

Watchdog Chip

Programming Procedure

Tools needed



Watchdog Programmer



Watchdog Chip Attiny45-PU



USB type A to USB Micro

Link: [Watchdog Chip](#)
Software and Programs
(Do not restructure this folder)



Working PC

Rules to be followed strictly before proceeding.

This process should only be done in a programming PC that has local “admin account” – Please contact Sysadmin for the setup of this programming station PC. Please follow this strict rules for this guide.

1. Do not attempt to do the programming to a regular **CoinOp Workstation PC**.
2. Download the software to a regular PC and use USB thumb drive to transfer the files to the programming PC.
3. Some of the software is community version and has no security certificate. This does not mean it is harmful to the system but rather not an official software only.

Steps Summary and Description

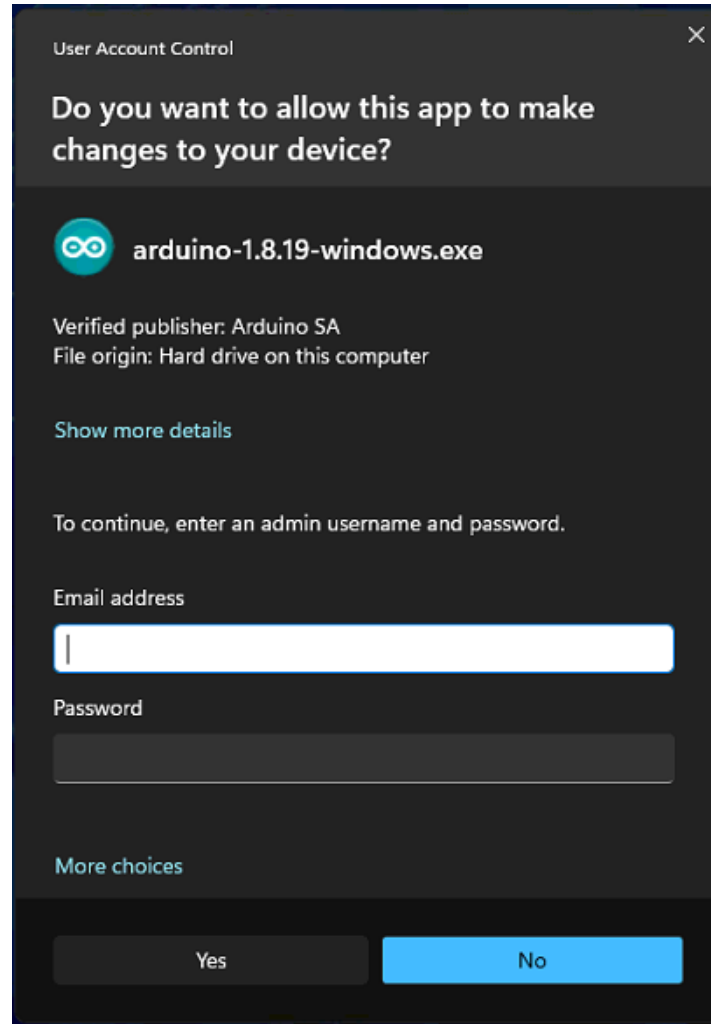
Step	Description
1. Software Preparation	Perform the initial setup of the Windows PC or laptop that will be used for Watchdog Chip programming. This includes installing the Arduino IDE and ATTinyCore 1.5.2 , which provides support for programming the ATtiny45. This is a one-time setup and does not need to be repeated for each Watchdog Chip.
2. IDE & Programmer Preparation	Configure the Arduino IDE for the ATtiny45 and select the required programming settings, including the 1 MHz internal clock and USBtinyISP (ATTinyCore) SLOW programmer. Connect the Watchdog Programmer to the PC and correctly position the ATtiny45-PU in the programmer socket.
3. Chip Configuration (Burn Bootloader)	Perform Burn Bootloader to configure the ATtiny45 according to the selected clock and chip settings. Although the selected board is ATtiny25/45/85 (No bootloader) , this step is used to apply the required chip configuration before uploading the Watchdog program. Confirm successful completion before proceeding.
4. Watchdog Program Upload	Upload the approved raspberrypiReset20210604.ino program to the ATtiny45. Monitor the Arduino IDE status and confirm “Done Uploading” before removing the programmed chip. To program another Watchdog Chip, install the next ATtiny45 and repeat the chip configuration and program upload procedure.

Software Preparation

Download all CoinOp Coinbill programs and extract to Desktop in this link: [Watchdog Programs](#)

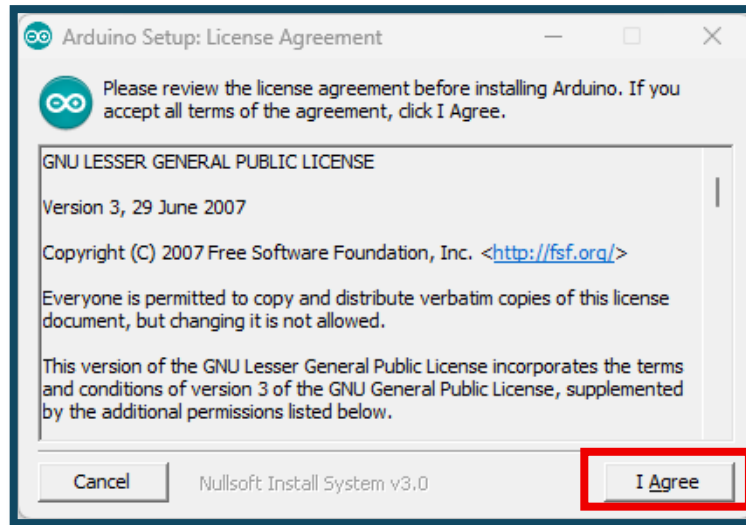
Arduino Software Installation (IDE)

1. Go to your downloaded file location and double click on **arduino-1.8.19-windows.exe**
2. A security prompt may appear during the installation. Contact your Tech Support for guidance.

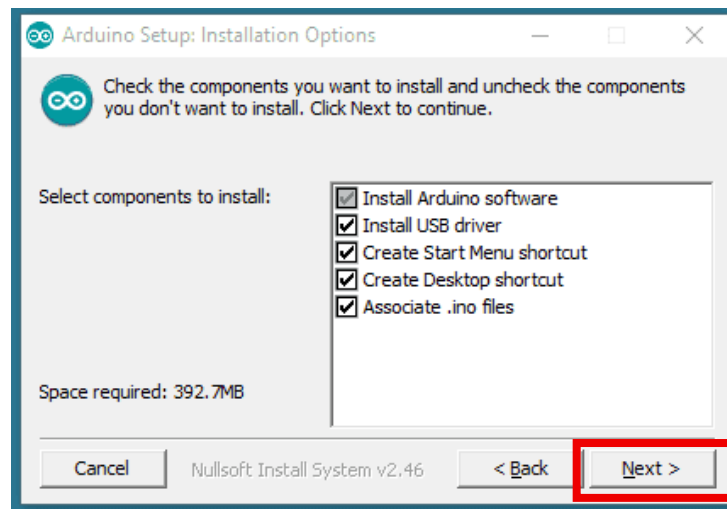


3. Follow these steps below:

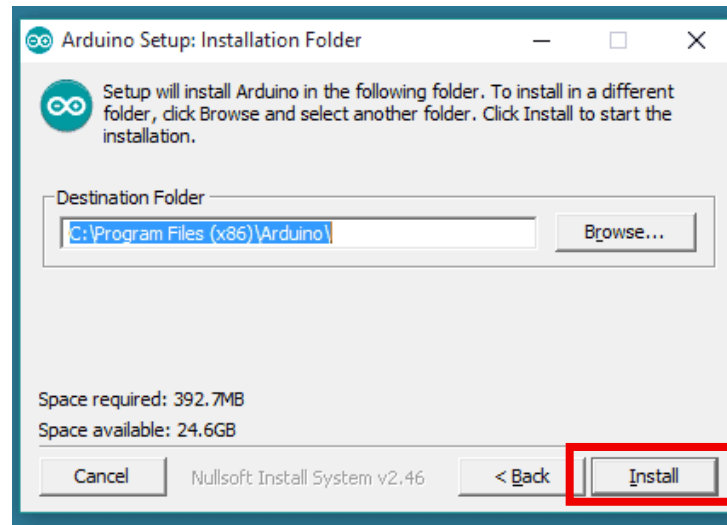
1. Click **I Agree** when prompt with License Agreement pop up.



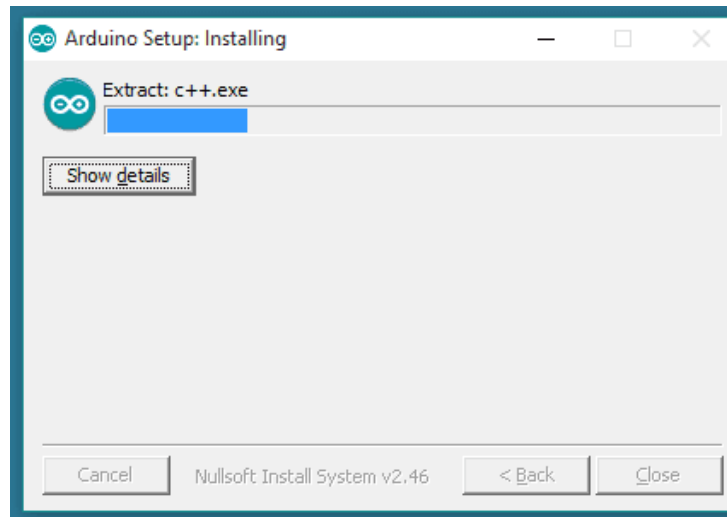
2. Check all component boxes to install. And click **Next** button.



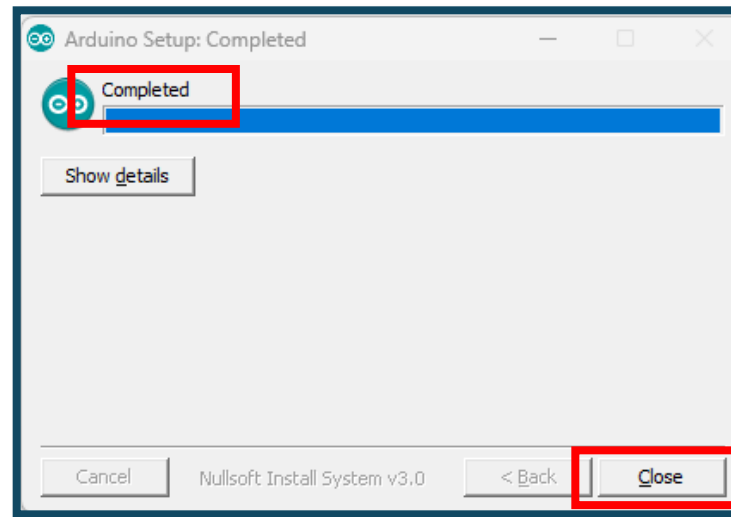
3. Choose the installation directory



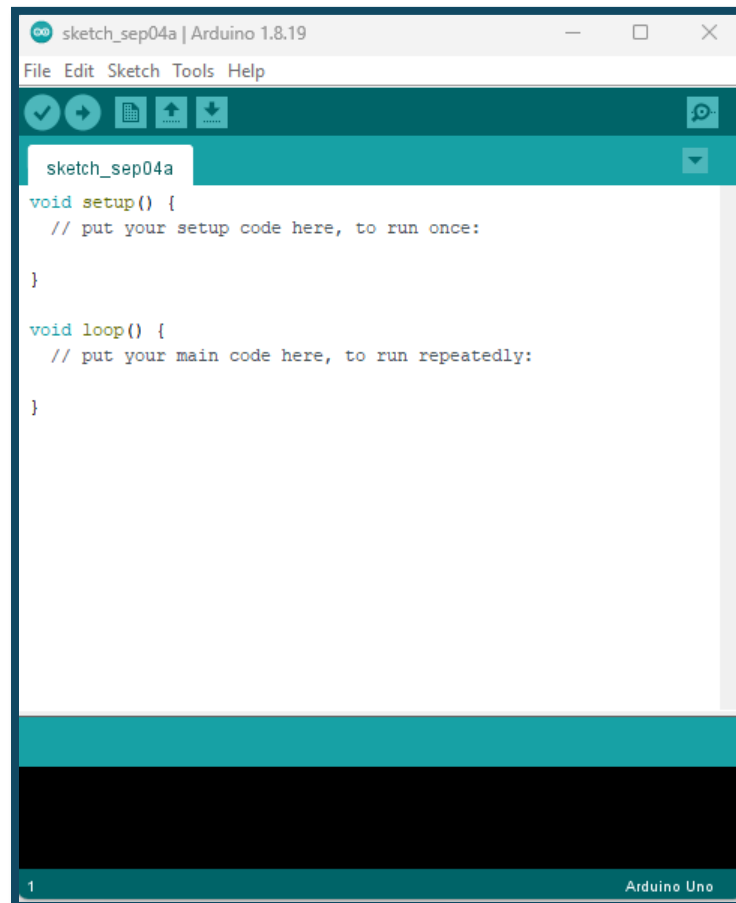
4. Waiting for it to finish the installation



5. Click close when completed

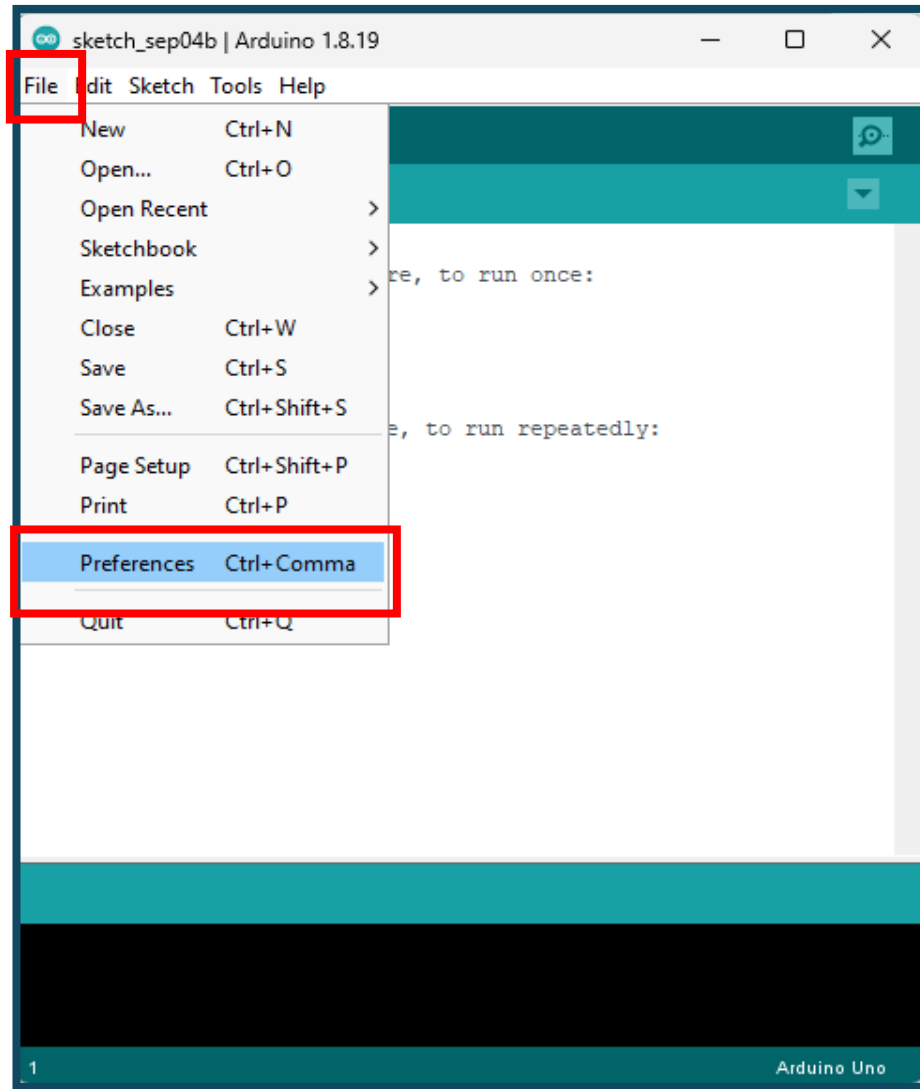


6. Open Arduino IDE you just installed



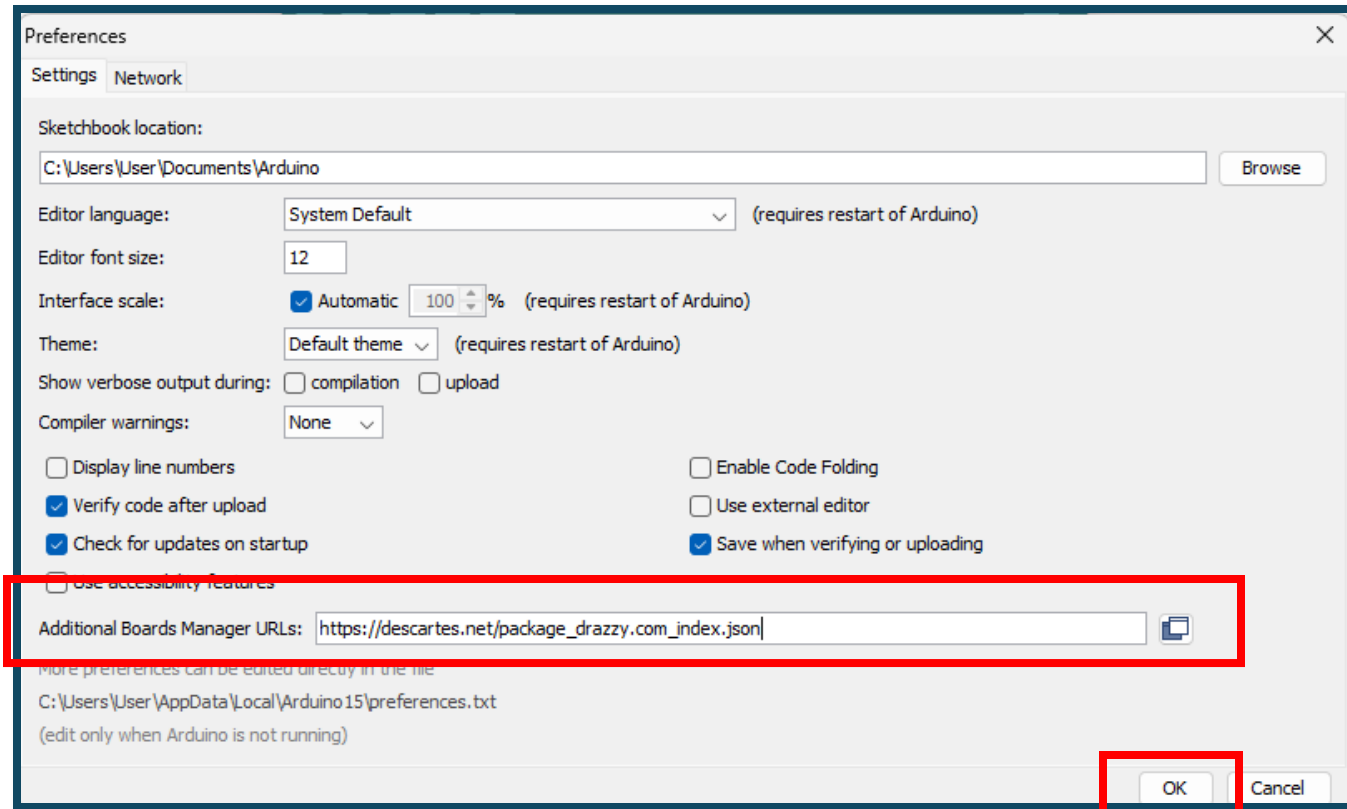
7. Goto **File** then click on the **Preference**

7.



7. On the additional Board Manager URLs section type in below URL and click OK

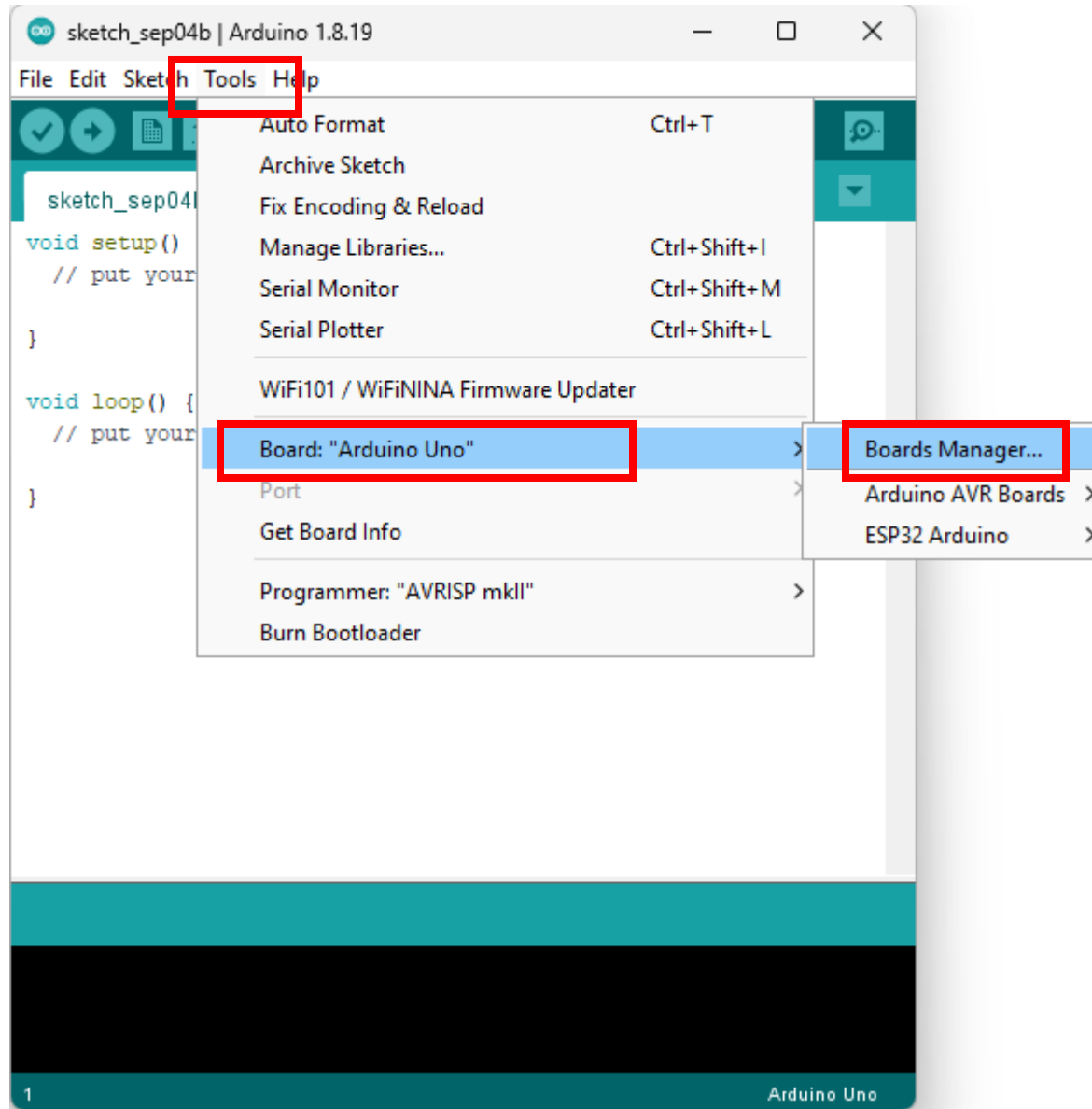
https://descartes.net/package_drazzy.com_index.json



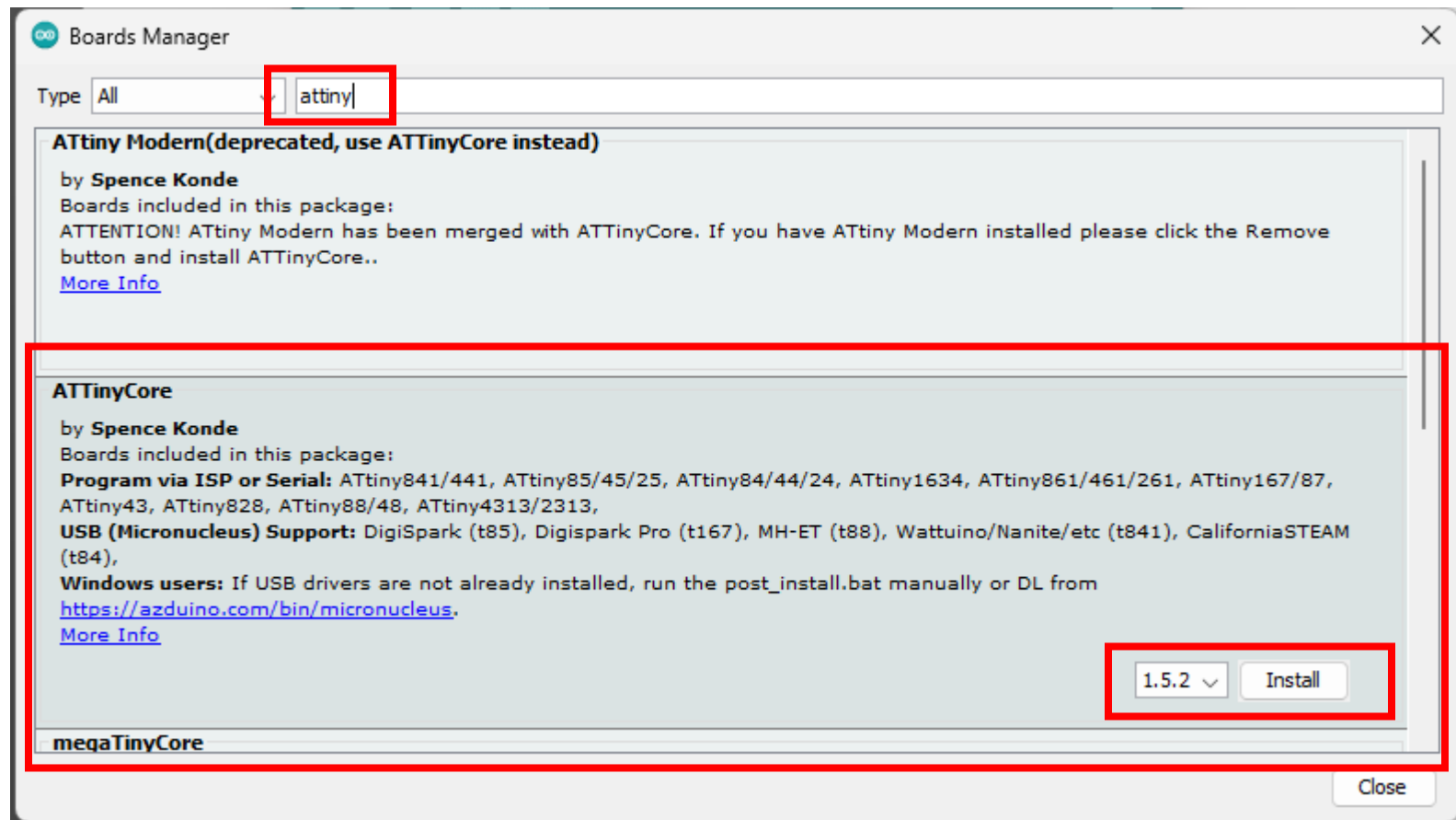
Note:

1. Make sure that the URL is typed in completely and not a single character less.
2. Contact tech support for additional support

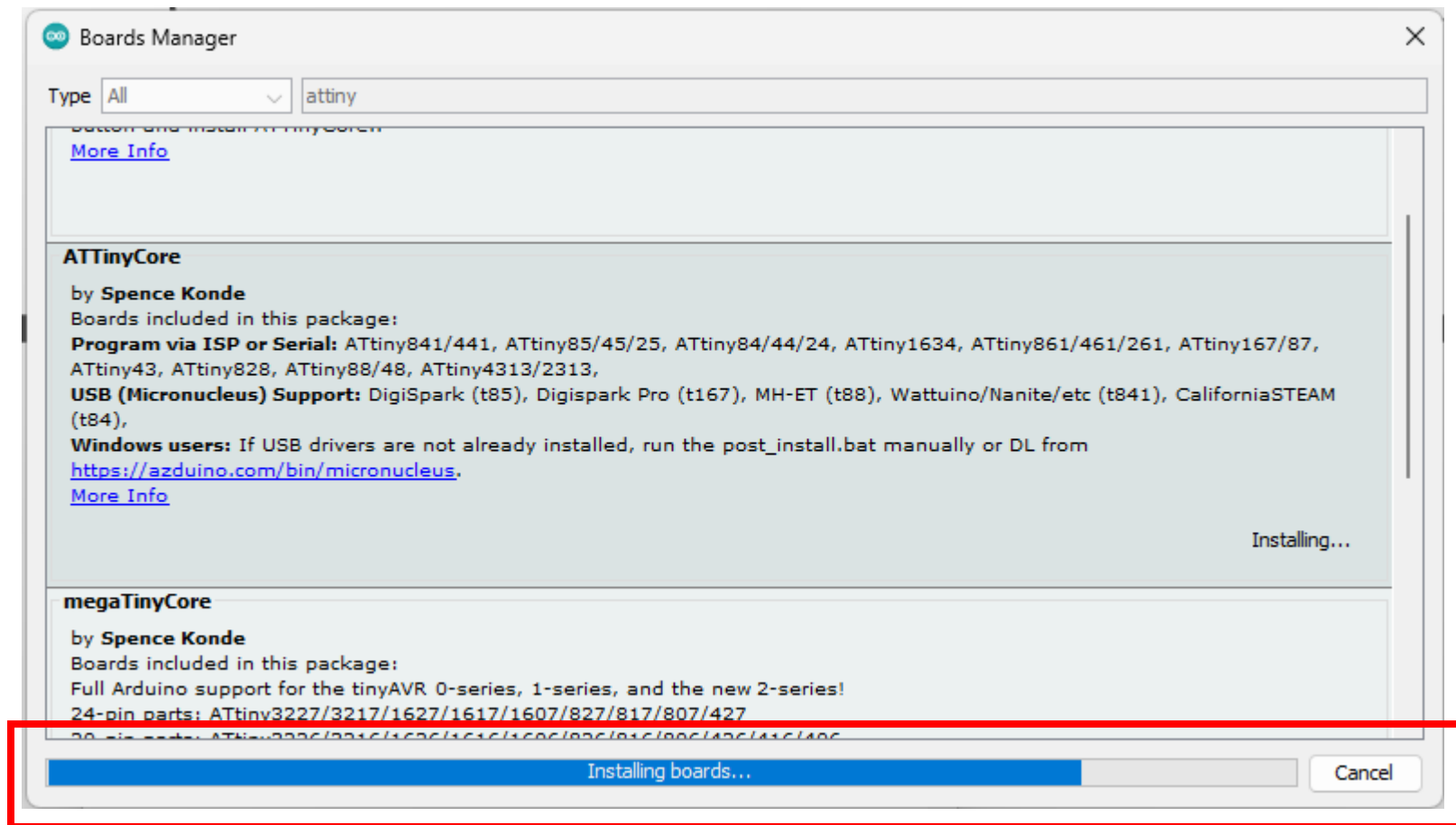
8. Goto Tools>Board>Board Manager



- a. On the search box type in “attiny”
- b. Look for the ATTinyCore by Spence Konde
- c. Choose 1.5.2 then click on install



9. Wait for it to finish downloading and installing.

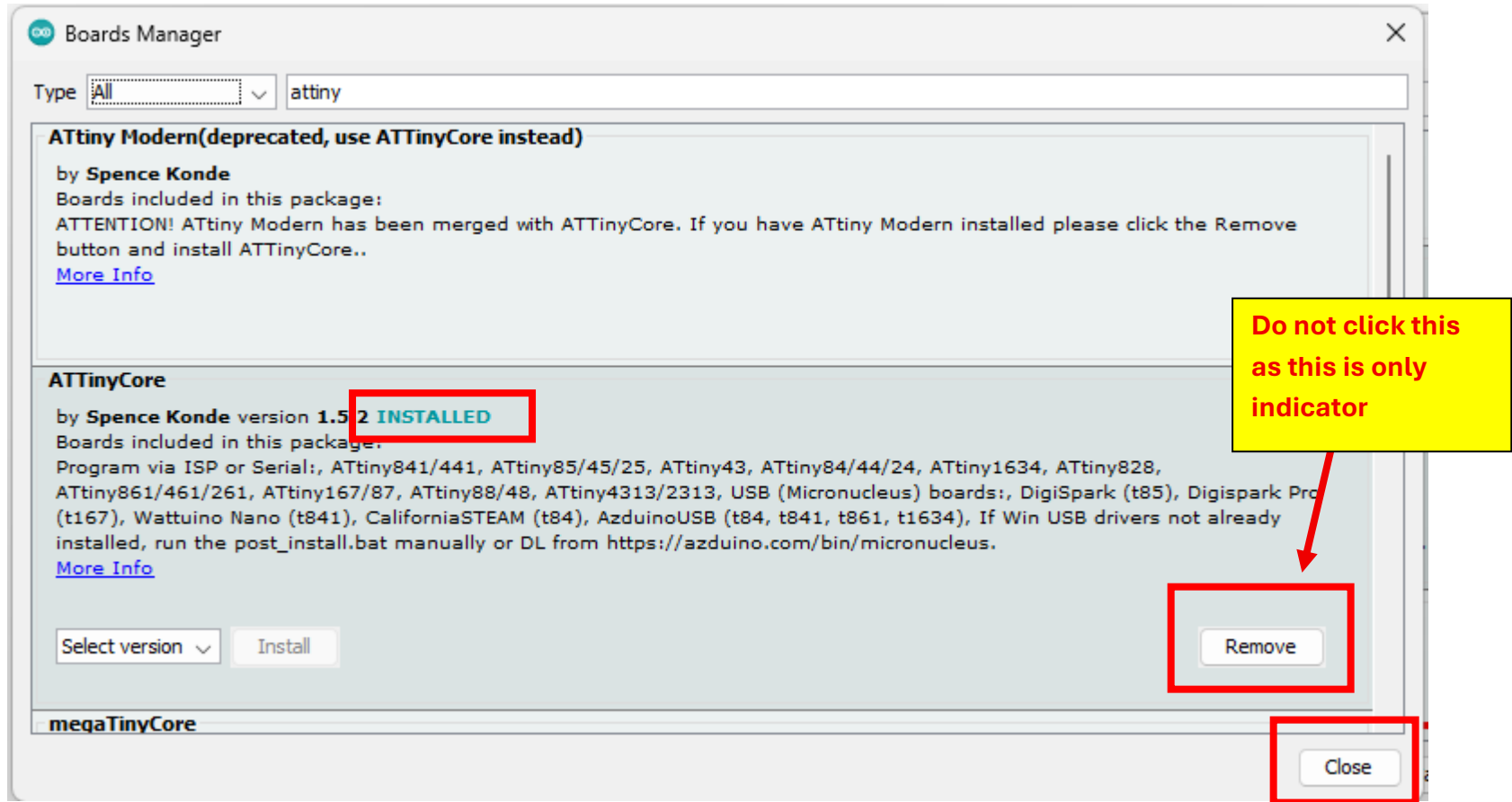


Note:

1. Board installer indicator is visible on the bottom part of the pop up

10. Complete installation

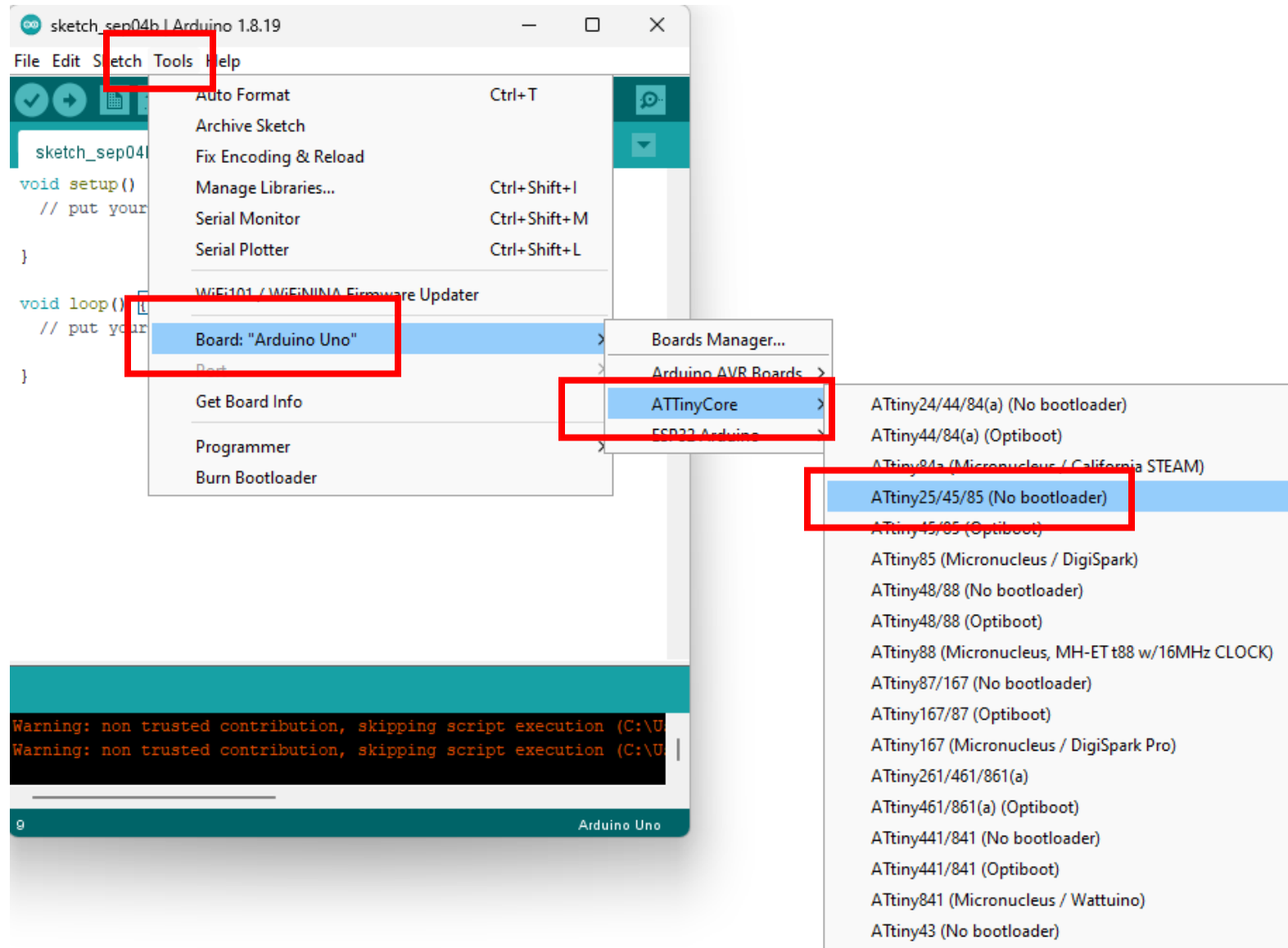
- Once installation is complete will see a remove button instead of install.
- A word INSTALLED is also visible under the plug in section
- Click Close



Note: Do not click anything except for “Close Button”

11. Setup IDE to program watchdog chip

a. Click on **Tools>Board>AttinyCore** then select **ATtiny25/45/85 (No Bootloader)**



b. Click on **Tools** and set the following settings

Board: ATtiny25/45/85 (No bootloader)

Chip: ATtiny45

Clock Source: 1 MHz (internal)

Timer 1 Clock: CPU (CPU frequency)

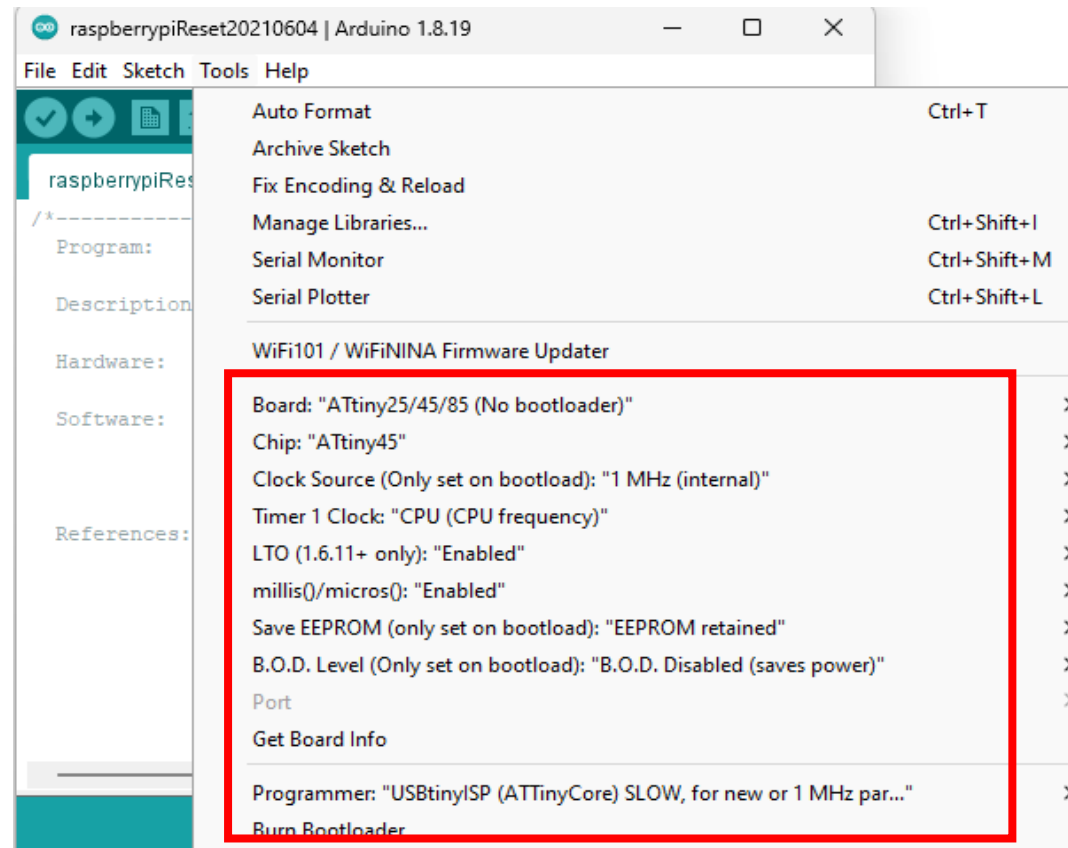
LTO (1.6.11+ only): Enabled

millis()/micros(): Enabled

Save EEPROM (only set on bootloader): EEPROM retained

B.O.D. Level (Only set on bootloader): B.O.D. Disabled (saves power)

Programmer: USBtinyISP (ATTinyCore) SLOW, for new or 1 MHz parts



c. Close the IDE to save the settings

Watchdog Chip Program Upload

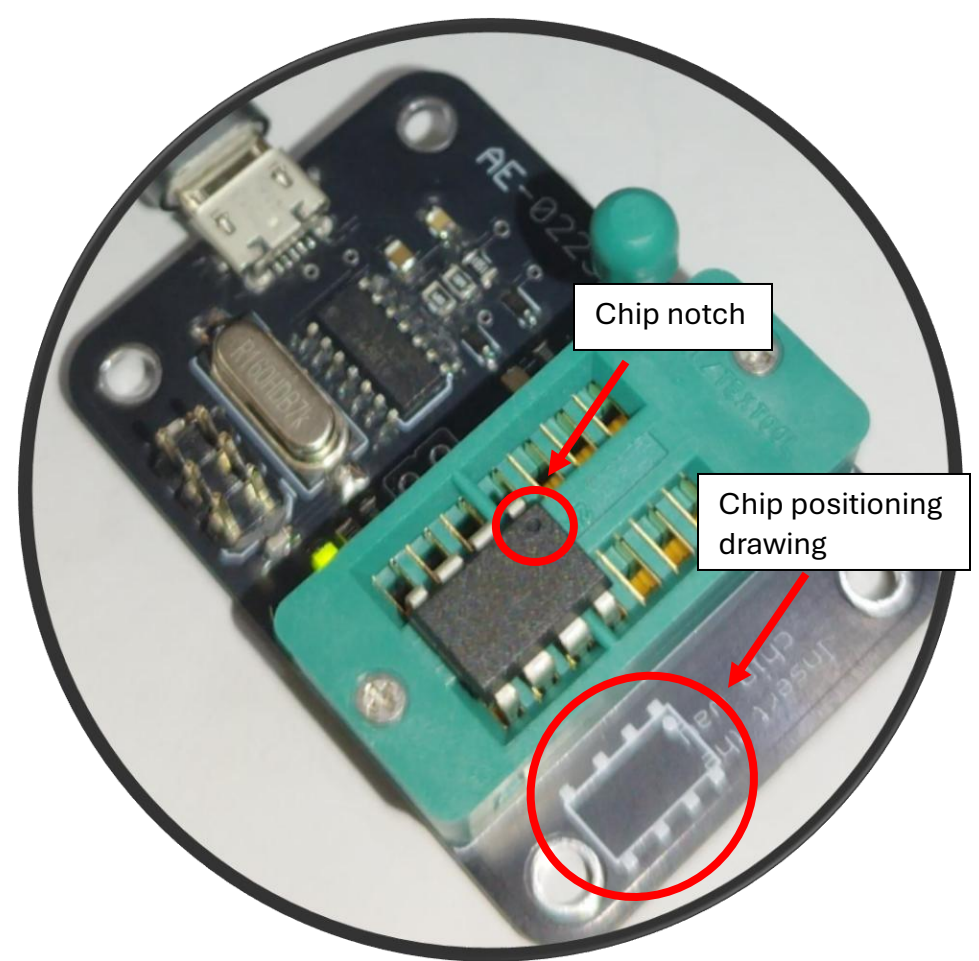
1. Connect the programmer to a **working PC** using the **USB A to USB micro cable**



2. Pull the programmer lever UP



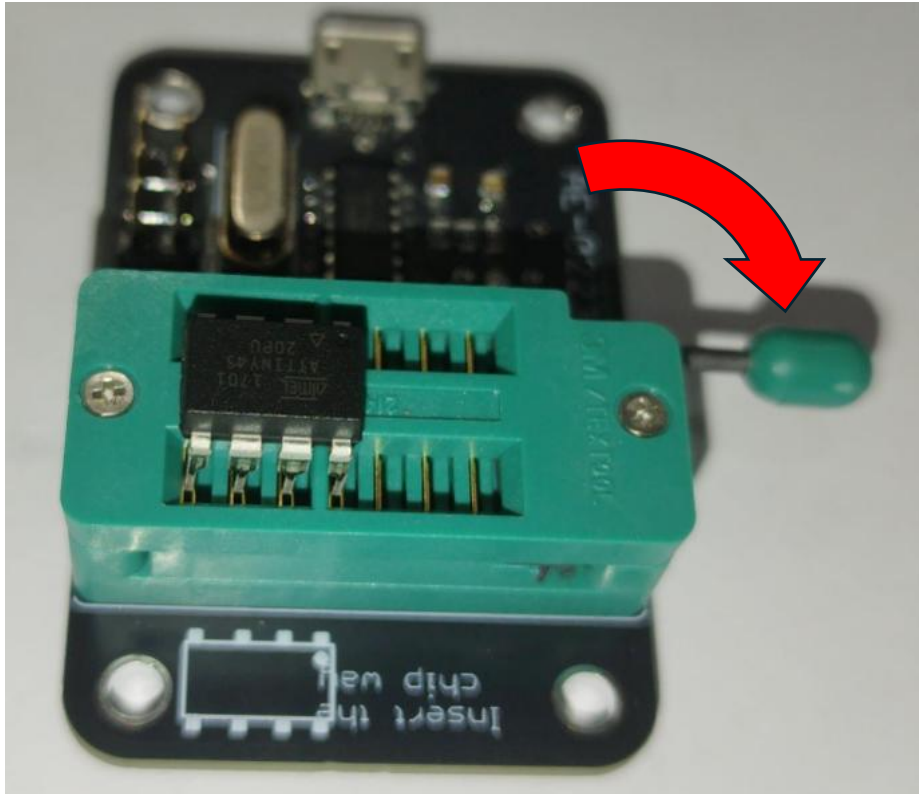
3. Insert the chip



Chip position guide:

1. Notch should be in the fourth pin slot from the bottom
2. Follow the chip position drawing in the side of the board
3. The chip and the drawing should be aligned properly

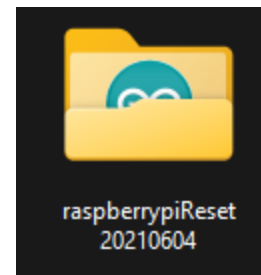
4. Lock the chip into the programmer by pulling down the programmer lever



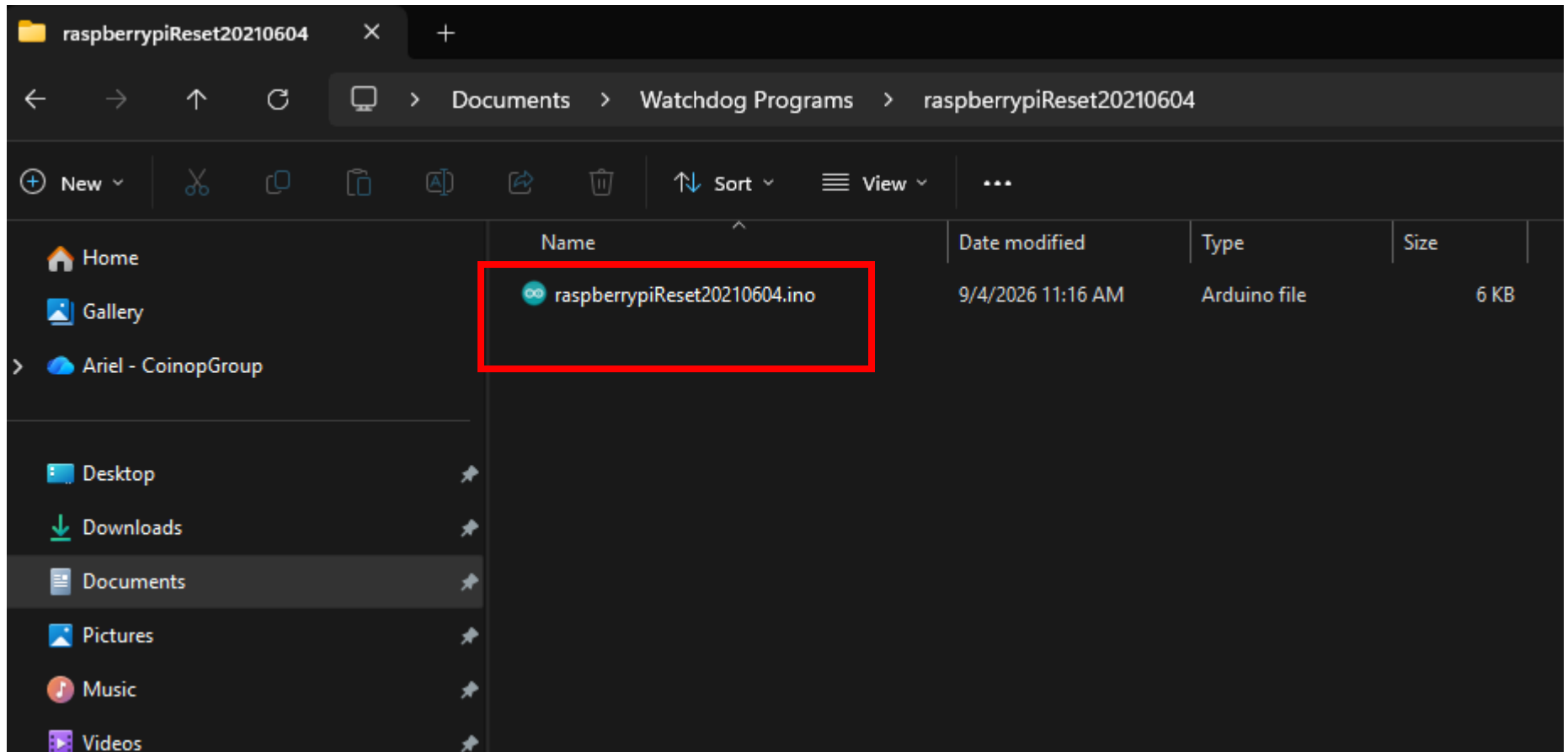
Note:

1. Make sure that the chip is properly positioned before locking in.
2. There should be very minimal pressure when locking the chip in. If it's hard to pull down, don't force it and check the position again.

5. On your downloaded file browse the **raspberrypiReset20210604** folder

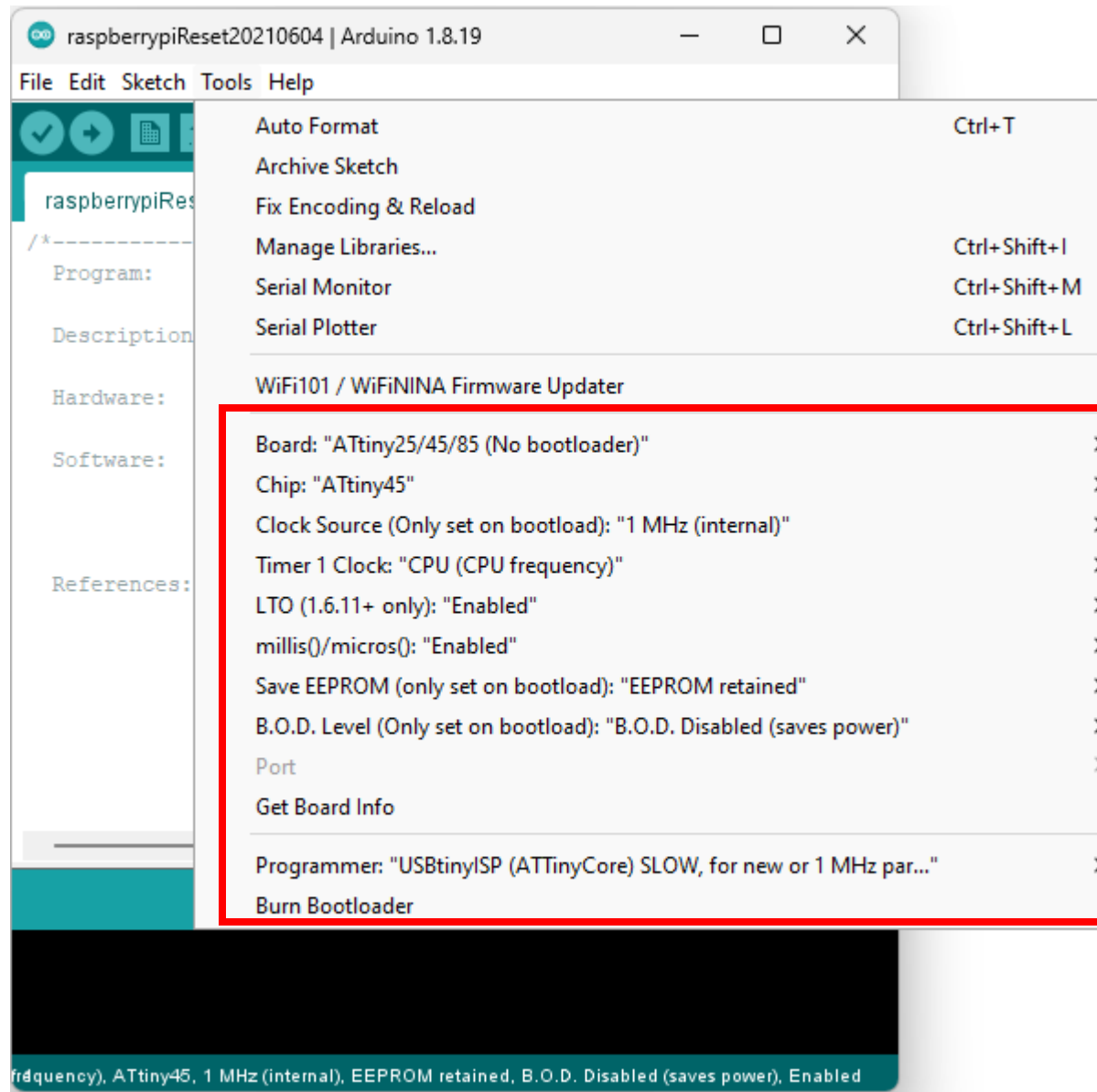


a. Double click on the **raspberrypiReset20210604.ino**

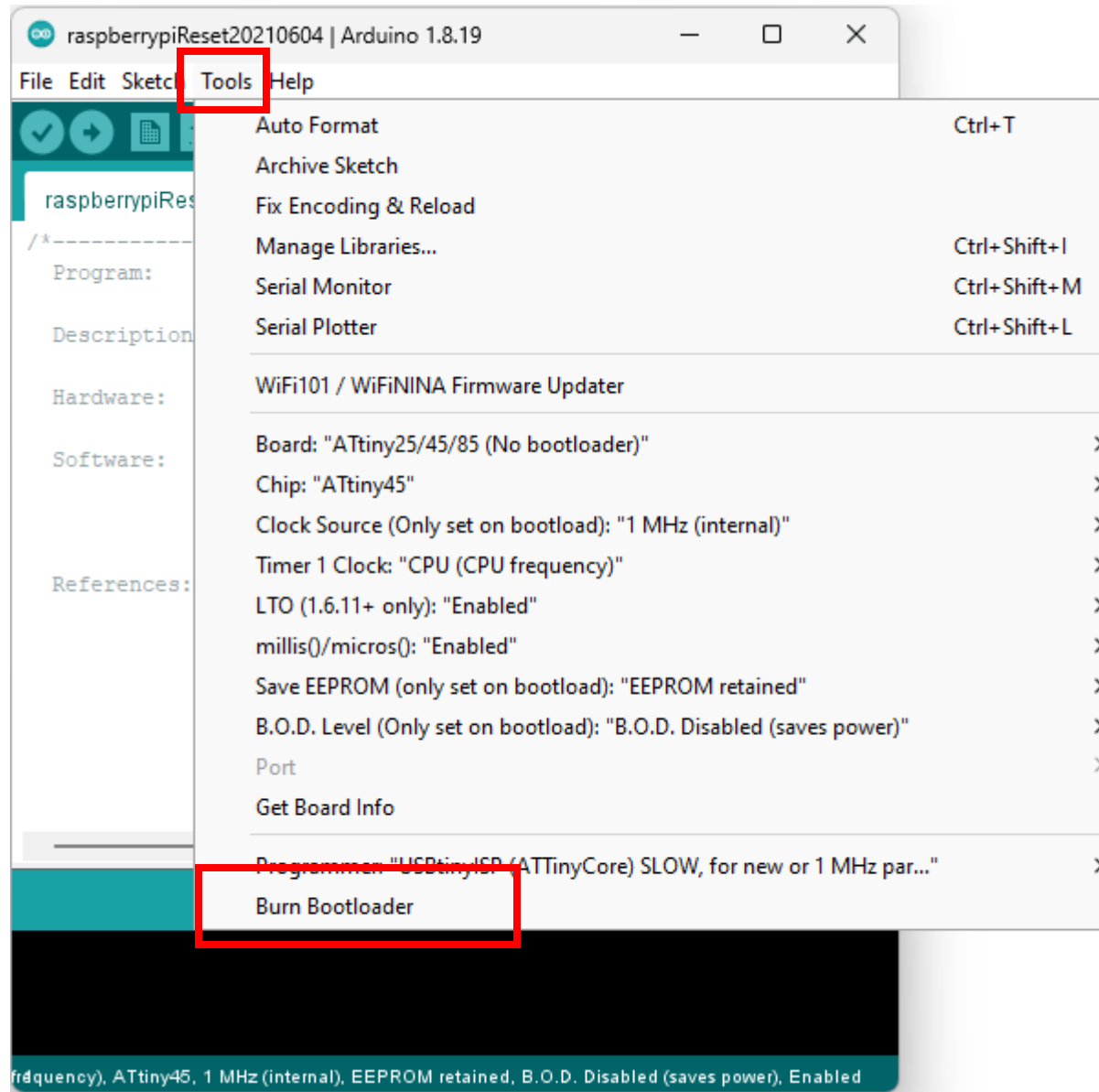


b. Your Arduino IDE will open another window with that file on it

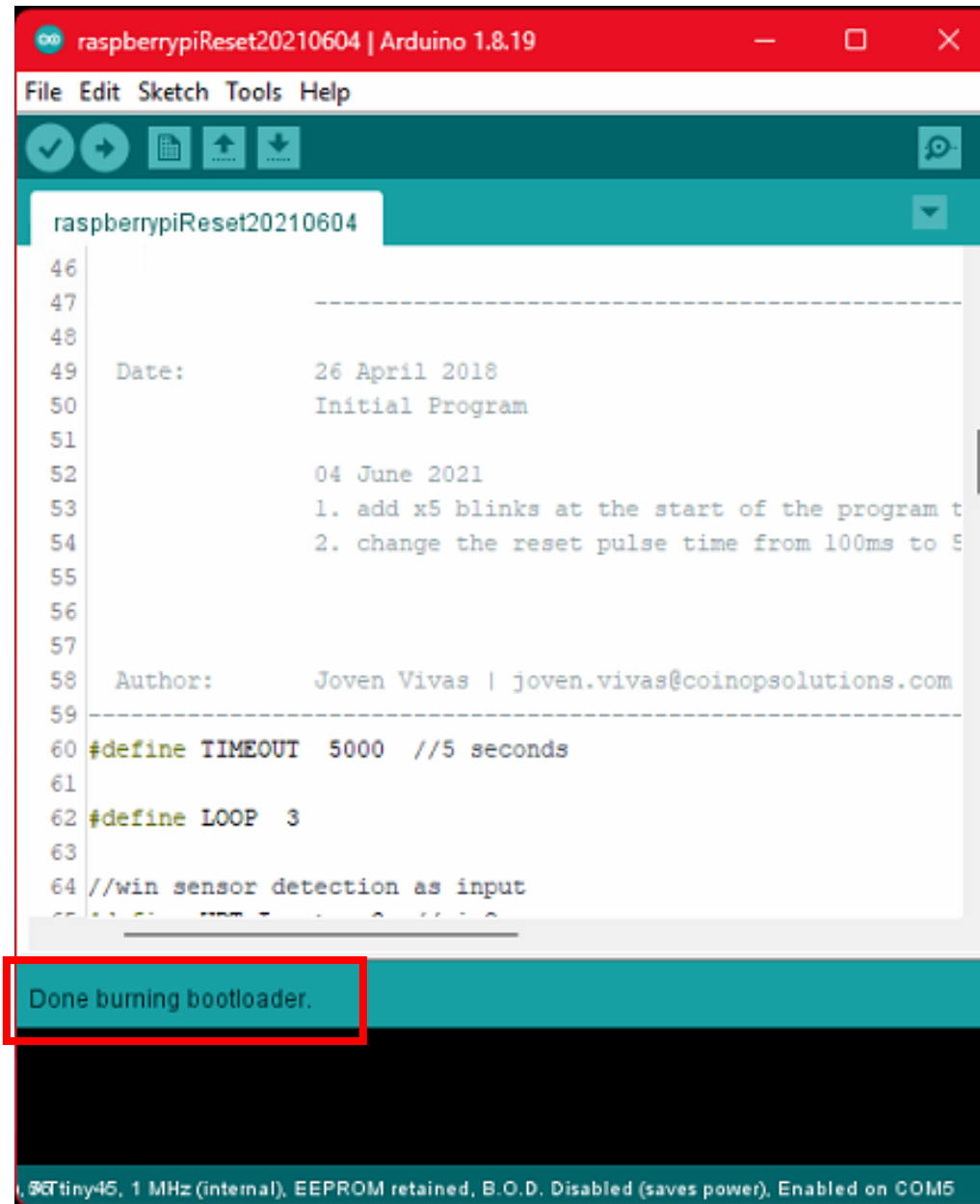
c. Double check the settings



6. Burn bootloader
 - a. Goto **Tools** and click **Burn Bootloader**



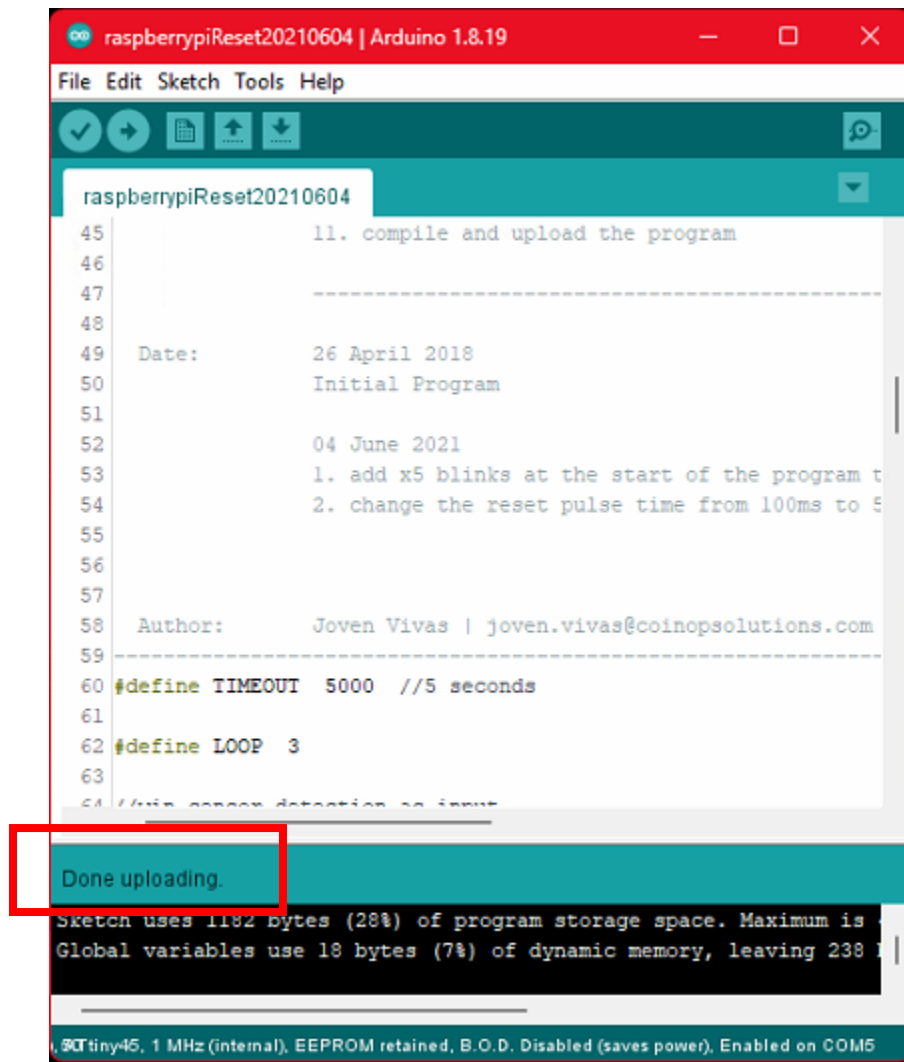
b. Confirm bootloader writing from the status bar below the sketch panel



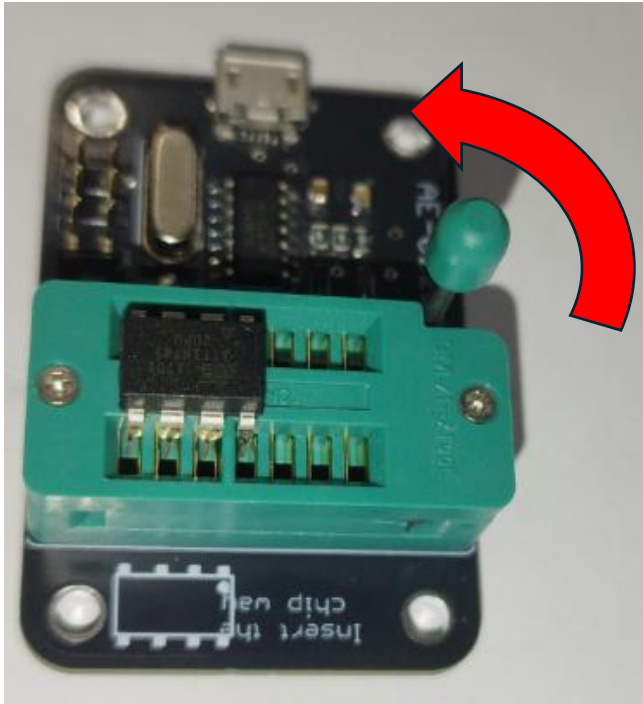
7. Upload the sketch by clicking the upload button
 - a. Click upload button and observe the status bar



- b. After successful upload the status bar should say “Done Uploading”



8. Remove the chip from the programmer
 - a. pull lever up and remove the chip



9. To program another chip
 - a. Put a new chip on the programmer
 - b. Repeat step number 6 to 9

Frequently Asked Questions

#	Abnormal Condition / FAQ	Possible Cause	Recommended Action
1	Arduino IDE installer will not open.	Installer was not downloaded/extracted correctly or Windows is blocking it.	Confirm that arduino-1.8.19-windows.exe is available in the extracted files. If a Windows security prompt appears, contact Tech Support as instructed in the procedure.
2	A Windows security/admin prompt appears during installation.	Windows requires authorization to install the Arduino IDE.	Do not cancel or attempt to bypass company security. Contact Tech Support for guidance as stated in the procedure.
3	Arduino IDE installation does not complete.	Installation was interrupted or required components were not selected.	Restart the installation and make sure all required component boxes are checked. Wait until installation completes before closing the installer.
4	ATTinyCore does not appear in Boards Manager.	Additional Boards Manager URL may be missing or incorrect.	Return to File > Preferences and verify that the Additional Boards Manager URL was entered exactly as specified in the procedure.
5	Boards Manager shows an error after entering the URL.	URL may contain a missing or incorrect character.	Recheck the complete URL character-by-character. The procedure specifically warns that the URL must be entered completely without a missing character.
6	Searching “attiny” shows several packages.	More than one ATtiny-related package is available.	Select ATTinyCore by Spence Konde, not another ATtiny package.
7	Wrong ATTinyCore version is displayed or selected.	Another version was selected in Boards Manager.	Select ATTinyCore version 1.5.2 as specified by the procedure and install it.
8	ATTinyCore installation appears to be stuck.	Package is still downloading/installing or the installation has stalled.	Wait for the installation process to finish. Do not close Boards Manager while installation is in progress.
9	I am unsure whether ATTinyCore installed successfully.	Installation completion was not confirmed.	Check ATTinyCore in Boards Manager. A successful installation should show Installed and a Remove button instead of Install.
10	ATTiny25/45/85 does not appear under Tools > Board.	ATTinyCore may not be installed correctly.	Reopen Boards Manager and verify that ATTinyCore 1.5.2 is installed before continuing.
11	Wrong ATtiny board was accidentally selected.	Incorrect board option was chosen from the ATTinyCore menu.	Select Tools > Board > ATTinyCore > ATtiny25/45/85 (No bootloader).
12	Wrong chip is selected in the Arduino IDE.	ATTiny25 or ATTiny85 may have been selected instead of ATTiny45.	Set Chip: ATTiny45 before burning the bootloader or uploading the program.

13	Clock Source is not set to 1 MHz.	IDE settings were changed or another configuration is active.	Set Clock Source: 1 MHz (internal) as specified in the procedure.
14	Programmer is not set to USBtinyISP.	Another programmer was previously selected in the IDE.	Select Programmer: USBtinyISP (ATTinyCore) SLOW, for new or 1 MHz parts before programming the chip.
15	USBtinyISP programmer is not detected when connected to the PC.	USB cable, USB port, programmer, or PC connection may have a problem.	Disconnect and reconnect the programmer. Try another USB port and confirm the USB cable is securely connected.
16	Programmer is connected but programming will not start.	Incorrect programmer selection, chip position, or IDE configuration.	Recheck the IDE settings and confirm USBtinyISP (ATTinyCore) SLOW is selected. Also check that the ATtiny45 is properly seated in the programmer.
17	ATtiny45 does not fit correctly into the programmer socket.	Chip is positioned in the wrong socket location.	Do not force it. Follow the chip-position guide shown on page 17. The procedure specifies the notch position and provides a drawing showing the correct placement.
18	I am unsure which direction the ATtiny45 should face.	Chip notch/orientation is unclear.	Locate the notch on the ATtiny45 and match it with the position shown in the programmer's chip-position guide before locking the socket.
19	Programmer lever is difficult to pull down.	ATtiny45 may be incorrectly positioned or its pins may not be seated correctly.	Do not force the lever. Pull it back up, check the chip position, and reseat the chip. The procedure states that only minimal pressure should be required.
20	Chip moves or becomes loose after locking the programmer.	Chip was not seated correctly before the lever was lowered.	Raise the lever, reposition the chip correctly, and lock it again. Confirm that the chip is properly positioned before programming.
21	raspberrypiReset20210604.ino cannot be found.	Wrong folder was opened or programming files were not extracted correctly.	Browse to the raspberrypiReset20210604 folder and open raspberrypiReset20210604.ino.
22	The sketch opens, but the settings are different from the manual.	Arduino IDE retained settings from a previous project.	Before programming, recheck all Tools settings. Do not assume the previous settings are correct. The procedure specifically requires checking them after opening the sketch.
23	Burn Bootloader produces an error.	Wrong chip, clock, programmer setting, poor chip contact, or programmer communication problem.	Do not upload the sketch yet. Check the chip position and all IDE settings, especially ATtiny45, 1 MHz internal, and USBtinyISP SLOW, then retry Burn Bootloader.
24	Nothing appears to happen after clicking Burn Bootloader.	Operation may still be running or communication did not start correctly.	Observe the status area below the sketch panel. The procedure specifically instructs the technician to confirm bootloader writing from this status area.
25	Bootloader/fuse setup fails repeatedly on a new ATtiny45.	Programming speed or IDE configuration may be incorrect.	Confirm that USBtinyISP (ATTinyCore) SLOW, for new or 1 MHz parts is selected and that the Clock Source is 1 MHz (internal).

26	Sketch upload produces an error.	Bootloader/fuse setup was not completed, wrong programmer/settings are selected, or chip communication failed.	Recheck the settings, repeat Burn Bootloader if necessary, and then click Upload again. Observe the status bar for the result.
27	“Done Uploading” does not appear.	Program upload was unsuccessful.	Do not remove or use the chip. Check the error shown by Arduino IDE, verify the chip position and programming settings, then retry. A successful upload must show Done Uploading.
28	I accidentally moved or removed the chip while programming.	Programmer lever/chip was disturbed before the upload completed.	Treat the programming attempt as unsuccessful. Reinsert and lock the chip correctly, then repeat the programming procedure and wait for Done Uploading.
29	Chip is difficult to remove after programming.	Programmer socket is still locked.	Do not pull the chip out while the socket is locked. Pull the programmer lever UP first, then carefully remove the chip.
30	A second/new ATtiny45 fails to program even though the previous chip worked.	New chip may not be seated correctly or the required programming sequence was not repeated.	Check the new chip's position and orientation, lock it correctly, then repeat the procedure starting from Burn Bootloader through program upload. The manual instructs repeating steps 6–9 for another chip.