usbASP Programmer

Connecting to UNO

The usbASP ([XC4627](#)) programmer can connect to most AVR type devices, not just the uno. You will have to seek out the correct connection diagram, usually found in the datasheet for your AVR device.

While the usbASP programmer has the traditional 10-pin connector for older Atmel devices, you can use the ([XC4613](#)) adapter to make it fit more easily onto newer 6pin devices such as the UNO. It is easy to remember the orientation by matching up the reset pin to the [XC4613](#) adaptor, as indicated to the right.

Included download files

In the supplied zip file (found on the download page for [XC4627](#)) you will find this PDF, along with the software you need, plus a few shortcuts and a batch file to make things easier to manage.

Otherwise, if you don't have the included zip, the software you need is "avrdude" and the open-source usb driver "libusb" which can be installed via ZADIG.

## Set up drivers for usbASP with ZADIG

Firstly, you must overwrite the drivers that are installed by windows when you first plug in the [XC4627](#). You should only have to do this once.

Plug your usbASP programmer into the computer and open up the ZADIG software (either through shortcut, or found in the setup folder). In the program that shows up, tick

```
Options > Show all devices
```

And change the main dropdown box to be USBasp. You then want to change the what the driver becomes by scrolling through the options until you reach `libusb-win32`

Hit "Install driver" – if it is already installed, it will read as "*Reinstall driver*" as shown:
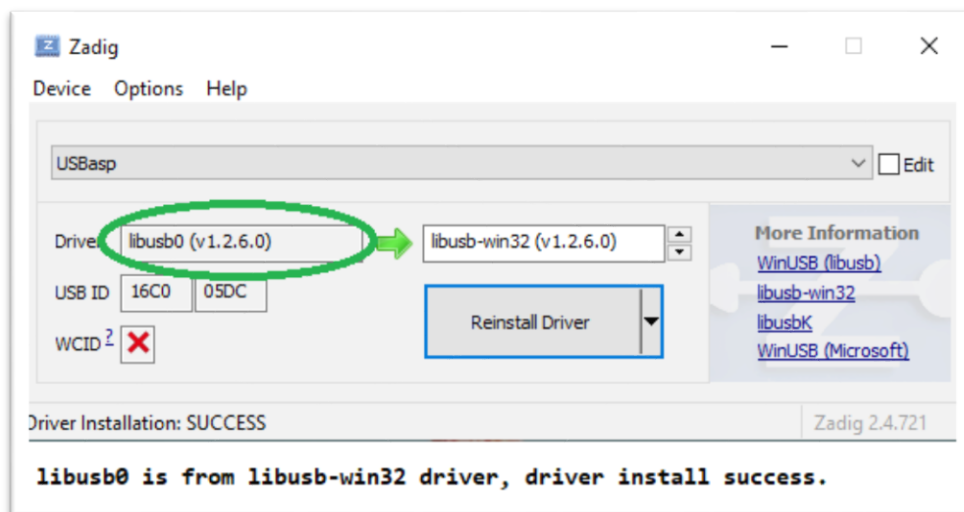
XC4627 XC4613

usbASP Programmer

Once the current driver (left hand side) is libusb0, you can then go ahead with using usbASP with avrdude

Using AVRDUDE (GUI Version)

Thanks to a user named zkemble, they have provided a [github repository](#) of a gui which can make it easier to manage.

Run the AVRDUDE GUI shortcut in the folder, or if that doesn't work, install properly in the `setup` folder.

If you don't have the correct libraries, windows should install it for you:
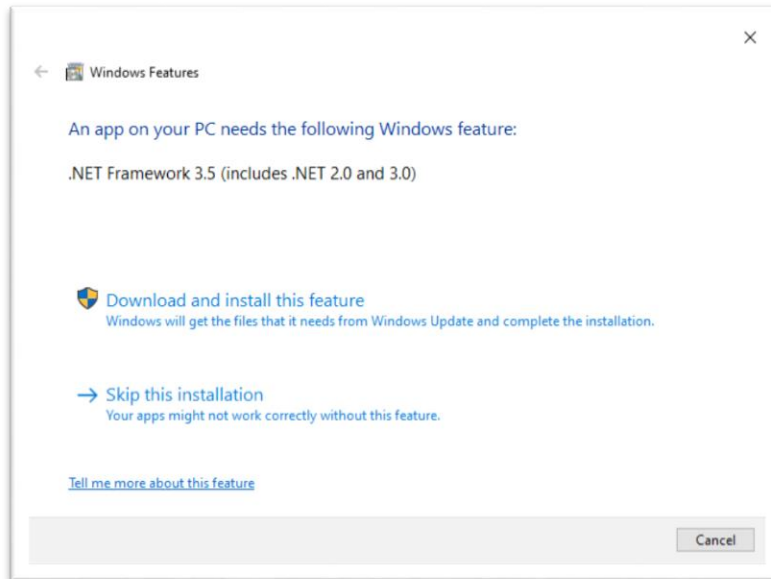
Then you'll be greeted with a screen that has many options, the one you to manage for USBASP is:
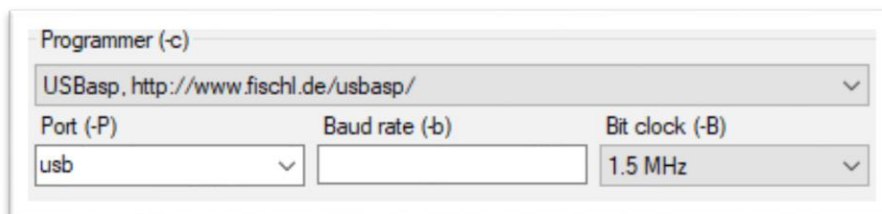
Then select your hex file in the *Flash* portion, set to "write." Then in the top right you will want to change your MCU to the correct part number, the UNO is usually ATMEGA328p but you'll have to check and change for each device. Once you've set the values, press the bold **Program!** button to write the hex file.

Using AVRDUDE (CMD Version)

While the GUI is a faceplate to the commandline program of `avrdude`. Run the

`AVRDUDE CMD.bat`

file to bring up the command prompt version, which will also set up `avrdude` for you. An example command is given in the header, but you can run your own command.

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XC4627 XC4613

usbASP Programmer

use "cd" *(change directory)* to the location that you have your file, and use `avrdude` to program it, for example *(For a file on your desktop)*:

```
cd C:\Users\username\Desktop
avrdude –p m328p –c usbASP –P usb –U flash:w:filename.hex:a
```

Where –p denotes the part, -c denotes the programmer (usbASP) and –P is the port.

For more information about parameters and changes, read the manual with avrdude or run "`avrdude -?`".

Basic errors

Could not find USB device with vid

```
>>>: avrdude -u -c usbasp -p m16u2 -P usb -B 0.5 -U flash:w:"I:\code.hex":a
avrdude.exe: error: could not find USB device with vid=0x16c0 pid=0x5dc vendor='www.fischl.de' product='USBasp'

avrdude.exe done.  Thank you.
```

This is a problem relating to the usbASP drivers. Did you use ZADIG to install the libusb driver? Is the usbASP plugged in?

Expected Signature (Reads 100% but cancels program early)

```
avrdude.exe: set SCK frequency to 1500000 Hz
avrdude.exe: warning: cannot set sck period. please check for usbasp firmware update.
avrdude.exe: AVR device initialized and ready to accept instructions

Reading | ################################################## | 100% 0.00s

avrdude.exe: Device signature = 0x1e950f (probably m328p)
avrdude.exe: Expected signature for ATmega16U2 is 1E 94 89
             Double check chip, or use -F to override this check.

avrdude.exe done.  Thank you.
```

This is related to not setting the correct part number (-p switch) – You can see here that I have connected an UNO (*"probably m328p"*) but I have selected atmega16u2 (*"Expected signature for ATmega16u2 is …"*). Check the correct part has been specified

Error on avrdude.conf or otherwise

This is an error relating to avrdude config file, being a different version to the avrdude program. Use the avrdude.exe AND avrdude.conf located in the GUI folder. If you install and use avrdude from a different location, be sure to triple check that version of the config. (Our latest version, in this zip file, is version 6.3).

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