

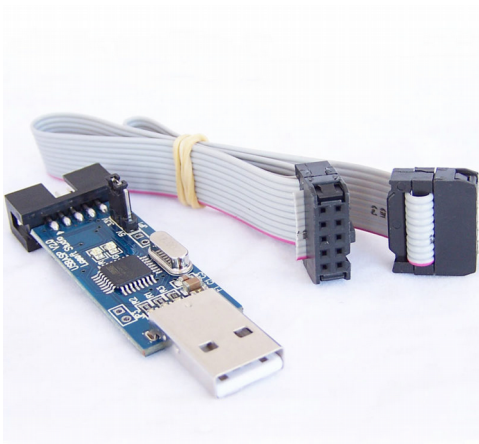
SYNTHI BISCUIT UPDATE

1. software and setup

The synthi biscuit firmware can be updated from a PC (although Linux based and Mac machine can also be used to program the module, this document deals with windows machines with Windows 7 running). More ressources and help links can be found at the end of the document.

To update the Synthi Biscuit you need to download 2 (free) softwares and use the provided programmer with the ribbon cable that came with the Synthi Biscuit.

-The programer with the 6pins header:



-Driver for the USB programmer :

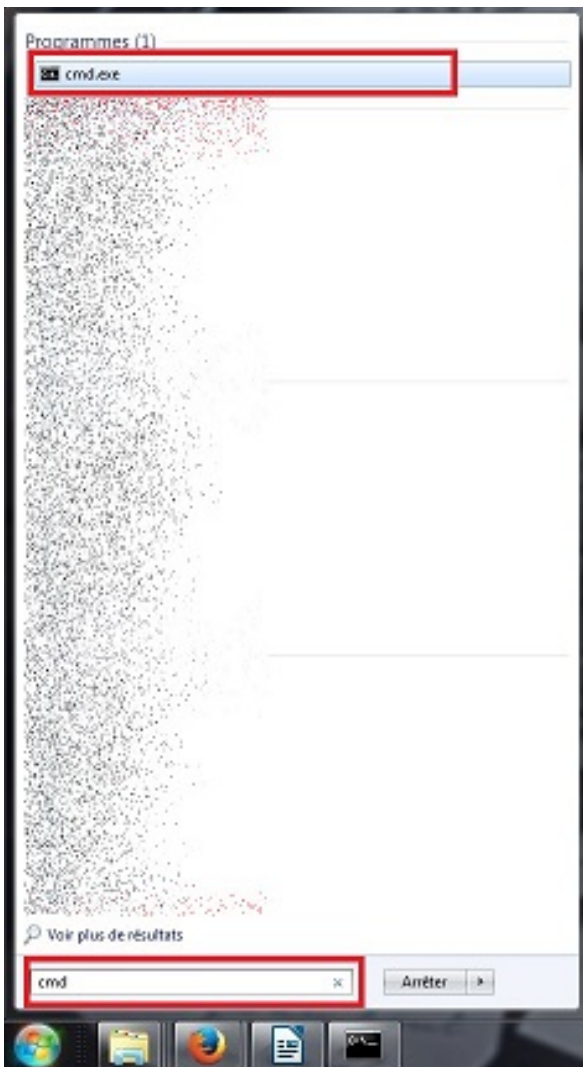
<https://protostack.com.au/2011/05/usbasp-driver-for-windows-7-and-windows-vista-x64/>

-AVRDUDE, to upload the firmware to the module :

<https://sourceforge.net/projects/winavr/>

AVRDUDE :

AVRdude doesn't come with an user interface, it uses command lines to be excuted. To run it we need to call it from the « shell ». Type « cmd » into the search function of the start menu.



Once the cmd is opened, type « avrdude » to see if it is correctly installed on your machine. It should give back a list of options, if not, check your installation.

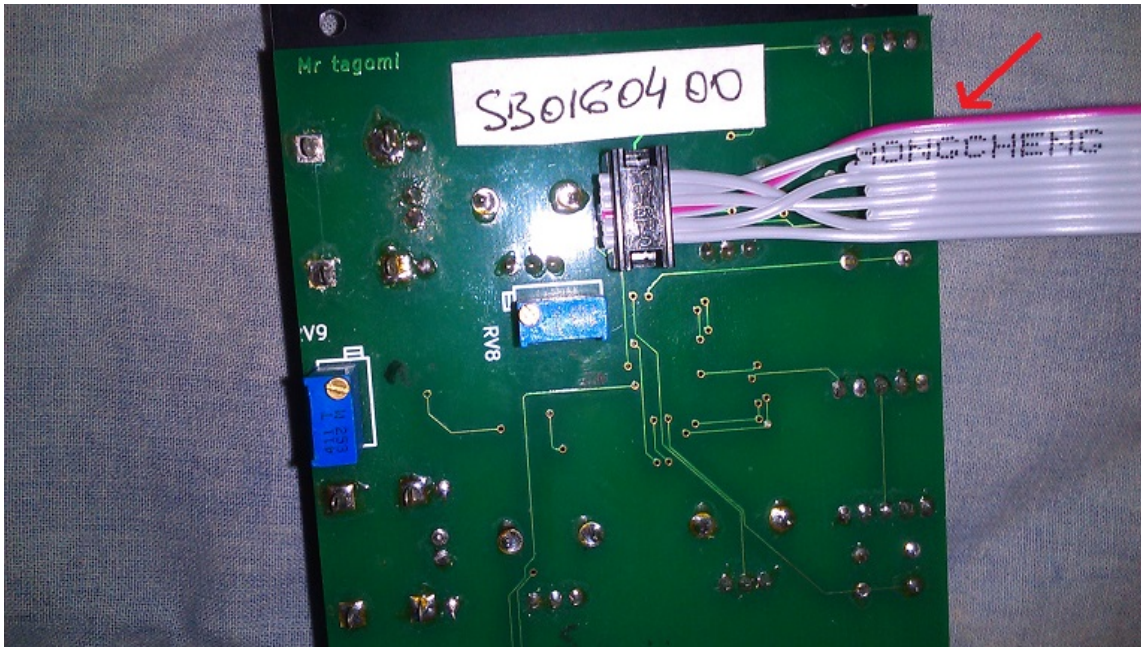
```
C:\Windows\system32\cmd.exe
C:\Users\>avrdude
Usage: avrdude [options]
Options:
  -p <partno>          Required. Specify AVR device.
  -b <baudrate>       Override RS-232 baud rate.
  -B <bitclock>       Specify JTAG/STK500v2 bit clock period (us).
  -C <config-file>    Specify location of configuration file.
  -c <programmer>     Specify programmer type.
  -D                  Disable auto erase for flash memory
  -i <delay>          ISP Clock Delay [in microseconds]
  -P <port>           Specify connection port.
  -F                  Override invalid signature check.
  -e                  Perform a chip erase.
  -O                  Perform RC oscillator calibration (see AVR053).
  -U <nentype>:r:w:v:<filename>[:format]
                    Memory operation specification.
                    Multiple -U options are allowed, each request
                    is performed in the order specified.
  -n                  Do not write anything to the device.
  -U                  Do not verify.
  -u                  Disable safemode, default when running from a scrip
t.
  -s                  Silent safemode operation, will not ask you if
                    fuses should be changed back.
  -t                  Enter terminal mode.
  -E <exitspec>[:<exitspec>] List programmer exit specifications.
  -x <extended_param> Pass <extended_param> to programmer.
  -y <number>         Count # erase cycles in EEPROM.
  -Y <number>         Initialize erase cycle # in EEPROM.
  -v                  Verbose output. -v -v for more.
  -q                  Quell progress output. -q -q for less.
  -?                  Display this usage.

avrdude version 5.10, URL: <http://savannah.nongnu.org/projects/avrdude/>
C:\Users\
```

2. Programming the Synthi Biscuit

Place the downloaded firmware (.hex file) into a convenient location, at the root of your hard-drive for instance. Although it can be anywhere on your hard-drive, you should enter the entire location of the file into avrdude. For this demonstration, it'll be located at the root, « [C:\](#) ».

Plug the programmer to your computer, and plug the 6pins header to the Synthi Biscuit. Mind the orientation, the red line should be facing upward. The Synthi Biscuit should lid up.



Now it is time for some action, type this command (copy/paste also work) :

```
avrdude -P usb -p m328p -c usbasp -U flash:w:"C:\synthi_0.1.hex":i
```

Avrdude should give you status on the different phases of the programming.

```
C:\Windows\system32\cmd.exe
C:\Users\ >
C:\Users\ >avrdude -P usb -p m328p -c usbaspp -U flash:w:"C:\synthi_0.1.hex"
:i
avrdude: warning: cannot set sck period. please check for usbaspp firmware update
avrdude: AVR device initialized and ready to accept instructions
Reading : ##### : 100% 0.02s
avrdude: Device signature = 0x1e950f
avrdude: NOTE: FLASH memory has been specified, an erase cycle will be performed
To disable this feature, specify the -D option.
avrdude: erasing chip
avrdude: warning: cannot set sck period. please check for usbaspp firmware update
avrdude: reading input file "C:\synthi_0.1.hex"
avrdude: writing flash (13376 bytes):
Writing : ##### : 100% 11.61s
avrdude: 13376 bytes of flash written
avrdude: verifying flash memory against C:\synthi_0.1.hex:
avrdude: load data flash data from input file C:\synthi_0.1.hex:
avrdude: input file C:\synthi_0.1.hex contains 13376 bytes
avrdude: reading on-chip flash data:
Reading : ##### : 100% 7.97s
avrdude: verifying ...
avrdude: 13376 bytes of flash verified
avrdude: safemode: Fuses OK
avrdude done. Thank you.
C:\Users\
```

Well, nothing more to do, click the button to see if the modes change. If so, you can unplug the ribbon cable and replace the module into your box.

Additional information and help

<http://www.nongnu.org/avrdude/>

<http://www.ladyada.net/learn/avr/avrdude.html>

<http://www.fischl.de/usbasp/>

Linux

<http://innovelectronique.fr/2009/04/29/utilisation-davrdude-avec-usbasp/> (french)

<http://fos.cmb.ac.lk/esl/programing-avr-ubuntu-14-04-usbasp/>

Electric Tone

<http://electrictonemusic.com/>

contact@electrictonemusic.com

NOV 2017