UM1682
User manual

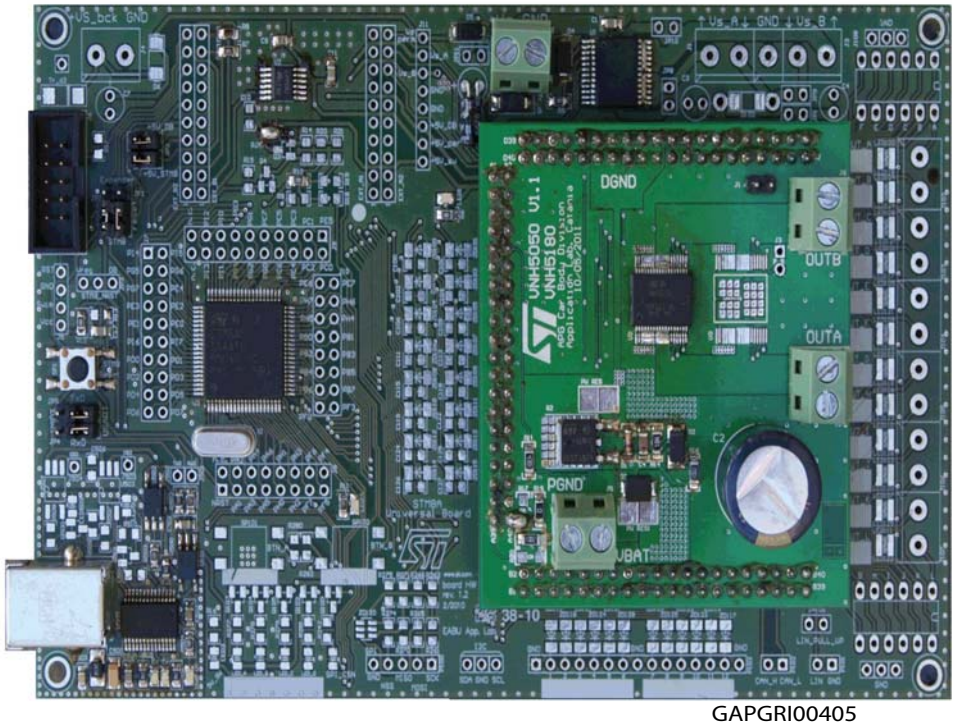
STEVAL-VNH5050A Evaluation board

Introduction

STEVAL-VNH5050A offers dedicated power stage and controls suitable for electric DC motor driving. This evaluation board features the VNH5050A. It is an H-bridge belonging to the VNH Motor Driver series based on VIPower® proprietary technology. Typical applications are dual washer pump and seat regulation.

This evaluation board consists of a motherboard (STM8 Universal Board) and a daughter-board. The motherboard, based on STM8 microcontroller, provides the logic section for monitoring and driving the VNH5050A assembled in the daughter-board. With the aim of simplifying board usage and settings, ST provides dedicated and user-friendly software including a Graphic User Interface (GUI). The GUI allows setting VNH5050A parameters (PWM, Motor direction…), while showing real time device diagnostic information, such as current output evolution, battery voltage monitoring, board temperature and much more.

Figure 1. STEVAL-VNH5050A



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1 Hardware description and setup

This section provides a description of the main components of this evaluation kit, giving instruction for a quick setup of the motor control system.

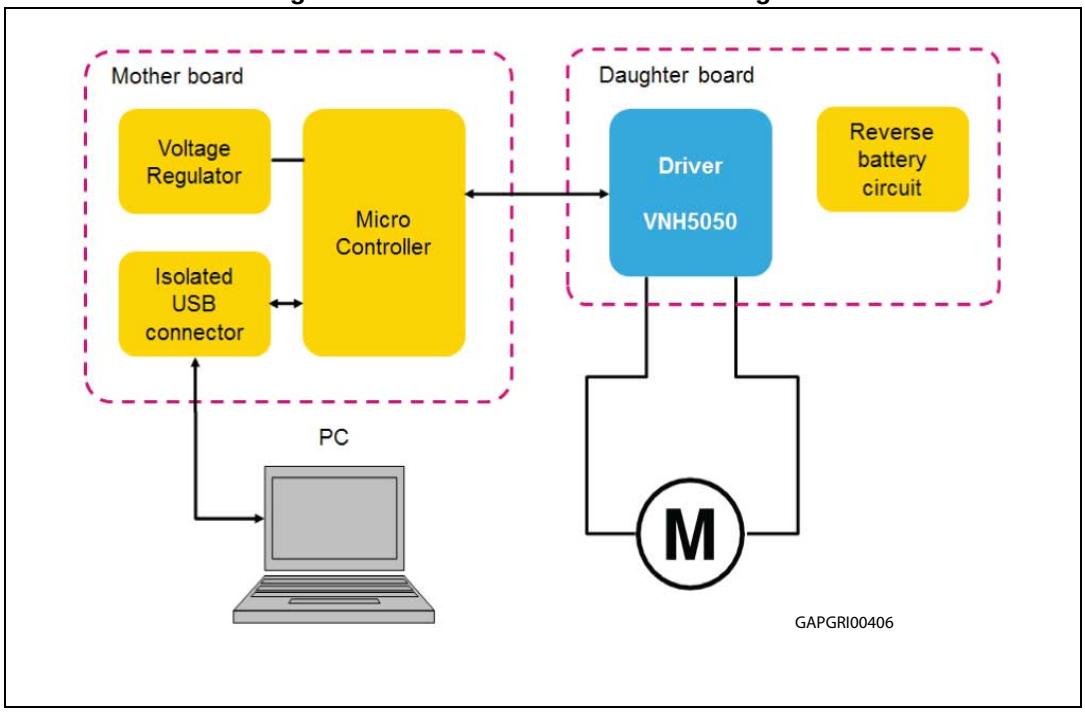
1.1 Components description

The evaluation kit consists of two main components:

- Mother board based on STM8A microcontroller, interfacing host PC with H-Bridge controller. The communication with the PC is established through isolated USB.
- Daughter Board assembling VNH5050A and the reverse battery protection. The DC motor has to be connected to this module.

The daughter board and the mother board are provided already properly plugged .

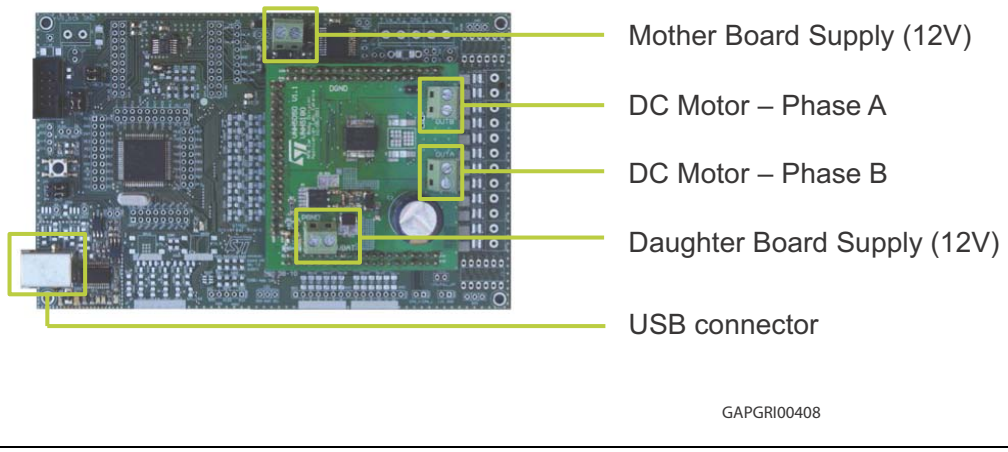
Figure 2. STEVAL-VNH5050A block diagram



1.2 Board connections and setup

Below figure shows the placement of the connectors to be used for supplying the evaluation board, plugging the electric DC motor and connecting with a host PC through USB cable.

Figure 3. STEVAL-VNH5050A connections



Jumpers are already set in their default position.

Table 1. Motherboard jumper configuration

Jumper	Description	Default Position
JP2	+ 5V_DB	Not present
JP2	+ 5V_STM8	Present
JP4	RxD	USART
JP5	TxD	USART
JP6	Reset	STM8
JP7	Swim	STM8

2 Software installation

2.1 USB Driver installation

The following installation procedure starts automatically after plugging the Evaluation Board to the host PC.

Figure 4. Driver installation window (1/2)

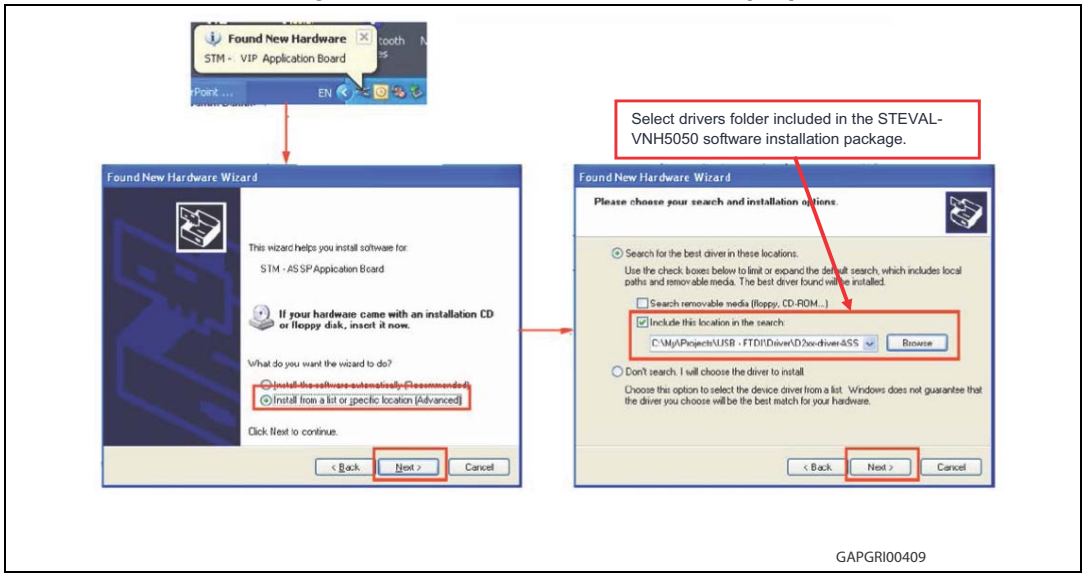
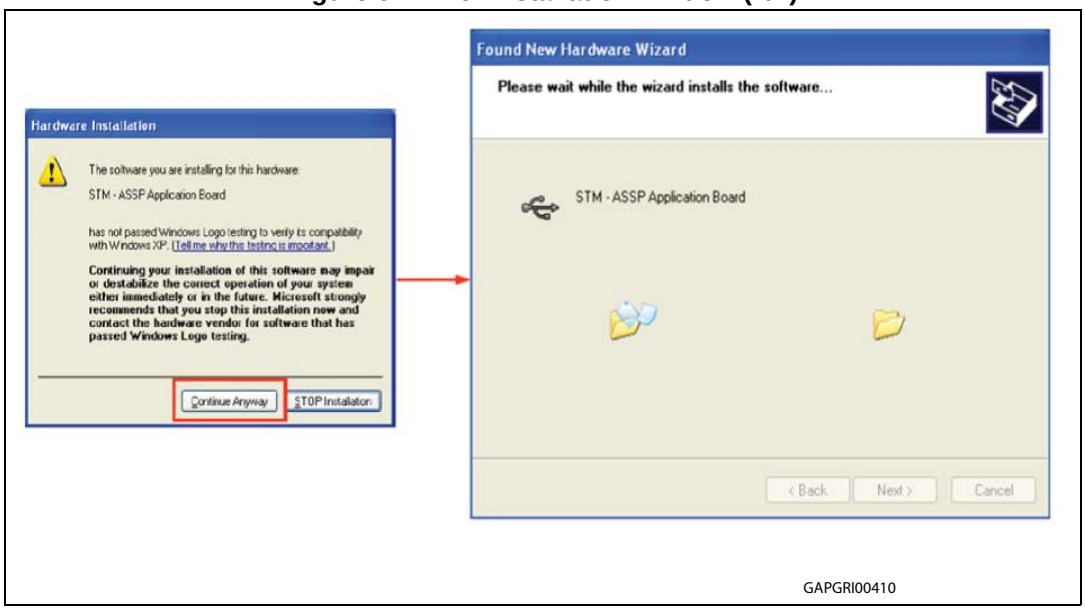


Figure 5. Driver installation window (2/2)



2.2 Graphical User Interface (GUI) installation

Launching Setup.exe, GUI installs to the destination folder indicated by the wizard.

Default folder is *"C:\Program Files(x86)\VNHFULLBridge"*, but the user is free to indicate another path name and folder.

Figure 6. GUI installation (1/2)

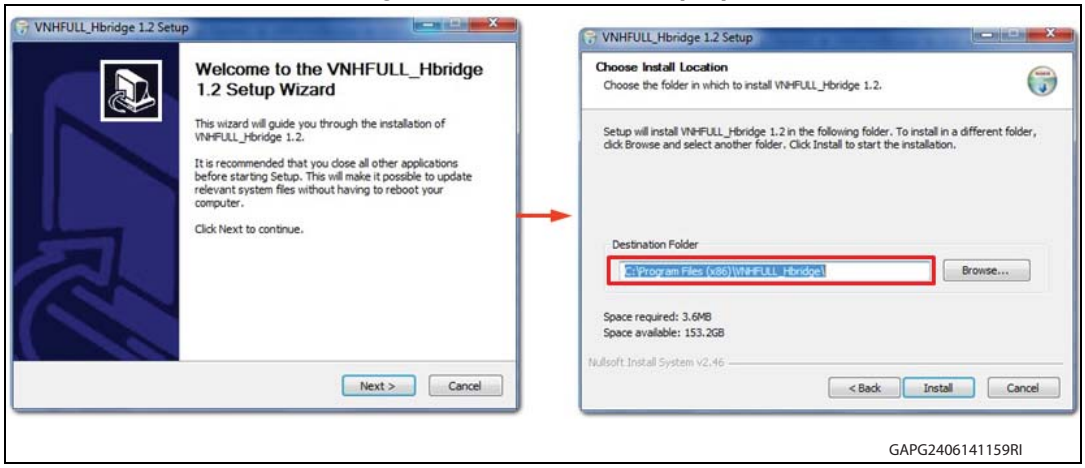
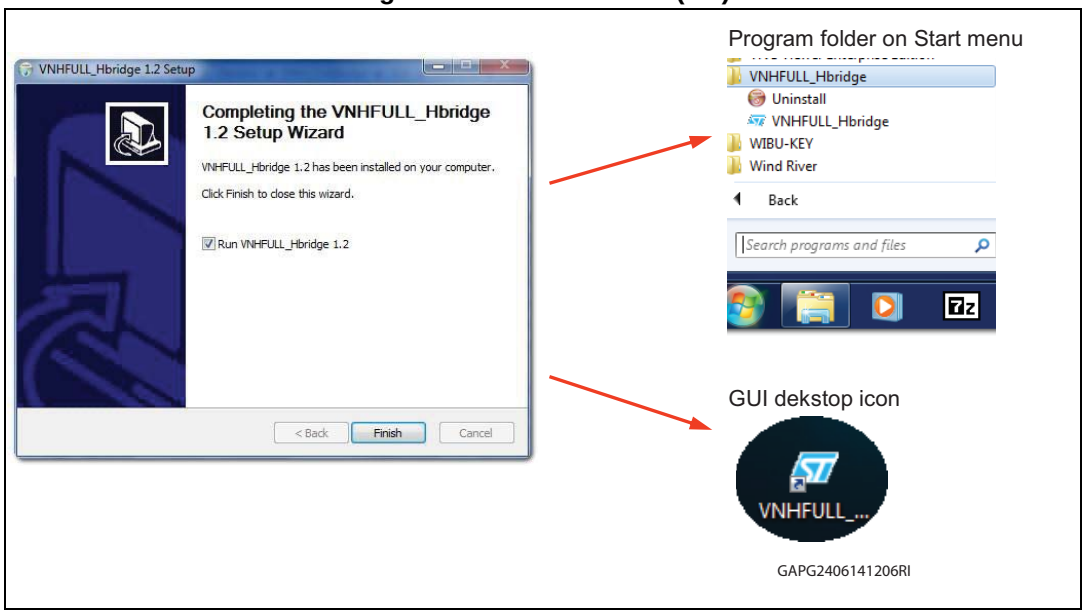


Figure 7. GUI installation (2/2)



3 Graphical User Interface

Figure 8. Main Window (1/2)

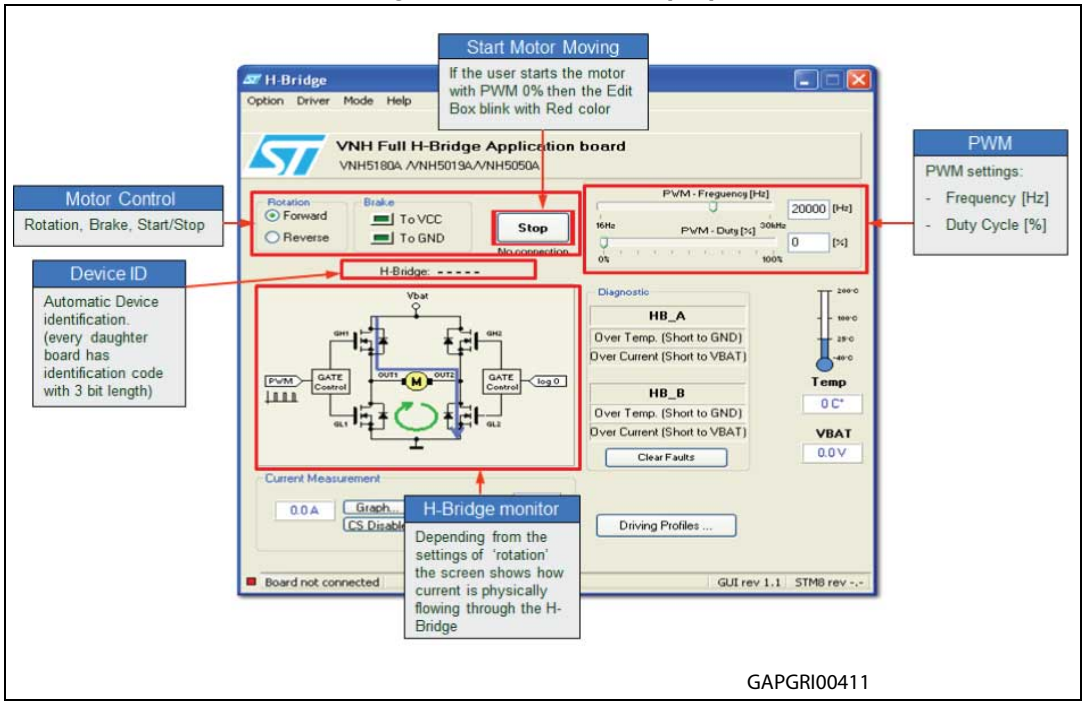


Figure 9. Main Window (2/2)

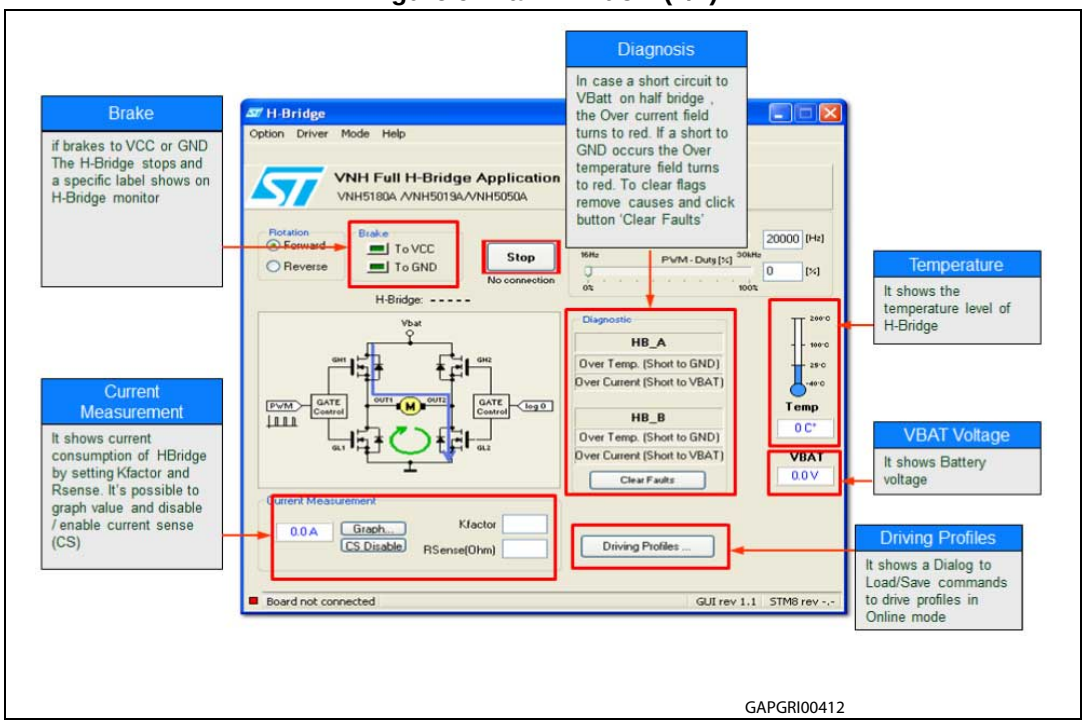


Figure 10. Current measurement (Graph)

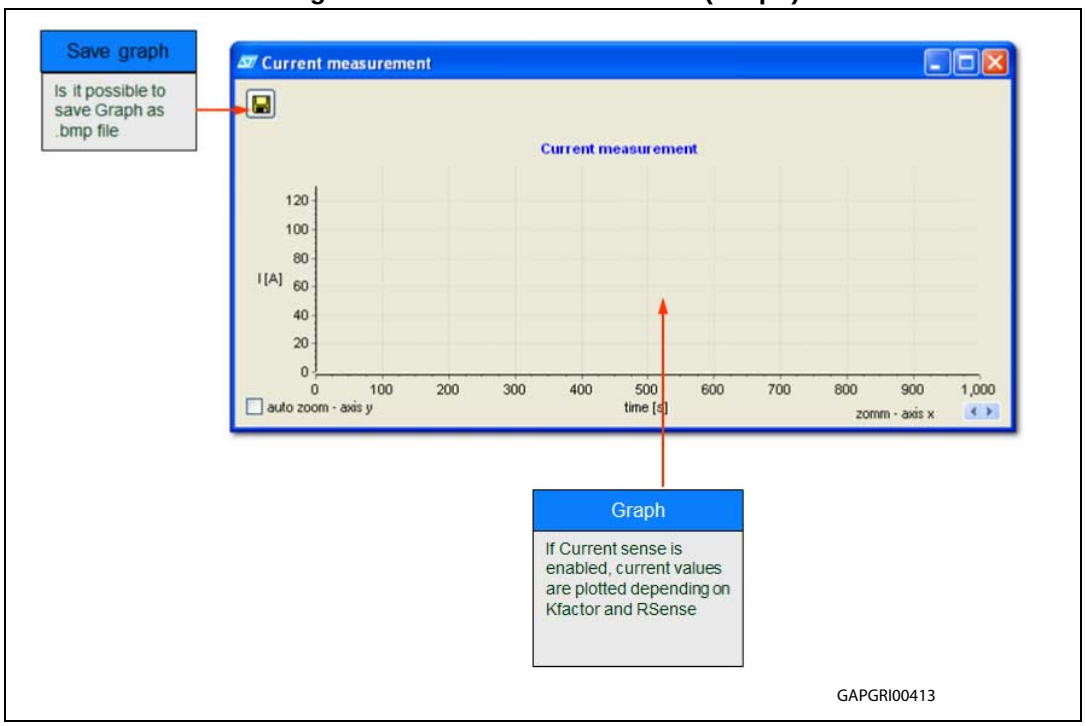
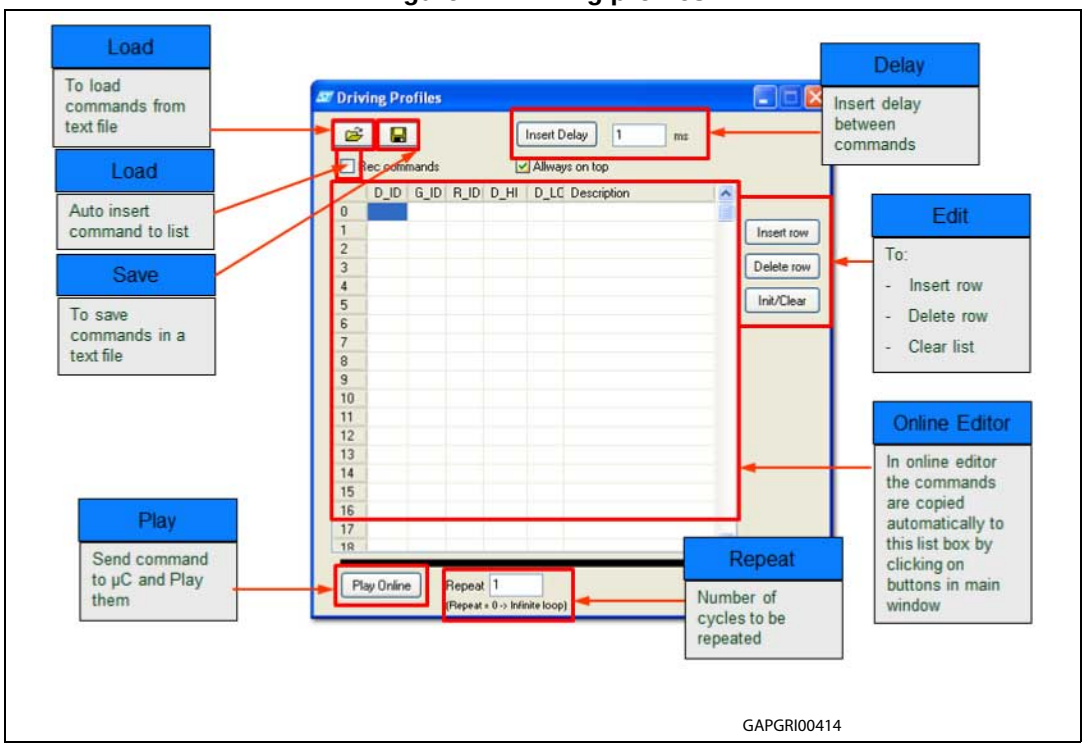


Figure 11. Driving profiles



4 Revision history

Table 2. Document revision history

Date	Revision	Changes
16-Oct-2013	1	Initial release.
24-Jun-2014	2	Added *Section 2.1* and *Section 2.2*.

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