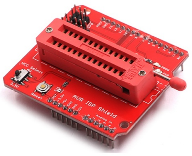

ARDUINO DEV-11168 AVR ISP Shield PTH Kit User Manual

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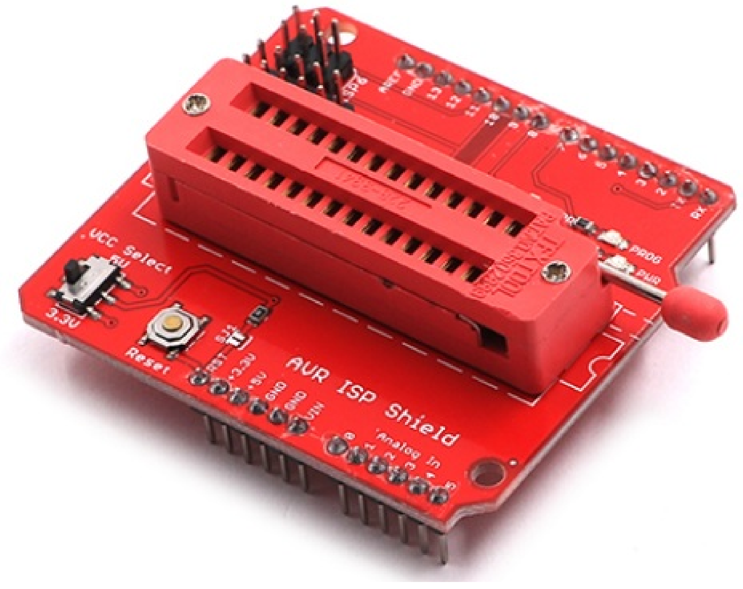
ARDUINO DEV-11168 AVR ISP Shield PTH Kit



Product Information

- **Product Name:** Arduino Shield AVR ISP
- **Model Number:** DEV-11168
- **User's Manual:** Available

Product Usage Instructions

1. Open the ArduinoISP firmware (in Examples) on your Arduino board.
2. Make a small change to the ArduinoISP code if you are using Arduino 1.0. Find the line in the heartbeat() function that says delay(40); and change it to delay(20);.
3. Select the appropriate board and serial port from the Tools menu that corresponds to the programmer board (not the board being programmed).
4. Upload the ArduinoISP sketch to your Arduino board.
5. Wire your Arduino board to the target board following the diagram provided. For Arduino Uno, remember to add a 10 uF capacitor between reset and ground.
6. Select the appropriate board from the Tools menu that corresponds to the board on which you want to burn the bootloader (not the programmer board).
7. Use the Burn Bootloader > Arduino as ISP command.

Note: This procedure works for boards with SPI signals on the indicated pins. For boards like Leonardo, where this is not valid, you need to connect the SPI signals to the ISP connector using the pinout provided.

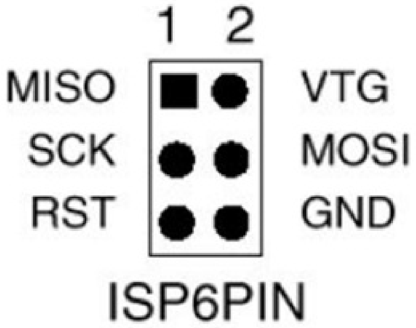
Using an Arduino as an AVR ISP (In-System Programmer):
This tutorial explains how to use an Arduino board as an AVR ISP (in-system programmer). This allows you to use the board to burn the bootloader onto an AVR (e.g. the ATmega168 or ATmega328 used in Arduino). The code in this example is based on the mega-isp firmware by Randall Bohn.

Instructions

To use your Arduino board to burn a bootloader onto an AVR, you need to follow a few simple steps.

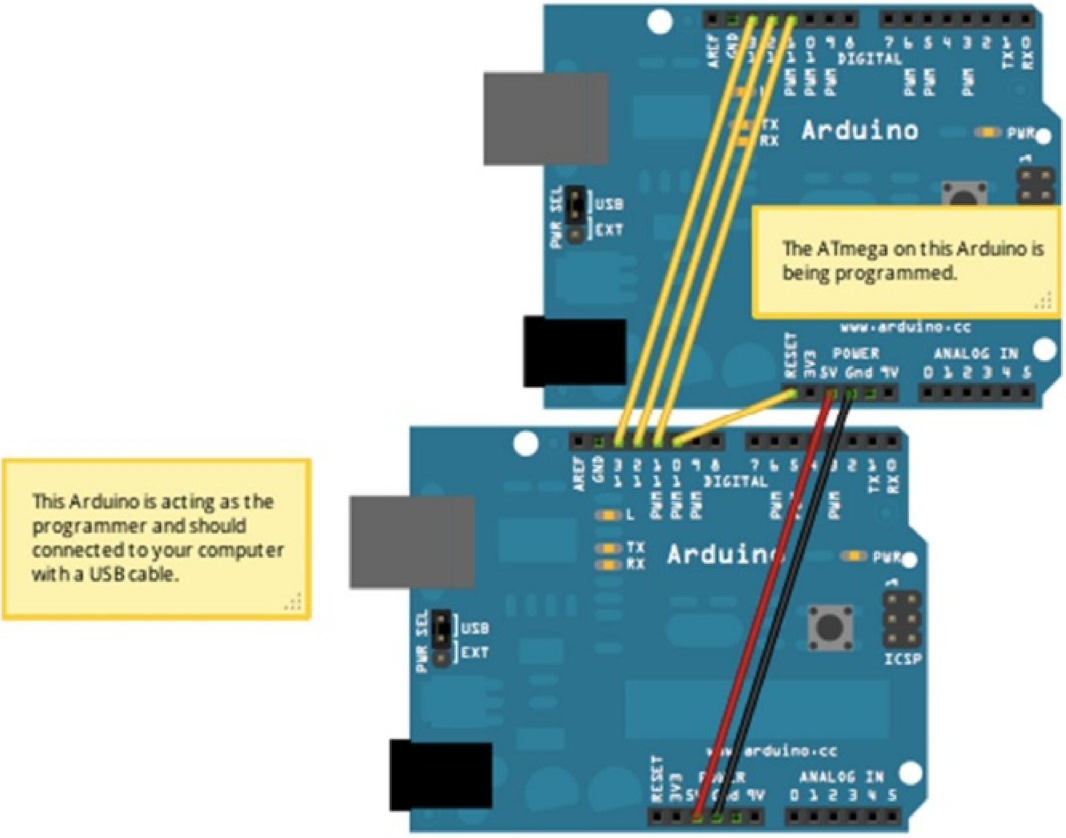
1. Open the ArduinoISP firmware (in Examples) to your Arduino board.
2. Note for Arduino 1.0: you need to make one small change to the ArduinoISP code. Find the line in the heartbeat() function that says "delay(40);" and change it to "delay(20);".
3. Select the items in the Tools > Board and Serial Port menus that correspond to the board you are using as the programmer (not the board being programmed).
4. Upload the ArduinoISP sketch.
5. Wire your Arduino board to the target as shown in the diagram below. (Note for the Arduino Uno: you'll need to add a 10 uF capacitor between reset and ground.)
6. Select the item in the Tools > Board menu that corresponds to the board on which you want to burn the bootloader(not the board that you're using as the programmer). See the board descriptions on the environment page for details.
7. Use the Burn Bootloader > Arduino as ISP command.

Note: This procedure works with the boards that have the SPI signals on the indicated pins. For boards for which this isn’t valid (32u4 boards like Leonardo) the SPI signals have to be connected to the ISP connector whose pinout is reported below.



Circuit

Circuit (targeting Arduino Uno, Duemilanove, or Diecimila):

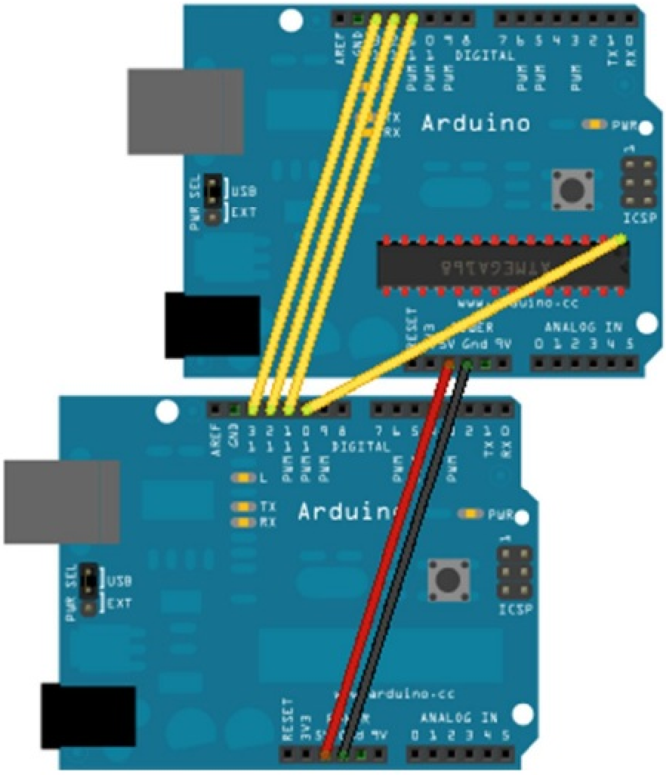


The ATmega on this Arduino is being programmed.

This Arduino is acting as the programmer and should connected to your computer with a USB cable.

An Arduino board serving as an ISP to program the ATmega on another Arduino board. On the Arduino Uno, you’ll need to connect a 10 uF capacitor between reset and ground (after uploading the ArduinoISP sketch). Note that you need access to the reset pin on the target board, which isn’t available on NG or older boards.

Circuit (targeting Arduino NG or older):

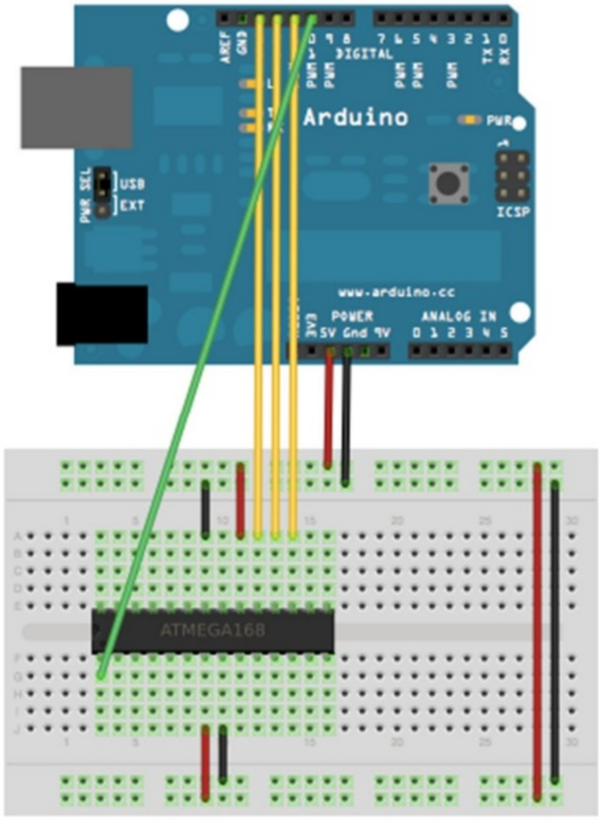


The ATmega on this Arduino is being programmed. If it is a model with no reset pin (Arduino NG and earlier), then touch the reset wire to pin 1 if the Atmega8 chip on the board, as shown.

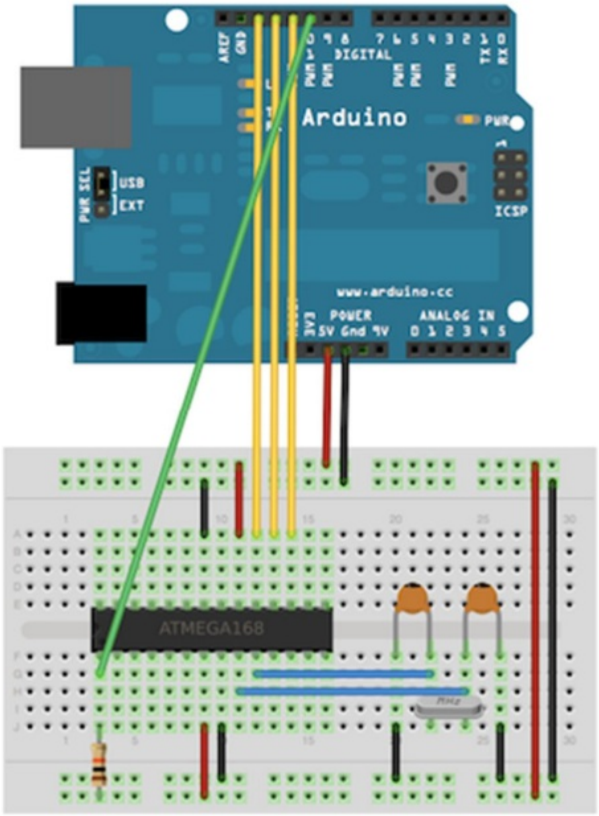
This Arduino is acting as the programmer and should connected to your computer with a USB cable.

On NG or older boards, connect the reset wire to pin 1 of the Atmega chip on the board, as shown above.

Circuit (targeting an AVR on a breadboard):
See the Arduino to Breadboard tutorial for details.

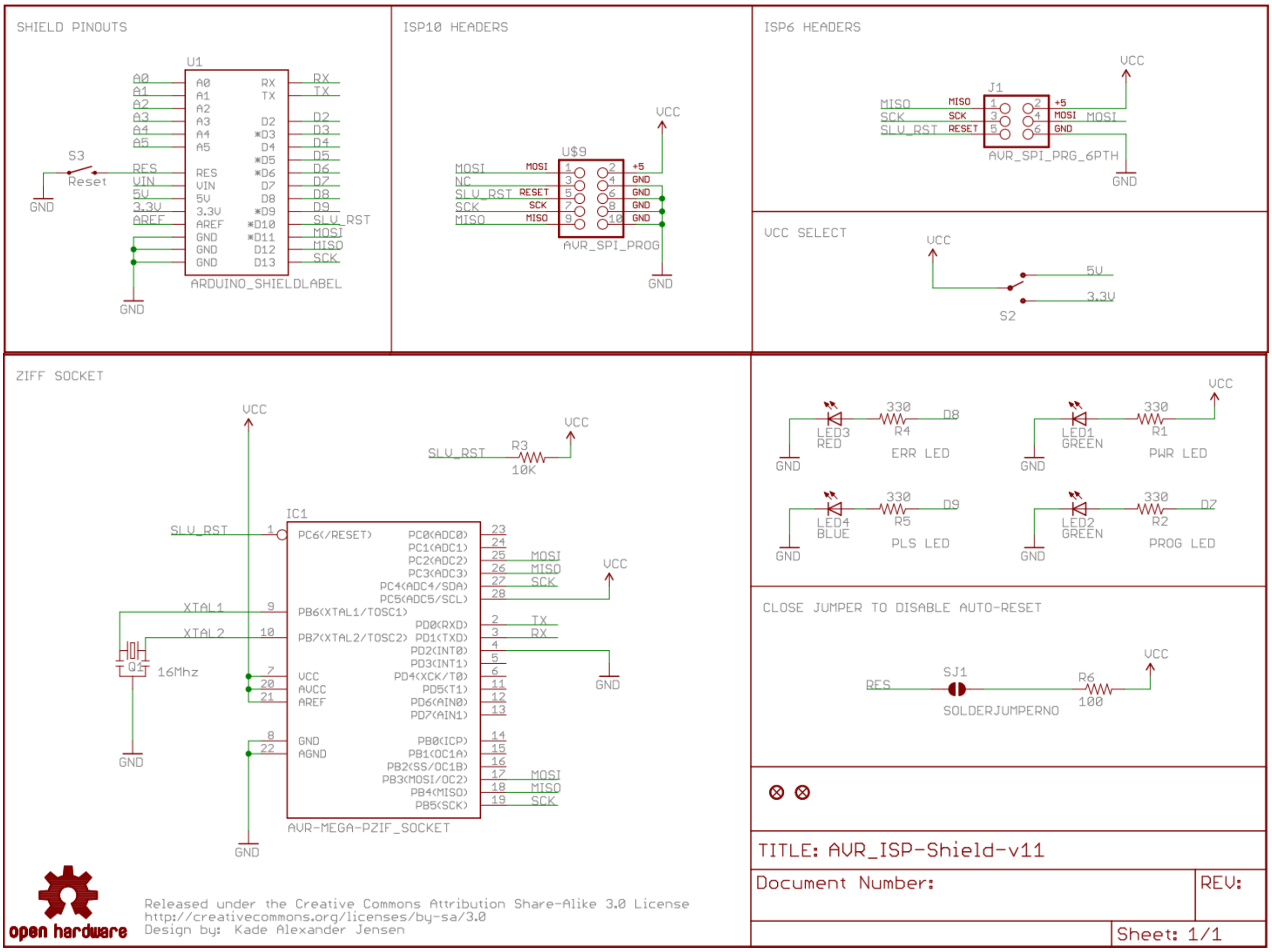


Using an Arduino board to program an ATmega. Because no external clock source is connected, the ATmega must be configured to use its internal clock.



Using an Arduino board to program an ATmega, with external crystal and associated capacitors (18 or 22 picofarads).

WIRING



Documents / Resources

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