



## Open Hardware Assembly Instructions

### LulzBot Mini 2 Aerostruder v2 Micro Tool Head Installation Workflow

## 1 Getting Started

Follow the instructions below to quickly install your LulzBot Aerostruder v2 Micro on a LulzBot Mini 2 3D Printer.

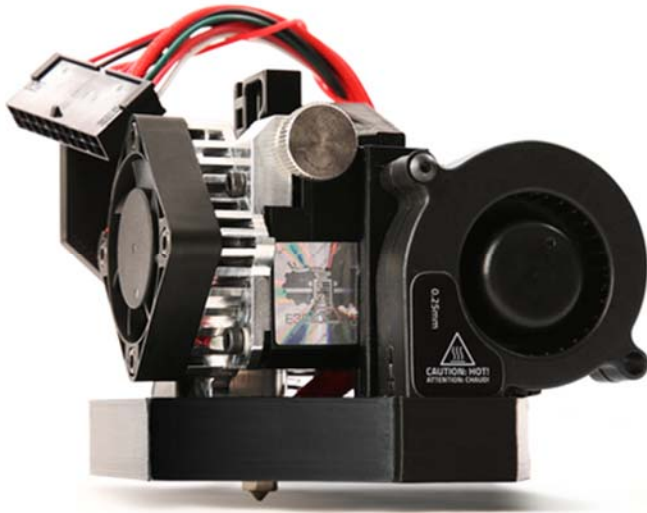
LulzBot Aerostruder v2 Micro



## 2 Included Materials

(1) LulzBot Aerostruder v2 Micro Tool Head (Fully Assembled)

LulzBot Aerostruder v2 Micro



## 3 Additional Items Required

You will also need

- 2.5 mm metric hex key, included with your LulzBot Mini 2
- USB cable, included with your LulzBot Mini 2
- GNU/Linux/Windows/Mac-based computer

Additional Items Required



## 4 Power Off Your LulzBot 3D Printer

4A

**Power off** and unplug the power cord from the rear of the printer.

4B

**Unplug the USB cable** from the front of the printer if installed.

Power off your Mini 2



## 5 Remove Connector Cover

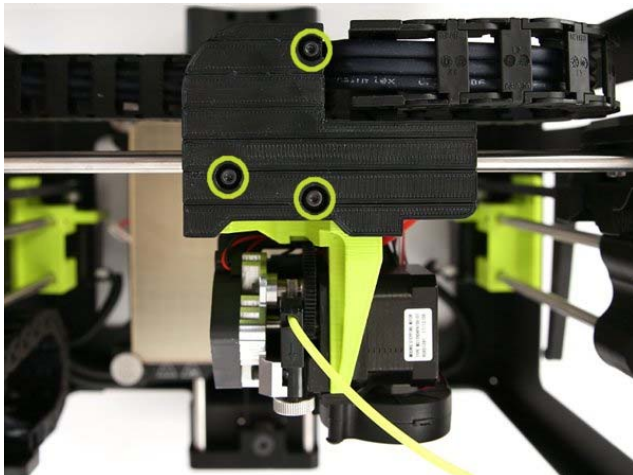
5A

Using the 2.5 mm hex key included with your LulzBot Mini 2, **remove the three M3 screws**.

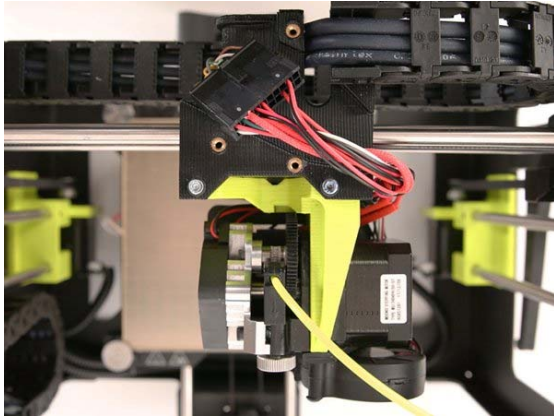
5B

**Lift off the cover**, exposing the tool head connector.

Remove 3 screws



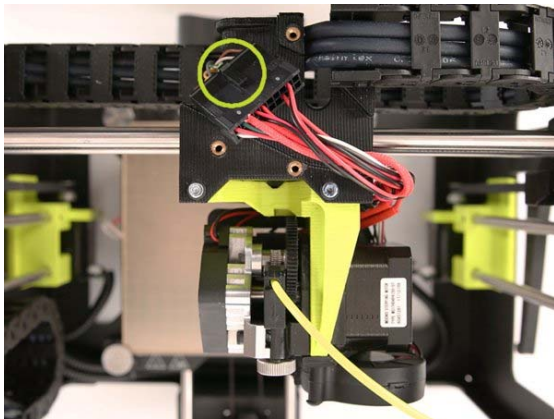
Cover removed



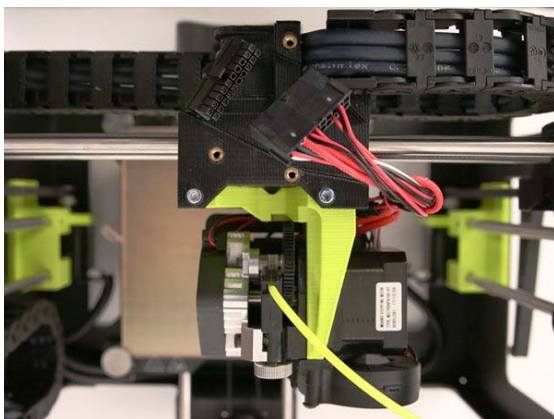
**6**

Depress the retaining tab on the connector housing and gently wiggle the connector free. Do not pull on the wires, only the connector housing.

Retaining tab



Unplug the tool head connector from the wiring harness



## 7 Remove Tool Head

### 7A

The tool head is attached with three screws. The print surface can be damaged if the tool head is allowed to fall onto the print surface. With one hand, support the tool head while following removal steps below.

### 7B

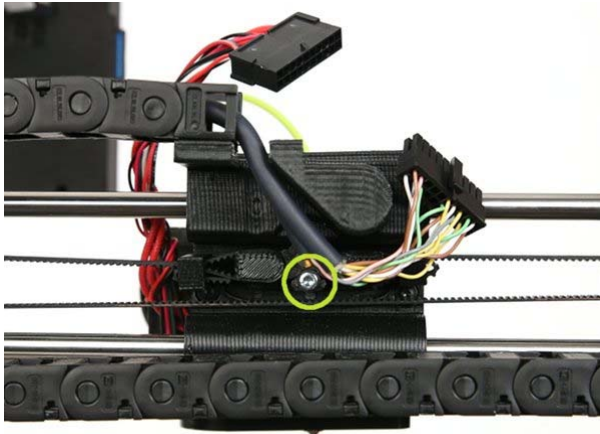
Using the 2.5mm hex key, **unscrew** the three M5 screws securing the tool head to the X-axis carriage. Remove the **rear** screw first, followed by the remaining top two screws.

### 7C

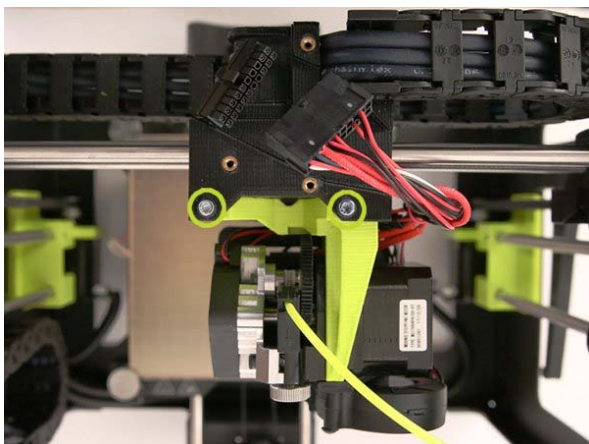
Remove the tool head from the printer by moving the tool head away from the printer.

Note: In previous versions of our tool heads, the Esteps (Extruder Steps Per Unit) were listed along the back of the tool heads for the customer to update. For the new Aerostruder tool head however, the Esteps are now set up within the firmware, and no manual updates are required.

Rear screw



Top screws





## 8 Mount the New Tool Head

8A

Press the tool head onto the X-axis carriage, aligning the cutouts on the back of the new tool head. Do not pinch any wires between the mount and the carriage.

8B

Secure it to the X-axis carriage by loosely screwing in the top two screws. Leave the top two screws loose.

8C

Loosely screw in the last screw through the rear of the X-axis carriage.

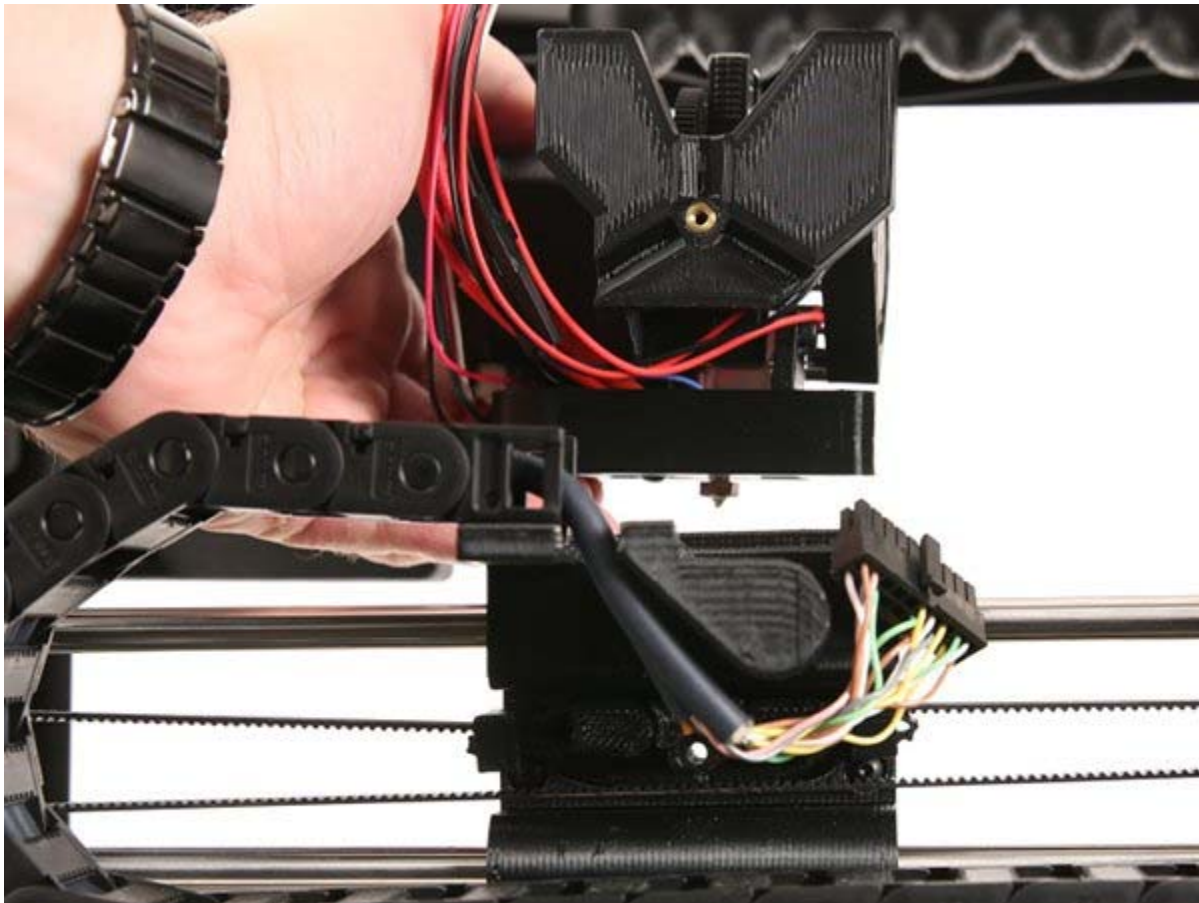
8D

Tighten the top two screws.

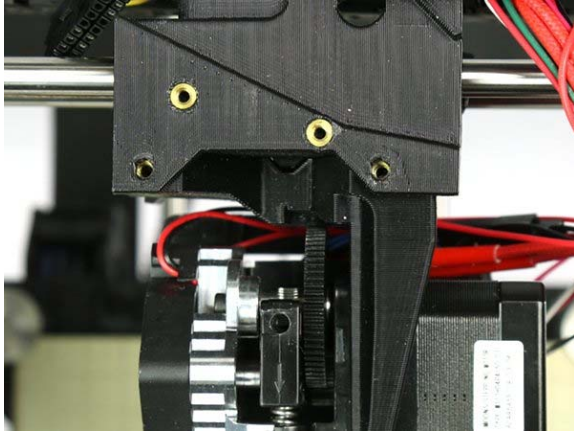
8E

Tighten the rear screw.

Align the tool head.



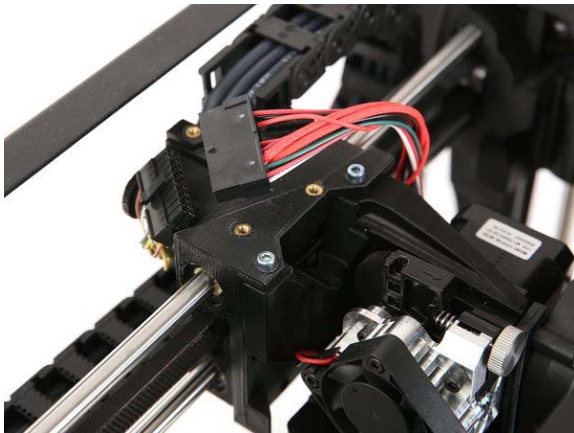
Aligning and install the top two screws, followed by the rear screw



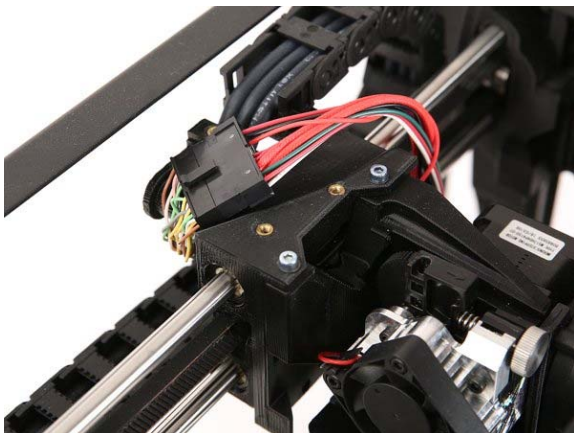
## 9 Plug in Tool Head

Connect the two connectors, making sure to **fully seat the connectors until they lock.**

Ready to connect



Fully seated and locked



## 10 Install Cover

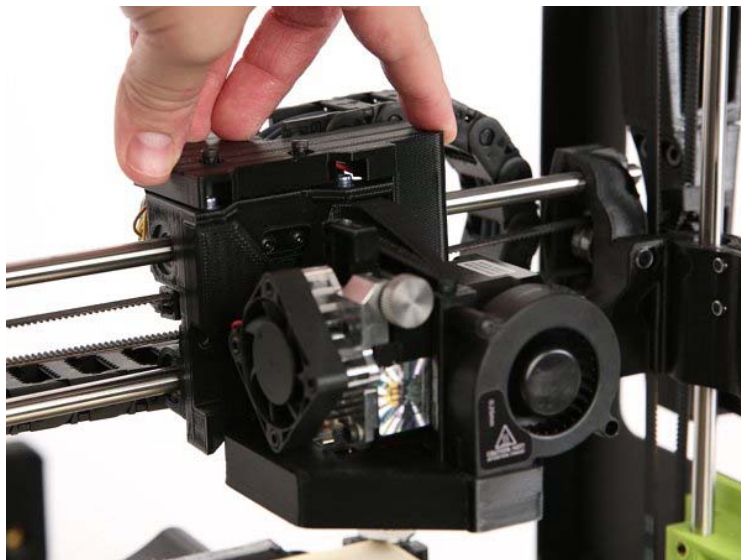
10A

Cover the connector with the connector cover and attach it to the X-axis carriage using the three M3 screws and the 2.5 mm hex key.

10B

Channel the wires together going to down the vertical pathway on the cover mount, and try not to pinch any of the wires when securing the cover. Slide down carefully into place, and **hold while screwing in**.

Screw in cover using three M3 screws



## 11 Install or Update Cura LulzBot Edition

11A

**Install** the latest version of Cura LulzBot Edition. It is important to have the LulzBot Edition of Cura, as it has preset machine configuration profiles built into it.

11B

Cura LulzBot Edition is available from <http://LulzBot.com/Cura>.

11C

**Plug in** your LulzBot Mini 2 3D printer to the power supply and **power on** your 3D printer.

11D

Once powered on **connect** your 3D printer to your computer using the USB cable.

11E

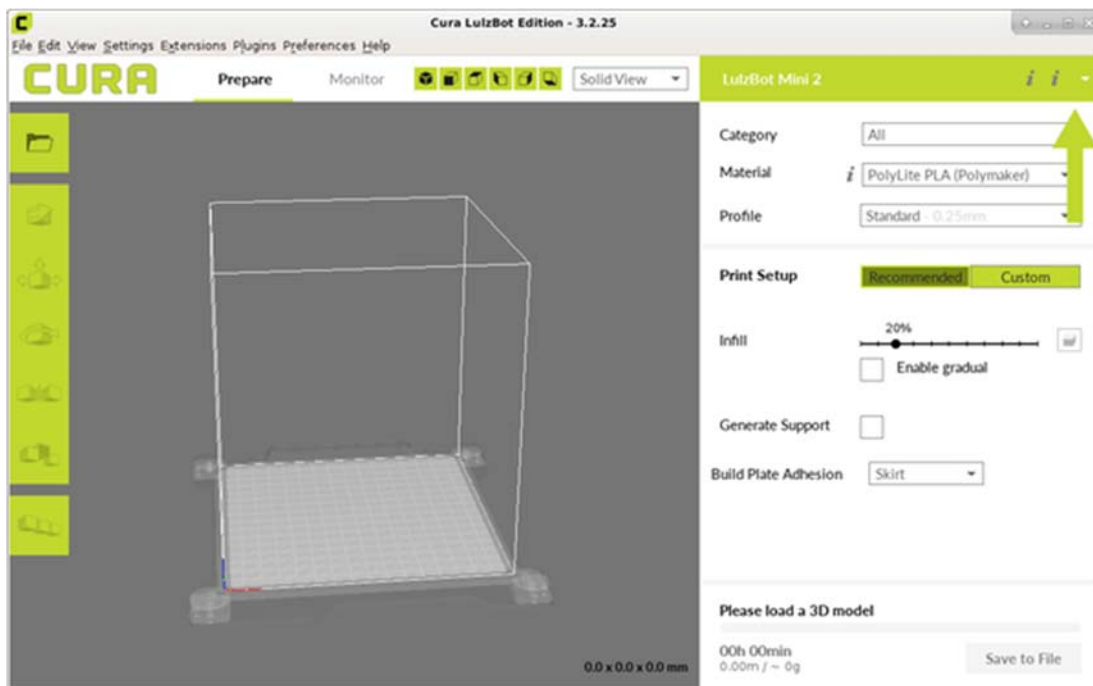
**Open** Cura LulzBot Edition.



Power on your 3D printer and plug in USB cable



Open Cura LulzBot Edition



# 12 Setup New Tool Head in Cura

12A

In the top right-hand menu for Cura LE, **Select the Settings drop-down arrow > Printer > Add Printer**

12B

**Select LulzBot Mini 2, Aerostruder Micro, and click Add Printer.**

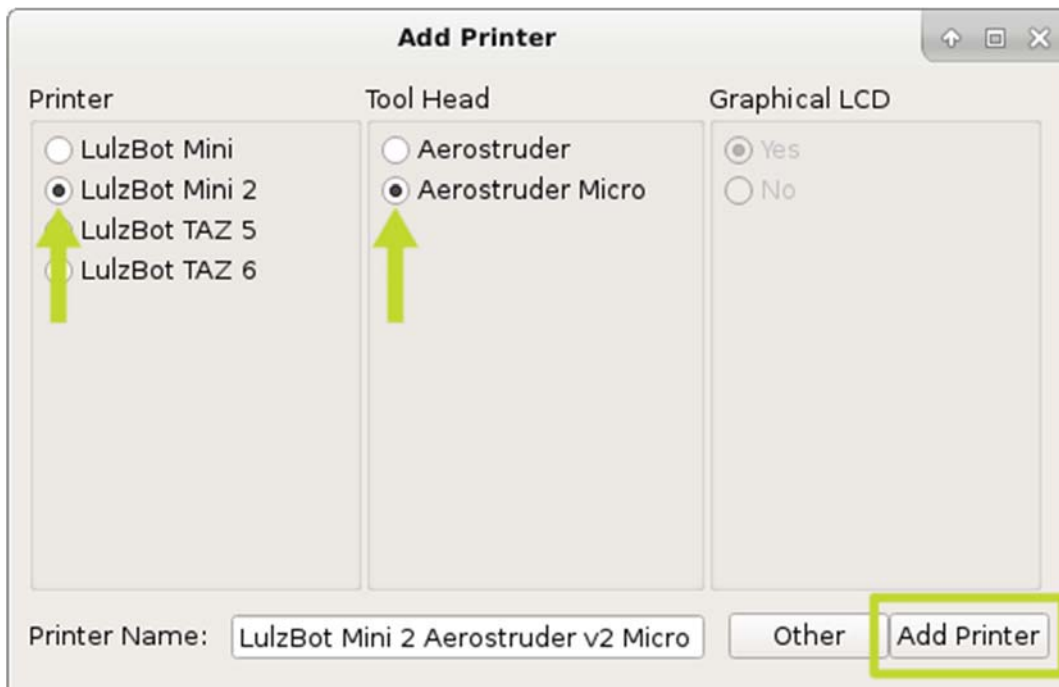
12C

Select **Finish**.

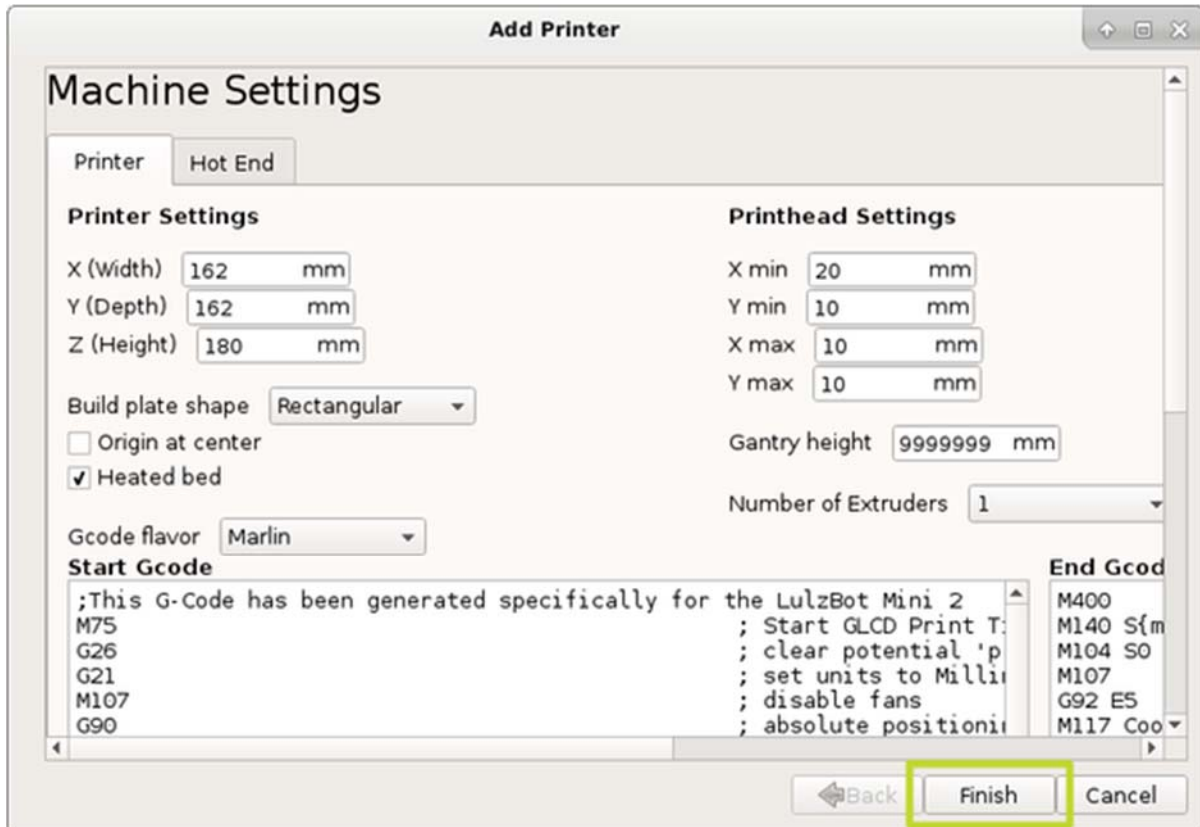
Add Printer



Select LulzBot Mini 2, and Aerostruder Micro



Add Printer



## 13 Update Firmware

13A

From the drop-down menu at the top right-hand side of Cura LE, **Select Manage Printers**

13B

Confirm that the **LulzBot Mini 2 Aerostruder v2 Micro** is selected, and click **Upgrade Firmware**.

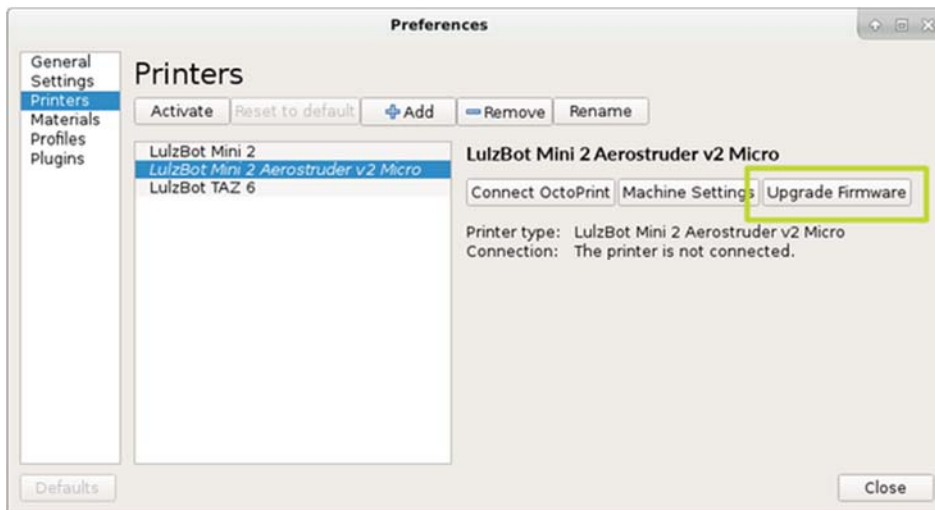
13C

Select **Automatically Update Firmware**. The **Update EEPROM** checkbox should be checked by default. Close any dialog windows after the firmware has been updated.

Select Manage Printers



Select Upgrade Firmware



Automatically Upgrade Firmware



# 14 Set Hotend Temperature

14A

Select **Print Monitor Control Tab** from the menu above the virtual print interface.

14B

Click **Connect**.

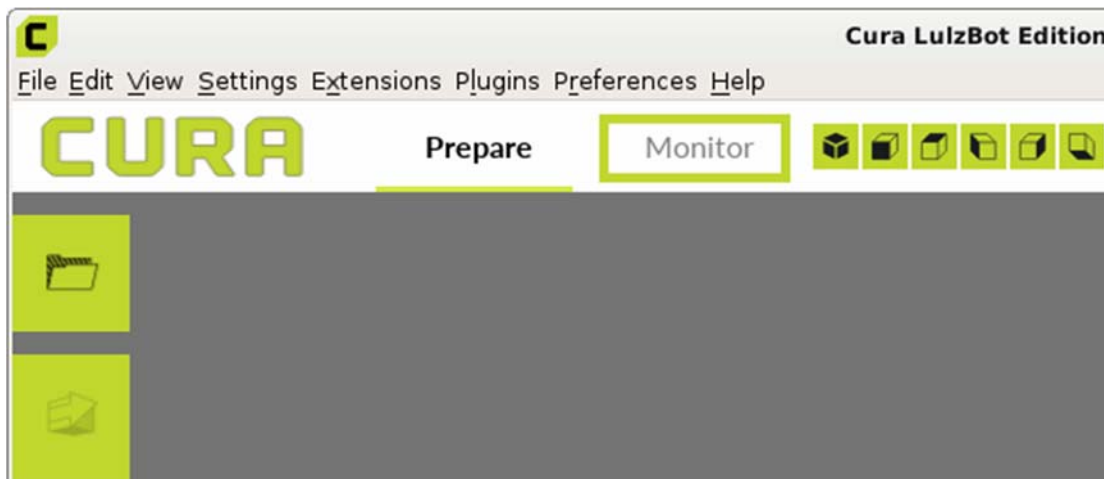
14C

Type **205** into the **Select temperature** field.

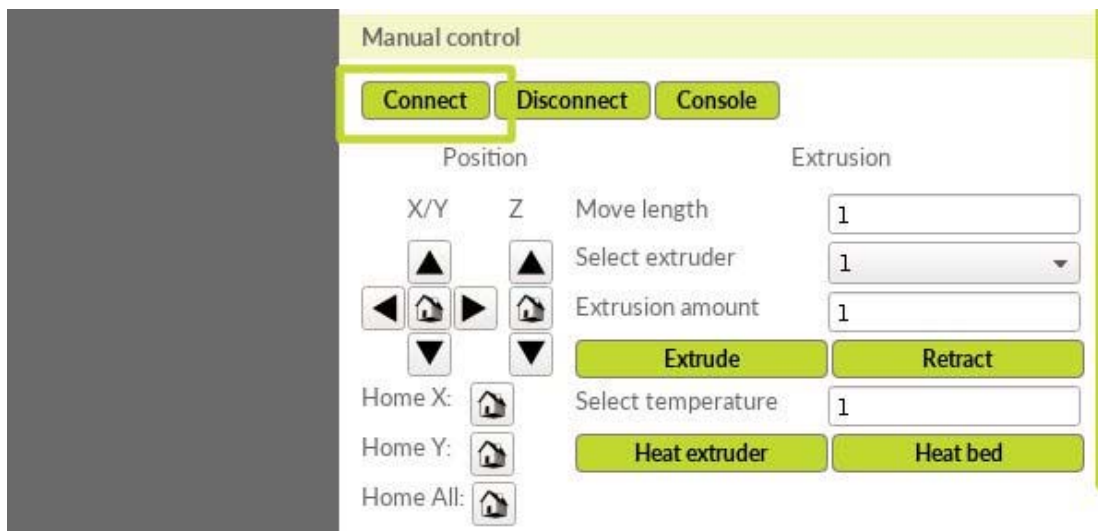
14D

Select **Heat Extruder**.

Select Monitor tab

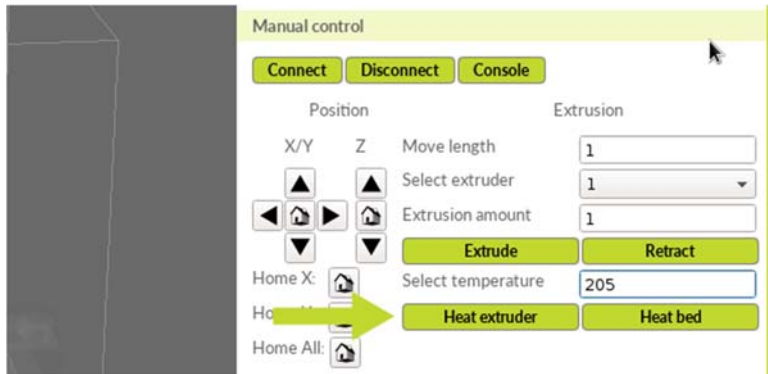


Click Connect





Set Hot End Temp to 205, select Heat Extruder



## 15 Remove Factory Calibration Filament

Note: **Always** heat the hot end to extrusion temperature **before** attempting to remove filament. If switching between different material types, set the hot end to the approximate average extrusion temperature of the two materials.

15A

Once the hot end has reached the extrusion temperature of **205**, **remove** the test filament used during factory calibration by entering **5** for the **Extrusion amount** in Cura LE. Click the **Extrude** button. Change the value to **60** and click the **Retract** button.

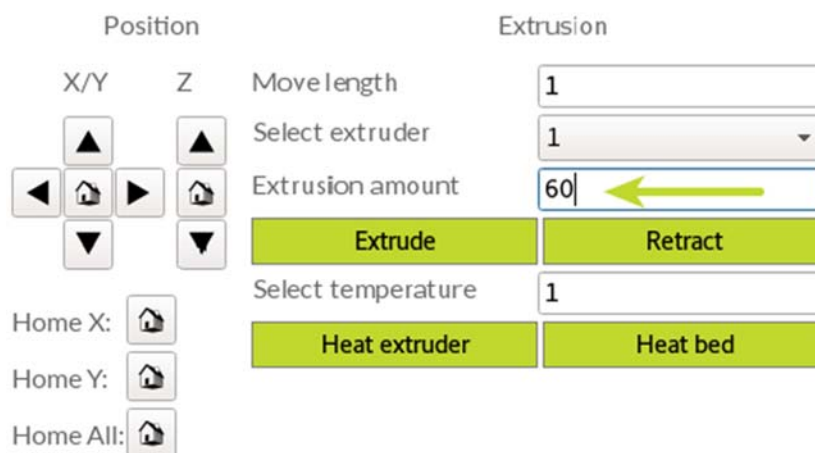
15B

Once filament has retracted 60 mm, **squeeze** idler inwards, and **pull** the filament out. You may need to loosen the idler slightly by turning the silver idler wheel clockwise.

15C

**Tighten** the idler by turning the silver idler wheel counter-clockwise if loosened.

Extrude first, then retract filament



## 16 Load Filament

Filament Loading Tip: Cutting the filament at an angle will help with inserting into the extruder.

16A

Load the sample filament into the extruder. Squeeze the idler arm inward and **insert** the filament into the extruder filament guide.

16B

Enter 60 in **Extrusion amount** and click the **Extrude** button.

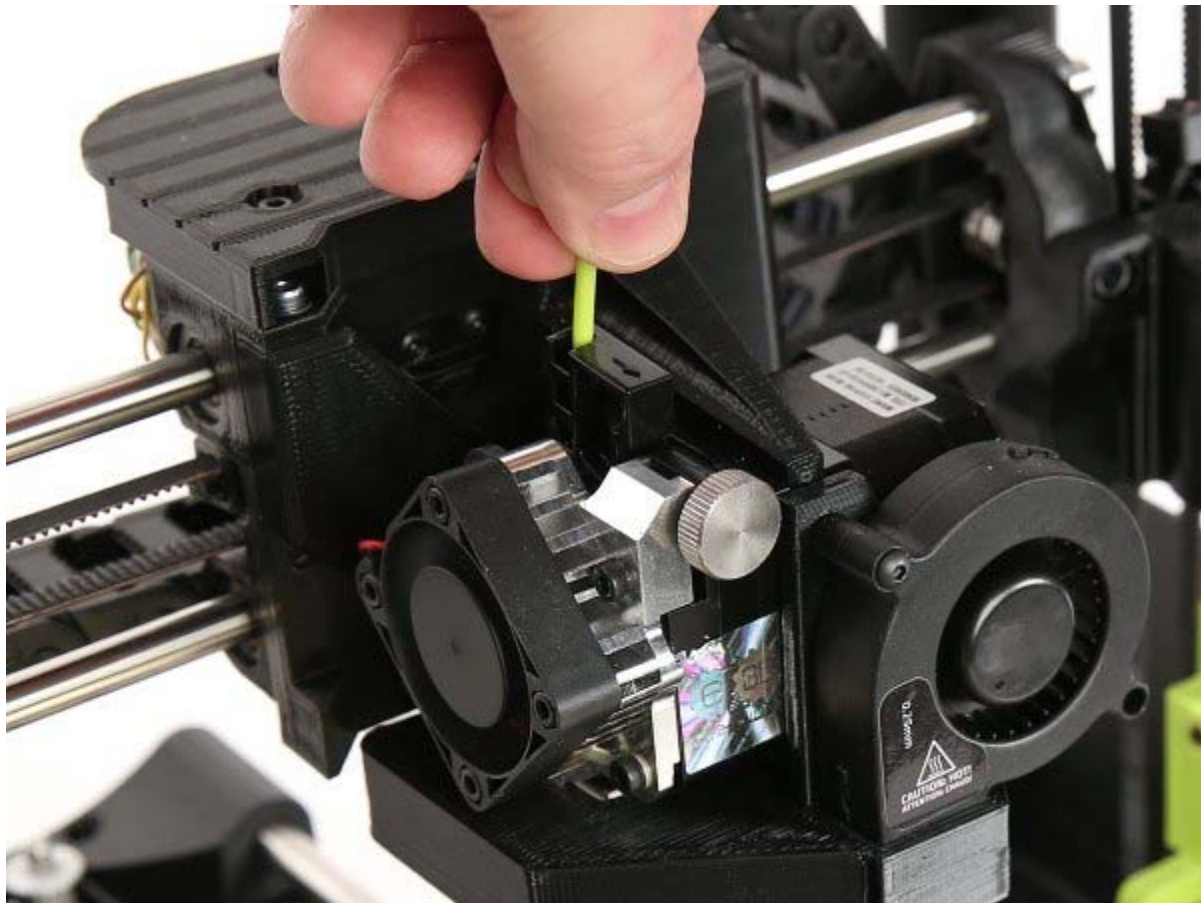
16C

Purge factory filament by continuing to select the **Extrude** button until the hot end extrudes material.

16D

Level the X-axis by clicking the **Level X Axis** button.

Insert filament



Extrude Filament

Position		Extrusion	
X/Y	Z	Move length	<input type="text" value="1"/>
		Select extruder	<input type="text" value="1"/>
		Extrusion amount	<input type="text" value="60"/> ←
		<b>Extrude</b>	<b>Retract</b>
Home X:		Select temperature	<input type="text" value="1"/>
Home Y:		<b>Heat extruder</b>	<b>Heat bed</b>
Home All:			

Level X-axis

Predefined Commands		
<b>Preheat nozzle</b>	<b>Wipe nozzle</b>	<b>Cool nozzle</b>
<b>Preheat bed</b>	<b>Cool bed</b>	<b>Cold pull</b>
	<b>Motors off</b>	<b>Level X Axis</b>

## 173D Print Rocktomek Test Model

Your first print: the LulzBot Rocktomek: [Download and Save](#)

1

Load the [RocktomekPose05.stl](#) 3D model.

2 Select the sample material: **PolyLite PLA (Polymaker)** and the Profile: **High Detail**.

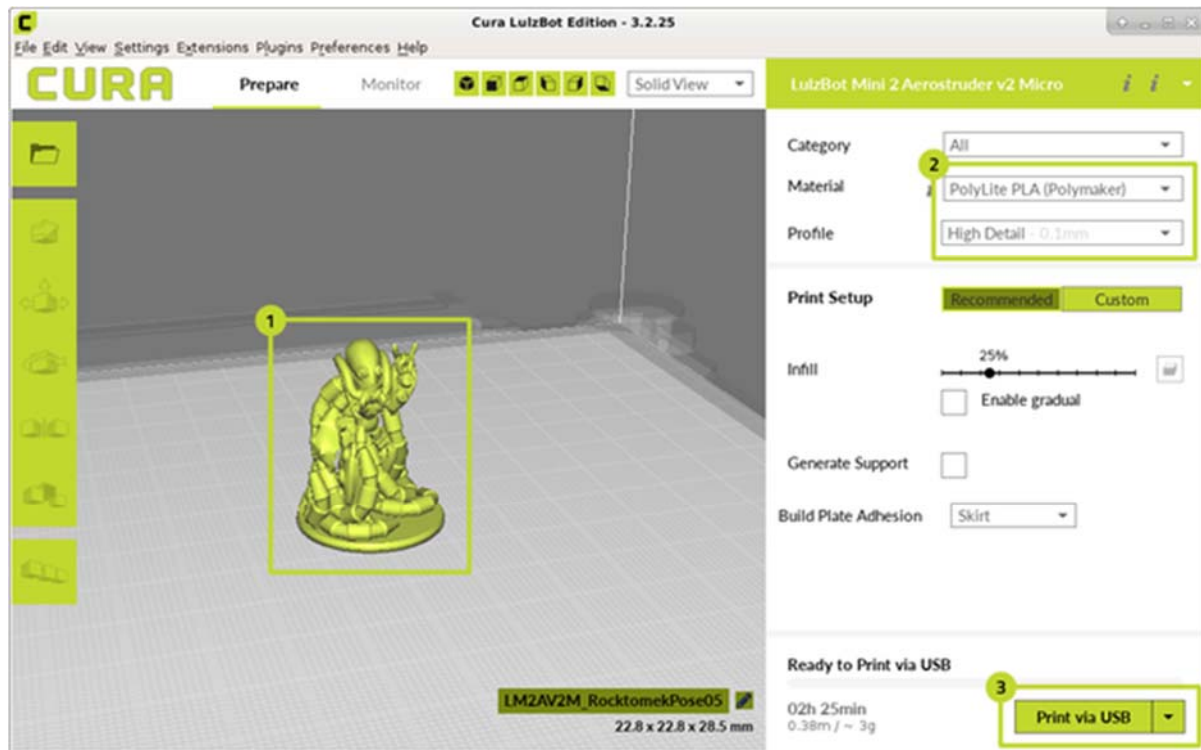
3

Press the **Print via USB** button to start your print!

All Hail the LulzBot Rocktomek



Starting the print



## 18 Improve Adhesion By Tuning Your Z-Offset

You may need to fine tune your Z-axis offset, also known as Z-offset, to get the perfect first layer. Follow the instructions in the Advanced section of the LulzBot Mini 2 User Manual for detailed instructions.

**More Information:** [LulzBot Mini 2 User Manual - Adjusting Z-offset](#)

Adjust your Z-offset during the first layer of the print by following these steps:

18A

**Press in** on the Graphical LCD Controller knob on the LulzBot Mini 2 and select **Tune**.

18B

**Select Z Offset**

18C

Rotate the knob **counterclockwise** to bring the hot end nozzle **closer** to the print surface. Rotate the knob **clockwise** to move the hot end nozzle **farther away** from the print surface.

18D

Note the Z-offset value once adjusted. Follow the instructions at [LulzBot.com/z-offset](https://lulzbot.com/z-offset) to store your ideal Z-offset.

Tune



Z offset





Adjust as desired



Ideal first layer height



<https://ohai.lulzbot.com/project/lulzbot-mini-2-aerostruder-v2-micro-installation/> 9-13-18