

Easy Guide (English)

Why update?

Installing the latest **firmware** lets your RAM-Tester run faster, recognise more memory chips and – if you like – drive a small OLED display.

To load the update you need **either**

1. a dedicated ATMEGA AVR-programmer, **or**
2. a spare **Arduino UNO** that temporarily acts as the programmer.

Below we show the simplest method with an Arduino UNO.

WARNING: Upgrade / Installation Procedure has been changed after Firmware 4.0.1!

What you need beforehand

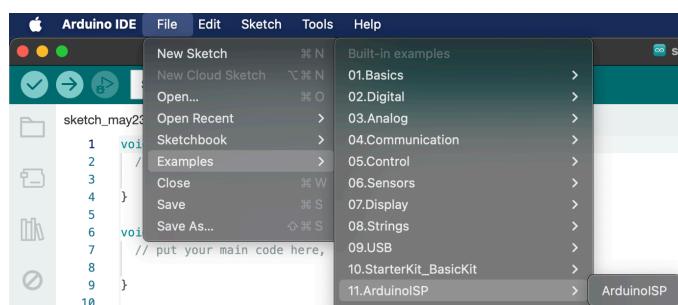
Item	Purpose
Arduino UNO	will act as the “programming tool”
USB lead	links the UNO to your PC/Mac
6-wire ICSP lead	goes between UNO and RAM-Tester
Newest Arduino IDE	free download from arduino.cc

Step 1 – Turn the UNO into a programmer

1. Open the **Arduino IDE**.
2. Click **File** → **Examples** → **11.ArduinoISP** → **ArduinoISP**.
3. Open **Tools** and select
 - **Board:** “Arduino UNO”
 - **Port:** the UNO’s COM port
4. Press **Upload** (▶).

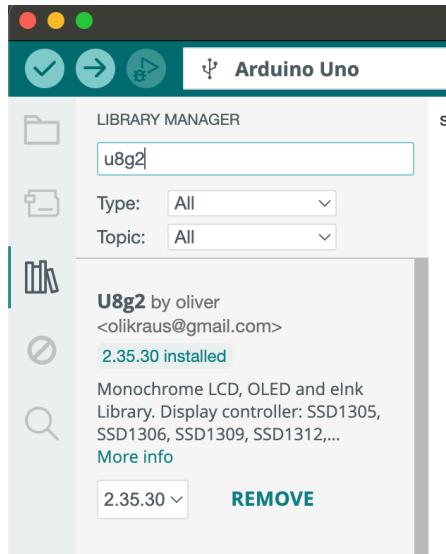
After a few seconds the IDE reports “**Upload complete.**”

Your UNO is now an AVR programmer.

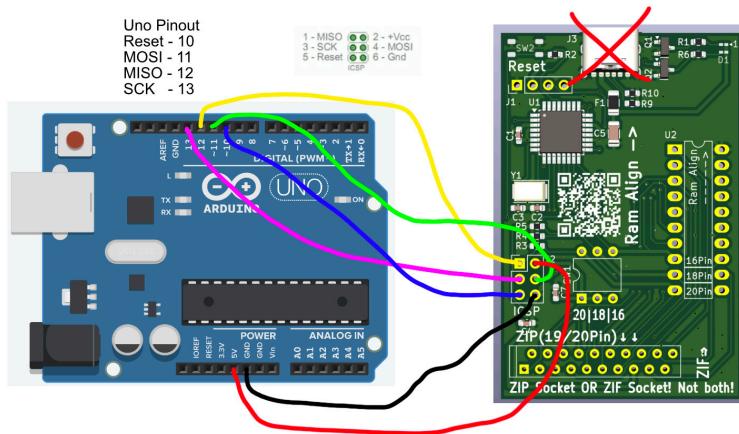


Step 2 – Prepare the firmware and OLED library

1. In the IDE choose **File** → **Open** and load **Ram_Tester.ino** from GitHub.
2. The new firmware can drive an OLED screen. If your IDE does not yet have the library, install **U8G2**:
 - Click the **library icon** in the left bar (looks like books).
 - Search for **U8G2** and press **Install**.



Step 3 - Connect the UNO to the RAM-Tester



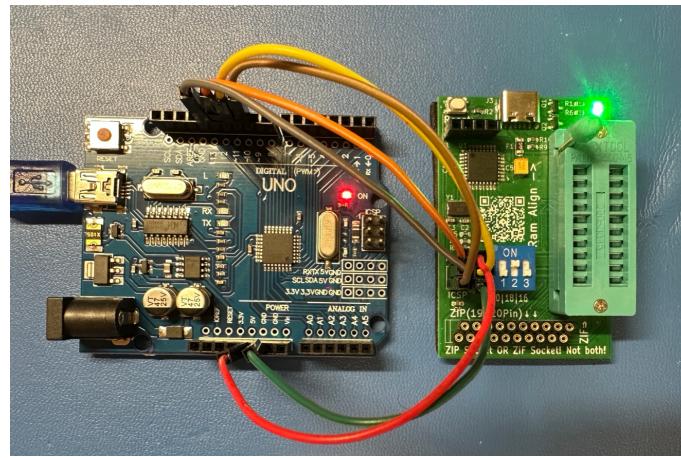
There is **no factory-fitted ICSP header** on the RAM-Tester because it would hinder to use the DIP switches. You can:

1. **Solder six short wires** to the pads and plug the ICSP lead on, or
2. **Hold the programmer pins at a slight angle** in the holes, keeping light pressure so they stay in contact while flashing.

Some early boards have a clear protective varnish ("Chemie-Plastik" spray). If yours is coated, gently scrape or wipe the six ICSP pads clean first (a cotton bud and solvent help) – otherwise the pins will not make contact.

Tip: The through-hole (TH) board can be updated the same way; the ICSP pin-out is identical.

Warning: During programming the RAM-Tester is powered from the Arduino. Do not plug a second USB-C lead into the tester at the same time.



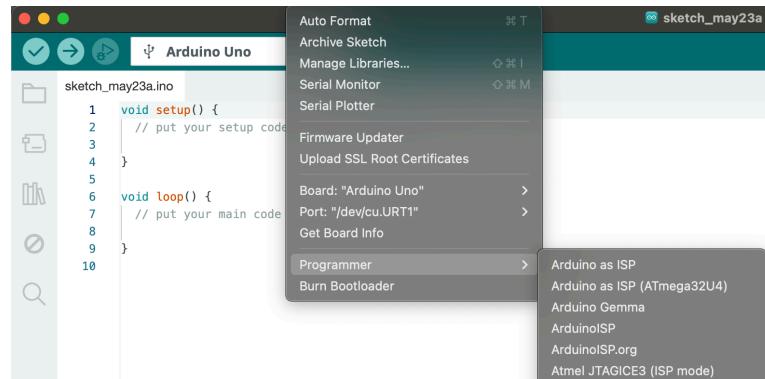
The Following Steps 4 & 5 are for Firmware up to 4.0.1!

For newer Firmware check next page!

Step 4 – Upload the firmware to the RAM-Tester

1. In **Tools → Programmer** select “**Arduino as ISP**” (without “.org”).
2. Choose **Sketch → Upload Using Programmer**.

The IDE compiles the code (this may take a moment) and then sends it through the UNO to the RAM-Tester.



Step 5 – Check the result

- If all is well the IDE shows “**Upload complete.**”
- If you see an error, almost always the wiring is wrong – check all six leads.



For the new Firmware (4.0.5 and newer), you need to install a new «Board». Go to the preferences of the IDE and add the following to the Additional Boards Manager URL (bottom of Window):

https://mcudude.github.io/MiniCore/package_MCUDude_MiniCore_index.json

Close the Preferences and wait until the IDE has loaded the Files. Click on the Board Manager Icon on the left Side of the IDE:



In the Search Window type «MINI» and look for the Entry:

Click Install.

In the Menu «Tools» Select the following Settings:

Board: «ATmega328» from MiniCore

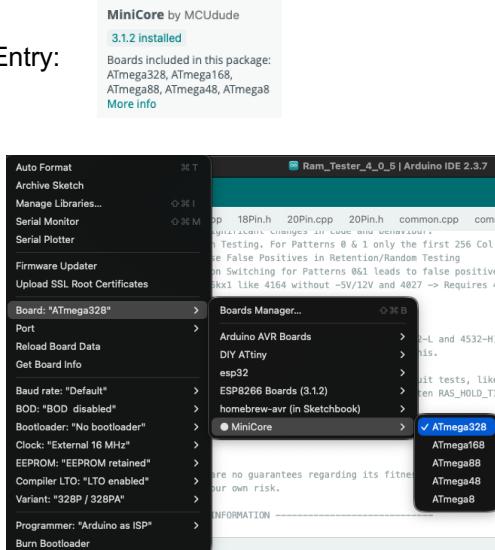
BOD: Disabled

Bootloader: No Bootloader

Clock: External 16MHz

Compiler LTO: LTO enabled

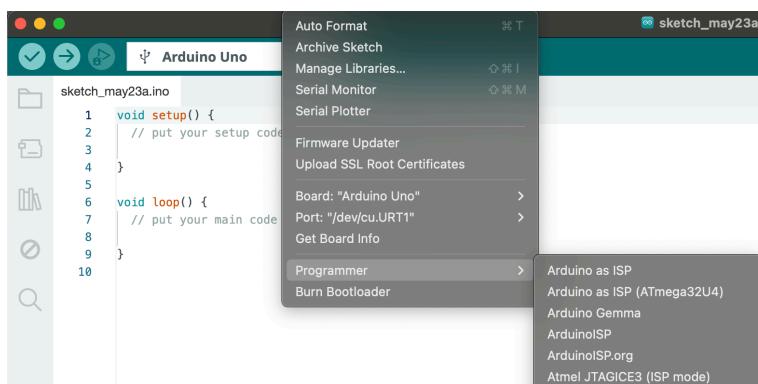
Variant: 328P/328PA



Step 4 – Upload the firmware to the RAM-Tester

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The IDE compiles the code (this may take a moment) and then sends it through the UNO to the RAM-Tester.



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