# Programming the AVR via ISP

11:34 09.05.2018

* **RESET needs to be pulled to GND throughout whole programming time**
* 5V von Programmer ausreichend

C:\WINDOWS\system32>avrdude -v -patmega328p -cstk500v2 -PCOM9 -Uflash:w:C:\Users\David\Documents\Arduino\2017DAO\_Arduino\PCBtestAll\PCBtestAll.ino.hex:i -b 19200

avrdude: Version 5.10, compiled on Jan 19 2010 at 10:45:23

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Copyright (c) 2007-2009 Joerg Wunsch

System wide configuration file is "C:\Program Files (x86)\WinAVR 20100110\bin\avrdude.conf"

Using Port : COM9

Using Programmer : stk500v2

Overriding Baud Rate : 19200

AVR Part : ATMEGA328P

Chip Erase delay : 9000 us

PAGEL : PD7

BS2 : PC2

RESET disposition : dedicated

RETRY pulse : SCK

serial program mode : yes

parallel program mode : yes

Timeout : 200

StabDelay : 100

CmdexeDelay : 25

SyncLoops : 32

ByteDelay : 0

PollIndex : 3

PollValue : 0x53

Memory Detail :

Block Poll Page Polled

Memory Type Mode Delay Size Indx Paged Size Size #Pages MinW MaxW ReadBack

----------- ---- ----- ----- ---- ------ ------ ---- ------ ----- ----- ---------

eeprom 65 5 4 0 no 1024 4 0 3600 3600 0xff 0xff

flash 65 6 128 0 yes 32768 128 256 4500 4500 0xff 0xff

lfuse 0 0 0 0 no 1 0 0 4500 4500 0x00 0x00

hfuse 0 0 0 0 no 1 0 0 4500 4500 0x00 0x00

efuse 0 0 0 0 no 1 0 0 4500 4500 0x00 0x00

lock 0 0 0 0 no 1 0 0 4500 4500 0x00 0x00

calibration 0 0 0 0 no 1 0 0 0 0 0x00 0x00

signature 0 0 0 0 no 3 0 0 0 0 0x00 0x00

Programmer Type : STK500V2

Description : Atmel STK500 Version 2.x firmware

Programmer Model: STK500

Hardware Version: 10

Firmware Version Master : 2.10

avrdude: stk500v2\_command(): command failed

avrdude: stk500v2\_getparm(): failed to get parameter 0x9a

Topcard : Unknown

Vtarget : 5.1 V

SCK period : 8.7 us

Varef : 5.1 V

Oscillator : Off

avrdude: AVR device initialized and ready to accept instructions

Reading | ################################################## | 100% 0.04s

avrdude: Device signature = 0x1e950f

avrdude: safemode: lfuse reads as 62

avrdude: safemode: hfuse reads as D9

avrdude: safemode: efuse reads as 7

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: reading input file "C:\Users\David\Documents\Arduino\2017DAO\_Arduino\PCBtestAll\PCBtestAll.ino.hex"

avrdude: writing flash (1824 bytes):

Writing | ################################################## | 100% 2.16s

avrdude: 1824 bytes of flash written

avrdude: verifying flash memory against C:\Users\David\Documents\Arduino\2017DAO\_Arduino\PCBtestAll\PCBtestAll.ino.hex:

avrdude: load data flash data from input file C:\Users\David\Documents\Arduino\2017DAO\_Arduino\PCBtestAll\PCBtestAll.ino.hex:

avrdude: input file C:\Users\David\Documents\Arduino\2017DAO\_Arduino\PCBtestAll\PCBtestAll.ino.hex contains 1824 bytes

avrdude: reading on-chip flash data:

Reading | ################################################## | 100% 2.04s

avrdude: verifying ...

avrdude: 1824 bytes of flash verified

**avrdude: safemode: lfuse reads as 62**

**avrdude: safemode: hfuse reads as D9**

**avrdude: safemode: efuse reads as 7**

**avrdude: safemode: Fuses OK**

avrdude done. Thank you.

# Changing the Fuses

* <http://www.engbedded.com/fusecalc> für Fuse Einstellungen... Beschreibungen zu Fuses z.B. auf <http://www.martyncurrey.com/arduino-atmega-328p-fuse-settings/>

C:\WINDOWS\system32>avrdude -v -patmega328p -cstk500v2 -PCOM9 -U lfuse:w:0xff:m -U hfuse:w:0xde:m -U efuse:w:0xff:m -b 19200

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Topcard : Unknown

Vtarget : 5.1 V

SCK period : 8.7 us

Varef : 5.1 V

Oscillator : Off

avrdude: AVR device initialized and ready to accept instructions

Reading | ################################################## | 100% 0.05s

avrdude: Device signature = 0x1e950f

avrdude: safemode: lfuse reads as 62

avrdude: safemode: hfuse reads as D9

avrdude: safemode: efuse reads as 7

avrdude: reading input file "0xff"

avrdude: writing lfuse (1 bytes):

Writing | ################################################## | 100% 0.02s

avrdude: 1 bytes of lfuse written

avrdude: verifying lfuse memory against 0xff:

avrdude: load data lfuse data from input file 0xff:

avrdude: input file 0xff contains 1 bytes

avrdude: reading on-chip lfuse data:

Reading | ################################################## | 100% 0.02s

avrdude: verifying ...

avrdude: 1 bytes of lfuse verified

avrdude: reading input file "0xde"

avrdude: writing hfuse (1 bytes):

Writing | ################################################## | 100% 0.02s

avrdude: 1 bytes of hfuse written

avrdude: verifying hfuse memory against 0xde:

avrdude: load data hfuse data from input file 0xde:

avrdude: input file 0xde contains 1 bytes

avrdude: reading on-chip hfuse data:

Reading | ################################################## | 100% 0.01s

avrdude: verifying ...

avrdude: 1 bytes of hfuse verified

avrdude: reading input file "0xff"

avrdude: writing efuse (1 bytes):

Writing | | 0% 0.00s \*\*\*failed;

Writing | ################################################## | 100% 0.05s

avrdude: 1 bytes of efuse written

avrdude: verifying efuse memory against 0xff:

avrdude: load data efuse data from input file 0xff:

avrdude: input file 0xff contains 1 bytes

avrdude: reading on-chip efuse data:

Reading | ################################################## | 100% 0.02s

avrdude: verifying ...

avrdude: verification error, first mismatch at byte 0x0000

0xff != 0x07

avrdude: verification error; content mismatch

avrdude: safemode: lfuse reads as FF

avrdude: safemode: hfuse reads as DE

avrdude: safemode: efuse reads as 7

avrdude: safemode: efuse changed! Was ff, and is now 7

Would you like this fuse to be changed back? [y/n] y

avrdude: ser\_recv(): read error: Der E/A-Vorgang wurde wegen eines Threadendes oder einer Anwendungsanforderung abgebrochen.