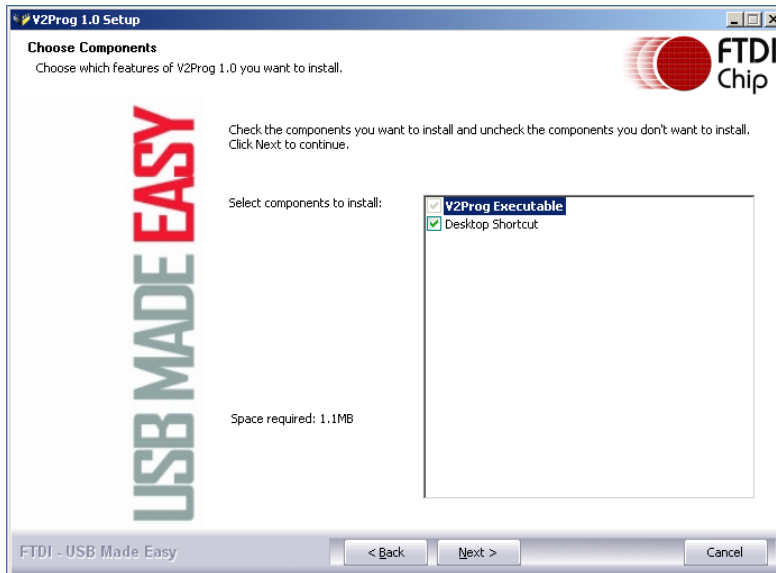


Figure 4.3 Component installation screen

Select the folder where you want the file installed. The default is C:\Program Files\FTDI\Vinculum II Utilities\V2PROG. Then press "Install".

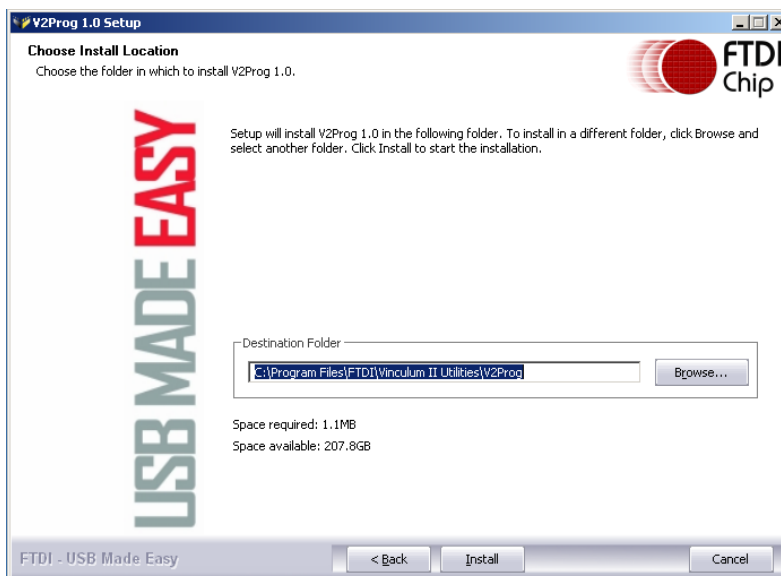


Figure 4.4 Installation path screen

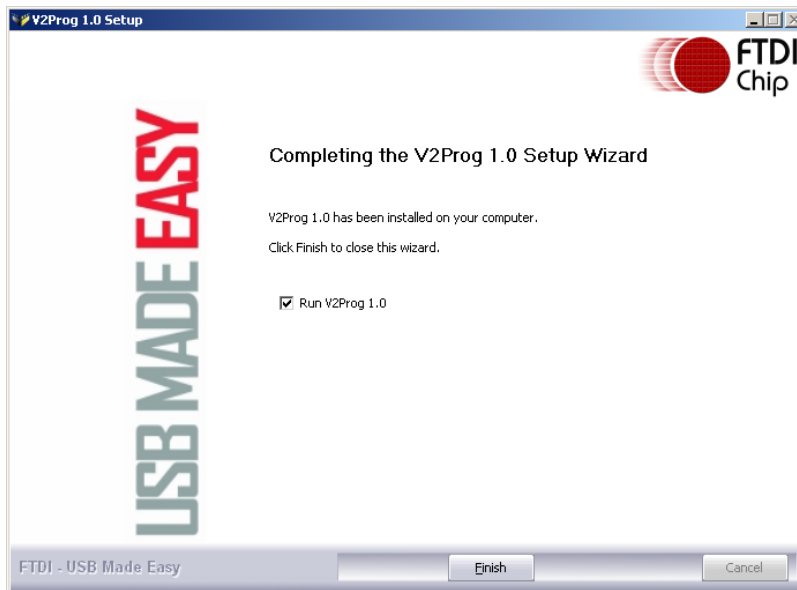


Figure 4.5 Installation path screen

On the final screen select “Finish” to complete the installation.

The executable file (V2Prog.exe) is now ready for use.

5 Running V2PROG

Double click on the V2PROG.exe file to open the application.

This should give a GUI with two boxes and a Program button.

The ROM path is the location that the Rom file is stored on the PC. In the figure below the file is called FT232Uart.ROM and is located at C:\FTDI DATA.

The VNC2 device that was found is "VNC2 Debugger Module". This is the default string returned from the VNC2 debugger/programmer module. Simply ensure you select the device you want to program.

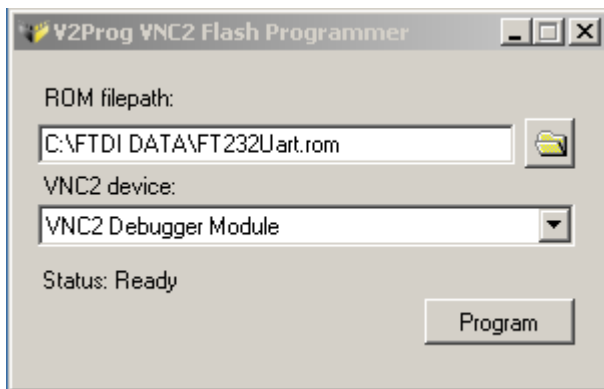


Figure 5.1 V2Prog Screenshot

Press the Program button to load the file. The utility will show Status: Flash write done when it has completed.

On completion of programming the device the utility will reset the VNC2 allowing for the application ROM to start running.

6 Contact Information

Head Office – Glasgow, UK

Future Technology Devices International Limited
Unit 1, 2 Seaward Place, Centurion Business Park
Glasgow G41 1HH
United Kingdom
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758

E-mail (Sales) sales1@ftdichip.com
E-mail (Support) support1@ftdichip.com
E-mail (General Enquiries) admin1@ftdichip.com

Branch Office – Hillsboro, Oregon, USA

Future Technology Devices International Limited
(USA)
7235 NW Evergreen Parkway, Suite 600
Hillsboro, OR 97123-5803
USA
Tel: +1 (503) 547 0988
Fax: +1 (503) 547 0987

E-Mail (Sales) us.sales@ftdichip.com
E-Mail (Support) us.support@ftdichip.com
E-Mail (General Enquiries) us.admin@ftdichip.com

Branch Office – Taipei, Taiwan

Future Technology Devices International Limited
(Taiwan)
2F, No. 516, Sec. 1, NeiHu Road
Taipei 114
Taiwan, R.O.C.
Tel: +886 (0) 2 8791 3570
Fax: +886 (0) 2 8791 3576

E-mail (Sales) tw.sales1@ftdichip.com
E-mail (Support) tw.support1@ftdichip.com
E-mail (General Enquiries) tw.admin1@ftdichip.com

Branch Office – Shanghai, China

Future Technology Devices International Limited
(China)
Room 408, 317 Xianxia Road,
Shanghai, 200051
China
Tel: +86 21 62351596
Fax: +86 21 62351595

E-mail (Sales) cn.sales@ftdichip.com
E-mail (Support) cn.support@ftdichip.com
E-mail (General Enquiries) cn.admin@ftdichip.com

Web Site

<http://ftdichip.com>

System and equipment manufacturers and designers are responsible to ensure that their systems, and any Future Technology Devices International Ltd (FTDI) devices incorporated in their systems, meet all applicable safety, regulatory and system-level performance requirements. All application-related information in this document (including application descriptions, suggested FTDI devices and other materials) is provided for reference only. While FTDI has taken care to assure it is accurate, this information is subject to customer confirmation, and FTDI disclaims all liability for system designs and for any applications assistance provided by FTDI. Use of FTDI devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold harmless FTDI from any and all damages, claims, suits or expense resulting from such use. This document is subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Neither the whole nor any part of the information contained in, or the product described in this document, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH, United Kingdom. Scotland Registered Company Number: SC136640

Appendix A – References

Document References

Application and Technical Notes available at
<http://www.ftdichip.com/Support/Documents/AppNotes.htm>

[VNC2 Datasheet](#)

[V2-EVAL datasheet](#)

[V2Debugger/Programmer Module Datasheet](#)

[Vinculum II Toolchain](#)

[AN_151 Vinculum II User Guide](#)

[AN_159 Vinculum II Firmware Flash Programming.pdf](#)

[Driver Install Guides](#)

[Precompiled ROM files](#)

[V2PROG](#)

Acronyms and Abbreviations

Terms	Description
HID	Human Interface Device
ROM	Read Only Memory
SPI	Serial Peripheral Interface
USB	Universal Serial Bus
USB-IF	USB Implementers Forum

NOTE – put terms in alphabetical order.

Appendix B – List of Tables & Figures

List of Tables

Table 2.1 VNC2 Pin-Out	4
------------------------------	---

List of Figures

Figure 2.1 Connecting the Hardware.....	3
Figure 2.2 Debugger/Programmer module	3
Figure 4.1 Welcome screen	6
Figure 4.2 Licence screen.....	6
Figure 4.3 Component installation screen.....	7
Figure 4.4 Installation path screen	7
Figure 4.5 Installation path screen	8
Figure 5.1 V2Prog Screenshot.....	9

Appendix C – Revision History

Document Title: AN_203 Loading VNC2 ROM files Using V2PROG Utility
Document Reference No.: FT_000591
Clearance No.: FTDI# 258
Product Page: <http://www.ftdichip.com/Products/ICs/VNC2.htm>
Document Feedback: [Send Feedback](#)

Revision	Changes	Date
1.0	Initial Release	2012-01-27
1.1	Corrected hyperlinks to V2PROG	2012-02-21