MOOZ 2 Plus Operation Manual

Safety Information

Improper operation can cause fire, personal injury, or other serious consequences, please

read this section through before operate the machine, and make sure anyone else who uses it do the same thing.

- Do **NOT** use the machine if you are under influence of alcohol or drugs.
- Do **NOT** try to modify the machine under any circumstance.
- **NEVER** try to access the wiring of the machine.
- Do **NOT** try to repair the machine without following any related instructions.
- **NEVER** try to open the power adapter or any other sealed electrical-related components of the machine.
- To prolong service life of your machine, do **NOT** use or store it in where extreme temperature or humidity is involved.
- Do **NOT** put things on the machine.
- **NEVER** use the machine in where flammable vapors like paint, acetone, gasoline, or alcohol is involved.
- Children requires supervision and assistance of an adult to operate the machine at all times.
- Always make sure that there is a well maintained and inspected fire extinguisher close to the machine, and make sure people who operates the machine knows how to use it.

For 3D printing

- Do **NOT** expose your skin to the 3D printing module, especially the nozzle directly before knowing the nozzle is cool enough for safety.
- Do **NOT** use unqualified or unsupported filament under any circumstance.
- Use the protective shield for safety of people around.

For laser engraving

- Wear the safety googles before you set up the machine for laser engraving, and throughout the laser engraving process.
- Use the protective shield for safety of people around.
- **NEVER** stare at the laser beam directly even with the protection of the safety googles.
- Improper laser engraving operation can cause fire, skin or eye injury from laser exposure.
- **NEVER** leaves the machine unattended while operating, keep it within sight and check it at least every 15 minutes.
- Lasers are subject to local regulations and standards, ensure that you comply with all applicable rules before setting up the machine for laser engraving.

For CNC carving

- Wear the safety googles before you set up the machine for CNC, and throughout the carving process.
- Use the protective shield for safety of people around.
- Improper CNC carving operation can cause injury or other serious consequences from the sharp CNC bits.
- Always keep a safety distance between yourself and the CNC bit when it is rotating.
- Store the CNC bits in where beyond reach of children.

- Make sure the material you are using is supported before carving, refer to the FAQs.
- **NEVER** leaves the machine unattended while operating, keep it within sight and check it at least every 15 minutes.
- Stop the machine if anything abnormal happens.
- In order to keep the machine in good condition, it is important that you should clean it up after using.

FCC Requirement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)   This device may not cause harmful interference, and.

(2)   This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CE :

All RF frequencies are not restricted in EU member states.

FCC ID: 2AHI4-MOOZ-2-PLUS

R   214-106455

3D Printing

1 Set Up the Machine for 3D Printing

Please refer to **Section 3** in the **Quick Start Guide** in the package or at www.dobot.cc/quickstartguide for the instructions.
Video tutorial: www.dobot.cc/3D-printing-video-tutorial

2   Filament Installation and Calibration

Please refer to section 4 in the Quick Start Guide in the package or at www.dobot.cc/quickstartguide for the instructions.
Video tutorial: www.dobot.cc/3D-printing-video-tutorial

3   Generate G-code and Start Printing

3.1 Generating G-code Using MOOZ Studio

MOOZ Studio is under upgrading to support this feature, we will fill this section when it is ready.

### 3.2 Generating G-code Using 3rd party free software Ultimaker Cura

This section is based on Ultimaker Cura 4.4, it only supports 64bit operating system, if your computer is 32bit, please select a previous version, v15.04 or v2.3.1 is suggested.
Video tutorial: www.dobot.cc/Cura-slicing-online-printing-tutorial
Download and install Ultimaker Cura 4.4: https://ultimaker.com/software/ultimaker-cura.

3.2.1   Configure Cura for MOOZ:

- **Method 1: Overwrite the software configuration folder with the one we provided here:** www.dobot.cc/cura-configuration-folder-profiles
  - A.   Close Cura if its running
  - B.   Delete the default configuration folder named "cura" if it is exist, for Win7, it is in the path: C:\Users\<USERNAME>\AppData\Roaming
  - C.   Copy the downloaded configuration folder to the path
  - D.   Run Cura and prepare the software for MOOZ

A: Close Cura if it is running
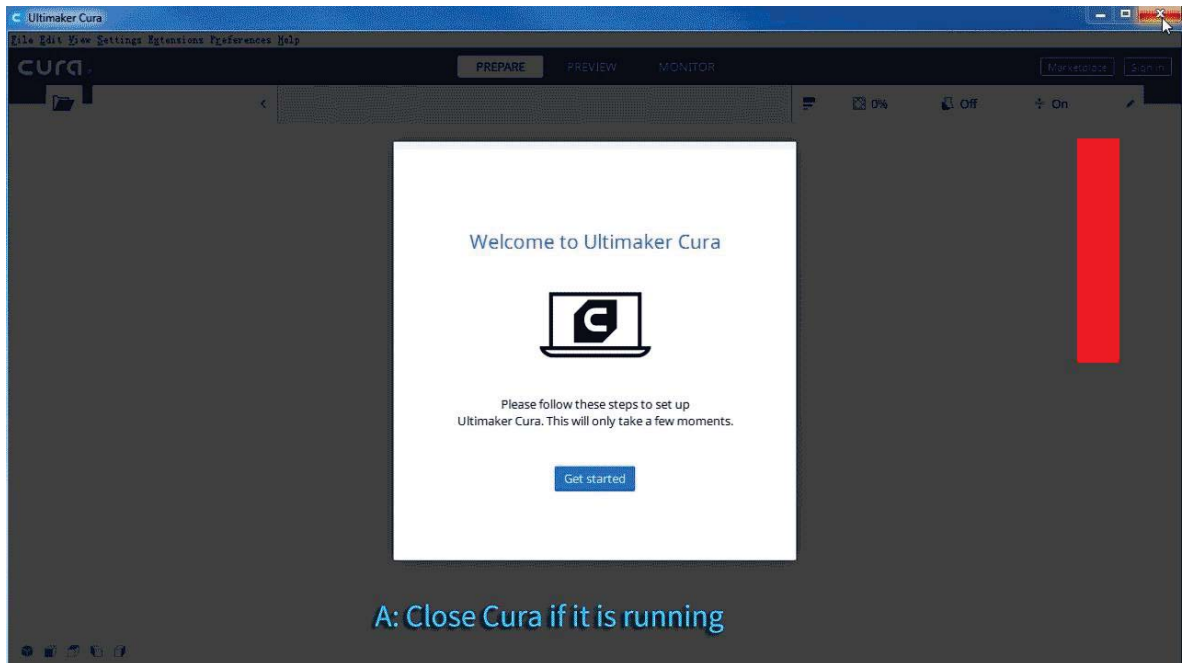
- **Method 2: Configure Cura manually after launching**
  - ➢ Run Ultimaker Cura 4.4 and follow the prompts to set the software up, when it comes to "**Add a printer**",
    go "Add a non-networked printer"-> "Custom"-> "Custom FFF printer"
    And name the printer as you prefer.
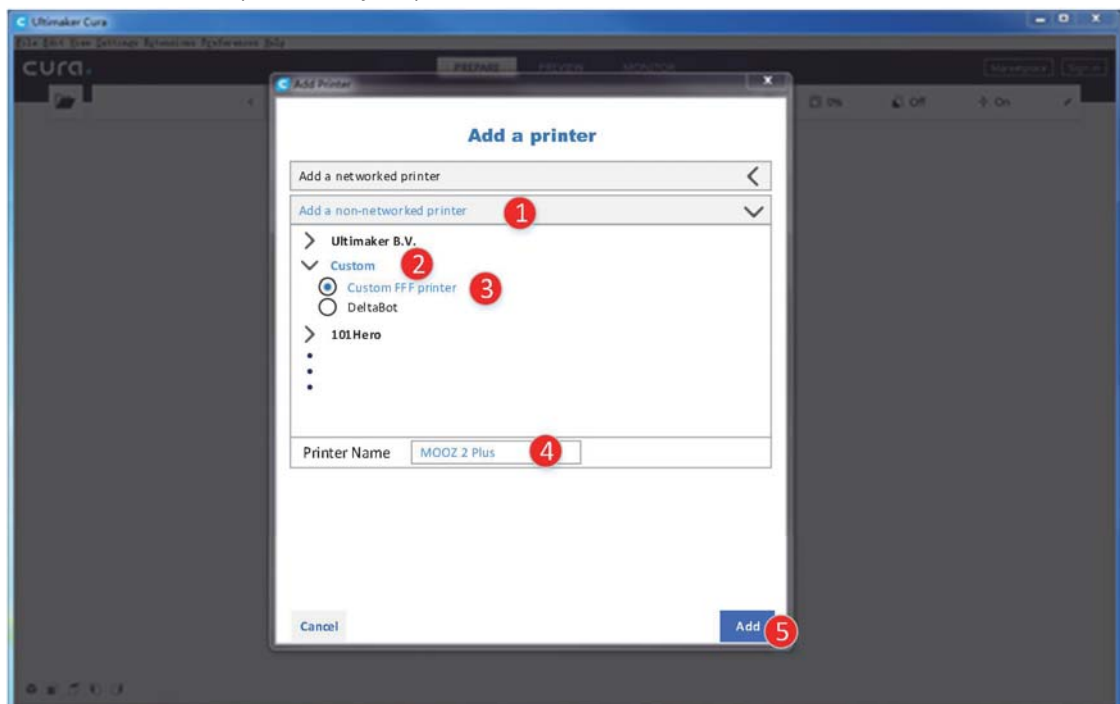
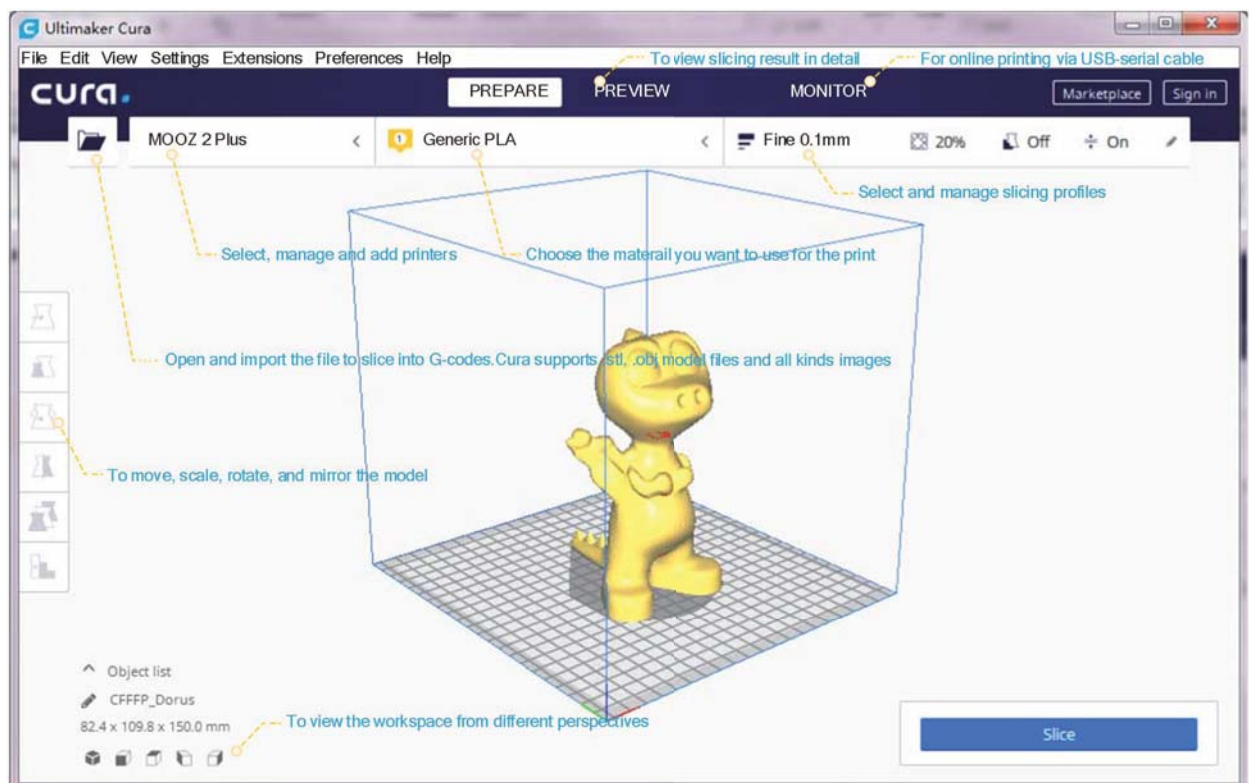
  - ➢ Configure the printer settings and extruder settings
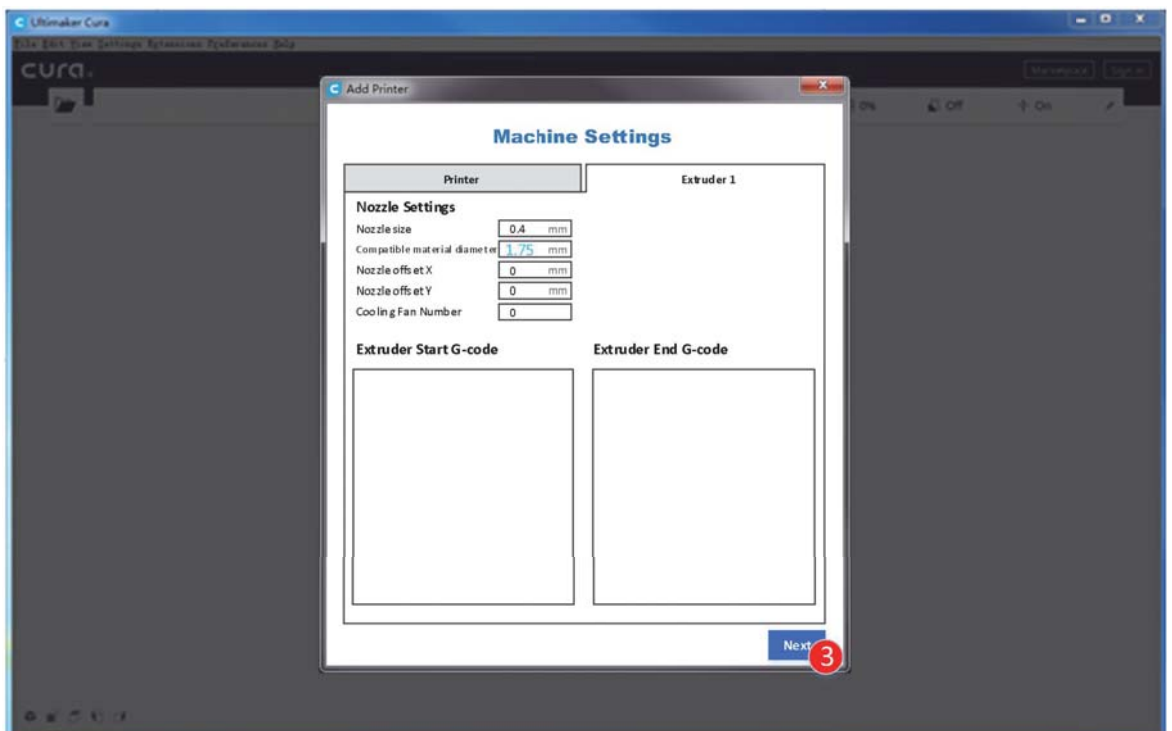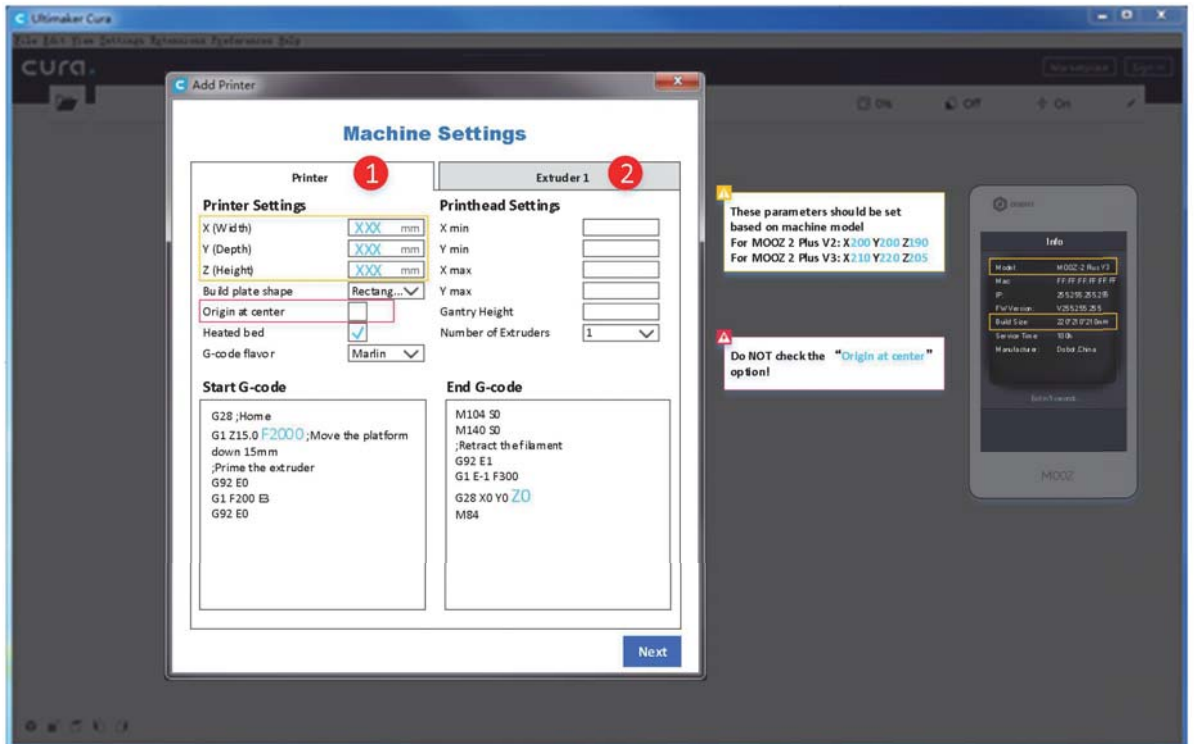
➢ Download the profiles from www.dobot.cc/cura-configuration-folder-profiles and import them into Cura. (No need to do this if you used Method 1 to configure Cura.)
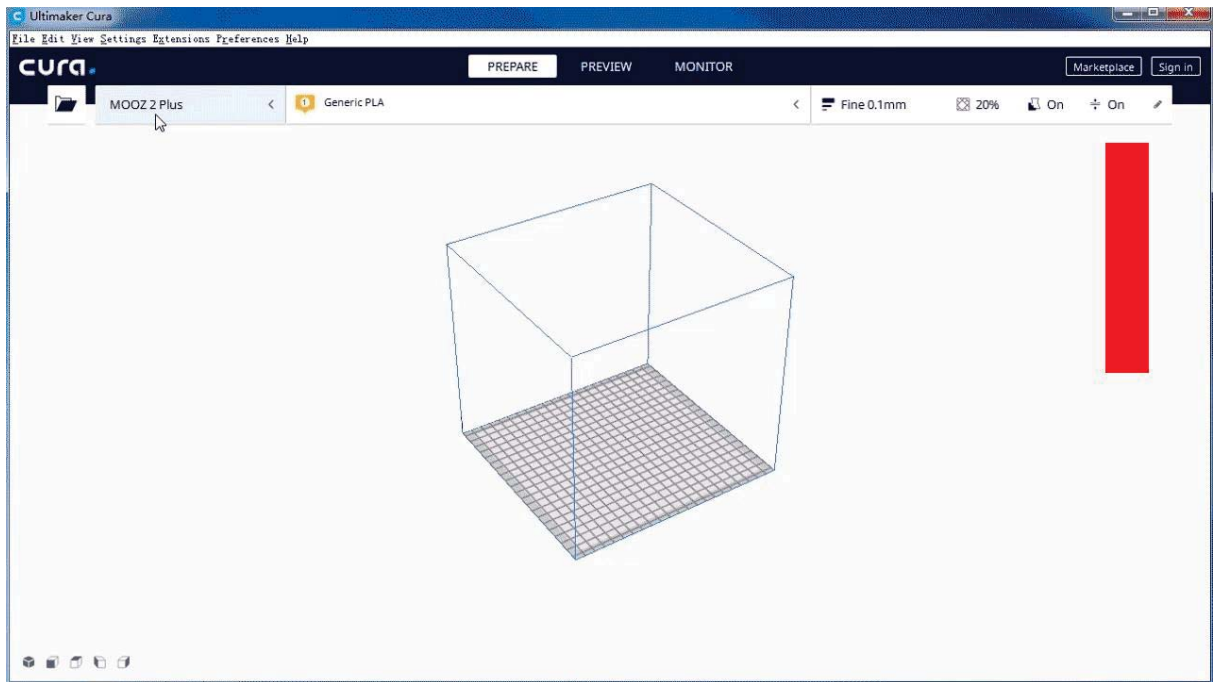
3.2.2   Generate G-code

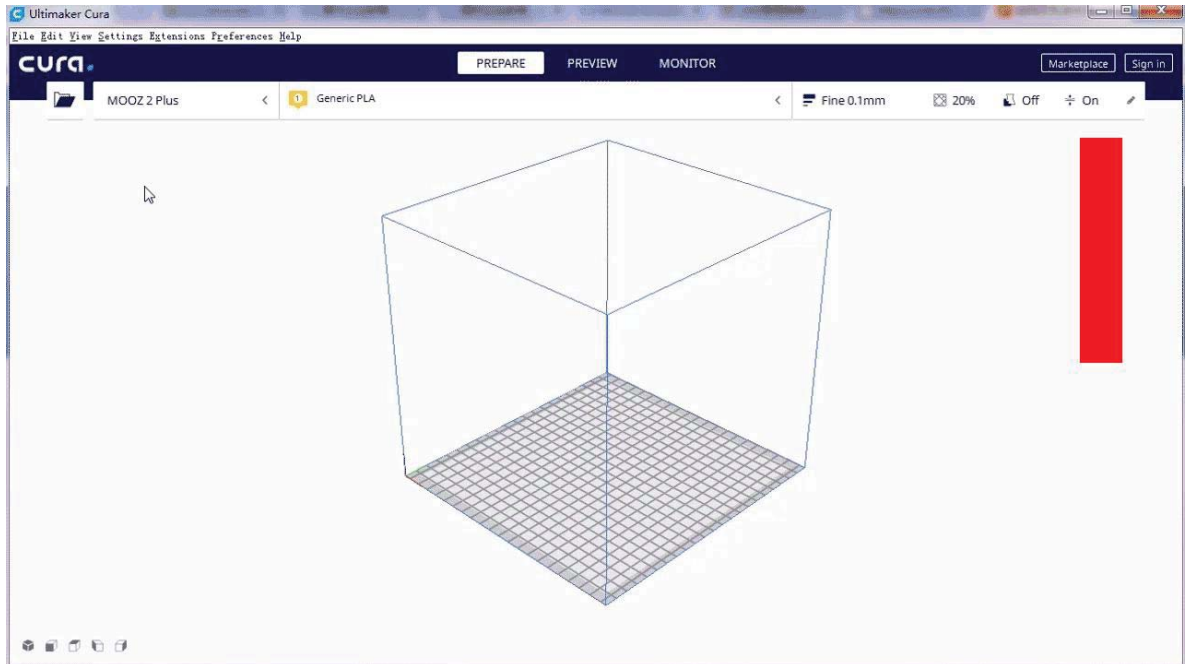● **Get familiar with the software interface**

● **General steps to create G-code:**
  A.   Open the 3D model file (stl or obj) or image file you want to print, you can also
   drag the file into the workplace directly.

B. Move, scale, rotate and mirror the model as you need.
C. Select the Material you are using.
D. Select the one of the imported profiles we provided for the model.

E. Select the Adhesion type you prefer for the model

None: Use this option if you are sure the models can stick to the heated bed properly.

Skirt: Prints one or more lines around the model but not connected to the model. It helps to prepare the extruder and nozzle before the print starts.

Brim: Add a single layer flat area around the base of your model, it helps the model to stick to the heated and prevent warping.

Raft: Prints a thick grid with a roof below the model to prevent warping and to make sure the model sticks to the heated bed.

F. Select the Support type based on the model structure, if there are severe overhangs. Cura supports two kinds of support type:

Touching build plate: Support structure will only be printed on build plate, not the model.

Everywhere: Support structure will also be printed on the model.
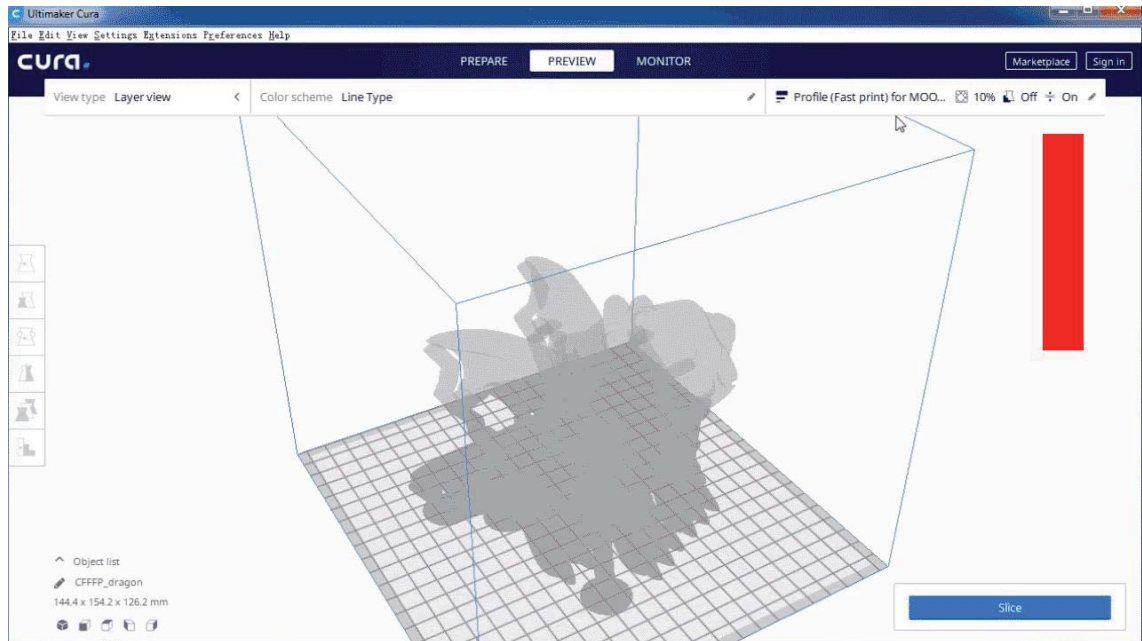
G. Click "Slice" to generate G-code

3.3 Start Printing

Connect the printer to the computer via the USB-Serial cable for online printing or save the G-code file to your USB flash drive for offline printing.

For offline printing, refer to the video tutorial: www.dobot.cc/3D-printing-tutorial.

For online printing, you need to install the USB-Serial CH340/341 driver first, download link for the driver: www.dobot.cc/USB-Serial-CH341/340-driver. Refer to video for online printing at www.dobot.cc/Cura-slicing-online-printing-tutorial.

3.4 Remove the Print

After the printing finished, please wait until the nozzle and heated bed cool down. And bend the flexible steel sheet gently to remove the print.

Note: Be careful of sharp edge of the steel sheet, always wear gloves to avoid risk of injuring your hands.

柔性热床取模型动画

3.5 Change Filament

3.5.1. Change Filament During Printing

打印过程中更换耗材动画

3.5.2. Change Filament When Filament Runs Out

断料检测触发后更换耗材动画

3.6 Resume Printing after Power Loss

断电续打操作动画

4 FAQs

- **What should I do when the model is not printed in the center of the heated as expected?**
  A. Check if the 3D printing modules is installed with the right set of screw holes, for MOOZ-2 Plus, all functional modules should be installed on X axis with the right set of screw holes viewing from the back of the machine.
  B. Check if the machines settings are correctly configured, refer to **Section 3.2.1** in this manual.
  C. If the printer keeps printing around left corner of the heated bed, check if the "**Origin at center**" option is unchecked as it supposed to be, refer to **Section 3.2.1** in this manual.
- **What should I do if the amount of material extruded is far from enough?**
  Two causes will lead to the "under extrusion" issue:
  A. Wrong setting of material diameter in the slicing software, MOOZ use standard 1.75mm diameter filament. Check the machine settings to make sure of that, refer to **Section 3.2.1** in this manual.
  B. The nozzle is blocked by carbonized material after long time service, which need to be cleaned or replaced. Refer to the next **FAQ** to deal with this kind of situation.
- **How to clean the nozzle if it is jammed?**

Heat the nozzle to target temperature, use the touchscreen to remove the filament. Cut off the bulge/deformed end of the filament, straighten the filament and reinstall it. Check if the filament can be extruded normally after reinstallation.

A. If the filament can only be partially extruded, that there is big resistance inside the extruder or nozzle causing slipping of filament feeding:

Use the traditional "Cold Pull" method to clean the nozzle, there is a lot of information online for your reference.

Replace the nozzle or hot end with the spare one coming with the package, refer to the video tutorial for instructions: www.dobot.cc/3D-printing-module-maintenance.

B. If the nozzle is total blocked and filament cannot be extruded at all:

Disassemble the printing module to troubleshoot the issue, refer to the video tutorial for instructions: www.dobot.cc/3D-printing-module-maintenance.

- **What should I do if one of the linear rails moves abnormally?**

Firstly, you need to run some tests to figure out if the issue is caused by poor cable contact, or faulty linear rail/rails, or problem of the corresponding port on the controller. Please follow the steps below strictly to troubleshoot the issue:

A. Power off the machine, unplug and plug all cables correctly. Turn the power on and use the touchscreen to perform the "Homing" operation, check if the problem is solved.

B. If the issue is still there, the next thing you need to do is identify which linear rail/rails is causing the problem. Skip this step if you already positive about it.

To identify which linear rail is causing the issue:

✧ Power off the machine, leave only 1 axis linear rail/rails connected to the controller at a time, for example, to test if the problem is caused by Z axis linear rails, you should keep the Z axis linear rails normally connected to the controller via the 1-to-2 adapter, and disconnect the X axis rail and Y axis rail from the controller. Then power on the machine and perform the "Homing" operation to check if the linear rail/rails moves normally, you may need to wait a bit longer for the machine to respond in this case.

C. After identifying which linear rail/rails is the cause, the next step is to find out if the issue is caused by faulty linear rail/rails, or problem of the corresponding port on the controller:

✧ Power off the machine, connect the identified linear rail/rails to another linear rail port on the controller, for example, if it is the Z axis linear rails, connect the Z axis linear rails to X port or Y port via the 1-to-2 adapter, and keep the left two linear rail ports remain empty. Then power on the machine and perform the "Homing" operation to see if the linear rails moves normally, you may need to wait a bit longer for the machine to respond in this case.

D. If the identified linear rail/rails operate normally when connected to another linear rail port, then cause of the issue should be the controller. Otherwise it should be the linear rail/rails itself. In either case, send an email to us for support: mooz@dobot.cc.

- **How to update controller firmware and touchscreen firmware?**

Download the latest controller firmware at www.dobot.cc/controller-firmware.

A. **Method to update the controller firmware**: Place the .bin file in the root directory of your USB flash drive. Install the USB flash drive, power on the machine and updating progress will be displayed on the touchscreen. If the machine is already updated with latest firmware, the touchscreen will display "**No need to update…**".

    Note: File system format of the USB flash drive you are using must be FAT32, USB flash drive with hidden partition or capacity greater than 32GB is not supported.

    If nothing happens on the touchscreen when you try to update the controller firmware, check if the USB flash drive you are using is qualified, and try rename the firmware version and update again, for example if the latest controller firmware is "XXX V1.2.5.bin", rename it "XXX V255.255.255.bin".

Download the latest touchscreen firmware at www.dobot.cc/touch-screen-firmware.

B. **Method to update the touchscreen firmware**: Place the .tft file in the root directory of your SD card. Insert the SD card into the touchscreen and power on the machine. Power off the machine and remove the SD card after updating.

    If the touchscreen says "The system detects multiple tft files…"

    This kind of issue is more likely to happened when you use macOS PC to download and copy the touchscreen firmware, since somehow macOS will create a hidden backup tft file in your microSD card. In this case, please delete the backup tft file and update again.

    Note: File system format of the micro SD card you are using must be FAT32, SD card with hidden partition or capacity greater than 32GB is not supported.

- **What should I do if the printer or touchscreen is not responding?**

  Check download center of our official website for the latest version of firmware, update both the controller firmware and touchscreen firmware. If your printer is already updated with the latest controller firmware, try rename the firmware version and update again, for example if the latest controller firmware is "XXX V1.2.5.bin", rename it "XXX V255.255.255.bin".

- **What should I do if the printing stops suddenly, or the machine reboots or shuts down during printing?**

  A. Check download center of our official website for the latest version of firmware, update both the controller firmware and touchscreen firmware.

  B. Check if the power adapter is properly plugged into the controller.

  C. Open the G-code file with text editor and check if it is damaged. An intact 3D printing G-code file should end with the "**End G-code**" you configured in **Section 3.2.1**. We recommend you test you test the printer with the G-code file we provided at www.dobot.cc/ready-to-use-test-gcodes.

  D. Use qualified USB flash drive or microSD card, make sure the file system format of USB flash drive or microSD card you are using is FAT32, with no hidden partition, and with capacity not greater than 32GB. Test the printer with another USB flash drive or microSD card if possible.

  E. If any of the suggestions above failed to solve the issue, send an email to us for support: mooz@dobot.cc.

- **What should I do when the nozzle cannot be heated at all?**

A. Make sure the filament is properly inserted to turn off the filament runout sensor.
B. Restart the machine and use the touchscreen to check if the nozzle current temperature is correctly indicated, normally it should indicate the ambient temperature if not been heated recently.
C. If the indicated nozzle temperature is abnormal, power off the machine and replace the temperature sensor with the spare one coming together with package, power on the machine and check if the issue is solved. Refer to the video tutorial for maintenance of 3D printing module: www.dobot.cc/3D-printing-module-maintenance.
D. Check if the Green light inside the 3D printing module is on. If it is not, open the 3D printing module and check if all cables are properly connected. Refer to the video tutorial for maintenance of 3D printing module: www.dobot.cc/3D-printing-module-maintenance.
E. If the Green light inside the printing module is normally on, try heat the nozzle and set the target temperature. Check if the Red light inside the 3D printing module is on or flashing during nozzle heating.
F. If the Red light is not on or flashing during nozzle heating, cause of the issue could be faulty control board inside the 3D printing module.
G. If the Red light is on or flashing during nozzle heating, and the indicated nozzle temperature still doesn't increase at all, then either the heating rod is damaged or not properly connected.

- **What should I do if the nozzle can be heated but cannot reach the target temperature?**
  A. Check if the temperature sensor is properly inserted into the hot-end.
  B. Power off the machine and replace the temperature sensor with the spare one coming together with package, power on the machine and check if the issue is solved.

- **What should I do when the first layer of the print failed to stick the heated bed, or there is warping at the bottom of the print?**
  A. Follow the **Quick Start Guide** to level the heated bed and set the zero point again.
  B. Make sure the heated bed is clean and clean it with alcohol thoroughly.
  C. Use **Raft** as the adhesion type when generating G-code.
  D. Lower the **Top/Bottom Speed** when generating G-code.
  E. Increase the **Build Plate Temperature** to about 70℃ when generating G-code.
  F. If the print still fails to stick to the heated bed, try use painters tape on the surface of heated bed.
  G. Replace the heated bed sticker if it is damaged.

- **How to replace the hot-end and nozzle?**
  Refer to video tutorial: www.dobot.cc/3D-printing-module-maintenance.

- **How to replace the heated bed sticker?**

- **What material does the printer support?**
  MOOZ supports a variety types of filament: General PLA, silk PLA, wood PLA, copper PLA and other kinds of PLA; flexible TPU; PETG; and more to be tested⋯

- **Where can I get profiles for Simplify 3D?**
  Download profiles for Simplify 3D at www.dobot.cc/profile-for-simplify-3D.
- **Where can I get free 3D printer models?**
 Popular free 3D printer models download website: www.thingiverse.com and www.youmagine.com.

5 TIPs

- Since support structure will affect quality of the print, and the total print time, try rotate the model to reduce or remove support structures if possible.
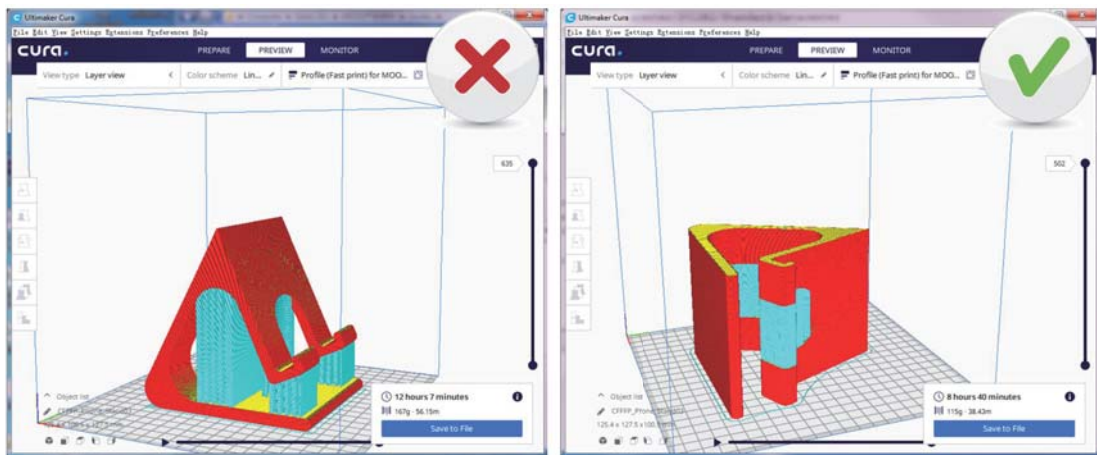
- Since the model cooling fan is installed on the left inside the 3D printing module, when creating G-code with Cura, try rotate the side with severe overhangs to the left for better results.
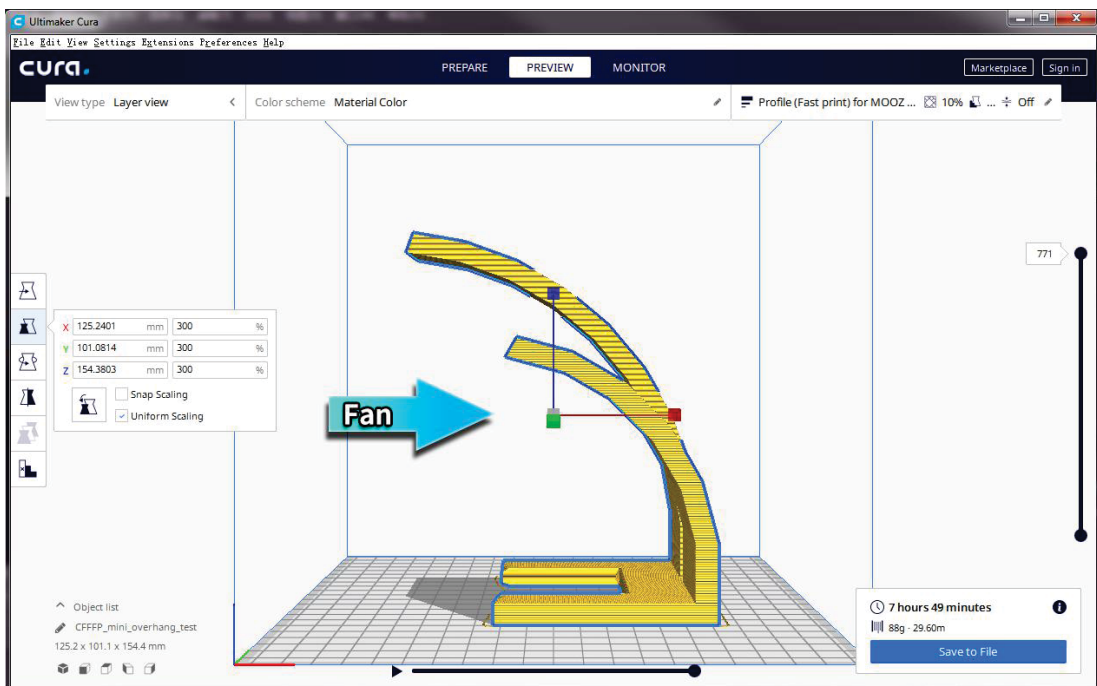
- Rearrange the filament to avoid intertwining after the printing starts.

Laser Engraving

1 Set Up the Machine for Laser Engraving

Please refer to **Section 2** in the **Guides for Laser Engraving** at www.dobot.cc/guides-for-laser-engraving for the instructions. Video tutorial: www.dobot.cc/laser-engraving-setup-tutorial.
For setup the protective shield and safety switches: www.dobot.cc/protective-shield-setup-tutorial.

2 Generate G-code and Start Engraving

2.1 Generating G-code Using MOOZ Studio

Download and install the latest version of MOOZ Studio: www.dobot.cc/MOOZStudio-package.
Follow the video tutorial at www.dobot.cc/laser-engraving-gcode-generate-using-MOOZStudio-tutorial to generate G-code files.
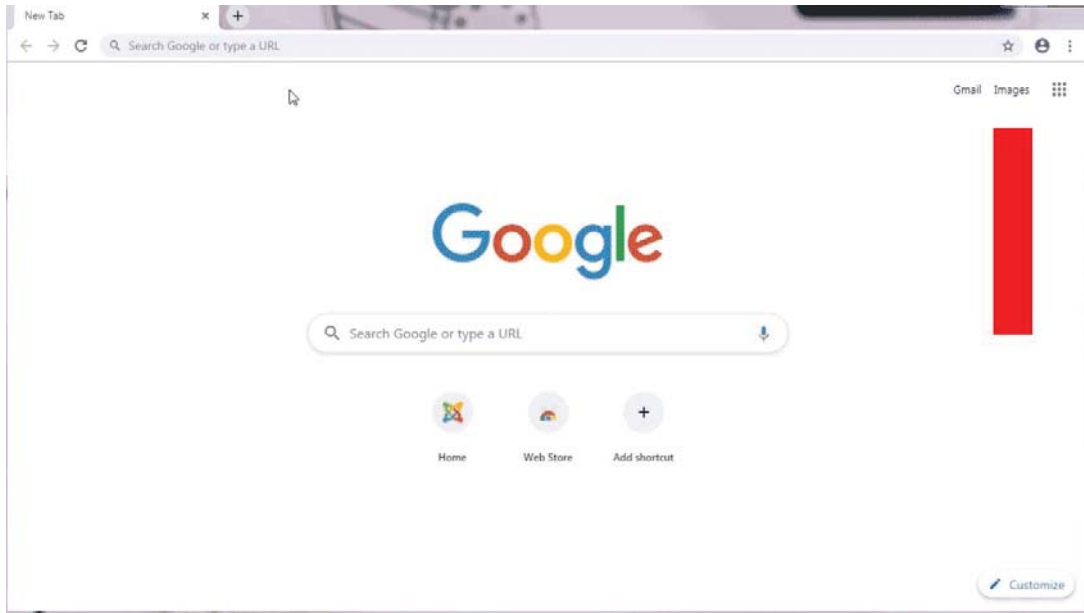
2.2 Generating G-code Using 3rd Party Free Software LaserWeb
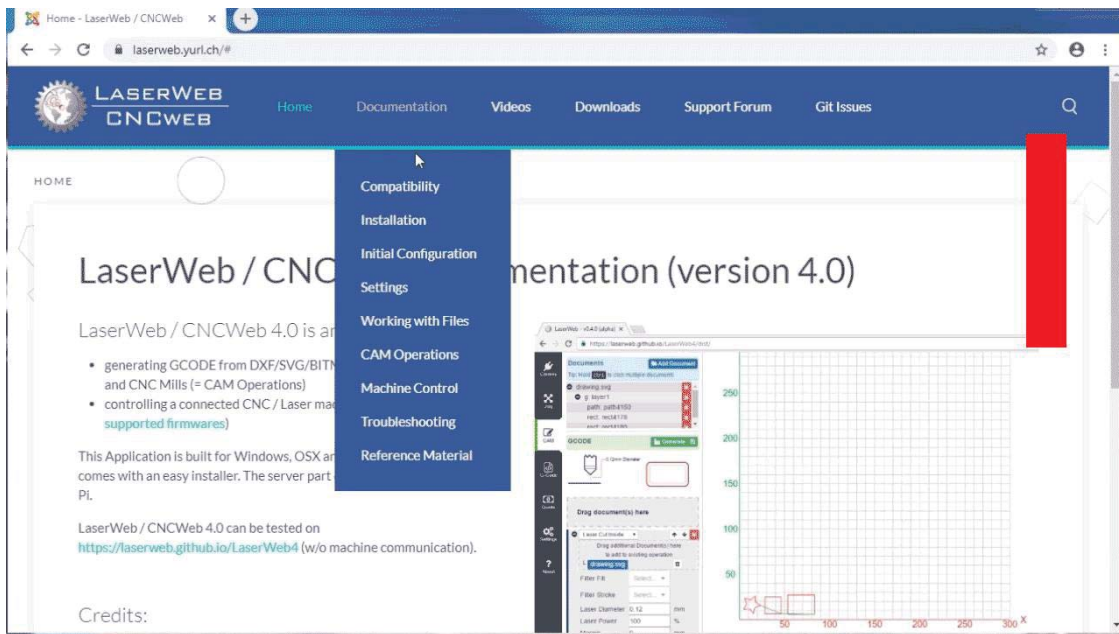
This section is based on LaserWeb v4.0.996-134.
Video tutorial: www.dobot.cc/laserweb-gcode-generate-tutorial.

2.2.1   Download and Install LaserWeb

- **Download and install LaserWeb at https://laserweb.yurl.ch/.**

- **Read the online documentation thoroughly to get familiar with software.**

2.2.2   Configure LaserWeb for MOOZ

- **Download the configuration files at** www.dobot.cc/laserweb-file-package.
- **Run the and configure the software:**
  A. Load the corresponding settings file "laserweb-settings-for-XXX.json" to "Tools->Settings" based on the printer model.
  B. Load the machine profile file "laserweb-profiles-for-XXX.json" to "Tools->Machine Profiles".
 C. Switch to the machine you just configured.
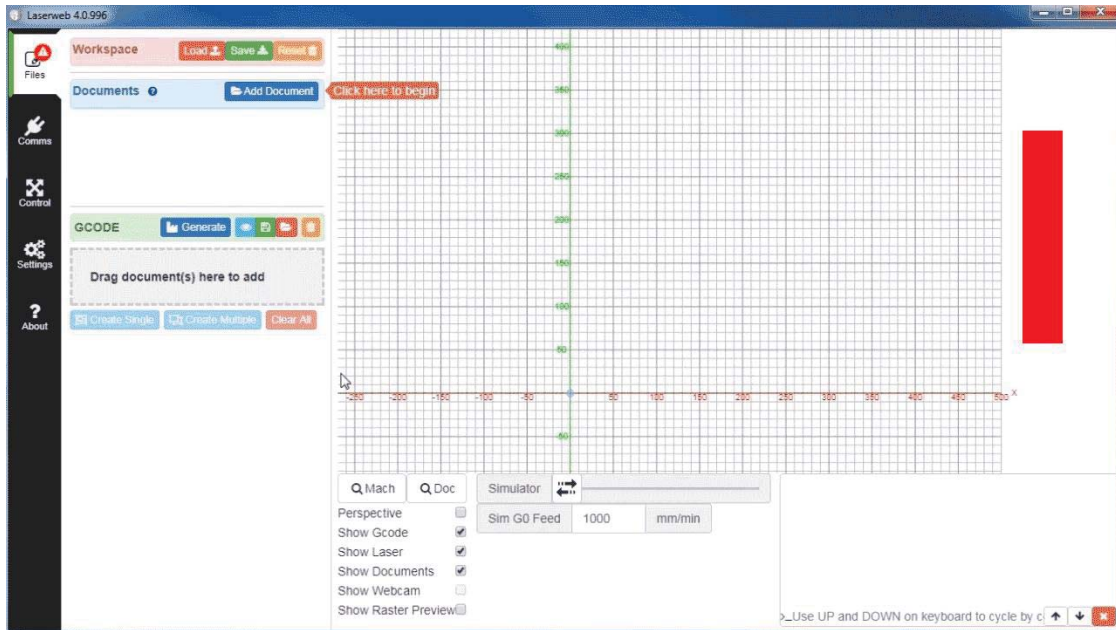
2.2.3 Generate G-code

- **General steps to create supported G-code file with LaserWeb:**
  - A. Add files you want to engrave into LaserWeb, and adjust their sizes and positions. LaserWeb supports a variety types of raster images (.png, .jpg, .jpeg, .bmp) and vector graphics (.svg, .dxf).
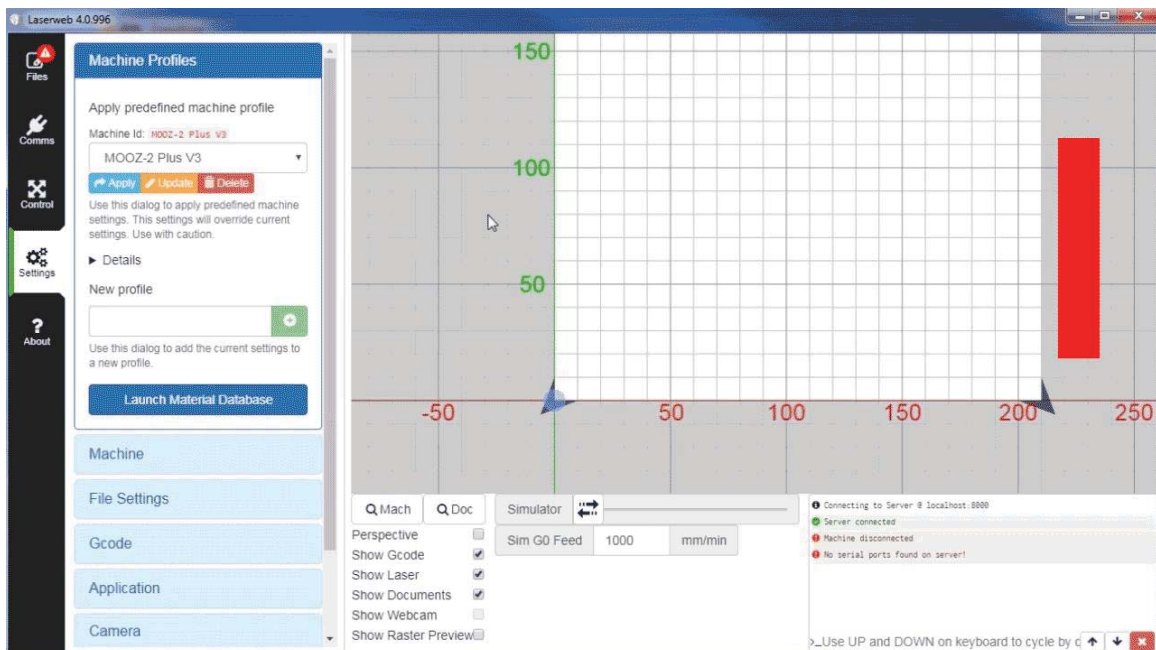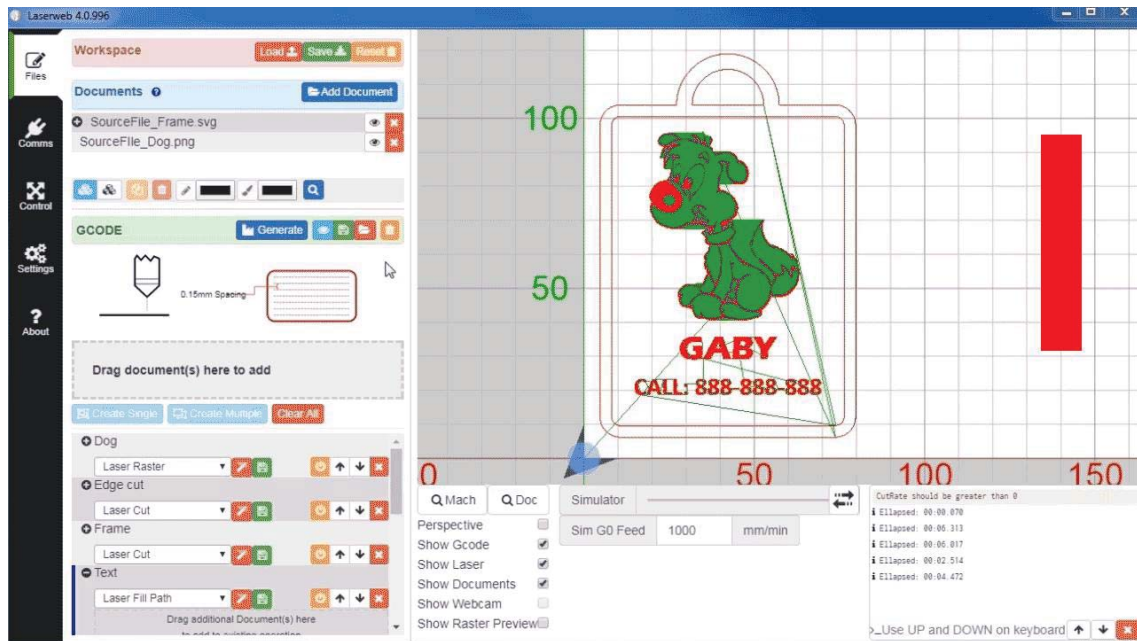

  - B. Use the added files to create engraving paths, assign different parameters to each path as you prefer.
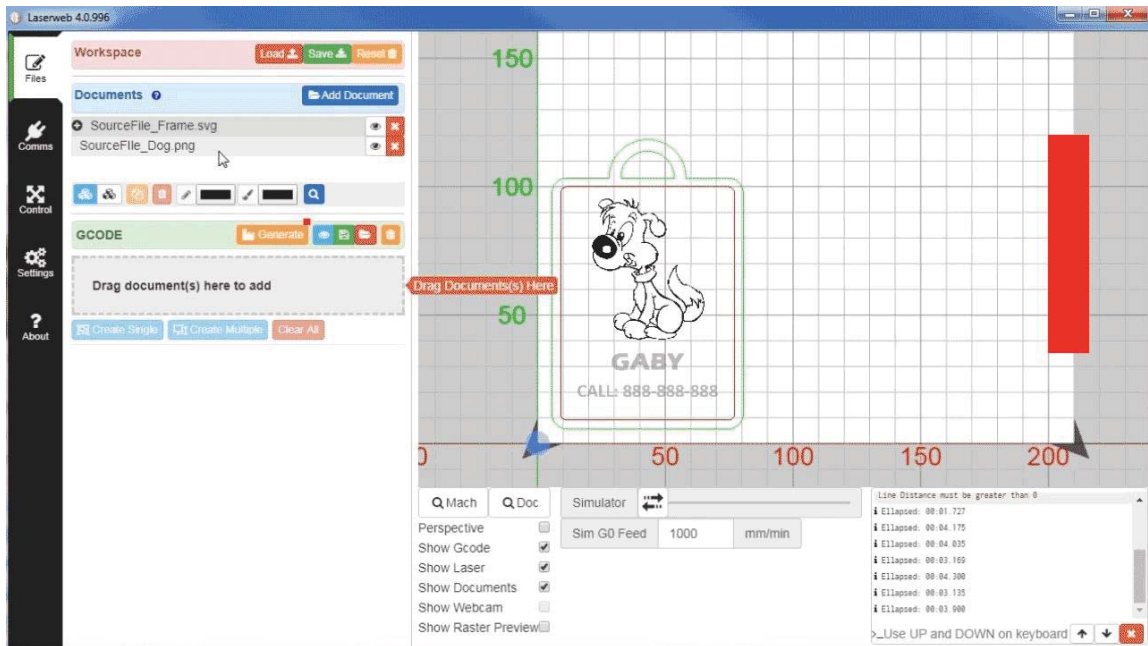
C. Generate G-code based on the paths you created.

D. Check if the simulations result is as expected.
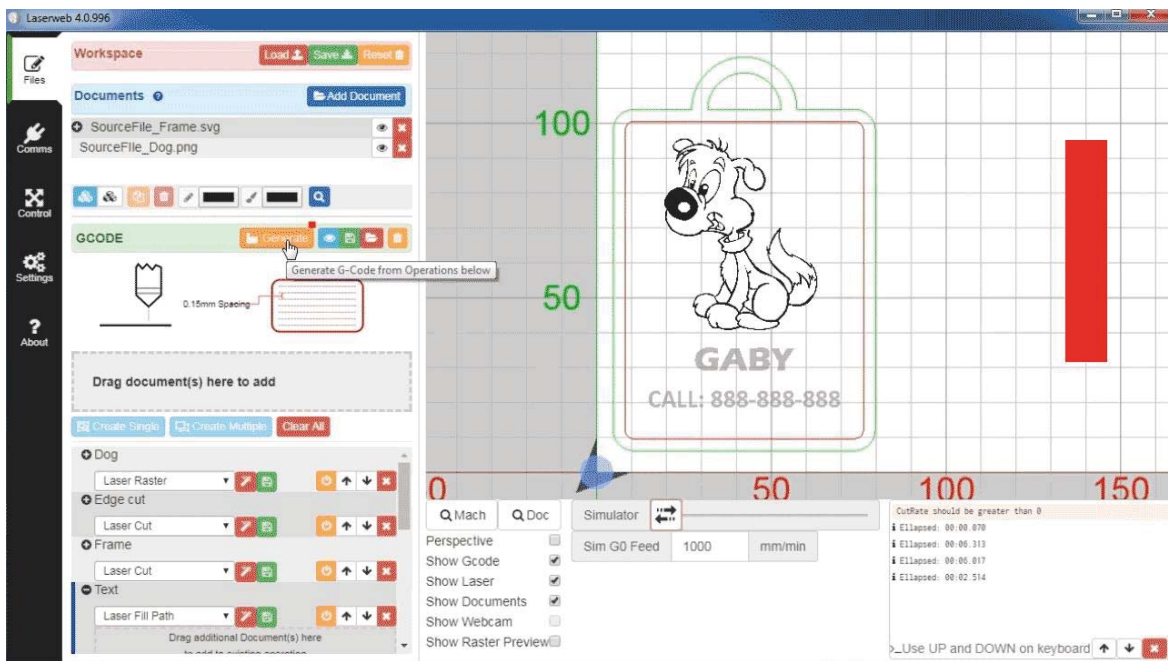
E. Export the G-code to file, make sure the file name ended with ".gcode ".

F. Open the exported G-code file with text editor and replace all "**; stripped: S**" with "**S**", and save the file.

G. Copy the revised G-code file to your USB flash drive for offline engraving.

2.3 Start Laser Engraving

- **Fix the material.**
- **Focus the laser beam and set the zero point (also known as work origin).**
- **Connect the printer to the computer via a USB-Serial cable for online printing or save the G-code file to your USB flash drive for offline engraving.**

  For offline engraving, refer to the video tutorial: www.dobot.cc/laser-engraving-setup-tutorial.

  For online engraving, you need to install the USB-Serial CH340/341 driver first, download link for the driver: www.dobot.cc/USB-Serial-CH341/340-driver. Refer to video for online engraving at www.dobot.cc/laserweb-online-engraving.

3 FAQs

- **List of supported materials for laser engraving.**

  Wood, bamboo, leather, paper, plastic, fabric, no-transparent acrylic.
- **List of unsupported materials for laser engraving.**

  Metal, glass, transparent materials, reflective materials, etc.
- **What is the specification of laser engraving module?**
    - ✧ **Key component**: Focusable blue laser diode
    - ✧ **Wavelength**: 445nm~450nm
    - ✧ **Output Power**: 1600mW Max.
    - ✧ **Classification**: Class 4 (IV)
    - ✧ **Input current**: >1.5A
    - ✧ **Operating voltage**: 12V DC

✧ **Cooling method**: Heatsink and Fan
- **How to get the best engraving result?**

  Generally, the engraving result is affected by texture and color of the material, the engraving power and speed you set when creating G-code. Therefore, the engraving power and speed should be adjusted based on the material you are using. To get the best engraving result, it is recommended to test a small image on a small part of the material you are using with different settings, record the settings and results and choose the settings which give you the best result, and use them for the image you want to engrave.

  You can also adjust the real-time operating speed after the engraving starts.
- **What should I do if the engraving result is too dark or too light?**

  ✧ **If the engraving result is too dark**: Set the **Laser Power** to a smaller percentage or increase the **Cut Rate** when creating G-code,

  You can also adjust the real-time operating speed after the engraving starts.

  ✧ **If the engraving result is too light**: Set the **Laser Power** to a larger percentage or decrease the **Cut Rate** when creating G-code,

  You can also the real-time operating speed after the engraving starts.
- **What should I do if the picture is engraved beyond border of the material?**

  ✧ Make sure size of the image fits the material you are using when creating G-code.

  ✧ Make sure the image is placed within the workspace, and aligned to the left-bottom corner of the workspace when creating G-code.

  ✧ Set the zero point to the left-bottom corner of the material when calibrating the machine.

CNC Carving

1 Set Up the Machine for CNC Carving

Please refer to **Section 2** in the **Guides for CNC Carving** at www.dobot.cc/guides-for-CNC-carving for the instructions. Video tutorial: www.dobot.cc/CNC-carving-setup-tutorial.
For setup the protective shield and safety switches: www.dobot.cc/protective-shield-setup-tutorial.

2 Generate G-code and Start Carving

2.1 Generating G-code Using MOOZ Studio

Download and install the latest version of MOOZ Studio: www.dobot.cc/MOOZStudio-package.
Follow the video tutorial at

www.dobot.cc/CNC-carving-gcode-generate-using-MOOZStudio-tutorial to generate G-code files.

## 2.2 Generating G-code Using 3ʳᵈ Party Non-Commercial-Free Software Fusion 360

This section is based on WIN7 64bit OS, Fusion 360 is also available for Mac.
Video tutorial: www.dobot.cc/fusion360-gcode-generate-tutorial.
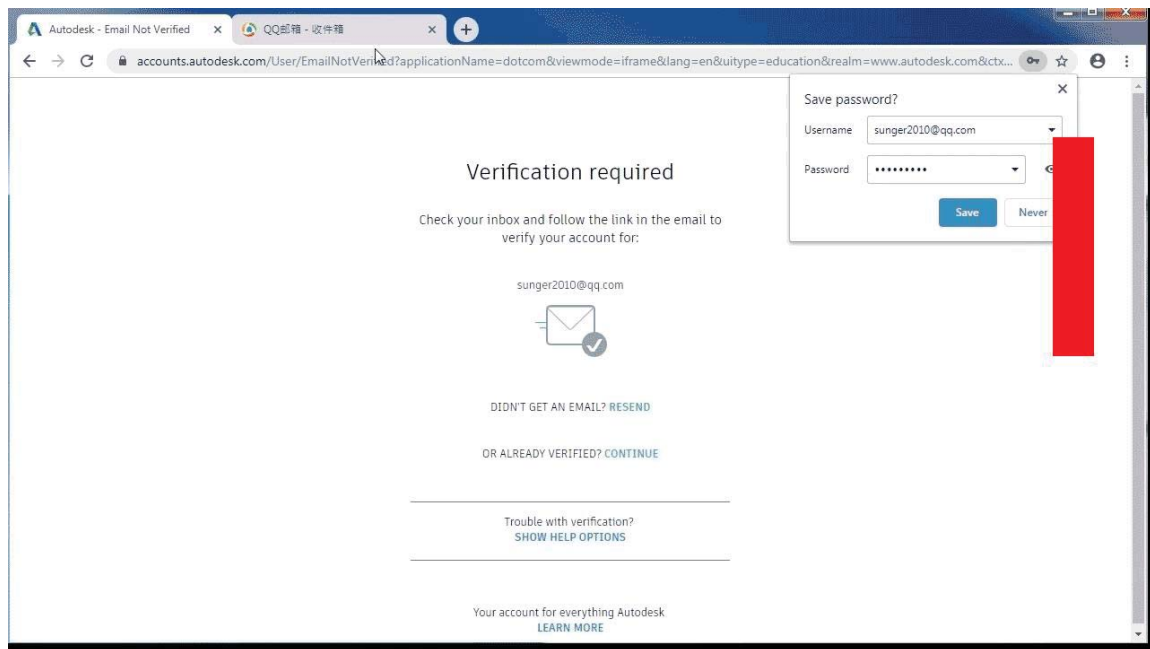
2.2.1　Get Fusion 360 Ready

- **If you are a student, or teacher, or educator, follow the steps below to get a 3-year free education license.**
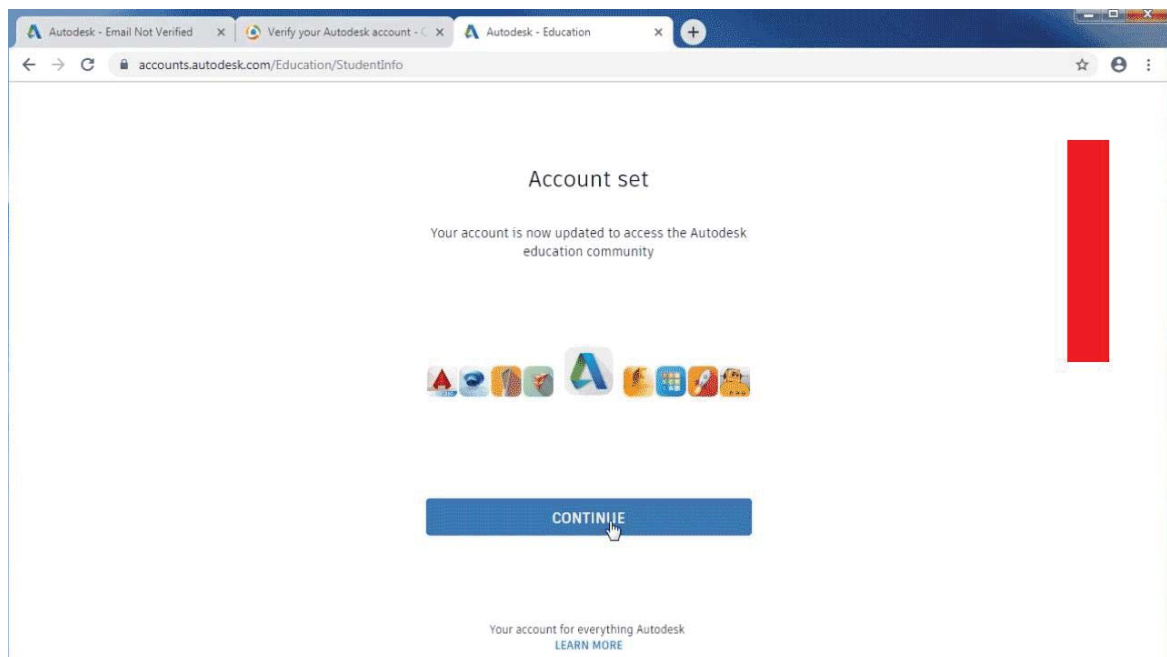
    A. Got to
       https://www.autodesk.com/products/Fusion-360/students-teachers-educators,
       and create an account.
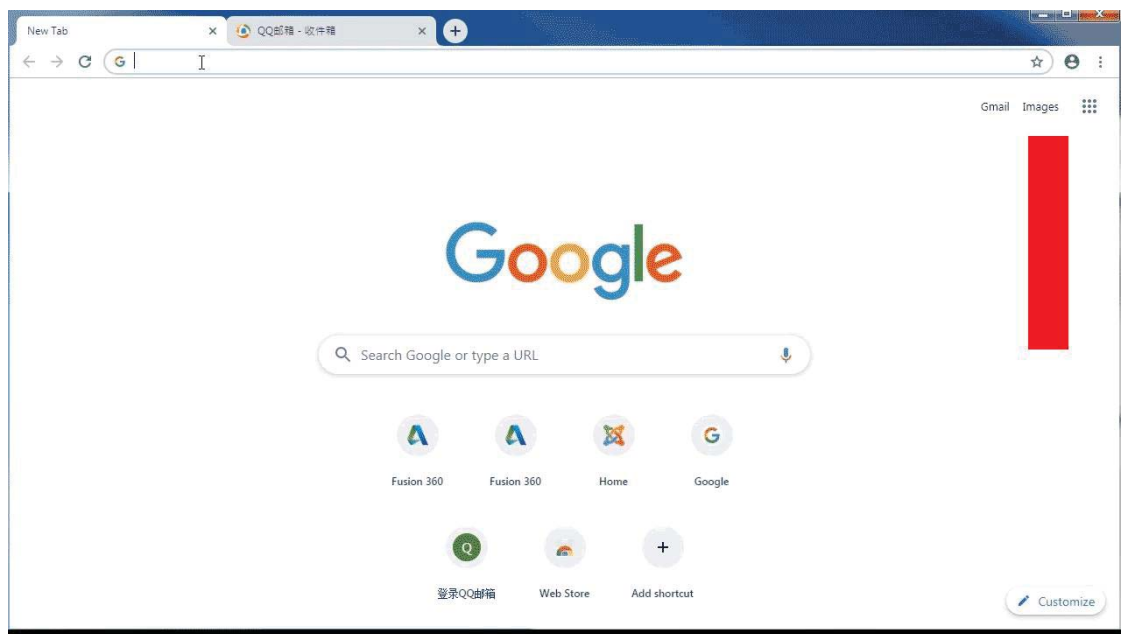
    B. Verify your account and get access to the education license.

C. Download Fusion 360.
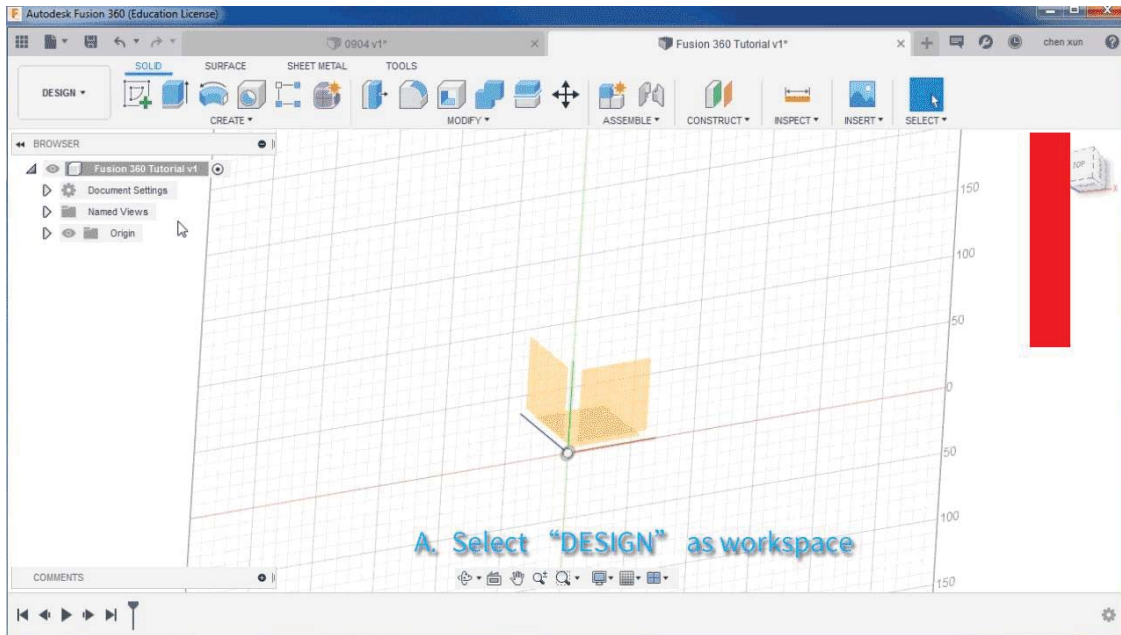
D. Install and open the software.
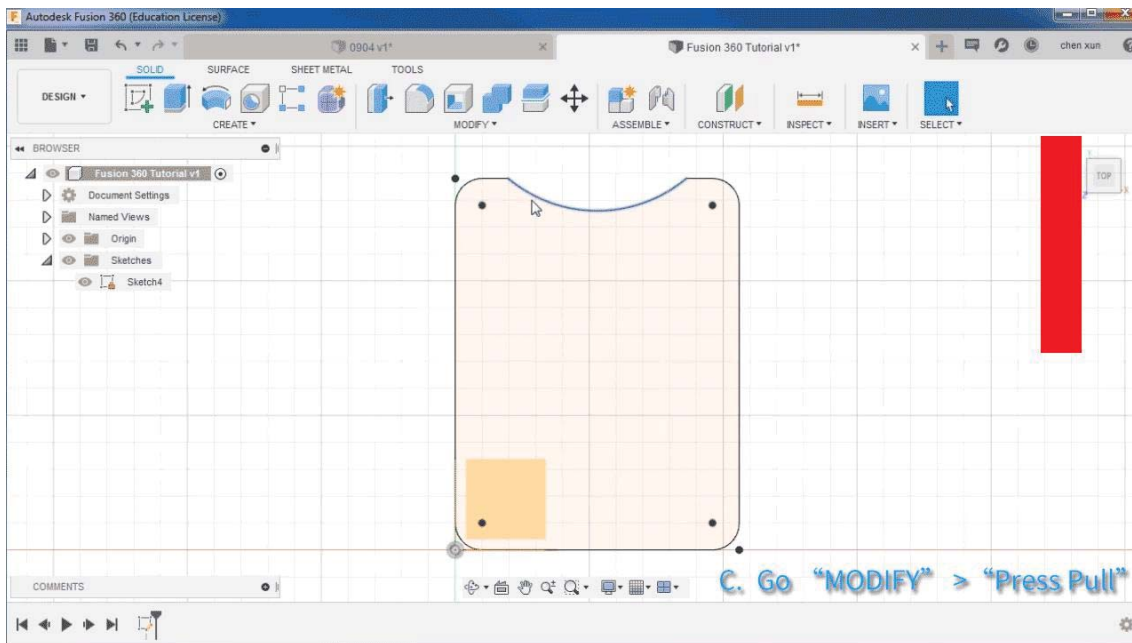

2.2.2 Design the Model you Want to Carve

In this section, we will guide you how to design model in Fusion 360.

● **Sketch and Press Pull the outline of the model**

A. In Fusion 360, select **DESIGN** as workspace.

B. Create the sketch.

A. Select "DESIGN" as workspace

C. **Press pull** the sketch and create 3D body.

C. Go "MODIFY" > "Press Pull"

- **Sketch and Press pull: DOBOT logo**
  A. Insert an SVG file to create the sketch.
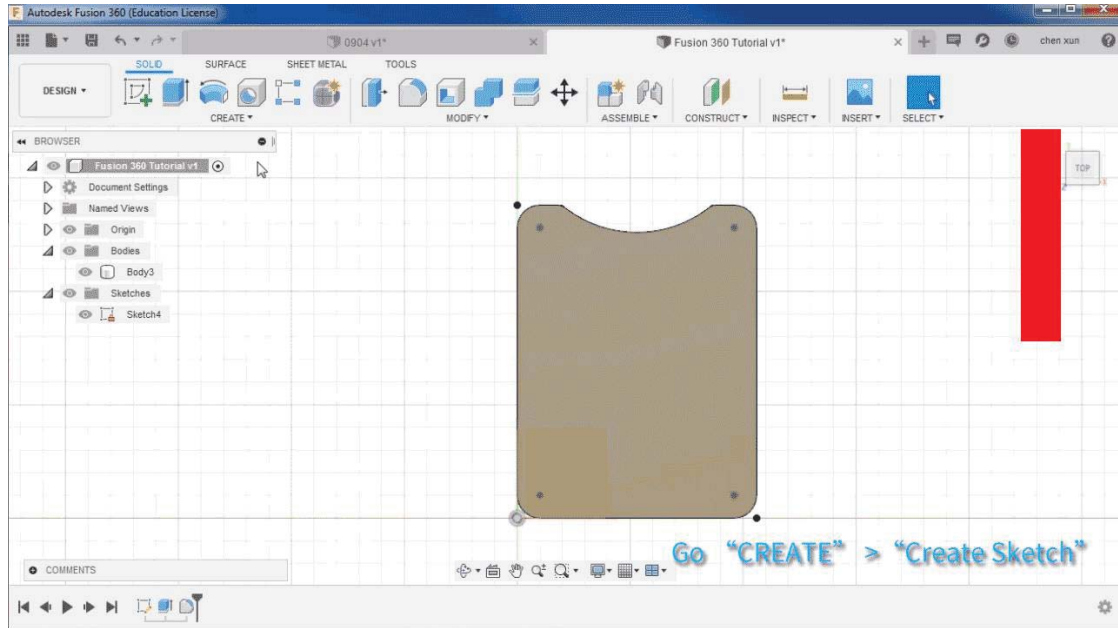
B. Use **Press Pull** tool to create DOBOT logo feature.
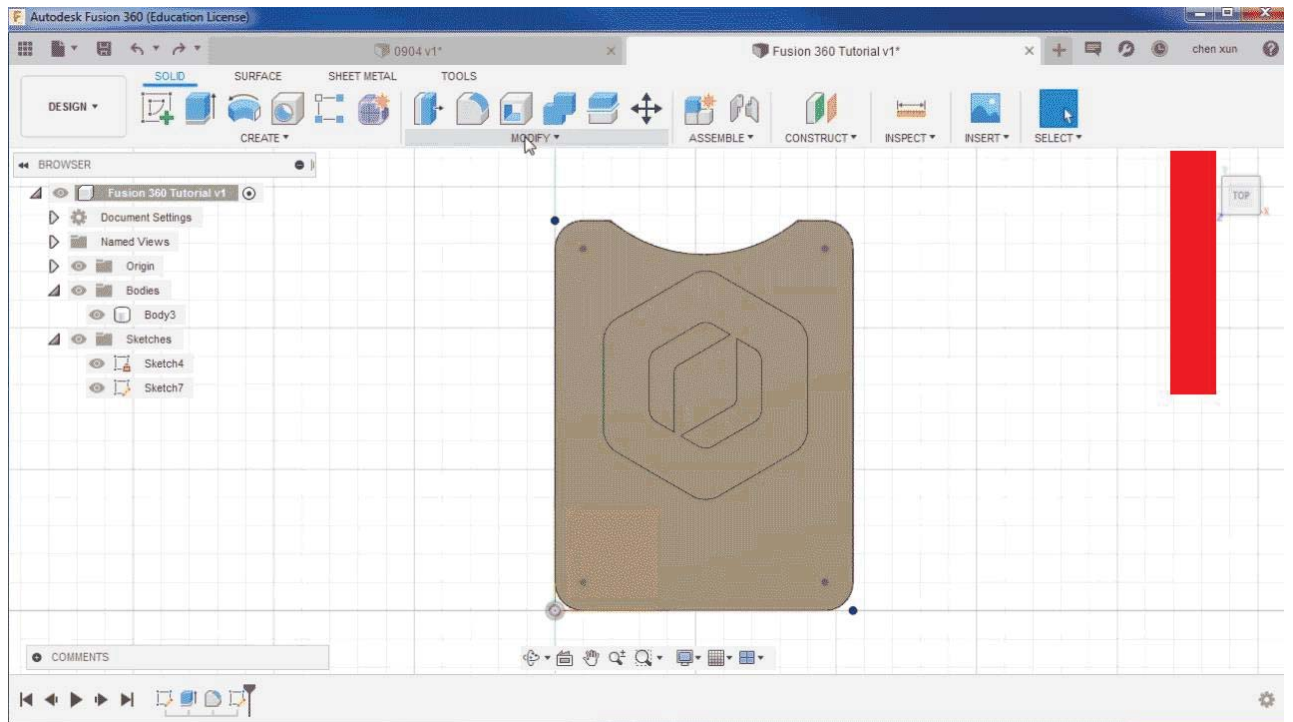
- **Sketch and Press Pull: "MOOZ" text**
  A. Input text to create the sketch.
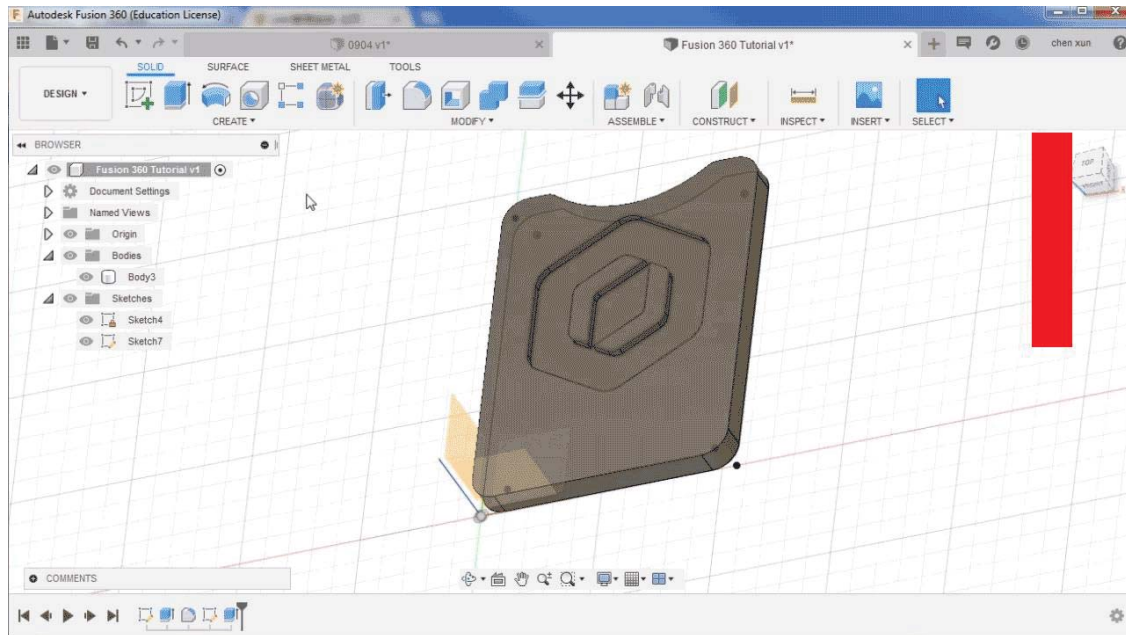
B. Use **Press Pull** tool to create "MOOZ" text feature.
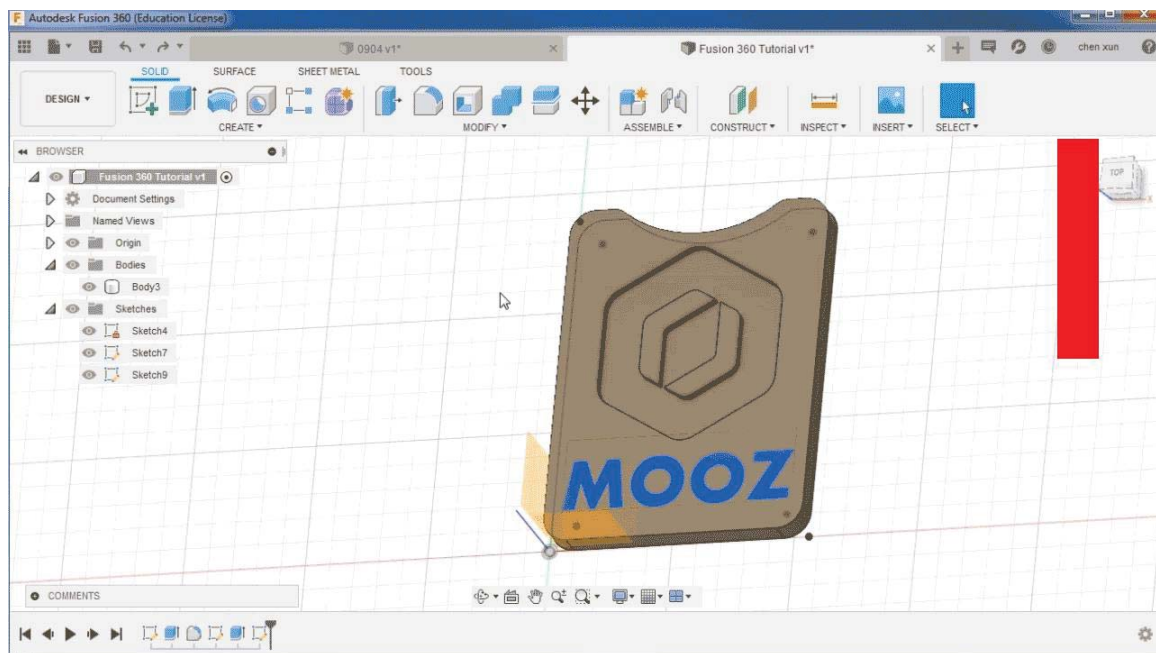
- **Sketch and Press Pull: Hanging hole**
    A. Select the top surface of the models as sketch plane to create the sketch.
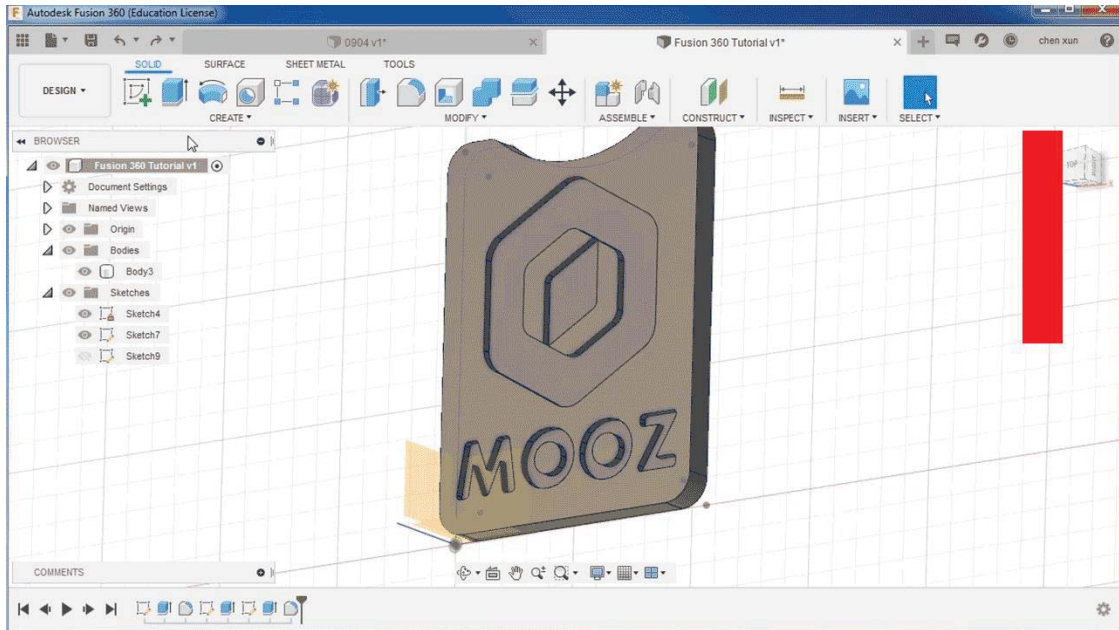
B.   Use **Press Pull** tool to create the hanging hole feature.
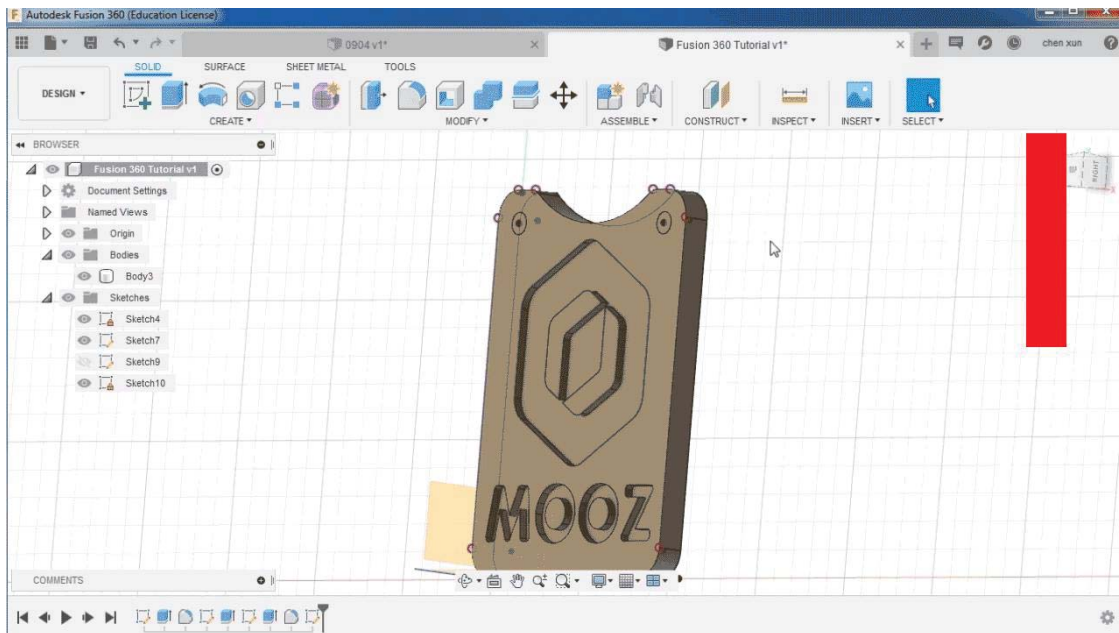
2.2.3   Create Tool Path

- Set workspace to *MANUFACTURE*, and create a new *SETUP*.
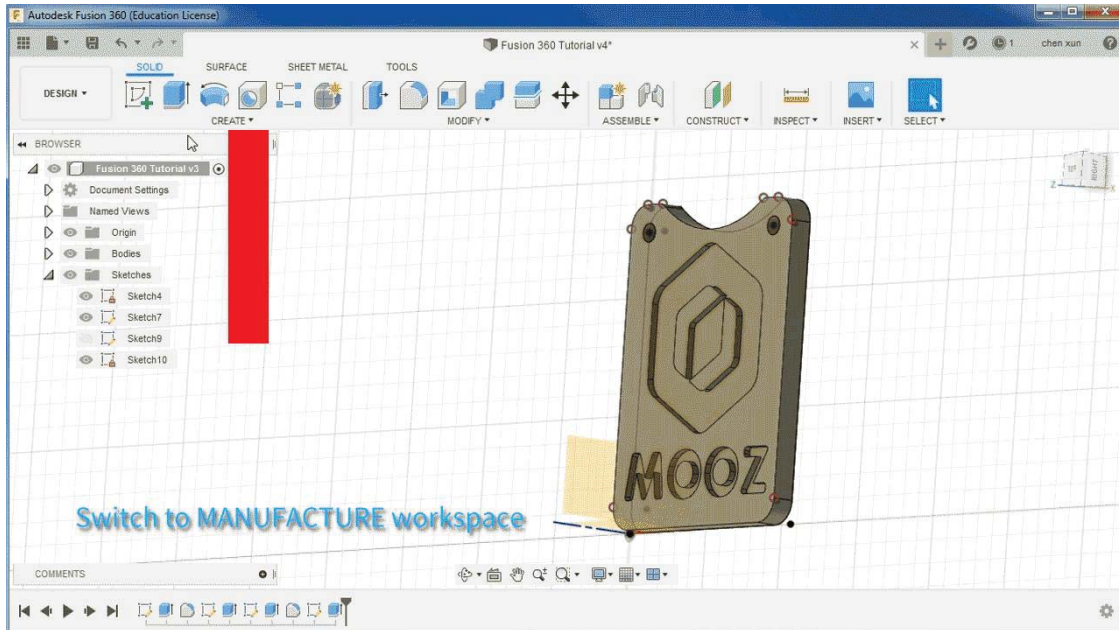
- **Download and import tool library:**
  - A. Download the configuration file (addressed as post processor in Fusion 360) and MOOZ tool library file at www.dobot.cc/fusion360-file-package.
  - B. Import the tool library into Fusion 360.
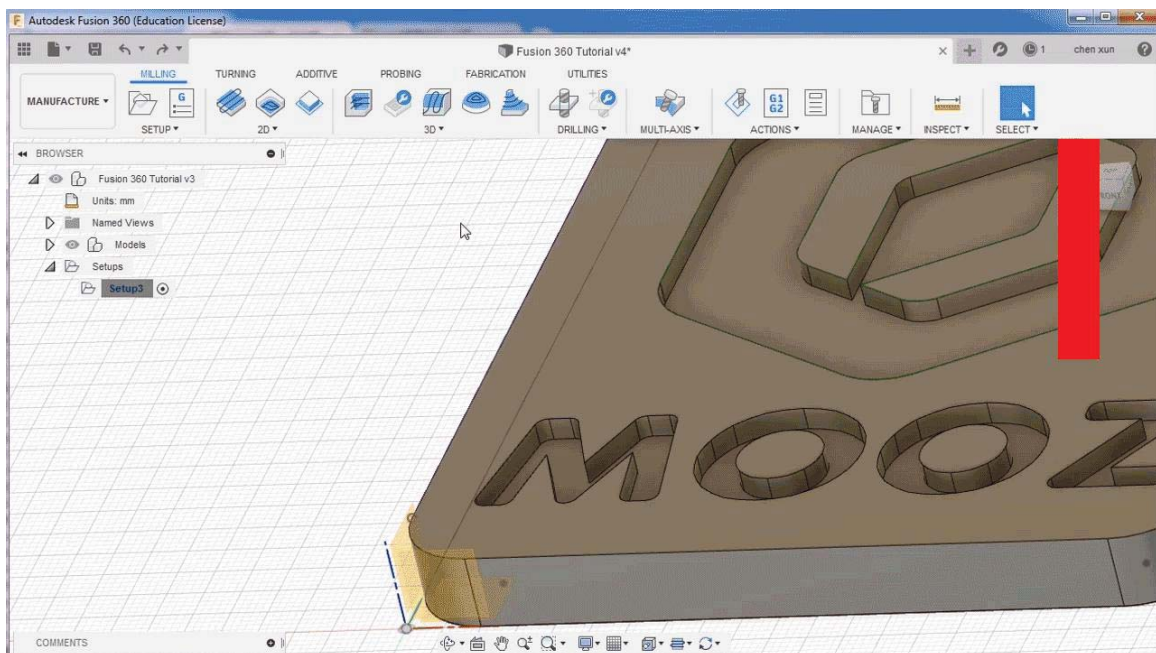
- **Use the "2D Pocket" tool to create DOBOT & MOOZ logo.**
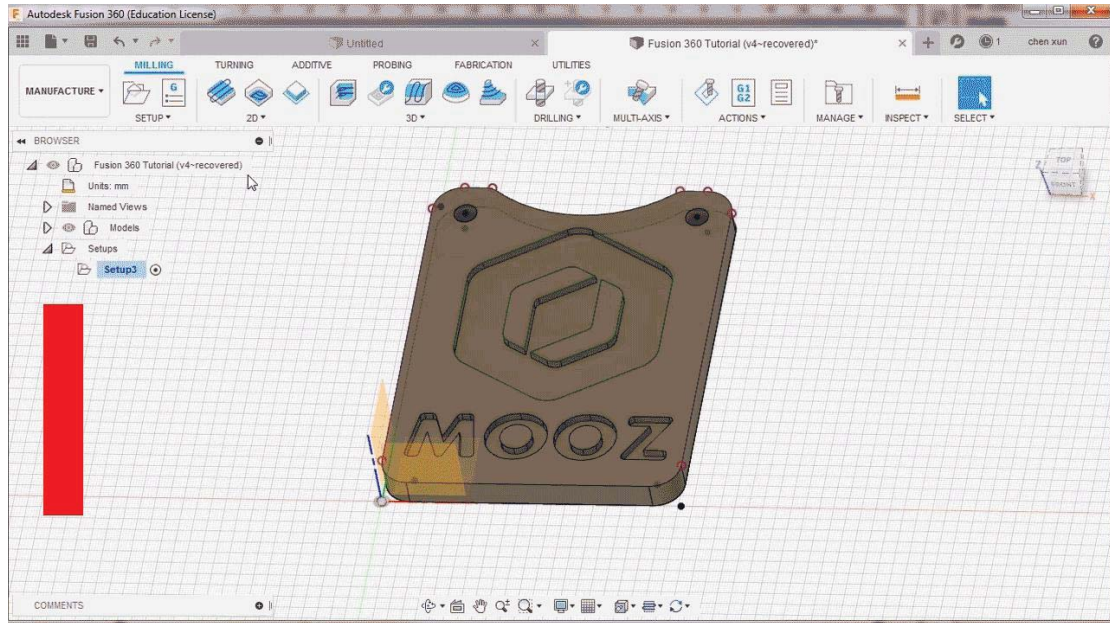
- Use the "Circular" tool to create the hanging holes.
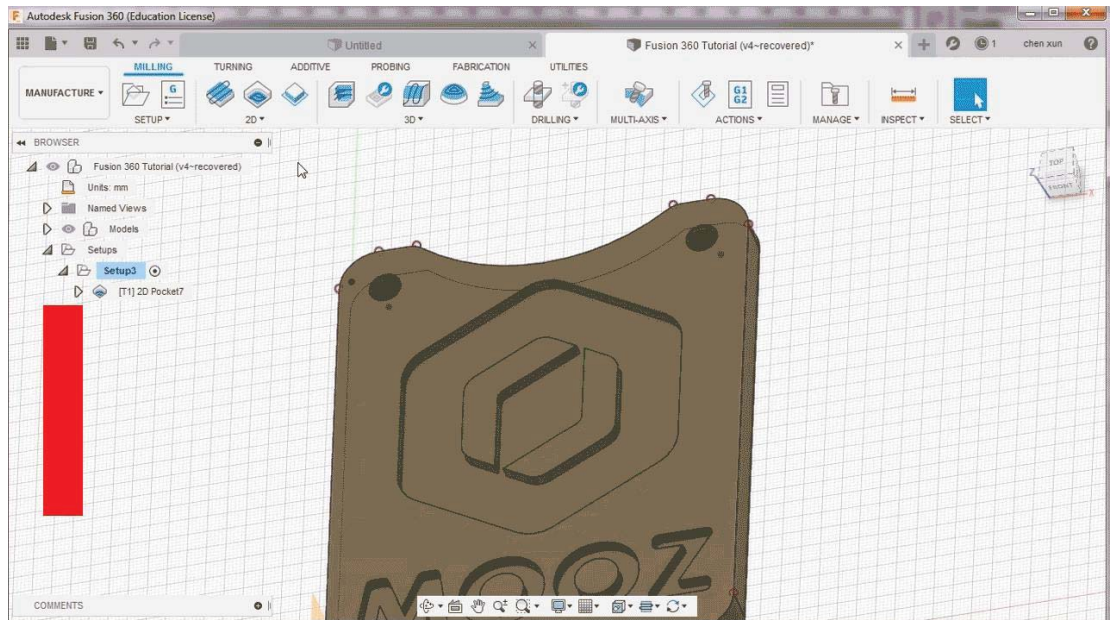
- Use the "2D Contour" tool to create the edges.
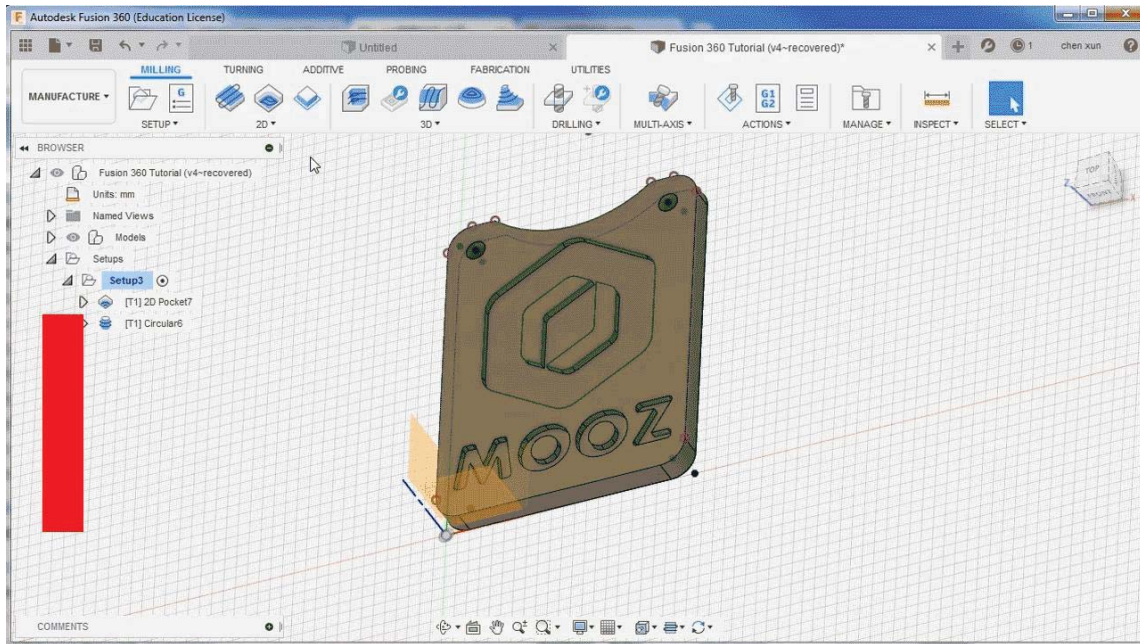
- **Generate G-code file.**
  - A. Download the configuration file (addressed as post processor in Fusion 360) and MOOZ tool library file at www.dobot.cc/fusion360-file-package.
  - B. Import the configuration file into Fusion 360 according to the instructions at https://knowledge.autodesk.com/search-result/caas/sfdcarticles/sfdcarticles/How-to-add-a-Post-Processor-to-your-Personal-Posts-in-Fusion-360.html.
  - C. Run the **Post Process** tool to generate G-code file.
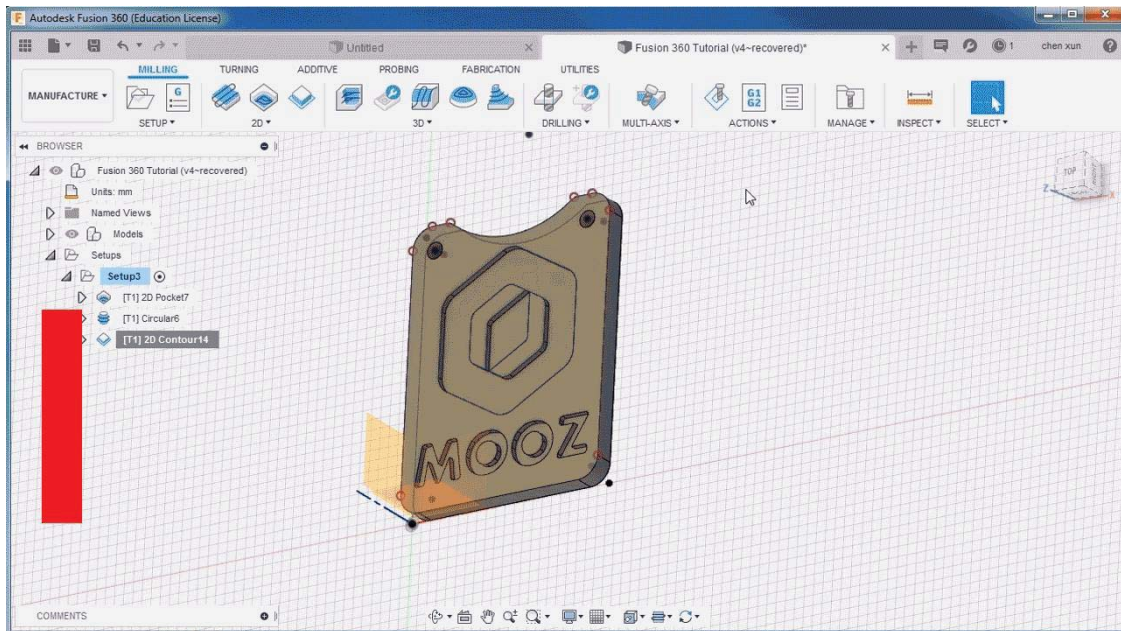
2.3 Generating G-code Using 3rd Party Software ArtCAM

ArtCAM is also supported, if you are interested in it, please refer to the tutorial at https://www.youtube.com/watch?v=f6zirdqiVLs.

2.4 Start CNC Carving

- **Fix the material.**
- **Set the zero point.**
- **Save the G-code file to your USB flash drive for offline carving.**
  Refer to the video tutorial: www.dobot.cc/CNC-carving-setup-tutorial.

2.5 Clean the Finished Work

When the carving operation is finished, use a vacuum cleaner to remove the dust from the finished model and machine.

CNC 雕刻清理木屑动画

3   FAQs

- **List of supported materials for CNC carving.**
  Wood, bamboo, acrylic, PCB, carbon fiber sheet, plastic, etc. Boxwood and black walnut are suggested for fine result.
- **List of unsupported materials for CNC carving.**
  Metal, glass, gen, etc.
- **What is the specification of CNC carving module?**
  - ✧ **Spindle speed**: 8000rmp Max.
  - ✧ **Operating voltage**: 12V DC
  - ✧ **CNC chuck clamping range**: 0-4mm
- **What is the specification of CNC bits we provided?**
  There are two kinds of CNC bits coming together with machine:
  Milling cutter: Flat nose end, 2-flute spiral upcut, shank diameter 3.175mm, cutting edge diameter 1.5mm
  V bit: Flat end, 30 degree, shank diameter 3.175mm, tip size 0.3mm
  You can also choose your own tools as long as the shrank diameter is within CNC chuck clamping range
- **How to choose suitable CNC carving feedrate?**
  CNC carving feedrate should be chosen wisely according to the material hardness and cutting depth per path for safety. If the material is normal wood, the cutting depth per path

should not exceed 2mm, and feedrate should be smaller than 250mm/min.

If you are not familiar with the material you are using, we recommend you to start the test with 1mm cutting depth and 100mm/min feedrate.

WiFi Feature

1 File Transmission and Remote Control with Mobile APP

You can get the APP installation package at www.dobot.cc/app-package, or search "MOOZ" on the APP store with your mobile phone.

For how to use the APP, please refer to www.dobot.cc/app-tutorial.

2 File Transmission and Remote Control with MOOZ Studio

MOOZ Studio is under upgrading to support this feature, we will fill this section when it is ready.

Specifications

General	**Overall Dimensions**	355 * 355 * 390mm
	Adapter Input	100-240V~50/60Hz, 1.8A Max.
	Adapter Output	12V~10A
	Frame Material	Aluminum alloys
	Operation Panel	3.5-inch color touchscreen
	Connectivity	WiFi, USB cable, USB flash drive
	Net Weight	10kg
	Shipping Weight	15kg
	Shipping Size	X460 * Y425 * Z510mm
	Certifications	CE ROHS FCC MIC MSIP NCC C-TICK
3D Printing	**3D Printing Technology**	FDM
	Nozzle Diameter	0.4mm
	Layer Resolution	0.05~0.3mm
	Filament Diameter	1.75mm
	Nozzle Temperature	250℃ Max.
	Nozzle Material	Brass
	Extruder	Direct dual-drive extrusion, 2.35 reduction ratio
	Heated Bed Material	Glass platform + Flexible steel print sheet
	Heated Bed Temp.	80℃ Max. (at 25℃ ambient temperature)

	Forming Size	X200 * Y200 * Z190mm
	Supported Materials	PLA, TPU, PETG, Flexible, etc.
	Supported File Types	STL, OBJ, JPEG, JPG, PNG, etc.
	Printing Speed	0~100mm/s
	Ambient operating conditions	10~40℃, 10~90% RH non condensing
	Filament Runout Sensor	Mechanical switch, build inside 3D printing module
	Leveling	Automatic Z-axis compensation, with magnetic independent auto leveling module
	Power Loss Resume	Supported
Laser Engraving	Work Area	X200 * Y200mm
	Laser Power	1.6W
	Laser Class	Class 4
	Laser Service Life	4000H (non-continuous using)
	Supported Materials	Wood, bamboo, leather, paper, plastic, fabric, no-transparent acrylic
	Supported File Types	JPEG, JPG, PNG, SVG, etc.
CNC Carving	Work Area	X200 * Y200mm
	Spindle Speed	8000rpm Max.
	CNC Chuck Clamping Range	0-4mm
	Size of Standard CNC Bit	3.175mm * 0.3mm * 30° V cutter, 1.5mm spiral milling cutter
	Supported Materials	Wood, bamboo, acrylic, PCB, carbon fiber sheet, plastic, etc.

Maintenance

To keep your MOOZ in optimal condition, we recommend the following maintenance schedule based on 1500 printing hours per year.

- **Clean the heated bed sticker**

After each print, the heated bed sticker has to be scraped clear of any residual material. We recommend you to clean it with a soft cloth and alcohol, to ensure good adhesion for the next print.

- **Clean the machine**

Clean the machine with alcohol **every month** to remove dust and residue.

- **Clean the extruder**

Open the 3D printing module to clean the extruder, replace the nozzle and PTFE pipe **every 6 months**. Refer to the video tutorial at www.dobot.cc/3D-printing-module-maintenance.

- **Check firmware and software updates**

We will constantly update the firmware and software to fix bugs and add new features,

please check download center of our official website for updates **every 3 months**.

- **For MOOZ Plus V3, lubricate the T8 lead screw**

  To keep the linear modules in good condition, lubricate the T8 lead screws with lithium-based grease **every 6 months**. We recommend Kunlun white special Grease #3 and Lucas white lithium grease NLGI #2. Refer to the video tutorial at www.dobot.cc/linear-rail-lubricate-tutorial.

- **Lubricate the CNC chuck and warp the module for rust protection after using**

  The CNC chuck is made of carbon steel, which tends to get rusty after long time exposure to moist air. To prevent something like that happens, please rub the CNC chuck with lubricant oil **every 3 month**, and wrap the whole module up for long term storage.

Limited Warranty

1 Conditions

Shenzhen Yuejiang Technology Co., Ltd. (hereinafter referred to as DOBOT) grants a limited warranty on the major modules of the MOOZ series product purchased from DOBOT or a distributor/reseller authorized by DOBOT according to terms and conditions stated below:

- The warranty starts from the delivering date to an end-customer for the first time, as evidenced by the original customer's purchase invoice.
- Only the original purchaser is entitled to claim warranty, and the warranty cannot be assigned and transferred.
- The latest software was installed and used in and with the product.
- The installation and maintenance instructions as described in the manual for the product have been observed.

2 Warranty Period

You are eligible for Limited Warranty support for the following modules listed below:

Warranted Parts	Warranty Period
Controller	360D
Linear Module	360D
Auto Leveling Module	360D
Power Adapter	360D

Touch Screen	180D
Heated Bed (Bed sticker excluded)	180D
3D Printing Module (Hot-end excluded)	180D
Laser Engraving Module	180D
CNC Carving Module (CNC bits excluded)	180D

Notes: Parts that are repaired or replaced under Warranty share its original Warranty Period and do not restart, repair and/or replacement will not extend the warranty period.

3 Exclusions

This warranty does not apply to and therefore does not cover:
- Any other parts except the Warranty Parts listed above.
- Any defect or damage caused by failure to follow the Quick Start Guide and online manuals, including but not limited to inappropriate, incorrect or improper use, installation, maintenance, operation and cleaning or normal wear and tear.
- Customers are welcome and encouraged to use third-party materials, accessories, etc. That in itself, does not void the warranty. However, if the use of third-party elements, causes damage to the product, the part(s) affected by this damage is excluded from warranty.
- Any defect or damage caused by accident, including but not limited to natural calamities such as fire hazard, earthquake, and human causes such as collision, falling off and soaking in water.

Actions that may or will void this Warranty:
- Remove or damage the Warranty seals, will void the warranty of the corresponding part/parts.
- Any modification made to the product.
- Unauthorized disassemble, repair or service made to the product.
- Use the product for any illegal purposes.
- Abuse, misuse or improper storage of the product.

4 Notification

Any notification on the basis of this warranty must be made to DOBOT or the DOBOT's distributors from whom the product was originally purchased, even if this is not in the customer's present country of residence.

Any warranty claim must first be recognized as justified, either by DOBOT's distributor

or by DOBOT. If so, DOBOT or DOBOT's distributor is obliged to rectify the defects free of charge according to this warranty. If the defect cannot be repaired, DOBOT or DOBOT's distributor will, within the warranty period, replace the product free of charge by an identical product, or, if the product is no longer manufactured, by a similar replacement of the same value or offer an appropriate refund.

The warranty does not include costs incurred for shipping defective parts for scrutiny and/or repair, nor for shipping costs of replacement or repaired Warranted parts back to claimant.

If the product is originally purchased from DOBOT:

- Send an email to <u>mooz@dobot.cc</u>, the email should cover following items:
A. Official purchase invoice.
B. Photo of the **Product Identification Label**, you can find it on top of the machine base.
C. Detailed description of the issue.
D. Video to demonstrate the issue, and intactness of Warranty seals on 3D printing module and controller.

If the product is originally purchased from DOBOT authorized distributor:

The DOBOT's distributor deals with this warranty on behalf of DOBOT. If you need technical support or warranty service, please contact the DOBOT's distributor you purchased from.