

# How to install the **biprog** programmer

## Step 1

Install the current version of AVRStudio.

## Step 2

To be able to upgrade firmware of **biprog** directly from AVRStudio, a small modification has to be made. In STK500 subdirectory, remove or rename the „Upgrade.exe“ file. Into the same directory, copy „AvrProg.exe“ file from AvrProg subdirectory, and rename it to „Upgrade.exe“.

## Step 3

Copy all files of „xml“ type, downloadable from the **biprog** webpage, into „Partdescriptionfiles“ subdirectory. These files contain information needed by STK500 plugin to be able to program the AT89S.... and AT89LP.... microcontrollers. Only two of these files (*AT89S51.xml* and *AT89S52.xml*) are contained in the AVRStudio installation, so they are not available on the **biprog** webpage.

## Step 4

Carefully populate the board of the chosen version (RS232/USB) of **biprog**, according to the documentation (Eagle files).

Don't populate the Atmega8 microcontroller yet.

## Step 5

Using some known working programmer, program the **bootloader** (file *BootloaderDL5NEG-biprog.hex*) into the ATmega8 microcontroller. Don't forget to set the Fuses and LockBits before programming.

When using STK500, set Fuses in the following way (Fig. 1 and Fig. 2) ...

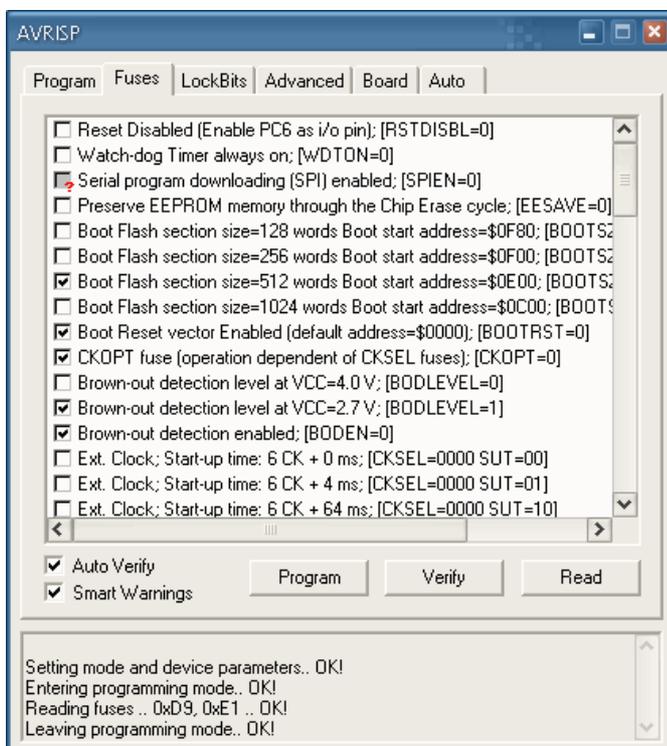


Fig. 1

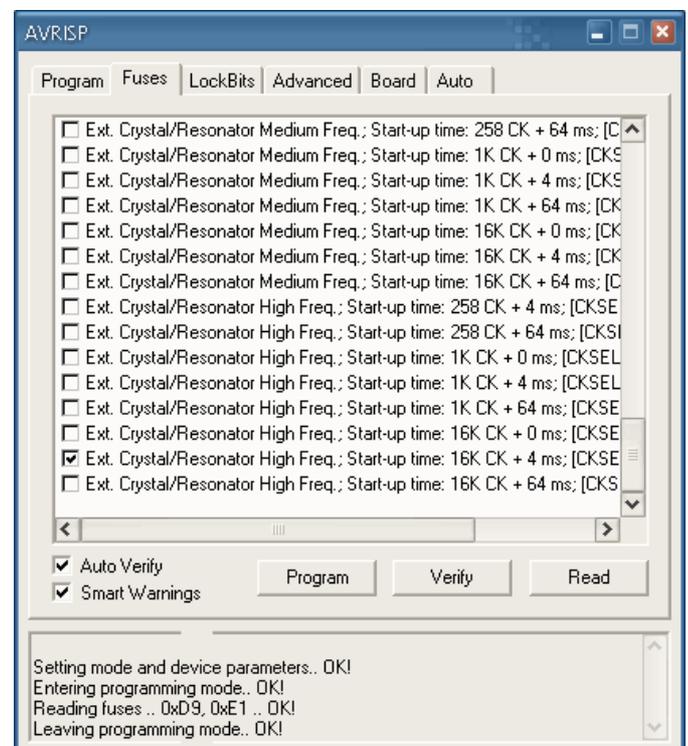


Fig. 2

... and LockBits in the following way (Fig. 3):

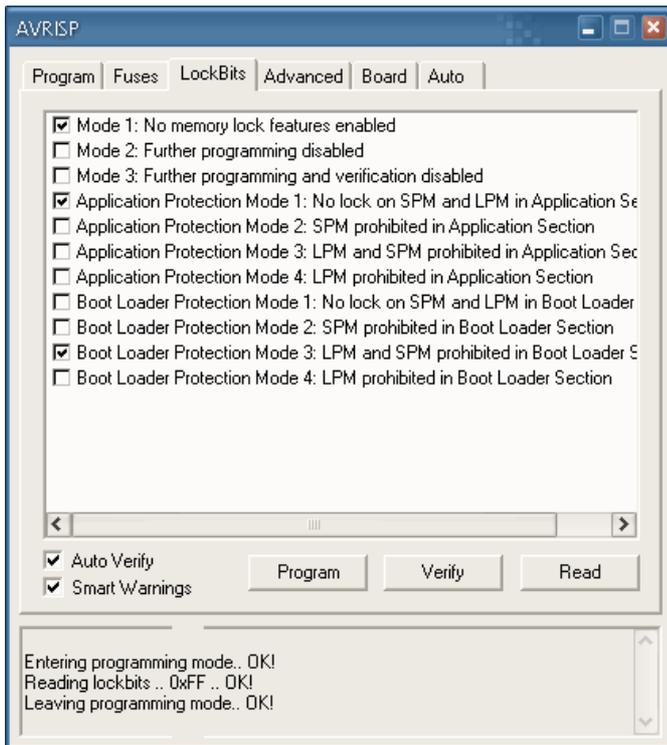


Fig. 3

If using PonyProg, everything is in one dialog window (Fig. 4):

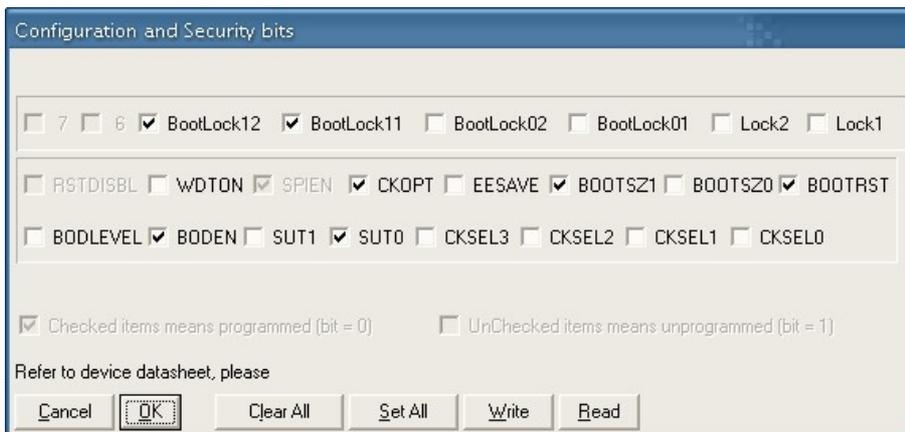


Fig. 4

### **Step 6**

Insert the programmed microcontroller into **biprolog**'s socket, and connect **biprolog** without power supply to PC.

### **Step 7**

In PC, prepare the AVRprog application so that it could be run easily.

### **Step 8**

Press and hold down **biprolog**'s push-button. Then switch on **biprolog**'s power, then release the button.

### Step 9

Quickly run AVRprog. If everything is OK, the bootloader gets activated and the following dialog is displayed Fig. 5:

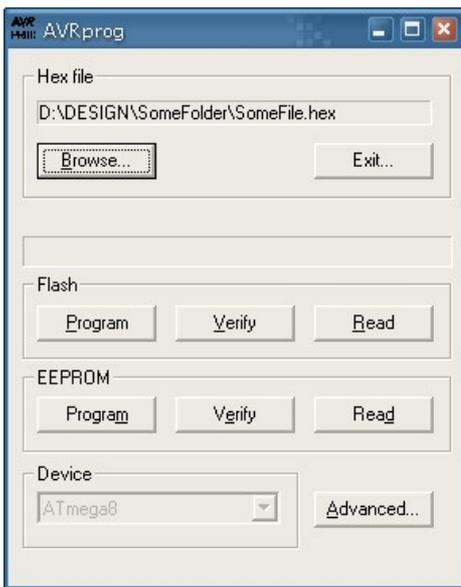


Fig. 5

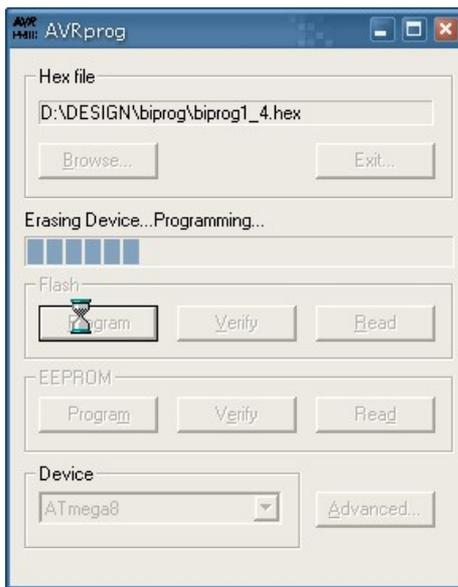


Fig. 6

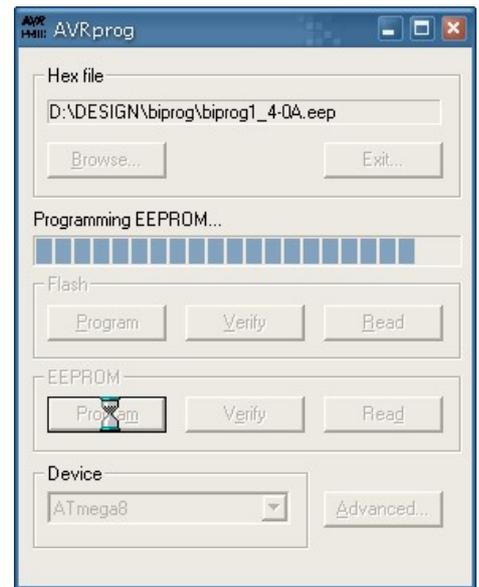


Fig. 7

### Step 10

Using **Browse** button in Hex file window, select file **biprogram1\_4.hex**, and using button **Program** in Flash window program the flash memory of **biprogram** (Fig. 6).

### Step 11

Using **Browse** button in Hex file window, select file **biprogram1\_4-0A.eep**, and using button **Program** in EEPROM window program the EEPROM memory of **biprogram** (Fig. 7).

### Step 12

Using buttons **Exit...** and **X** leave AVRprog (Fig. 7 and Fig. 8).



Fig.7



Fig. 8

In this moment, **biprogram** is ready and prepared to be used.

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### **Remark for the AT89S2051/AT89S4051 and AT89LP2052/AT89LP4052 microcontrollers**

All these MCU have a writable/readable user signature of up to 32 bytes.

The STK500 plugin has unfortunately no suitable programming function for the signature. I made use of the fact, that these microcontrollers have no EEPROM. So, writing and reading of the user signature in these microcontrollers is accomplished as writing and reading of EEPROM (of 32 byte length!).

*Translated by wek at efon dot sk*