3D Printing

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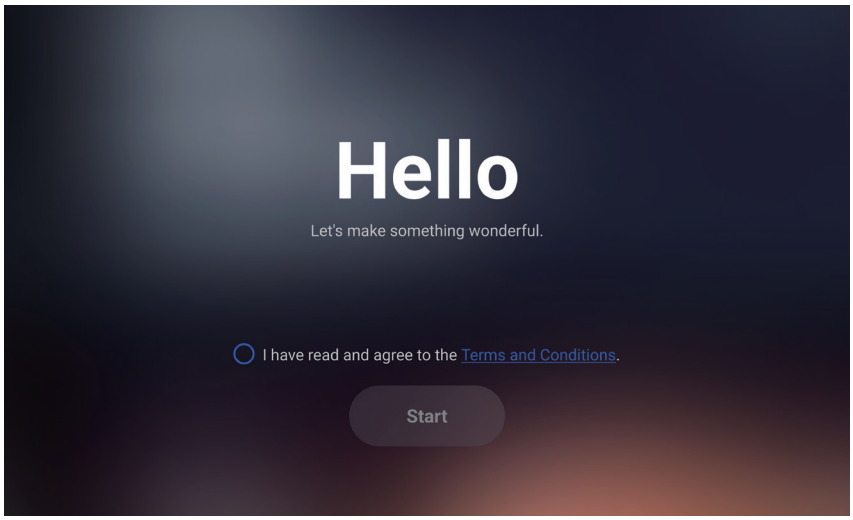
1 Preparations

1.1 Set Up the Machine

1. Turn on the power switch on the back of the Integrated Controller.

To restart your machine, wait for at least 5 seconds after power-off.

2. Follow the on-screen instructions to set up the machine: Read the **Terms and Conditions** > Choose the language > Name the machine > Connect to a Wi-Fi network.



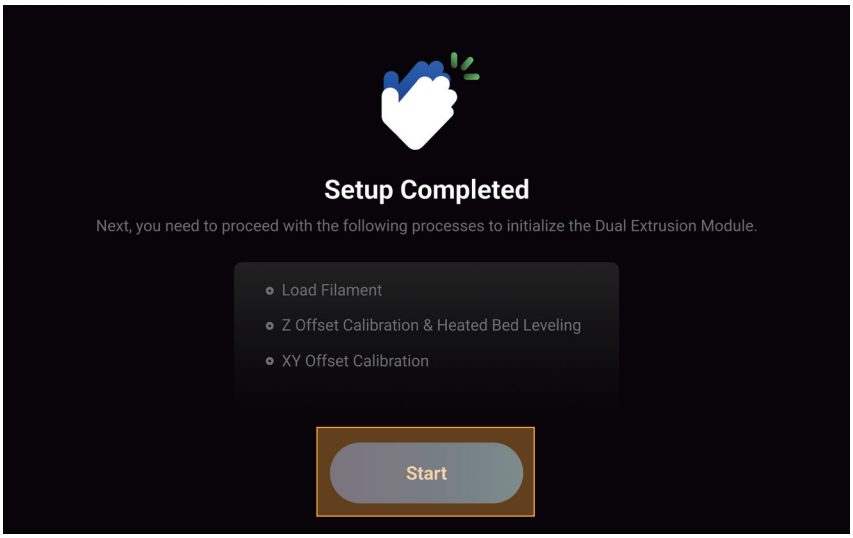
This initial setup wizard appears only the first time you turn on the machine. To change these settings later, tap **Settings** on the Home Screen and select **Wi-Fi**, **Language**, or **About Machine**.

If you are using the Snapmaker 2.0 Dual Extrusion Module, update the firmware to the latest version: On the Home Screen, tap **Settings** > **Firmware Update**.

1.2 Calibrate the Dual Extrusion Module

For the first-time use of the 3D printing function, the Touchscreen will walk you through the necessary calibration processes so that the Dual Extrusion 3D Printing Module can work properly.

You will have to complete three processes following the calibration wizard: Load Filament, Z Offset Calibration & Heated Bed Leveling, and XY Offset Calibration. Before you start the calibration, we recommend that you read this section to learn about each process.



This calibration wizard appears only the first time you use the Dual Extrusion Module. To redo the calibrations later, tap **Calibration** on the Home Screen and select the corresponding process.

1. Load Filament

The filament is fed into the module via the filament entry, passed by the extruder to the hot end, and extruded out of the nozzle after being heated. Our Dual Extrusion Module adopts the design of the dual-gear extruder, which features better extruding force, achieves stable and smooth loading and unloading, and can effectively avoid filament break and nozzle jam.

Make sure to load the provided PLA filament into the left nozzle and the Breakaway Support filament into the right nozzle, which is required to print the test model of Snapmaker Luban in later sections.

If the filament has a bent or curled end, cut it off before loading.

Do NOT touch the nozzle with bare hands during the filament loading process, as the nozzle will be heated to an extremely high temperature.

To change the filament later, take the following steps:
1. Tap **Control** > **Filament**.
2. Select the target nozzle, set the temperature, and tap **Heat**.
3. When the heating completes, tap **Unload** and pull the filament out of the nozzle.
4. Insert the new filament into the module, and tap **Load** until the new filament extrudes successfully.

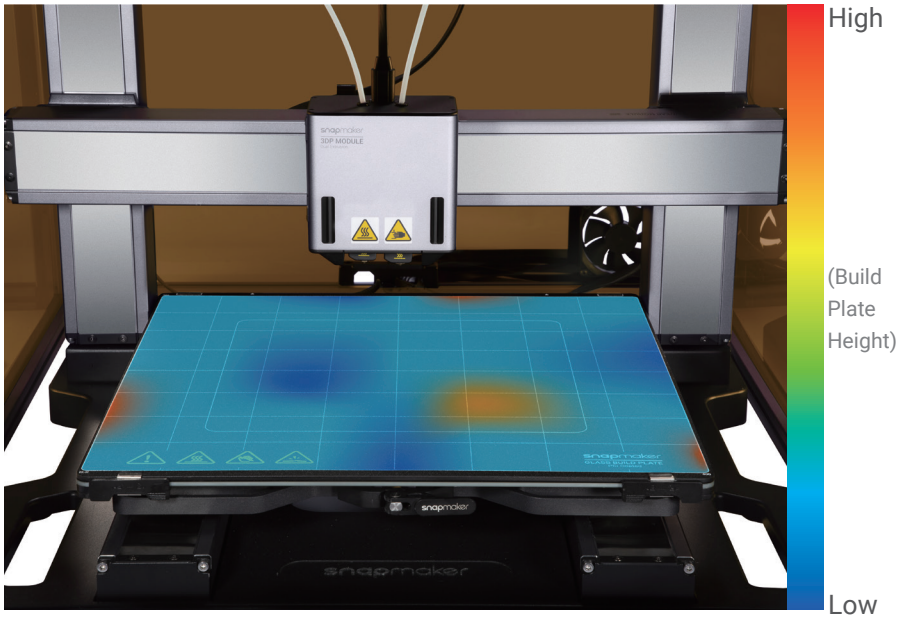
2. Z Offset Calibration & Heated Bed Leveling

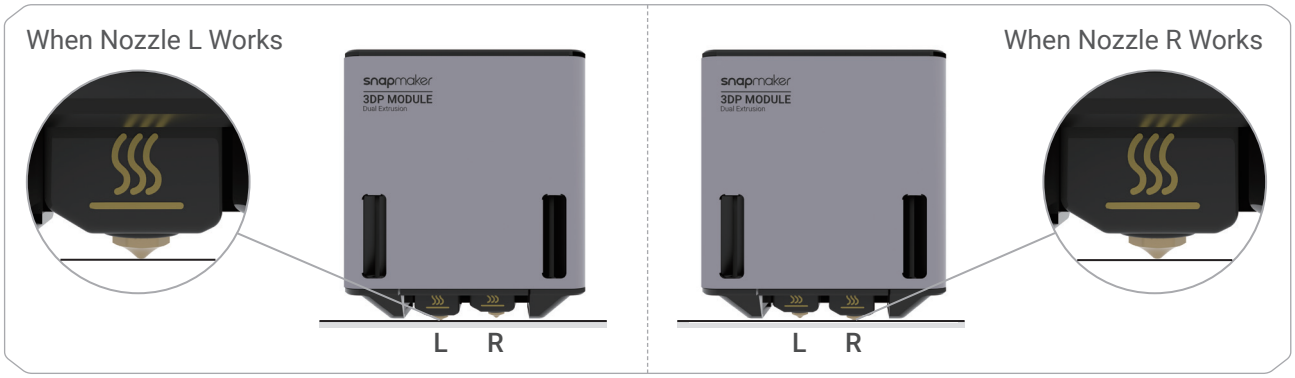
Brief Introduction

The Dual Extrusion Module features a smart sensor that can be used to automatically level the build plate and adjust the distance between the two nozzles and the build plate. In this way, the machine ensures both nozzles always extrude at a proper and consistent height throughout the printing process to avoid poor first-layer adhesion, build plate abrasion, and collision.

How It Works

In the Z Offset Calibration, the two nozzles will move in turn to obtain the Z-axis height of the module when the nozzle just touches the build plate. In the subsequent Heated Bed Leveling process, the left nozzle will repeat the above steps at specific points on the build plate to obtain the whole flatness data. With the collected data, the machine will make real-time compensation for the build plate undulations by adjusting the Z-axis movements of the module during printing.





Before doing the Z Offset Calibration and the Heated Bed Leveling, ensure that the surface of both nozzles is clean.

Every time after you have reassembled the module or machine, redo the Z Offset Calibration and Heated Bed Leveling: tap **Calibration** on the Home Screen > **Z Offset Calibration** or **Heated Bed Leveling**.

Every time after you have replaced the hot end, you only need to redo the Z Offset Calibration.

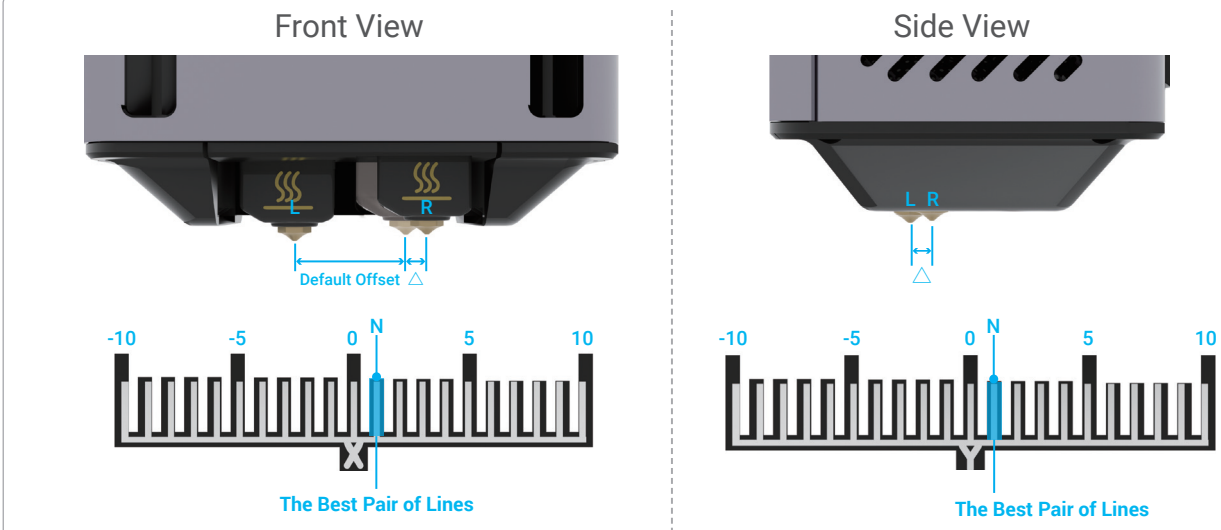
3. XY Offset Calibration

Brief Introduction

Calibrating the offsets of the two nozzles in the X and Y orientations can achieve the optimal print quality of both nozzles in the horizontal direction and avoid crossovers between different colors and materials.

How It Works

The machine will print a calibration model in the X and Y orientations, respectively. After you have selected the best pair of lines (where the top line is most horizontally centered on the bottom line) in the two models, the machine will automatically calibrate the X and Y offsets of the two nozzles accordingly by making real-time compensation.



X Offset = Default Offset + △ (N × 0.08)

Y Offset = △ (N × 0.08)

* The XY offsets and the best pair of lines in the graphics above are just examples for better illustration.

Before doing the XY Offset Calibration, ensure that the glass build plate is clean.

Every time after you have replaced the hot end, you need to redo the XY Offset Calibration: tap **Calibration** on the Home Screen > **XY Offset Calibration**.

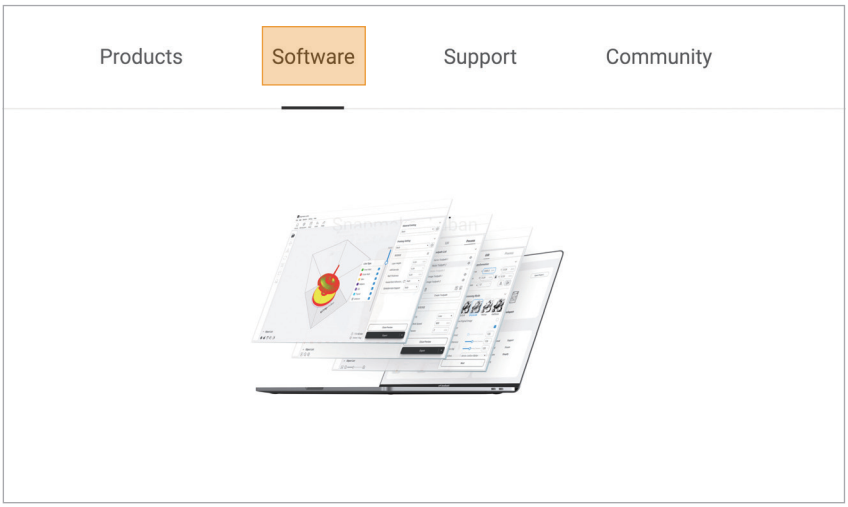
Congrats!

You are now ready to print.

2 Getting Started

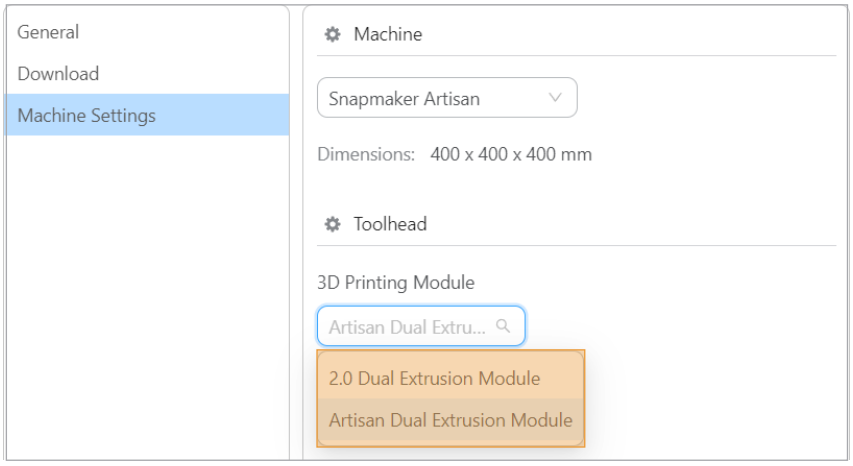
2.1 Install Snapmaker Luban

1. On the Snapmaker official website, click **Software** in the navigation bar. Then, download and install our tailor-made software Snapmaker Luban (hereafter Luban).



If you are using the Snapmaker 2.0 Dual Extrusion Module, update the software to the latest version.

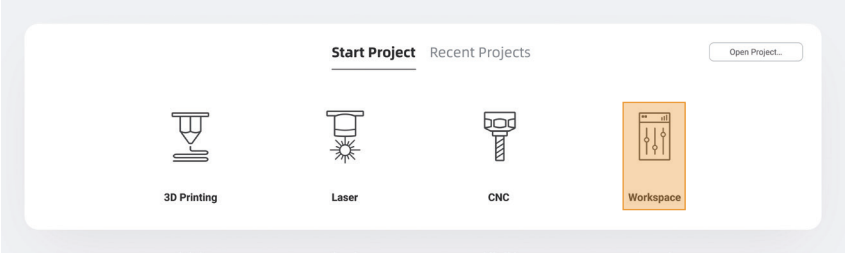
2. Launch Luban, select the language, machine model, and module type in strict accordance with the module you are using, and then click **Save** to save the settings.

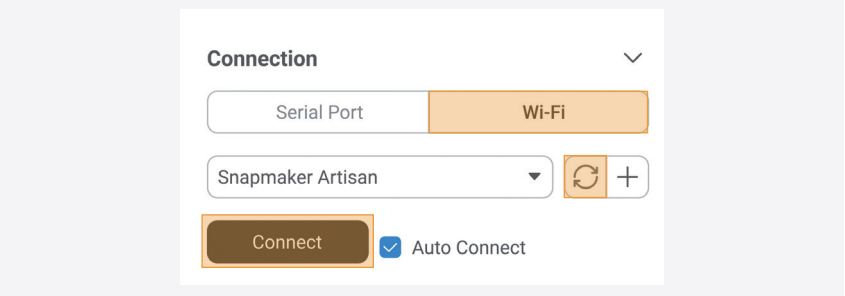


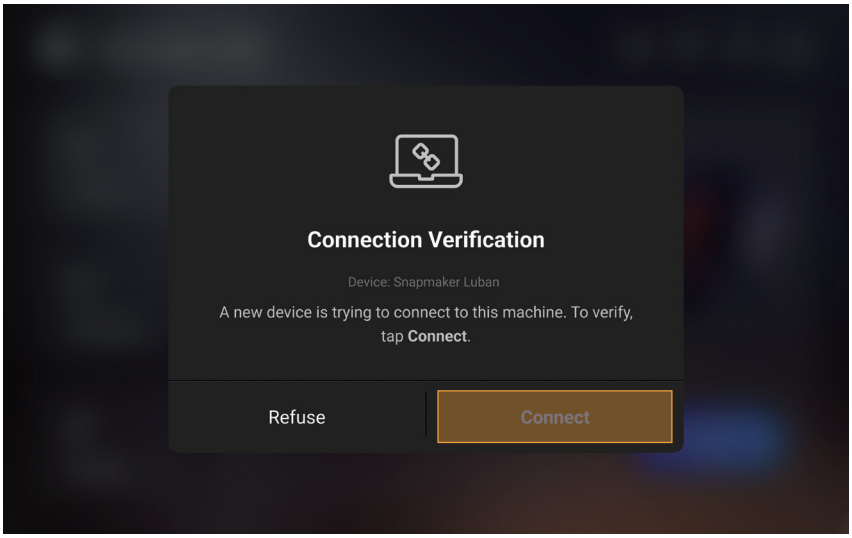
To change these settings later, click **Settings** > **Preferences** in the menu bar.

3. Ensure that your computer and machine are connected to the same Wi-Fi network, and take the following steps to connect Luban with your machine:

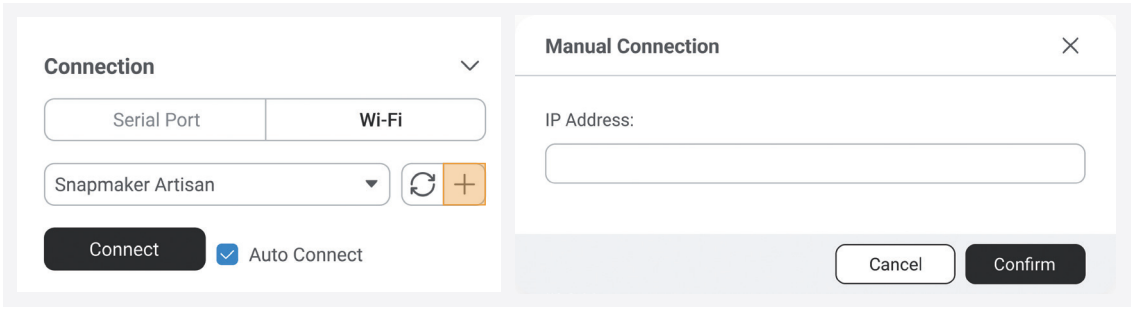
a. On the Home page of Luban, click to enter **Workspace**;
b. On the **Connection** panel at the top left corner, click **Wi-Fi**;
c. Click , select your machine from the drop-down list, and click **Connect**;
d. Tap **Yes** on the Touchscreen to allow the connection.





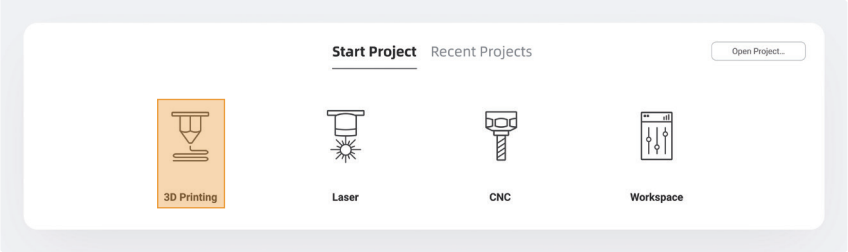


You can also click + and enter the IP address of your machine to manually connect it with Luban. To check the IP address, tap **Settings** > **About Machine** on the Touchscreen.



2.2 Generate the G-code File

1. At the top-left corner of **Workspace**, click **Back** to return to the Home page. Then, click **3D Printing** to enter the **3D Printing G-code Generator**.

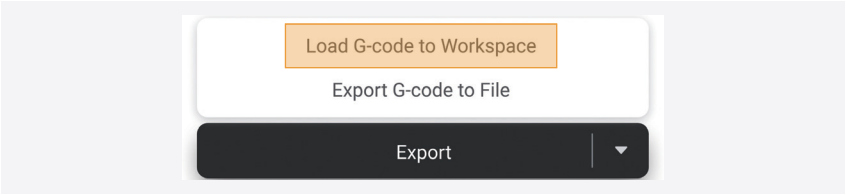


2. Follow the Beginner's Guide to get familiar with the basic operations. During this process, Luban will automatically load the test model and generate the G-code file.

If the Beginner's Guide does not pop up or quits unexpectedly, you can click **Help** > **Beginner's Guide** in the menu bar.

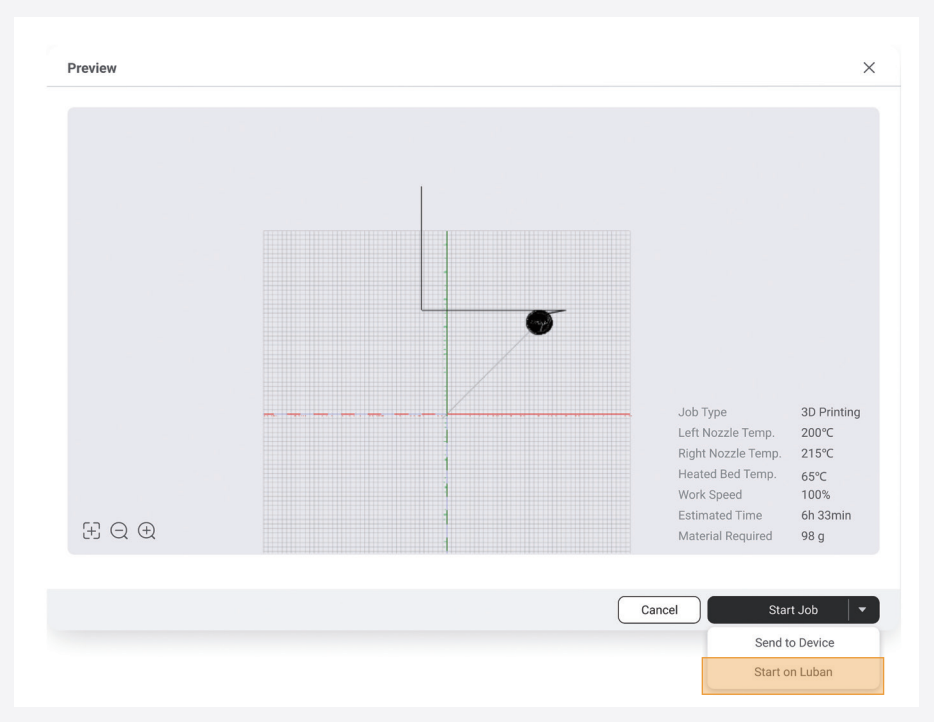
You can also click to import your own files and configure the parameters.

3. After the G-code file is generated, click **Export** > **Load G-code to Workspace** at the bottom-right corner.



2.3 Start Your First Print

1. In the **Preview** window, click **Start Job** > **Start on Luban** to create your first print! If the Wi-Fi network is unstable or disconnected during the printing, the ongoing printing process will not be affected.



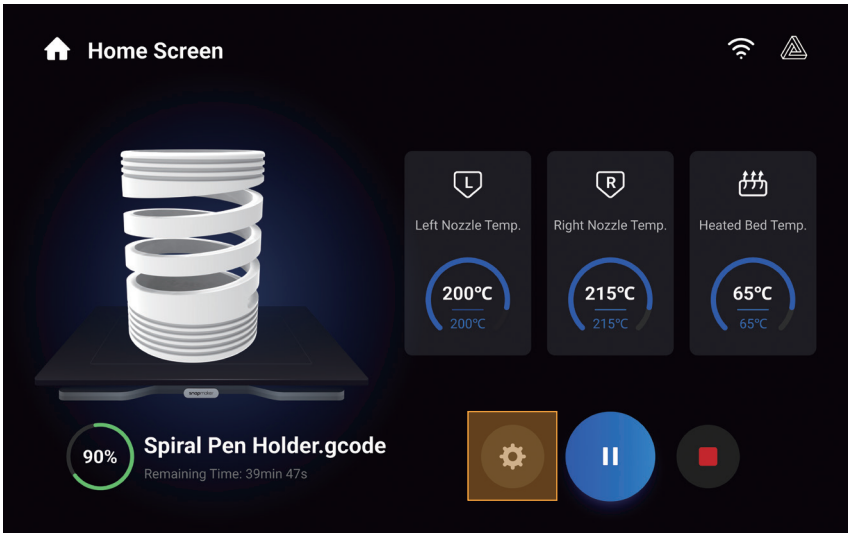
In case of an emergency, press the emergency stop button on top of the Integrated Controller to stop the printing immediately. After you have handled the emergency, you can release the emergency stop button by rotating it clockwise.

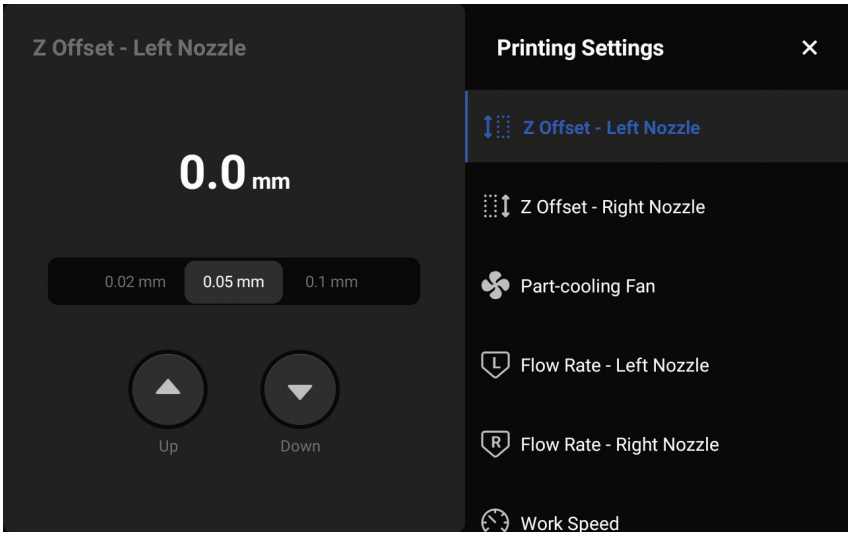
Keep the front cover of the Dual Extrusion Module closed throughout the printing process.

You can also send the G-code file to your machine at **Workspace** or via the USB flash drive.

For more detailed information, refer to our online User Manual in Snapmaker Wiki (https://wiki.snapmaker.com).

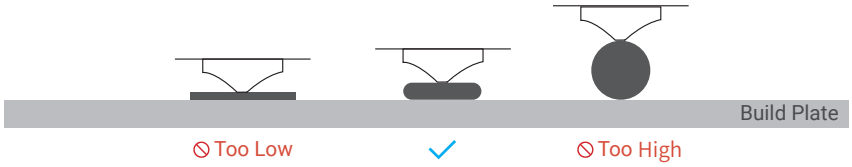
After the printing starts, you need to pay close attention to the first layer adhesion to detect any problems in time to avoid wasting filaments. During the printing, you can tap ⚙ to adjust the parameters such as the Z Offset, Work Speed, and Flow Rate, and configure the settings of Enclosure, Air Purifier, and other addons.



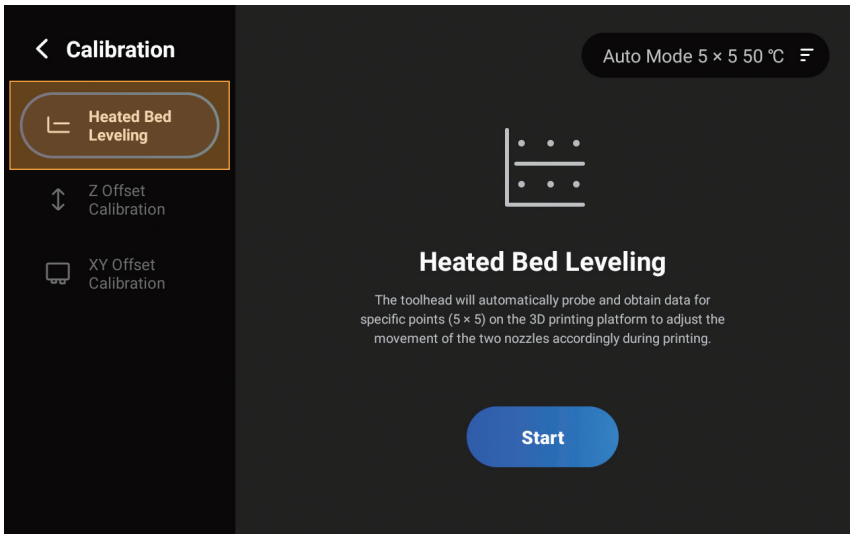


In case of poor adhesion, you can try the following solutions:

Solution 1: Adjust the Z Offset during printing to slightly reduce the distance between the nozzle and the build plate. However, please note that the nozzle may fail to extrude successfully or even damage the build plate and itself if too close to the build plate.



Solution 2: Stop the current printing and remove the print from the glass build plate. Then, tap **Calibration** on the Home Screen and redo the Z Offset Calibration and Heated Bed Leveling. The machine will run the calibration processes in Auto Mode by default.



If the calibration results remain unsatisfactory, you can try the following operations:

Z Offset Calibration: Tap the top-right corner of the Calibration screen to select a different mode, and then redo the calibration.
Heated Bed Leveling: Tap the top-right corner of the Calibration screen to select **Manual Mode**, increase the calibration points or the bed temperature, and then redo the calibration.

For more detailed introductions to the 3D printing calibrations, refer to our online User Manual in Snapmaker Wiki (https://wiki.snapmaker.com).

Solution 3: Apply an even layer of water-soluble adhesive (like PVP glue sticks) on the printing area to improve the first layer adhesion. After the printing you can wet the cloth with water to wipe off the residual adhesive on the glass build plate.

To configure the settings of Enclosure, refer to **section 3.2: Enclosure Settings**.

2.4 Remove the Print

Wait for the nozzles and the heated bed to cool down, and use the palette knife to remove the print from the glass build plate.

Do NOT touch the nozzles and the heated bed with bare hands, as they are still extremely hot right after the printing.

Be careful with the palette knife!

Do NOT scrape or poke the PEI coating of the glass build plate with sharp objects.

You can also take out the glass build plate first, and remove your print from it.

Share!

Share your print in our Facebook group and our forum.