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1. Introduction

The I2C GUI Tool is intended interface with the Aardvark I2C/SPI dongle and FTDI device (FT232H and FT2232H). It offers general purpose I2C or SMBus read/write and block read/write, and supports script execution in text format.

This document explains how to install the software and USB driver. It also discusses how to use the key features of the I2C GUT Tool.

2. Software Information

The I2C GUI Tool is an executable file. It does not require any installation. The software runs on Microsoft Windows 7® or later operating system.

After downloading and unzipping the I2C_Tool.zip file to a local PC, the software will reside in the "I2C_Tool" directory. To start the installation process, double click on "I2C_Tool.exe" file.

Note: Install the Aardvark and FTDI USB driver *before* running the "I2C_Tool".

Install Aardvark USB Driver

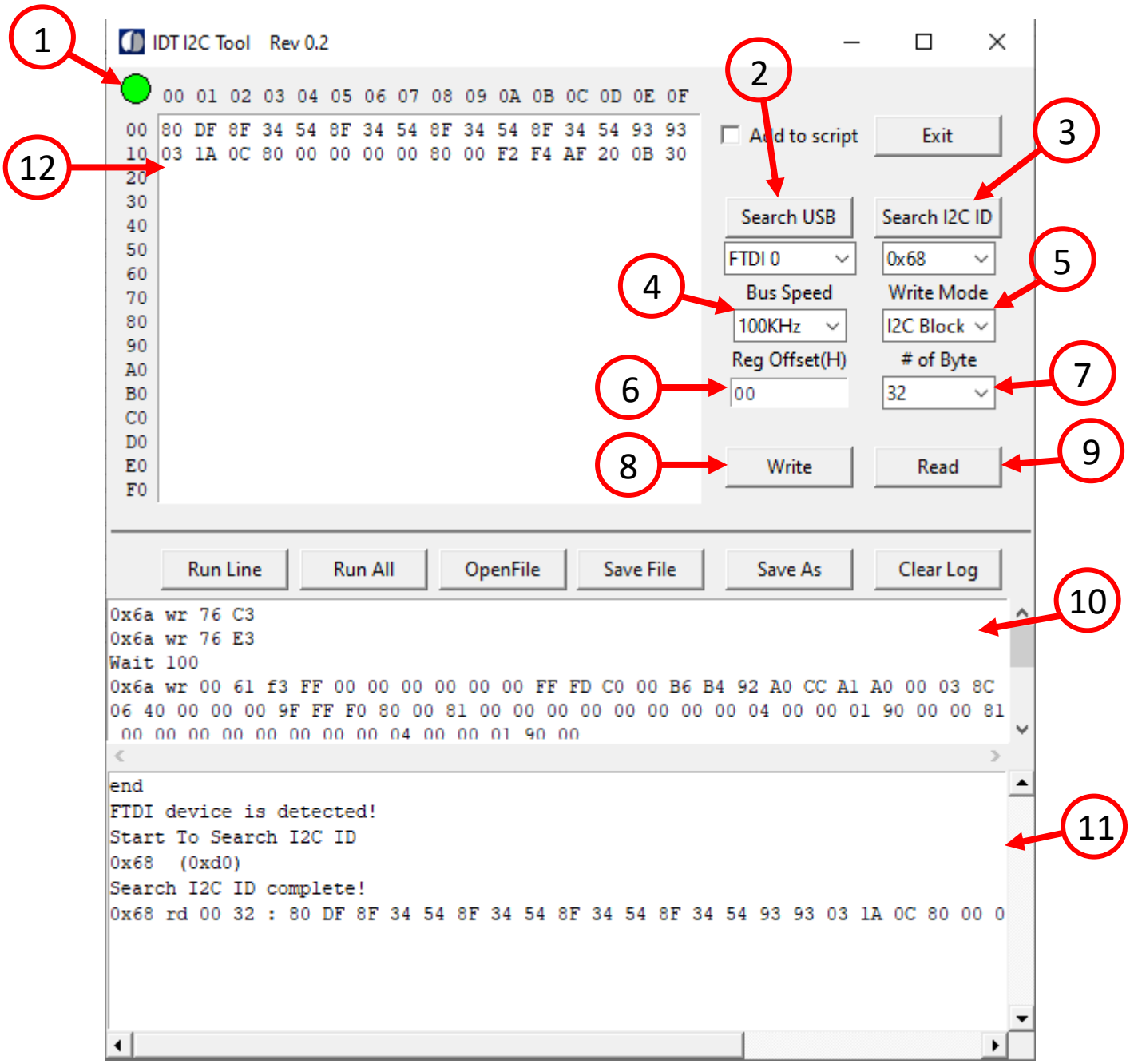
1. Download the Aardvark USB driver setup file at https://www.totalphase.com/products/usb-drivers-windows/ to your local PC.
2. Unzip the file.
3. Right-click on the executable file and select "Run as administrator".
4. Press "Next" and follow the installation instructions to complete the installation.

Install FTDI USB Driver

1. Download the FTDI setup executable driver at https://www.ftdichip.com/FTDrivers.htm to your local PC.
2. Unzip the file.
3. Right-click on the executable file and select "Run as administrator". If you see a message from "User Access Control" asking "Do you want to allow this app to make changes to your PC?", then click Yes to continue.
4. Press the "Extract" button and follow the installation instructions to complete the installation.

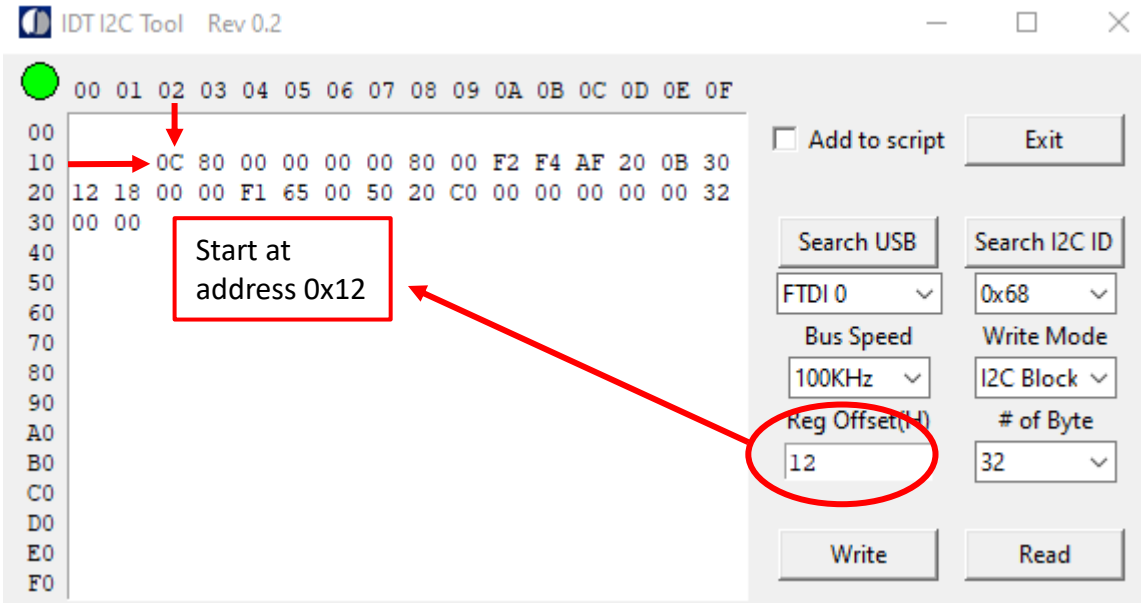
3. I2C GUI Tool Overview

The following figure shows an overview of the I2C GUI Tool. Detail feature descriptions are included below and correspond to the numbered items in the figure.



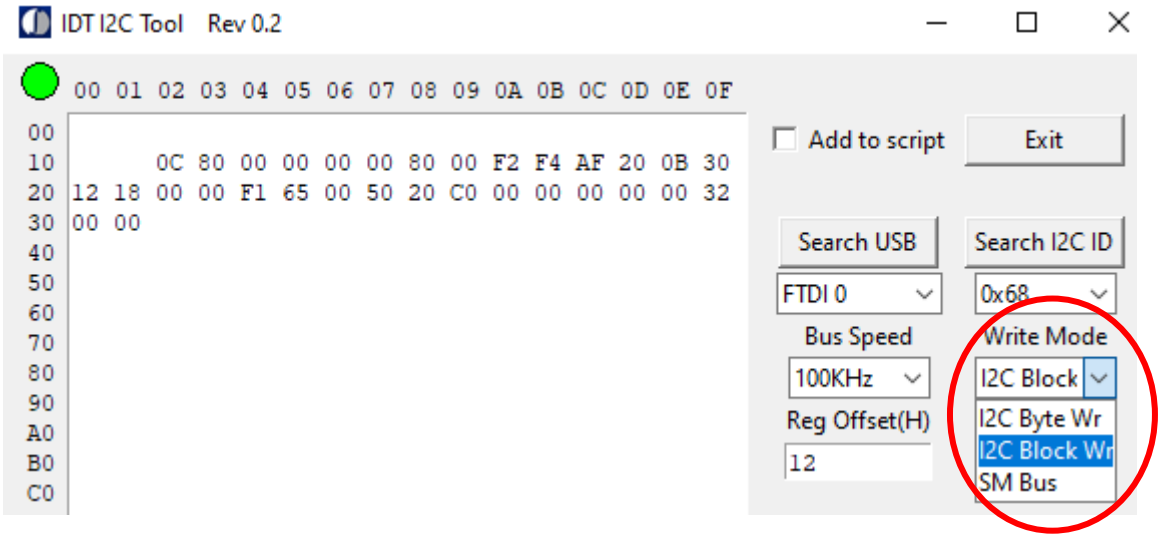
1. **USB to I2C device indicator**: The tool will automatically search for all USB and I2C devices at startup. It is the same function as item 2, “Search USB” function. A green color means that a USB or I2C device has been found. A red color means that no USB or I2C device has been found.
2. **“Search USB” button**: If clicked, the tool will search for all USB and I2C devices attached to your local PC. All devices will list below the list box.
3. **“Search I2C ID” button**: If clicked, the tool will search all device I2C addresses that are connected to the I2C bus. All I2C addresses found will list below the list box. It is in 7-bit format.
   The list box also allows manual input. Click on list box and type in I2C address. It has to be Hex format.

4. **"Bus Speed"**: This configures the tool's I2C bus speed setting. Bus speeds of 50KHz to 400KHz are supported.
5. **"Write Mode"**: This configures the tool for byte write, block write, or SMBus mode.
6. **"Reg Offset(H)"**: This configures the register offset address for the read/write function. It is in Hex format.
7. **"# of Byte"**: This configures the number of bytes for a read function.
8. **"Write"**: This initiates an I2C write function.
9. **"Read"**: This initiates an I2C read function.
10. **Script Window**: The text box can be used to open, edit, save, or execute the script.
11. **Message Window**: This display shows read, write, and error messages.
12. **Data Box**: This area shows read / write I2C data. The data box format is Hex. Each byte will have one space. If the input does not have space, the program will automatically insert a space between each byte. Base on the address offset, the data will start at a corresponding position. See example below.



4. I2C Write Mode

The I2C GUI Tool supports byte write, block write, and SMBus read/write transactions.



I2C Byte Write mode: This will write one byte at a time. Register offset address will increment for each write. The following is the example for the above picture data in byte write:

I2C ID	rd/wr	offset	data
0x68	wr	12	0C
0x68	wr	13	80
0x68	wr	14	00
0x68	wr	15	00

……
……

I2C Block Write mode: This will write all data in block mode. See example below.

I2C ID	rd/wr	offset	data
0x68	wr	12	0C 80 00 00 00 00 80 00 ……

SM Bus mode: This will conduct SMBus block read/write mode transactions. See example below.

SM Bus block write:

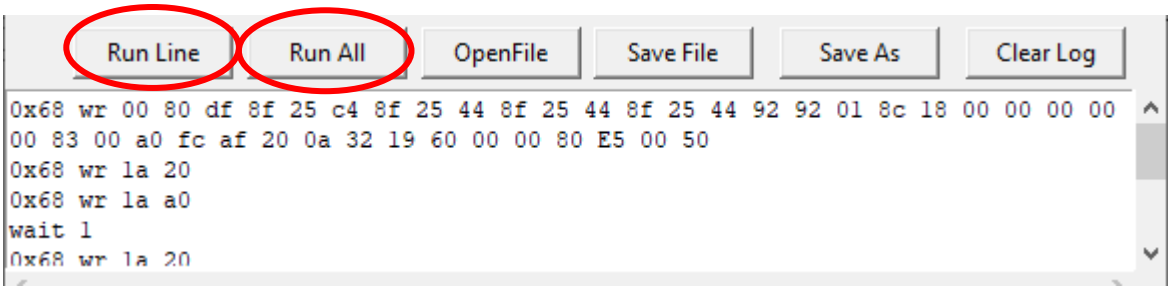
I2C ID	rd/wr	offset	ByteCnt	data
0x68	wr	12	32	0C 80 00 00 00 00 80 00 ……

SM Bus block read:

I2C ID	rd/wr	offset	ByteCnt	read back data
0x68	rd	12	32	0C 80 00 00 00 00 80 00 ……

5. Script Tool

The script tool can put all of the read/write commands together. It executes each line one at a time. It also has a wait function to allow the script to pause for a certain period of time (e.g., an OTP operation will use the wait function).



Run Line: This will execute the command line where the curser is located. After the execution, the curser will move to the next line.

Run All: This will execute all lines from the first line to the last line.

Command line

Write function:

```
I2C_ID   rd/wr   offset    data
0x68     wr      12        0C 00 00 …….
```

Read function:

```
I2C ID   rd/wr   offset    # of Byte
0x68     rd      12        32
```

Wait function:

```
wait 0.1     (wait follow by number of second. 0.1s is 100ms)
```

6. Revision History

Revision	Date	Description
1.0	May.5.20	Initial release.

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