CREATE Lab Visual Programmer Installation and Connection Guide

Introduction

The CREATE Lab Visual Programmer is a software application that allows you to use a computer to control certain types of CREATE Lab / BirdBrain Technologies robots. Both versions of the Arts & Bots Hummingbird and the Finch robot are controllable with the Visual Programmer.

Contents

Step One – Computer Setup

Computer Hardware Requirements

Any moderately recent computer will work with the Visual Programmer. However, using a computer with the following capabilities will make your experience better:

- Screen Resolution: 1024 x 768 or larger (preferred)
  - o Low screen resolution may prevent all controls from fitting on screen at once.
- Screen Size: 13" or larger (preferred)
  - o Small screen size may make smaller controls challenging to operate and will reduce text size.
- Memory: 1 GB or more (preferred)
  - o Memory shortages occasionally cause visual glitches.
- Mac, Windows, or Linux operating system
- Internet Access (required for installation and software update checks)
  - o After installation, the software does not require an Internet connection to run. You will need an Internet connection, however, to be notified of software updates.
- Keyboard and Mouse Operation (preferred)
  - o Touch-screen users may have challenges operating the drag-and-drop features.
- Administrator privileges
  - o Some school and company owned computers have restricted security features that require computer support staff to unlock during installation. Please check with your organization's technology support group to see if this applies to you.

Computer Software Requirements

The Visual Programmer has been tested on Mac OS 10.7, Mac OS 10.8, Mac OS 10.9, Windows XP, Windows 7, and Ubuntu Linux. It should work on both 32-bit and 64-bit operating systems.

The Visual Programmer is a Java application, so you will need to have Java SE 6 or later installed. For running the Visual Programmer, it doesn't matter whether you install the JRE or the JDK, but the JRE will be a smaller download. If you only ever need to *run* Java applications, then the JRE is fine. But if you expect to ever *develop* Java applications (i.e. write Java code), then you'll want the JDK. Either way, you can download Java from: http://www.oracle.com/technetwork/java/javase/downloads/index.html

Although the Visual Programmer requires Java to be installed, it does *not* require the Java Plugin to be installed or enabled in your browser.

Step Two – Download and Installation

Downloading the Visual Programmer

We offer two versions of the Visual Programmer:

1. A downloadable, standalone application for Mac OS, Windows, or Ubuntu Linux
2. A downloadable zip file for other Linux users or users having advanced installation configuration needs.

Standalone Application

To download and install the standalone application version, please do the following:

1. Make sure you have Java SE 6 or later installed. See the Computer Software Requirements section above for details.
2. Go to: http://artsandbots.com/visualprogrammer/
3. Click the appropriate Download button for your robot (Hummingbird or Finch) and operating system (Mac OS, Windows, or Ubuntu Linux).
4. Installation:
   - **Mac OS**: you will download a disk image file (.dmg). Double-click it to mount and open the disk image. Once it is open, simply drag the Visual Programmer application to your computer's Applications folder. Once it has copied, you may eject the disk image.
   - **Windows**: you will download a zip file containing an installer file (.msi). Unzip, and then double-click the .msi to open it and follow the installation wizard steps to install the Visual Programmer.
   - **Ubuntu Linux**: you will download a package file (.deb). Double-click to open it and then select *Install Package.*
5. Running the Visual Programmer software:
   - **Mac OS**: double-click the CREATE Lab Visual Programmer application in your Applications folder.
   - **Windows**: select the CREATE Lab Visual Programmer application in the Start menu, or double-click the icon on your Desktop.
   - **Ubuntu Linux**: double-click the CREATE Lab Visual Programmer application icon.
6. If you run the software and see a screen like one of the ones below, you're done!

Hummingbird	Finch
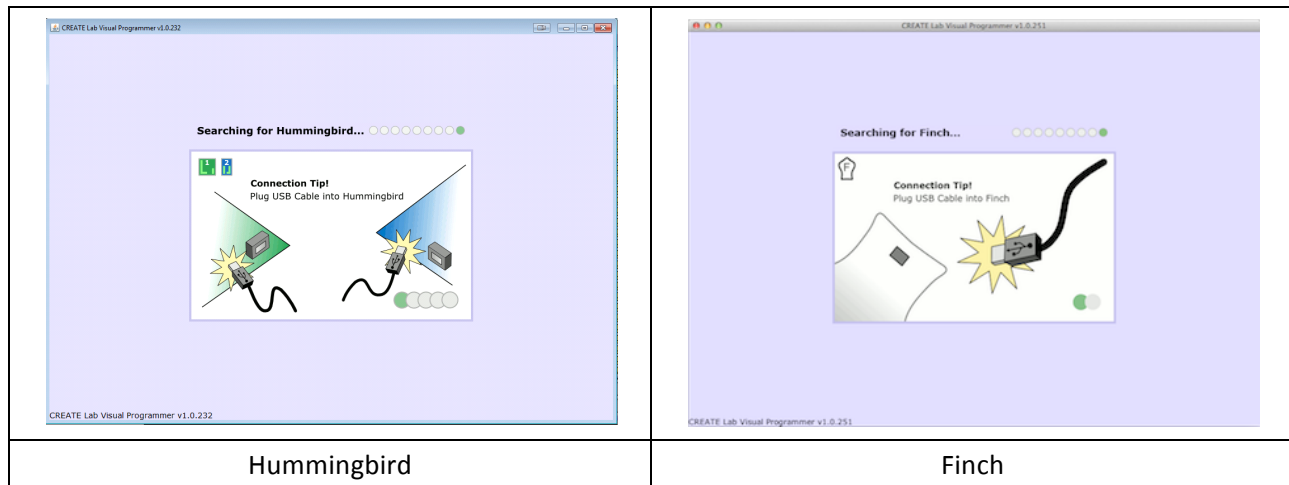
Please note that the software does automatic update checking every time the application is launched. If an update is available, the Settings tab (the one with the gear icon) will provide a link to download the latest version. To upgrade, simply download the latest version and repeat the installation steps above. Your saved Expressions and Sequences will not be affected.

Download as a zip file

Although we recommend users use the standalone application version of the software as described above, we also make it available as a zip for users who are running versions of Linux other than Ubuntu, or have more complicated installation requirements. To install and run from the zip file, do the following:

1. Make sure you have Java SE 6 or later installed. See the Computer Software Requirements section above for details.
2. Go to: http://artsandbots.com/visualprogrammer/visualprogrammer.zip
3. Your browser should download the zip file.
4. Unzip the visualprogrammer.zip archive to your preferred location.
5. Read the README.txt file for instructions on how to launch the software.

Step Three – Connecting to a Hummingbird or Finch

The Visual Programmer supports either the Hummingbird or the Finch. See the instructions below for the hardware you have.

Connecting to a Hummingbird

There are two different types of Hummingbirds. The newer Hummingbird v2 is a dark blue rectangular circuit board. The older Hummingbird Beta is a green square circuit board. Use the images below to determine which type of Hummingbird you are using:

Hummingbird v.2	Hummingbird Beta
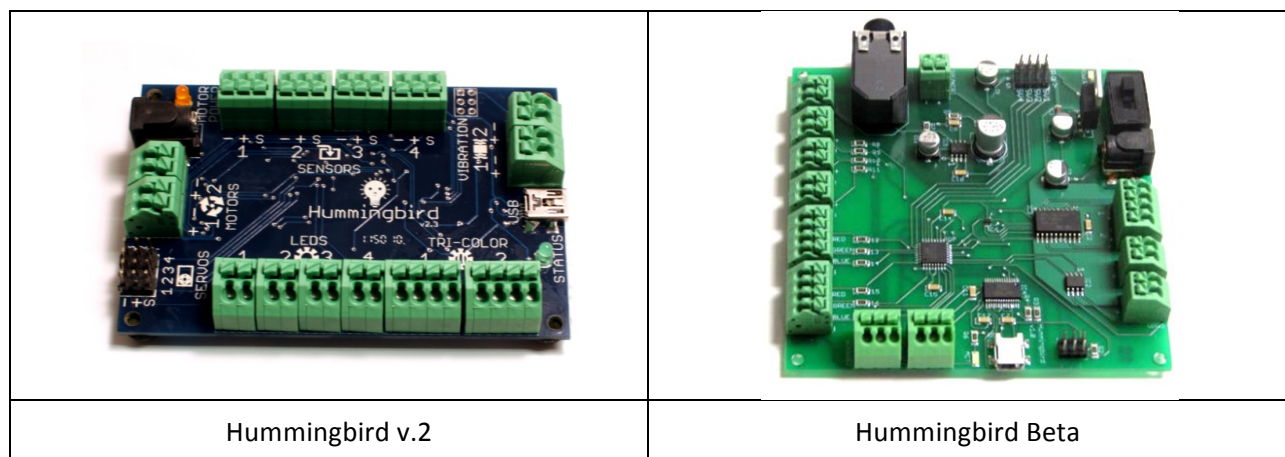
The Visual Programmer can work with both types of Hummingbirds, but setup is slightly different for each. Please follow the instructions for your Hummingbird version.

Hummingbird v.2

The Hummingbird v.2 is designed to simplify connecting it to a computer. In order to work, the Hummingbird merely needs to be connected to a computer via a USB cable. Additionally, use of motors and servo (please see the Arts & Bots Hardware Reference Sheet for details) requires that the Hummingbird be connected to an AC power adapter.

1. Plug the USB cord into your computer (large plug) and the USB port on the Hummingbird (small plug).
2. Your computer should recognize the Hummingbird and setup a "HID Device" driver automatically.
3. After the driver setup is finished, run the Visual Programmer.
4. (Optionally) Plug the AC power adapter into a wall power outlet and the power plug on the Hummingbird in order to use motors and servos.

Hummingbird Beta
The Hummingbird Beta is an older version that takes a few extra steps to connect to a computer. In order to work, it requires connections to both an AC power adapter and a USB connection to a computer.

1. Install the Hummingbird Beta driver on your computer, called a "Virtual COM Port Driver". Go to: http://www.ftdichip.com/Drivers/VCP.htm and follow the instructions for your computer's operating system.
   - Installation guides are also available here: http://www.ftdichip.com/Support/Documents/InstallGuides.htm
   - Windows - http://www.ftdichip.com/Drivers/CDM/CDM20814_WHQL_Certified.zip
   - Mac - http://www.ftdichip.com/Drivers/VCP/MacOSX/FTDIUSBSerialDriver_v2_2_17.dmg
2. Plug the AC power adapter into a wall power outlet and the power plug on the Hummingbird.
3. Plug the USB cord into your computer (large plug) and the USB port on the Hummingbird (small plug).
4. Turn switch to "ON" position. A red light should light up.
5. Your computer should recognize the Hummingbird and setup the "Virtual COM Port Driver" (that you installed in #1) automatically.
6. After the driver setup is finished, run the Visual Programmer.

Connecting to a Finch

The Finch is designed to simplify connecting it to a computer. In order to work, the Finch merely needs to be connected to a computer via a USB cable.
1. Plug the USB cord into your computer (rectangular plug) and the USB port on the Finch (square plug).
2. Your computer should recognize the Hummingbird and setup a "HID Device" driver automatically.
3. After the driver setup is finished, run the Visual Programmer.

Visual Programmer

When the Visual Programmer successfully connects, it will stop searching for the device and stop displaying the "Connect Tip" illustrations. It will then prompt you to select the directory in which it will store your files. Once you choose a directory, it will display the tabbed Visual Programmer interface and will be showing the Expression Builder tab. The Expression Builder tab is easy to recognize by its large "cartoon" image of a Hummingbird or Finch. Note that the on-screen Hummingbird's appearance will depend on what Hummingbird version you are using.

Hummingbird v.2	Hummingbird Beta
Finch	
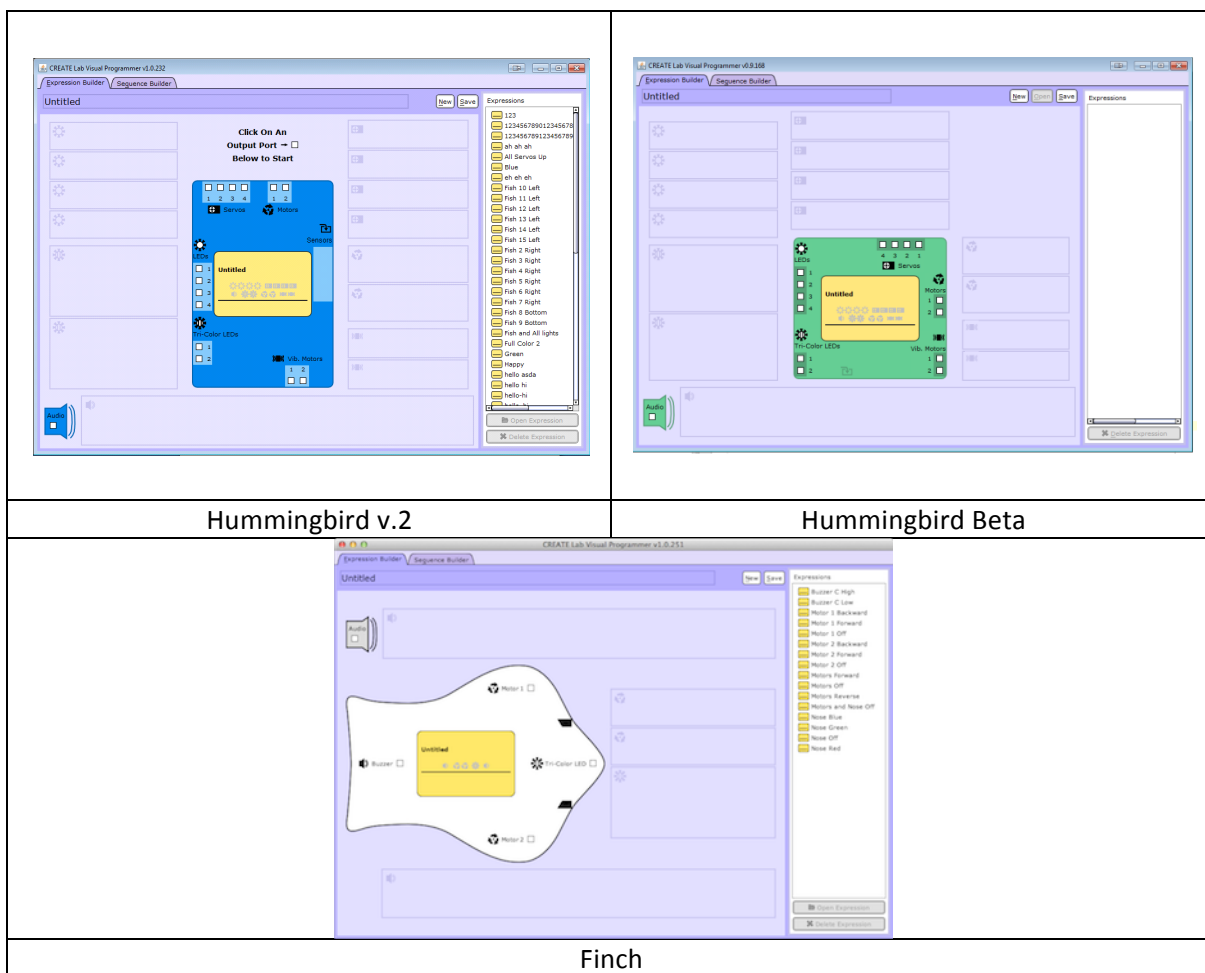
When you see one of the screens above, you are ready to create your first expression.

NOTE: When choosing the directory for your files after the device connection is established, you will also be given the opportunity to have the Visual Programmer remember this location, in which case you will not be prompted on subsequent connections, even after restarting the application. The preference can be changed in the Settings tab.

Support

The CREATE Lab staff is happy to help you get your system up and running with Arts & Bots.

Contact Information:

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