

DRV10983/75 DEVICE GUI

User Manual v1.0

Revision History

Revision	Date	Descriptions/Comments
1.0		

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1. GUI Software Installation

The following section explains the location and the procedure for installing the software properly.



Ensure that no USB connections are made to the EVM until the installation is completed.

1.1. System Requirements

- Supported OS – Windows XP, Windows 7 (32 Bit, 64 Bit)
- Recommended RAM memory - 4GB or higher
- Recommended CPU Operating Speed – 3.3 GHz or higher

1.2. Installation Procedure

The following procedure will help you install the DRV10983/75 GUI



The installer will also install Python 2.7, USB2ANY SDK along with the GUI installation.

1. Double click on the **Setup.exe** from the Volume folder as shown in Fig.1-1.

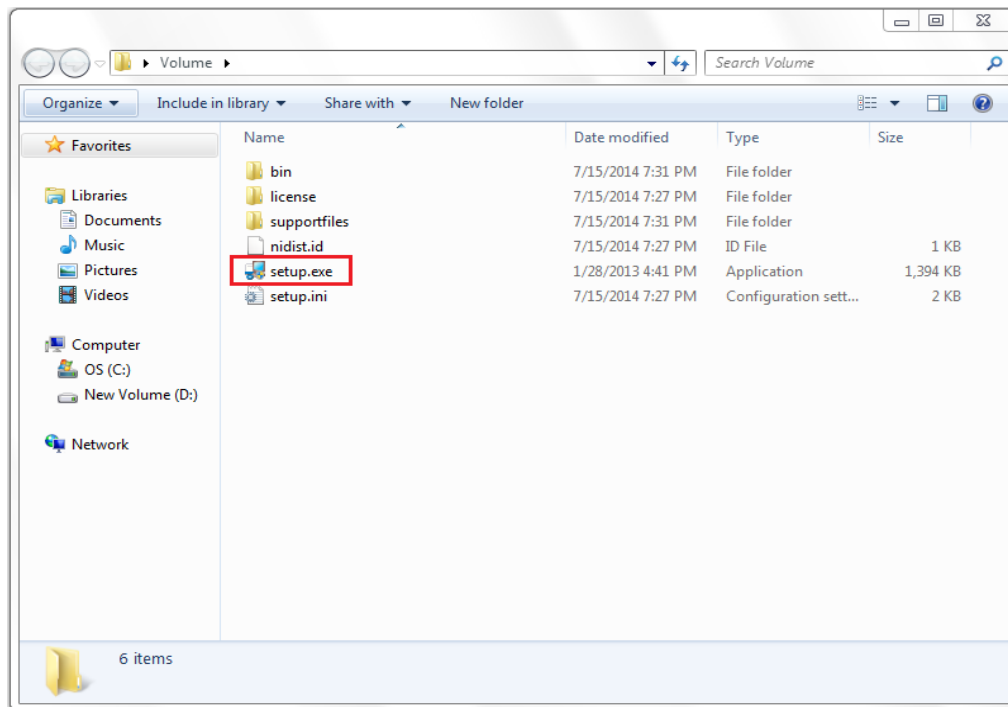


Figure 1-1 Setup.exe from Volume folder

A screen shown in Fig.1-2 will appear. Press **Next»** button

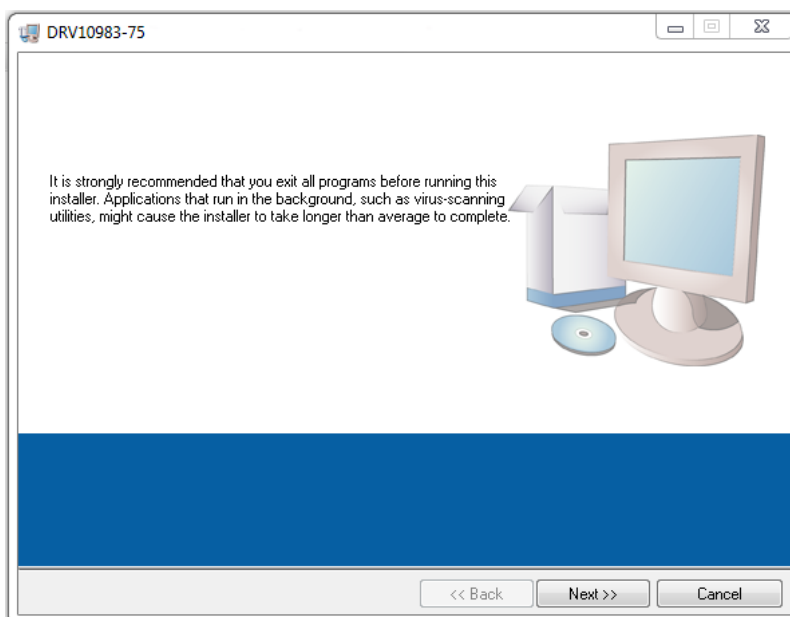


Figure 1-2 Installation Initialization

2. Set the destination directories for the GUI installation and press the **Next»** button as shown in Fig.1-3.

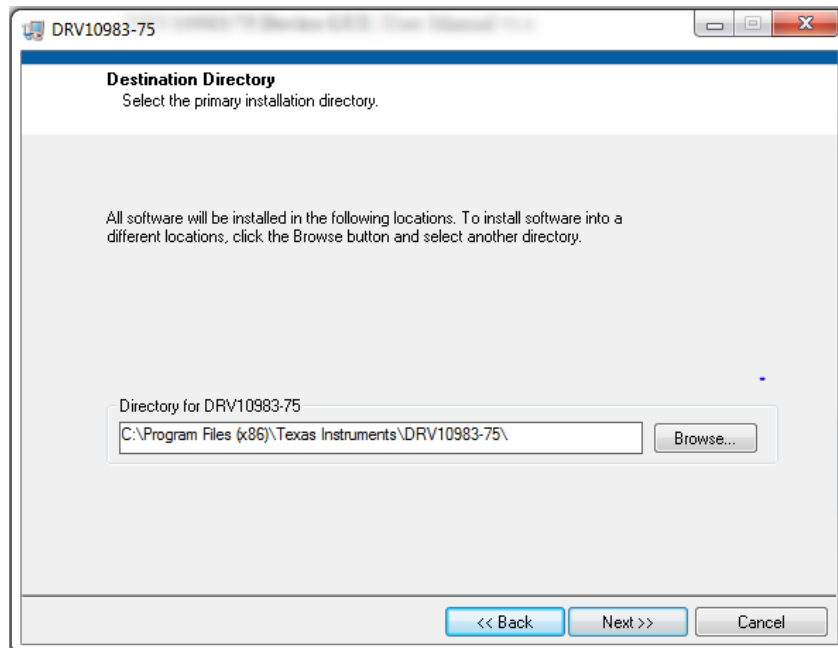


Figure 1-3 Destination Directory



It is highly recommended to keep the default values as provided in the installer.

3. The License Agreement will appear as shown below in Fig.1-4.

3.1. Please read through the agreement carefully and enable the “I Accept the License Agreement” radio button and press the **Next»** button

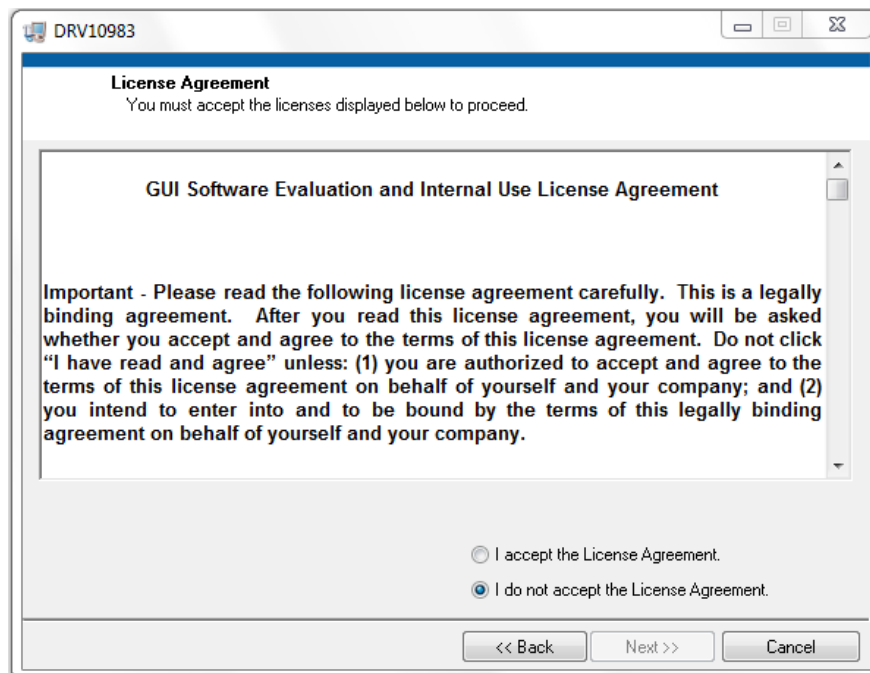


Figure 1-4 License Agreement

4. A screen as shown in Fig.1-5 will appear. Click **Next»** to begin installation.

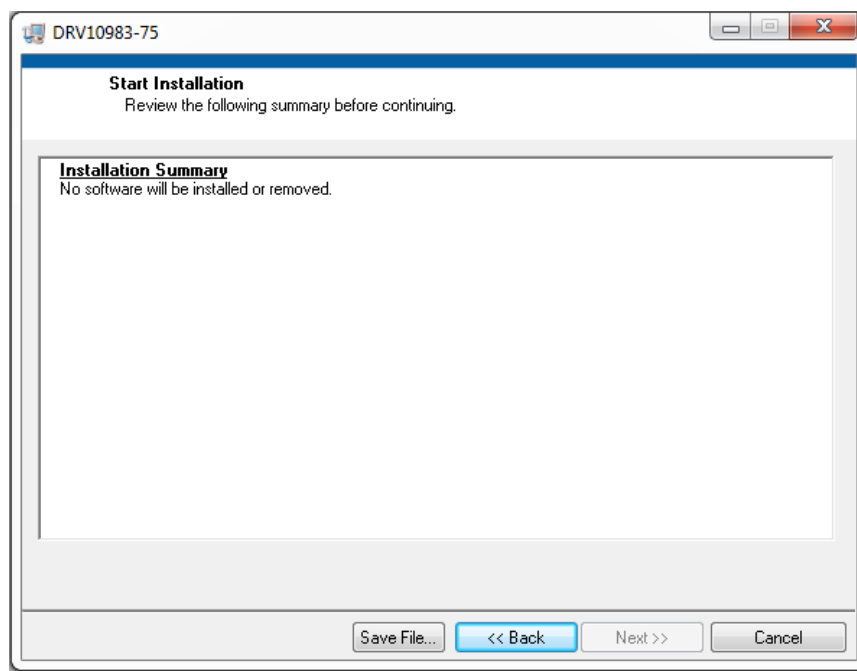


Figure 1-5 Start Installation

5. The installer will begin self-extraction and proceed with the installation as shown in Fig.1-6.

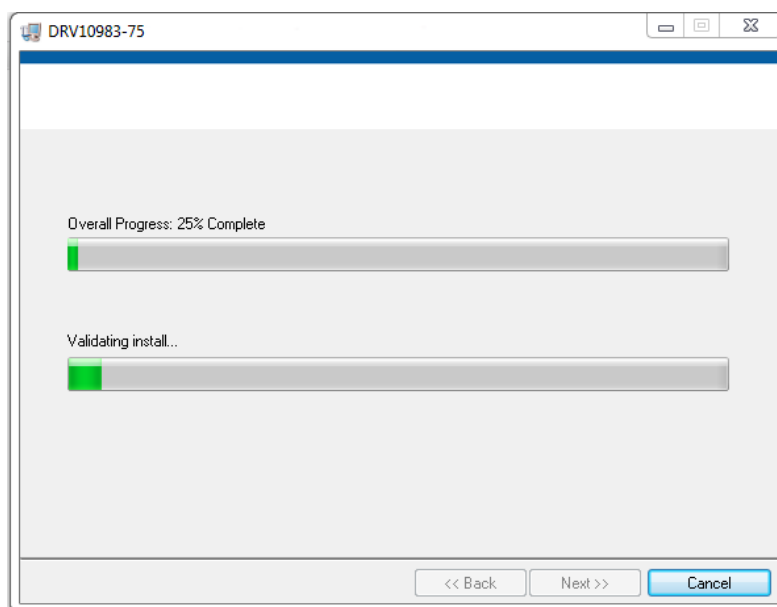


Figure 1-6 Installation in Progress

6. A screen as shown in Fig.1-7 will appear that provides the link for LabVIEW Runtime Engine and this denotes the completion of DRV10983/75 GUI Installation.

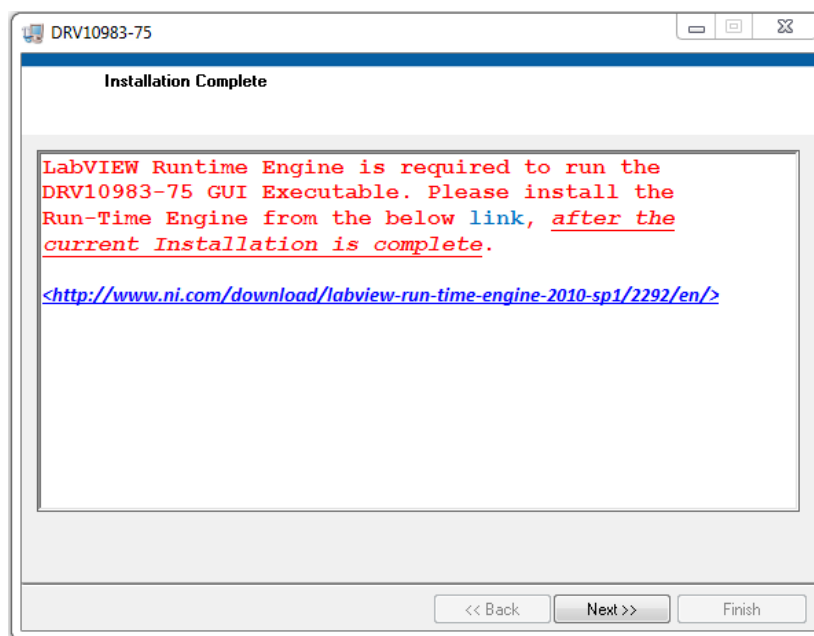


Figure 1-7 Installation Complete

7. After the Installation of the GUI, Python installation will be initiated

- 7.1. Once python is installed, a screen as shown in Fig.1-8 will appear. Click **Ok** to proceed with USB2ANY installation.

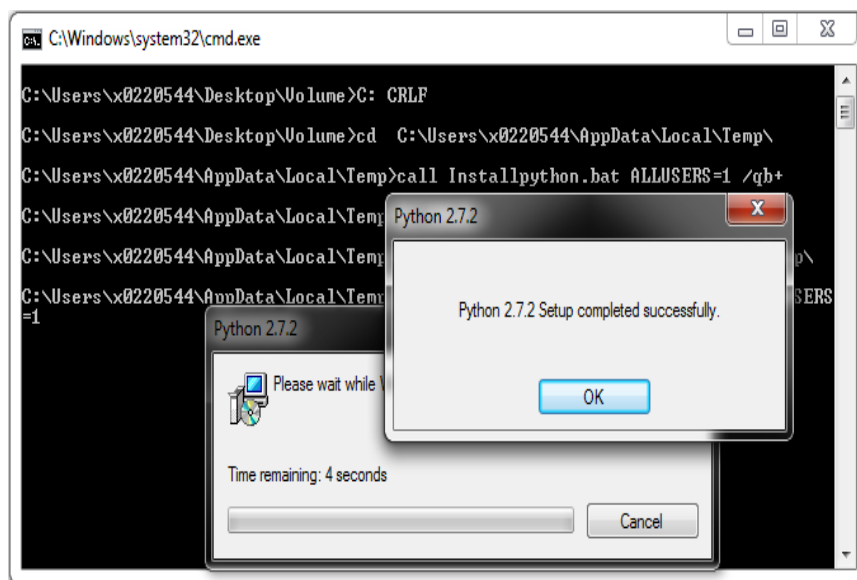


Figure 1-8 Python Installation Complete

8. A screen as shown in Fig.1-9 will appear, click Next to proceed

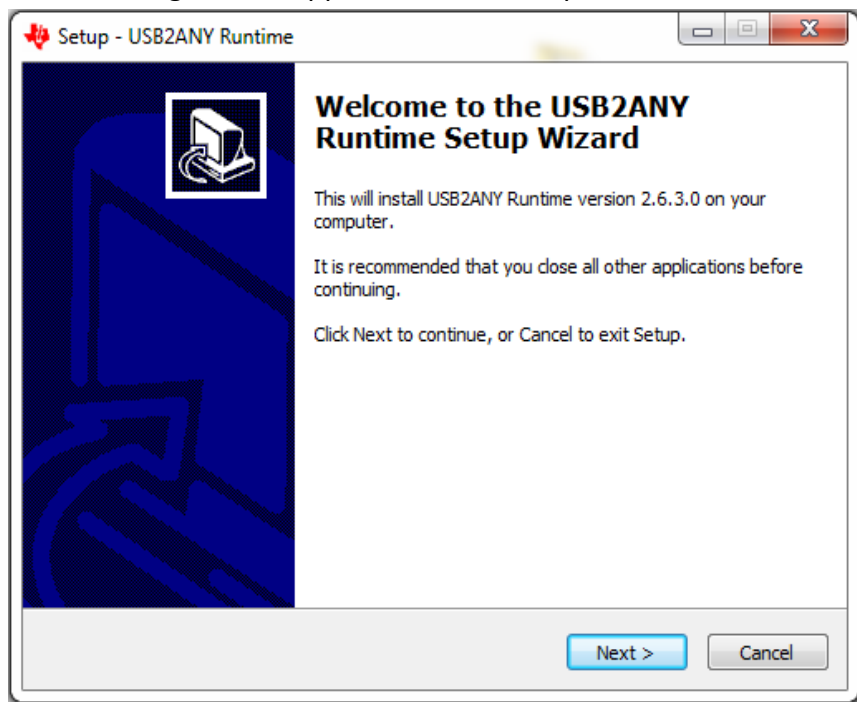


Figure 1-9 USB2ANY Installation Initialization

9. The License Agreement will appear as shown below in Fig.1-10.

- 9.1. Please read through the agreement carefully and enable the “I Accept the License Agreement” radio button and press the **Next»** button

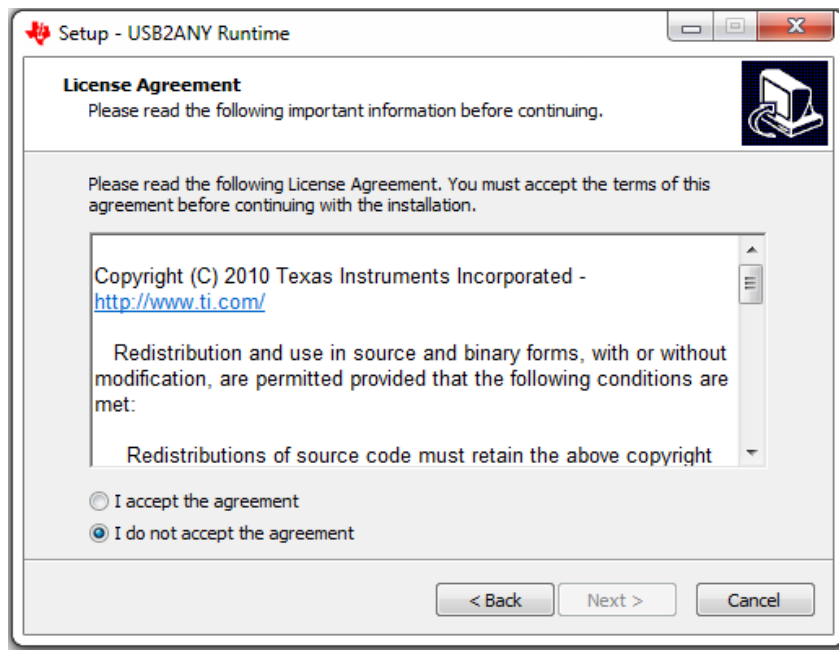


Figure 1-10 License Agreement

10. Set the destination directories for the USB2ANY installation and press the **Next»** button as shown in Fig.1-11.

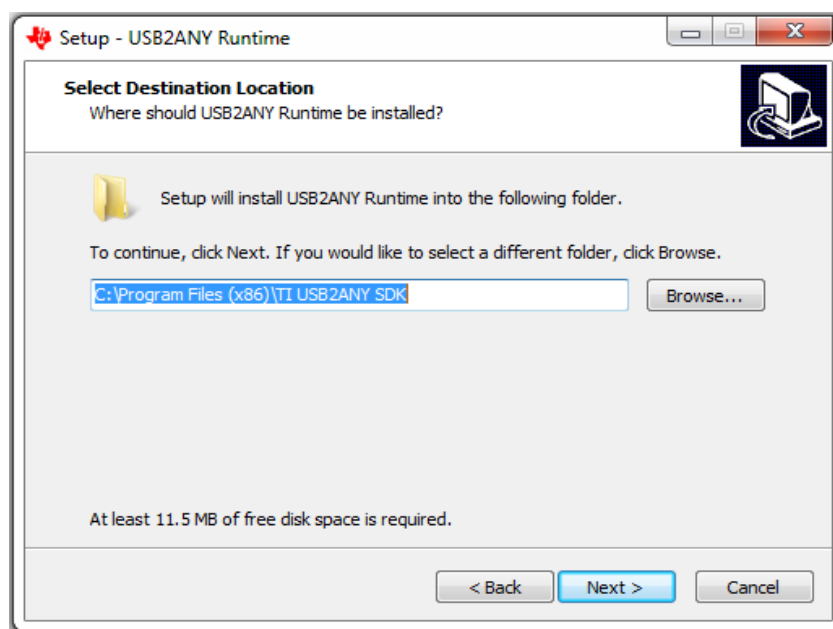


Figure 1-11 Destination Directory

11. A screen as shown in Fig.1-12 will appear. Click **Install»** to begin the USB2ANY installation.

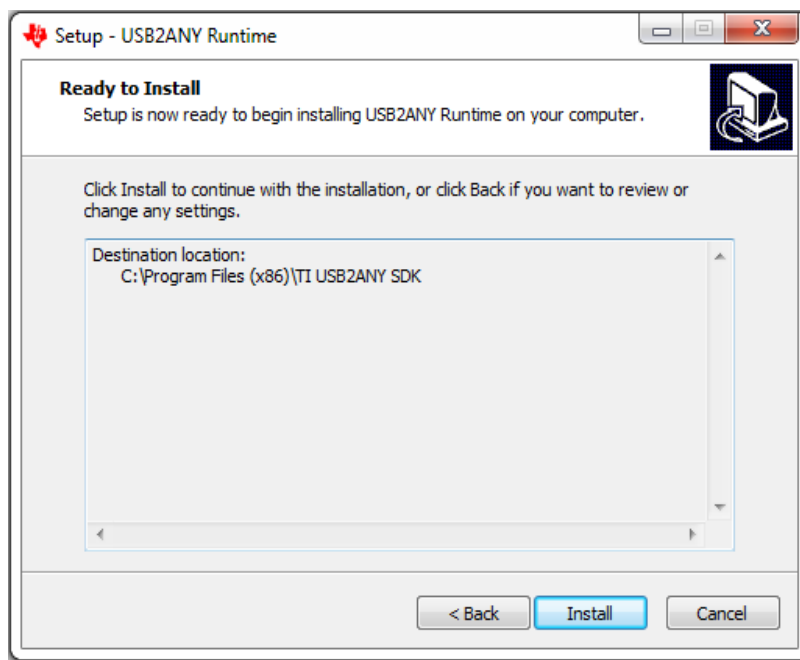


Figure 1-12 Start Installation

12. The installer will begin self-extraction and proceed with the installation as shown in Fig.1-13

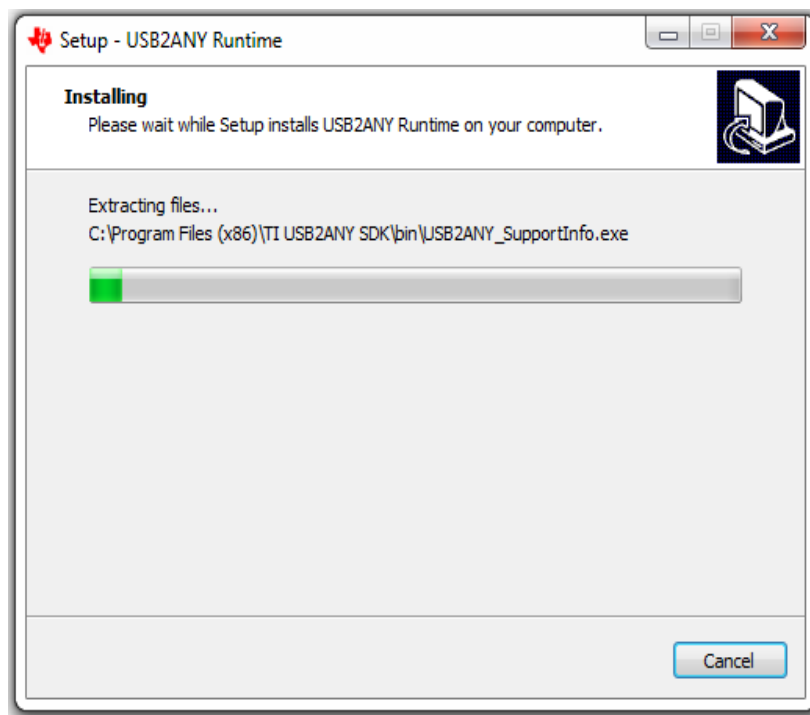


Figure 1-13 Installation in Progress

13. A screen shown in Fig.1-14 will appear indicating the completion of USB2ANY installation.
Click **Finish»** Button

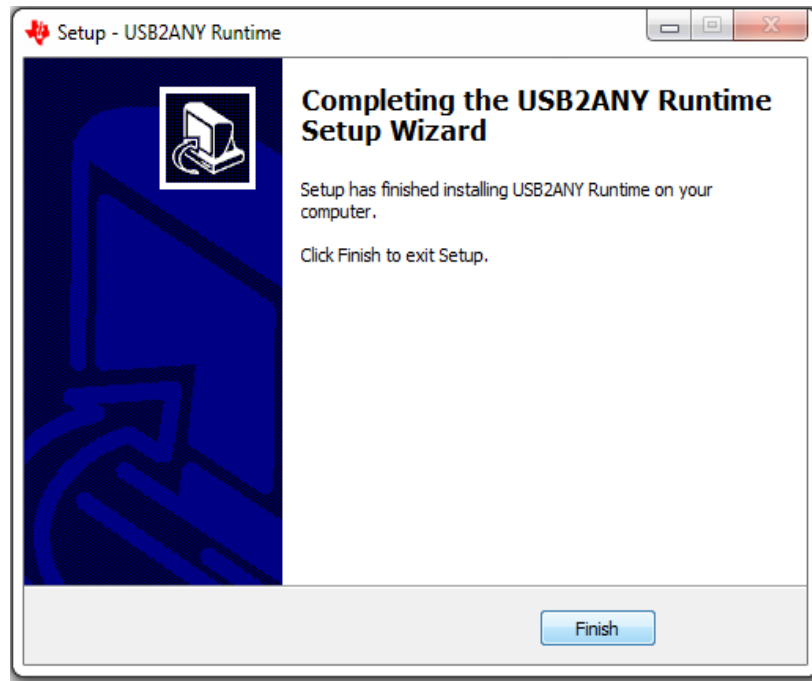


Figure 1-14 USB2ANY Installation Complete



The DRV10983/75 GUI requires the LabVIEW Run-Time Engine 2010 to be installed before the GUI is executed.

The DRV10983/75 GUI Installer does not include LabVIEW Run-time-engine. You can download National Instruments LabVIEW Run-Time Engine 2010 from the below link.

<http://www.ni.com/download/labview-run-time-engine-2010-sp1/2292/en/>



The DRV10983/75 GUI executable has been built in LabVIEW 2010 (32-Bit) version and it expects the LabVIEW Run-Time Engine version to be LabVIEW Run-Time Engine 2010 (32-Bit) Version.

1.3. LabVIEW Run-Time-Engine Installation Procedure

The following procedure will help you to install the LabVIEW 2010 Run-Time-Engine

1. Download the LabVIEW 2010 RTE from the link provided above.
2. Double click on the downloaded **LVRTE2010std.exe** file. A screen as shown in Fig.1-15 will appear. Press **Next»** button.

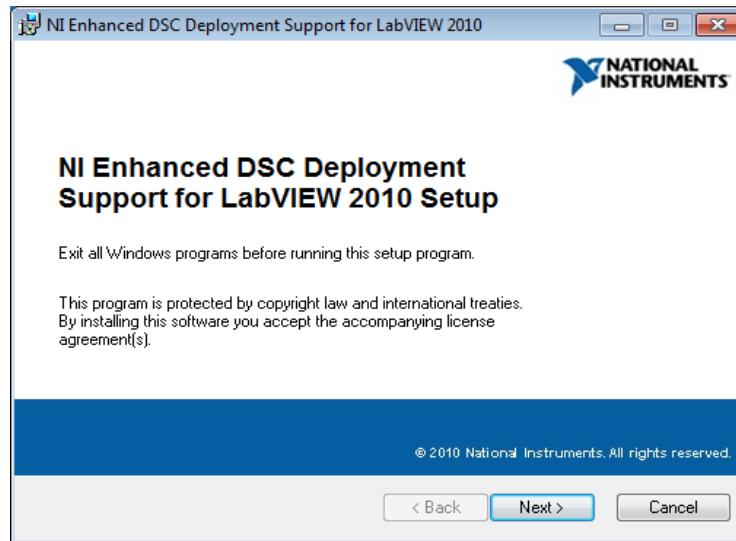


Figure 1-15 LabVIEW RTE Installation Initialization

3. A window as shown in Fig.1-16 will appear. Select the features that are to be included in Run-Time Engine, Click **Next»** Button to continue.

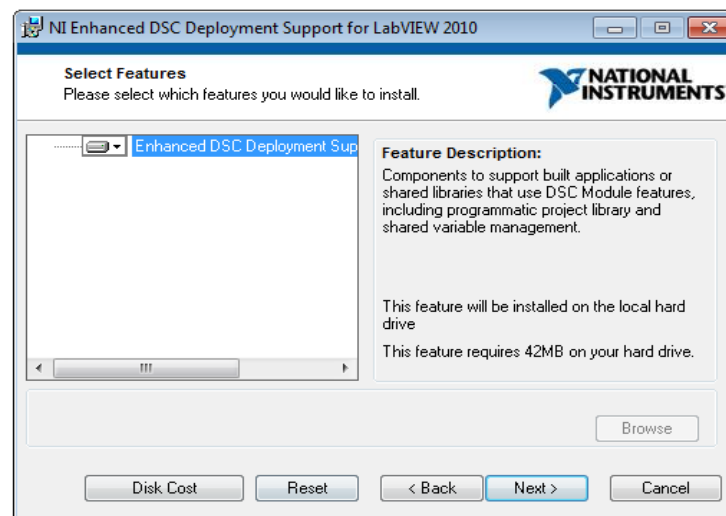


Figure 1-16 Select Features



It is highly recommended to keep the default values as provided in the installer.

4. The License Agreement will appear as shown below in Fig.1-17.

4.1 Please read through the agreement carefully and enable the “I Accept the License Agreement” radio button and press the **Next»** button



Figure 1-17 License Agreement

5. A screen shown in Fig.1-18 will appear, click **Next** to begin Installation.

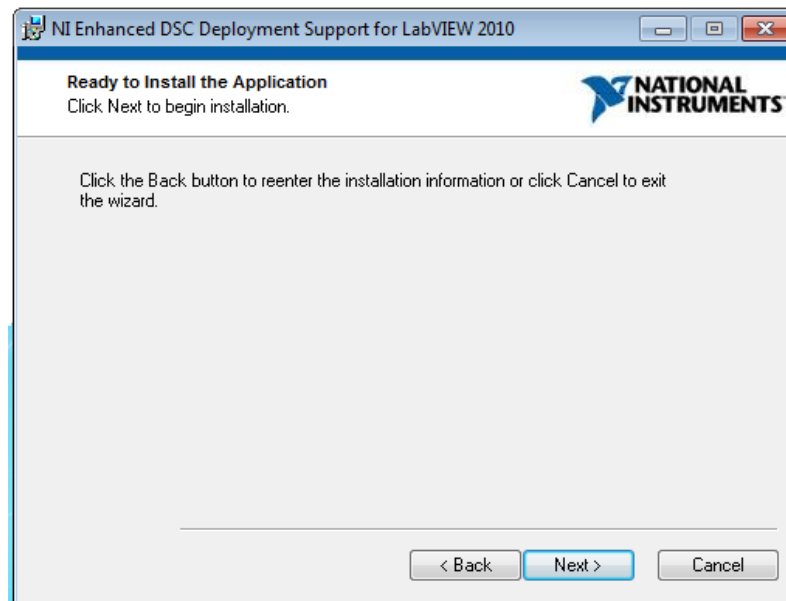


Figure 1-18 Start Installation

6. The installer will begin self-extraction and proceed with the installation as shown in Fig.1-19

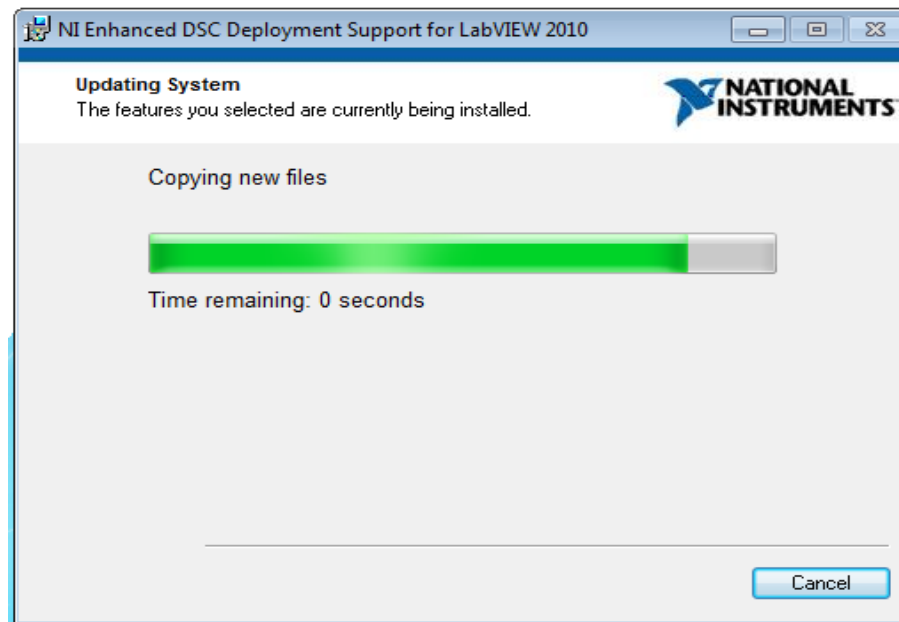


Figure 1-19 Installation in Progress

7. A screen shown in Fig.1-20 will appear indicating the completion of LabVIEW 2010 RTE installation. Click **Finish»** Button

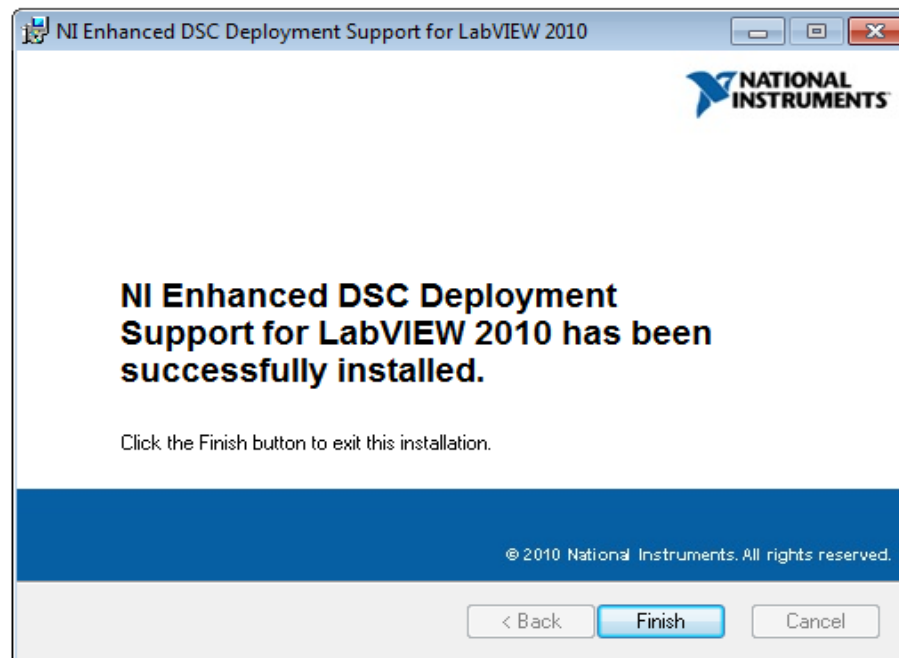


Figure 1-20 Installation Complete

2. Overview

DRV10983/975 is a three phase sensorless motor driver with integrated power MOSFETs which can provide continuous drive current up to 2A(DRV10983) /1.5A (DRV10975). It is specifically designed for cost sensitive, low noise/low external component count applications. DRV10983/75GUI was developed to communicate with the part to configure different registers with in the device and to understand the response based on the configurations. The user manual will brief some of the specific features of the GUI but does not explain the configurations of the controls and indicators. Please refer the datasheet of the part to understand the configurations of the registers.

2.1. Components of the GUI

The device GUI contains four pages,

- Basic Settings
- Advanced Settings
- Display
- About

2.1.1 Basic Settings

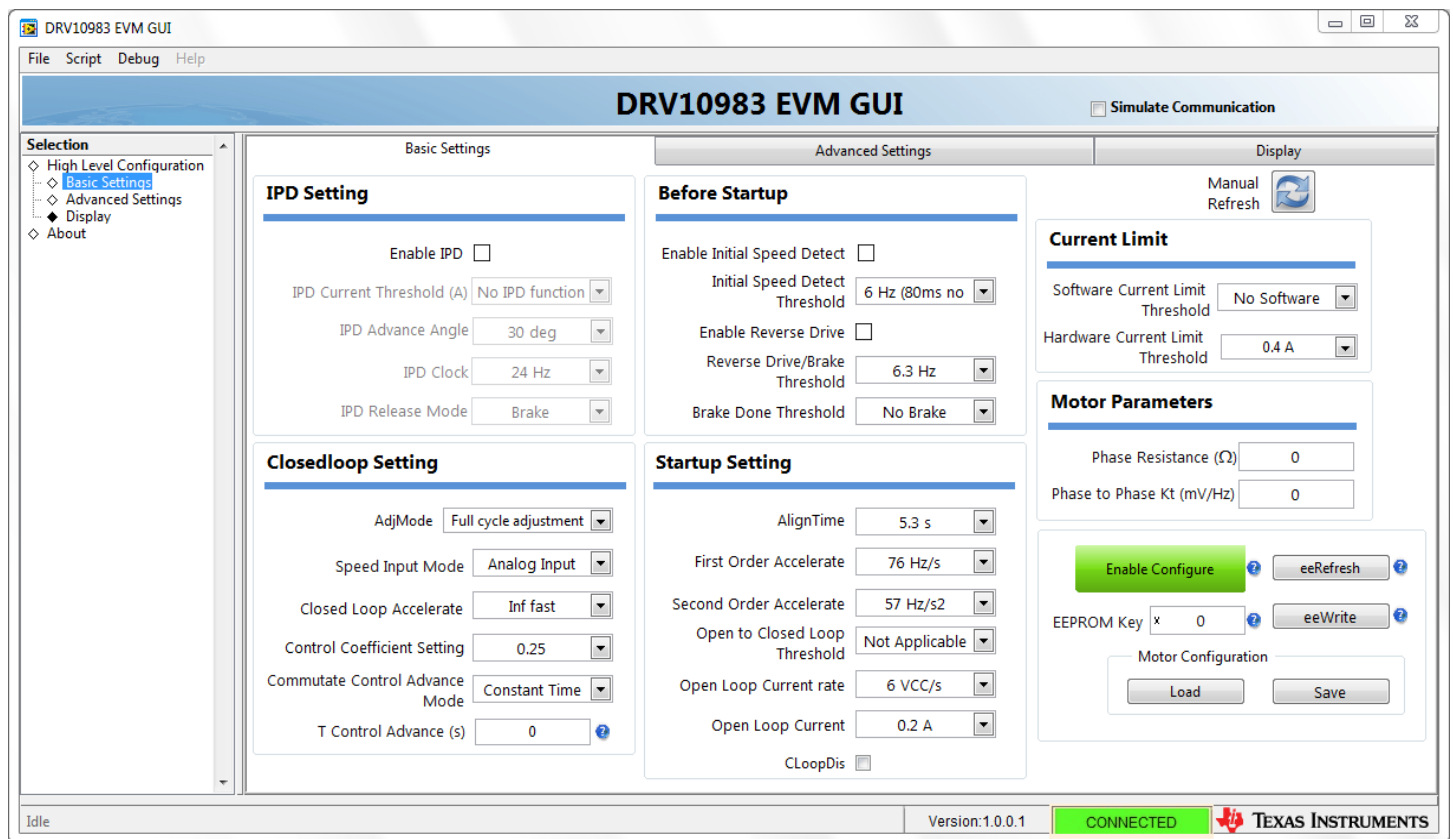


Figure 2-1 Basic Settings Page

2.1.1 Enable Configure

The controls in the Basic Settings page and Advanced Settings page will be enabled if and only if Enable Configure is selected. Enable Configure is used to specify the data use between registers and EEPROM. Click on the control to select the data use. If Enable configure is enabled (the control turns green in color), the register data is used, or else (the control turns red) the EEPROM data is used.

2.1.2 Enable IPD

This control enables/disables the controls related to IPD settings. If the control is disabled, a value 0 is written to the IPD current threshold. If the control is enabled, a value 1 is written to IPD current threshold field.

2.1.3 eeWrite

eeWrite is used to program to the EEPROM. When you click this control, a prompt message will be shown to the user to confirm the voltage level as shown in Figure 2-2.

The eeWrite field will be written only if the user confirms the power supply voltage level.

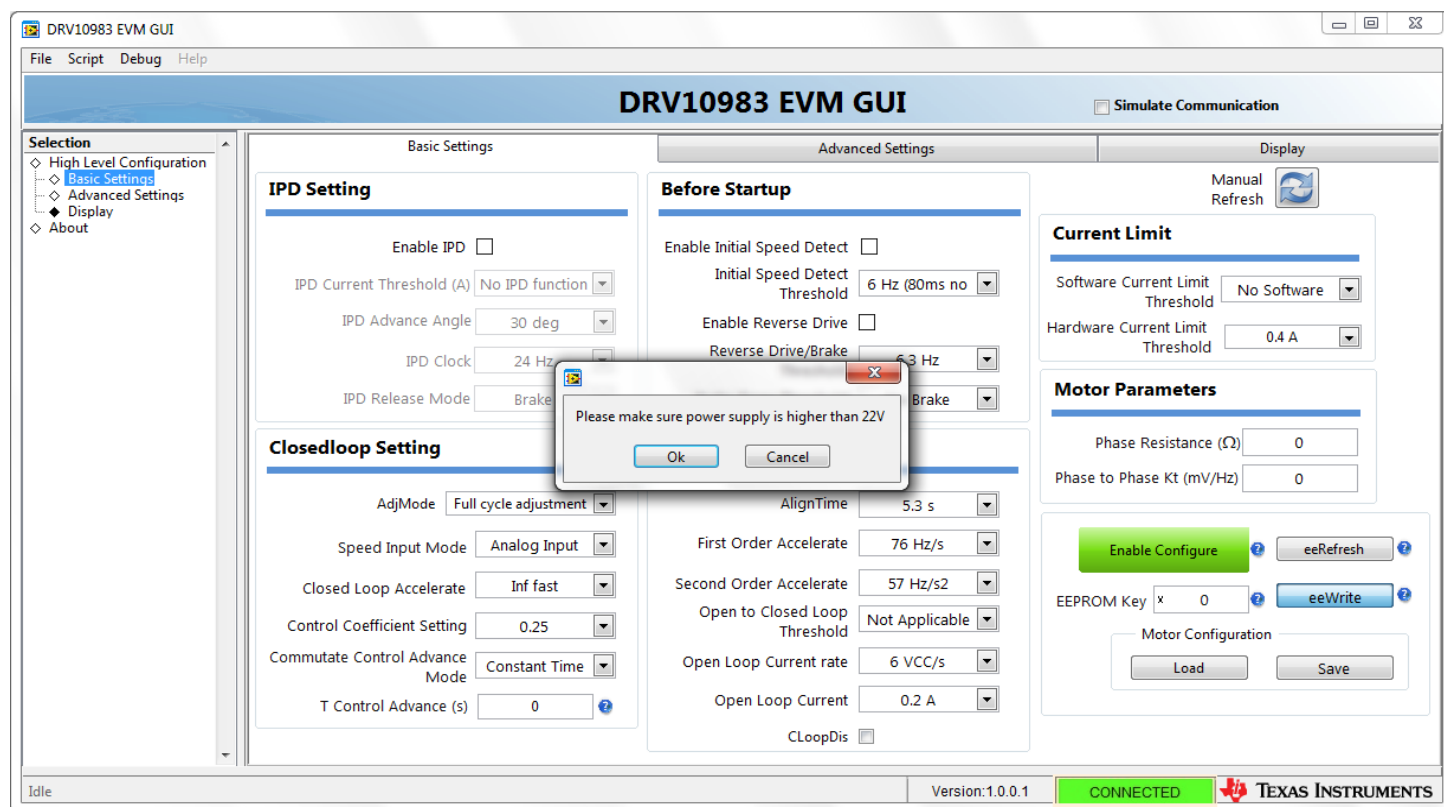


Figure 2-2 Confirmation on Voltage Level

2.1.4 eeRefresh

The eeRefresh Button is used to refresh the controls in the Basic Settings page, which reads the latest value of the corresponding fields from the registers and updates the controls.

2.1.5 Manual Refresh

The Manual Refresh Button is used to refresh the controls of the Motor Parameters, which reads the latest value of the corresponding fields from the registers and updates the controls. The function of this button is same in every section.


2.1.6 Save Motor Configuration

When you click on this button, the current motor configuration is saved into a file which can be later loaded into the GUI using the Load option. It saves the Last Read values for the registers. So it is advisable to perform a “Manual Refresh” operation before saving the configurations into a file.

2.1.7 Load Motor Configuration

Click on this button to load the configuration file which was saved earlier to bring the device to a known state.

2.1.8 Help Icon

Move the mouse over this icon  to display a brief description for the control as shown in the Figure 2.3.

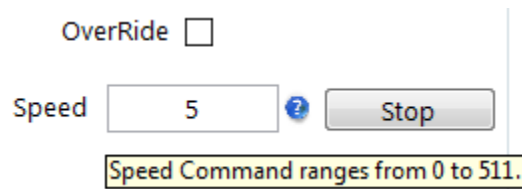


Figure 2-3 Help Icon

2.1.2 Advanced Settings

The Advanced Settings page contains controls that are used to handle the frequency overflow, Buck regulator voltage, Hardware Current Limit, FG motor pole option, etc.,

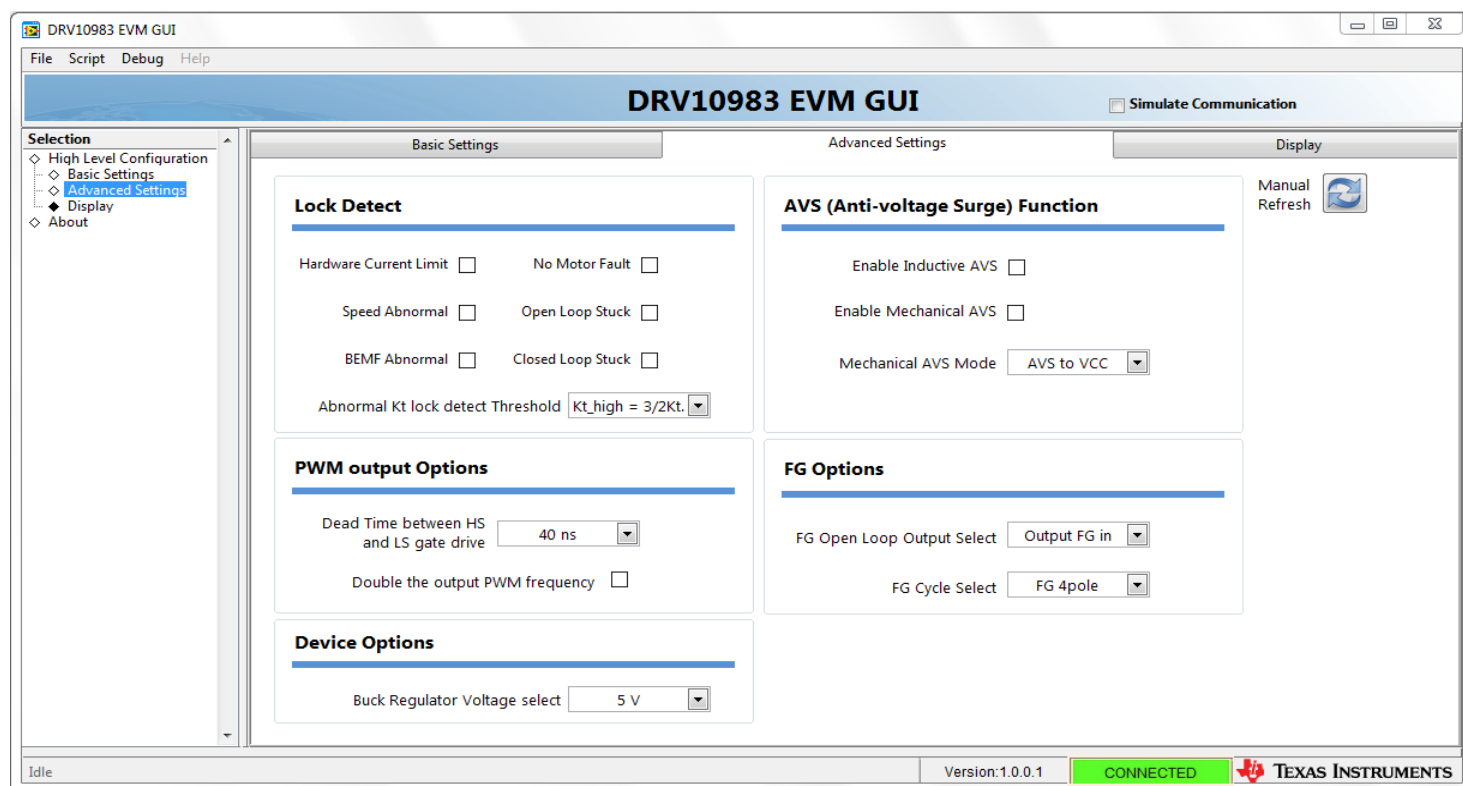


Figure 2-4 Advanced Settings

2.1.3 Display

The Display page contains controls that are used to handle the motor speed, display the value of motor attributes like motor speed, current, IPD position and indicates the status of the device.

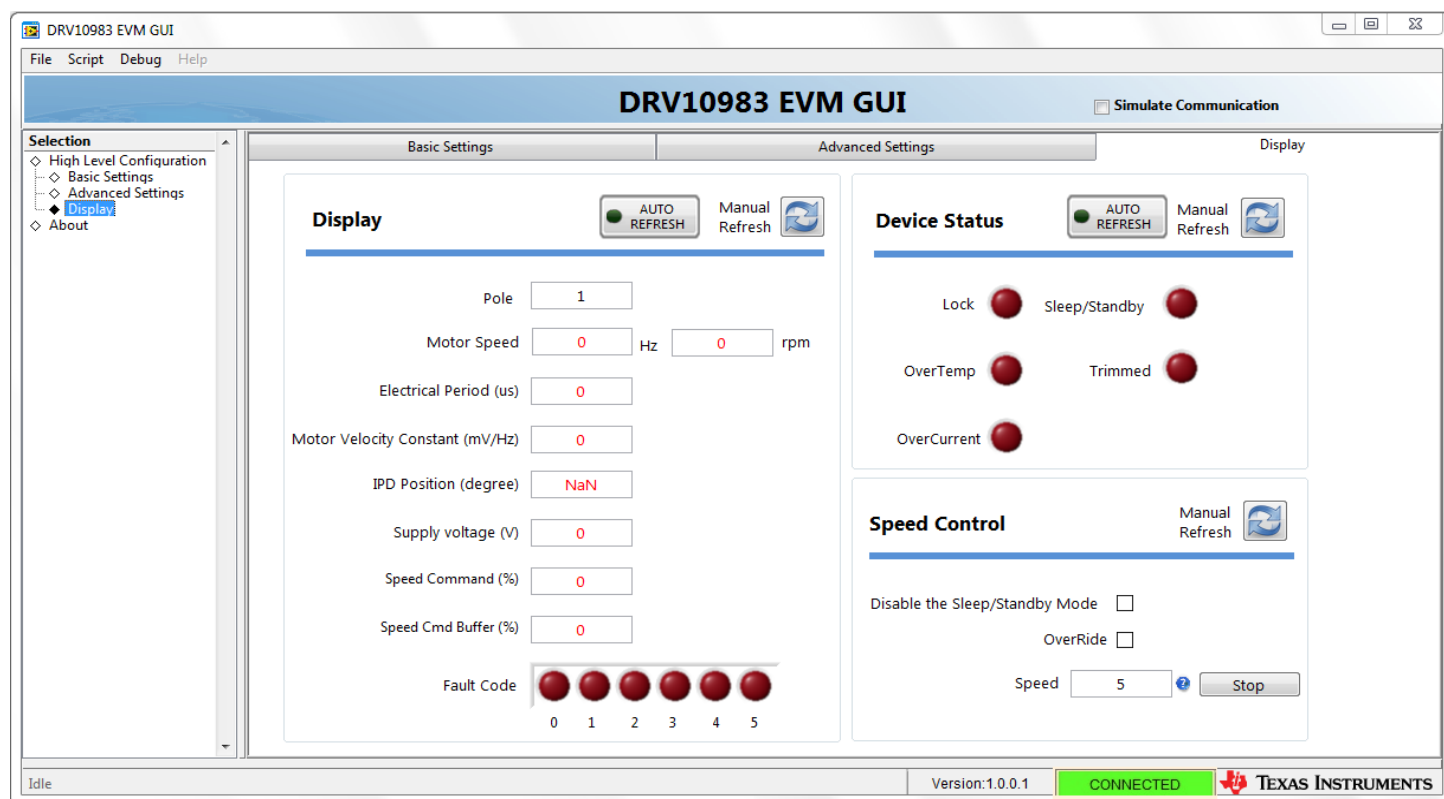


Figure 2-5 Display

1. Auto Refresh

The Auto Refresh Button is used to periodically refresh the controls of the Motor Parameters, which reads the latest value of the corresponding fields from the registers and updates the controls. The rate of auto refresh is specified in the configuration file that is found parallel to the application. The function of this button is same in every section.

2. Pole

This control is used to calculate the rpm in Display section, given by the formula,

If Motor Speed(Hz) ≥ 2 , Motor Speed(rpm) = $(1000000/\text{Electrical Period(us)}) * 120/\text{pole}$

Else, Motor Speed(rpm) = Motor Speed(Hz) * 120/pole

The Default value of this Control is 1.

3. Stop

When you click on this control, the speed control will be written with a value of 0.

2.1.4 About

The About Page provides the details like the GUI version, supported OS and the firmware version of the USB2ANY.

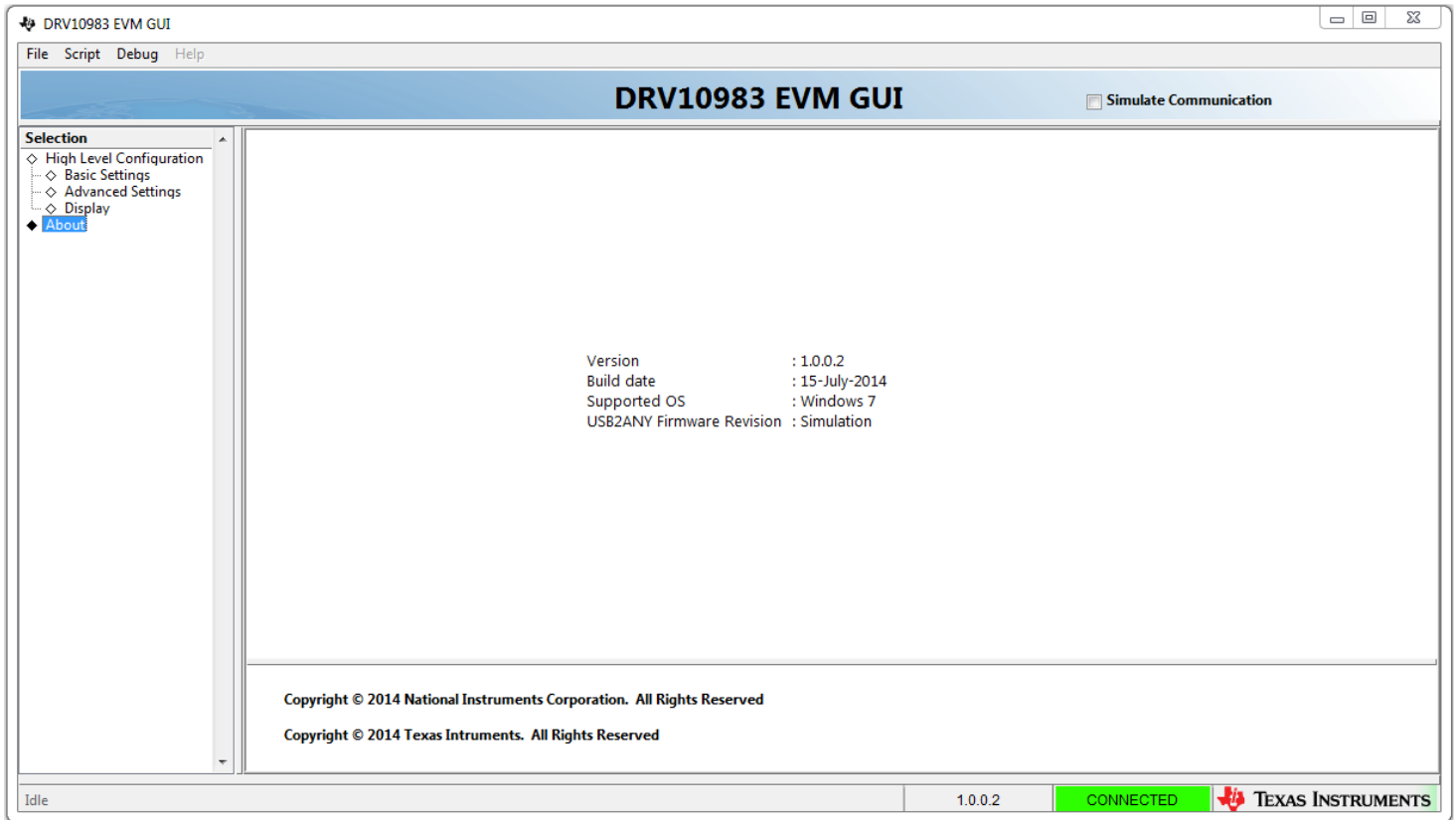


Figure 2-6 About Page

2.2. Menu Options

2.2.1. File

The File menu contains the Exit option as shown in Fig 2-7. The **Exit** option is used to stop the execution of the DRV10983 GUI.

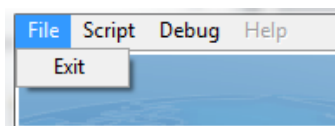


Figure 2-7 File Menu

2.2.2. Script

- Scripting is used to automate the device operations and reduces the time consumption in repeating similar operations.
- This is helpful in situations where performing a particular device function may require setting 10 to 15 registers on the device to a particular value. In these circumstances, scripts could be recorded and run whenever needed.
- In DRV10983 GUI, the scripting is done using Python because,
 - ✓ It's easier to implement
 - ✓ More widely used
 - ✓ More user friendly

1. Recording and Running Scripts

Start Recording - To start recording,

1. Go to Scripts → Launch Window in the DRV10983 GUI.

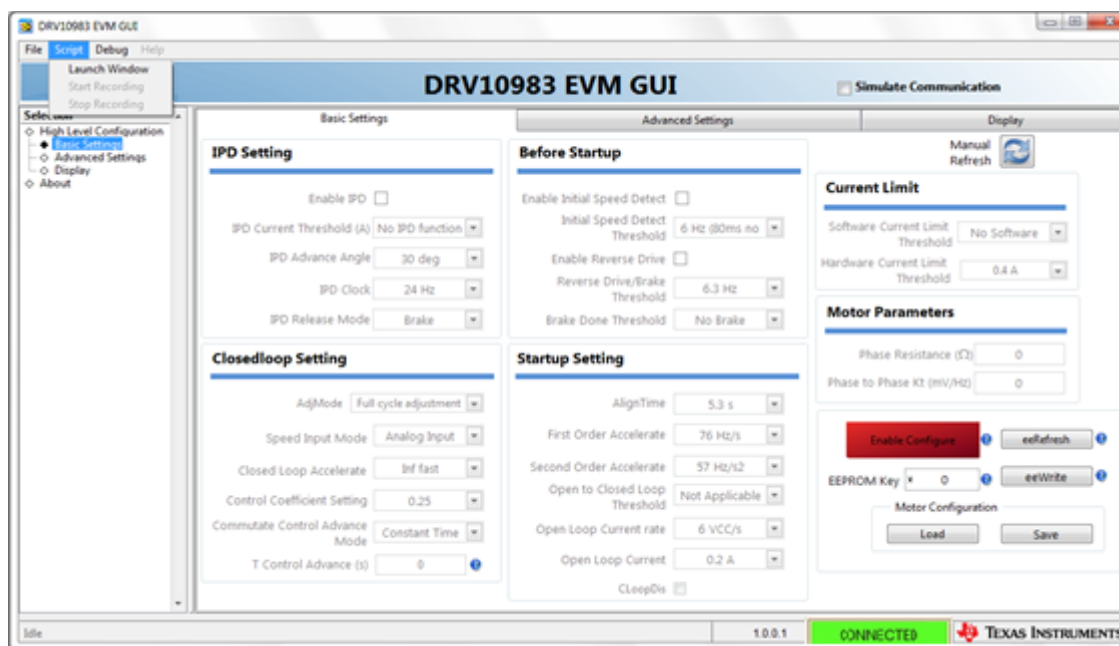


Figure 2-8 Script Menu

- 1.A This opens an untitled, empty Python window in IDLE IDE.

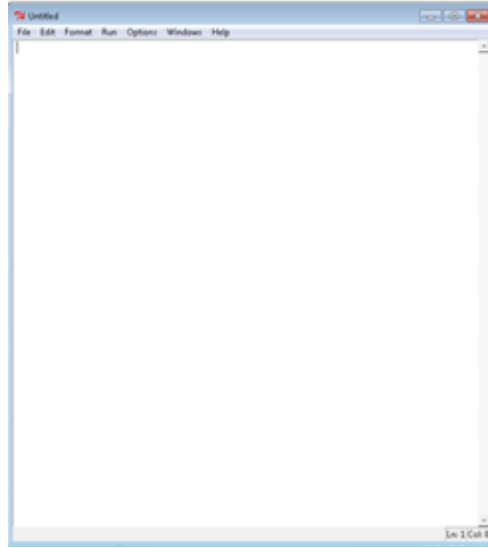


Figure 2-9 Launch Macro

- 1.B Once the python window is launched, the **Start Recording** option will be enabled in the same Script menu, in the GUI window



Selecting the **Launch Window** again will open another untitled window and the one opened last will be active.

- 1.C In GUI window, traverse to the **Scripts** → **Start Recording** option in the menu.
- Whatever actions are now performed by the User on the GUI, are recorded in the Python window
 - The recording function is indicated by window blinking in green, while the window is recording as shown below in Fig.2-10.

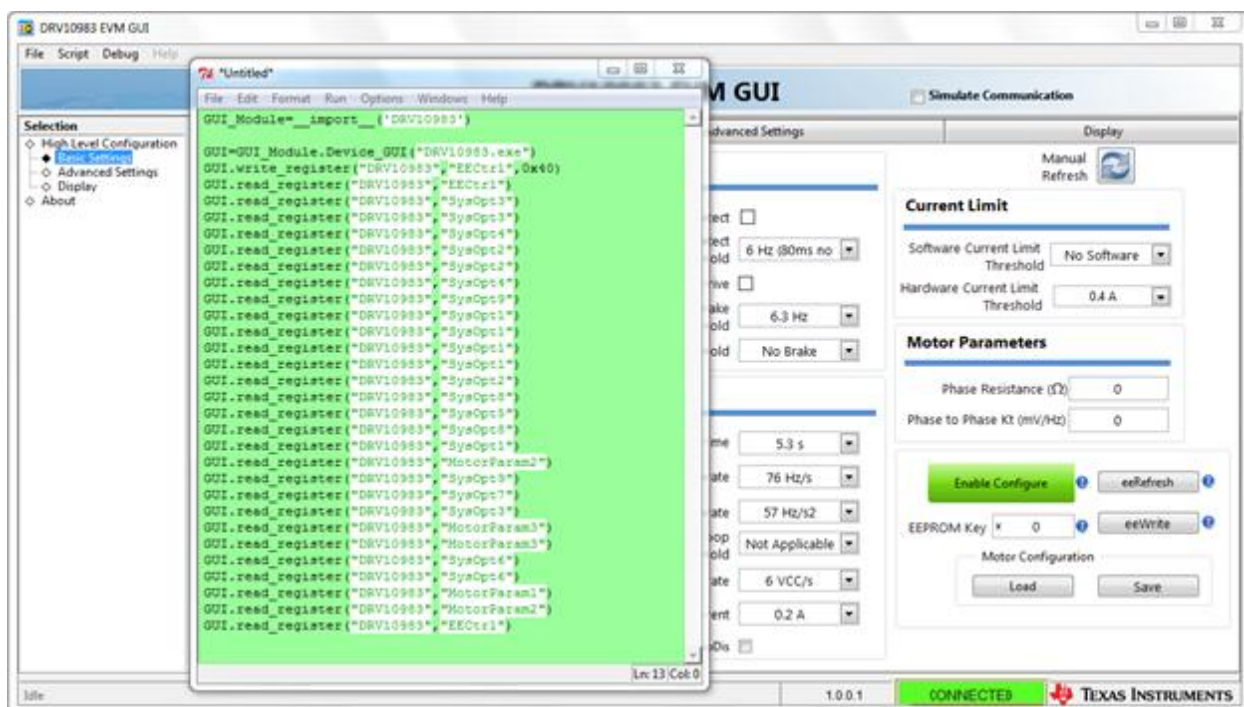


Figure 2-10 Start Recording



The python window captures predefined actions only. While recording, no action has to be performed on the python window such as moving the cursor, entering data etc.

Stop Recording- To stop recording,

1. In GUI window, traverse to the **Scripts** → **Stop Recording** option in the menu
2. The Launch Window will still remain after the recording has been stopped as shown in Fig.2-11. It can be closed with/without saving, else we can also continue recording.
3. While saving, the window has to be saved with extension .py under script folder

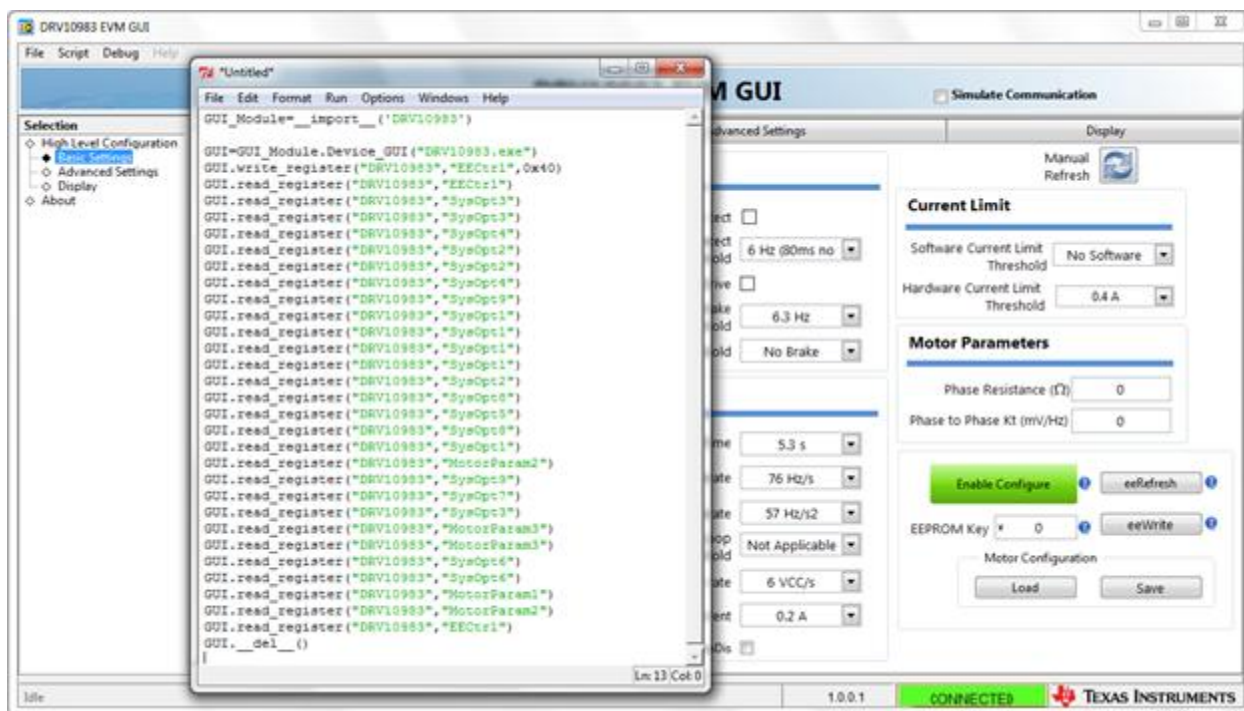


Figure 2-11 Stop Recording

Run Script - To run the script,

1. In the IDLE IDE menu bar, go to Run → Run Module as shown in Fig.2-12.

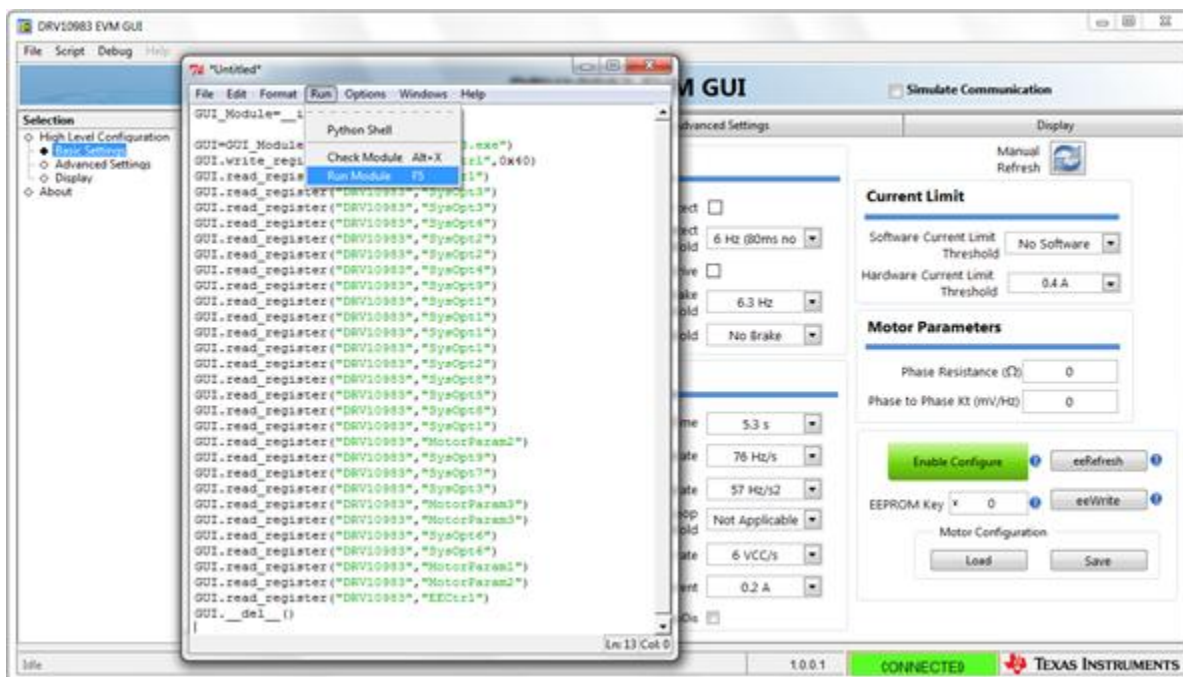


Figure 2-12 Run Macro

2. It runs the script and displays the message **“Script completed successfully”** in the Python window
3. In order to run an already saved script, go to **File→ Open** in the IDLE IDE window. You can now choose the file from the browser.

2.2.3. Debug

The Debug option can be used for the following operations

- **Simulation** - By selecting the simulation submenu, the GUI is run in simulation mode and by unselecting it, the GUI is run in connected mode.
- **File Logging** - The log to file submenu is used to log the GUI activities to a log file that is specified.
- **Debugging** - The Debug log option will enable to log all the activities of the user. If that is not selected, only the high level operations will be logged.

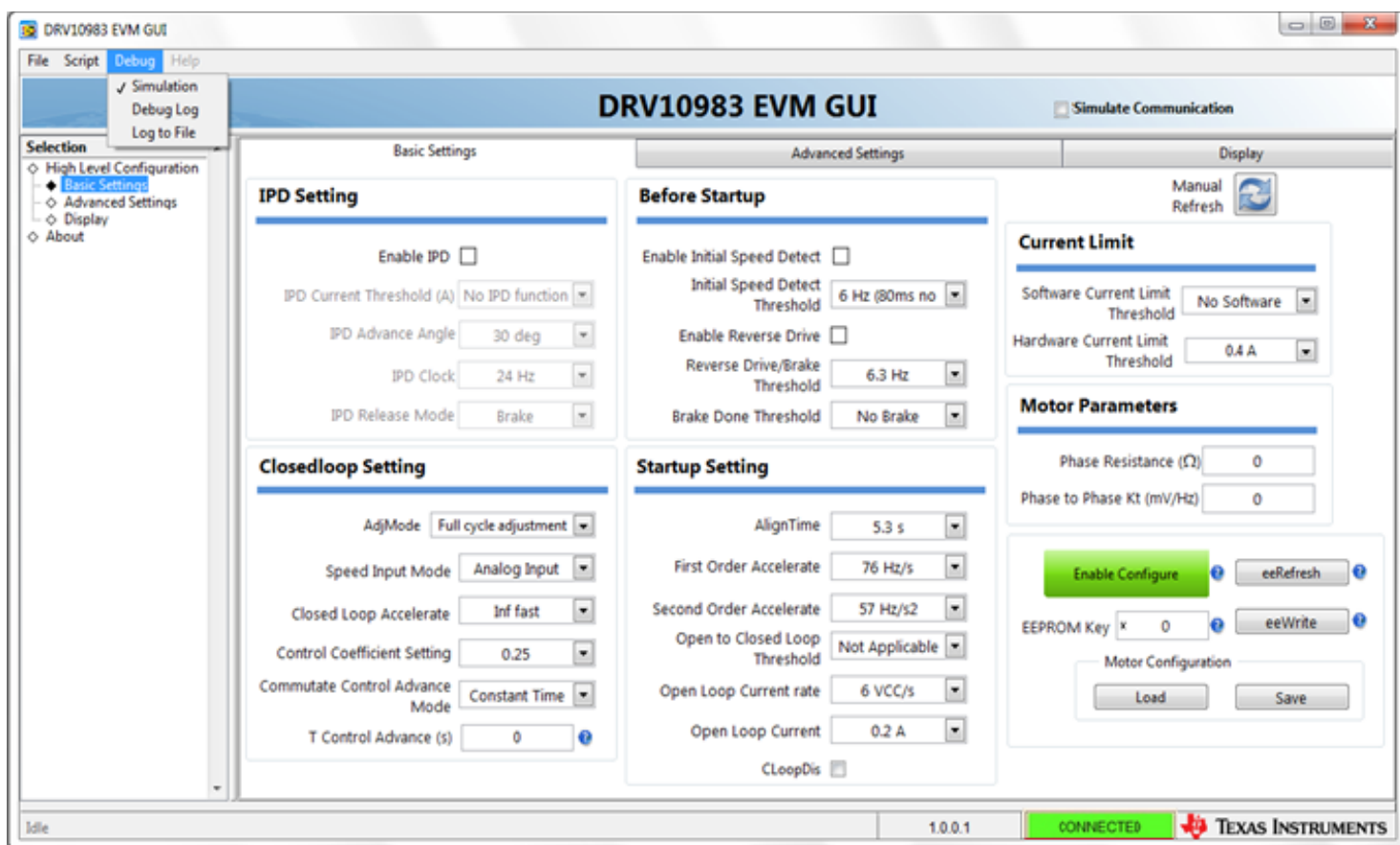


Figure 2-13 Debug Menu