Thank you for choosing the LulzBot Mini desktop 3D printer and welcome to the LulzBot Community. By the time you finish this Quick Start you will have your very own 3D printed rocktopus, the mascot of the LulzBot Mini.

Every LulzBot Mini is covered by a one-year warranty and customer support, so if you have questions along the way please contact us by emailing *support@LulzBot.com* or calling *+1-970-377-1111*. Learn more at *LulzBot.com/support*. Now let's get you 3D printing!

Read the included User Safety Sheet completely before beginning the Quick Start. Find the full user manual for your LulzBot Mini online at LulzBot.com/Mini.
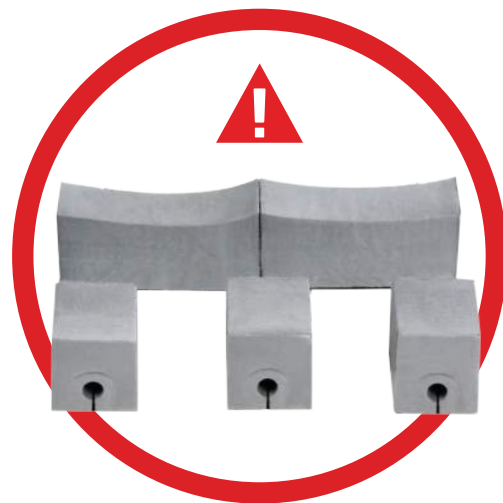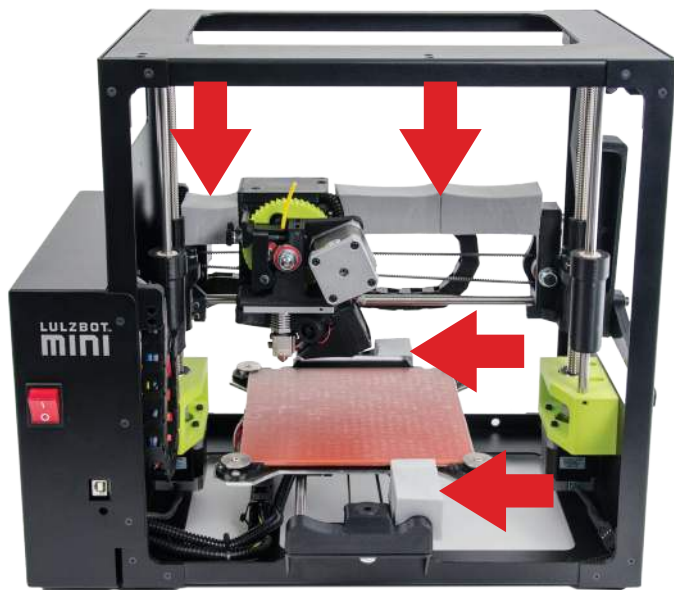
Unpack Your LulzBot Mini

1A Carefully remove the top piece of protective foam and other included materials. Then place your LulzBot Mini on a flat and level surface with 30 centimeters (12 inches) of clearance in every direction.

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> *Your LulzBot Mini comes with an octopus that was made by your 3D printer during the final stage of quality assurance. Several tools for maintaining your LulzBot Mini are also included, learn more about how to use them in the maintenance section at the end of this Quick Start Guide.*

1B Remove all packaging foam and confirm everything on the Packing List is included in the box. Save all of the provided packaging materials in case you need to transport your 3D printer in the future.

2   Download and Install the Software for Your LulzBot Mini

Visit *LulzBot.com/Cura* to find download and installation instructions for Cura LulzBot Edition, the software that will control your 3D printer. Even if you already have Cura installed on your computer, visit *LulzBot.com/Cura* anyway to get the latest version.

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Unable to download Cura from the Internet? You can also find download packages on the included USB Thumb Drive that comes with your LulzBot Mini.
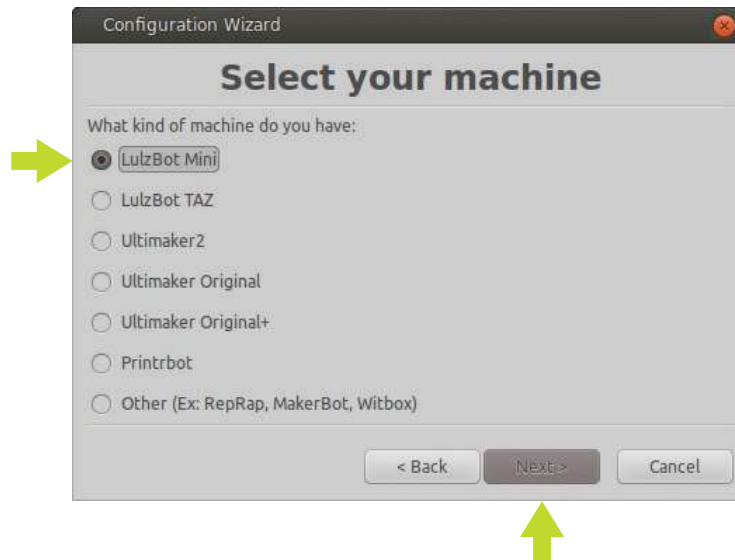
3 Configure the Software for Your LulzBot Mini

3A Launch Cura. Begin the Configuration Wizard to select your machine and under "What kind of machine do you have", select **LulzBot Mini**.

3B Click **Next** >, and then click **Finish** > to complete the Configuration Wizard. Cura LulzBot Edition is now installed and ready for use.

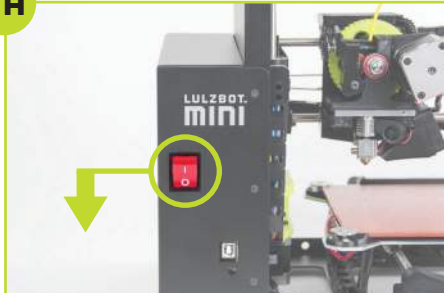Configuration Wizard

Select your machine

What kind of machine do you have:

- ◉ LulzBot Mini
- ○ LulzBot TAZ
- ○ Ultimaker2
- ○ Ultimaker Original
- ○ Ultimaker Original+
- ○ Printrbot
- ○ Other (Ex: RepRap, MakerBot, Witbox)

< Back   Next >   Cancel

Connect and Power On Your LulzBot Mini

4A

Check that the Power Switch is Off

4B

Connect the USB Cable

4C

Connect the Power Cord

4D

Power On

Prepare the Model for Your First Print

5A A 3D model named rocktopus will automatically load onto Cura's virtual print bed the first time you run the software. The rocktopus is the first object you will 3D print on your LulzBot Mini.

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*If the rocktopus model is not present on the virtual print bed, you can download it from LulzBot.com/rocktopus or from the included USB thumb drive, then load it using the **Load Model** button in the main Cura interface.*

5B Locate the included 1 meter (40 inch) green or yellow coil of HIPS sample filament. We strongly recommend using the included HIPS sample filament for your first rocktopus print.

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Filament is the name for the materials your LulzBot Mini uses to 3D print objects. The included filament is a plastic named High Impact Polystyrene, or HIPS.

5C On the left side of the screen under "Select a quickprint profile", select **Normal quality print**. Then under "Material", select **HIPS**.
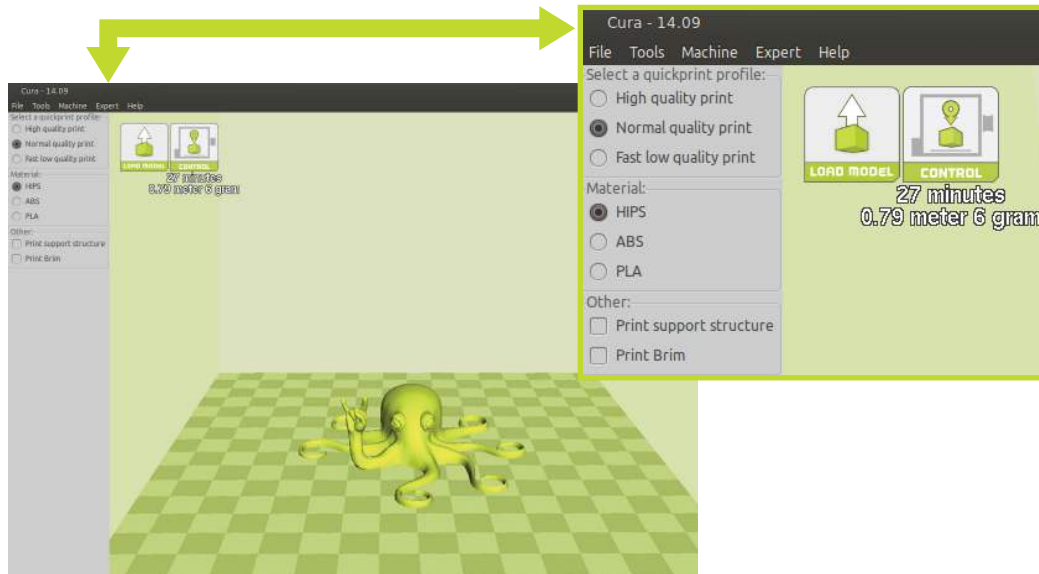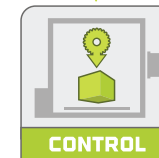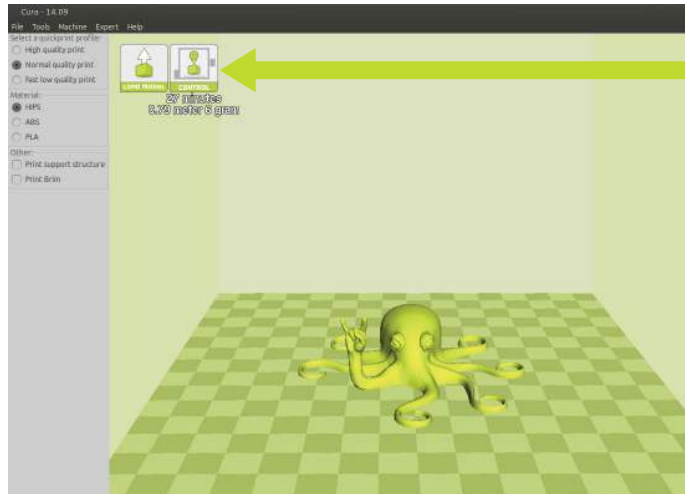

Cura Interface

Control Your LulzBot Mini and Set the Temperature

bA Using your computer, click the **Control** button on the main Cura interface. A new window called the Printer Interface will open.

⚠️ *If the **Control** button does not appear, verify that that your software was fully installed during Step 2.*
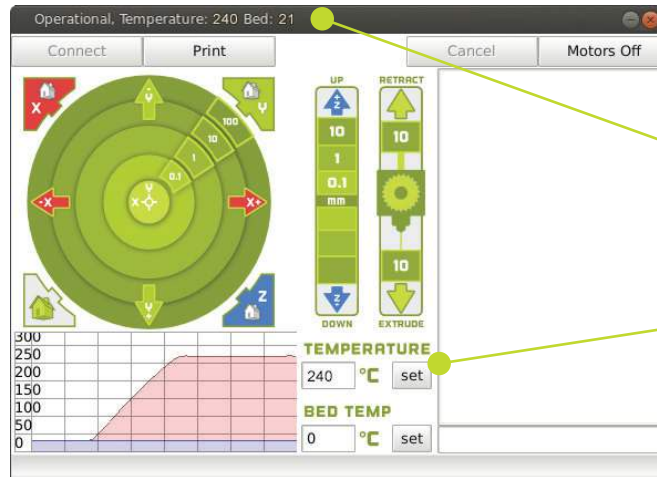
6B Using the Printer Interface window, raise the hot end temperature up to 240°C by typing 240 under "Temperature", then clicking **Set** in the Printer Interface window. Monitor the current printer temperature using the status bar at the top of the Printer Interface window.
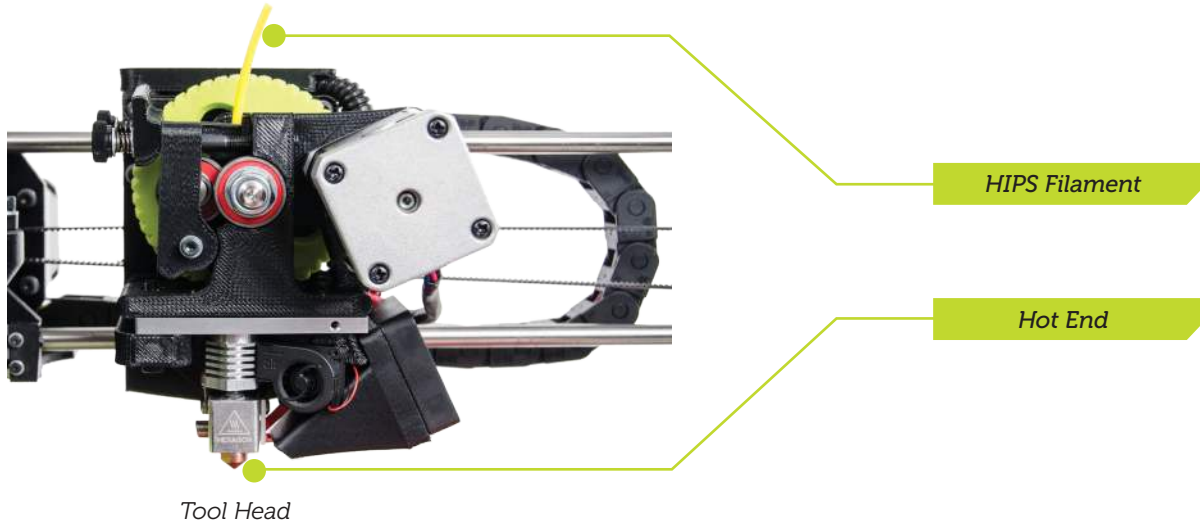

Temperature Status

Temperature Control

Printer Interface

⚠ *The hot end is now heating up to 240°C (464°F) and can burn your skin.*

HIPS Filament
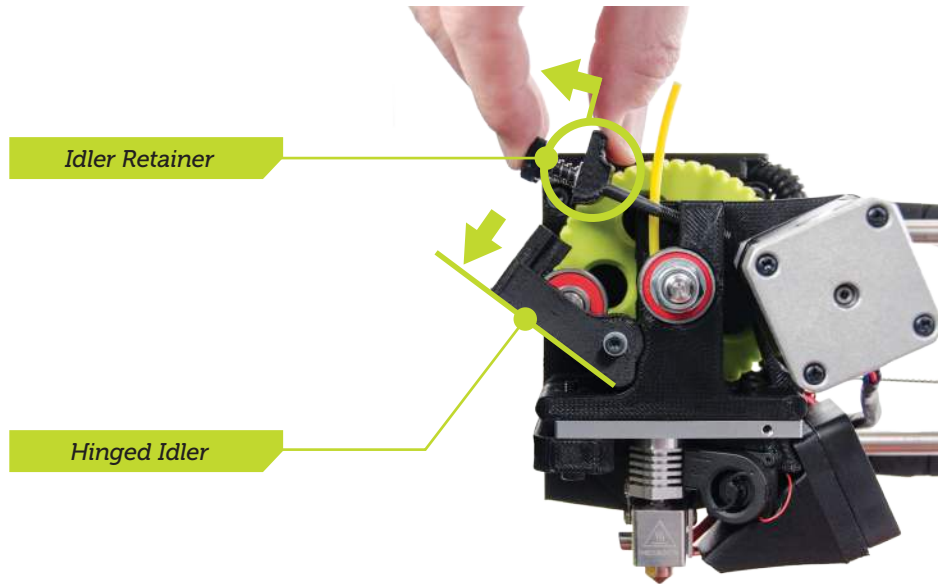
Hot End

Tool Head

7   Lower the Hinged Idler and Remove Loaded Filament

7A Locate the tool head of your LulzBot Mini. Using the idler retainer, compress the springs with your thumb and slide up, allowing the hinged idler to move freely. Then lower the hinged idler counter-clockwise.

Idler Retainer

Hinged Idler

7B Wait until the status bar of the Printer Interface shows the Temperature has reached 240°C.

Operational, Temperature: 240 Bed: 21

7C Once the Temperature has reached 240°C, pinch the HIPS filament loaded in the tool head and remove it by pulling up.

HIPS Filament
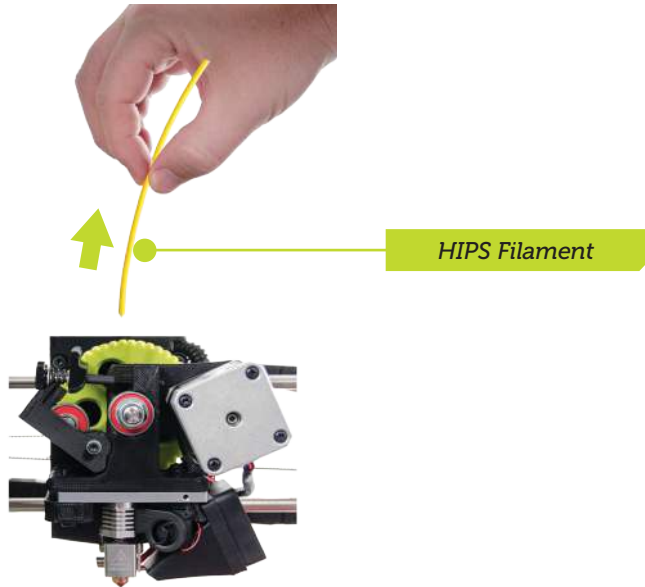
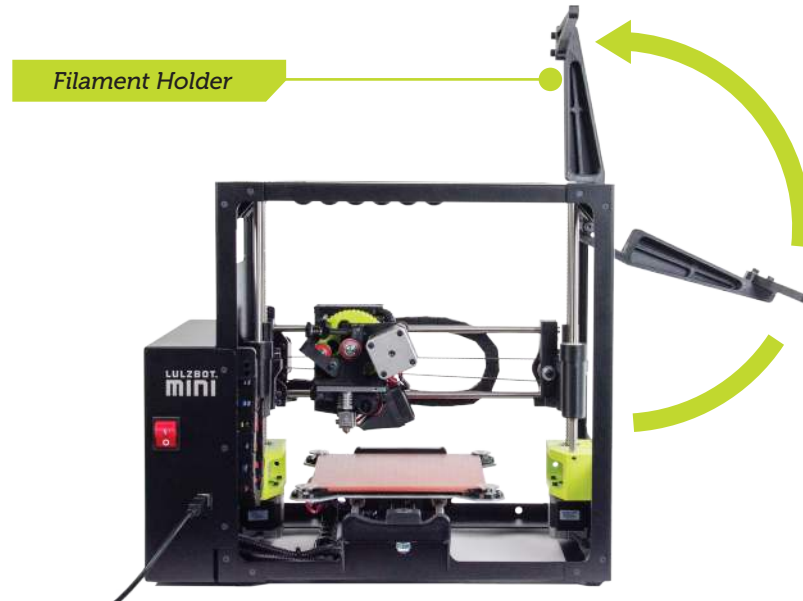# 8   Prepare and Load Filament

8A Face the front of your LulzBot Mini. Find the filament holder, which is mounted to the top right corner of the printer frame. Starting with the filament holder in a down position, rotate the filament holder counter-clockwise into an upright and locked position.

Filament Holder

8B We strongly recommend using the included 1 meter HIPS filament sample for your first rocktopus print. Mount the HIPS filament sample on the filament holder so the filament can feed down into the tool head.

HIPS Filament Sample
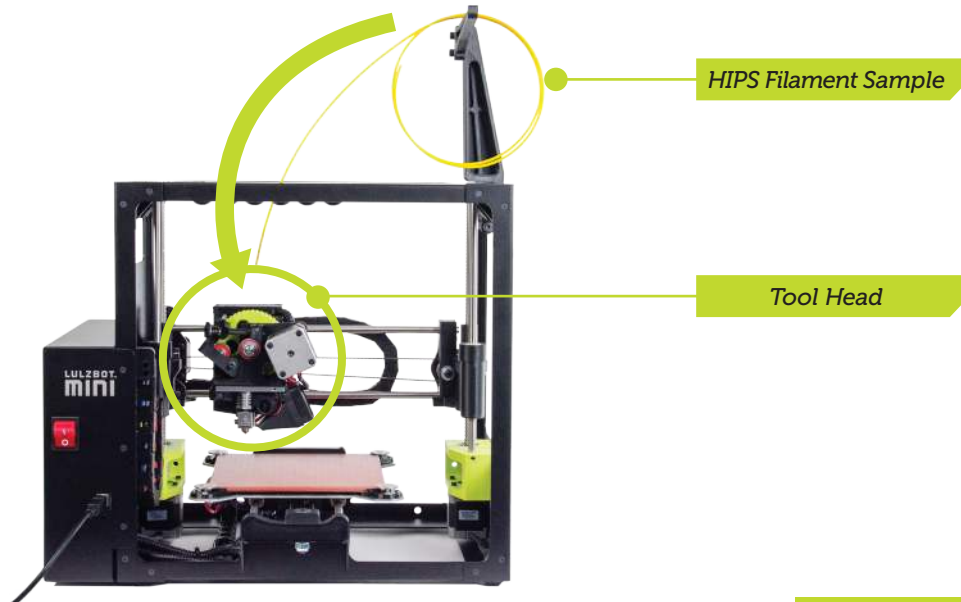
Tool Head

8C Locate the feed hole in the extruder body where you removed the loaded filament during Step 7. Filament feeds through this hole and down into the hot end for printing.
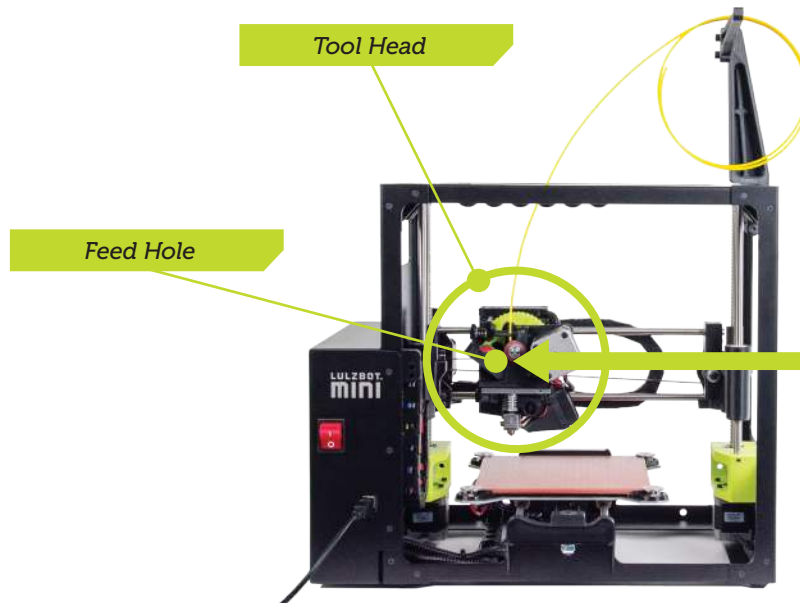
⚠ *The hot end is still 240°C (464°F) and can burn your skin.*

Tool Head

Feed Hole

8D Make sure the idler retainer is touching the springs so it is out of the way. Then push the HIPS filament sample down into the feed hole in the extruder body and through the hot end until a small amount of filament comes out of the tip of the nozzle.

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The HIPS filament sample should travel approximately 100 millimeters (4 inches) down through the extruder body and into the hot end.

Idler Retainer

Feed Hole
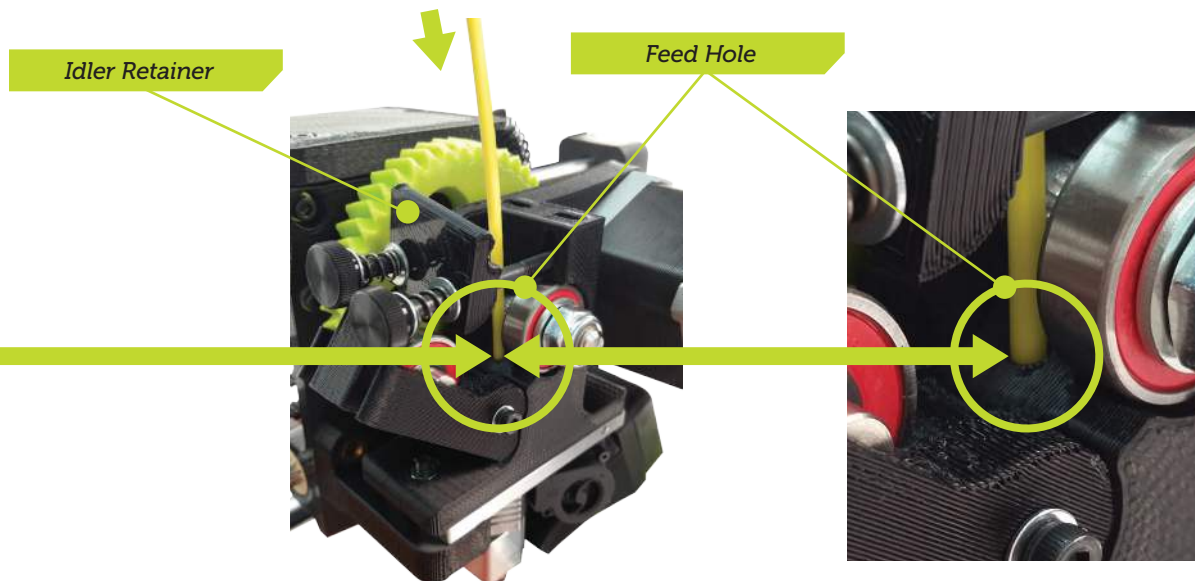
9 Raise the Hinged Idler

9A Using your thumb, compress the springs with the idler retainer and rotate the hinged idler clockwise into an upright position. Lock the hinged idler into place by sliding the idler retainer back down.

Idler Retainer

Hinged Idler
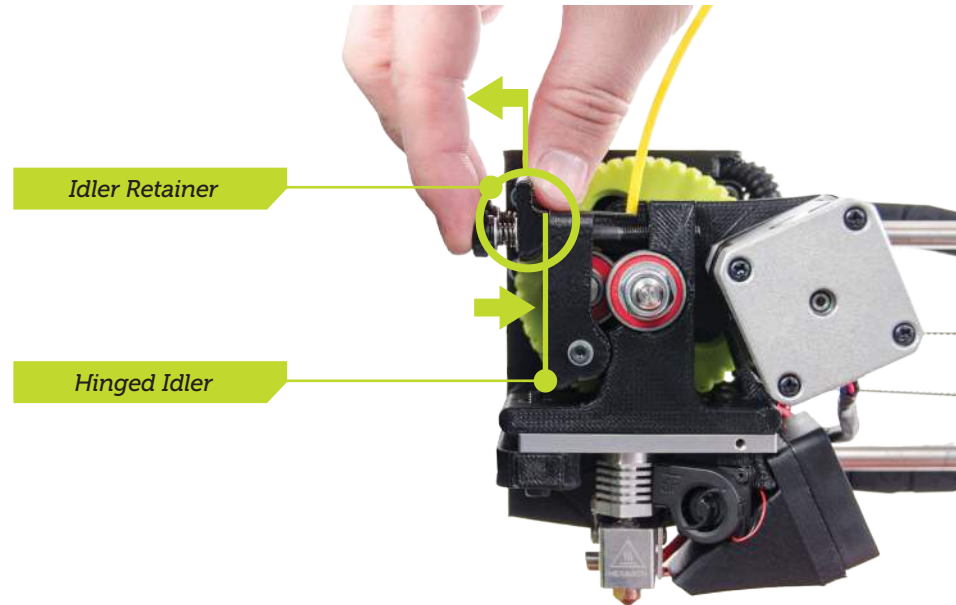
Verify Print Extrusion

10A Make sure your LulzBot Mini is ready for printing by verifying the printer's ability to extrude filament. Using your computer, click the **Extrude 10** button in the Printer Interface and look for filament to feed through the nozzle.

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Extrusion is the name for when filament feeds through the tool head and out the nozzle.
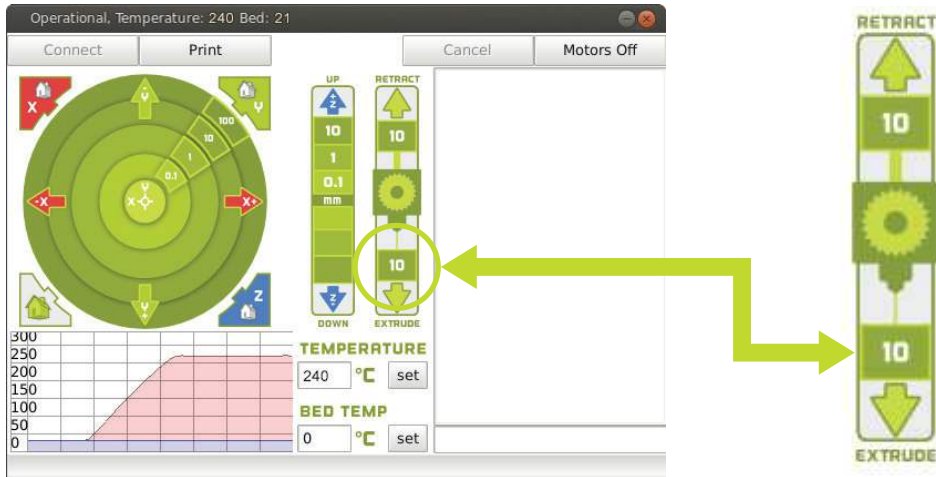
10B If you do not see filament coming through the nozzle and the drive gear stops moving, click the **Extrude 10** button once more and wait. Repeat as needed until you see consistent and repeatable extrusion.

Extruded Filament
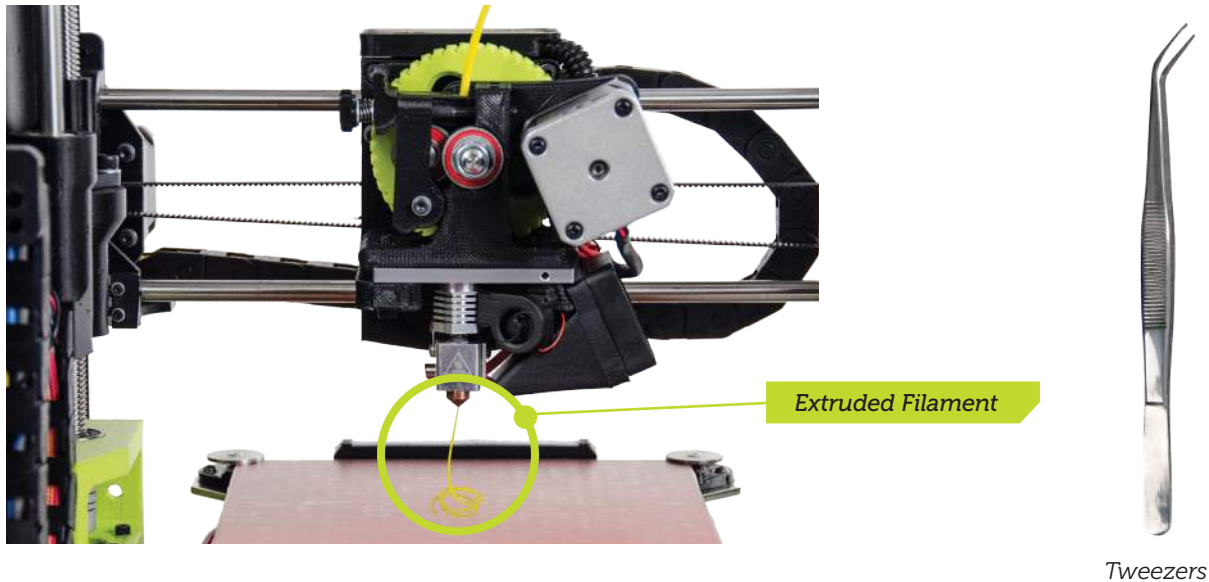
Tweezers

10C Wait ten seconds for the filament to cool, then remove the extruded filament with the included tweezers.

Start Your First Print

⚠ *Wait! Are you sure you are ready to print? Check one final time to make sure you removed all the packaging foam from your LulzBot Mini during Step 1.*

ⓘ *Did you make changes to your object on the virtual print bed after opening the Printer Interface window? If so, you will need to close the Printer Interface window and click **Control** again to incorporate these new changes.*

11A Click **Print** in the Printer Interface window to start your first 3D print, then watch your LulzBot Mini automatically prepare itself for 3D printing.
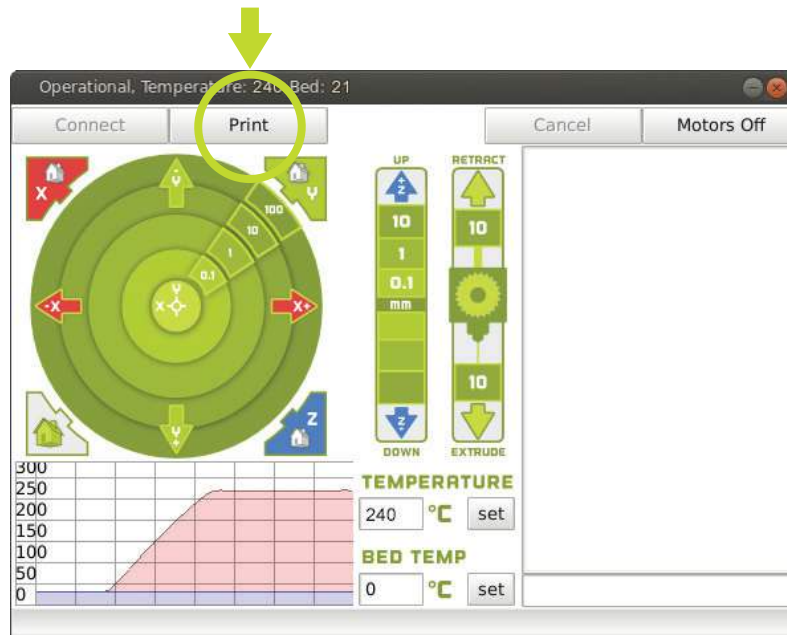
11B Your LulzBot Mini will first cool down and move to the back of the bed to clean off its nozzle. After cleaning, your LulzBot Mini will then conduct an automated bed-leveling sequence, heat up to final temperature, and start printing. This process can take approximately four minutes.

Nozzle Cleaning

Bed-Leveling Sensors
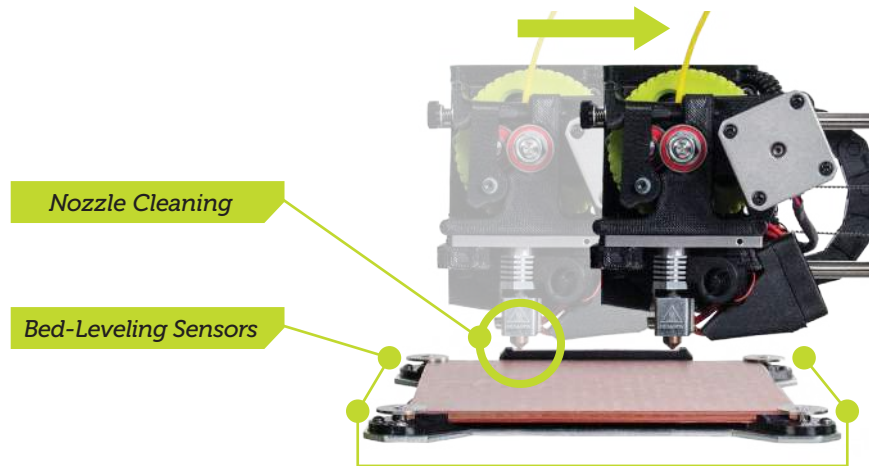
11C Watch as your very own rocktopus is made before your eyes! The total print time can take approximately 35 minutes.

12 Remove Your 3D Printed Object

12A After your LulzBot Mini is finished 3D printing, the hot end and print bed will automatically move into the cooling position (with the tool head in the top left and the print bed set back).

Cooling Position
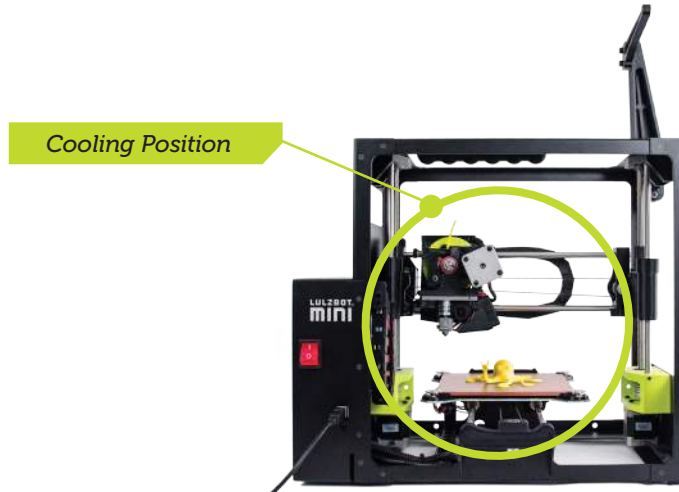
⚠️ *Your printer is now actively cooling. Do not attempt to remove your 3D printed object before the print bed moves forward. Attempting to do so could either burn your skin on the hot end or print bed, or damage your 3D printed object.*

12B Once finished cooling, the tool head will move to the top right and the print bed will move forward. After the print bed moves forward, remove the thin outer print layer. Then remove your rocktopus by lifting gently underneath it with the included blue handled knife. Carefully pry under each tentacle, then slide the blade under the center beneath its head.

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> *When in use, the blue handled knife blade should be nearly parallel with the print bed. Carefully pry away from the bed, with the sharp edge between the object and print bed. The blade is sharp, so exercise caution when using it.*
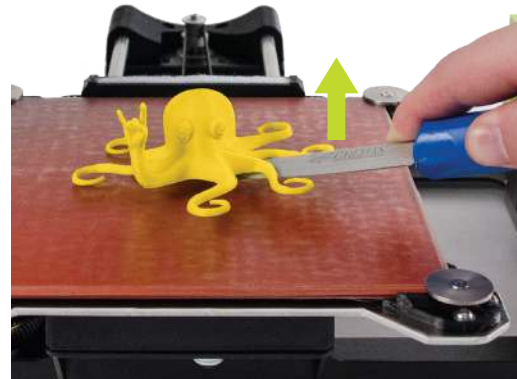
13 Rock On

Congratulations! Now that your LulzBot Mini is up and running, share your 3D printing skills on social media using *#rocktopus*.
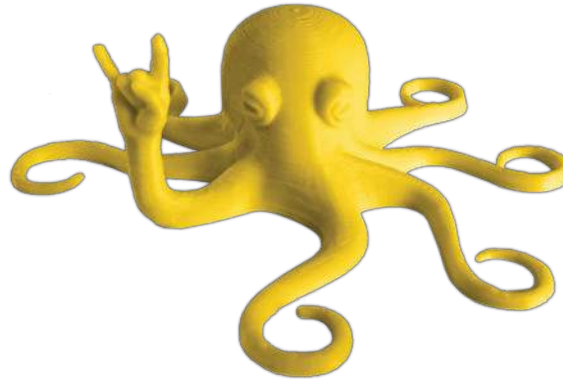
Don't forget to tag us in your post, then follow us for the latest news. You can find LulzBot on Twitter, YouTube, Facebook, Google+, and LinkedIn. Next, join us on the LulzBot Forum at *Forum.LulzBot.com*!

Need ideas for what to print next? Get inspired by starter projects available at *LulzBot.com/next*.

Your Next Print

14A There is a small length of the HIPS filament sample remaining in the hot end after your first rocktopus print. You can remove this remaining filament by following Step 6 and Step 7 (above).

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> *After removing filament (as outlined above), a small residual amount remains in the hot end that needs to be cleared out through a process called purging.*

14B If you plan to use a filament other than HIPS for your next print there may be a difference in the temperature required for purging the residual filament in the hot end, and then 3D printing with the new filament.

Identify the higher temperature between the two filaments (both the one you need to purge, and the new filament you want to print with). Using the Printer Interface window, set the hot end to the higher printing temperature between the two filaments. Load the new filament following the procedure in Step 7.

Filament Reference Guide

Filament	Printing Temperature (°C)	Print Bed Temperature (°C)	Print Bed Preparation (See Maintenance section for more information)
HIPS	240	100	Isopropyl alcohol wipe
ABS	240	110	Isopropyl alcohol wipe
PLA	200	65	Isopropyl alcohol wipe
T-Glase	240	60	Isopropyl alcohol wipe
Nylon 618	245	65	PVA Gluestick
Nylon 645	242	65	PVA Gluestick
Nylon Bridge	230	65	PVA Gluestick
LayWood	190	65	Isopropyl alcohol wipe
LayBrick	190	65	Isopropyl alcohol wipe

Selecting the higher temperature between the two filaments is important, otherwise you may lower the quality of your next print or even clog the nozzle.

14C Purge the residual filament that remains in the hot end using the **Extrude 10** button, as shown in Step 10. Wait until the drive gear stops moving and repeat as needed until you see consistent and repeatable extrusion of the new filament, then close the Printer Interface window.

You must close the Printer Interface window before proceeding so that the file information for your next print in Step 14D is captured.

14D Clear the virtual print bed by right clicking (or holding control and clicking) the rocktopus model and selecting **Delete Object**. Then upload the new model that you want to print next by clicking **Load Model** in the main Cura Interface.
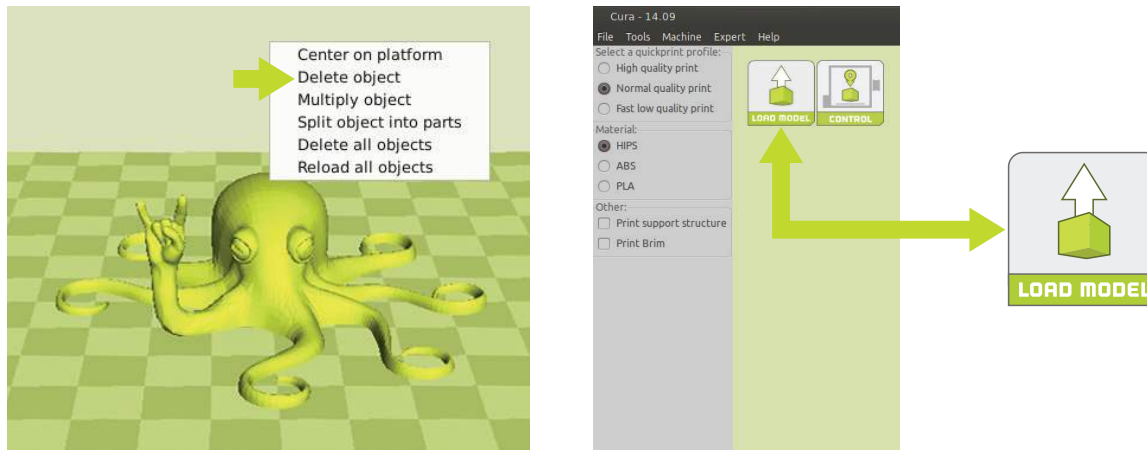
14E With your new object set, re-open the Printer Interface window by clicking **Control** in the main Cura interface and set the final temperature using the recommended temperatures from the *Filament Reference Guide* in Step 14B. Once the printer reaches temperature in the status bar, click **Print**.

14F Follow the object removal instructions outlined in Step 12.

Maintaining Your LulzBot Mini Desktop 3D Printer

Warranty and Support
Your machine comes with a comprehensive one-year warranty and customer support. For more information please visit us at *LulzBot.com/support*.

Source Files
This product is licensed as Open Source Hardware and runs with Free Software because we respect your freedom to see how it works, make modifications, and share your modifications with others. Find the source files online at *Download.LulzBot.com*, and see what's next by following our research and development online at *Devel.LulzBot.com*.

Filament Materials
Your LulzBot Mini utilizes an open format filament system. We strongly recommend you purchase your 3D printing filament materials from *LulzBot.com*, where every filament has been thoroughly tested to work on your printer and comes with optimized default settings for easier printing.

If you choose to purchase elsewhere, avoid low quality filaments that can lead to failed prints and even damage your LulzBot Mini. Low quality filament can contain foreign objects, unlisted material blends, voids and density variations, and varying filament diameter. Purchasing consistent and reliable filament is key, and well worth it to protect your investment in a LulzBot.

Nozzle Wiping Pad
Over time your **nozzle wiping pad** will need to be replaced. If in observing the nozzle wiping sequence the cleaning appears to be less effective, and is leaving more filament residue on the nozzle, be proactive in replacing the nozzle wiping pad. This process is vital to the continued functioning of your LulzBot Mini. A clean metal surface on the nozzle is critical for the automated bed leveling process to be successful.

Replacement time for the nozzle wiping pad will vary depending on the types of materials you are 3D printing with. Several spares are included with your LulzBot Mini, and additional nozzle wiping pads are available for purchase online at *LulzBot.com*.

Print Bed
Make sure that the hot end and print bed are completely cooled and at room temperature before beginning any cleaning or maintenance of the print bed.

Your LulzBot Mini has a **PEI film** print surface, which helps printed objects adhere to the bed. Note that the oil on your skin can negatively affect print adhesion. For optimal performance, lightly wipe the print bed with a dry paper towel between prints.

If you start seeing adhesion issues and your prints are not sticking to the print bed, carefully wipe the bed with isopropyl alcohol, which you can purchase from your local pharmacy. A light and gentle sanding with fine (2000-3000 grit) sandpaper is also helpful, which you can purchase from your local hardware store. For some filaments a polyvinyl alcohol (PVA) glue stick, such as Uhu brand glue stick, can also improve bed adhesion.

Tool Head Cleaning
Make sure that the hot end and print bed are completely cooled and at room temperature before beginning any cleaning or maintenance of the tool head.

Included with your printer you will find a **dental pick** and **thin wire brush** for cleaning the hobbed bolt component of the tool head. (The hobbed bolt is the small grooved metal part of the tool head that feeds filament into the feed hole.)

Over time you may also experience an accumulation of filament on the nozzle and heater block. To clean up this accumulated filament, heat the hot end up to 180°C and then carefully wipe affected areas using a clean dry cloth.

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